



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 Flue Gas Desulfurization 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 Flue Gas Desulfurization (FGD) 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 FGD 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 black ink, appearing to read "Steve Putrich".

Steve Putrich, P.E.  
Project Principal

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

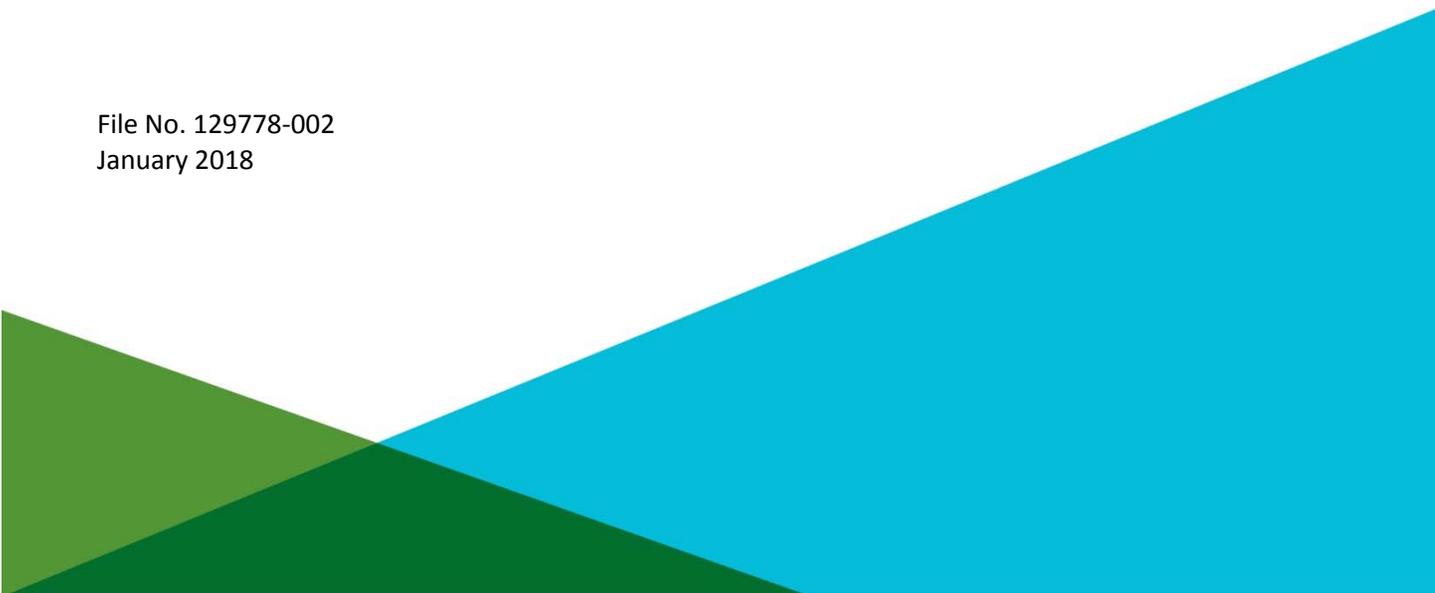
Mark Nicholls, P.G.  
Lead Hydrogeologist

2017 ANNUAL GROUNDWATER MONITORING  
AND CORRECTIVE ACTION REPORT  
FGD 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



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## 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 Flue Gas Desulfurization (FGD) 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).

### 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 FGD 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 FGD 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 FGD 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 FGD 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 FGD 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 FGD 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**

**TABLE I**  
**SUMMARY OF ANALYTICAL RESULTS**  
 Westar Jeffrey Energy Center  
 FGD Landfill  
 St. Marys, Kansas

| Location      | Measure Point Elevation (TOC) | Sample Name | Sample Date  | Depth to Water (btoc) | Groundwater Elevation (ft AMSL) | Field Parameters    |                      |                 |         | USEPA Appendix III Constituents (mg/L) |                |          |          |         |         |         | USEPA Appendix IV Constituents (mg/L) |                |               |                  |                |                 |               |             |                |                   | USEPA Appendix IV Constituents (pCi/L) |                 |                |          |                           |       |
|---------------|-------------------------------|-------------|--------------|-----------------------|---------------------------------|---------------------|----------------------|-----------------|---------|--|----------------|----------|----------|---------|---------|---------|---------------------------------------|----------------|---------------|------------------|----------------|-----------------|---------------|-------------|----------------|-------------------|--|-----------------|----------------|----------|---------------------------|-------|
|               |                               |             |              |                       |                                 | Temperature (Deg C) | Conductivity (µS/cm) | Turbidity (NTU) | pH (su) | Boron, Total                           | Calcium, Total | Chloride | Fluoride | Sulfate | Ph (su) | TDS     | Antimony, Total                       | Arsenic, Total | Barium, Total | Beryllium, Total | Cadmium, Total | Chromium, Total | Cobalt, Total | Lead, Total | Lithium, Total | Molybdenum, Total | Selenium, Total                        | Thallium, Total | Mercury, Total | Fluoride | Radium-226 & 228 Combined |       |
| Up Gradient   | MW-FGD-1                      | 1239.05     | FGD1-082416  | 8/24/2016             | 73.42                           | 1165.63             | 17.35                | 837             | 4.2     | 7.31                                   | 0.12           | 95.7     | 44.5     | 0.30    | 91.3    | 7.5     | 543                                   | <0.0010        | <0.0010       | 0.29             | <0.0010        | <0.00050        | <0.0050       | <0.0010     | <0.0050        | 0.015             | 0.0015                                 | <0.0010         | <0.0010        | <0.00020 | 0.30                      | 0.420 |
|               |                               |             | FGD1-092216  | 9/22/2016             | 73.24                           | 1165.81             | 17.13                | 836             | 2.6     | 7.36                                   | 0.11           | 90.4     | 46.5     | 0.33    | 93.9    | 7.6     | 507                                   | <0.0010        | <0.0010       | 0.28             | <0.0010        | <0.00050        | <0.0050       | <0.0010     | <0.0050        | 0.014             | 0.0013                                 | <0.0010         | <0.0010        | <0.00020 | 0.33                      | 1.55  |
|               |                               |             | FGD-1-110316 | 11/3/2016             | 72.35                           | 1166.70             | 15.69                | 766             | 3.8     | 7.14                                   | 0.10           | 94.6     | 49.2     | 0.32    | 95.4    | 7.4     | 495                                   | <0.0010        | <0.0010       | 0.31             | <0.0010        | <0.00050        | <0.0050       | <0.0010     | <0.0050        | 0.016             | 0.0013                                 | <0.0010         | <0.0010        | <0.00020 | 0.32                      | 1.34  |
|               |                               |             | FGD-1-121516 | 12/15/2016            | 73.38                           | 1165.67             | 12.70                | 836             | 5.7     | 7.09                                   | <0.10          | 90.3     | 44.2     | 0.33    | 91.6    | 7.8     | 496                                   | <0.0010        | <0.0010       | 0.28             | <0.0010        | <0.00050        | <0.0050       | <0.0010     | <0.0050        | 0.016             | 0.0012                                 | <0.0010         | <0.0010        | <0.00020 | 0.33                      | 0.758 |
|               |                               |             | FGD-1-020917 | 2/9/2017              | 73.46                           | 1165.59             | 12.74                | 840             | 4.9     | 7.14                                   | <0.10          | 90.4     | 62.5     | 0.33    | 89.5    | 7.2     | 505                                   | <0.0010        | <0.0010       | 0.27             | <0.0010        | <0.00050        | <0.0050       | <0.0010     | <0.0050        | 0.010             | 0.0083                                 | <0.0010         | <0.0010        | <0.00020 | 0.33                      | 1.16  |
|               |                               |             | FGD-1-040717 | 4/7/2017              | 69.71                           | 1169.34             | 14.26                | 847             | 3.2     | 7.08                                   | <0.10          | 98.2     | 63.9     | 0.34    | 85.5    | 7.2     | 524                                   | <0.0010        | <0.0010       | 0.31             | <0.0010        | <0.00050        | <0.0050       | <0.0010     | <0.0050        | 0.011             | 0.0014                                 | <0.0010         | <0.0010        | <0.00020 | 0.34                      | 0.947 |
|               |                               |             | FGD-1-052617 | 5/26/2017             | 70.35                           | 1168.70             | 15.25                | 861             | 3.9     | 7.32                                   | <0.10          | 97.3     | 66.2     | 0.36    | 87.0    | 7.6     | 545                                   | <0.0010        | <0.0010       | 0.30             | <0.0010        | <0.00050        | <0.0050       | <0.0010     | <0.0050        | 0.014             | 0.0014                                 | <0.0010         | <0.0010        | <0.00020 | 0.36                      | 0.927 |
| FGD-1-062917  | 6/29/2017                     | 72.47       | 1166.58      | 15.67                 | 846                             | 3.2                 | 7.31                 | 0.11            | 90.4    | 49.7                                   | 0.35           | 93.1     | 7.3      | 515     | <0.0010 | <0.0010 | 0.29                                  | <0.0010        | <0.00050      | <0.0050          | <0.0010        | <0.0050         | 0.015         | 0.0013      | <0.0010        | <0.0010           | <0.00020                               | 0.35            | 0.680          |          |                           |       |
| Down Gradient | MW-FGD-2                      | 1184.20     | FGD2-082416  | 8/24/2016             | 22.55                           | 1161.65             | 16.80                | 899             | 5.2     | 7.25                                   | 0.26           | 121      | 31.7     | 0.36    | 181     | 7.3     | 643                                   | <0.0010        | <0.0010       | 0.078            | <0.0010        | <0.00050        | <0.0050       | 0.0011      | <0.0050        | <0.010            | 0.0047                                 | <0.0010         | <0.0010        | <0.00020 | 0.36                      | 0.803 |
|               |                               |             | FGD2-092316  | 9/23/2016             | 23.05                           | 1161.15             | 15.03                | 888             | 2.6     | 7.33                                   | 0.26           | 111      | 31.9     | 0.38    | 177     | 7.8     | 573                                   | <0.0010        | <0.0010       | 0.072            | <0.0010        | <0.00050        | <0.0050       | 0.0010      | <0.0050        | <0.010            | 0.0044                                 | <0.0010         | <0.0010        | <0.00020 | 0.38                      | 0.368 |
|               |                               |             | FGD-2-110316 | 11/3/2016             | 22.74                           | 1161.46             | 15.65                | 1029            | 11.0    | 6.99                                   | 0.26           | 161      | 36.6     | 0.35    | 325     | 7.3     | 769                                   | <0.0010        | <0.0010       | 0.097            | <0.0010        | <0.00050        | <0.0050       | 0.0016      | <0.0050        | <0.010            | 0.0040                                 | 0.0010          | <0.0010        | <0.00020 | 0.35                      | 0.703 |
|               |                               |             | FGD-2-121516 | 12/15/2016            | 23.22                           | 1160.98             | 12.05                | 953             | 8.5     | 7.09                                   | 0.23           | 121      | 34.3     | 0.34    | 201     | 7.5     | 632                                   | <0.0010        | <0.0010       | 0.072            | <0.0010        | <0.00050        | <0.0050       | 0.0011      | <0.0050        | 0.010             | 0.0039                                 | <0.0010         | <0.0010        | <0.00020 | 0.34                      | 0.866 |
|               |                               |             | FGD-2-020917 | 2/9/2017              | 23.24                           | 1160.96             | 12.81                | 912             | 4.9     | 7.14                                   | 0.24           | 118      | 33.1     | 0.39    | 191     | 7.4     | 593                                   | <0.0010        | <0.0010       | 0.072            | <0.0010        | <0.00050        | <0.0050       | 0.0014      | <0.0050        | <0.010            | 0.0045                                 | <0.0010         | <0.0010        | <0.00020 | 0.39                      | 1.14  |
|               |                               |             | FGD-2-040717 | 4/7/2017              | 21.60                           | 1162.60             | 14.79                | 1047            | 3.9     | 6.94                                   | 0.22           | 150      | 34.0     | 0.36    | 263     | 7.2     | 745                                   | <0.0010        | <0.0010       | 0.089            | <0.0010        | <0.00050        | <0.0050       | 0.0016      | <0.0050        | <0.010            | 0.0041                                 | 0.0010          | <0.0010        | <0.00020 | 0.36                      | 0.901 |
|               |                               |             | FGD-2-052617 | 5/26/2017             | 21.82                           | 1162.38             | 16.55                | 1074            | 3.6     | 7.17                                   | 0.25           | 158      | 36.9     | 0.35    | 299     | 7.5     | 772                                   | <0.0010        | <0.0010       | 0.081            | <0.0010        | <0.00050        | <0.0050       | 0.0014      | <0.0050        | <0.010            | 0.0038                                 | <0.0010         | <0.0010        | <0.00020 | 0.35                      | 0.920 |
|               | FGD-2-063017                  | 6/30/2017   | 22.70        | 1161.50               | 15.53                           | 1067                | 2.6                  | 7.07            | 0.23    | 131                                    | 35.6           | 0.31     | 247      | 7.2     | 710     | <0.0010 | <0.0010                               | 0.076          | <0.0010       | <0.00050         | <0.0050        | 0.0010          | <0.0050       | <0.010      | 0.0037         | <0.0010           | <0.0010                                | <0.00020        | 0.31           | 0.891    |                           |       |
|               | FGD3-082516                   | 8/25/2016   | 24.06        | 1162.20               | 16.39                           | 1086                | 7.4                  | 7.04            | 0.13    | 142                                    | 52.4           | 0.25     | 213      | 7.2     | 692     | <0.0010 | <0.0010                               | 0.23           | <0.0010       | <0.00050         | <0.0050        | <0.0010         | <0.0050       | 0.015       | 0.0071         | <0.0010           | <0.0010                                | <0.00020        | 0.25           | 1.348    |                           |       |
|               | FGD3-092316                   | 9/23/2016   | 24.38        | 1161.88               | 16.96                           | 1151                | 3.9                  | 7.14            | 0.15    | 146                                    | 49.9           | 0.28     | 281      | 7.3     | 820     | <0.0010 | <0.0010                               | 0.20           | <0.0010       | <0.00050         | <0.0050        | <0.0010         | <0.0050       | 0.015       | 0.0064         | <0.0010           | <0.0010                                | <0.00020        | 0.28           | 0.740    |                           |       |
|               | FGD-3-110316                  | 11/3/2016   | 24.04        | 1162.22               | 16.82                           | 1087                | 4.5                  | 6.96            | 0.13    | 160                                    | 66.7           | 0.29     | 313      | 7.3     | 817     | <0.0010 | <0.0010                               | 0.19           | <0.0010       | <0.00050         | <0.0050        | <0.0010         | <0.0050       | 0.016       | 0.0062         | <0.0010           | <0.0010                                | <0.00020        | 0.29           | 0.798    |                           |       |
|               | FGD-3-121516                  | 12/15/2016  | 24.62        | 1161.64               | 11.20                           | 1254                | 6.1                  | 7.01            | 0.14    | 164                                    | 70.5           | 0.26     | 335      | 7.4     | 880     | <0.0010 | <0.0010                               | 0.15           | <0.0010       | <0.00050         | <0.0050        | <0.0010         | <0.0050       | 0.018       | 0.0056         | <0.0010           | <0.0010                                | <0.00020        | 0.26           | 0.848    |                           |       |
|               | FGD-3-020917                  | 2/9/2017    | 24.68        | 1161.58               | 12.18                           | 1221                | 6.0                  | 7.11            | 0.16    | 159                                    | 67.2           | 0.27     | 334      | 7.4     | 851     | <0.0010 | <0.0010                               | 0.13           | <0.0010       | <0.00050         | <0.0050        | <0.0010         | <0.0050       | 0.014       | 0.0058         | <0.0010           | <0.0010                                | <0.00020        | 0.27           | 1.53     |                           |       |
|               | FGD-3-040717                  | 4/7/2017    | 23.01        | 1163.25               | 15.20                           | 1019                | 4.3                  | 6.91            | <0.10   | 135                                    | 44.2           | 0.31     | 206      | 7.0     | 716     | <0.0010 | <0.0010                               | 0.13           | <0.0010       | <0.00050         | <0.0050        | <0.0010         | <0.0050       | 0.013       | 0.0058         | <0.0010           | <0.0010                                | <0.00020        | 0.31           | 0.375    |                           |       |
|               | FGD-3-052617                  | 5/26/2017   | 23.23        | 1163.03               | 16.82                           | 957                 | 3.7                  | 7.18            | <0.10   | 115                                    | 40.8           | 0.29     | 166      | 7.6     | 637     | <0.0010 | <0.0010                               | 0.14           | <0.0010       | <0.00050         | <0.0050        | <0.0010         | <0.0050       | 0.012       | 0.0059         | <0.0010           | <0.0010                                | <0.00020        | 0.29           | 1.50     |                           |       |
|               | FGD-3-063017                  | 6/30/2017   | 24.13        | 1162.13               | 17.09                           | 1130                | 2.9                  | 7.05            | 0.13    | 142                                    | 59.1           | 0.24     | 246      | 7.2     | 825     | <0.0010 | <0.0010                               | 0.14           | <0.0010       | <0.00050         | <0.0050        | <0.0010         | <0.0050       | 0.016       | 0.0055         | <0.0010           | <0.0010                                | <0.00020        | 0.24           | 1.06     |                           |       |
|               | FGD4-082516                   | 8/25/2016   | 31.39        | 1157.04               | 17.90                           | 1341                | 18.0                 | 7.22            | 0.30    | 166                                    | 71.8           | 0.31     | 331      | 7.6     | 831     | <0.0010 | <0.0010                               | 0.064          | <0.0010       | <0.00050         | <0.0050        | <0.0010         | <0.0050       | 0.013       | 0.0046         | <0.0010           | <0.0010                                | <0.00020        | 0.31           | 1.17     |                           |       |
|               | FGD4-092316                   | 9/23/2016   | 31.69        | 1156.74               | 16.79                           | 1357                | 4.1                  | 7.24            | 0.29    | 160                                    | 74.5           | 0.32     | 371      | 7.3     | 927     | <0.0010 | <0.0010                               | 0.057          | <0.0010       | <0.00050         | <0.0050        | <0.0010         | <0.0050       | 0.014       | 0.0041         | <0.0010           | <0.0010                                | <0.00020        | 0.32           | 0.731    |                           |       |
|               | FGD-4-110316                  | 11/3/2016   | 31.60        | 1156.83               | 16.32                           | 1236                | 4.4                  | 6.97            | 0.28    | 164                                    | 80.9           | 0.32     | 412      | 7.2     | 947     | <0.0010 | <0.0010                               | 0.057          | <0.0010       | <0.00050         | <0.0050        | <0.0010         | <0.0050       | 0.015       | 0.0040         | <0.0010           | <0.0010                                | <0.00020        | 0.32           | 0.494    |                           |       |
|               | FGD-4-121516                  | 12/15/2016  | 32.18        | 1156.25               | 12.14                           | 1400                | 22.4                 | 7.00            | 0.26    | 163                                    | 78.2           | 0.33     | 369      | 7.4     | 972     | <0.0010 | <0.0010                               | 0.064          | <0.0010       | <0.00050         | <0.0050        | <0.0010         | <0.0050       | 0.017       | 0.0037         | <0.0010           | <0.0010                                | <0.00020        | 0.33           | 1.32     |                           |       |
|               | FGD-4-020917                  | 2/9/2017    | 32.20        | 1156.23               | 12.45                           | 1392                | 7.0                  | 7.05            | 0.26    | 169                                    | 79.6           | 0.32     | 393      | 7.3     | 981     | <0.0010 | <0.0010                               | 0.058          | <0.0010       | <0.00050         | <0.0050        | <0.0010         | <0.0050       | 0.012       | 0.0039         | <0.0010           | <0.0010                                | <0.00020        | 0.32           | 0.629    |                           |       |
| FGD-4-040717  | 4/7/2017                      | 30.40       | 1158.03      | 14.93                 | 1374                            | 4.8                 | 6.83                 | 0.25            | 180     | 82.3                                   | 0.33           | 377      | 7.1      | 1070    | <0.0010 | <0.0010 | 0.054                                 | <0.0010        | <0.00050      | <0.0050          | <0.0010        | <0.0050         | 0.012         | 0.0039      | <0.0010        | <0.0010           | <0.00020                               | 0.33            | 0.891          |          |                           |       |
| FGD-4-052617  | 5/26/2017                     | 30.75       | 1157.68      | 16.54                 | 1417                            | 4.7                 | 7.20                 | 0.28            | 169     | 85.3                                   | 0.31           | 398      | 7.3      | 1040    | <0.0010 | <0.0010 | 0.056                                 | <0.0020        | <0.00050      | <0.0050          | <0.0010        | <0.0050         | <0.020        | 0.0038      | <0.0010        | <0.0010           | <0.00020                               | 0.31            | 0.652          |          |                           |       |
| FGD-4-063017  | 6/30/2017                     | 31.50       | 1156.93      | 17.16                 | 1459                            | 2.9                 | 7.00                 | 0.28            | 164     | 85.7                                   | 0.43           | 409      | 7.2      | 1010    | <0.0010 | <0.0010 | 0.052                                 | <0.0010        | <0.00050      | <0.0050          | <0.0010        | <0.0050         | 0.012         | 0.0036      | <0.0010        | <0.0010           | <0.00020                               | 0.43            | 1.53           |          |                           |       |

**ABBREVIATIONS AND NOTES:**  
**B**

## FIGURES

GIS FILE PATH: \\haleyaldrich.com\share\phx\_common\Projects\Westar\Jeffrey Energy Center (JEC)\GIS\MXDs\2018\_01\JEC\_FGD LANDFILL\_MW\_LOCATION\_MAP\_REV2.mxd — USER: ibnce — LAST SAVED: 1/30/2018 5:29:27 PM

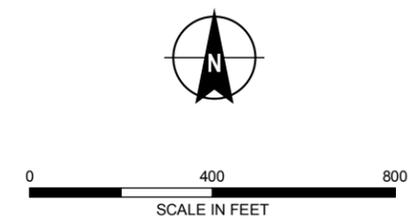


**LEGEND**

-  MONITORING WELL
-  PIEZOMETRIC OBSERVATION ONLY
-  FGD LANDFILL ACTIVE AREA
-  FGD LANDFILL 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

**FGD LANDFILL  
MONITORING WELL LOCATION MAP**

JANUARY 2018

FIGURE 1



November 10, 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  
Flue Gas Desulfurization Landfill

The Evergy Kansas Central, Inc. (Evergy) Flue Gas Desulfurization (FGD) Landfill 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 the FGD Landfill 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, and June 2017 are provided.
  - 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 FGD Landfill.
- 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, and June 2017 are provided.

**ATTACHMENT 1**  
**Laboratory Analytical Reports**

**ATTACHMENT 1-1**  
**August 2016 Sampling Event**  
**Laboratory Analytical Report**

September 19, 2016

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

RE: Project: JEC CCR GROUNDWATER  
Pace Project No.: 60226362

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on August 25, 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,  
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## CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

---

### 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

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

---

| Lab ID      | Sample ID   | Matrix | Date Collected | Date Received  |
|-------------|-------------|--------|----------------|----------------|
| 60226362001 | FAA2-082416 | Water  | 08/24/16 13:13 | 08/25/16 06:38 |
| 60226362002 | FGD1-082416 | Water  | 08/24/16 14:52 | 08/25/16 06:38 |
| 60226362003 | FGD2-082416 | Water  | 08/24/16 16:21 | 08/25/16 06:38 |
| 60226362004 | DUP-082416  | Water  | 08/24/16 09:30 | 08/25/16 06:38 |

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

| Lab ID      | Sample ID   | Method      | Analysts | Analytes Reported | Laboratory |
|-------------|-------------|-------------|----------|-------------------|------------|
| 60226362001 | FAA2-082416 | 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     |
| 60226362002 | FGD1-082416 | 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     |
| 60226362003 | FGD2-082416 | 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    |
| 60226362004 | DUP-082416  | 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            |            |
|             | EPA 300.0   | OL          | 3        | PASI-K            |            |

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

---

**Method:** EPA 200.7

**Description:** 200.7 Metals, Total

**Client:** WESTAR ENERGY

**Date:** September 19, 2016

**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.

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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

---

**Method:** EPA 200.8

**Description:** 200.8 MET ICPMS

**Client:** WESTAR ENERGY

**Date:** September 19, 2016

**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

---

**Method:** EPA 245.1

**Description:** 245.1 Mercury

**Client:** WESTAR ENERGY

**Date:** September 19, 2016

**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.

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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

---

**Method:** EPA 903.1

**Description:** 903.1 Radium 226

**Client:** WESTAR ENERGY

**Date:** September 19, 2016

**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

---

**Method:** EPA 904.0

**Description:** 904.0 Radium 228

**Client:** WESTAR ENERGY

**Date:** September 19, 2016

### 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:

Analyte Comments:

QC Batch: 232205

1e: Ra-228 detected in MB, samples with results below RL or associated MDC are reportable without additional qualification. Elevated MB activity is due to radon daughter interference during counting.

- DUP-082416 (Lab ID: 60226362004)
  - Radium-228
- FAA2-082416 (Lab ID: 60226362001)
  - Radium-228
- FGD1-082416 (Lab ID: 60226362002)
  - Radium-228

2e: The Ra-228 MB was initially greater than the RL of 1.0 pCi/L. Samples with results greater than 1.0 pCi/L were re-ingrowthed and re-analyzed with the MB. This is the result for the re-analysis of the MB.

- BLANK (Lab ID: 1138233)
  - Radium-228

3e: The Ra-228 MB was initially greater than the RL of 1.0 pCi/L. Samples with results greater than 1.0 pCi/L were re-ingrowthed and re-analyzed with the MB. This is the result for the re-analysis of this sample.

- FGD2-082416 (Lab ID: 60226362003)
  - Radium-228

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

---

**Method:** SM 2540C

**Description:** 2540C Total Dissolved Solids

**Client:** WESTAR ENERGY

**Date:** September 19, 2016

**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

---

**Method:** SM 4500-H+B

**Description:** 4500H+ pH, Electrometric

**Client:** WESTAR ENERGY

**Date:** September 19, 2016

### 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.

- DUP-082416 (Lab ID: 60226362004)
- FAA2-082416 (Lab ID: 60226362001)
- FGD1-082416 (Lab ID: 60226362002)
- FGD2-082416 (Lab ID: 60226362003)

### 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

---

**Method:** EPA 300.0

**Description:** 300.0 IC Anions 28 Days

**Client:** WESTAR ENERGY

**Date:** September 19, 2016

**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

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

| Sample: <b>FAA2-082416</b>          | Lab ID: <b>60226362001</b> | Collected: 08/24/16 13:13                                  | Received: 08/25/16 06:38 | Matrix: Water |                |                |            |      |
|-------------------------------------|----------------------------|--|--------------------------|---------------|----------------|----------------|------------|------|
| Parameters                          | Results                    | Units  | Report Limit             | DF            | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                            | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                          |               |                |                |            |      |
| Barium, Total Recoverable           | <b>0.027</b>               | mg/L   | 0.010                    | 1             | 08/29/16 16:30 | 08/30/16 12:16 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 08/29/16 16:30 | 08/30/16 12:16 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>3.5</b>                 | mg/L   | 0.10                     | 1             | 08/29/16 16:30 | 08/30/16 12:16 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>301</b>                 | mg/L   | 0.10                     | 1             | 08/29/16 16:30 | 08/30/16 12:16 | 7440-70-2  | M1   |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>          | mg/L   | 0.0050                   | 1             | 08/29/16 16:30 | 08/30/16 12:16 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>          | mg/L   | 0.0050                   | 1             | 08/29/16 16:30 | 08/30/16 12:16 | 7439-92-1  |      |
| Lithium                             | <b>0.014</b>               | mg/L   | 0.010                    | 1             | 08/29/16 16:30 | 08/30/16 12:16 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                            | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                          |               |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 08/29/16 16:30 | 08/30/16 13:11 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 08/29/16 16:30 | 08/30/16 13:11 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>         | mg/L   | 0.00050                  | 1             | 08/29/16 16:30 | 09/01/16 11:07 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>0.0012</b>              | mg/L   | 0.0010                   | 1             | 08/29/16 16:30 | 08/30/16 13:11 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.20</b>                | mg/L   | 0.0010                   | 1             | 08/29/16 16:30 | 09/01/16 11:07 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>0.0020</b>              | mg/L   | 0.0010                   | 1             | 08/29/16 16:30 | 08/30/16 13:11 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 08/29/16 16:30 | 08/30/16 13:11 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                            | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                          |               |                |                |            |      |
| Mercury                             | <b>&lt;0.20</b>            | ug/L   | 0.20                     | 1             | 08/29/16 15:05 | 08/30/16 11:09 | 7439-97-6  | M1   |
| <b>2540C Total Dissolved Solids</b> |                            | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | <b>2940</b>                | mg/L   | 5.0                      | 1             |                | 08/29/16 09:39 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                            | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.3</b>                 | Std. Units   | 0.10                     | 1             |                | 08/26/16 11:30 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                            | Analytical Method: EPA 300.0                               |                          |               |                |                |            |      |
| Chloride                            | <b>83.6</b>                | mg/L   | 10.0                     | 10            |                | 09/08/16 17:36 | 16887-00-6 |      |
| Fluoride                            | <b>0.55</b>                | mg/L   | 0.20                     | 1             |                | 09/07/16 15:42 | 16984-48-8 |      |
| Sulfate                             | <b>1970</b>                | mg/L   | 200                      | 200           |                | 09/08/16 17:50 | 14808-79-8 |      |

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

| Sample: FGD1-082416                 | Lab ID: 60226362002 | Collected: 08/24/16 14:52                                  |              | Received: 08/25/16 06:38 |                | Matrix: Water  |            |      |
|-------------------------------------|---------------------|--|--------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results             | Units  | Report Limit | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.29</b>         | mg/L   | 0.010        | 1                        | 08/29/16 16:30 | 08/30/16 12:22 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 12:22 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.12</b>         | mg/L   | 0.10         | 1                        | 08/29/16 16:30 | 08/30/16 12:22 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>95.7</b>         | mg/L   | 0.10         | 1                        | 08/29/16 16:30 | 08/30/16 12:22 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 08/29/16 16:30 | 08/30/16 12:22 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 08/29/16 16:30 | 08/30/16 12:22 | 7439-92-1  |      |
| Lithium                             | <b>0.015</b>        | mg/L   | 0.010        | 1                        | 08/29/16 16:30 | 08/30/16 12:22 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:15 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:15 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050      | 1                        | 08/29/16 16:30 | 08/30/16 13:15 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:15 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0015</b>       | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:15 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:15 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:15 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.20</b>     | ug/L   | 0.20         | 1                        | 08/29/16 15:05 | 08/30/16 11:20 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |              |                          |                |                |            |      |
| Total Dissolved Solids              | <b>543</b>          | mg/L   | 5.0          | 1                        |                | 08/29/16 09:39 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |              |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.5</b>          | Std. Units   | 0.10         | 1                        |                | 08/26/16 11:30 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |              |                          |                |                |            |      |
| Chloride                            | <b>44.5</b>         | mg/L   | 5.0          | 5                        |                | 09/08/16 18:05 | 16887-00-6 |      |
| Fluoride                            | <b>0.30</b>         | mg/L   | 0.20         | 1                        |                | 09/07/16 15:56 | 16984-48-8 |      |
| Sulfate                             | <b>91.3</b>         | mg/L   | 5.0          | 5                        |                | 09/08/16 18:05 | 14808-79-8 |      |

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

| Sample: FGD2-082416                 | Lab ID: 60226362003 | Collected: 08/24/16 16:21                                  | Received: 08/25/16 06:38 | Matrix: Water |                |                |            |      |
|-------------------------------------|---------------------|--|--------------------------|---------------|----------------|----------------|------------|------|
| Parameters                          | Results             | Units  | Report Limit             | DF            | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                          |               |                |                |            |      |
| Barium, Total Recoverable           | <b>0.078</b>        | mg/L   | 0.010                    | 1             | 08/29/16 16:30 | 08/30/16 12:27 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 08/29/16 16:30 | 08/30/16 12:27 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.26</b>         | mg/L   | 0.10                     | 1             | 08/29/16 16:30 | 08/30/16 12:27 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>121</b>          | mg/L   | 0.10                     | 1             | 08/29/16 16:30 | 08/30/16 12:27 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050                   | 1             | 08/29/16 16:30 | 08/30/16 12:27 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050                   | 1             | 08/29/16 16:30 | 08/30/16 12:27 | 7439-92-1  |      |
| Lithium                             | <b>&lt;0.010</b>    | mg/L   | 0.010                    | 1             | 08/29/16 16:30 | 08/30/16 12:27 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                          |               |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 08/29/16 16:30 | 08/30/16 13:28 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 08/29/16 16:30 | 08/30/16 13:28 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050                  | 1             | 08/29/16 16:30 | 08/30/16 13:28 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>0.0011</b>       | mg/L   | 0.0010                   | 1             | 08/29/16 16:30 | 08/30/16 13:28 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0047</b>       | mg/L   | 0.0010                   | 1             | 08/29/16 16:30 | 08/30/16 13:28 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 08/29/16 16:30 | 08/30/16 13:28 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 08/29/16 16:30 | 08/30/16 13:28 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                          |               |                |                |            |      |
| Mercury                             | <b>&lt;0.20</b>     | ug/L   | 0.20                     | 1             | 08/29/16 15:05 | 08/30/16 11:22 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | <b>643</b>          | mg/L   | 5.0                      | 1             |                | 08/29/16 09:41 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.3</b>          | Std. Units   | 0.10                     | 1             |                | 08/26/16 11:30 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |                          |               |                |                |            |      |
| Chloride                            | <b>31.7</b>         | mg/L   | 2.0                      | 2             |                | 09/08/16 18:33 | 16887-00-6 |      |
| Fluoride                            | <b>0.36</b>         | mg/L   | 0.20                     | 1             |                | 09/07/16 16:10 | 16984-48-8 |      |
| Sulfate                             | <b>181</b>          | mg/L   | 20.0                     | 20            |                | 09/08/16 18:48 | 14808-79-8 |      |

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

| Sample: DUP-082416                  |          | Lab ID: 60226362004  |              | Collected: 08/24/16 09:30 |                | Received: 08/25/16 06:38 |            | Matrix: Water |  |
|-------------------------------------|----------|--|--------------|---------------------------|----------------|--------------------------|------------|---------------|--|
| Parameters                          | Results  | Units  | Report Limit | DF                        | Prepared       | Analyzed                 | CAS No.    | Qual          |  |
| <b>200.7 Metals, Total</b>          |          | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                           |                |                          |            |               |  |
| Barium, Total Recoverable           | 0.29     | mg/L   | 0.010        | 1                         | 08/29/16 16:30 | 08/30/16 12:29           | 7440-39-3  |               |  |
| Beryllium, Total Recoverable        | <0.0010  | mg/L   | 0.0010       | 1                         | 08/29/16 16:30 | 08/30/16 12:29           | 7440-41-7  |               |  |
| Boron, Total Recoverable            | 0.12     | mg/L   | 0.10         | 1                         | 08/29/16 16:30 | 08/30/16 12:29           | 7440-42-8  |               |  |
| Calcium, Total Recoverable          | 95.4     | mg/L   | 0.10         | 1                         | 08/29/16 16:30 | 08/30/16 12:29           | 7440-70-2  |               |  |
| Chromium, Total Recoverable         | <0.0050  | mg/L   | 0.0050       | 1                         | 08/29/16 16:30 | 08/30/16 12:29           | 7440-47-3  |               |  |
| Lead, Total Recoverable             | <0.0050  | mg/L   | 0.0050       | 1                         | 08/29/16 16:30 | 08/30/16 12:29           | 7439-92-1  |               |  |
| Lithium                             | 0.017    | mg/L   | 0.010        | 1                         | 08/29/16 16:30 | 08/30/16 12:29           | 7439-93-2  |               |  |
| <b>200.8 MET ICPMS</b>              |          | 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 13:42           | 7440-36-0  |               |  |
| Arsenic, Total Recoverable          | <0.0010  | mg/L   | 0.0010       | 1                         | 08/29/16 16:30 | 08/30/16 13:42           | 7440-38-2  |               |  |
| Cadmium, Total Recoverable          | <0.00050 | mg/L   | 0.00050      | 1                         | 08/29/16 16:30 | 08/30/16 13:42           | 7440-43-9  |               |  |
| Cobalt, Total Recoverable           | <0.0010  | mg/L   | 0.0010       | 1                         | 08/29/16 16:30 | 08/30/16 13:42           | 7440-48-4  |               |  |
| Molybdenum, Total Recoverable       | 0.0014   | mg/L   | 0.0010       | 1                         | 08/29/16 16:30 | 08/30/16 13:42           | 7439-98-7  |               |  |
| Selenium, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 08/29/16 16:30 | 08/30/16 13:42           | 7782-49-2  |               |  |
| Thallium, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 08/29/16 16:30 | 08/30/16 13:42           | 7440-28-0  |               |  |
| <b>245.1 Mercury</b>                |          | 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 11:24           | 7439-97-6  |               |  |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |              |                           |                |                          |            |               |  |
| Total Dissolved Solids              | 532      | mg/L   | 5.0          | 1                         |                | 08/29/16 09:41           |            |               |  |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |              |                           |                |                          |            |               |  |
| pH at 25 Degrees C                  | 7.4      | Std. Units   | 0.10         | 1                         |                | 08/26/16 11:30           |            | H6            |  |
| <b>300.0 IC Anions 28 Days</b>      |          | Analytical Method: EPA 300.0                               |              |                           |                |                          |            |               |  |
| Chloride                            | 43.6     | mg/L   | 5.0          | 5                         |                | 09/08/16 19:31           | 16887-00-6 |               |  |
| Fluoride                            | 0.30     | mg/L   | 0.20         | 1                         |                | 09/07/16 16:54           | 16984-48-8 |               |  |
| Sulfate                             | 90.4     | mg/L   | 5.0          | 5                         |                | 09/08/16 19:31           | 14808-79-8 |               |  |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

QC Batch: 444573 Analysis Method: EPA 245.1  
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury  
 Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

METHOD BLANK: 1818003 Matrix: Water  
 Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

| 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 |                 | 1818005        |                 | 1818006   |            | % Rec Limits | RPD | Max RPD | Qual |          |
|-----------|-------|-------------|-----------------|----------------|-----------------|-----------|------------|--------------|-----|---------|------|----------|
|           |       | MS Result   | MSD Spike Conc. | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result |              |     |         |      | MS % Rec |
| Mercury   | ug/L  | <0.20       | 5               | 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

QC Batch: 444593 Analysis Method: EPA 200.7  
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total  
 Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

METHOD BLANK: 1818089 Matrix: Water  
 Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

| 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 Spike Conc. | MSD Spike Conc. | MS Result | MSD Result |          |           |              |        |         |       |
| 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

| MATRIX SPIKE SAMPLE: |       | 1818093               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60226362002<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

QC Batch: 444594 Analysis Method: EPA 200.8  
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET  
 Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

METHOD BLANK: 1818095 Matrix: Water  
 Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

| 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 |            | 1818097        |                 | 1818098   |            | % 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  | <0.0010     | <0.0010    | .04            | .04             | 0.040     | 0.041      | 99    | 102   | 70-130 | 3      | 20  |         |      |
| Arsenic    | mg/L  | <0.0010     | <0.0010    | .04            | .04             | 0.041     | 0.042      | 101   | 104   | 70-130 | 3      | 20  |         |      |
| Cadmium    | mg/L  | <0.00050    | <0.00050   | .04            | .04             | 0.039     | 0.040      | 97    | 100   | 70-130 | 3      | 20  |         |      |
| Cobalt     | mg/L  | 0.0011      | 0.0011     | .04            | .04             | 0.040     | 0.041      | 97    | 99    | 70-130 | 2      | 20  |         |      |
| Molybdenum | mg/L  | 0.0047      | 0.0047     | .04            | .04             | 0.049     | 0.051      | 112   | 115   | 70-130 | 2      | 20  |         |      |
| Selenium   | mg/L  | <0.0010     | <0.0010    | .04            | .04             | 0.039     | 0.041      | 96    | 101   | 70-130 | 5      | 20  |         |      |
| Thallium   | mg/L  | <0.0010     | <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       |            |

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**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

| MATRIX SPIKE SAMPLE: |       | 1818099               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60226362004<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

QC Batch: 444473

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

METHOD BLANK: 1817794

Matrix: Water

Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

| Parameter              | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|------------------------|-------|--------------|-----------------|----------------|------------|
| Total Dissolved Solids | mg/L  | <5.0         | 5.0             | 08/29/16 09:33 |            |

LABORATORY CONTROL SAMPLE: 1817795

| Parameter              | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|------------------------|-------|-------------|------------|-----------|--------------|------------|
| Total Dissolved Solids | mg/L  | 1000        | 960        | 96        | 80-120       |            |

SAMPLE DUPLICATE: 1817796

| Parameter              | Units | 60226258001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|------------------------|-------|--------------------|------------|-----|---------|------------|
| Total Dissolved Solids | mg/L  | 1860               | 1720       | 8   | 10      |            |

SAMPLE DUPLICATE: 1817797

| Parameter              | Units | 60226362002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|------------------------|-------|--------------------|------------|-----|---------|------------|
| Total Dissolved Solids | mg/L  | 543                | 541        | 0   | 10      |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

QC Batch: 444278 Analysis Method: SM 4500-H+B

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

Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

SAMPLE DUPLICATE: 1816699

| Parameter          | Units      | 60226284001<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 8.2                   | 8.2           | 0   | 5          | H6         |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

QC Batch: 445543 Analysis Method: EPA 300.0  
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

METHOD BLANK: 1821465 Matrix: Water  
 Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

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

LABORATORY CONTROL SAMPLE: 1821466

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1821467 1821468

| Parameter | Units | 60226141001    |                 | 60226141002 |            | 60226141003 |           | % Rec Limits | RPD    | Max RPD | Qual |
|-----------|-------|----------------|-----------------|-------------|------------|-------------|-----------|--------------|--------|---------|------|
|           |       | MS Spike Conc. | MSD Spike Conc. | MS Result   | MSD Result | MS % Rec    | MSD % Rec |              |        |         |      |
| Fluoride  | mg/L  | 0.64           | 2.5             | 2.5         | 3.1        | 3.1         | 96        | 99           | 80-120 | 2       | 15   |

MATRIX SPIKE SAMPLE: 1821469

| 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

QC Batch: 445717 Analysis Method: EPA 300.0  
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

METHOD BLANK: 1822153 Matrix: Water  
 Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|-----------|-------|--------------|-----------------|----------------|------------|
| Chloride  | mg/L  | <1.0         | 1.0             | 09/08/16 10:52 |            |
| Sulfate   | mg/L  | <1.0         | 1.0             | 09/08/16 10:52 |            |

LABORATORY CONTROL SAMPLE: 1822154

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1822155 1822156

| Parameter | Units | 60226095001    |                 | 1822155   |            | 1822156  |           | % Rec Limits | RPD    | Max RPD | Qual |
|-----------|-------|----------------|-----------------|-----------|------------|----------|-----------|--------------|--------|---------|------|
|           |       | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec |              |        |         |      |
| Chloride  | mg/L  | 263            | 100             | 100       | 367        | 372      | 104       | 109          | 80-120 | 1       | 15   |
| Sulfate   | mg/L  | 137            | 50              | 50        | 187        | 186      | 100       | 97           | 80-120 | 1       | 15   |

MATRIX SPIKE SAMPLE: 1822157

| Parameter | Units | 60226141001 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|--------------------|-------------|-----------|----------|--------------|------------|
| Chloride  | mg/L  | 96.8               | 50          | 146       | 98       | 80-120       |            |
| Sulfate   | mg/L  | 1010               | 500         | 1500      | 99       | 80-120       |            |

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### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

**Sample: FAA2-082416**      **Lab ID: 60226362001**      Collected: 08/24/16 13:13      Received: 08/25/16 06:38      Matrix: Water  
PWS:      Site ID:      Sample Type:

| Parameters | Method    | Act ± Unc (MDC) Carr Trac                    | Units | Analyzed       | CAS No.    | Qual |
|------------|-----------|--|-------|----------------|------------|------|
| Radium-226 | EPA 903.1 | <b>0.581 ± 0.408 (0.197)</b><br>C:NA T:86%   | pCi/L | 09/14/16 21:55 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>-0.223 ± 0.392 (0.949)</b><br>C:75% T:85% | pCi/L | 09/13/16 22:30 | 15262-20-1 | 1e   |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

**Sample: FGD1-082416**      **Lab ID: 60226362002**      Collected: 08/24/16 14:52      Received: 08/25/16 06:38      Matrix: Water  
PWS:      Site ID:      Sample Type:

| Parameters | Method    | Act ± Unc (MDC) Carr Trac                   | Units | Analyzed       | CAS No.    | Qual |
|------------|-----------|---|-------|----------------|------------|------|
| Radium-226 | EPA 903.1 | <b>0.287 ± 0.346 (0.528)</b><br>C:NA T:84%  | pCi/L | 09/14/16 21:55 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>0.133 ± 0.365 (0.816)</b><br>C:75% T:84% | pCi/L | 09/13/16 21:59 | 15262-20-1 | 1e   |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

**Sample: FGD2-082416**      **Lab ID: 60226362003**      Collected: 08/24/16 16:21      Received: 08/25/16 06:38      Matrix: Water  
PWS:      Site ID:      Sample Type:

| Parameters | Method    | Act ± Unc (MDC) Carr Trac                   | Units | Analyzed       | CAS No.    | Qual |
|------------|-----------|---|-------|----------------|------------|------|
| Radium-226 | EPA 903.1 | <b>0.149 ± 0.506 (0.976)</b><br>C:NA T:78%  | pCi/L | 09/14/16 21:55 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>0.654 ± 0.446 (0.853)</b><br>C:78% T:69% | pCi/L | 09/19/16 11:56 | 15262-20-1 | 3e   |

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## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

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**Sample: DUP-082416**      **Lab ID: 60226362004**      Collected: 08/24/16 09:30      Received: 08/25/16 06:38      Matrix: Water  
PWS:      Site ID:      Sample Type:

| Parameters | Method    | Act ± Unc (MDC) Carr Trac                   | Units | Analyzed       | CAS No.    | Qual |
|------------|-----------|---|-------|----------------|------------|------|
| Radium-226 | EPA 903.1 | <b>0.140 ± 0.434 (0.840)</b><br>C:NA T:86%  | pCi/L | 09/14/16 22:07 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>0.702 ± 0.447 (0.850)</b><br>C:73% T:85% | pCi/L | 09/13/16 22:00 | 15262-20-1 | 1e   |

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

QC Batch: 232199 Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

METHOD BLANK: 1138222 Matrix: Water

Associated Lab Samples: 60226362001, 60226362002, 60226362003, 60226362004

| Parameter  | Act ± Unc (MDC) Carr Trac         | Units | Analyzed       | Qualifiers |
|------------|-----------------------------------|-------|----------------|------------|
| Radium-226 | -0.153 ± 0.369 (0.922) C:NA T:87% | pCi/L | 09/14/16 12:07 |            |

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

### 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 (%)

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TNI - The NELAC Institute.

### LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

### ANALYTE QUALIFIERS

1e Ra-228 detected in MB, samples with results below RL or associated MDC are reportable without additional qualification. Elevated MB activity is due to radon daughter interference during counting.

2e The Ra-228 MB was initially greater than the RL of 1.0 pCi/L. Samples with results greater than 1.0 pCi/L were re-growthed and re-analyzed with the MB. This is the result for the re-analysis of the MB.

3e The Ra-228 MB was initially greater than the RL of 1.0 pCi/L. Samples with results greater than 1.0 pCi/L were re-growthed and re-analyzed with the MB. This is the result for the re-analysis of this sample.

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

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226362

| Lab ID      | Sample ID   | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|-------------|-------------|-----------------|----------|-------------------|------------------|
| 60226362001 | FAA2-082416 | EPA 200.7       | 444593   | EPA 200.7         | 444654           |
| 60226362002 | FGD1-082416 | EPA 200.7       | 444593   | EPA 200.7         | 444654           |
| 60226362003 | FGD2-082416 | EPA 200.7       | 444593   | EPA 200.7         | 444654           |
| 60226362004 | DUP-082416  | EPA 200.7       | 444593   | EPA 200.7         | 444654           |
| 60226362001 | FAA2-082416 | EPA 200.8       | 444594   | EPA 200.8         | 444657           |
| 60226362002 | FGD1-082416 | EPA 200.8       | 444594   | EPA 200.8         | 444657           |
| 60226362003 | FGD2-082416 | EPA 200.8       | 444594   | EPA 200.8         | 444657           |
| 60226362004 | DUP-082416  | EPA 200.8       | 444594   | EPA 200.8         | 444657           |
| 60226362001 | FAA2-082416 | EPA 245.1       | 444573   | EPA 245.1         | 444600           |
| 60226362002 | FGD1-082416 | EPA 245.1       | 444573   | EPA 245.1         | 444600           |
| 60226362003 | FGD2-082416 | EPA 245.1       | 444573   | EPA 245.1         | 444600           |
| 60226362004 | DUP-082416  | EPA 245.1       | 444573   | EPA 245.1         | 444600           |
| 60226362001 | FAA2-082416 | EPA 903.1       | 232199   |                   |                  |
| 60226362002 | FGD1-082416 | EPA 903.1       | 232199   |                   |                  |
| 60226362003 | FGD2-082416 | EPA 903.1       | 232199   |                   |                  |
| 60226362004 | DUP-082416  | EPA 903.1       | 232199   |                   |                  |
| 60226362001 | FAA2-082416 | EPA 904.0       | 232205   |                   |                  |
| 60226362002 | FGD1-082416 | EPA 904.0       | 232205   |                   |                  |
| 60226362003 | FGD2-082416 | EPA 904.0       | 232205   |                   |                  |
| 60226362004 | DUP-082416  | EPA 904.0       | 232205   |                   |                  |
| 60226362001 | FAA2-082416 | SM 2540C        | 444473   |                   |                  |
| 60226362002 | FGD1-082416 | SM 2540C        | 444473   |                   |                  |
| 60226362003 | FGD2-082416 | SM 2540C        | 444473   |                   |                  |
| 60226362004 | DUP-082416  | SM 2540C        | 444473   |                   |                  |
| 60226362001 | FAA2-082416 | SM 4500-H+B     | 444278   |                   |                  |
| 60226362002 | FGD1-082416 | SM 4500-H+B     | 444278   |                   |                  |
| 60226362003 | FGD2-082416 | SM 4500-H+B     | 444278   |                   |                  |
| 60226362004 | DUP-082416  | SM 4500-H+B     | 444278   |                   |                  |
| 60226362001 | FAA2-082416 | EPA 300.0       | 445543   |                   |                  |
| 60226362001 | FAA2-082416 | EPA 300.0       | 445717   |                   |                  |
| 60226362002 | FGD1-082416 | EPA 300.0       | 445543   |                   |                  |
| 60226362002 | FGD1-082416 | EPA 300.0       | 445717   |                   |                  |
| 60226362003 | FGD2-082416 | EPA 300.0       | 445543   |                   |                  |
| 60226362003 | FGD2-082416 | EPA 300.0       | 445717   |                   |                  |
| 60226362004 | DUP-082416  | EPA 300.0       | 445543   |                   |                  |
| 60226362004 | DUP-082416  | EPA 300.0       | 445717   |                   |                  |

### REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 60226362



Client Name: Wistar Energy

Courier: FedEx  UPS  VIA  Clay  PEX  ECI  Pace  Other  Client

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: CF +1.1 T-266 / CF -0.1 T-239 Type of Ice: Wet Blue  None  Samples received on ice, cooling process has begun. (circle one)

Cooler Temperature: 1.9

Date and initials of person examining contents: pmw 8/25/16

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 | 1.                          |
| Chain of Custody filled out:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 2.                          |
| Chain of Custody relinquished:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 3.                          |
| Sampler name & signature on COC:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 4.                          |
| Samples arrived within holding time:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 5.                          |
| Short Hold Time analyses (<72hr):  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 6. <u>PH</u>                |
| Rush Turn Around Time requested:   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | 7.                          |
| Sufficient volume:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 8.                          |
| 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 | 9.                          |
| Containers intact:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 10.                         |
| Unpreserved 5035A soils frozen w/in 48hrs?   | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 11.                         |
| Filtered volume received for dissolved tests?  | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 12.                         |
| Sample labels match COC:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |                             |
| Includes date/time/ID/analyses Matrix: <u>WT</u>   |  | 13.                         |
| All containers needing preservation have been checked.                                     | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |                             |
| All containers needing preservation are found to be in compliance with EPA recommendation. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 14.                         |
| Exceptions: VOA, Coliform, O&G, WI-DRO (water)   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                              | Initial when completed      |
| Trip Blank present:  | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Lot # of added preservative |
| Pace Trip Blank lot # (if purchased):  |  | 15.                         |
| Headspace in VOA vials (>6mm):   | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 16.                         |
| Project sampled in USDA Regulated Area:  | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 17. List State:             |
| Additional labels attached to 5035A vials in the field?                                    | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 18.                         |

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: 8/25/16





Sample Condition Upon Receipt Pittsburgh

30194283



Client Name: Pace Kansas Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: 070316481152

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

Thermometer Used NIA Type of Ice: Wet Blue None

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

Temp should be above freezing to 6°C

Date and Initials of person examining contents: KJK 8/26/16

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 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/Analysis 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 checked="" type="checkbox"/> | <input 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 &lt; 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>KJK</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>KJK</u> Date: <u>8/26/16</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.

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

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## CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

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### 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

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### 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

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## REPORT OF LABORATORY ANALYSIS

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## 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

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### 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     |
| EPA 903.1   | AB1         | 1           | PASI-PA  |                   |            |
| EPA 904.0   | JLW         | 1           | PASI-PA  |                   |            |

### REPORT OF LABORATORY ANALYSIS

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### 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

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## 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

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## 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

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## 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

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## 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

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## 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

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## 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

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**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:

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

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**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

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## 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 |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.23</b>         | mg/L   | 0.010        | 1                        | 08/29/16 16:30 | 08/30/16 12:35 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 12:35 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.13</b>         | mg/L   | 0.10         | 1                        | 08/29/16 16:30 | 08/30/16 12:35 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>142</b>          | mg/L   | 0.10         | 1                        | 08/29/16 16:30 | 08/30/16 12:35 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 08/29/16 16:30 | 08/30/16 12:35 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 08/29/16 16:30 | 08/30/16 12:35 | 7439-92-1  |      |
| Lithium                             | <b>0.015</b>        | mg/L   | 0.010        | 1                        | 08/29/16 16:30 | 08/30/16 12:35 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:51 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:51 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050      | 1                        | 08/29/16 16:30 | 08/30/16 13:51 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:51 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0071</b>       | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:51 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:51 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:51 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.20</b>     | ug/L   | 0.20         | 1                        | 08/29/16 15:05 | 08/30/16 11:27 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |              |                          |                |                |            |      |
| Total Dissolved Solids              | <b>692</b>          | mg/L   | 5.0          | 1                        |                | 08/31/16 08:26 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |              |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.2</b>          | Std. Units   | 0.10         | 1                        |                | 08/29/16 09:30 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |              |                          |                |                |            |      |
| Chloride                            | <b>52.4</b>         | mg/L   | 5.0          | 5                        |                | 09/08/16 20:29 | 16887-00-6 |      |
| Fluoride                            | <b>0.25</b>         | mg/L   | 0.20         | 1                        |                | 09/07/16 17:08 | 16984-48-8 |      |
| Sulfate                             | <b>213</b>          | mg/L   | 20.0         | 20                       |                | 09/08/16 21:12 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

| Sample: <b>FGD4-082516</b>          | Lab ID: <b>60226548002</b> | 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 |
| <b>200.7 Metals, Total</b>          |                            | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.064</b>               | mg/L   | 0.010        | 1                        | 08/29/16 16:30 | 08/30/16 12:38 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>          | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 12:38 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.30</b>                | mg/L   | 0.10         | 1                        | 08/29/16 16:30 | 08/30/16 12:38 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>166</b>                 | mg/L   | 0.10         | 1                        | 08/29/16 16:30 | 08/30/16 12:38 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>          | mg/L   | 0.0050       | 1                        | 08/29/16 16:30 | 08/30/16 12:38 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>          | mg/L   | 0.0050       | 1                        | 08/29/16 16:30 | 08/30/16 12:38 | 7439-92-1  |      |
| Lithium                             | <b>0.013</b>               | mg/L   | 0.010        | 1                        | 08/29/16 16:30 | 08/30/16 12:38 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                            | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:55 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>          | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:55 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>         | mg/L   | 0.00050      | 1                        | 08/29/16 16:30 | 08/30/16 13:55 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>          | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:55 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0046</b>              | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:55 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:55 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010       | 1                        | 08/29/16 16:30 | 08/30/16 13:55 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                            | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.20</b>            | ug/L   | 0.20         | 1                        | 08/29/16 15:05 | 08/30/16 11:29 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                            | Analytical Method: SM 2540C                                |              |                          |                |                |            |      |
| Total Dissolved Solids              | <b>831</b>                 | mg/L   | 5.0          | 1                        |                | 08/31/16 08:27 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                            | Analytical Method: SM 4500-H+B                             |              |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.6</b>                 | Std. Units   | 0.10         | 1                        |                | 08/29/16 09:30 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                            | Analytical Method: EPA 300.0                               |              |                          |                |                |            |      |
| Chloride                            | <b>71.8</b>                | mg/L   | 5.0          | 5                        |                | 09/08/16 22:24 | 16887-00-6 |      |
| Fluoride                            | <b>0.31</b>                | mg/L   | 0.20         | 1                        |                | 09/07/16 17:23 | 16984-48-8 |      |
| Sulfate                             | <b>331</b>                 | mg/L   | 50.0         | 50                       |                | 09/08/16 22:38 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

| <b>Sample: BAA6-082516</b>          |                   | <b>Lab ID: 60226548003</b>                                 | 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 |
| <b>200.7 Metals, Total</b>          |                   | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.039</b>      | mg/L   | 0.010                     | 1                        | 08/29/16 16:30 | 08/30/16 12:40 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b> | mg/L   | 0.0010                    | 1                        | 08/29/16 16:30 | 08/30/16 12:40 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>5.8</b>        | mg/L   | 0.10                      | 1                        | 08/29/16 16:30 | 08/30/16 12:40 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>495</b>        | mg/L   | 0.10                      | 1                        | 08/29/16 16:30 | 08/30/16 12:40 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>0.0060</b>     | mg/L   | 0.0050                    | 1                        | 08/29/16 16:30 | 08/30/16 12:40 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b> | mg/L   | 0.0050                    | 1                        | 08/29/16 16:30 | 08/30/16 12:40 | 7439-92-1  |      |
| Lithium                             | <b>0.16</b>       | mg/L   | 0.010                     | 1                        | 08/29/16 16:30 | 08/30/16 12:40 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                   | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                           |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b> | mg/L   | 0.0010                    | 1                        | 08/29/16 16:30 | 08/30/16 13:59 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>0.0037</b>     | mg/L   | 0.0010                    | 1                        | 08/29/16 16:30 | 09/01/16 11:12 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.0050</b> | mg/L   | 0.00050                   | 1                        | 08/29/16 16:30 | 09/01/16 11:12 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>0.0016</b>     | mg/L   | 0.0010                    | 1                        | 08/29/16 16:30 | 09/01/16 11:12 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0090</b>     | mg/L   | 0.0010                    | 1                        | 08/29/16 16:30 | 09/01/16 11:12 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b> | mg/L   | 0.0010                    | 1                        | 08/29/16 16:30 | 09/01/16 11:12 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b> | mg/L   | 0.0010                    | 1                        | 08/29/16 16:30 | 08/30/16 13:59 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                   | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                           |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.20</b>   | ug/L   | 0.20                      | 1                        | 08/29/16 15:05 | 08/30/16 11:31 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                   | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | <b>3210</b>       | mg/L   | 5.0                       | 1                        |                | 08/31/16 08:28 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                   | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.1</b>        | Std. Units   | 0.10                      | 1                        |                | 08/29/16 09:30 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                   | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | <b>288</b>        | mg/L   | 20.0                      | 20                       |                | 09/08/16 22:53 | 16887-00-6 |      |
| Fluoride                            | <b>0.88</b>       | mg/L   | 0.20                      | 1                        |                | 09/07/16 17:37 | 16984-48-8 |      |
| Sulfate                             | <b>1790</b>       | mg/L   | 200                       | 200                      |                | 09/08/16 23:07 | 14808-79-8 |      |

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## 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          |  |
| <b>200.7 Metals, Total</b>          |          | 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  |               |  |
| <b>200.8 MET ICPMS</b>              |          | 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  |               |  |
| <b>245.1 Mercury</b>                |          | 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  |               |  |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |              |                           |                |                          |            |               |  |
| Total Dissolved Solids              | 3250     | mg/L   | 5.0          | 1                         |                | 08/31/16 08:31           |            |               |  |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |              |                           |                |                          |            |               |  |
| pH at 25 Degrees C                  | 7.6      | Std. Units   | 0.10         | 1                         |                | 08/29/16 09:30           |            | H6            |  |
| <b>300.0 IC Anions 28 Days</b>      |          | 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 |               |  |

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## 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 |
| <b>200.7 Metals, Total</b>          |          | 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  |      |
| <b>200.8 MET ICPMS</b>              |          | 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  |      |
| <b>245.1 Mercury</b>                |          | 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  |      |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | 4070     | mg/L   | 5.0                       | 1                        |                | 08/31/16 08:32 |            |      |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | 7.0      | Std. Units   | 0.10                      | 1                        |                | 08/30/16 12:35 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |          | 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 |      |

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## 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          |  |
| <b>200.7 Metals, Total</b>          |          | 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  |               |  |
| <b>200.8 MET ICPMS</b>              |          | 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  |               |  |
| <b>245.1 Mercury</b>                |          | 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  |               |  |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |              |                           |                |                          |            |               |  |
| Total Dissolved Solids              | 1510     | mg/L   | 5.0          | 1                         |                | 08/31/16 08:28           |            |               |  |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |              |                           |                |                          |            |               |  |
| pH at 25 Degrees C                  | 7.3      | Std. Units   | 0.10         | 1                         |                | 08/29/16 09:30           |            | H6            |  |
| <b>300.0 IC Anions 28 Days</b>      |          | 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 |               |  |

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## 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          |  |
| <b>200.7 Metals, Total</b>          |                    | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                           |                |                          |            |               |  |
| Barium, Total Recoverable           | <b>0.059</b>       | mg/L   | 0.010        | 1                         | 08/29/16 16:30 | 08/30/16 12:49           | 7440-39-3  |               |  |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 08/29/16 16:30 | 08/30/16 12:49           | 7440-41-7  |               |  |
| Boron, Total Recoverable            | <b>1.4</b>         | mg/L   | 0.10         | 1                         | 08/29/16 16:30 | 08/30/16 12:49           | 7440-42-8  |               |  |
| Calcium, Total Recoverable          | <b>234</b>         | mg/L   | 0.10         | 1                         | 08/29/16 16:30 | 08/30/16 12:49           | 7440-70-2  |               |  |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>  | mg/L   | 0.0050       | 1                         | 08/29/16 16:30 | 08/30/16 12:49           | 7440-47-3  |               |  |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>  | mg/L   | 0.0050       | 1                         | 08/29/16 16:30 | 08/30/16 12:49           | 7439-92-1  |               |  |
| Lithium                             | <b>0.012</b>       | mg/L   | 0.010        | 1                         | 08/29/16 16:30 | 08/30/16 12:49           | 7439-93-2  |               |  |
| <b>200.8 MET ICPMS</b>              |                    | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                           |                |                          |            |               |  |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 08/29/16 16:30 | 08/30/16 14:26           | 7440-36-0  |               |  |
| Arsenic, Total Recoverable          | <b>0.0063</b>      | mg/L   | 0.0010       | 1                         | 08/29/16 16:30 | 09/01/16 11:29           | 7440-38-2  |               |  |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b> | mg/L   | 0.00050      | 1                         | 08/29/16 16:30 | 09/01/16 11:29           | 7440-43-9  |               |  |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 08/29/16 16:30 | 09/01/16 11:29           | 7440-48-4  |               |  |
| Molybdenum, Total Recoverable       | <b>0.056</b>       | mg/L   | 0.0010       | 1                         | 08/29/16 16:30 | 09/01/16 11:29           | 7439-98-7  |               |  |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 08/29/16 16:30 | 09/01/16 11:29           | 7782-49-2  |               |  |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 08/29/16 16:30 | 08/30/16 14:26           | 7440-28-0  |               |  |
| <b>245.1 Mercury</b>                |                    | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                           |                |                          |            |               |  |
| Mercury                             | <b>&lt;0.20</b>    | ug/L   | 0.20         | 1                         | 08/29/16 15:05 | 08/30/16 11:47           | 7439-97-6  |               |  |
| <b>2540C Total Dissolved Solids</b> |                    | Analytical Method: SM 2540C                                |              |                           |                |                          |            |               |  |
| Total Dissolved Solids              | <b>1560</b>        | mg/L   | 5.0          | 1                         |                | 08/31/16 08:29           |            |               |  |
| <b>4500H+ pH, Electrometric</b>     |                    | Analytical Method: SM 4500-H+B                             |              |                           |                |                          |            |               |  |
| pH at 25 Degrees C                  | <b>7.6</b>         | Std. Units   | 0.10         | 1                         |                | 08/29/16 09:30           |            | H6            |  |
| <b>300.0 IC Anions 28 Days</b>      |                    | Analytical Method: EPA 300.0                               |              |                           |                |                          |            |               |  |
| Chloride                            | <b>169</b>         | mg/L   | 20.0         | 20                        |                | 09/09/16 09:48           | 16887-00-6 |               |  |
| Fluoride                            | <b>0.43</b>        | mg/L   | 0.20         | 1                         |                | 09/07/16 18:35           | 16984-48-8 |               |  |
| Sulfate                             | <b>868</b>         | mg/L   | 100          | 100                       |                | 09/09/16 10:02           | 14808-79-8 |               |  |

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### 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 |                 | 1818005        |                 | 1818006   |            | % Rec Limits | RPD | Max RPD | Qual |          |
|-----------|-------|-------------|-----------------|----------------|-----------------|-----------|------------|--------------|-----|---------|------|----------|
|           |       | MS Result   | MSD Spike Conc. | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result |              |     |         |      | MS % Rec |
| Mercury   | ug/L  | <0.20       | 5               | 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       |            |

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### 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

| MATRIX SPIKE SAMPLE: |       | 1818093               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60226362002<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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**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 |                | 60226362004     |           | MSD        |          | MS        |        | % Rec Limits | RPD | Max RPD | Qual |
|------------|-------|-------------|----------------|-----------------|-----------|------------|----------|-----------|--------|--------------|-----|---------|------|
|            |       | Result      | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec |        |              |     |         |      |
| 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

| MATRIX SPIKE SAMPLE: |       | 1818099               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60226362004<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

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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      |            |

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### 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<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 7.7                   | 7.8           | 1   | 5          | H6         |

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### 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<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 7.0                   | 7.0           | 1   | 5          | H6         |

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### 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 | 60226141001    |                 | 60226141002 |            | 60226141003 |           | % Rec Limits | RPD    | Max RPD | Qual |
|-----------|-------|----------------|-----------------|-------------|------------|-------------|-----------|--------------|--------|---------|------|
|           |       | MS Spike Conc. | MSD Spike Conc. | MS Result   | MSD Result | MS % Rec    | MSD % Rec |              |        |         |      |
| 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       |            |

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### 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 |                | 1822163         |           | 1822164    |          | % Rec Limits | RPD    | Max RPD | Qual |
|-----------|-------|-------------|----------------|-----------------|-----------|------------|----------|--------------|--------|---------|------|
|           |       | Result      | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec |              |        |         |      |
| 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   |

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### 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 |
|-----------|-------|-------------|----------------|-----------------|-----------|----------|-----------|--------------|-----|---------|------|
|           |       | Result      | MS Spike Conc. | MSD Spike Conc. | MS 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      |      |

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### REPORT OF LABORATORY ANALYSIS

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### 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 | <b>0.622 ± 0.651 (1.02)</b><br><b>C:NA T:75%</b>  | pCi/L | 09/19/16 13:11 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>0.726 ± 0.547 (1.08)</b><br><b>C:68% T:70%</b> | pCi/L | 09/14/16 22:13 | 15262-20-1 |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

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

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### 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 | <b>0.128 ± 0.355 (0.688)</b><br><b>C:NA T:88%</b> | pCi/L | 09/19/16 13:21 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>4.56 ± 1.14 (1.06)</b><br><b>C:68% T:72%</b>   | pCi/L | 09/14/16 22:13 | 15262-20-1 |      |

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### 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 | <b>0.914 ± 0.669 (0.921)</b><br>C:NA T:82% | pCi/L | 09/19/16 13:33 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>2.09 ± 0.744 (1.09)</b><br>C:72% T:66%  | pCi/L | 09/14/16 22:14 | 15262-20-1 |      |

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### 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 | <b>0.167 ± 0.382 (0.227)</b><br>C:NA T:71%  | pCi/L | 09/19/16 13:21 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>0.118 ± 0.422 (0.953)</b><br>C:74% T:70% | pCi/L | 09/14/16 22:14 | 15262-20-1 |      |

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## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

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**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:

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

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### 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 | <b>0.602 ± 0.423 (0.204)</b><br>C:NA T:74% | pCi/L | 09/19/16 13:32 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>1.81 ± 0.821 (1.41)</b><br>C:69% T:59%  | pCi/L | 09/14/16 22:14 | 15262-20-1 |      |

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

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|                         |   |                       |                  |
|-------------------------|---|-----------------------|------------------|
| 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 |                       |                  |

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|                         |   |         |       |
|-------------------------|---|---------|-------|
| 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 |            |

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

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|                         |   |                       |                  |
|-------------------------|---|-----------------------|------------------|
| 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 |                       |                  |

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|                         |   |         |       |
|-------------------------|---|---------|-------|
| 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 |            |

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## QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

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### 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 (%)

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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.

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### 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

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### 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

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# Sample Condition Upon Receipt

## WO#: 60226548



60226548

Client Name: Water Energy

Courier: FedEx  UPS  VIA  Clay  PEX  ECI  Pace  Other  Client

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: CF-11.1 T-266 / CF-0.1 T-239 Type of Ice: Wet Blue  None  Samples received on ice, cooling process has begun.

Cooler Temperature: 1-7/1-8

Temperature should be above freezing to 6°C

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

|  |  |                             |
|--|--|-----------------------------|
| Chain of Custody present:  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 1.                          |
| Chain of Custody filled out:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 2.                          |
| Chain of Custody relinquished:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 3.                          |
| Sampler name & signature on COC:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 4.                          |
| Samples arrived within holding time:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 5.                          |
| Short Hold Time analyses (<72hr):  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 6. <u>PH</u>                |
| Rush Turn Around Time requested:   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | 7.                          |
| Sufficient volume:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 8.                          |
| Correct containers used:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 9.                          |
| Pace containers used:  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 9.                          |
| Containers intact:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 10.                         |
| Unpreserved 5035A soils frozen w/in 48hrs?   | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 11.                         |
| Filtered volume received for dissolved tests?  | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 12.                         |
| Sample labels match COC:   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 13.                         |
| Includes date/time/ID/analyses Matrix: <u>WT</u>   |  | 13.                         |
| All containers needing preservation have been checked.                                     | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 14.                         |
| All containers needing preservation are found to be in compliance with EPA recommendation. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 14.                         |
| Exceptions: VOA, Coliform, O&G, WI-DRO (water)   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                              | Initial when completed      |
| Trip Blank present:  | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Lot # of added preservative |
| Pace Trip Blank lot # (if purchased):  |  | 15.                         |
| Headspace in VOA vials (>6mm):   | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 16.                         |
| Project sampled in USDA Regulated Area:  | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 17. List State:             |
| Additional labels attached to 5035A vials in the field?                                    | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 18.                         |

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

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review:

Date: \_\_\_\_\_

**REVIEWED**  
By hwilson at 9:08 am, 8/29/16



# 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<br>Pace Analytical Kansas<br>9608 Loiret Blvd.<br>Lenexa, KS 66219<br>Phone (913)599-5665 |                    | Pace Analytical Pittsburgh<br>1638 Roseytown Road<br>Suites 2,3, & 4<br>Greensburg, PA 15601<br>Phone (724)850-5600 |                    |              |                 |                      |                |  |  |  |                  |  |  |  |  |              |        |
| Item   | Sample ID          | Sample Type   | Collect Date/Time  | Lab ID       | Matrix          | Preserved Containers |                |  |  |  | Radium 226 & 228 |  |  |  |  |              |        |
|  |                    |   |                    |              |                 | BP/IN                |                |  |  |  |                  |  |  |  |  |              |        |
| 1  | FGD3-082516        | PS  | 8/25/2016 09:46    | 60226548001  | Water           | 2                    |                |  |  |  | X                |  |  |  |  |              | 001    |
| 2  | FGD4-082516        | PS  | 8/25/2016 11:41    | 60226548002  | Water           | 2                    |                |  |  |  | X                |  |  |  |  |              | 002    |
| 3  | BAA6-082516        | PS  | 8/25/2016 13:43    | 60226548003  | Water           | 2                    |                |  |  |  | X                |  |  |  |  |              | 003    |
| 4  | BAA3-082616        | PS  | 8/26/2016 10:58    | 60226548004  | Water           | 2                    |                |  |  |  | X                |  |  |  |  |              | 004    |
| 5  | BAA4-082616        | PS  | 8/26/2016 12:07    | 60226548005  | Water           | 2                    |                |  |  |  | X                |  |  |  |  |              | 005    |
| 6  | BAA2-082516        | PS  | 8/25/2016 15:52    | 60226548006  | Water           | 2                    |                |  |  |  | X                |  |  |  |  |              | 006    |
| 7  | DUP-082516         | PS  | 8/25/2016 08:00    | 60226548007  | Water           | 2                    |                |  |  |  | X                |  |  |  |  |              | 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:<br>-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:<br>-Pace Containers Used:   | /                                 | /  |                           | 10.   |
| Containers Intact:   | /                                 | /  |                           | 11.   |
| Filtered volume received for Dissolved tests<br>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 | PHL2  |
|  | 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

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## CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

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### 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

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### 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

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## REPORT OF LABORATORY ANALYSIS

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## 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

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### 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 903.1   | WRR      | 1                 | PASI-PA    |
|             |             | EPA 245.1   | NDJ      | 1                 | PASI-K     |
|             |             | EPA 200.8   | SMW      | 7                 | PASI-K     |
|             |             | EPA 200.7   | SMW      | 7                 | PASI-K     |

### REPORT OF LABORATORY ANALYSIS

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### 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

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**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

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**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

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**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

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**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

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**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

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**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

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**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

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## 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

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## 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 |
| <b>200.7 Metals, Total</b>          |                     | 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  |      |
| <b>200.8 MET ICPMS</b>              |                     | 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  |      |
| <b>245.1 Mercury</b>                |                     | 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  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | 3330                | mg/L   | 5.0                      | 1             |                | 09/26/16 16:03 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | 7.1                 | Std. Units   | 0.10                     | 1             |                | 10/01/16 10:30 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | 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

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## 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          |  |
| <b>200.7 Metals, Total</b>          |          | 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  |               |  |
| <b>200.8 MET ICPMS</b>              |          | 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  |               |  |
| <b>245.1 Mercury</b>                |          | 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  |               |  |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |              |                           |                |                          |            |               |  |
| Total Dissolved Solids              | 4090     | mg/L   | 5.0          | 1                         |                | 09/26/16 16:04           |            |               |  |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |              |                           |                |                          |            |               |  |
| pH at 25 Degrees C                  | 7.2      | Std. Units   | 0.10         | 1                         |                | 10/01/16 10:30           |            | H6            |  |
| <b>300.0 IC Anions 28 Days</b>      |          | 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

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## 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 |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                          |               |                |                |            |      |
| Barium, Total Recoverable           | <b>0.025</b>        | mg/L   | 0.010                    | 1             | 09/27/16 15:20 | 09/30/16 16:14 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 09/30/16 16:14 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>2.3</b>          | mg/L   | 0.10                     | 1             | 09/27/16 15:20 | 09/30/16 16:14 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>496</b>          | mg/L   | 0.10                     | 1             | 09/27/16 15:20 | 09/30/16 16:14 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050                   | 1             | 09/27/16 15:20 | 09/30/16 16:14 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050                   | 1             | 09/27/16 15:20 | 09/30/16 16:14 | 7439-92-1  |      |
| Lithium                             | <b>0.10</b>         | mg/L   | 0.010                    | 1             | 09/27/16 15:20 | 09/30/16 16:14 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                          |               |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:11 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>0.0014</b>       | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:11 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050                  | 1             | 09/27/16 15:20 | 10/12/16 22:11 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>0.0010</b>       | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:11 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0031</b>       | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:11 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:11 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:11 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                          |               |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>  | mg/L   | 0.00020                  | 1             | 09/26/16 13:00 | 09/27/16 09:22 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | <b>3110</b>         | mg/L   | 5.0                      | 1             |                | 09/26/16 16:04 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.3</b>          | Std. Units   | 0.10                     | 1             |                | 10/01/16 10:30 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |                          |               |                |                |            |      |
| Chloride                            | <b>154</b>          | mg/L   | 20.0                     | 20            |                | 10/15/16 16:01 | 16887-00-6 |      |
| Fluoride                            | <b>1.0</b>          | mg/L   | 0.20                     | 1             |                | 10/14/16 19:49 | 16984-48-8 |      |
| Sulfate                             | <b>2020</b>         | mg/L   | 200                      | 200           |                | 10/15/16 16:15 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## 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 |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.053</b>        | mg/L   | 0.010        | 1                        | 09/27/16 15:20 | 09/30/16 16:17 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 09/30/16 16:17 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>1.0</b>          | mg/L   | 0.10         | 1                        | 09/27/16 15:20 | 09/30/16 16:17 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>181</b>          | mg/L   | 0.10         | 1                        | 09/27/16 15:20 | 09/30/16 16:17 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 09/27/16 15:20 | 09/30/16 16:17 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 09/27/16 15:20 | 09/30/16 16:17 | 7439-92-1  |      |
| Lithium                             | <b>0.020</b>        | mg/L   | 0.010        | 1                        | 09/27/16 15:20 | 09/30/16 16:17 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:16 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>0.0055</b>       | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:16 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050      | 1                        | 09/27/16 15:20 | 10/12/16 22:16 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:16 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.041</b>        | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:16 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:16 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:16 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>  | mg/L   | 0.00020      | 1                        | 09/26/16 13:00 | 09/27/16 09:24 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |              |                          |                |                |            |      |
| Total Dissolved Solids              | <b>1340</b>         | mg/L   | 5.0          | 1                        |                | 09/26/16 16:05 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |              |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.5</b>          | Std. Units   | 0.10         | 1                        |                | 10/01/16 10:30 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |              |                          |                |                |            |      |
| Chloride                            | <b>133</b>          | mg/L   | 10.0         | 10                       |                | 10/15/16 16:29 | 16887-00-6 |      |
| Fluoride                            | <b>0.52</b>         | mg/L   | 0.20         | 1                        |                | 10/14/16 20:03 | 16984-48-8 |      |
| Sulfate                             | <b>658</b>          | mg/L   | 100          | 100                      |                | 10/15/16 16:43 | 14808-79-8 |      |

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## 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          |  |
| <b>200.7 Metals, Total</b>          |                    | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                           |                |                          |            |               |  |
| Barium, Total Recoverable           | <b>0.28</b>        | mg/L   | 0.010        | 1                         | 09/27/16 15:20 | 09/30/16 16:19           | 7440-39-3  |               |  |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 09/30/16 16:19           | 7440-41-7  |               |  |
| Boron, Total Recoverable            | <b>0.11</b>        | mg/L   | 0.10         | 1                         | 09/27/16 15:20 | 09/30/16 16:19           | 7440-42-8  |               |  |
| Calcium, Total Recoverable          | <b>90.4</b>        | mg/L   | 0.10         | 1                         | 09/27/16 15:20 | 09/30/16 16:19           | 7440-70-2  |               |  |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>  | mg/L   | 0.0050       | 1                         | 09/27/16 15:20 | 09/30/16 16:19           | 7440-47-3  |               |  |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>  | mg/L   | 0.0050       | 1                         | 09/27/16 15:20 | 09/30/16 16:19           | 7439-92-1  |               |  |
| Lithium                             | <b>0.014</b>       | mg/L   | 0.010        | 1                         | 09/27/16 15:20 | 09/30/16 16:19           | 7439-93-2  |               |  |
| <b>200.8 MET ICPMS</b>              |                    | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                           |                |                          |            |               |  |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 22:20           | 7440-36-0  |               |  |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 22:20           | 7440-38-2  |               |  |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b> | mg/L   | 0.00050      | 1                         | 09/27/16 15:20 | 10/12/16 22:20           | 7440-43-9  |               |  |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 22:20           | 7440-48-4  |               |  |
| Molybdenum, Total Recoverable       | <b>0.0013</b>      | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 22:20           | 7439-98-7  |               |  |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 22:20           | 7782-49-2  |               |  |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 22:20           | 7440-28-0  |               |  |
| <b>245.1 Mercury</b>                |                    | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                           |                |                          |            |               |  |
| Mercury                             | <b>&lt;0.00020</b> | mg/L   | 0.00020      | 1                         | 09/26/16 13:00 | 09/27/16 09:26           | 7439-97-6  |               |  |
| <b>2540C Total Dissolved Solids</b> |                    | Analytical Method: SM 2540C                                |              |                           |                |                          |            |               |  |
| Total Dissolved Solids              | <b>507</b>         | mg/L   | 5.0          | 1                         |                | 09/26/16 16:05           |            |               |  |
| <b>4500H+ pH, Electrometric</b>     |                    | Analytical Method: SM 4500-H+B                             |              |                           |                |                          |            |               |  |
| pH at 25 Degrees C                  | <b>7.6</b>         | Std. Units   | 0.10         | 1                         |                | 10/01/16 10:30           |            | H6            |  |
| <b>300.0 IC Anions 28 Days</b>      |                    | Analytical Method: EPA 300.0                               |              |                           |                |                          |            |               |  |
| Chloride                            | <b>46.5</b>        | mg/L   | 5.0          | 5                         |                | 10/15/16 16:58           | 16887-00-6 |               |  |
| Fluoride                            | <b>0.33</b>        | mg/L   | 0.20         | 1                         |                | 10/14/16 20:17           | 16984-48-8 |               |  |
| Sulfate                             | <b>93.9</b>        | mg/L   | 5.0          | 5                         |                | 10/15/16 16:58           | 14808-79-8 |               |  |

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## 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 |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                          |               |                |                |            |      |
| Barium, Total Recoverable           | <b>0.025</b>        | mg/L   | 0.010                    | 1             | 09/27/16 15:20 | 09/30/16 16:21 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 09/30/16 16:21 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>2.8</b>          | mg/L   | 0.10                     | 1             | 09/27/16 15:20 | 09/30/16 16:21 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>395</b>          | mg/L   | 0.10                     | 1             | 09/27/16 15:20 | 09/30/16 16:21 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050                   | 1             | 09/27/16 15:20 | 09/30/16 16:21 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050                   | 1             | 09/27/16 15:20 | 09/30/16 16:21 | 7439-92-1  |      |
| Lithium                             | <b>0.082</b>        | mg/L   | 0.010                    | 1             | 09/27/16 15:20 | 09/30/16 16:21 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                          |               |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:33 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>0.0021</b>       | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:33 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050                  | 1             | 09/27/16 15:20 | 10/12/16 22:33 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>0.0013</b>       | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:33 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0099</b>       | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:33 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:33 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:33 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                          |               |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>  | mg/L   | 0.00020                  | 1             | 09/26/16 13:00 | 09/27/16 09:38 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | <b>2560</b>         | mg/L   | 5.0                      | 1             |                | 09/26/16 16:06 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.1</b>          | Std. Units   | 0.10                     | 1             |                | 10/01/16 10:30 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |                          |               |                |                |            |      |
| Chloride                            | <b>229</b>          | mg/L   | 20.0                     | 20            |                | 10/15/16 17:54 | 16887-00-6 |      |
| Fluoride                            | <b>0.56</b>         | mg/L   | 0.20                     | 1             |                | 10/14/16 21:00 | 16984-48-8 |      |
| Sulfate                             | <b>1300</b>         | mg/L   | 100                      | 100           |                | 10/15/16 18:08 | 14808-79-8 |      |

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**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         |

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### 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

| MATRIX SPIKE SAMPLE: |       | 1833595               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60228510003<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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### REPORT OF LABORATORY ANALYSIS

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**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 |             | 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         | 0.040  | 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

| MATRIX SPIKE SAMPLE: |       | 1833600               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60228510004<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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### 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      |            |

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### 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<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 7.0                   | 7.0           | 0   | 5          | H6         |

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### 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       |            |

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### 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 |
|-----------|-------|----------------|-----------------|-----------|------------|----------|-----------|--------------|-----|---------|------|
|           |       | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD 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       |            |

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### REPORT OF LABORATORY ANALYSIS

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### 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 | <b>0.734 ± 0.424 (0.166)</b><br>C:NA T:87% | pCi/L | 10/12/16 22:47 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>2.35 ± 0.758 (0.949)</b><br>C:65% T:83% | pCi/L | 10/12/16 11:51 | 15262-20-1 |      |

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### 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 | <b>0.157 ± 0.341 (0.629)</b><br>C:NA T:97% | pCi/L | 10/12/16 23:10 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>1.06 ± 0.555 (0.988)</b><br>C:57% T:87% | pCi/L | 10/12/16 11:49 | 15262-20-1 |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

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  
PWS:      Site ID:      Sample Type:

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

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### 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 | <b>0.935 ± 0.544 (0.579)</b><br><b>C:NA T:85%</b>  | pCi/L | 10/12/16 23:18 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>0.481 ± 0.439 (0.895)</b><br><b>C:64% T:85%</b> | pCi/L | 10/12/16 11:49 | 15262-20-1 |      |

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### 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 | <b>0.614 ± 0.522 (0.734)</b><br><b>C:NA T:78%</b> | pCi/L | 10/12/16 23:19 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>0.937 ± 0.546 (1.00)</b><br><b>C:55% T:85%</b> | pCi/L | 10/12/16 11:49 | 15262-20-1 |      |

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### 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 | <b>0.461 ± 0.361 (0.424)</b><br>C:NA T:93% | pCi/L | 10/12/16 23:19 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>2.02 ± 0.681 (0.973)</b><br>C:62% T:89% | pCi/L | 10/12/16 11:49 | 15262-20-1 |      |

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

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|                         |  |                       |                  |
|-------------------------|--|-----------------------|------------------|
| 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 |                       |                  |

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|                         |  |         |       |
|-------------------------|--|---------|-------|
| 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 |            |

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### 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 |            |

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## QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

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### 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

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**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**

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### 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

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Sample Condition Upon Receipt

WO#: 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 +0.1 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?<br>(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide)<br>(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





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 &lt; 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.

October 18, 2016

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

RE: Project: JEC CCR GROUNDWATER  
Pace Project No.: 60228510

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on September 24, 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

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## CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

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### 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

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### 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

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| Lab ID      | Sample ID    | Matrix | Date Collected | Date Received  |
|-------------|--------------|--------|----------------|----------------|
| 60228510001 | FGD2-092316  | Water  | 09/23/16 07:50 | 09/24/16 09:20 |
| 60228510002 | FGD3-092316  | Water  | 09/23/16 08:56 | 09/24/16 09:20 |
| 60228510003 | FGD4-092316  | Water  | 09/23/16 10:16 | 09/24/16 09:20 |
| 60228510004 | FAA 5-092316 | Water  | 09/23/16 11:53 | 09/24/16 09:20 |
| 60228510005 | FAA 4-092316 | Water  | 09/23/16 13:01 | 09/24/16 09:20 |
| 60228510006 | DUP-092316   | Water  | 09/23/16 17:00 | 09/24/16 09:20 |

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| Lab ID      | Sample ID    | Method      | Analysts | Analytes Reported | Laboratory |
|-------------|--------------|-------------|----------|-------------------|------------|
| 60228510001 | FGD2-092316  | 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 | HAC      | 1                 | PASI-K     |
| 60228510002 | FGD3-092316  | 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     |
| 60228510003 | FGD4-092316  | SM 4500-H+B | HAC      | 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    |
| 60228510004 | FAA 5-092316 | SM 2540C    | JSS      | 1                 | PASI-K     |
|             |              | SM 4500-H+B | HAC      | 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    |
| 60228510005 | FAA 4-092316 | 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   | SMW      | 7                 | PASI-K     |
|             |              | EPA 200.8   | SMW      | 7                 | PASI-K     |
|             |              | EPA 245.1   | NDJ      | 1                 | PASI-K     |
| 60228510005 | FAA 4-092316 | EPA 903.1   | WRR      | 1                 | PASI-PA    |
|             |              | EPA 904.0   | JLW      | 1                 | PASI-PA    |

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| Lab ID      | Sample ID  | Method      | Analysts | Analytes Reported | Laboratory |
|-------------|------------|-------------|----------|-------------------|------------|
| 60228510006 | DUP-092316 | SM 2540C    | JSS      | 1                 | PASI-K     |
|             |            | SM 4500-H+B | HAC      | 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 | HAC      | 1                 | PASI-K     |
|             |            | EPA 300.0   | OL       | 3                 | PASI-K     |

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

---

**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

---

**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

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**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

---

**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:**

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

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**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:**

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

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**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:**

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

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**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.

- DUP-092316 (Lab ID: 60228510006)
- FAA 4-092316 (Lab ID: 60228510005)
- FAA 5-092316 (Lab ID: 60228510004)
- FGD2-092316 (Lab ID: 60228510001)
- FGD3-092316 (Lab ID: 60228510002)
- FGD4-092316 (Lab ID: 60228510003)

### 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:

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

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**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.

**Additional Comments:**

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

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| Sample: FGD2-092316                 |          | Lab ID: 60228510001  | Collected: 09/23/16 07:50 | Received: 09/24/16 09:20 | Matrix: Water  |                |            |      |
|-------------------------------------|----------|--|---------------------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results  | Units  | Report Limit              | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |          | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | 0.072    | mg/L   | 0.010                     | 1                        | 09/27/16 15:20 | 09/30/16 16:24 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <0.0010  | mg/L   | 0.0010                    | 1                        | 09/27/16 15:20 | 09/30/16 16:24 | 7440-41-7  |      |
| Boron, Total Recoverable            | 0.26     | mg/L   | 0.10                      | 1                        | 09/27/16 15:20 | 09/30/16 16:24 | 7440-42-8  |      |
| Calcium, Total Recoverable          | 111      | mg/L   | 0.10                      | 1                        | 09/27/16 15:20 | 09/30/16 16:24 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <0.0050  | mg/L   | 0.0050                    | 1                        | 09/27/16 15:20 | 09/30/16 16:24 | 7440-47-3  |      |
| Lead, Total Recoverable             | <0.0050  | mg/L   | 0.0050                    | 1                        | 09/27/16 15:20 | 09/30/16 16:24 | 7439-92-1  |      |
| Lithium                             | <0.010   | mg/L   | 0.010                     | 1                        | 09/27/16 15:20 | 09/30/16 16:24 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |          | 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 22:37 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <0.0010  | mg/L   | 0.0010                    | 1                        | 09/27/16 15:20 | 10/12/16 22:37 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <0.00050 | mg/L   | 0.00050                   | 1                        | 09/27/16 15:20 | 10/12/16 22:37 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | 0.0010   | mg/L   | 0.0010                    | 1                        | 09/27/16 15:20 | 10/12/16 22:37 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | 0.0044   | mg/L   | 0.0010                    | 1                        | 09/27/16 15:20 | 10/12/16 22:37 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <0.0010  | mg/L   | 0.0010                    | 1                        | 09/27/16 15:20 | 10/12/16 22:37 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <0.0010  | mg/L   | 0.0010                    | 1                        | 09/27/16 15:20 | 10/12/16 22:37 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |          | 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 09:40 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | 573      | mg/L   | 5.0                       | 1                        |                | 09/28/16 11:01 |            |      |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | 7.8      | Std. Units   | 0.10                      | 1                        |                | 10/11/16 10:50 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |          | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | 31.9     | mg/L   | 2.0                       | 2                        |                | 10/15/16 22:23 | 16887-00-6 |      |
| Fluoride                            | 0.38     | mg/L   | 0.20                      | 1                        |                | 10/14/16 15:47 | 16984-48-8 |      |
| Sulfate                             | 177      | mg/L   | 20.0                      | 20                       |                | 10/15/16 22:37 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| Sample: FGD3-092316                 | Lab ID: 60228510002 | Collected: 09/23/16 08:56                                  |              | Received: 09/24/16 09:20 |                | Matrix: Water  |            |      |
|-------------------------------------|---------------------|--|--------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results             | Units  | Report Limit | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.20</b>         | mg/L   | 0.010        | 1                        | 09/27/16 15:20 | 09/30/16 16:26 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 09/30/16 16:26 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.15</b>         | mg/L   | 0.10         | 1                        | 09/27/16 15:20 | 09/30/16 16:26 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>146</b>          | mg/L   | 0.10         | 1                        | 09/27/16 15:20 | 09/30/16 16:26 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 09/27/16 15:20 | 09/30/16 16:26 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 09/27/16 15:20 | 09/30/16 16:26 | 7439-92-1  |      |
| Lithium                             | <b>0.015</b>        | mg/L   | 0.010        | 1                        | 09/27/16 15:20 | 09/30/16 16:26 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:42 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:42 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050      | 1                        | 09/27/16 15:20 | 10/12/16 22:42 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:42 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0064</b>       | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:42 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:42 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:42 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>  | mg/L   | 0.00020      | 1                        | 09/26/16 13:00 | 09/27/16 09:42 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |              |                          |                |                |            |      |
| Total Dissolved Solids              | <b>820</b>          | mg/L   | 5.0          | 1                        |                | 09/28/16 11:03 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |              |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.3</b>          | Std. Units   | 0.10         | 1                        |                | 10/11/16 10:50 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |              |                          |                |                |            |      |
| Chloride                            | <b>49.9</b>         | mg/L   | 5.0          | 5                        |                | 10/15/16 22:52 | 16887-00-6 |      |
| Fluoride                            | <b>0.28</b>         | mg/L   | 0.20         | 1                        |                | 10/14/16 16:30 | 16984-48-8 |      |
| Sulfate                             | <b>281</b>          | mg/L   | 20.0         | 20                       |                | 10/15/16 23:34 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| Sample: FGD4-092316                 |          | Lab ID: 60228510003  |              | Collected: 09/23/16 10:16 |                | Received: 09/24/16 09:20 |            | Matrix: Water |  |
|-------------------------------------|----------|--|--------------|---------------------------|----------------|--------------------------|------------|---------------|--|
| Parameters                          | Results  | Units  | Report Limit | DF                        | Prepared       | Analyzed                 | CAS No.    | Qual          |  |
| <b>200.7 Metals, Total</b>          |          | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                           |                |                          |            |               |  |
| Barium, Total Recoverable           | 0.057    | mg/L   | 0.010        | 1                         | 09/27/16 15:20 | 09/30/16 16:29           | 7440-39-3  |               |  |
| Beryllium, Total Recoverable        | <0.0010  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 09/30/16 16:29           | 7440-41-7  |               |  |
| Boron, Total Recoverable            | 0.29     | mg/L   | 0.10         | 1                         | 09/27/16 15:20 | 09/30/16 16:29           | 7440-42-8  |               |  |
| Calcium, Total Recoverable          | 160      | mg/L   | 0.10         | 1                         | 09/27/16 15:20 | 09/30/16 16:29           | 7440-70-2  |               |  |
| Chromium, Total Recoverable         | <0.0050  | mg/L   | 0.0050       | 1                         | 09/27/16 15:20 | 09/30/16 16:29           | 7440-47-3  |               |  |
| Lead, Total Recoverable             | <0.0050  | mg/L   | 0.0050       | 1                         | 09/27/16 15:20 | 09/30/16 16:29           | 7439-92-1  |               |  |
| Lithium                             | 0.014    | mg/L   | 0.010        | 1                         | 09/27/16 15:20 | 09/30/16 16:29           | 7439-93-2  |               |  |
| <b>200.8 MET ICPMS</b>              |          | 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 22:46           | 7440-36-0  |               |  |
| Arsenic, Total Recoverable          | <0.0010  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 22:46           | 7440-38-2  |               |  |
| Cadmium, Total Recoverable          | <0.00050 | mg/L   | 0.00050      | 1                         | 09/27/16 15:20 | 10/12/16 22:46           | 7440-43-9  |               |  |
| Cobalt, Total Recoverable           | <0.0010  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 22:46           | 7440-48-4  |               |  |
| Molybdenum, Total Recoverable       | 0.0041   | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 22:46           | 7439-98-7  |               |  |
| Selenium, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 22:46           | 7782-49-2  |               |  |
| Thallium, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 22:46           | 7440-28-0  |               |  |
| <b>245.1 Mercury</b>                |          | 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 09:45           | 7439-97-6  |               |  |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |              |                           |                |                          |            |               |  |
| Total Dissolved Solids              | 927      | mg/L   | 5.0          | 1                         |                | 09/28/16 11:04           |            |               |  |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |              |                           |                |                          |            |               |  |
| pH at 25 Degrees C                  | 7.3      | Std. Units   | 0.10         | 1                         |                | 10/11/16 10:50           |            | H6            |  |
| <b>300.0 IC Anions 28 Days</b>      |          | Analytical Method: EPA 300.0                               |              |                           |                |                          |            |               |  |
| Chloride                            | 74.5     | mg/L   | 5.0          | 5                         |                | 10/15/16 23:48           | 16887-00-6 |               |  |
| Fluoride                            | 0.32     | mg/L   | 0.20         | 1                         |                | 10/14/16 16:44           | 16984-48-8 |               |  |
| Sulfate                             | 371      | mg/L   | 50.0         | 50                        |                | 10/16/16 00:02           | 14808-79-8 |               |  |

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| Sample: <b>FAA 5-092316</b>         | Lab ID: <b>60228510004</b> | Collected: 09/23/16 11:53                                  |              | Received: 09/24/16 09:20 |                | Matrix: Water  |            |      |
|-------------------------------------|----------------------------|--|--------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results                    | Units  | Report Limit | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                            | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>&lt;0.010</b>           | mg/L   | 0.010        | 1                        | 09/27/16 15:20 | 09/30/16 16:33 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>          | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 09/30/16 16:33 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>1.7</b>                 | mg/L   | 0.10         | 1                        | 09/27/16 15:20 | 09/30/16 16:33 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>493</b>                 | mg/L   | 0.10         | 1                        | 09/27/16 15:20 | 09/30/16 16:33 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>          | mg/L   | 0.0050       | 1                        | 09/27/16 15:20 | 09/30/16 16:33 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>          | mg/L   | 0.0050       | 1                        | 09/27/16 15:20 | 09/30/16 16:33 | 7439-92-1  |      |
| Lithium                             | <b>0.16</b>                | mg/L   | 0.010        | 1                        | 09/27/16 15:20 | 09/30/16 16:33 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                            | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:51 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>0.0035</b>              | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:51 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>         | mg/L   | 0.00050      | 1                        | 09/27/16 15:20 | 10/12/16 22:51 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>          | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:51 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.047</b>               | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:51 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:51 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010       | 1                        | 09/27/16 15:20 | 10/12/16 22:51 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                            | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>         | mg/L   | 0.00020      | 1                        | 09/26/16 13:00 | 09/27/16 09:47 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                            | Analytical Method: SM 2540C                                |              |                          |                |                |            |      |
| Total Dissolved Solids              | <b>3210</b>                | mg/L   | 5.0          | 1                        |                | 09/28/16 11:04 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                            | Analytical Method: SM 4500-H+B                             |              |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.0</b>                 | Std. Units   | 0.10         | 1                        |                | 10/11/16 10:50 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                            | Analytical Method: EPA 300.0                               |              |                          |                |                |            |      |
| Chloride                            | <b>91.8</b>                | mg/L   | 10.0         | 10                       |                | 10/16/16 00:16 | 16887-00-6 |      |
| Fluoride                            | <b>1.0</b>                 | mg/L   | 0.20         | 1                        |                | 10/14/16 16:58 | 16984-48-8 |      |
| Sulfate                             | <b>2010</b>                | mg/L   | 200          | 200                      |                | 10/16/16 00:31 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| Sample: <b>FAA 4-092316</b>         | Lab ID: <b>60228510005</b> | Collected: 09/23/16 13:01                                  | Received: 09/24/16 09:20 | Matrix: Water |                |                |            |      |
|-------------------------------------|----------------------------|--|--------------------------|---------------|----------------|----------------|------------|------|
| Parameters                          | Results                    | Units  | Report Limit             | DF            | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                            | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                          |               |                |                |            |      |
| Barium, Total Recoverable           | <b>0.050</b>               | mg/L   | 0.010                    | 1             | 09/27/16 15:20 | 09/30/16 16:35 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 09/30/16 16:35 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.35</b>                | mg/L   | 0.10                     | 1             | 09/27/16 15:20 | 09/30/16 16:35 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>210</b>                 | mg/L   | 0.10                     | 1             | 09/27/16 15:20 | 09/30/16 16:35 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>          | mg/L   | 0.0050                   | 1             | 09/27/16 15:20 | 09/30/16 16:35 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>          | mg/L   | 0.0050                   | 1             | 09/27/16 15:20 | 09/30/16 16:35 | 7439-92-1  |      |
| Lithium                             | <b>0.016</b>               | mg/L   | 0.010                    | 1             | 09/27/16 15:20 | 09/30/16 16:35 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                            | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                          |               |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:59 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:59 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>         | mg/L   | 0.00050                  | 1             | 09/27/16 15:20 | 10/12/16 22:59 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:59 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0026</b>              | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:59 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:59 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 09/27/16 15:20 | 10/12/16 22:59 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                            | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                          |               |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>         | mg/L   | 0.00020                  | 1             | 09/26/16 13:00 | 09/27/16 09:49 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                            | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | <b>1190</b>                | mg/L   | 5.0                      | 1             |                | 09/28/16 11:04 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                            | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.3</b>                 | Std. Units   | 0.10                     | 1             |                | 10/11/16 10:50 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                            | Analytical Method: EPA 300.0                               |                          |               |                |                |            |      |
| Chloride                            | <b>89.4</b>                | mg/L   | 10.0                     | 10            |                | 10/16/16 00:45 | 16887-00-6 |      |
| Fluoride                            | <b>0.32</b>                | mg/L   | 0.20                     | 1             |                | 10/14/16 17:13 | 16984-48-8 |      |
| Sulfate                             | <b>552</b>                 | mg/L   | 50.0                     | 50            |                | 10/16/16 00:59 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| Sample: DUP-092316                  |          | Lab ID: 60228510006  |              | Collected: 09/23/16 17:00 |                | Received: 09/24/16 09:20 |            | Matrix: Water |  |
|-------------------------------------|----------|--|--------------|---------------------------|----------------|--------------------------|------------|---------------|--|
| Parameters                          | Results  | Units  | Report Limit | DF                        | Prepared       | Analyzed                 | CAS No.    | Qual          |  |
| <b>200.7 Metals, Total</b>          |          | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                           |                |                          |            |               |  |
| Barium, Total Recoverable           | 0.072    | mg/L   | 0.010        | 1                         | 09/27/16 15:20 | 09/30/16 16:42           | 7440-39-3  |               |  |
| Beryllium, Total Recoverable        | <0.0010  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 09/30/16 16:42           | 7440-41-7  |               |  |
| Boron, Total Recoverable            | 0.25     | mg/L   | 0.10         | 1                         | 09/27/16 15:20 | 09/30/16 16:42           | 7440-42-8  |               |  |
| Calcium, Total Recoverable          | 112      | mg/L   | 0.10         | 1                         | 09/27/16 15:20 | 09/30/16 16:42           | 7440-70-2  |               |  |
| Chromium, Total Recoverable         | <0.0050  | mg/L   | 0.0050       | 1                         | 09/27/16 15:20 | 09/30/16 16:42           | 7440-47-3  |               |  |
| Lead, Total Recoverable             | <0.0050  | mg/L   | 0.0050       | 1                         | 09/27/16 15:20 | 09/30/16 16:42           | 7439-92-1  |               |  |
| Lithium                             | <0.010   | mg/L   | 0.010        | 1                         | 09/27/16 15:20 | 09/30/16 16:42           | 7439-93-2  |               |  |
| <b>200.8 MET ICPMS</b>              |          | 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 23:03           | 7440-36-0  |               |  |
| Arsenic, Total Recoverable          | <0.0010  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 23:03           | 7440-38-2  |               |  |
| Cadmium, Total Recoverable          | <0.00050 | mg/L   | 0.00050      | 1                         | 09/27/16 15:20 | 10/12/16 23:03           | 7440-43-9  |               |  |
| Cobalt, Total Recoverable           | 0.0011   | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 23:03           | 7440-48-4  |               |  |
| Molybdenum, Total Recoverable       | 0.0047   | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 23:03           | 7439-98-7  |               |  |
| Selenium, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 23:03           | 7782-49-2  |               |  |
| Thallium, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 09/27/16 15:20 | 10/12/16 23:03           | 7440-28-0  |               |  |
| <b>245.1 Mercury</b>                |          | 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 09:51           | 7439-97-6  |               |  |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |              |                           |                |                          |            |               |  |
| Total Dissolved Solids              | 560      | mg/L   | 5.0          | 1                         |                | 09/28/16 11:05           |            |               |  |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |              |                           |                |                          |            |               |  |
| pH at 25 Degrees C                  | 7.4      | Std. Units   | 0.10         | 1                         |                | 10/11/16 10:50           |            | H6            |  |
| <b>300.0 IC Anions 28 Days</b>      |          | Analytical Method: EPA 300.0                               |              |                           |                |                          |            |               |  |
| Chloride                            | 31.9     | mg/L   | 2.0          | 2                         |                | 10/16/16 01:13           | 16887-00-6 |               |  |
| Fluoride                            | 0.38     | mg/L   | 0.20         | 1                         |                | 10/14/16 17:27           | 16984-48-8 |               |  |
| Sulfate                             | 179      | mg/L   | 20.0         | 20                        |                | 10/16/16 01:27           | 14808-79-8 |               |  |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

QC Batch: 447972 Analysis Method: EPA 245.1  
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury  
 Associated Lab Samples: 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006

METHOD BLANK: 1832810 Matrix: Water  
 Associated Lab Samples: 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006

| 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         |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

|                         |  |                       |                     |
|-------------------------|--|-----------------------|---------------------|
| QC Batch:               | 448189   | Analysis Method:      | EPA 200.7           |
| QC Batch Method:        | EPA 200.7  | Analysis Description: | 200.7 Metals, Total |
| Associated Lab Samples: | 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006 |                       |                     |

METHOD BLANK: 1833591 Matrix: Water  
Associated Lab Samples: 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006

| 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 Result   | MSD Spike Conc. | MS Result | MSD Spike Conc. |          |           |              |     |         |      |
| Barium    | mg/L  | 0.022       | 1               | 1.1       | 1.1             | 106      | 106       | 70-130       | 1   | 20      |      |
| Beryllium | mg/L  | <0.0010     | 1               | 1.0       | 1.0             | 100      | 101       | 70-130       | 1   | 20      |      |
| Boron     | mg/L  | 4.0         | 1               | 5.2       | 5.2             | 116      | 117       | 70-130       | 0   | 20      |      |
| Calcium   | mg/L  | 478         | 10              | 509       | 506             | 312      | 279       | 70-130       | 1   | 20 M1   |      |
| Chromium  | mg/L  | <0.0050     | 1               | 0.98      | 1.0             | 98       | 100       | 70-130       | 1   | 20      |      |
| Lead      | mg/L  | <0.0050     | 1               | 0.98      | 0.99            | 98       | 99        | 70-130       | 1   | 20      |      |
| Lithium   | mg/L  | 0.10        | 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| MATRIX SPIKE SAMPLE: |       | 1833595               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60228510003<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

|  |           |                       |           |
|--|-----------|-----------------------|-----------|
| QC Batch:  | 448190    | Analysis Method:      | EPA 200.8 |
| QC Batch Method:   | EPA 200.8 | Analysis Description: | 200.8 MET |
| Associated Lab Samples: 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006 |           |                       |           |

METHOD BLANK: 1833596 Matrix: Water  
Associated Lab Samples: 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006

| 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 |             | 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         | 0.040  | 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| MATRIX SPIKE SAMPLE: |       | 1833600               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60228510004<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

QC Batch: 448309

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006

METHOD BLANK: 1833986

Matrix: Water

Associated Lab Samples: 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006

| Parameter              | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|------------------------|-------|--------------|-----------------|----------------|------------|
| Total Dissolved Solids | mg/L  | <5.0         | 5.0             | 09/28/16 11:00 |            |

LABORATORY CONTROL SAMPLE: 1833987

| Parameter              | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|------------------------|-------|-------------|------------|-----------|--------------|------------|
| Total Dissolved Solids | mg/L  | 1000        | 995        | 99        | 80-120       |            |

SAMPLE DUPLICATE: 1833988

| Parameter              | Units | 60228510001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|------------------------|-------|--------------------|------------|-----|---------|------------|
| Total Dissolved Solids | mg/L  | 573                | 570        | 1   | 10      |            |

SAMPLE DUPLICATE: 1833989

| Parameter              | Units | 60228563004 Result | Dup Result | RPD | Max RPD | Qualifiers |
|------------------------|-------|--------------------|------------|-----|---------|------------|
| Total Dissolved Solids | mg/L  | 3300               | 3480       | 5   | 10      |            |

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### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

QC Batch: 449966 Analysis Method: SM 4500-H+B

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

Associated Lab Samples: 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006

SAMPLE DUPLICATE: 1841236

| Parameter          | Units      | 60229217001<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 8.0                   | 8.1           | 0   | 5          | H6         |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

QC Batch: 450605

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006

METHOD BLANK: 1843933

Matrix: Water

Associated Lab Samples: 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006

| Parameter | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|-----------|-------|--------------|-----------------|----------------|------------|
| Fluoride  | mg/L  | <0.20        | 0.20            | 10/14/16 15:19 |            |

LABORATORY CONTROL SAMPLE: 1843934

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|-------------|------------|-----------|--------------|------------|
| Fluoride  | mg/L  | 2.5         | 2.6        | 102       | 90-110       |            |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1843935 1843936

| Parameter | Units | 60228510001 |                | 1843935         |           | 1843936    |          | % Rec Limits | RPD    | Max RPD | Qual |
|-----------|-------|-------------|----------------|-----------------|-----------|------------|----------|--------------|--------|---------|------|
|           |       | MS Result   | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec |              |        |         |      |
| Fluoride  | mg/L  | 0.38        | 2.5            | 2.5             | 3.2       | 3.3        | 115      | 116          | 80-120 | 1       | 15   |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

QC Batch: 450676 Analysis Method: EPA 300.0  
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006

METHOD BLANK: 1844258 Matrix: Water  
 Associated Lab Samples: 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006

| 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 |
|-----------|-------|----------------|-----------------|-----------|------------|----------|-----------|--------------|-----|---------|------|
|           |       | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD 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       |            |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| Parameters | Method    | Act ± Unc (MDC) Carr Trac                   | Units | Analyzed       | CAS No.    | Qual |
|------------|-----------|---|-------|----------------|------------|------|
| Radium-226 | EPA 903.1 | <b>0.118 ± 0.327 (0.635)</b><br>C:NA T:85%  | pCi/L | 10/12/16 22:20 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>0.250 ± 0.441 (0.963)</b><br>C:68% T:81% | pCi/L | 10/12/16 15:36 | 15262-20-1 |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

**Sample: FGD3-092316**      **Lab ID: 60228510002**      Collected: 09/23/16 08:56      Received: 09/24/16 09:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

| Parameters | Method    | Act ± Unc (MDC) Carr Trac                            | Units | Analyzed       | CAS No.    | Qual |
|------------|-----------|--|-------|----------------|------------|------|
| Radium-226 | EPA 903.1 | <b>0.740 ± 0.665 (1.01)</b><br><b>C:NA T:83%</b>     | pCi/L | 10/12/16 22:46 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>-0.0553 ± 0.385 (0.911)</b><br><b>C:64% T:81%</b> | pCi/L | 10/12/16 15:36 | 15262-20-1 |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| Parameters | Method    | Act ± Unc (MDC) Carr Trac                   | Units | Analyzed       | CAS No.    | Qual |
|------------|-----------|---|-------|----------------|------------|------|
| Radium-226 | EPA 903.1 | <b>-0.180 ± 0.392 (0.903)</b><br>C:NA T:84% | pCi/L | 10/12/16 22:46 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>0.731 ± 0.509 (0.981)</b><br>C:59% T:80% | pCi/L | 10/12/16 15:36 | 15262-20-1 |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

**Sample: FAA 5-092316**      **Lab ID: 60228510004**      Collected: 09/23/16 11:53      Received: 09/24/16 09:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

| Parameters | Method    | Act ± Unc (MDC) Carr Trac                   | Units | Analyzed       | CAS No.    | Qual |
|------------|-----------|---|-------|----------------|------------|------|
| Radium-226 | EPA 903.1 | <b>0.900 ± 0.504 (0.523)</b><br>C:NA T:89%  | pCi/L | 10/12/16 22:45 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>0.535 ± 0.425 (0.833)</b><br>C:60% T:82% | pCi/L | 10/12/16 15:56 | 15262-20-1 |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| Parameters | Method    | Act ± Unc (MDC) Carr Trac                   | Units | Analyzed       | CAS No.    | Qual |
|------------|-----------|---|-------|----------------|------------|------|
| Radium-226 | EPA 903.1 | <b>0.0683 ± 0.354 (0.735)</b><br>C:NA T:82% | pCi/L | 10/12/16 23:01 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>0.384 ± 0.333 (0.658)</b><br>C:65% T:84% | pCi/L | 10/12/16 15:38 | 15262-20-1 |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

**Sample: DUP-092316**      **Lab ID: 60228510006**      Collected: 09/23/16 17:00      Received: 09/24/16 09:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

| Parameters | Method    | Act ± Unc (MDC) Carr Trac                          | Units | Analyzed       | CAS No.    | Qual |
|------------|-----------|--|-------|----------------|------------|------|
| Radium-226 | EPA 903.1 | <b>0.0601 ± 0.274 (0.443)</b><br><b>C:NA T:86%</b> | pCi/L | 10/12/16 22:47 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | <b>-0.309 ± 0.414 (1.05)</b><br><b>C:60% T:72%</b> | pCi/L | 10/12/16 15:56 | 15262-20-1 |      |

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

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|                         |  |                       |                  |
|-------------------------|--|-----------------------|------------------|
| QC Batch:               | 234970   | Analysis Method:      | EPA 903.1        |
| QC Batch Method:        | EPA 903.1  | Analysis Description: | 903.1 Radium-226 |
| Associated Lab Samples: | 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006 |                       |                  |

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|                         |  |         |       |
|-------------------------|--|---------|-------|
| METHOD BLANK:           | 1153085  | Matrix: | Water |
| Associated Lab Samples: | 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006 |         |       |

| 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 |            |

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

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|                         |  |                       |                  |
|-------------------------|--|-----------------------|------------------|
| QC Batch:               | 234962   | Analysis Method:      | EPA 904.0        |
| QC Batch Method:        | EPA 904.0  | Analysis Description: | 904.0 Radium 228 |
| Associated Lab Samples: | 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006 |                       |                  |

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|                         |  |         |       |
|-------------------------|--|---------|-------|
| METHOD BLANK:           | 1153048  | Matrix: | Water |
| Associated Lab Samples: | 60228510001, 60228510002, 60228510003, 60228510004, 60228510005, 60228510006 |         |       |

| Parameter  | Act ± Unc (MDC) Carr Trac         | Units | Analyzed       | Qualifiers |
|------------|-----------------------------------|-------|----------------|------------|
| Radium-228 | 0.716 ± 0.442 (0.813) C:58% T:86% | pCi/L | 10/12/16 15:36 |            |

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**REPORT OF LABORATORY ANALYSIS**

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## QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

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### 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

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| Lab ID      | Sample ID    | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|-------------|--------------|-----------------|----------|-------------------|------------------|
| 60228510001 | FGD2-092316  | EPA 200.7       | 448189   | EPA 200.7         | 448246           |
| 60228510002 | FGD3-092316  | EPA 200.7       | 448189   | EPA 200.7         | 448246           |
| 60228510003 | FGD4-092316  | EPA 200.7       | 448189   | EPA 200.7         | 448246           |
| 60228510004 | FAA 5-092316 | EPA 200.7       | 448189   | EPA 200.7         | 448246           |
| 60228510005 | FAA 4-092316 | EPA 200.7       | 448189   | EPA 200.7         | 448246           |
| 60228510006 | DUP-092316   | EPA 200.7       | 448189   | EPA 200.7         | 448246           |
| 60228510001 | FGD2-092316  | EPA 200.8       | 448190   | EPA 200.8         | 448248           |
| 60228510002 | FGD3-092316  | EPA 200.8       | 448190   | EPA 200.8         | 448248           |
| 60228510003 | FGD4-092316  | EPA 200.8       | 448190   | EPA 200.8         | 448248           |
| 60228510004 | FAA 5-092316 | EPA 200.8       | 448190   | EPA 200.8         | 448248           |
| 60228510005 | FAA 4-092316 | EPA 200.8       | 448190   | EPA 200.8         | 448248           |
| 60228510006 | DUP-092316   | EPA 200.8       | 448190   | EPA 200.8         | 448248           |
| 60228510001 | FGD2-092316  | EPA 245.1       | 447972   | EPA 245.1         | 448022           |
| 60228510002 | FGD3-092316  | EPA 245.1       | 447972   | EPA 245.1         | 448022           |
| 60228510003 | FGD4-092316  | EPA 245.1       | 447972   | EPA 245.1         | 448022           |
| 60228510004 | FAA 5-092316 | EPA 245.1       | 447972   | EPA 245.1         | 448022           |
| 60228510005 | FAA 4-092316 | EPA 245.1       | 447972   | EPA 245.1         | 448022           |
| 60228510006 | DUP-092316   | EPA 245.1       | 447972   | EPA 245.1         | 448022           |
| 60228510001 | FGD2-092316  | EPA 903.1       | 234970   |                   |                  |
| 60228510002 | FGD3-092316  | EPA 903.1       | 234970   |                   |                  |
| 60228510003 | FGD4-092316  | EPA 903.1       | 234970   |                   |                  |
| 60228510004 | FAA 5-092316 | EPA 903.1       | 234970   |                   |                  |
| 60228510005 | FAA 4-092316 | EPA 903.1       | 234970   |                   |                  |
| 60228510006 | DUP-092316   | EPA 903.1       | 234970   |                   |                  |
| 60228510001 | FGD2-092316  | EPA 904.0       | 234962   |                   |                  |
| 60228510002 | FGD3-092316  | EPA 904.0       | 234962   |                   |                  |
| 60228510003 | FGD4-092316  | EPA 904.0       | 234962   |                   |                  |
| 60228510004 | FAA 5-092316 | EPA 904.0       | 234962   |                   |                  |
| 60228510005 | FAA 4-092316 | EPA 904.0       | 234962   |                   |                  |
| 60228510006 | DUP-092316   | EPA 904.0       | 234962   |                   |                  |
| 60228510001 | FGD2-092316  | SM 2540C        | 448309   |                   |                  |
| 60228510002 | FGD3-092316  | SM 2540C        | 448309   |                   |                  |
| 60228510003 | FGD4-092316  | SM 2540C        | 448309   |                   |                  |
| 60228510004 | FAA 5-092316 | SM 2540C        | 448309   |                   |                  |
| 60228510005 | FAA 4-092316 | SM 2540C        | 448309   |                   |                  |
| 60228510006 | DUP-092316   | SM 2540C        | 448309   |                   |                  |
| 60228510001 | FGD2-092316  | SM 4500-H+B     | 449966   |                   |                  |
| 60228510002 | FGD3-092316  | SM 4500-H+B     | 449966   |                   |                  |
| 60228510003 | FGD4-092316  | SM 4500-H+B     | 449966   |                   |                  |
| 60228510004 | FAA 5-092316 | SM 4500-H+B     | 449966   |                   |                  |
| 60228510005 | FAA 4-092316 | SM 4500-H+B     | 449966   |                   |                  |
| 60228510006 | DUP-092316   | SM 4500-H+B     | 449966   |                   |                  |
| 60228510001 | FGD2-092316  | EPA 300.0       | 450605   |                   |                  |
| 60228510001 | FGD2-092316  | EPA 300.0       | 450676   |                   |                  |

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228510

| Lab ID      | Sample ID    | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|-------------|--------------|-----------------|----------|-------------------|------------------|
| 60228510002 | FGD3-092316  | EPA 300.0       | 450605   |                   |                  |
| 60228510002 | FGD3-092316  | EPA 300.0       | 450676   |                   |                  |
| 60228510003 | FGD4-092316  | EPA 300.0       | 450605   |                   |                  |
| 60228510003 | FGD4-092316  | EPA 300.0       | 450676   |                   |                  |
| 60228510004 | FAA 5-092316 | EPA 300.0       | 450605   |                   |                  |
| 60228510004 | FAA 5-092316 | EPA 300.0       | 450676   |                   |                  |
| 60228510005 | FAA 4-092316 | EPA 300.0       | 450605   |                   |                  |
| 60228510005 | FAA 4-092316 | EPA 300.0       | 450676   |                   |                  |
| 60228510006 | DUP-092316   | EPA 300.0       | 450605   |                   |                  |
| 60228510006 | DUP-092316   | EPA 300.0       | 450676   |                   |                  |

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Sample Condition Upon Receipt

WO#: 60228510



hmc

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 <sup>CF +1.1</sup> T-239 <sup>CF -0.1</sup> Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 0.3/1.1 Corr. Factor CF +1.1 <sup>CF -0.1</sup> Corrected 1.4/2.2

Date and initials of person examining contents:

2/9/24/16

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?<br>(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide)<br>(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: Atomw

Date: 9/26/16





# Sample Condition Upon Receipt Pittsburgh



Client Name: Pace KS Project # 30197253

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:  | <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:<br>-Includes date/time/ID/Analysis Matrix: <u>ML</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:<br>-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.  |
| Filtered volume received for Dissolved tests<br>All containers needing preservation have been checked. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 12.  |
| All containers needing preservation are found to be in compliance with EPA recommendation.             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | 13. <u>PH &lt; 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):   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 14.  |
| Trip Blank Present:  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 15.  |
| 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>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

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## CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

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### 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

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### 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

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## REPORT OF LABORATORY ANALYSIS

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## 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

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### 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

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### 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

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### 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

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### 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     |
| <b>60231627014</b> | <b>FAA-2-110416</b> | 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

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**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

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**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

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**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

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**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

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**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:**

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

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**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

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**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

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**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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

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**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

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## 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 |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                          |               |                |                |            |      |
| Barium, Total Recoverable           | <b>0.021</b>        | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:08 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/09/16 13:08 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>3.8</b>          | mg/L   | 0.10                     | 1             | 11/08/16 09:00 | 11/09/16 13:08 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>513</b>          | mg/L   | 0.10                     | 1             | 11/08/16 09:00 | 11/09/16 13:08 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:08 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:08 | 7439-92-1  |      |
| Lithium                             | <b>0.095</b>        | mg/L   | 0.010                    | 1             | 11/08/16 09:00 | 11/09/16 13:08 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                          |               |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:26 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>0.0012</b>       | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:26 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050                  | 1             | 11/08/16 09:00 | 11/28/16 16:26 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:26 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0059</b>       | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:26 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:26 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:26 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                          |               |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>  | mg/L   | 0.00020                  | 1             | 11/22/16 08:30 | 11/22/16 12:31 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | <b>3220</b>         | mg/L   | 5.0                      | 1             |                | 11/09/16 11:27 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.1</b>          | Std. Units   | 0.10                     | 1             |                | 11/11/16 16:20 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |                          |               |                |                |            |      |
| Chloride                            | <b>183</b>          | mg/L   | 20.0                     | 20            |                | 11/29/16 15:27 | 16887-00-6 |      |
| Fluoride                            | <b>0.62</b>         | mg/L   | 0.20                     | 1             |                | 11/29/16 15:13 | 16984-48-8 |      |
| Sulfate                             | <b>2070</b>         | mg/L   | 200                      | 200           |                | 11/30/16 03:45 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## 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 |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                          |               |                |                |            |      |
| Barium, Total Recoverable           | <b>0.055</b>        | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:19 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/09/16 13:19 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>1.1</b>          | mg/L   | 0.10                     | 1             | 11/08/16 09:00 | 11/09/16 13:19 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>188</b>          | mg/L   | 0.10                     | 1             | 11/08/16 09:00 | 11/09/16 13:19 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:19 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:19 | 7439-92-1  |      |
| Lithium                             | <b>0.020</b>        | mg/L   | 0.010                    | 1             | 11/08/16 09:00 | 11/09/16 13:19 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                          |               |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:39 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>0.0062</b>       | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:39 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050                  | 1             | 11/08/16 09:00 | 11/28/16 16:39 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:39 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.044</b>        | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:39 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:39 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:39 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                          |               |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>  | mg/L   | 0.00020                  | 1             | 11/22/16 08:30 | 11/22/16 12:33 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | <b>1360</b>         | mg/L   | 5.0                      | 1             |                | 11/09/16 11:29 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.5</b>          | Std. Units   | 0.10                     | 1             |                | 11/11/16 16:20 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |                          |               |                |                |            |      |
| Chloride                            | <b>137</b>          | mg/L   | 10.0                     | 10            |                | 11/29/16 16:10 | 16887-00-6 |      |
| Fluoride                            | <b>0.51</b>         | mg/L   | 0.20                     | 1             |                | 11/29/16 15:56 | 16984-48-8 |      |
| Sulfate                             | <b>983</b>          | mg/L   | 100                      | 100           |                | 11/30/16 18:29 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## 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 |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                          |               |                |                |            |      |
| Barium, Total Recoverable           | <b>0.032</b>        | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:23 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/09/16 13:23 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.92</b>         | mg/L   | 0.10                     | 1             | 11/08/16 09:00 | 11/09/16 13:23 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>393</b>          | mg/L   | 0.10                     | 1             | 11/08/16 09:00 | 11/09/16 13:23 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:23 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:23 | 7439-92-1  |      |
| Lithium                             | <b>0.015</b>        | mg/L   | 0.010                    | 1             | 11/08/16 09:00 | 11/09/16 13:23 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                          |               |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:48 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>0.0082</b>       | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:48 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050                  | 1             | 11/08/16 09:00 | 11/28/16 16:48 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>0.026</b>        | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:48 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.13</b>         | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:48 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:48 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 16:48 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                          |               |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>  | mg/L   | 0.00020                  | 1             | 11/22/16 08:30 | 11/22/16 12:35 | 7439-97-6  | M1   |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | <b>3820</b>         | mg/L   | 5.0                      | 1             |                | 11/09/16 11:30 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.2</b>          | Std. Units   | 0.10                     | 1             |                | 11/11/16 16:20 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |                          |               |                |                |            |      |
| Chloride                            | <b>183</b>          | mg/L   | 20.0                     | 20            |                | 11/29/16 18:59 | 16887-00-6 |      |
| Fluoride                            | <b>0.36</b>         | mg/L   | 0.20                     | 1             |                | 11/29/16 18:45 | 16984-48-8 |      |
| Sulfate                             | <b>2800</b>         | mg/L   | 200                      | 200           |                | 11/29/16 19:13 | 14808-79-8 |      |

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## 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 |
| <b>200.7 Metals, Total</b>          |                     | 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  |      |
| <b>200.8 MET ICPMS</b>              |                     | 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  |      |
| <b>245.1 Mercury</b>                |                     | 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  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | 3150                | mg/L   | 5.0                      | 1             |                | 11/09/16 11:30 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | 7.1                 | Std. Units   | 0.10                     | 1             |                | 11/11/16 16:20 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | 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 |      |

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## 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 |
| <b>200.7 Metals, Total</b>          |                     | 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  |      |
| <b>200.8 MET ICPMS</b>              |                     | 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  |      |
| <b>245.1 Mercury</b>                |                     | 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  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | 495                 | mg/L   | 5.0                      | 1             |                | 11/09/16 11:31 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | 7.4                 | Std. Units   | 0.10                     | 1             |                | 11/11/16 16:20 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | 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 |      |

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## 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 |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                          |               |                |                |            |      |
| Barium, Total Recoverable           | <b>0.057</b>        | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:35 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/09/16 13:35 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.28</b>         | mg/L   | 0.10                     | 1             | 11/08/16 09:00 | 11/09/16 13:35 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>164</b>          | mg/L   | 0.10                     | 1             | 11/08/16 09:00 | 11/09/16 13:35 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:35 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:35 | 7439-92-1  |      |
| Lithium                             | <b>0.015</b>        | mg/L   | 0.010                    | 1             | 11/08/16 09:00 | 11/09/16 13:35 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                          |               |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:09 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:09 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050                  | 1             | 11/08/16 09:00 | 11/28/16 17:09 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:09 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0040</b>       | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:09 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:09 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:09 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                          |               |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>  | mg/L   | 0.00020                  | 1             | 11/22/16 08:30 | 11/22/16 12:46 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | <b>947</b>          | mg/L   | 5.0                      | 1             |                | 11/09/16 11:32 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.2</b>          | Std. Units   | 0.10                     | 1             |                | 11/12/16 11:00 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |                          |               |                |                |            |      |
| Chloride                            | <b>80.9</b>         | mg/L   | 5.0                      | 5             |                | 11/29/16 21:21 | 16887-00-6 |      |
| Fluoride                            | <b>0.32</b>         | mg/L   | 0.20                     | 1             |                | 11/29/16 21:07 | 16984-48-8 |      |
| Sulfate                             | <b>412</b>          | mg/L   | 50.0                     | 50            |                | 11/29/16 21:35 | 14808-79-8 |      |

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## 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 |
| <b>200.7 Metals, Total</b>          |                    | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.19</b>        | mg/L   | 0.0050                    | 1                        | 11/08/16 09:00 | 11/09/16 13:38 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 11/08/16 09:00 | 11/09/16 13:38 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.13</b>        | mg/L   | 0.10                      | 1                        | 11/08/16 09:00 | 11/09/16 13:38 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>160</b>         | mg/L   | 0.10                      | 1                        | 11/08/16 09:00 | 11/09/16 13:38 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>  | mg/L   | 0.0050                    | 1                        | 11/08/16 09:00 | 11/09/16 13:38 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>  | mg/L   | 0.0050                    | 1                        | 11/08/16 09:00 | 11/09/16 13:38 | 7439-92-1  |      |
| Lithium                             | <b>0.016</b>       | mg/L   | 0.010                     | 1                        | 11/08/16 09:00 | 11/09/16 13:38 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                    | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                           |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 11/08/16 09:00 | 11/28/16 17:14 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 11/08/16 09:00 | 11/28/16 17:14 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b> | mg/L   | 0.00050                   | 1                        | 11/08/16 09:00 | 11/28/16 17:14 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 11/08/16 09:00 | 11/28/16 17:14 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0062</b>      | mg/L   | 0.0010                    | 1                        | 11/08/16 09:00 | 11/28/16 17:14 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 11/08/16 09:00 | 11/28/16 17:14 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 11/08/16 09:00 | 11/28/16 17:14 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                    | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                           |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b> | mg/L   | 0.00020                   | 1                        | 11/22/16 08:30 | 11/22/16 12:53 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                    | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | <b>817</b>         | mg/L   | 5.0                       | 1                        |                | 11/09/16 11:33 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                    | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.3</b>         | Std. Units   | 0.10                      | 1                        |                | 11/11/16 16:20 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                    | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | <b>66.7</b>        | mg/L   | 5.0                       | 5                        |                | 11/29/16 22:46 | 16887-00-6 |      |
| Fluoride                            | <b>0.29</b>        | mg/L   | 0.20                      | 1                        |                | 11/29/16 21:50 | 16984-48-8 |      |
| Sulfate                             | <b>313</b>         | mg/L   | 20.0                      | 20                       |                | 11/29/16 22:04 | 14808-79-8 |      |

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## 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 |
| <b>200.7 Metals, Total</b>          |                    | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                           |                          |                |            |      |
| Barium, Total Recoverable           | <b>0.097</b>       | mg/L   | 0.0050       | 1                         | 11/08/16 09:00           | 11/09/16 13:42 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/09/16 13:42 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.26</b>        | mg/L   | 0.10         | 1                         | 11/08/16 09:00           | 11/09/16 13:42 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>161</b>         | mg/L   | 0.10         | 1                         | 11/08/16 09:00           | 11/09/16 13:42 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>  | mg/L   | 0.0050       | 1                         | 11/08/16 09:00           | 11/09/16 13:42 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>  | mg/L   | 0.0050       | 1                         | 11/08/16 09:00           | 11/09/16 13:42 | 7439-92-1  |      |
| Lithium                             | <b>&lt;0.010</b>   | mg/L   | 0.010        | 1                         | 11/08/16 09:00           | 11/09/16 13:42 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                    | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                           |                          |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:18 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:18 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b> | mg/L   | 0.00050      | 1                         | 11/08/16 09:00           | 11/28/16 17:18 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>0.0016</b>      | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:18 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0040</b>      | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:18 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>0.0010</b>      | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:18 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:18 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                    | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                           |                          |                |            |      |
| Mercury                             | <b>&lt;0.00020</b> | mg/L   | 0.00020      | 1                         | 11/22/16 08:30           | 11/22/16 12:55 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                    | Analytical Method: SM 2540C                                |              |                           |                          |                |            |      |
| Total Dissolved Solids              | <b>769</b>         | mg/L   | 5.0          | 1                         |                          | 11/09/16 11:33 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                    | Analytical Method: SM 4500-H+B                             |              |                           |                          |                |            |      |
| pH at 25 Degrees C                  | <b>7.3</b>         | Std. Units   | 0.10         | 1                         |                          | 11/12/16 11:00 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                    | Analytical Method: EPA 300.0                               |              |                           |                          |                |            |      |
| Chloride                            | <b>36.6</b>        | mg/L   | 5.0          | 5                         |                          | 11/30/16 18:44 | 16887-00-6 |      |
| Fluoride                            | <b>0.35</b>        | mg/L   | 0.20         | 1                         |                          | 11/29/16 23:01 | 16984-48-8 |      |
| Sulfate                             | <b>325</b>         | mg/L   | 20.0         | 20                        |                          | 11/29/16 23:29 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

| Sample: <b>FAA-5-110416</b>         | Lab ID: <b>60231627009</b> | 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 |
| <b>200.7 Metals, Total</b>          |                            | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                          |               |                |                |            |      |
| Barium, Total Recoverable           | <b>0.011</b>               | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:46 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/09/16 13:46 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>1.0</b>                 | mg/L   | 0.10                     | 1             | 11/08/16 09:00 | 11/09/16 13:46 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>220</b>                 | mg/L   | 0.10                     | 1             | 11/08/16 09:00 | 11/09/16 13:46 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>          | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:46 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>          | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:46 | 7439-92-1  |      |
| Lithium                             | <b>0.075</b>               | mg/L   | 0.010                    | 1             | 11/08/16 09:00 | 11/09/16 13:46 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                            | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                          |               |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:23 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>0.0010</b>              | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:23 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.0050</b>          | mg/L   | 0.00050                  | 1             | 11/08/16 09:00 | 11/28/16 17:23 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:23 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0093</b>              | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:23 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>0.0039</b>              | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:23 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:23 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                            | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                          |               |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>         | mg/L   | 0.00020                  | 1             | 11/22/16 08:30 | 11/22/16 12:58 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                            | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | <b>1470</b>                | mg/L   | 5.0                      | 1             |                | 11/09/16 11:34 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                            | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.1</b>                 | Std. Units   | 0.10                     | 1             |                | 11/11/16 16:20 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                            | Analytical Method: EPA 300.0                               |                          |               |                |                |            |      |
| Chloride                            | <b>99.6</b>                | mg/L   | 10.0                     | 10            |                | 11/29/16 23:57 | 16887-00-6 |      |
| Fluoride                            | <b>0.54</b>                | mg/L   | 0.20                     | 1             |                | 11/29/16 23:43 | 16984-48-8 |      |
| Sulfate                             | <b>834</b>                 | mg/L   | 200                      | 200           |                | 11/30/16 00:12 | 14808-79-8 |      |

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

| Sample: <b>FAA-4-110416</b>         | Lab ID: <b>60231627010</b> | 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 |
| <b>200.7 Metals, Total</b>          |                            | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                          |               |                |                |            |      |
| Barium, Total Recoverable           | <b>0.053</b>               | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:50 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/09/16 13:50 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.36</b>                | mg/L   | 0.10                     | 1             | 11/08/16 09:00 | 11/09/16 13:50 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>205</b>                 | mg/L   | 0.10                     | 1             | 11/08/16 09:00 | 11/09/16 13:50 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>          | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:50 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>          | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 13:50 | 7439-92-1  |      |
| Lithium                             | <b>0.016</b>               | mg/L   | 0.010                    | 1             | 11/08/16 09:00 | 11/09/16 13:50 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                            | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                          |               |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:27 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:27 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>         | mg/L   | 0.00050                  | 1             | 11/08/16 09:00 | 11/28/16 17:27 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:27 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0030</b>              | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:27 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:27 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:27 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                            | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                          |               |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>         | mg/L   | 0.00020                  | 1             | 11/22/16 08:30 | 11/22/16 13:00 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                            | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | <b>1170</b>                | mg/L   | 5.0                      | 1             |                | 11/09/16 11:35 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                            | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.3</b>                 | Std. Units   | 0.10                     | 1             |                | 11/11/16 16:20 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                            | Analytical Method: EPA 300.0                               |                          |               |                |                |            |      |
| Chloride                            | <b>85.6</b>                | mg/L   | 10.0                     | 10            |                | 11/30/16 00:40 | 16887-00-6 |      |
| Fluoride                            | <b>0.32</b>                | mg/L   | 0.20                     | 1             |                | 11/30/16 00:26 | 16984-48-8 |      |
| Sulfate                             | <b>579</b>                 | mg/L   | 50.0                     | 50            |                | 11/30/16 00:54 | 14808-79-8 |      |

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## 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 |
| <b>200.7 Metals, Total</b>          |                    | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.052</b>       | mg/L   | 0.0050                    | 1                        | 11/08/16 09:00 | 11/09/16 13:54 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 11/08/16 09:00 | 11/09/16 13:54 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.35</b>        | mg/L   | 0.10                      | 1                        | 11/08/16 09:00 | 11/09/16 13:54 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>203</b>         | mg/L   | 0.10                      | 1                        | 11/08/16 09:00 | 11/09/16 13:54 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>  | mg/L   | 0.0050                    | 1                        | 11/08/16 09:00 | 11/09/16 13:54 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>  | mg/L   | 0.0050                    | 1                        | 11/08/16 09:00 | 11/09/16 13:54 | 7439-92-1  |      |
| Lithium                             | <b>0.016</b>       | mg/L   | 0.010                     | 1                        | 11/08/16 09:00 | 11/09/16 13:54 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                    | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                           |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 11/08/16 09:00 | 11/28/16 17:31 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 11/08/16 09:00 | 11/28/16 17:31 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b> | mg/L   | 0.00050                   | 1                        | 11/08/16 09:00 | 11/28/16 17:31 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 11/08/16 09:00 | 11/28/16 17:31 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0030</b>      | mg/L   | 0.0010                    | 1                        | 11/08/16 09:00 | 11/28/16 17:31 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 11/08/16 09:00 | 11/28/16 17:31 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 11/08/16 09:00 | 11/28/16 17:31 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                    | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                           |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b> | mg/L   | 0.00020                   | 1                        | 11/22/16 08:30 | 11/22/16 13:02 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                    | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | <b>1150</b>        | mg/L   | 5.0                       | 1                        |                | 11/09/16 11:37 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                    | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.2</b>         | Std. Units   | 0.10                      | 1                        |                | 11/09/16 16:12 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                    | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | <b>86.1</b>        | mg/L   | 20.0                      | 20                       |                | 11/30/16 01:51 | 16887-00-6 |      |
| Fluoride                            | <b>0.32</b>        | mg/L   | 0.20                      | 1                        |                | 11/30/16 01:37 | 16984-48-8 |      |
| Sulfate                             | <b>562</b>         | mg/L   | 50.0                      | 50                       |                | 11/30/16 18:58 | 14808-79-8 |      |

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## 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 |
| <b>200.7 Metals, Total</b>          |                    | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                           |                          |                |            |      |
| Barium, Total Recoverable           | <b>0.053</b>       | mg/L   | 0.0050       | 1                         | 11/08/16 09:00           | 11/09/16 14:14 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/09/16 14:14 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>1.2</b>         | mg/L   | 0.10         | 1                         | 11/08/16 09:00           | 11/09/16 14:14 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>205</b>         | mg/L   | 0.10         | 1                         | 11/08/16 09:00           | 11/09/16 14:14 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>  | mg/L   | 0.0050       | 1                         | 11/08/16 09:00           | 11/09/16 14:14 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>  | mg/L   | 0.0050       | 1                         | 11/08/16 09:00           | 11/09/16 14:14 | 7439-92-1  |      |
| Lithium                             | <b>0.015</b>       | mg/L   | 0.010        | 1                         | 11/08/16 09:00           | 11/09/16 14:14 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                    | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                           |                          |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:36 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>0.0075</b>      | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:36 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b> | mg/L   | 0.00050      | 1                         | 11/08/16 09:00           | 11/28/16 17:36 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:36 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.054</b>       | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:36 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:36 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:36 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                    | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                           |                          |                |            |      |
| Mercury                             | <b>&lt;0.00020</b> | mg/L   | 0.00020      | 1                         | 11/22/16 08:30           | 11/22/16 13:04 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                    | Analytical Method: SM 2540C                                |              |                           |                          |                |            |      |
| Total Dissolved Solids              | <b>1460</b>        | mg/L   | 5.0          | 1                         |                          | 11/09/16 11:37 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                    | Analytical Method: SM 4500-H+B                             |              |                           |                          |                |            |      |
| pH at 25 Degrees C                  | <b>7.4</b>         | Std. Units   | 0.10         | 1                         |                          | 11/09/16 16:12 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                    | Analytical Method: EPA 300.0                               |              |                           |                          |                |            |      |
| Chloride                            | <b>158</b>         | mg/L   | 20.0         | 20                        |                          | 11/30/16 02:34 | 16887-00-6 |      |
| Fluoride                            | <b>0.52</b>        | mg/L   | 0.20         | 1                         |                          | 11/30/16 02:19 | 16984-48-8 |      |
| Sulfate                             | <b>900</b>         | mg/L   | 200          | 200                       |                          | 11/30/16 02:48 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

| Sample: <b>FAA-3-110416</b>         | Lab ID: <b>60231627013</b> | 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 |
| <b>200.7 Metals, Total</b>          |                            | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                          |               |                |                |            |      |
| Barium, Total Recoverable           | <b>0.034</b>               | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 14:18 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/09/16 14:18 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.95</b>                | mg/L   | 0.10                     | 1             | 11/08/16 09:00 | 11/09/16 14:18 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>214</b>                 | mg/L   | 0.10                     | 1             | 11/08/16 09:00 | 11/09/16 14:18 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>          | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 14:18 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>          | mg/L   | 0.0050                   | 1             | 11/08/16 09:00 | 11/09/16 14:18 | 7439-92-1  |      |
| Lithium                             | <b>0.017</b>               | mg/L   | 0.010                    | 1             | 11/08/16 09:00 | 11/09/16 14:18 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                            | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                          |               |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:40 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:40 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>         | mg/L   | 0.00050                  | 1             | 11/08/16 09:00 | 11/28/16 17:40 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:40 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.014</b>               | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:40 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:40 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>          | mg/L   | 0.0010                   | 1             | 11/08/16 09:00 | 11/28/16 17:40 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                            | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                          |               |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>         | mg/L   | 0.00020                  | 1             | 11/22/16 08:30 | 11/22/16 13:06 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                            | Analytical Method: SM 2540C                                |                          |               |                |                |            |      |
| Total Dissolved Solids              | <b>1490</b>                | mg/L   | 5.0                      | 1             |                | 11/09/16 11:38 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                            | Analytical Method: SM 4500-H+B                             |                          |               |                |                |            |      |
| pH at 25 Degrees C                  | <b>6.9</b>                 | Std. Units   | 0.10                     | 1             |                | 11/12/16 11:00 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                            | Analytical Method: EPA 300.0                               |                          |               |                |                |            |      |
| Chloride                            | <b>89.5</b>                | mg/L   | 10.0                     | 10            |                | 11/30/16 03:16 | 16887-00-6 |      |
| Fluoride                            | <b>0.31</b>                | mg/L   | 0.20                     | 1             |                | 11/30/16 03:02 | 16984-48-8 |      |
| Sulfate                             | <b>896</b>                 | mg/L   | 50.0                     | 50            |                | 11/30/16 03:30 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

| Sample: <b>FAA-2-110416</b>         |                    | Lab ID: <b>60231627014</b>                                 |              | 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 |
| <b>200.7 Metals, Total</b>          |                    | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                           |                          |                |            |      |
| Barium, Total Recoverable           | <b>0.035</b>       | mg/L   | 0.0050       | 1                         | 11/08/16 09:00           | 11/09/16 14:22 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/09/16 14:22 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>3.2</b>         | mg/L   | 0.10         | 1                         | 11/08/16 09:00           | 11/09/16 14:22 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>330</b>         | mg/L   | 0.10         | 1                         | 11/08/16 09:00           | 11/09/16 14:22 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>  | mg/L   | 0.0050       | 1                         | 11/08/16 09:00           | 11/09/16 14:22 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>  | mg/L   | 0.0050       | 1                         | 11/08/16 09:00           | 11/09/16 14:22 | 7439-92-1  |      |
| Lithium                             | <b>0.018</b>       | mg/L   | 0.010        | 1                         | 11/08/16 09:00           | 11/09/16 14:22 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                    | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                           |                          |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:44 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:44 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b> | mg/L   | 0.00050      | 1                         | 11/08/16 09:00           | 11/28/16 17:44 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>0.0012</b>      | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:44 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.27</b>        | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:44 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:44 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 11/08/16 09:00           | 11/28/16 17:44 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                    | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                           |                          |                |            |      |
| Mercury                             | <b>&lt;0.00020</b> | mg/L   | 0.00020      | 1                         | 11/22/16 08:30           | 11/22/16 13:09 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                    | Analytical Method: SM 2540C                                |              |                           |                          |                |            |      |
| Total Dissolved Solids              | <b>3160</b>        | mg/L   | 5.0          | 1                         |                          | 11/09/16 11:38 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                    | Analytical Method: SM 4500-H+B                             |              |                           |                          |                |            |      |
| pH at 25 Degrees C                  | <b>7.1</b>         | Std. Units   | 0.10         | 1                         |                          | 11/12/16 11:00 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                    | Analytical Method: EPA 300.0                               |              |                           |                          |                |            |      |
| Chloride                            | <b>68.8</b>        | mg/L   | 10.0         | 10                        |                          | 11/30/16 17:19 | 16887-00-6 |      |
| Fluoride                            | <b>0.60</b>        | mg/L   | 0.20         | 1                         |                          | 11/30/16 18:15 | 16984-48-8 |      |
| Sulfate                             | <b>2030</b>        | mg/L   | 200          | 200                       |                          | 11/30/16 17:33 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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### 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       |            |

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### 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    | 105    | 105   | 70-130 | 0            | 20  |         |      |
| Beryllium | mg/L  | ND          | 1     | 1           | 0.97  | 0.97   | 97     | 97    | 70-130 | 0            | 20  |         |      |
| Boron     | mg/L  | ND          | 1     | 1           | 0.96  | 0.96   | 96     | 96    | 70-130 | 0            | 20  |         |      |
| Calcium   | mg/L  | 2220 ug/L   | 10    | 10          | 12.2  | 12.2   | 99     | 100   | 70-130 | 0            | 20  |         |      |
| Chromium  | mg/L  | ND          | 1     | 1           | 1.0   | 1.0    | 103    | 102   | 70-130 | 1            | 20  |         |      |
| Lead      | mg/L  | ND          | 1     | 1           | 1.0   | 1.0    | 105    | 104   | 70-130 | 0            | 20  |         |      |
| Lithium   | mg/L  | ND          | 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

| MATRIX SPIKE SAMPLE: |       | 1858396               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60231598002<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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**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 | Max RPD | Qual |
|------------|-------|-------------|-------------|-------------|-----------|------------|----------|-----------|--------|--------------|---------|------|
|            |       | Result      | Spike Conc. | Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

| MATRIX SPIKE SAMPLE: |       | 1858419               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60231627002<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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### 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      |            |

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**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<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 6.8                   | 6.8           | 0   | 5          | H6         |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

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|                         |  |                       |             |
|-------------------------|--|-----------------------|-------------|
| 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 |                       |             |

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SAMPLE DUPLICATE: 1861765

| Parameter          | Units      | 60231480001<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 8.2                   | 8.2           | 0   | 5          | H6         |

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### 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<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 7.0                   | 7.0           | 0   | 5          | H6         |

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**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         |

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### 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       |            |

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### 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                | <b>0.142 ± 0.342 (0.661)</b><br>C:NA T:89% | pCi/L | 12/05/16 22:01 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>1.73 ± 0.641 (0.939)</b><br>C:62% T:81% | pCi/L | 12/06/16 11:38 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>1.87 ± 0.983 (1.60)</b>                 | pCi/L | 12/07/16 11:07 | 7440-14-4  |      |

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### 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                | <b>0.479 ± 0.406</b> | <b>(0.503)</b>            | pCi/L                    | 12/05/16 22:01 | 13982-63-3 |      |
| Radium-228           | EPA 904.0                | <b>0.845 ± 0.453</b> | <b>(0.816)</b>            | pCi/L                    | 12/06/16 11:38 | 15262-20-1 |      |
| Total Radium         | Total Radium Calculation | <b>1.32 ± 0.859</b>  | <b>(1.32)</b>             | pCi/L                    | 12/07/16 11:07 | 7440-14-4  |      |

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### 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                | <b>-0.137 ± 0.314 (0.739)</b><br>C:NA T:90% | pCi/L | 12/05/16 22:01 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.456 ± 0.507 (1.07)</b><br>C:77% T:82%  | pCi/L | 12/06/16 11:38 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.593 ± 0.821 (1.81)</b>                 | pCi/L | 12/07/16 11:07 | 7440-14-4  |      |

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### 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                | <b>0.262 ± 0.364 (0.608)</b><br>C:NA T:90%  | pCi/L | 12/05/16 22:01 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.635 ± 0.416 (0.790)</b><br>C:77% T:80% | pCi/L | 12/06/16 11:38 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.897 ± 0.780 (1.40)</b>                 | pCi/L | 12/07/16 11:07 | 7440-14-4  |      |

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### 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                   | <b>1.01 ± 0.577 (0.531)</b><br>C:NA T:85%   | pCi/L | 12/05/16 22:32 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                   | <b>0.325 ± 0.388 (0.820)</b><br>C:73% T:84% | pCi/L | 12/06/16 11:38 | 15262-20-1 |      |
| Total Radium | Total Radium<br>Calculation | <b>1.34 ± 0.965 (1.35)</b>                  | pCi/L | 12/07/16 11:07 | 7440-14-4  |      |

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### 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                   | <b>0.149 ± 0.461 (0.892)</b><br>C:NA T:84%  | pCi/L | 12/05/16 22:32 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                   | <b>0.345 ± 0.434 (0.922)</b><br>C:67% T:81% | pCi/L | 12/06/16 11:38 | 15262-20-1 |      |
| Total Radium | Total Radium<br>Calculation | <b>0.494 ± 0.895 (1.81)</b>                 | pCi/L | 12/07/16 11:07 | 7440-14-4  |      |

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### 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                | <b>0.667 ± 0.568 (0.798)</b><br>C:NA T:88%  | pCi/L | 12/05/16 22:32 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.131 ± 0.336 (0.749)</b><br>C:73% T:88% | pCi/L | 12/06/16 11:39 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.798 ± 0.904 (1.55)</b>                 | pCi/L | 12/07/16 11:07 | 7440-14-4  |      |

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### 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                | <b>0.233 ± 0.356 (0.211)</b><br>C:NA T:80%  | pCi/L | 12/05/16 22:32 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.470 ± 0.342 (0.662)</b><br>C:75% T:87% | pCi/L | 12/06/16 11:39 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.703 ± 0.698 (0.873)</b>                | pCi/L | 12/07/16 11:07 | 7440-14-4  |      |

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### 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                   | <b>0.135 ± 0.373 (0.724)</b><br>C:NA T:91%  | pCi/L | 12/05/16 22:32 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                   | <b>0.821 ± 0.519 (0.988)</b><br>C:61% T:85% | pCi/L | 12/06/16 11:39 | 15262-20-1 |      |
| Total Radium | Total Radium<br>Calculation | <b>0.956 ± 0.892 (1.71)</b>                 | pCi/L | 12/07/16 11:07 | 7440-14-4  |      |

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### 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                | <b>0.0681 ± 0.311 (0.502)</b><br>C:NA T:88% | pCi/L | 12/05/16 22:32 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.404 ± 0.395 (0.811)</b><br>C:68% T:83% | pCi/L | 12/06/16 11:39 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.472 ± 0.706 (1.31)</b>                 | pCi/L | 12/07/16 11:07 | 7440-14-4  |      |

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### 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                   | <b>1.30 ± 0.679 (0.668)</b><br>C:NA T:91%    | pCi/L | 12/05/16 23:00 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                   | <b>-0.163 ± 0.338 (0.822)</b><br>C:66% T:89% | pCi/L | 12/06/16 11:39 | 15262-20-1 |      |
| Total Radium | Total Radium<br>Calculation | <b>1.30 ± 1.02 (1.49)</b>                    | pCi/L | 12/07/16 11:07 | 7440-14-4  |      |

### REPORT OF LABORATORY ANALYSIS

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### 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                | <b>0.907 ± 0.540 (0.514)</b><br>C:NA T:88% | pCi/L | 12/05/16 23:00 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>1.03 ± 0.450 (0.722)</b><br>C:68% T:86% | pCi/L | 12/06/16 11:39 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>1.94 ± 0.990 (1.24)</b>                 | pCi/L | 12/07/16 11:07 | 7440-14-4  |      |

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### 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                   | <b>0.0681 ± 0.353 (0.733)</b><br>C:NA T:89%  | pCi/L | 12/05/16 23:00 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                   | <b>0.0499 ± 0.328 (0.756)</b><br>C:65% T:87% | pCi/L | 12/06/16 11:39 | 15262-20-1 |      |
| Total Radium | Total Radium<br>Calculation | <b>0.118 ± 0.681 (1.49)</b>                  | pCi/L | 12/07/16 11:07 | 7440-14-4  |      |

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### 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                   | <b>0.203 ± 0.310 (0.499)</b><br>C:NA T:93%   | pCi/L | 12/05/16 23:00 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                   | <b>0.0530 ± 0.350 (0.802)</b><br>C:67% T:86% | pCi/L | 12/06/16 11:39 | 15262-20-1 |      |
| Total Radium | Total Radium<br>Calculation | <b>0.256 ± 0.660 (1.30)</b>                  | pCi/L | 12/07/16 11:07 | 7440-14-4  |      |

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

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|                         |  |                       |                  |
|-------------------------|--|-----------------------|------------------|
| 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 |                       |                  |

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|                         |  |         |       |
|-------------------------|--|---------|-------|
| 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.

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

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|                         |  |                       |                  |
|-------------------------|--|-----------------------|------------------|
| 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 |                       |                  |

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|                         |  |         |       |
|-------------------------|--|---------|-------|
| 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 |            |

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

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### 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

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### 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

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### 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   |                   |                  |

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### 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   |                   |                  |

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Sample Condition Upon Receipt

WO#: 60231627



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 / T-239 Type of Ice: Wet [x] Blue [ ] None [ ]

Cooler Temperature (°C): As-read 0.7 / 1.1 / 7.2 / 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

Table with 2 columns: Question/Requirement and Yes/No/N/A checkboxes. Includes rows for Chain of Custody, Samples arrived, Short Hold Time, Rush Turn Around Time, Sufficient volume, Correct containers used, Pace containers used, Containers intact, Unpreserved soils, Filtered volume, Sample labels match COC, Samples contain multiple phases, Containers requiring pH preservation, Cyanide water sample checks, Lead acetate strip, Potassium iodide test strip, Trip Blank present, Headspace in VOA vials, Samples from USDA Regulated Area, and Additional labels attached.

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:







# 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:  | ✓   |    |     | 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>WF</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. <u>pH &lt; 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>KH</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>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 19, 2017

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

RE: Project: JEC CCR GROUNDWATER  
Pace Project No.: 60234594

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on December 17, 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

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## CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

---

### 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

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### 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

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

| Lab ID      | Sample ID    | Matrix | Date Collected | Date Received  |
|-------------|--------------|--------|----------------|----------------|
| 60234594001 | FGD-1-121516 | Water  | 12/15/16 10:57 | 12/17/16 09:45 |
| 60234594002 | FGD-4-121516 | Water  | 12/15/16 12:55 | 12/17/16 09:45 |
| 60234594003 | FGD-3-121516 | Water  | 12/15/16 14:08 | 12/17/16 09:45 |
| 60234594004 | FGD-2-121516 | Water  | 12/15/16 15:30 | 12/17/16 09:45 |
| 60234594005 | DUP-121516   | Water  | 12/15/16 06:00 | 12/17/16 09:45 |

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

| Lab ID      | Sample ID    | Method                   | Analysts | Analytes Reported | Laboratory |
|-------------|--------------|--------------------------|----------|-------------------|------------|
| 60234594001 | FGD-1-121516 | EPA 200.7                | JGP      | 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     |
| 60234594002 | FGD-4-121516 | EPA 300.0                | OL       | 3                 | PASI-K     |
|             |              | EPA 200.7                | JGP      | 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     |
| 60234594003 | FGD-3-121516 | SM 4500-H+B              | AGO      | 1                 | PASI-K     |
|             |              | EPA 300.0                | OL       | 3                 | PASI-K     |
|             |              | EPA 200.7                | JGP      | 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    |
| 60234594004 | FGD-2-121516 | SM 2540C                 | JSS      | 1                 | PASI-K     |
|             |              | SM 4500-H+B              | AGO      | 1                 | PASI-K     |
|             |              | EPA 300.0                | OL       | 3                 | PASI-K     |
|             |              | EPA 200.7                | JGP      | 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    |
| 60234594005 | DUP-121516   | 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     |
|             |              | EPA 200.7                | JGP      | 7                 | PASI-K     |

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

| 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 | 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

---

**Method:** EPA 200.7

**Description:** 200.7 Metals, Total

**Client:** WESTAR ENERGY

**Date:** January 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: 459902

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60234340002,60234594003

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

- MS (Lab ID: 1882846)
  - Calcium
- MSD (Lab ID: 1882847)
  - Calcium

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

---

**Method:** EPA 200.8

**Description:** 200.8 MET ICPMS

**Client:** WESTAR ENERGY

**Date:** January 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

---

**Method:** EPA 245.1

**Description:** 245.1 Mercury

**Client:** WESTAR ENERGY

**Date:** January 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

---

**Method:** EPA 903.1

**Description:** 903.1 Radium 226

**Client:** WESTAR ENERGY

**Date:** January 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

---

**Method:** EPA 904.0

**Description:** 904.0 Radium 228

**Client:** WESTAR ENERGY

**Date:** January 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

---

**Method:** Total Radium Calculation

**Description:** Total Radium 228+226

**Client:** WESTAR ENERGY

**Date:** January 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

---

**Method:** SM 2540C

**Description:** 2540C Total Dissolved Solids

**Client:** WESTAR ENERGY

**Date:** January 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.

QC Batch: 459669

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 1881982)
- Total Dissolved Solids

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

---

**Method:** SM 4500-H+B

**Description:** 4500H+ pH, Electrometric

**Client:** WESTAR ENERGY

**Date:** January 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.

- DUP-121516 (Lab ID: 60234594005)
- FGD-1-121516 (Lab ID: 60234594001)
- FGD-2-121516 (Lab ID: 60234594004)
- FGD-3-121516 (Lab ID: 60234594003)
- FGD-4-121516 (Lab ID: 60234594002)

### 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

---

**Method:** EPA 300.0

**Description:** 300.0 IC Anions 28 Days

**Client:** WESTAR ENERGY

**Date:** January 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.

QC Batch: 461088

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60235068001,60235068003

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

- MS (Lab ID: 1887370)
- Fluoride

QC Batch: 461555

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60235242001,60235242002

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

- MSD (Lab ID: 1889268)
- Chloride

**Additional Comments:**

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

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

| Sample: FGD-1-121516                |                    | Lab ID: 60234594001  | Collected: 12/15/16 10:57 | Received: 12/17/16 09:45 | Matrix: Water  |                |            |      |
|-------------------------------------|--------------------|--|---------------------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results            | Units  | Report Limit              | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                    | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.28</b>        | mg/L   | 0.0050                    | 1                        | 12/21/16 15:15 | 12/28/16 19:18 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 12/21/16 15:15 | 12/28/16 19:18 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>&lt;0.10</b>    | mg/L   | 0.10                      | 1                        | 12/21/16 15:15 | 12/28/16 19:18 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>90.3</b>        | mg/L   | 0.10                      | 1                        | 12/21/16 15:15 | 12/28/16 19:18 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>  | mg/L   | 0.0050                    | 1                        | 12/21/16 15:15 | 12/28/16 19:18 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>  | mg/L   | 0.0050                    | 1                        | 12/21/16 15:15 | 12/28/16 19:18 | 7439-92-1  |      |
| Lithium                             | <b>0.016</b>       | mg/L   | 0.010                     | 1                        | 12/21/16 15:15 | 12/28/16 19:18 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                    | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                           |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 12/21/16 15:15 | 12/29/16 16:11 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 12/21/16 15:15 | 12/29/16 16:11 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b> | mg/L   | 0.00050                   | 1                        | 12/21/16 15:15 | 12/29/16 16:11 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 12/21/16 15:15 | 12/29/16 16:11 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0012</b>      | mg/L   | 0.0010                    | 1                        | 12/21/16 15:15 | 12/29/16 16:11 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 12/21/16 15:15 | 12/29/16 16:11 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 12/21/16 15:15 | 12/29/16 16:11 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                    | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                           |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b> | mg/L   | 0.00020                   | 1                        | 12/19/16 16:15 | 12/20/16 10:07 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                    | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | <b>496</b>         | mg/L   | 5.0                       | 1                        |                | 12/20/16 12:30 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                    | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.8</b>         | Std. Units   | 0.10                      | 1                        |                | 12/28/16 09:32 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                    | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | <b>44.2</b>        | mg/L   | 5.0                       | 5                        |                | 01/10/17 21:30 | 16887-00-6 |      |
| Fluoride                            | <b>0.33</b>        | mg/L   | 0.20                      | 1                        |                | 01/04/17 16:00 | 16984-48-8 |      |
| Sulfate                             | <b>91.6</b>        | mg/L   | 5.0                       | 5                        |                | 01/10/17 21:30 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

| Sample: FGD-4-121516                |                    | Lab ID: 60234594002  | Collected: 12/15/16 12:55 | Received: 12/17/16 09:45 | Matrix: Water  |                |            |      |
|-------------------------------------|--------------------|--|---------------------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results            | Units  | Report Limit              | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                    | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.064</b>       | mg/L   | 0.0050                    | 1                        | 12/21/16 15:15 | 12/28/16 19:21 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 12/21/16 15:15 | 12/28/16 19:21 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.26</b>        | mg/L   | 0.10                      | 1                        | 12/21/16 15:15 | 12/28/16 19:21 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>163</b>         | mg/L   | 0.10                      | 1                        | 12/21/16 15:15 | 12/28/16 19:21 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>  | mg/L   | 0.0050                    | 1                        | 12/21/16 15:15 | 12/28/16 19:21 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>  | mg/L   | 0.0050                    | 1                        | 12/21/16 15:15 | 12/28/16 19:21 | 7439-92-1  |      |
| Lithium                             | <b>0.017</b>       | mg/L   | 0.010                     | 1                        | 12/21/16 15:15 | 12/28/16 19:21 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                    | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                           |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 12/21/16 15:15 | 12/29/16 16:15 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 12/21/16 15:15 | 12/29/16 16:15 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b> | mg/L   | 0.00050                   | 1                        | 12/21/16 15:15 | 12/29/16 16:15 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 12/21/16 15:15 | 12/29/16 16:15 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0037</b>      | mg/L   | 0.0010                    | 1                        | 12/21/16 15:15 | 12/29/16 16:15 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 12/21/16 15:15 | 12/29/16 16:15 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 12/21/16 15:15 | 12/29/16 16:15 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                    | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                           |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b> | mg/L   | 0.00020                   | 1                        | 12/19/16 16:15 | 12/20/16 10:14 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                    | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | <b>972</b>         | mg/L   | 5.0                       | 1                        |                | 12/20/16 12:32 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                    | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.4</b>         | Std. Units   | 0.10                      | 1                        |                | 12/28/16 09:33 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                    | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | <b>78.2</b>        | mg/L   | 10.0                      | 10                       |                | 01/10/17 21:46 | 16887-00-6 |      |
| Fluoride                            | <b>0.33</b>        | mg/L   | 0.20                      | 1                        |                | 01/04/17 16:13 | 16984-48-8 |      |
| Sulfate                             | <b>369</b>         | mg/L   | 50.0                      | 50                       |                | 01/11/17 00:20 | 14808-79-8 |      |

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

| Sample: FGD-3-121516                |          | Lab ID: 60234594003  |              | Collected: 12/15/16 14:08 | Received: 12/17/16 09:45 | Matrix: Water  |            |      |
|-------------------------------------|----------|--|--------------|---------------------------|--------------------------|----------------|------------|------|
| Parameters                          | Results  | Units  | Report Limit | DF                        | Prepared                 | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |          | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                           |                          |                |            |      |
| Barium, Total Recoverable           | 0.15     | mg/L   | 0.0050       | 1                         | 12/21/16 15:15           | 12/28/16 19:25 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <0.0010  | mg/L   | 0.0010       | 1                         | 12/21/16 15:15           | 12/28/16 19:25 | 7440-41-7  |      |
| Boron, Total Recoverable            | 0.14     | mg/L   | 0.10         | 1                         | 12/21/16 15:15           | 12/28/16 19:25 | 7440-42-8  |      |
| Calcium, Total Recoverable          | 164      | mg/L   | 0.10         | 1                         | 12/21/16 15:15           | 12/28/16 19:25 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <0.0050  | mg/L   | 0.0050       | 1                         | 12/21/16 15:15           | 12/28/16 19:25 | 7440-47-3  |      |
| Lead, Total Recoverable             | <0.0050  | mg/L   | 0.0050       | 1                         | 12/21/16 15:15           | 12/28/16 19:25 | 7439-92-1  |      |
| Lithium                             | 0.018    | mg/L   | 0.010        | 1                         | 12/21/16 15:15           | 12/28/16 19:25 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |          | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                           |                          |                |            |      |
| Antimony, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 12/21/16 15:15           | 12/29/16 16:24 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <0.0010  | mg/L   | 0.0010       | 1                         | 12/21/16 15:15           | 12/29/16 16:24 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <0.00050 | mg/L   | 0.00050      | 1                         | 12/21/16 15:15           | 12/29/16 16:24 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <0.0010  | mg/L   | 0.0010       | 1                         | 12/21/16 15:15           | 12/29/16 16:24 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | 0.0056   | mg/L   | 0.0010       | 1                         | 12/21/16 15:15           | 12/29/16 16:24 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 12/21/16 15:15           | 12/29/16 16:24 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 12/21/16 15:15           | 12/29/16 16:24 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |          | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                           |                          |                |            |      |
| Mercury                             | <0.00020 | mg/L   | 0.00020      | 1                         | 12/19/16 16:15           | 12/20/16 10:16 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |              |                           |                          |                |            |      |
| Total Dissolved Solids              | 880      | mg/L   | 5.0          | 1                         |                          | 12/20/16 12:33 |            |      |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |              |                           |                          |                |            |      |
| pH at 25 Degrees C                  | 7.4      | Std. Units   | 0.10         | 1                         |                          | 12/28/16 09:34 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |          | Analytical Method: EPA 300.0                               |              |                           |                          |                |            |      |
| Chloride                            | 70.5     | mg/L   | 5.0          | 5                         |                          | 01/10/17 22:01 | 16887-00-6 |      |
| Fluoride                            | 0.26     | mg/L   | 0.20         | 1                         |                          | 01/04/17 16:27 | 16984-48-8 |      |
| Sulfate                             | 335      | mg/L   | 50.0         | 50                        |                          | 01/11/17 00:35 | 14808-79-8 |      |

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### ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

| Sample: FGD-2-121516                                       | Lab ID: 60234594004 | Collected: 12/15/16 15:30 | Received: 12/17/16 09:45 | Matrix: Water |                |                |            |      |
|--|---------------------|---------------------------|--------------------------|---------------|----------------|----------------|------------|------|
| Parameters   | Results             | Units                     | Report Limit             | DF            | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>                                 |                     |                           |                          |               |                |                |            |      |
| Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                     |                           |                          |               |                |                |            |      |
| Barium, Total Recoverable                                  | 0.072               | mg/L                      | 0.0050                   | 1             | 12/21/16 15:15 | 12/28/16 19:32 | 7440-39-3  |      |
| Beryllium, Total Recoverable                               | <0.0010             | mg/L                      | 0.0010                   | 1             | 12/21/16 15:15 | 12/28/16 19:32 | 7440-41-7  |      |
| Boron, Total Recoverable                                   | 0.23                | mg/L                      | 0.10                     | 1             | 12/21/16 15:15 | 12/28/16 19:32 | 7440-42-8  |      |
| Calcium, Total Recoverable                                 | 121                 | mg/L                      | 0.10                     | 1             | 12/21/16 15:15 | 12/28/16 19:32 | 7440-70-2  |      |
| Chromium, Total Recoverable                                | <0.0050             | mg/L                      | 0.0050                   | 1             | 12/21/16 15:15 | 12/28/16 19:32 | 7440-47-3  |      |
| Lead, Total Recoverable                                    | <0.0050             | mg/L                      | 0.0050                   | 1             | 12/21/16 15:15 | 12/28/16 19:32 | 7439-92-1  |      |
| Lithium  | 0.010               | mg/L                      | 0.010                    | 1             | 12/21/16 15:15 | 12/28/16 19:32 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>                                     |                     |                           |                          |               |                |                |            |      |
| Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                     |                           |                          |               |                |                |            |      |
| Antimony, Total Recoverable                                | <0.0010             | mg/L                      | 0.0010                   | 1             | 12/21/16 15:15 | 12/29/16 16:28 | 7440-36-0  |      |
| Arsenic, Total Recoverable                                 | <0.0010             | mg/L                      | 0.0010                   | 1             | 12/21/16 15:15 | 12/29/16 16:28 | 7440-38-2  |      |
| Cadmium, Total Recoverable                                 | <0.00050            | mg/L                      | 0.00050                  | 1             | 12/21/16 15:15 | 12/29/16 16:28 | 7440-43-9  |      |
| Cobalt, Total Recoverable                                  | 0.0011              | mg/L                      | 0.0010                   | 1             | 12/21/16 15:15 | 12/29/16 16:28 | 7440-48-4  |      |
| Molybdenum, Total Recoverable                              | 0.0039              | mg/L                      | 0.0010                   | 1             | 12/21/16 15:15 | 12/29/16 16:28 | 7439-98-7  |      |
| Selenium, Total Recoverable                                | <0.0010             | mg/L                      | 0.0010                   | 1             | 12/21/16 15:15 | 12/29/16 16:28 | 7782-49-2  |      |
| Thallium, Total Recoverable                                | <0.0010             | mg/L                      | 0.0010                   | 1             | 12/21/16 15:15 | 12/29/16 16:28 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                                       |                     |                           |                          |               |                |                |            |      |
| Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                     |                           |                          |               |                |                |            |      |
| Mercury  | <0.00020            | mg/L                      | 0.00020                  | 1             | 12/19/16 16:15 | 12/20/16 10:18 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b>                        |                     |                           |                          |               |                |                |            |      |
| Analytical Method: SM 2540C                                |                     |                           |                          |               |                |                |            |      |
| Total Dissolved Solids                                     | 632                 | mg/L                      | 5.0                      | 1             |                | 12/20/16 12:33 |            |      |
| <b>4500H+ pH, Electrometric</b>                            |                     |                           |                          |               |                |                |            |      |
| Analytical Method: SM 4500-H+B                             |                     |                           |                          |               |                |                |            |      |
| pH at 25 Degrees C   | 7.5                 | Std. Units                | 0.10                     | 1             |                | 12/28/16 09:35 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>                             |                     |                           |                          |               |                |                |            |      |
| Analytical Method: EPA 300.0                               |                     |                           |                          |               |                |                |            |      |
| Chloride   | 34.3                | mg/L                      | 2.0                      | 2             |                | 01/10/17 22:17 | 16887-00-6 |      |
| Fluoride   | 0.34                | mg/L                      | 0.20                     | 1             |                | 01/04/17 16:41 | 16984-48-8 |      |
| Sulfate  | 201                 | mg/L                      | 20.0                     | 20            |                | 01/11/17 00:51 | 14808-79-8 |      |

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

| Sample: DUP-121516                  |                    | Lab ID: 60234594005  |              | Collected: 12/15/16 06:00 | Received: 12/17/16 09:45 | Matrix: Water  |            |      |
|-------------------------------------|--------------------|--|--------------|---------------------------|--------------------------|----------------|------------|------|
| Parameters                          | Results            | Units  | Report Limit | DF                        | Prepared                 | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                    | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                           |                          |                |            |      |
| Barium, Total Recoverable           | <b>0.0074</b>      | mg/L   | 0.0050       | 1                         | 12/21/16 15:15           | 12/28/16 19:36 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 12/21/16 15:15           | 12/28/16 19:36 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>1.2</b>         | mg/L   | 0.10         | 1                         | 12/21/16 15:15           | 12/28/16 19:36 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>339</b>         | mg/L   | 0.10         | 1                         | 12/21/16 15:15           | 12/28/16 19:36 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>  | mg/L   | 0.0050       | 1                         | 12/21/16 15:15           | 12/28/16 19:36 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>  | mg/L   | 0.0050       | 1                         | 12/21/16 15:15           | 12/28/16 19:36 | 7439-92-1  |      |
| Lithium                             | <b>0.11</b>        | mg/L   | 0.010        | 1                         | 12/21/16 15:15           | 12/28/16 19:36 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                    | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                           |                          |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 12/21/16 15:15           | 12/29/16 16:51 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>0.0011</b>      | mg/L   | 0.0010       | 1                         | 12/21/16 15:15           | 12/29/16 16:51 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b> | mg/L   | 0.00050      | 1                         | 12/21/16 15:15           | 12/29/16 16:51 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 12/21/16 15:15           | 12/29/16 16:51 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.023</b>       | mg/L   | 0.0010       | 1                         | 12/21/16 15:15           | 12/29/16 16:51 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>0.0016</b>      | mg/L   | 0.0010       | 1                         | 12/21/16 15:15           | 12/29/16 16:51 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 12/21/16 15:15           | 12/29/16 16:51 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                    | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                           |                          |                |            |      |
| Mercury                             | <b>&lt;0.00020</b> | mg/L   | 0.00020      | 1                         | 12/19/16 16:15           | 12/20/16 10:20 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                    | Analytical Method: SM 2540C                                |              |                           |                          |                |            |      |
| Total Dissolved Solids              | <b>2500</b>        | mg/L   | 5.0          | 1                         |                          | 12/20/16 12:34 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                    | Analytical Method: SM 4500-H+B                             |              |                           |                          |                |            |      |
| pH at 25 Degrees C                  | <b>7.1</b>         | Std. Units   | 0.10         | 1                         |                          | 12/28/16 09:37 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                    | Analytical Method: EPA 300.0                               |              |                           |                          |                |            |      |
| Chloride                            | <b>102</b>         | mg/L   | 10.0         | 10                        |                          | 01/10/17 22:32 | 16887-00-6 |      |
| Fluoride                            | <b>0.82</b>        | mg/L   | 0.20         | 1                         |                          | 01/04/17 16:54 | 16984-48-8 |      |
| Sulfate                             | <b>1320</b>        | mg/L   | 200          | 200                       |                          | 01/11/17 01:06 | 14808-79-8 |      |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

QC Batch: 459521 Analysis Method: EPA 245.1  
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury  
 Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

METHOD BLANK: 1881503 Matrix: Water  
 Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|-----------|-------|--------------|-----------------|----------------|------------|
| Mercury   | mg/L  | <0.00020     | 0.00020         | 12/20/16 09:20 |            |

LABORATORY CONTROL SAMPLE: 1881504

| 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: 1881505 1881506

| Parameter | Units | 60234342001    |                 | 1881505   |            | 1881506  |           | % Rec Limits | RPD    | Max RPD | Qual |
|-----------|-------|----------------|-----------------|-----------|------------|----------|-----------|--------------|--------|---------|------|
|           |       | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec |              |        |         |      |
| Mercury   | mg/L  | <0.20 ug/L     | .005            | .005      | 0.0041     | 0.0036   | 81        | 73           | 70-130 | 11      | 20   |

MATRIX SPIKE SAMPLE: 1881507

| Parameter | Units | 60234340001 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|--------------------|-------------|-----------|----------|--------------|------------|
| Mercury   | mg/L  | <0.00020           | .005        | 0.0049    | 98       | 70-130       |            |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER  
Pace Project No.: 60234594

QC Batch: 459902 Analysis Method: EPA 200.7  
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total  
Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

METHOD BLANK: 1882844 Matrix: Water  
Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|-----------|-------|--------------|-----------------|----------------|------------|
| Barium    | mg/L  | <0.0050      | 0.0050          | 12/28/16 18:10 |            |
| Beryllium | mg/L  | <0.0010      | 0.0010          | 12/28/16 18:10 |            |
| Boron     | mg/L  | <0.10        | 0.10            | 12/28/16 18:10 |            |
| Calcium   | mg/L  | <0.10        | 0.10            | 12/28/16 18:10 |            |
| Chromium  | mg/L  | <0.0050      | 0.0050          | 12/28/16 18:10 |            |
| Lead      | mg/L  | <0.0050      | 0.0050          | 12/28/16 18:10 |            |
| Lithium   | mg/L  | <0.010       | 0.010           | 12/28/16 18:10 |            |

LABORATORY CONTROL SAMPLE: 1882845

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|-------------|------------|-----------|--------------|------------|
| Barium    | mg/L  | 1           | 0.96       | 96        | 85-115       |            |
| Beryllium | mg/L  | 1           | 1.0        | 101       | 85-115       |            |
| Boron     | mg/L  | 1           | 0.94       | 94        | 85-115       |            |
| Calcium   | mg/L  | 10          | 9.7        | 97        | 85-115       |            |
| Chromium  | mg/L  | 1           | 0.95       | 95        | 85-115       |            |
| Lead      | mg/L  | 1           | 1.1        | 106       | 85-115       |            |
| Lithium   | mg/L  | 1           | 0.99       | 99        | 85-115       |            |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1882846 1882847

| Parameter | Units | 60234340002 |             | MSD         |        | MS     |       | MSD   |        | % Rec Limits | RPD | Max RPD | Qual |
|-----------|-------|-------------|-------------|-------------|--------|--------|-------|-------|--------|--------------|-----|---------|------|
|           |       | Result      | Spike Conc. | Spike Conc. | Result | Result | % Rec | % Rec |        |              |     |         |      |
| Barium    | mg/L  | 0.028       | 1           | 1           | 1.0    | 1.0    | 98    | 99    | 70-130 | 1            | 20  |         |      |
| Beryllium | mg/L  | <0.0010     | 1           | 1           | 1.0    | 1.0    | 102   | 103   | 70-130 | 1            | 20  |         |      |
| Boron     | mg/L  | 1.0         | 1           | 1           | 1.9    | 2.0    | 92    | 98    | 70-130 | 3            | 20  |         |      |
| Calcium   | mg/L  | 303         | 10          | 10          | 297    | 303    | -60   | -3    | 70-130 | 2            | 20  | M1      |      |
| Chromium  | mg/L  | <0.0050     | 1           | 1           | 0.93   | 0.97   | 93    | 97    | 70-130 | 4            | 20  |         |      |
| Lead      | mg/L  | <0.0050     | 1           | 1           | 1.0    | 1.0    | 99    | 101   | 70-130 | 2            | 20  |         |      |
| Lithium   | mg/L  | 0.024       | 1           | 1           | 1.1    | 1.1    | 104   | 106   | 70-130 | 2            | 20  |         |      |

MATRIX SPIKE SAMPLE: 1882848

| Parameter | Units | 60234594003 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|--------------------|-------------|-----------|----------|--------------|------------|
| Barium    | mg/L  | 0.15               | 1           | 1.1       | 97       | 70-130       |            |
| Beryllium | mg/L  | <0.0010            | 1           | 1.0       | 102      | 70-130       |            |
| Boron     | mg/L  | 0.14               | 1           | 1.1       | 95       | 70-130       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

| MATRIX SPIKE SAMPLE: |       | 1882848               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60234594003<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>Limits | Qualifiers |
| Calcium              | mg/L  | 164                   | 10             | 172          | 85          | 70-130          |            |
| Chromium             | mg/L  | <0.0050               | 1              | 0.93         | 93          | 70-130          |            |
| Lead                 | mg/L  | <0.0050               | 1              | 1.0          | 100         | 70-130          |            |
| Lithium              | mg/L  | 0.018                 | 1              | 1.1          | 104         | 70-130          |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER  
Pace Project No.: 60234594

QC Batch: 459903 Analysis Method: EPA 200.8  
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET  
Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

METHOD BLANK: 1882849 Matrix: Water  
Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

| Parameter  | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|------------|-------|--------------|-----------------|----------------|------------|
| Antimony   | mg/L  | <0.0010      | 0.0010          | 12/29/16 14:56 |            |
| Arsenic    | mg/L  | <0.0010      | 0.0010          | 12/29/16 14:56 |            |
| Cadmium    | mg/L  | <0.00050     | 0.00050         | 12/29/16 14:56 |            |
| Cobalt     | mg/L  | <0.0010      | 0.0010          | 12/29/16 14:56 |            |
| Molybdenum | mg/L  | <0.0010      | 0.0010          | 12/29/16 14:56 |            |
| Selenium   | mg/L  | <0.0010      | 0.0010          | 12/29/16 14:56 |            |
| Thallium   | mg/L  | <0.0010      | 0.0010          | 12/29/16 14:56 |            |

LABORATORY CONTROL SAMPLE: 1882850

| Parameter  | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|------------|-------|-------------|------------|-----------|--------------|------------|
| Antimony   | mg/L  | .04         | 0.039      | 97        | 85-115       |            |
| Arsenic    | mg/L  | .04         | 0.038      | 95        | 85-115       |            |
| Cadmium    | mg/L  | .04         | 0.038      | 96        | 85-115       |            |
| Cobalt     | mg/L  | .04         | 0.039      | 96        | 85-115       |            |
| Molybdenum | mg/L  | .04         | 0.039      | 98        | 85-115       |            |
| Selenium   | mg/L  | .04         | 0.037      | 93        | 85-115       |            |
| Thallium   | mg/L  | .04         | 0.040      | 99        | 85-115       |            |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1882851 1882852

| Parameter  | Units | 60234340003 |                 | 1882851   |                 | 1882852   |            | % 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       | 0.039           | 0.039     | 97         | 97    | 70-130 | 0            | 20  |         |      |
| Arsenic    | mg/L  | <0.0010     | .04             | .04       | 0.037           | 0.037     | 93         | 92    | 70-130 | 1            | 20  |         |      |
| Cadmium    | mg/L  | <0.00050    | .04             | .04       | 0.035           | 0.035     | 86         | 87    | 70-130 | 0            | 20  |         |      |
| Cobalt     | mg/L  | 0.0029      | .04             | .04       | 0.038           | 0.038     | 87         | 87    | 70-130 | 0            | 20  |         |      |
| Molybdenum | mg/L  | <0.0010     | .04             | .04       | 0.041           | 0.042     | 101        | 102   | 70-130 | 2            | 20  |         |      |
| Selenium   | mg/L  | <0.0010     | .04             | .04       | 0.035           | 0.035     | 87         | 88    | 70-130 | 2            | 20  |         |      |
| Thallium   | mg/L  | <0.0010     | .04             | .04       | 0.037           | 0.037     | 93         | 93    | 70-130 | 0            | 20  |         |      |

MATRIX SPIKE SAMPLE: 1882853

| Parameter | Units | 60234594002 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|--------------------|-------------|-----------|----------|--------------|------------|
| Antimony  | mg/L  | <0.0010            | .04         | 0.039     | 97       | 70-130       |            |
| Arsenic   | mg/L  | <0.0010            | .04         | 0.037     | 91       | 70-130       |            |
| Cadmium   | mg/L  | <0.00050           | .04         | 0.036     | 90       | 70-130       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

| MATRIX SPIKE SAMPLE: |       | 1882853               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60234594002<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>Limits | Qualifiers |
| Cobalt               | mg/L  | <0.0010               | .04            | 0.036        | 89          | 70-130          |            |
| Molybdenum           | mg/L  | 0.0037                | .04            | 0.044        | 102         | 70-130          |            |
| Selenium             | mg/L  | <0.0010               | .04            | 0.034        | 84          | 70-130          |            |
| Thallium             | mg/L  | <0.0010               | .04            | 0.038        | 95          | 70-130          |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

QC Batch: 459669

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

METHOD BLANK: 1881980

Matrix: Water

Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

| Parameter              | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|------------------------|-------|--------------|-----------------|----------------|------------|
| Total Dissolved Solids | mg/L  | <5.0         | 5.0             | 12/20/16 12:22 |            |

LABORATORY CONTROL SAMPLE: 1881981

| Parameter              | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|------------------------|-------|-------------|------------|-----------|--------------|------------|
| Total Dissolved Solids | mg/L  | 1000        | 975        | 98        | 80-120       |            |

SAMPLE DUPLICATE: 1881982

| Parameter              | Units | 60234338001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|------------------------|-------|--------------------|------------|-----|---------|------------|
| Total Dissolved Solids | mg/L  | 3610               | 3230       | 11  | 10      | D6         |

SAMPLE DUPLICATE: 1881983

| Parameter              | Units | 60234594001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|------------------------|-------|--------------------|------------|-----|---------|------------|
| Total Dissolved Solids | mg/L  | 496                | 502        | 1   | 10      |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

QC Batch: 460511 Analysis Method: SM 4500-H+B

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

Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

SAMPLE DUPLICATE: 1884873

| Parameter          | Units      | 60234593001<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 6.8                   | 6.9           | 1   | 5          | H6         |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

QC Batch: 461088 Analysis Method: EPA 300.0  
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

METHOD BLANK: 1887366 Matrix: Water  
 Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|-----------|-------|--------------|-----------------|----------------|------------|
| Fluoride  | mg/L  | <0.20        | 0.20            | 01/04/17 12:48 |            |

LABORATORY CONTROL SAMPLE: 1887367

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|-------------|------------|-----------|--------------|------------|
| Fluoride  | mg/L  | 2.5         | 2.7        | 106       | 90-110       |            |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1887368 1887369

| Parameter | Units | 60235068001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|-----------|-------|--------------------|----------------|-----------------|-----------|------------|----------|-----------|--------------|-----|---------|------|
| Fluoride  | mg/L  | ND                 | 2.5            | 2.5             | 3.1       | 3.1        | 118      | 119       | 80-120       | 0   | 15      |      |

MATRIX SPIKE SAMPLE: 1887370

| Parameter | Units | 60235068003 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|--------------------|-------------|-----------|----------|--------------|------------|
| Fluoride  | mg/L  | 0.30               | 2.5         | 3.3       | 121      | 80-120       | M1         |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

QC Batch: 461555

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

METHOD BLANK: 1889265

Matrix: Water

Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|-----------|-------|--------------|-----------------|----------------|------------|
| Chloride  | mg/L  | <1.0         | 1.0             | 01/10/17 17:09 |            |
| Sulfate   | mg/L  | <1.0         | 1.0             | 01/10/17 17:09 |            |

LABORATORY CONTROL SAMPLE: 1889266

| 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: 1889267 1889268

| Parameter | Units | 60235242001 |                | 60235242002     |           | MS         |       | MSD   |        | % Rec Limits | RPD | Max RPD | Qual |
|-----------|-------|-------------|----------------|-----------------|-----------|------------|-------|-------|--------|--------------|-----|---------|------|
|           |       | Result      | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | % Rec | % Rec |        |              |     |         |      |
| Chloride  | mg/L  | 2960        | 2500           | 2500            | 5640      | 5980       | 120   | 134   | 80-120 | 6            | 15  | M1      |      |
| Sulfate   | mg/L  | ND          | 2500           | 2500            | 3340      | 3410       | 116   | 118   | 80-120 | 2            | 15  |         |      |

MATRIX SPIKE SAMPLE: 1889269

| Parameter | Units | 60235242002 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|--------------------|-------------|-----------|----------|--------------|------------|
| Chloride  | mg/L  | 1150               | 500         | 1720      | 113      | 80-120       |            |
| Sulfate   | mg/L  | 131                | 500         | 694       | 113      | 80-120       |            |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

**Sample: FGD-1-121516**      **Lab ID: 60234594001**      Collected: 12/15/16 10:57      Received: 12/17/16 09:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

| Parameters   | Method                   | Act ± Unc (MDC) Carr Trac                   | Units | Analyzed       | CAS No.    | Qual |
|--------------|--------------------------|---|-------|----------------|------------|------|
| Radium-226   | EPA 903.1                | <b>0.630 ± 0.499 (0.678)</b><br>C:NA T:91%  | pCi/L | 01/18/17 11:02 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.128 ± 0.331 (0.740)</b><br>C:69% T:82% | pCi/L | 01/17/17 15:03 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.758 ± 0.830 (1.42)</b>                 | pCi/L | 01/19/17 08:23 | 7440-14-4  |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

**Sample: FGD-4-121516**      **Lab ID: 60234594002**      Collected: 12/15/16 12:55      Received: 12/17/16 09:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

| Parameters   | Method                   | Act ± Unc (MDC) Carr Trac                   | Units | Analyzed       | CAS No.    | Qual |
|--------------|--------------------------|---|-------|----------------|------------|------|
| Radium-226   | EPA 903.1                | <b>0.582 ± 0.462 (0.601)</b><br>C:NA T:88%  | pCi/L | 01/18/17 11:19 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.736 ± 0.392 (0.670)</b><br>C:66% T:79% | pCi/L | 01/17/17 15:03 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>1.32 ± 0.854 (1.27)</b>                  | pCi/L | 01/19/17 08:23 | 7440-14-4  |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

**Sample: FGD-3-121516**      **Lab ID: 60234594003**      Collected: 12/15/16 14:08      Received: 12/17/16 09:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

| Parameters   | Method                      | Act ± Unc (MDC) Carr Trac                   | Units | Analyzed       | CAS No.    | Qual |
|--------------|-----------------------------|---|-------|----------------|------------|------|
| Radium-226   | EPA 903.1                   | <b>0.413 ± 0.507 (0.827)</b><br>C:NA T:86%  | pCi/L | 01/18/17 11:29 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                   | <b>0.435 ± 0.379 (0.761)</b><br>C:65% T:83% | pCi/L | 01/17/17 15:03 | 15262-20-1 |      |
| Total Radium | Total Radium<br>Calculation | <b>0.848 ± 0.886 (1.59)</b>                 | pCi/L | 01/19/17 08:23 | 7440-14-4  |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

**Sample: FGD-2-121516**      **Lab ID: 60234594004**      Collected: 12/15/16 15:30      Received: 12/17/16 09:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

| Parameters   | Method                   | Act ± Unc (MDC) Carr Trac                   | Units | Analyzed       | CAS No.    | Qual |
|--------------|--------------------------|---|-------|----------------|------------|------|
| Radium-226   | EPA 903.1                | <b>0.461 ± 0.503 (0.791)</b><br>C:NA T:88%  | pCi/L | 01/18/17 11:42 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.405 ± 0.393 (0.800)</b><br>C:62% T:82% | pCi/L | 01/17/17 11:45 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.866 ± 0.896 (1.59)</b>                 | pCi/L | 01/19/17 08:23 | 7440-14-4  |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

**Sample: DUP-121516**      **Lab ID: 60234594005**      Collected: 12/15/16 06:00      Received: 12/17/16 09:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

| Parameters   | Method                   | Act ± Unc (MDC) Carr Trac                   | Units | Analyzed       | CAS No.    | Qual |
|--------------|--------------------------|---|-------|----------------|------------|------|
| Radium-226   | EPA 903.1                | <b>0.253 ± 0.352 (0.587)</b><br>C:NA T:90%  | pCi/L | 01/18/17 11:42 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.256 ± 0.389 (0.839)</b><br>C:67% T:79% | pCi/L | 01/17/17 11:45 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.509 ± 0.741 (1.43)</b>                 | pCi/L | 01/19/17 08:23 | 7440-14-4  |      |

### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

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QC Batch: 245951 Analysis Method: EPA 903.1  
 QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226  
 Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

---

METHOD BLANK: 1209764 Matrix: Water  
 Associated Lab Samples: 60234594001, 60234594002, 60234594003, 60234594004, 60234594005

| Parameter  | Act ± Unc (MDC) Carr Trac        | Units | Analyzed       | Qualifiers |
|------------|----------------------------------|-------|----------------|------------|
| Radium-226 | 0.132 ± 0.301 (0.178) C:NA T:86% | pCi/L | 01/18/17 10:45 |            |

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**

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## QUALIFIERS

Project: JEC CCR GROUNDWATER  
Pace Project No.: 60234594

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### 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

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.  
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

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

| Lab ID      | Sample ID    | QC Batch Method          | QC Batch | Analytical Method | Analytical Batch |
|-------------|--------------|--------------------------|----------|-------------------|------------------|
| 60234594001 | FGD-1-121516 | EPA 200.7                | 459902   | EPA 200.7         | 459945           |
| 60234594002 | FGD-4-121516 | EPA 200.7                | 459902   | EPA 200.7         | 459945           |
| 60234594003 | FGD-3-121516 | EPA 200.7                | 459902   | EPA 200.7         | 459945           |
| 60234594004 | FGD-2-121516 | EPA 200.7                | 459902   | EPA 200.7         | 459945           |
| 60234594005 | DUP-121516   | EPA 200.7                | 459902   | EPA 200.7         | 459945           |
| 60234594001 | FGD-1-121516 | EPA 200.8                | 459903   | EPA 200.8         | 459947           |
| 60234594002 | FGD-4-121516 | EPA 200.8                | 459903   | EPA 200.8         | 459947           |
| 60234594003 | FGD-3-121516 | EPA 200.8                | 459903   | EPA 200.8         | 459947           |
| 60234594004 | FGD-2-121516 | EPA 200.8                | 459903   | EPA 200.8         | 459947           |
| 60234594005 | DUP-121516   | EPA 200.8                | 459903   | EPA 200.8         | 459947           |
| 60234594001 | FGD-1-121516 | EPA 245.1                | 459521   | EPA 245.1         | 459549           |
| 60234594002 | FGD-4-121516 | EPA 245.1                | 459521   | EPA 245.1         | 459549           |
| 60234594003 | FGD-3-121516 | EPA 245.1                | 459521   | EPA 245.1         | 459549           |
| 60234594004 | FGD-2-121516 | EPA 245.1                | 459521   | EPA 245.1         | 459549           |
| 60234594005 | DUP-121516   | EPA 245.1                | 459521   | EPA 245.1         | 459549           |
| 60234594001 | FGD-1-121516 | EPA 903.1                | 245951   |                   |                  |
| 60234594002 | FGD-4-121516 | EPA 903.1                | 245951   |                   |                  |
| 60234594003 | FGD-3-121516 | EPA 903.1                | 245951   |                   |                  |
| 60234594004 | FGD-2-121516 | EPA 903.1                | 245951   |                   |                  |
| 60234594005 | DUP-121516   | EPA 903.1                | 245951   |                   |                  |
| 60234594001 | FGD-1-121516 | EPA 904.0                | 245952   |                   |                  |
| 60234594002 | FGD-4-121516 | EPA 904.0                | 245952   |                   |                  |
| 60234594003 | FGD-3-121516 | EPA 904.0                | 245952   |                   |                  |
| 60234594004 | FGD-2-121516 | EPA 904.0                | 245952   |                   |                  |
| 60234594005 | DUP-121516   | EPA 904.0                | 245952   |                   |                  |
| 60234594001 | FGD-1-121516 | Total Radium Calculation | 246856   |                   |                  |
| 60234594002 | FGD-4-121516 | Total Radium Calculation | 246856   |                   |                  |
| 60234594003 | FGD-3-121516 | Total Radium Calculation | 246856   |                   |                  |
| 60234594004 | FGD-2-121516 | Total Radium Calculation | 246856   |                   |                  |
| 60234594005 | DUP-121516   | Total Radium Calculation | 246856   |                   |                  |
| 60234594001 | FGD-1-121516 | SM 2540C                 | 459669   |                   |                  |
| 60234594002 | FGD-4-121516 | SM 2540C                 | 459669   |                   |                  |
| 60234594003 | FGD-3-121516 | SM 2540C                 | 459669   |                   |                  |
| 60234594004 | FGD-2-121516 | SM 2540C                 | 459669   |                   |                  |
| 60234594005 | DUP-121516   | SM 2540C                 | 459669   |                   |                  |
| 60234594001 | FGD-1-121516 | SM 4500-H+B              | 460511   |                   |                  |
| 60234594002 | FGD-4-121516 | SM 4500-H+B              | 460511   |                   |                  |
| 60234594003 | FGD-3-121516 | SM 4500-H+B              | 460511   |                   |                  |
| 60234594004 | FGD-2-121516 | SM 4500-H+B              | 460511   |                   |                  |
| 60234594005 | DUP-121516   | SM 4500-H+B              | 460511   |                   |                  |
| 60234594001 | FGD-1-121516 | EPA 300.0                | 461088   |                   |                  |
| 60234594001 | FGD-1-121516 | EPA 300.0                | 461555   |                   |                  |
| 60234594002 | FGD-4-121516 | EPA 300.0                | 461088   |                   |                  |

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234594

| Lab ID      | Sample ID    | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|-------------|--------------|-----------------|----------|-------------------|------------------|
| 60234594002 | FGD-4-121516 | EPA 300.0       | 461555   |                   |                  |
| 60234594003 | FGD-3-121516 | EPA 300.0       | 461088   |                   |                  |
| 60234594003 | FGD-3-121516 | EPA 300.0       | 461555   |                   |                  |
| 60234594004 | FGD-2-121516 | EPA 300.0       | 461088   |                   |                  |
| 60234594004 | FGD-2-121516 | EPA 300.0       | 461555   |                   |                  |
| 60234594005 | DUP-121516   | EPA 300.0       | 461088   |                   |                  |
| 60234594005 | DUP-121516   | EPA 300.0       | 461555   |                   |                  |

### REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 60234594



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 / T-239 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 1.3/0.2 Corr. Factor CF +0.7 CF -0.5 Corrected 2.0/1.0

Date and initials of person examining contents: 12/17/16

Temperature should be above freezing to 6°C

Table with 3 columns: Question, Yes/No/N/A checkboxes, and handwritten notes (e.g., PH, NT).

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

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review:



Date:





Sample Condition Upon Receipt Pittsburgh

30206142



Client Name: Pace KS Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: 7044 6657 8478

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: ML 12-20-16

| 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>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.  |
| 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 &lt; 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>12-20-16</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.: 60237751

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

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## CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

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### 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

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### 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

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

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| Lab ID      | Sample ID    | Matrix | Date Collected | Date Received  |
|-------------|--------------|--------|----------------|----------------|
| 60237751001 | FGD-1-020917 | Water  | 02/09/17 12:12 | 02/11/17 09:05 |
| 60237751002 | FGD-2-020917 | Water  | 02/09/17 13:18 | 02/11/17 09:05 |
| 60237751003 | FGD-3-020917 | Water  | 02/09/17 14:29 | 02/11/17 09:05 |
| 60237751004 | FGD-4-020917 | Water  | 02/09/17 15:49 | 02/11/17 09:05 |

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

| Lab ID                   | Sample ID    | Method                   | Analysts     | Analytes Reported | Laboratory |
|--------------------------|--------------|--------------------------|--------------|-------------------|------------|
| 60237751001              | FGD-1-020917 | EPA 200.7                | NDJ          | 7                 | PASI-K     |
|                          |              | EPA 200.8                | SMW          | 7                 | PASI-K     |
|                          |              | EPA 245.1                | ZBM          | 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              | JMC1         | 1                 | PASI-K     |
|                          |              | EPA 300.0                | OL           | 3                 | PASI-K     |
|                          |              | 60237751002              | FGD-2-020917 | EPA 200.7         | NDJ        |
| EPA 200.8                | SMW          |                          |              | 7                 | PASI-K     |
| EPA 245.1                | ZBM          |                          |              | 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     |
| 60237751003              | FGD-3-020917 |                          |              | EPA 200.7         | NDJ        |
|                          |              | EPA 200.8                | SMW          | 7                 | PASI-K     |
|                          |              | EPA 245.1                | ZBM          | 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     |
|                          |              | 60237751004              | FGD-4-020917 | EPA 200.7         | NDJ        |
| EPA 200.8                | SMW          |                          |              | 7                 | PASI-K     |
| EPA 245.1                | ZBM          |                          |              | 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

---

**Method:** EPA 200.7

**Description:** 200.7 Metals, Total

**Client:** WESTAR ENERGY

**Date:** March 08, 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.

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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

---

**Method:** EPA 200.8

**Description:** 200.8 MET ICPMS

**Client:** WESTAR ENERGY

**Date:** March 08, 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.

**Duplicate Sample:**

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

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

---

**Method:** EPA 245.1

**Description:** 245.1 Mercury

**Client:** WESTAR ENERGY

**Date:** March 08, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

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**Method:** EPA 903.1

**Description:** 903.1 Radium 226

**Client:** WESTAR ENERGY

**Date:** March 08, 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:**

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

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**Method:** EPA 904.0

**Description:** 904.0 Radium 228

**Client:** WESTAR ENERGY

**Date:** March 08, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

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**Method:** Total Radium Calculation

**Description:** Total Radium 228+226

**Client:** WESTAR ENERGY

**Date:** March 08, 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:**

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

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**Method:** SM 2540C

**Description:** 2540C Total Dissolved Solids

**Client:** WESTAR ENERGY

**Date:** March 08, 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:**

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

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**Method:** SM 4500-H+B

**Description:** 4500H+ pH, Electrometric

**Client:** WESTAR ENERGY

**Date:** March 08, 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.

- FGD-1-020917 (Lab ID: 60237751001)
- FGD-2-020917 (Lab ID: 60237751002)
- FGD-3-020917 (Lab ID: 60237751003)
- FGD-4-020917 (Lab ID: 60237751004)

### 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:

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

---

**Method:** EPA 300.0

**Description:** 300.0 IC Anions 28 Days

**Client:** WESTAR ENERGY

**Date:** March 08, 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

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

| Sample: FGD-1-020917                |                    | Lab ID: 60237751001  |              | Collected: 02/09/17 12:12 |                | Received: 02/11/17 09:05 |            | Matrix: Water |  |
|-------------------------------------|--------------------|--|--------------|---------------------------|----------------|--------------------------|------------|---------------|--|
| Parameters                          | Results            | Units  | Report Limit | DF                        | Prepared       | Analyzed                 | CAS No.    | Qual          |  |
| <b>200.7 Metals, Total</b>          |                    | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                           |                |                          |            |               |  |
| Barium, Total Recoverable           | <b>0.27</b>        | mg/L   | 0.0050       | 1                         | 02/15/17 16:00 | 02/17/17 12:34           | 7440-39-3  |               |  |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 02/15/17 16:00 | 02/17/17 12:34           | 7440-41-7  |               |  |
| Boron, Total Recoverable            | <b>&lt;0.10</b>    | mg/L   | 0.10         | 1                         | 02/15/17 16:00 | 02/17/17 12:34           | 7440-42-8  |               |  |
| Calcium, Total Recoverable          | <b>90.4</b>        | mg/L   | 0.10         | 1                         | 02/15/17 16:00 | 02/17/17 12:34           | 7440-70-2  |               |  |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>  | mg/L   | 0.0050       | 1                         | 02/15/17 16:00 | 02/17/17 12:34           | 7440-47-3  |               |  |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>  | mg/L   | 0.0050       | 1                         | 02/15/17 16:00 | 02/17/17 12:34           | 7439-92-1  |               |  |
| Lithium                             | <b>0.014</b>       | mg/L   | 0.010        | 1                         | 02/15/17 16:00 | 02/17/17 12:34           | 7439-93-2  |               |  |
| <b>200.8 MET ICPMS</b>              |                    | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                           |                |                          |            |               |  |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 02/15/17 16:00 | 02/22/17 13:24           | 7440-36-0  |               |  |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 02/15/17 16:00 | 02/22/17 13:24           | 7440-38-2  |               |  |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b> | mg/L   | 0.00050      | 1                         | 02/15/17 16:00 | 02/22/17 13:24           | 7440-43-9  |               |  |
| Cobalt, Total Recoverable           | <b>0.0010</b>      | mg/L   | 0.0010       | 1                         | 02/15/17 16:00 | 02/22/17 13:24           | 7440-48-4  |               |  |
| Molybdenum, Total Recoverable       | <b>0.0083</b>      | mg/L   | 0.0010       | 1                         | 02/15/17 16:00 | 02/22/17 13:24           | 7439-98-7  |               |  |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 02/15/17 16:00 | 02/22/17 13:24           | 7782-49-2  |               |  |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010       | 1                         | 02/15/17 16:00 | 02/22/17 13:24           | 7440-28-0  |               |  |
| <b>245.1 Mercury</b>                |                    | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                           |                |                          |            |               |  |
| Mercury                             | <b>&lt;0.00020</b> | mg/L   | 0.00020      | 1                         | 02/15/17 12:15 | 02/16/17 10:27           | 7439-97-6  |               |  |
| <b>2540C Total Dissolved Solids</b> |                    | Analytical Method: SM 2540C                                |              |                           |                |                          |            |               |  |
| Total Dissolved Solids              | <b>505</b>         | mg/L   | 5.0          | 1                         |                | 02/16/17 14:42           |            |               |  |
| <b>4500H+ pH, Electrometric</b>     |                    | Analytical Method: SM 4500-H+B                             |              |                           |                |                          |            |               |  |
| pH at 25 Degrees C                  | <b>7.2</b>         | Std. Units   | 0.10         | 1                         |                | 02/13/17 13:41           |            | H6            |  |
| <b>300.0 IC Anions 28 Days</b>      |                    | Analytical Method: EPA 300.0                               |              |                           |                |                          |            |               |  |
| Chloride                            | <b>62.5</b>        | mg/L   | 10.0         | 10                        |                | 02/15/17 13:47           | 16887-00-6 |               |  |
| Fluoride                            | <b>0.33</b>        | mg/L   | 0.20         | 1                         |                | 02/14/17 20:18           | 16984-48-8 |               |  |
| Sulfate                             | <b>89.5</b>        | mg/L   | 10.0         | 10                        |                | 02/15/17 13:47           | 14808-79-8 |               |  |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

| Sample: FGD-2-020917                | Lab ID: 60237751002 | Collected: 02/09/17 13:18                                  |              | Received: 02/11/17 09:05 |                | Matrix: Water  |            |      |
|-------------------------------------|---------------------|--|--------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results             | Units  | Report Limit | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.072</b>        | mg/L   | 0.0050       | 1                        | 02/15/17 16:00 | 02/17/17 12:40 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 02/15/17 16:00 | 02/17/17 12:40 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.24</b>         | mg/L   | 0.10         | 1                        | 02/15/17 16:00 | 02/17/17 12:40 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>118</b>          | mg/L   | 0.10         | 1                        | 02/15/17 16:00 | 02/17/17 12:40 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 02/15/17 16:00 | 02/17/17 12:40 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 02/15/17 16:00 | 02/17/17 12:40 | 7439-92-1  |      |
| Lithium                             | <b>&lt;0.010</b>    | mg/L   | 0.010        | 1                        | 02/15/17 16:00 | 02/17/17 12:40 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 02/15/17 16:00 | 02/22/17 13:28 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 02/15/17 16:00 | 02/22/17 13:28 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050      | 1                        | 02/15/17 16:00 | 02/22/17 13:28 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>0.0014</b>       | mg/L   | 0.0010       | 1                        | 02/15/17 16:00 | 02/22/17 13:28 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0045</b>       | mg/L   | 0.0010       | 1                        | 02/15/17 16:00 | 02/22/17 13:28 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 02/15/17 16:00 | 02/22/17 13:28 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 02/15/17 16:00 | 02/22/17 13:28 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>  | mg/L   | 0.00020      | 1                        | 02/15/17 12:15 | 02/16/17 10:28 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |              |                          |                |                |            |      |
| Total Dissolved Solids              | <b>593</b>          | mg/L   | 5.0          | 1                        |                | 02/16/17 14:42 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |              |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.4</b>          | Std. Units   | 0.10         | 1                        |                | 02/16/17 09:46 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |              |                          |                |                |            |      |
| Chloride                            | <b>33.1</b>         | mg/L   | 2.0          | 2                        |                | 02/15/17 14:01 | 16887-00-6 |      |
| Fluoride                            | <b>0.39</b>         | mg/L   | 0.20         | 1                        |                | 02/14/17 21:01 | 16984-48-8 |      |
| Sulfate                             | <b>191</b>          | mg/L   | 20.0         | 20                       |                | 02/15/17 14:15 | 14808-79-8 |      |

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

| Sample: FGD-3-020917                |          | Lab ID: 60237751003  | Collected: 02/09/17 14:29 | Received: 02/11/17 09:05 | Matrix: Water  |                |            |      |
|-------------------------------------|----------|--|---------------------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results  | Units  | Report Limit              | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |          | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | 0.13     | mg/L   | 0.0050                    | 1                        | 02/15/17 16:00 | 02/17/17 12:42 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <0.0010  | mg/L   | 0.0010                    | 1                        | 02/15/17 16:00 | 02/17/17 12:42 | 7440-41-7  |      |
| Boron, Total Recoverable            | 0.16     | mg/L   | 0.10                      | 1                        | 02/15/17 16:00 | 02/17/17 12:42 | 7440-42-8  |      |
| Calcium, Total Recoverable          | 159      | mg/L   | 0.10                      | 1                        | 02/15/17 16:00 | 02/17/17 12:42 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <0.0050  | mg/L   | 0.0050                    | 1                        | 02/15/17 16:00 | 02/17/17 12:42 | 7440-47-3  |      |
| Lead, Total Recoverable             | <0.0050  | mg/L   | 0.0050                    | 1                        | 02/15/17 16:00 | 02/17/17 12:42 | 7439-92-1  |      |
| Lithium                             | 0.014    | mg/L   | 0.010                     | 1                        | 02/15/17 16:00 | 02/17/17 12:42 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |          | 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 13:33 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <0.0010  | mg/L   | 0.0010                    | 1                        | 02/15/17 16:00 | 02/22/17 13:33 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <0.00050 | mg/L   | 0.00050                   | 1                        | 02/15/17 16:00 | 02/22/17 13:33 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <0.0010  | mg/L   | 0.0010                    | 1                        | 02/15/17 16:00 | 02/22/17 13:33 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | 0.0058   | mg/L   | 0.0010                    | 1                        | 02/15/17 16:00 | 02/22/17 13:33 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <0.0010  | mg/L   | 0.0010                    | 1                        | 02/15/17 16:00 | 02/22/17 13:33 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <0.0010  | mg/L   | 0.0010                    | 1                        | 02/15/17 16:00 | 02/22/17 13:33 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |          | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                           |                          |                |                |            |      |
| Mercury                             | <0.00020 | mg/L   | 0.00020                   | 1                        | 02/15/17 12:15 | 02/16/17 10:30 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | 851      | mg/L   | 5.0                       | 1                        |                | 02/16/17 14:43 |            |      |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | 7.4      | Std. Units   | 0.10                      | 1                        |                | 02/16/17 09:48 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |          | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | 67.2     | mg/L   | 5.0                       | 5                        |                | 02/15/17 14:29 | 16887-00-6 |      |
| Fluoride                            | 0.27     | mg/L   | 0.20                      | 1                        |                | 02/14/17 21:16 | 16984-48-8 |      |
| Sulfate                             | 334      | mg/L   | 50.0                      | 50                       |                | 02/15/17 14:43 | 14808-79-8 |      |

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

| Sample: FGD-4-020917                |          | Lab ID: 60237751004  |              | Collected: 02/09/17 15:49 |                | Received: 02/11/17 09:05 |            | Matrix: Water |  |
|-------------------------------------|----------|--|--------------|---------------------------|----------------|--------------------------|------------|---------------|--|
| Parameters                          | Results  | Units  | Report Limit | DF                        | Prepared       | Analyzed                 | CAS No.    | Qual          |  |
| <b>200.7 Metals, Total</b>          |          | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                           |                |                          |            |               |  |
| Barium, Total Recoverable           | 0.058    | mg/L   | 0.0050       | 1                         | 02/15/17 16:00 | 02/17/17 12:45           | 7440-39-3  |               |  |
| Beryllium, Total Recoverable        | <0.0010  | mg/L   | 0.0010       | 1                         | 02/15/17 16:00 | 02/17/17 12:45           | 7440-41-7  |               |  |
| Boron, Total Recoverable            | 0.26     | mg/L   | 0.10         | 1                         | 02/15/17 16:00 | 02/17/17 12:45           | 7440-42-8  |               |  |
| Calcium, Total Recoverable          | 169      | mg/L   | 0.10         | 1                         | 02/15/17 16:00 | 02/17/17 12:45           | 7440-70-2  |               |  |
| Chromium, Total Recoverable         | <0.0050  | mg/L   | 0.0050       | 1                         | 02/15/17 16:00 | 02/17/17 12:45           | 7440-47-3  |               |  |
| Lead, Total Recoverable             | <0.0050  | mg/L   | 0.0050       | 1                         | 02/15/17 16:00 | 02/17/17 12:45           | 7439-92-1  |               |  |
| Lithium                             | 0.012    | mg/L   | 0.010        | 1                         | 02/15/17 16:00 | 02/17/17 12:45           | 7439-93-2  |               |  |
| <b>200.8 MET ICPMS</b>              |          | 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 13:37           | 7440-36-0  |               |  |
| Arsenic, Total Recoverable          | <0.0010  | mg/L   | 0.0010       | 1                         | 02/15/17 16:00 | 02/22/17 13:37           | 7440-38-2  |               |  |
| Cadmium, Total Recoverable          | <0.00050 | mg/L   | 0.00050      | 1                         | 02/15/17 16:00 | 02/22/17 13:37           | 7440-43-9  |               |  |
| Cobalt, Total Recoverable           | <0.0010  | mg/L   | 0.0010       | 1                         | 02/15/17 16:00 | 02/22/17 13:37           | 7440-48-4  |               |  |
| Molybdenum, Total Recoverable       | 0.0039   | mg/L   | 0.0010       | 1                         | 02/15/17 16:00 | 02/22/17 13:37           | 7439-98-7  |               |  |
| Selenium, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 02/15/17 16:00 | 02/22/17 13:37           | 7782-49-2  |               |  |
| Thallium, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 02/15/17 16:00 | 02/22/17 13:37           | 7440-28-0  |               |  |
| <b>245.1 Mercury</b>                |          | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                           |                |                          |            |               |  |
| Mercury                             | <0.00020 | mg/L   | 0.00020      | 1                         | 02/15/17 12:15 | 02/16/17 10:31           | 7439-97-6  |               |  |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |              |                           |                |                          |            |               |  |
| Total Dissolved Solids              | 981      | mg/L   | 5.0          | 1                         |                | 02/16/17 14:43           |            |               |  |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |              |                           |                |                          |            |               |  |
| pH at 25 Degrees C                  | 7.3      | Std. Units   | 0.10         | 1                         |                | 02/16/17 09:49           |            | H6            |  |
| <b>300.0 IC Anions 28 Days</b>      |          | Analytical Method: EPA 300.0                               |              |                           |                |                          |            |               |  |
| Chloride                            | 79.6     | mg/L   | 10.0         | 10                        |                | 02/15/17 14:57           | 16887-00-6 |               |  |
| Fluoride                            | 0.32     | mg/L   | 0.20         | 1                         |                | 02/14/17 21:30           | 16984-48-8 |               |  |
| Sulfate                             | 393      | mg/L   | 50.0         | 50                        |                | 02/15/17 15:11           | 14808-79-8 |               |  |

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

QC Batch: 465533 Analysis Method: EPA 245.1  
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury  
 Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

METHOD BLANK: 1905322 Matrix: Water  
 Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|-----------|-------|--------------|-----------------|----------------|------------|
| Mercury   | mg/L  | <0.00020     | 0.00020         | 02/17/17 12:30 |            |

LABORATORY CONTROL SAMPLE: 1905323

| 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: 1905324 1905325

| Parameter | Units | 60237454001 |                | 60237454003     |           | MS         |       | MSD   |        | % Rec Limits | RPD | Max RPD | Qual |
|-----------|-------|-------------|----------------|-----------------|-----------|------------|-------|-------|--------|--------------|-----|---------|------|
|           |       | Result      | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | % Rec | % Rec |        |              |     |         |      |
| Mercury   | mg/L  | ND          | .005           | .005            | 0.0052    | 0.0050     | 104   | 100   | 70-130 | 4            | 20  |         |      |

MATRIX SPIKE SAMPLE: 1905326

| Parameter | Units | 60237584003 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|--------------------|-------------|-----------|----------|--------------|------------|
| Mercury   | mg/L  | ND                 | .005        | 0.0052    | 103      | 70-130       |            |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER  
Pace Project No.: 60237751

QC Batch: 465590 Analysis Method: EPA 200.7  
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total  
Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

METHOD BLANK: 1905571 Matrix: Water  
Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

| 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. | MS 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

| MATRIX SPIKE SAMPLE: |       | 1905575               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60237510002<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

QC Batch: 465593 Analysis Method: EPA 200.8  
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET  
 Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

METHOD BLANK: 1905588 Matrix: Water  
 Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

| 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

| 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

| SAMPLE DUPLICATE: 1909305 |       | 60237510003 | Dup      |     | Max |            |
|---------------------------|-------|-------------|----------|-----|-----|------------|
| Parameter                 | Units | Result      | Result   | RPD | RPD | Qualifiers |
| 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  |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

QC Batch: 465749

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

METHOD BLANK: 1906453

Matrix: Water

Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

| 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      |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

QC Batch: 465302 Analysis Method: SM 4500-H+B

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

Associated Lab Samples: 60237751001

SAMPLE DUPLICATE: 1904655

| Parameter          | Units      | 60237648001<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 6.9                   | 6.9           | 0   | 5          | H6         |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

QC Batch: 465627 Analysis Method: SM 4500-H+B

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

Associated Lab Samples: 60237751002, 60237751003, 60237751004

SAMPLE DUPLICATE: 1905773

| Parameter          | Units      | 60237753001<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 7.2                   | 7.2           | 0   | 5          | H6         |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

QC Batch: 465470 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

METHOD BLANK: 1905076 Matrix: Water  
Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

| 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 |           | 60237510004 |        | % 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

QC Batch: 465543 Analysis Method: EPA 300.0  
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

METHOD BLANK: 1905374 Matrix: Water  
 Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

| 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       |            |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

**Sample: FGD-1-020917**      **Lab ID: 60237751001**      Collected: 02/09/17 12:12      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                | <b>0.789 ± 0.552 (0.666)</b><br>C:NA T:89% | pCi/L | 03/06/17 12:31 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.367 ± 0.476 (1.01)</b><br>C:56% T:82% | pCi/L | 03/07/17 11:41 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>1.16 ± 1.03 (1.68)</b>                  | pCi/L | 03/07/17 20:54 | 7440-14-4  |      |

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

| Parameters   | Method                   | Act ± Unc (MDC) Carr Trac                   | Units | Analyzed       | CAS No.    | Qual |
|--------------|--------------------------|---|-------|----------------|------------|------|
| Radium-226   | EPA 903.1                | <b>0.0812 ± 0.478 (0.976)</b><br>C:NA T:89% | pCi/L | 03/06/17 12:31 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>1.06 ± 0.542 (0.938)</b><br>C:59% T:83%  | pCi/L | 03/07/17 11:41 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>1.14 ± 1.02 (1.91)</b>                   | pCi/L | 03/07/17 20:54 | 7440-14-4  |      |

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

**Sample: FGD-3-020917**      **Lab ID: 60237751003**      Collected: 02/09/17 14:29      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                | <b>0.492 ± 0.417 (0.517)</b><br><b>C:NA T:89%</b> | pCi/L | 03/06/17 12:41 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>1.04 ± 0.600 (1.08)</b><br><b>C:48% T:85%</b>  | pCi/L | 03/07/17 11:41 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>1.53 ± 1.02 (1.60)</b>                         | pCi/L | 03/07/17 20:54 | 7440-14-4  |      |

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

**Sample: FGD-4-020917**      **Lab ID: 60237751004**      Collected: 02/09/17 15:49      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                   | <b>0.218 ± 0.377 (0.674)</b><br>C:NA T:92%  | pCi/L | 03/06/17 12:31 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                   | <b>0.411 ± 0.420 (0.860)</b><br>C:59% T:78% | pCi/L | 03/07/17 11:41 | 15262-20-1 |      |
| Total Radium | Total Radium<br>Calculation | <b>0.629 ± 0.797 (1.53)</b>                 | pCi/L | 03/07/17 20:54 | 7440-14-4  |      |

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

QC Batch: 250470

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

METHOD BLANK: 1232539

Matrix: Water

Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

| 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

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

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QC Batch: 250469 Analysis Method: EPA 903.1  
 QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226  
 Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

---

METHOD BLANK: 1232538 Matrix: Water  
 Associated Lab Samples: 60237751001, 60237751002, 60237751003, 60237751004

| 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**

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## QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

---

### 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

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237751

| Lab ID      | Sample ID    | QC Batch Method          | QC Batch | Analytical Method | Analytical Batch |
|-------------|--------------|--------------------------|----------|-------------------|------------------|
| 60237751001 | FGD-1-020917 | EPA 200.7                | 465590   | EPA 200.7         | 465696           |
| 60237751002 | FGD-2-020917 | EPA 200.7                | 465590   | EPA 200.7         | 465696           |
| 60237751003 | FGD-3-020917 | EPA 200.7                | 465590   | EPA 200.7         | 465696           |
| 60237751004 | FGD-4-020917 | EPA 200.7                | 465590   | EPA 200.7         | 465696           |
| 60237751001 | FGD-1-020917 | EPA 200.8                | 465593   | EPA 200.8         | 465698           |
| 60237751002 | FGD-2-020917 | EPA 200.8                | 465593   | EPA 200.8         | 465698           |
| 60237751003 | FGD-3-020917 | EPA 200.8                | 465593   | EPA 200.8         | 465698           |
| 60237751004 | FGD-4-020917 | EPA 200.8                | 465593   | EPA 200.8         | 465698           |
| 60237751001 | FGD-1-020917 | EPA 245.1                | 465533   | EPA 245.1         | 465636           |
| 60237751002 | FGD-2-020917 | EPA 245.1                | 465533   | EPA 245.1         | 465636           |
| 60237751003 | FGD-3-020917 | EPA 245.1                | 465533   | EPA 245.1         | 465636           |
| 60237751004 | FGD-4-020917 | EPA 245.1                | 465533   | EPA 245.1         | 465636           |
| 60237751001 | FGD-1-020917 | EPA 903.1                | 250469   |                   |                  |
| 60237751002 | FGD-2-020917 | EPA 903.1                | 250469   |                   |                  |
| 60237751003 | FGD-3-020917 | EPA 903.1                | 250469   |                   |                  |
| 60237751004 | FGD-4-020917 | EPA 903.1                | 250469   |                   |                  |
| 60237751001 | FGD-1-020917 | EPA 904.0                | 250470   |                   |                  |
| 60237751002 | FGD-2-020917 | EPA 904.0                | 250470   |                   |                  |
| 60237751003 | FGD-3-020917 | EPA 904.0                | 250470   |                   |                  |
| 60237751004 | FGD-4-020917 | EPA 904.0                | 250470   |                   |                  |
| 60237751001 | FGD-1-020917 | Total Radium Calculation | 251399   |                   |                  |
| 60237751002 | FGD-2-020917 | Total Radium Calculation | 251399   |                   |                  |
| 60237751003 | FGD-3-020917 | Total Radium Calculation | 251399   |                   |                  |
| 60237751004 | FGD-4-020917 | Total Radium Calculation | 251399   |                   |                  |
| 60237751001 | FGD-1-020917 | SM 2540C                 | 465749   |                   |                  |
| 60237751002 | FGD-2-020917 | SM 2540C                 | 465749   |                   |                  |
| 60237751003 | FGD-3-020917 | SM 2540C                 | 465749   |                   |                  |
| 60237751004 | FGD-4-020917 | SM 2540C                 | 465749   |                   |                  |
| 60237751001 | FGD-1-020917 | SM 4500-H+B              | 465302   |                   |                  |
| 60237751002 | FGD-2-020917 | SM 4500-H+B              | 465627   |                   |                  |
| 60237751003 | FGD-3-020917 | SM 4500-H+B              | 465627   |                   |                  |
| 60237751004 | FGD-4-020917 | SM 4500-H+B              | 465627   |                   |                  |
| 60237751001 | FGD-1-020917 | EPA 300.0                | 465470   |                   |                  |
| 60237751001 | FGD-1-020917 | EPA 300.0                | 465543   |                   |                  |
| 60237751002 | FGD-2-020917 | EPA 300.0                | 465470   |                   |                  |
| 60237751002 | FGD-2-020917 | EPA 300.0                | 465543   |                   |                  |
| 60237751003 | FGD-3-020917 | EPA 300.0                | 465470   |                   |                  |
| 60237751003 | FGD-3-020917 | EPA 300.0                | 465543   |                   |                  |
| 60237751004 | FGD-4-020917 | EPA 300.0                | 465470   |                   |                  |
| 60237751004 | FGD-4-020917 | EPA 300.0                | 465543   |                   |                  |

### REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 60237751



60237751

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 CF +1.5 T-239 CF +0.9 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 05 Corr. Factor CF +1.5 CF +0.9 Corrected 2.0

Date and initials of person examining contents: JB 2/11/17

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?<br>(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide)<br>(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 hwilson at 9:09 am, 2/13/17

Date: \_\_\_\_\_





Sample Condition Upon Receipt Pittsburgh

BLM



Client Name: Pace Kansas Project # 30210710

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. |     |    |     | <u>PhL2</u>   |
| 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 02, 2017

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

RE: Project: JEC CCR GROUNDWATER  
Pace Project No.: 60241636

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on April 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

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## CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

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### 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

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### 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

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

| Lab ID      | Sample ID    | Matrix | Date Collected | Date Received  |
|-------------|--------------|--------|----------------|----------------|
| 60241636001 | FGD-1-040717 | Water  | 04/07/17 12:53 | 04/08/17 09:00 |
| 60241636002 | FGD-2-040717 | Water  | 04/07/17 13:59 | 04/08/17 09:00 |
| 60241636003 | FGD-3-040717 | Water  | 04/07/17 14:59 | 04/08/17 09:00 |
| 60241636004 | FGD-4-040717 | Water  | 04/07/17 16:14 | 04/08/17 09:00 |
| 60241636005 | DUP-040717   | Water  | 04/07/17 08:00 | 04/08/17 09:00 |

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

| Lab ID      | Sample ID    | Method                   | Analysts | Analytes Reported | Laboratory |
|-------------|--------------|--------------------------|----------|-------------------|------------|
| 60241636001 | FGD-1-040717 | EPA 200.7                | JGP      | 7                 | PASI-K     |
|             |              | EPA 200.8                | JGP      | 7                 | PASI-K     |
|             |              | EPA 245.1                | TDS      | 1                 | PASI-K     |
|             |              | EPA 903.1                | KAC      | 1                 | PASI-PA    |
|             |              | EPA 904.0                | JJY      | 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     |
| 60241636002 | FGD-2-040717 | EPA 200.7                | JGP      | 7                 | PASI-K     |
|             |              | EPA 200.8                | JGP      | 7                 | PASI-K     |
|             |              | EPA 245.1                | TDS      | 1                 | PASI-K     |
|             |              | EPA 903.1                | KAC      | 1                 | PASI-PA    |
|             |              | EPA 904.0                | JJY      | 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     |
| 60241636003 | FGD-3-040717 | EPA 200.7                | JGP      | 7                 | PASI-K     |
|             |              | EPA 200.8                | JGP      | 7                 | PASI-K     |
|             |              | EPA 245.1                | TDS      | 1                 | PASI-K     |
|             |              | EPA 903.1                | KAC      | 1                 | PASI-PA    |
|             |              | EPA 904.0                | JJY      | 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     |
| 60241636004 | FGD-4-040717 | EPA 200.7                | JGP      | 7                 | PASI-K     |
|             |              | EPA 200.8                | JGP      | 7                 | PASI-K     |
|             |              | EPA 245.1                | TDS      | 1                 | PASI-K     |
|             |              | EPA 903.1                | KAC      | 1                 | PASI-PA    |
|             |              | EPA 904.0                | JJY      | 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     |
| 60241636005 | DUP-040717   | EPA 200.7                | JGP      | 7                 | PASI-K     |

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

| 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                | KAC      | 1                 | PASI-PA    |
|        |           | EPA 904.0                | JJY      | 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

---

**Method:** EPA 200.7

**Description:** 200.7 Metals, Total

**Client:** WESTAR ENERGY

**Date:** May 02, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

---

**Method:** EPA 200.8

**Description:** 200.8 MET ICPMS

**Client:** WESTAR ENERGY

**Date:** May 02, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

---

**Method:** EPA 245.1

**Description:** 245.1 Mercury

**Client:** WESTAR ENERGY

**Date:** May 02, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

---

**Method:** EPA 903.1

**Description:** 903.1 Radium 226

**Client:** WESTAR ENERGY

**Date:** May 02, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

---

**Method:** EPA 904.0

**Description:** 904.0 Radium 228

**Client:** WESTAR ENERGY

**Date:** May 02, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

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**Method:** Total Radium Calculation

**Description:** Total Radium 228+226

**Client:** WESTAR ENERGY

**Date:** May 02, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

---

**Method:** SM 2540C

**Description:** 2540C Total Dissolved Solids

**Client:** WESTAR ENERGY

**Date:** May 02, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

---

**Method:** SM 4500-H+B

**Description:** 4500H+ pH, Electrometric

**Client:** WESTAR ENERGY

**Date:** May 02, 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.

- DUP-040717 (Lab ID: 60241636005)
- FGD-1-040717 (Lab ID: 60241636001)
- FGD-2-040717 (Lab ID: 60241636002)
- FGD-3-040717 (Lab ID: 60241636003)
- FGD-4-040717 (Lab ID: 60241636004)

### 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

---

**Method:** EPA 300.0

**Description:** 300.0 IC Anions 28 Days

**Client:** WESTAR ENERGY

**Date:** May 02, 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

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

| <b>Sample: FGD-1-040717</b>         |                    | <b>Lab ID: 60241636001</b>                                 | Collected: 04/07/17 12:53 | Received: 04/08/17 09:00 | Matrix: Water  |                |            |      |
|-------------------------------------|--------------------|--|---------------------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results            | Units  | Report Limit              | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                    | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.31</b>        | mg/L   | 0.0050                    | 1                        | 04/21/17 11:35 | 04/24/17 13:54 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/24/17 13:54 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>&lt;0.10</b>    | mg/L   | 0.10                      | 1                        | 04/21/17 11:35 | 04/24/17 13:54 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>98.2</b>        | mg/L   | 0.10                      | 1                        | 04/21/17 11:35 | 04/24/17 13:54 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>  | mg/L   | 0.0050                    | 1                        | 04/21/17 11:35 | 04/24/17 13:54 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>  | mg/L   | 0.0050                    | 1                        | 04/21/17 11:35 | 04/24/17 13:54 | 7439-92-1  |      |
| Lithium                             | <b>0.011</b>       | mg/L   | 0.010                     | 1                        | 04/21/17 11:35 | 04/24/17 13:54 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                    | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                           |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:25 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:25 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b> | mg/L   | 0.00050                   | 1                        | 04/21/17 11:35 | 04/28/17 09:25 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:25 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0014</b>      | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:25 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:25 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:25 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                    | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                           |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b> | mg/L   | 0.00020                   | 1                        | 04/10/17 15:45 | 04/11/17 10:18 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                    | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | <b>524</b>         | mg/L   | 5.0                       | 1                        |                | 04/12/17 14:51 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                    | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.2</b>         | Std. Units   | 0.10                      | 1                        |                | 04/11/17 13:53 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                    | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | <b>63.9</b>        | mg/L   | 10.0                      | 10                       |                | 04/11/17 01:26 | 16887-00-6 |      |
| Fluoride                            | <b>0.34</b>        | mg/L   | 0.20                      | 1                        |                | 04/11/17 01:11 | 16984-48-8 |      |
| Sulfate                             | <b>85.5</b>        | mg/L   | 10.0                      | 10                       |                | 04/11/17 01:26 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

| Sample: FGD-2-040717                |                    | Lab ID: 60241636002  | Collected: 04/07/17 13:59 | Received: 04/08/17 09:00 | Matrix: Water  |                |            |      |
|-------------------------------------|--------------------|--|---------------------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results            | Units  | Report Limit              | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                    | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.089</b>       | mg/L   | 0.0050                    | 1                        | 04/21/17 11:35 | 04/24/17 14:05 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/24/17 14:05 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.22</b>        | mg/L   | 0.10                      | 1                        | 04/21/17 11:35 | 04/24/17 14:05 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>150</b>         | mg/L   | 0.10                      | 1                        | 04/21/17 11:35 | 04/24/17 14:05 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>  | mg/L   | 0.0050                    | 1                        | 04/21/17 11:35 | 04/24/17 14:05 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>  | mg/L   | 0.0050                    | 1                        | 04/21/17 11:35 | 04/24/17 14:05 | 7439-92-1  |      |
| Lithium                             | <b>&lt;0.010</b>   | mg/L   | 0.010                     | 1                        | 04/21/17 11:35 | 04/24/17 14:05 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                    | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                           |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:29 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:29 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b> | mg/L   | 0.00050                   | 1                        | 04/21/17 11:35 | 04/28/17 09:29 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>0.0016</b>      | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:29 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0041</b>      | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:29 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>0.0010</b>      | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:29 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:29 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                    | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                           |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b> | mg/L   | 0.00020                   | 1                        | 04/10/17 15:45 | 04/11/17 10:20 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                    | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | <b>745</b>         | mg/L   | 5.0                       | 1                        |                | 04/13/17 12:41 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                    | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.2</b>         | Std. Units   | 0.10                      | 1                        |                | 04/11/17 13:56 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                    | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | <b>34.0</b>        | mg/L   | 2.0                       | 2                        |                | 04/11/17 02:40 | 16887-00-6 |      |
| Fluoride                            | <b>0.36</b>        | mg/L   | 0.20                      | 1                        |                | 04/11/17 02:25 | 16984-48-8 |      |
| Sulfate                             | <b>263</b>         | mg/L   | 20.0                      | 20                       |                | 04/11/17 01:41 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

| Sample: FGD-3-040717                | Lab ID: 60241636003 | Collected: 04/07/17 14:59                                  |              | Received: 04/08/17 09:00 |                | Matrix: Water  |            |      |
|-------------------------------------|---------------------|--|--------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results             | Units  | Report Limit | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.13</b>         | mg/L   | 0.0050       | 1                        | 04/21/17 11:35 | 04/24/17 14:12 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 04/21/17 11:35 | 04/24/17 14:12 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>&lt;0.10</b>     | mg/L   | 0.10         | 1                        | 04/21/17 11:35 | 04/24/17 14:12 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>135</b>          | mg/L   | 0.10         | 1                        | 04/21/17 11:35 | 04/24/17 14:12 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 04/21/17 11:35 | 04/24/17 14:12 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 04/21/17 11:35 | 04/24/17 14:12 | 7439-92-1  |      |
| Lithium                             | <b>0.013</b>        | mg/L   | 0.010        | 1                        | 04/21/17 11:35 | 04/24/17 14:12 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 04/21/17 11:35 | 04/28/17 09:33 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 04/21/17 11:35 | 04/28/17 09:33 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050      | 1                        | 04/21/17 11:35 | 04/28/17 09:33 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 04/21/17 11:35 | 04/28/17 09:33 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0058</b>       | mg/L   | 0.0010       | 1                        | 04/21/17 11:35 | 04/28/17 09:33 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 04/21/17 11:35 | 04/28/17 09:33 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 04/21/17 11:35 | 04/28/17 09:33 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>  | mg/L   | 0.00020      | 1                        | 04/10/17 15:45 | 04/11/17 10:22 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |              |                          |                |                |            |      |
| Total Dissolved Solids              | <b>716</b>          | mg/L   | 5.0          | 1                        |                | 04/13/17 12:42 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |              |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.0</b>          | Std. Units   | 0.10         | 1                        |                | 04/11/17 13:58 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |              |                          |                |                |            |      |
| Chloride                            | <b>44.2</b>         | mg/L   | 5.0          | 5                        |                | 04/11/17 03:10 | 16887-00-6 |      |
| Fluoride                            | <b>0.31</b>         | mg/L   | 0.20         | 1                        |                | 04/11/17 02:55 | 16984-48-8 |      |
| Sulfate                             | <b>206</b>          | mg/L   | 50.0         | 50                       |                | 04/11/17 03:25 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

| Sample: FGD-4-040717                |                    | Lab ID: 60241636004  | Collected: 04/07/17 16:14 | Received: 04/08/17 09:00 | Matrix: Water  |                |            |      |
|-------------------------------------|--------------------|--|---------------------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results            | Units  | Report Limit              | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                    | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.054</b>       | mg/L   | 0.0050                    | 1                        | 04/21/17 11:35 | 04/24/17 14:16 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/24/17 14:16 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.25</b>        | mg/L   | 0.10                      | 1                        | 04/21/17 11:35 | 04/24/17 14:16 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>180</b>         | mg/L   | 0.10                      | 1                        | 04/21/17 11:35 | 04/24/17 14:16 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>  | mg/L   | 0.0050                    | 1                        | 04/21/17 11:35 | 04/24/17 14:16 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>  | mg/L   | 0.0050                    | 1                        | 04/21/17 11:35 | 04/24/17 14:16 | 7439-92-1  |      |
| Lithium                             | <b>0.012</b>       | mg/L   | 0.010                     | 1                        | 04/21/17 11:35 | 04/24/17 14:16 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                    | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                           |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:44 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:44 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b> | mg/L   | 0.00050                   | 1                        | 04/21/17 11:35 | 04/28/17 09:44 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:44 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0039</b>      | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:44 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:44 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 09:44 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                    | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                           |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b> | mg/L   | 0.00020                   | 1                        | 04/10/17 15:45 | 04/11/17 10:25 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                    | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | <b>1070</b>        | mg/L   | 5.0                       | 1                        |                | 04/13/17 12:43 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                    | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.1</b>         | Std. Units   | 0.10                      | 1                        |                | 04/11/17 13:59 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                    | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | <b>82.3</b>        | mg/L   | 10.0                      | 10                       |                | 04/11/17 03:55 | 16887-00-6 |      |
| Fluoride                            | <b>0.33</b>        | mg/L   | 0.20                      | 1                        |                | 04/11/17 03:40 | 16984-48-8 |      |
| Sulfate                             | <b>377</b>         | mg/L   | 50.0                      | 50                       |                | 04/11/17 04:10 | 14808-79-8 |      |

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

| Sample: DUP-040717                  |          | Lab ID: 60241636005  | Collected: 04/07/17 08:00 | Received: 04/08/17 09:00 | Matrix: Water  |                |            |      |
|-------------------------------------|----------|--|---------------------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results  | Units  | Report Limit              | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |          | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | 0.31     | mg/L   | 0.0050                    | 1                        | 04/21/17 11:35 | 04/24/17 14:27 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <0.0010  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/24/17 14:27 | 7440-41-7  |      |
| Boron, Total Recoverable            | <0.10    | mg/L   | 0.10                      | 1                        | 04/21/17 11:35 | 04/24/17 14:27 | 7440-42-8  |      |
| Calcium, Total Recoverable          | 96.6     | mg/L   | 0.10                      | 1                        | 04/21/17 11:35 | 04/24/17 14:27 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <0.0050  | mg/L   | 0.0050                    | 1                        | 04/21/17 11:35 | 04/24/17 14:27 | 7440-47-3  |      |
| Lead, Total Recoverable             | <0.0050  | mg/L   | 0.0050                    | 1                        | 04/21/17 11:35 | 04/24/17 14:27 | 7439-92-1  |      |
| Lithium                             | 0.011    | mg/L   | 0.010                     | 1                        | 04/21/17 11:35 | 04/24/17 14:27 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |          | 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 10:03 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <0.0010  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 10:03 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <0.00050 | mg/L   | 0.00050                   | 1                        | 04/21/17 11:35 | 04/28/17 10:03 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <0.0010  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 10:03 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | 0.0014   | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 10:03 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <0.0010  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 10:03 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <0.0010  | mg/L   | 0.0010                    | 1                        | 04/21/17 11:35 | 04/28/17 10:03 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |          | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                           |                          |                |                |            |      |
| Mercury                             | <0.00020 | mg/L   | 0.00020                   | 1                        | 04/10/17 15:45 | 04/11/17 10:31 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | 537      | mg/L   | 5.0                       | 1                        |                | 04/13/17 12:44 |            |      |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | 7.3      | Std. Units   | 0.10                      | 1                        |                | 04/13/17 14:10 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |          | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | 63.4     | mg/L   | 10.0                      | 10                       |                | 04/11/17 04:25 | 16887-00-6 |      |
| Fluoride                            | 0.34     | mg/L   | 0.20                      | 1                        |                | 04/11/17 05:24 | 16984-48-8 |      |
| Sulfate                             | 84.4     | mg/L   | 10.0                      | 10                       |                | 04/11/17 04:25 | 14808-79-8 |      |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

QC Batch: 472110 Analysis Method: EPA 245.1  
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury  
 Associated Lab Samples: 60241636001, 60241636002, 60241636003, 60241636004, 60241636005

METHOD BLANK: 1933355 Matrix: Water  
 Associated Lab Samples: 60241636001, 60241636002, 60241636003, 60241636004, 60241636005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|-----------|-------|--------------|-----------------|----------------|------------|
| Mercury   | mg/L  | <0.00020     | 0.00020         | 04/11/17 09:25 |            |

LABORATORY CONTROL SAMPLE: 1933356

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|-------------|------------|-----------|--------------|------------|
| Mercury   | mg/L  | .005        | 0.0046     | 92        | 85-115       |            |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1933357 1933358

| Parameter | Units | 60241514001 Result | MS          |                 | MSD       |            | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|-----------|-------|--------------------|-------------|-----------------|-----------|------------|----------|-----------|--------------|-----|---------|------|
|           |       |                    | Spike Conc. | MSD Spike Conc. | MS Result | MSD Result |          |           |              |     |         |      |
| Mercury   | mg/L  | ND                 | .005        | .005            | 0.0046    | 0.0047     | 92       | 94        | 70-130       | 3   | 20      |      |

MATRIX SPIKE SAMPLE: 1933359

| Parameter | Units | 60241514003 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|--------------------|-------------|-----------|----------|--------------|------------|
| Mercury   | mg/L  | ND                 | .005        | 0.0049    | 98       | 70-130       |            |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

QC Batch: 473694 Analysis Method: EPA 200.7  
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total  
 Associated Lab Samples: 60241636001, 60241636002, 60241636003, 60241636004, 60241636005

METHOD BLANK: 1939836 Matrix: Water  
 Associated Lab Samples: 60241636001, 60241636002, 60241636003, 60241636004, 60241636005

| 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      | MS Spike Conc. | MSD Spike Conc. | Result | MSD 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

| MATRIX SPIKE SAMPLE: |       | 1939842               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60241636002<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

QC Batch: 473696 Analysis Method: EPA 200.8  
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET  
 Associated Lab Samples: 60241636001, 60241636002, 60241636003, 60241636004, 60241636005

METHOD BLANK: 1939849 Matrix: Water  
 Associated Lab Samples: 60241636001, 60241636002, 60241636003, 60241636004, 60241636005

| 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     |        | MS         |       | MSD   |        | % Rec Limits | RPD | Max RPD | Qual |
|------------|-------|-------------|----------------|-----------------|--------|------------|-------|-------|--------|--------------|-----|---------|------|
|            |       | Result      | MS Spike Conc. | MSD Spike Conc. | Result | MSD Result | % Rec | % Rec |        |              |     |         |      |
| Antimony   | mg/L  | <0.0010     | .04            | .04             | 0.038  | 0.038      | 96    | 95    | 70-130 | 1            | 20  |         |      |
| Arsenic    | mg/L  | <0.0010     | .04            | .04             | 0.037  | 0.037      | 92    | 90    | 70-130 | 3            | 20  |         |      |
| Cadmium    | mg/L  | <0.00050    | .04            | .04             | 0.037  | 0.036      | 92    | 90    | 70-130 | 2            | 20  |         |      |
| Cobalt     | mg/L  | <0.0010     | .04            | .04             | 0.038  | 0.037      | 94    | 93    | 70-130 | 1            | 20  |         |      |
| Molybdenum | mg/L  | 0.0058      | .04            | .04             | 0.048  | 0.048      | 106   | 104   | 70-130 | 2            | 20  |         |      |
| Selenium   | mg/L  | <0.0010     | .04            | .04             | 0.034  | 0.034      | 86    | 84    | 70-130 | 3            | 20  |         |      |
| Thallium   | mg/L  | <0.0010     | .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       |            |

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**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

| MATRIX SPIKE SAMPLE: |       | 1939854               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60241636004<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

|                                     |  |
|-------------------------------------|--|
| QC Batch: 472460                    | Analysis Method: SM 2540C                          |
| QC Batch Method: SM 2540C           | Analysis Description: 2540C Total Dissolved Solids |
| Associated Lab Samples: 60241636001 |  |

METHOD BLANK: 1934622 Matrix: Water  
Associated Lab Samples: 60241636001

| Parameter              | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|------------------------|-------|--------------|-----------------|----------------|------------|
| Total Dissolved Solids | mg/L  | <5.0         | 5.0             | 04/12/17 14:36 |            |

LABORATORY CONTROL SAMPLE: 1934623

| Parameter              | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|------------------------|-------|-------------|------------|-----------|--------------|------------|
| Total Dissolved Solids | mg/L  | 1000        | 989        | 99        | 80-120       |            |

SAMPLE DUPLICATE: 1934624

| Parameter              | Units | 60241616004 Result | Dup Result | RPD | Max RPD | Qualifiers |
|------------------------|-------|--------------------|------------|-----|---------|------------|
| Total Dissolved Solids | mg/L  | 1500               | 1490       | 1   | 10      |            |

SAMPLE DUPLICATE: 1934625

| Parameter              | Units | 60241652009 Result | Dup Result | RPD | Max RPD | Qualifiers |
|------------------------|-------|--------------------|------------|-----|---------|------------|
| Total Dissolved Solids | mg/L  | 1270               | 1310       | 3   | 10      |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

QC Batch: 472660

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60241636002, 60241636003, 60241636004, 60241636005

METHOD BLANK: 1935328

Matrix: Water

Associated Lab Samples: 60241636002, 60241636003, 60241636004, 60241636005

| 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      |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

QC Batch: 472271 Analysis Method: SM 4500-H+B

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

Associated Lab Samples: 60241636001, 60241636002, 60241636003, 60241636004

SAMPLE DUPLICATE: 1933836

| Parameter          | Units      | 60241636001<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 7.2                   | 7.3           | 0   | 5          | H6         |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

QC Batch: 472465 Analysis Method: SM 4500-H+B

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

Associated Lab Samples: 60241636005

SAMPLE DUPLICATE: 1934649

| Parameter          | Units      | 60241548001<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 8.3                   | 8.3           | 0   | 5          | H6         |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

QC Batch: 472089 Analysis Method: EPA 300.0  
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 60241636001, 60241636002, 60241636003, 60241636004, 60241636005

METHOD BLANK: 1933304 Matrix: Water  
 Associated Lab Samples: 60241636001, 60241636002, 60241636003, 60241636004, 60241636005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|-----------|-------|--------------|-----------------|----------------|------------|
| Chloride  | mg/L  | <1.0         | 1.0             | 04/10/17 16:29 |            |
| Fluoride  | mg/L  | <0.20        | 0.20            | 04/10/17 16:29 |            |
| Sulfate   | mg/L  | <1.0         | 1.0             | 04/10/17 16:29 |            |

LABORATORY CONTROL SAMPLE: 1933305

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|-------------|------------|-----------|--------------|------------|
| Chloride  | mg/L  | 5           | 4.7        | 94        | 90-110       |            |
| Fluoride  | mg/L  | 2.5         | 2.5        | 99        | 90-110       |            |
| Sulfate   | mg/L  | 5           | 5.0        | 100       | 90-110       |            |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1933306 1933307

| Parameter | Units | 60241580003 |                | MSD         |           | MS         |          | MSD       |        | % Rec Limits | RPD | Max RPD | Qual |
|-----------|-------|-------------|----------------|-------------|-----------|------------|----------|-----------|--------|--------------|-----|---------|------|
|           |       | Result      | MS Spike Conc. | Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec |        |              |     |         |      |
| Chloride  | mg/L  | 185         | 50             | 50          | 233       | 229        | 97       | 89        | 80-120 | 2            | 15  |         |      |
| Fluoride  | mg/L  | ND          | 25             | 25          | 25.9      | 25.6       | 100      | 99        | 80-120 | 1            | 15  |         |      |
| Sulfate   | mg/L  | 106         | 50             | 50          | 155       | 152        | 98       | 91        | 80-120 | 2            | 15  |         |      |

MATRIX SPIKE SAMPLE: 1933308

| Parameter | Units | 60241581003 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|-----------|-------|--------------------|-------------|-----------|----------|--------------|------------|
| Chloride  | mg/L  | 36.7               | 50          | 83.2      | 93       | 80-120       |            |
| Fluoride  | mg/L  | ND                 | 25          | 25.0      | 97       | 80-120       |            |
| Sulfate   | mg/L  | 109                | 50          | 160       | 101      | 80-120       |            |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

**Sample: FGD-1-040717**      **Lab ID: 60241636001**      Collected: 04/07/17 12:53      Received: 04/08/17 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                | <b>0.707 ± 0.594 (0.849)</b><br>C:NA T:90%  | pCi/L | 04/26/17 22:42 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.240 ± 0.374 (0.810)</b><br>C:78% T:76% | pCi/L | 04/26/17 14:06 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.947 ± 0.968 (1.66)</b>                 | pCi/L | 05/02/17 16:13 | 7440-14-4  |      |

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

**Sample: FGD-2-040717**      **Lab ID: 60241636002**      Collected: 04/07/17 13:59      Received: 04/08/17 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                | <b>0.751 ± 0.473 (0.203)</b><br>C:NA T:89%  | pCi/L | 04/26/17 22:42 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.150 ± 0.367 (0.818)</b><br>C:76% T:77% | pCi/L | 04/26/17 14:06 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.901 ± 0.840 (1.02)</b>                 | pCi/L | 05/02/17 16:13 | 7440-14-4  |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

**Sample: FGD-3-040717**      **Lab ID: 60241636003**      Collected: 04/07/17 14:59      Received: 04/08/17 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                | <b>0.000 ± 0.343 (0.769)</b><br>C:NA T:92%  | pCi/L | 04/26/17 22:42 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.375 ± 0.377 (0.779)</b><br>C:75% T:81% | pCi/L | 04/26/17 14:06 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.375 ± 0.720 (1.55)</b>                 | pCi/L | 05/02/17 16:13 | 7440-14-4  |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

**Sample: FGD-4-040717**      **Lab ID: 60241636004**      Collected: 04/07/17 16:14      Received: 04/08/17 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                | <b>0.445 ± 0.360 (0.201)</b><br>C:NA T:88%  | pCi/L | 04/26/17 22:42 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.446 ± 0.470 (0.984)</b><br>C:75% T:79% | pCi/L | 04/26/17 14:06 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.891 ± 0.830 (1.19)</b>                 | pCi/L | 05/02/17 16:13 | 7440-14-4  |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

**Sample: DUP-040717**      **Lab ID: 60241636005**      Collected: 04/07/17 08:00      Received: 04/08/17 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                | <b>0.860 ± 0.535 (0.527)</b><br>C:NA T:86%  | pCi/L | 04/26/17 22:42 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.468 ± 0.373 (0.737)</b><br>C:77% T:80% | pCi/L | 04/26/17 14:06 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>1.33 ± 0.908 (1.26)</b>                  | pCi/L | 05/02/17 16:13 | 7440-14-4  |      |

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

QC Batch: 255837 Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60241636001, 60241636002, 60241636003, 60241636004, 60241636005

METHOD BLANK: 1260015 Matrix: Water

Associated Lab Samples: 60241636001, 60241636002, 60241636003, 60241636004, 60241636005

| Parameter  | Act ± Unc (MDC) Carr Trac         | Units | Analyzed       | Qualifiers |
|------------|-----------------------------------|-------|----------------|------------|
| Radium-226 | 0.0674 ± 0.308 (0.626) C:NA T:93% | pCi/L | 04/26/17 22:42 |            |

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## QUALIFIERS

Project: JEC CCR GROUNDWATER  
Pace Project No.: 60241636

---

### 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

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.

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

| Lab ID      | Sample ID    | QC Batch Method          | QC Batch | Analytical Method | Analytical Batch |
|-------------|--------------|--------------------------|----------|-------------------|------------------|
| 60241636001 | FGD-1-040717 | EPA 200.7                | 473694   | EPA 200.7         | 473746           |
| 60241636002 | FGD-2-040717 | EPA 200.7                | 473694   | EPA 200.7         | 473746           |
| 60241636003 | FGD-3-040717 | EPA 200.7                | 473694   | EPA 200.7         | 473746           |
| 60241636004 | FGD-4-040717 | EPA 200.7                | 473694   | EPA 200.7         | 473746           |
| 60241636005 | DUP-040717   | EPA 200.7                | 473694   | EPA 200.7         | 473746           |
| 60241636001 | FGD-1-040717 | EPA 200.8                | 473696   | EPA 200.8         | 473747           |
| 60241636002 | FGD-2-040717 | EPA 200.8                | 473696   | EPA 200.8         | 473747           |
| 60241636003 | FGD-3-040717 | EPA 200.8                | 473696   | EPA 200.8         | 473747           |
| 60241636004 | FGD-4-040717 | EPA 200.8                | 473696   | EPA 200.8         | 473747           |
| 60241636005 | DUP-040717   | EPA 200.8                | 473696   | EPA 200.8         | 473747           |
| 60241636001 | FGD-1-040717 | EPA 245.1                | 472110   | EPA 245.1         | 472162           |
| 60241636002 | FGD-2-040717 | EPA 245.1                | 472110   | EPA 245.1         | 472162           |
| 60241636003 | FGD-3-040717 | EPA 245.1                | 472110   | EPA 245.1         | 472162           |
| 60241636004 | FGD-4-040717 | EPA 245.1                | 472110   | EPA 245.1         | 472162           |
| 60241636005 | DUP-040717   | EPA 245.1                | 472110   | EPA 245.1         | 472162           |
| 60241636001 | FGD-1-040717 | EPA 903.1                | 255837   |                   |                  |
| 60241636002 | FGD-2-040717 | EPA 903.1                | 255837   |                   |                  |
| 60241636003 | FGD-3-040717 | EPA 903.1                | 255837   |                   |                  |
| 60241636004 | FGD-4-040717 | EPA 903.1                | 255837   |                   |                  |
| 60241636005 | DUP-040717   | EPA 903.1                | 255837   |                   |                  |
| 60241636001 | FGD-1-040717 | EPA 904.0                | 255838   |                   |                  |
| 60241636002 | FGD-2-040717 | EPA 904.0                | 255838   |                   |                  |
| 60241636003 | FGD-3-040717 | EPA 904.0                | 255838   |                   |                  |
| 60241636004 | FGD-4-040717 | EPA 904.0                | 255838   |                   |                  |
| 60241636005 | DUP-040717   | EPA 904.0                | 255838   |                   |                  |
| 60241636001 | FGD-1-040717 | Total Radium Calculation | 257201   |                   |                  |
| 60241636002 | FGD-2-040717 | Total Radium Calculation | 257201   |                   |                  |
| 60241636003 | FGD-3-040717 | Total Radium Calculation | 257201   |                   |                  |
| 60241636004 | FGD-4-040717 | Total Radium Calculation | 257201   |                   |                  |
| 60241636005 | DUP-040717   | Total Radium Calculation | 257201   |                   |                  |
| 60241636001 | FGD-1-040717 | SM 2540C                 | 472460   |                   |                  |
| 60241636002 | FGD-2-040717 | SM 2540C                 | 472660   |                   |                  |
| 60241636003 | FGD-3-040717 | SM 2540C                 | 472660   |                   |                  |
| 60241636004 | FGD-4-040717 | SM 2540C                 | 472660   |                   |                  |
| 60241636005 | DUP-040717   | SM 2540C                 | 472660   |                   |                  |
| 60241636001 | FGD-1-040717 | SM 4500-H+B              | 472271   |                   |                  |
| 60241636002 | FGD-2-040717 | SM 4500-H+B              | 472271   |                   |                  |
| 60241636003 | FGD-3-040717 | SM 4500-H+B              | 472271   |                   |                  |
| 60241636004 | FGD-4-040717 | SM 4500-H+B              | 472271   |                   |                  |
| 60241636005 | DUP-040717   | SM 4500-H+B              | 472465   |                   |                  |
| 60241636001 | FGD-1-040717 | EPA 300.0                | 472089   |                   |                  |
| 60241636002 | FGD-2-040717 | EPA 300.0                | 472089   |                   |                  |
| 60241636003 | FGD-3-040717 | EPA 300.0                | 472089   |                   |                  |
| 60241636004 | FGD-4-040717 | EPA 300.0                | 472089   |                   |                  |

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60241636

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| <b>Lab ID</b> | <b>Sample ID</b> | <b>QC Batch Method</b> | <b>QC Batch</b> | <b>Analytical Method</b> | <b>Analytical Batch</b> |
|---------------|------------------|------------------------|-----------------|--------------------------|-------------------------|
| 60241636005   | DUP-040717       | EPA 300.0              | 472089          |                          |                         |

### REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 60241636



Amw

Client Name: Wester 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 2.0 Corr. Factor: CF +1.5 Corrected 3.5

Date and initials of person examining contents: 10/17/17

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 checked="" 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?<br>(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide)<br>(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: 11/10/17



# Chain of Custody

WO#: 30215757



30215757



Workorder: 60241636

Workorder Name: JEC CCR GROUNDWATER

Owner Received Date: 4/8/2017

Results Requested By: 5/2/2017

| Report To   |                    | Subcontract To  |  |               |   |                      | Requested Analysis                                     |  |            |      |  |  |  |  |  |  |  |  |          |              |
|---|--------------------|---|--|---------------|---|----------------------|--|--|------------|------|--|--|--|--|--|--|--|--|----------|--------------|
| Heather Wilson<br>Pace Analytical Kansas<br>9608 Loiret Blvd.<br>Lenexa, KS 66219<br>Phone 1(913)563-1407 |                    | Pace Analytical Pittsburgh<br>1638 Roseytown Road<br>Suites 2,3, & 4<br>Greensburg, PA 15601<br>Phone (724)850-5600 |  |               |   |                      |  |  |            |      |  |  |  |  |  |  |  |  |          |              |
|   |                    |   |  |               |   |                      | Radium-226 & Total Sum                                 |  | Radium-228 |      |  |  |  |  |  |  |  |  |          |              |
| Item  | Sample ID          | Sample Type   | Collect Date/Time                                    | Lab ID        | Matrix  | Preserved Containers |  |  |            | HNO3 |  |  |  |  |  |  |  |  |          | LAB USE ONLY |
|   |                    |   |  |               |   |                      |  |  |            |      |  |  |  |  |  |  |  |  |          |              |
| 1   | FGD-1-040717       | PS  | 4/7/2017 12:53                                       | 60241636001   | Water   | 2                    |  |  |            |      |  |  |  |  |  |  |  |  |          | 001          |
| 2   | FGD-2-040717       | PS  | 4/7/2017 13:59                                       | 60241636002   | Water   | 2                    |  |  |            |      |  |  |  |  |  |  |  |  |          | 002          |
| 3   | FGD-3-040717       | PS  | 4/7/2017 14:59                                       | 60241636003   | Water   | 2                    |  |  |            |      |  |  |  |  |  |  |  |  |          | 003          |
| 4   | FGD-4-040717       | PS  | 4/7/2017 16:14                                       | 60241636004   | Water   | 2                    |  |  |            |      |  |  |  |  |  |  |  |  |          | 004          |
| 5   | DUP-040717         | PS  | 4/7/2017 08:00                                       | 60241636005   | Water   | 2                    |  |  |            |      |  |  |  |  |  |  |  |  |          | 005          |
|   |                    |   |  |               |   |                      |  |  |            |      |  |  |  |  |  |  |  |  | Comments |              |
| Transfers   | Released By        | Date/Time   | Received By  | Date/Time     |   |                      |  |  |            |      |  |  |  |  |  |  |  |  |          |              |
| 1   | <i>[Signature]</i> | 4/6/17 7:00   | <i>[Signature]</i>                                   | 4/11/17 09:40 |   |                      |  |  |            |      |  |  |  |  |  |  |  |  |          |              |
| 2   |                    |   |  |               |   |                      |  |  |            |      |  |  |  |  |  |  |  |  |          |              |
| 3   |                    |   |  |               |   |                      |  |  |            |      |  |  |  |  |  |  |  |  |          |              |
| Cooler Temperature on Receipt   |                    | N/A °C  | Custody Seal Y or <input checked="" type="radio"/> N |               | Received on Ice Y or <input checked="" type="radio"/> N |                      | Samples Intact <input checked="" type="radio"/> 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

R1B



Client Name: Pace Kansas

Project # 30215757

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: 7285 6591 4130, 7285 6591 4287

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: KA 4/11/17

| 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:<br>-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:<br>-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>pH &lt; 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>KA</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>KA</u> Date: <u>4/11/17</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 1-7**  
**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.: 60245292

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

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## CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

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### 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

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### 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

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

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| Lab ID      | Sample ID    | Matrix | Date Collected | Date Received  |
|-------------|--------------|--------|----------------|----------------|
| 60245292001 | FGD-1-052617 | Water  | 05/26/17 13:11 | 05/27/17 08:50 |
| 60245292002 | FGD-2-052617 | Water  | 05/26/17 13:58 | 05/27/17 08:50 |
| 60245292003 | FGD-3-052617 | Water  | 05/26/17 14:42 | 05/27/17 08:50 |
| 60245292004 | FGD-4-052617 | Water  | 05/26/17 15:47 | 05/27/17 08:50 |

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER  
Pace Project No.: 60245292

| Lab ID                   | Sample ID    | Method                   | Analysts | Analytes Reported | Laboratory |
|--------------------------|--------------|--------------------------|----------|-------------------|------------|
| 60245292001              | FGD-1-052617 | 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     |
| 60245292002              | FGD-2-052617 | EPA 300.0                | RAD      | 3                 | PASI-K     |
|                          |              | 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     |
| 60245292003              | FGD-3-052617 | SM 4500-H+B              | JSS      | 1                 | PASI-K     |
|                          |              | EPA 300.0                | RAD      | 3                 | PASI-K     |
|                          |              | 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    |
| 60245292004              | FGD-4-052617 | SM 2540C                 | LDF      | 1                 | PASI-K     |
|                          |              | SM 4500-H+B              | JSS      | 1                 | PASI-K     |
|                          |              | EPA 300.0                | RAD      | 3                 | PASI-K     |
|                          |              | 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            |            |

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

---

**Method:** EPA 200.7

**Description:** 200.7 Metals, Total

**Client:** WESTAR ENERGY

**Date:** June 19, 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.

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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

---

**Method:** EPA 200.8

**Description:** 200.8 MET ICPMS

**Client:** WESTAR ENERGY

**Date:** June 19, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

---

**Method:** EPA 245.1

**Description:** 245.1 Mercury

**Client:** WESTAR ENERGY

**Date:** June 19, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

---

**Method:** EPA 903.1

**Description:** 903.1 Radium 226

**Client:** WESTAR ENERGY

**Date:** June 19, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

---

**Method:** EPA 904.0

**Description:** 904.0 Radium 228

**Client:** WESTAR ENERGY

**Date:** June 19, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

---

**Method:** Total Radium Calculation

**Description:** Total Radium 228+226

**Client:** WESTAR ENERGY

**Date:** June 19, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

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**Method:** SM 2540C

**Description:** 2540C Total Dissolved Solids

**Client:** WESTAR ENERGY

**Date:** June 19, 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:**

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

---

**Method:** SM 4500-H+B

**Description:** 4500H+ pH, Electrometric

**Client:** WESTAR ENERGY

**Date:** June 19, 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.

- FGD-1-052617 (Lab ID: 60245292001)
- FGD-2-052617 (Lab ID: 60245292002)
- FGD-3-052617 (Lab ID: 60245292003)
- FGD-4-052617 (Lab ID: 60245292004)

### 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

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**Method:** EPA 300.0

**Description:** 300.0 IC Anions 28 Days

**Client:** WESTAR ENERGY

**Date:** June 19, 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

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

| Sample: FGD-1-052617                |          | Lab ID: 60245292001  | Collected: 05/26/17 13:11 | Received: 05/27/17 08:50 | Matrix: Water  |                |            |      |
|-------------------------------------|----------|--|---------------------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results  | Units  | Report Limit              | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |          | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | 0.30     | mg/L   | 0.0050                    | 1                        | 06/01/17 09:44 | 06/07/17 18:14 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <0.0010  | mg/L   | 0.0010                    | 1                        | 06/01/17 09:44 | 06/07/17 18:14 | 7440-41-7  |      |
| Boron, Total Recoverable            | <0.10    | mg/L   | 0.10                      | 1                        | 06/01/17 09:44 | 06/07/17 18:14 | 7440-42-8  |      |
| Calcium, Total Recoverable          | 97.3     | mg/L   | 0.10                      | 1                        | 06/01/17 09:44 | 06/07/17 18:14 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <0.0050  | mg/L   | 0.0050                    | 1                        | 06/01/17 09:44 | 06/07/17 18:14 | 7440-47-3  |      |
| Lead, Total Recoverable             | <0.0050  | mg/L   | 0.0050                    | 1                        | 06/01/17 09:44 | 06/07/17 18:14 | 7439-92-1  |      |
| Lithium                             | 0.014    | mg/L   | 0.010                     | 1                        | 06/01/17 09:44 | 06/07/17 18:14 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |          | 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 19:01 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <0.0010  | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:01 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <0.00050 | mg/L   | 0.00050                   | 1                        | 05/30/17 16:33 | 06/15/17 19:01 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <0.0010  | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:01 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | 0.0014   | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:01 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <0.0010  | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:01 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <0.0010  | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:01 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |          | 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 11:53 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | 545      | mg/L   | 5.0                       | 1                        |                | 05/31/17 09:39 |            |      |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | 7.6      | Std. Units   | 0.10                      | 1                        |                | 06/06/17 12:00 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |          | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | 66.2     | mg/L   | 10.0                      | 10                       |                | 05/31/17 21:25 | 16887-00-6 |      |
| Fluoride                            | 0.36     | mg/L   | 0.20                      | 1                        |                | 05/31/17 21:10 | 16984-48-8 |      |
| Sulfate                             | 87.0     | mg/L   | 10.0                      | 10                       |                | 05/31/17 21:25 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

| Sample: FGD-2-052617                |          | Lab ID: 60245292002  | Collected: 05/26/17 13:58 | Received: 05/27/17 08:50 | Matrix: Water  |                |            |      |
|-------------------------------------|----------|--|---------------------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results  | Units  | Report Limit              | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |          | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | 0.081    | mg/L   | 0.0050                    | 1                        | 06/01/17 09:44 | 06/07/17 18:16 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <0.0010  | mg/L   | 0.0010                    | 1                        | 06/01/17 09:44 | 06/07/17 18:16 | 7440-41-7  |      |
| Boron, Total Recoverable            | 0.25     | mg/L   | 0.10                      | 1                        | 06/01/17 09:44 | 06/07/17 18:16 | 7440-42-8  |      |
| Calcium, Total Recoverable          | 158      | mg/L   | 0.10                      | 1                        | 06/01/17 09:44 | 06/07/17 18:16 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <0.0050  | mg/L   | 0.0050                    | 1                        | 06/01/17 09:44 | 06/07/17 18:16 | 7440-47-3  |      |
| Lead, Total Recoverable             | <0.0050  | mg/L   | 0.0050                    | 1                        | 06/01/17 09:44 | 06/07/17 18:16 | 7439-92-1  |      |
| Lithium                             | <0.010   | mg/L   | 0.010                     | 1                        | 06/01/17 09:44 | 06/07/17 18:16 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |          | 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 19:08 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <0.0010  | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:08 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <0.00050 | mg/L   | 0.00050                   | 1                        | 05/30/17 16:33 | 06/15/17 19:08 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | 0.0014   | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:08 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | 0.0038   | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:08 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <0.0010  | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:08 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <0.0010  | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:08 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |          | 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 11:56 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | 772      | mg/L   | 5.0                       | 1                        |                | 05/31/17 09:40 |            |      |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | 7.5      | Std. Units   | 0.10                      | 1                        |                | 06/06/17 12:00 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |          | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | 36.9     | mg/L   | 2.0                       | 2                        |                | 05/31/17 21:55 | 16887-00-6 |      |
| Fluoride                            | 0.35     | mg/L   | 0.20                      | 1                        |                | 05/31/17 21:40 | 16984-48-8 |      |
| Sulfate                             | 299      | mg/L   | 25.0                      | 25                       |                | 06/01/17 17:03 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

| Sample: FGD-3-052617                |          | Lab ID: 60245292003  |              | Collected: 05/26/17 14:42 |                | Received: 05/27/17 08:50 |            | Matrix: Water |  |
|-------------------------------------|----------|--|--------------|---------------------------|----------------|--------------------------|------------|---------------|--|
| Parameters                          | Results  | Units  | Report Limit | DF                        | Prepared       | Analyzed                 | CAS No.    | Qual          |  |
| <b>200.7 Metals, Total</b>          |          | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                           |                |                          |            |               |  |
| Barium, Total Recoverable           | 0.14     | mg/L   | 0.0050       | 1                         | 06/01/17 09:44 | 06/08/17 13:38           | 7440-39-3  |               |  |
| Beryllium, Total Recoverable        | <0.0010  | mg/L   | 0.0010       | 1                         | 06/01/17 09:44 | 06/08/17 13:38           | 7440-41-7  |               |  |
| Boron, Total Recoverable            | <0.10    | mg/L   | 0.10         | 1                         | 06/01/17 09:44 | 06/08/17 13:38           | 7440-42-8  |               |  |
| Calcium, Total Recoverable          | 115      | mg/L   | 0.10         | 1                         | 06/01/17 09:44 | 06/08/17 13:38           | 7440-70-2  |               |  |
| Chromium, Total Recoverable         | <0.0050  | mg/L   | 0.0050       | 1                         | 06/01/17 09:44 | 06/08/17 13:38           | 7440-47-3  |               |  |
| Lead, Total Recoverable             | <0.0050  | mg/L   | 0.0050       | 1                         | 06/01/17 09:44 | 06/08/17 13:38           | 7439-92-1  |               |  |
| Lithium                             | 0.012    | mg/L   | 0.010        | 1                         | 06/01/17 09:44 | 06/08/17 13:38           | 7439-93-2  |               |  |
| <b>200.8 MET ICPMS</b>              |          | 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 19:14           | 7440-36-0  |               |  |
| Arsenic, Total Recoverable          | <0.0010  | mg/L   | 0.0010       | 1                         | 05/30/17 16:33 | 06/15/17 19:14           | 7440-38-2  |               |  |
| Cadmium, Total Recoverable          | <0.00050 | mg/L   | 0.00050      | 1                         | 05/30/17 16:33 | 06/15/17 19:14           | 7440-43-9  |               |  |
| Cobalt, Total Recoverable           | <0.0010  | mg/L   | 0.0010       | 1                         | 05/30/17 16:33 | 06/15/17 19:14           | 7440-48-4  |               |  |
| Molybdenum, Total Recoverable       | 0.0059   | mg/L   | 0.0010       | 1                         | 05/30/17 16:33 | 06/15/17 19:14           | 7439-98-7  |               |  |
| Selenium, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 05/30/17 16:33 | 06/15/17 19:14           | 7782-49-2  |               |  |
| Thallium, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 05/30/17 16:33 | 06/15/17 19:14           | 7440-28-0  |               |  |
| <b>245.1 Mercury</b>                |          | 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 11:58           | 7439-97-6  |               |  |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |              |                           |                |                          |            |               |  |
| Total Dissolved Solids              | 637      | mg/L   | 5.0          | 1                         |                | 05/31/17 09:40           |            |               |  |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |              |                           |                |                          |            |               |  |
| pH at 25 Degrees C                  | 7.6      | Std. Units   | 0.10         | 1                         |                | 06/06/17 12:00           |            | H6            |  |
| <b>300.0 IC Anions 28 Days</b>      |          | Analytical Method: EPA 300.0                               |              |                           |                |                          |            |               |  |
| Chloride                            | 40.8     | mg/L   | 5.0          | 5                         |                | 05/31/17 22:39           | 16887-00-6 |               |  |
| Fluoride                            | 0.29     | mg/L   | 0.20         | 1                         |                | 05/31/17 22:24           | 16984-48-8 |               |  |
| Sulfate                             | 166      | mg/L   | 25.0         | 25                        |                | 05/31/17 22:54           | 14808-79-8 |               |  |

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

| Sample: FGD-4-052617                |          | Lab ID: 60245292004  | Collected: 05/26/17 15:47 | Received: 05/27/17 08:50 | Matrix: Water  |                |            |      |
|-------------------------------------|----------|--|---------------------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results  | Units  | Report Limit              | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |          | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | 0.056    | mg/L   | 0.010                     | 2                        | 06/01/17 09:44 | 06/08/17 13:07 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <0.0020  | mg/L   | 0.0020                    | 2                        | 06/01/17 09:44 | 06/08/17 13:07 | 7440-41-7  |      |
| Boron, Total Recoverable            | 0.28     | mg/L   | 0.10                      | 1                        | 06/01/17 09:44 | 06/08/17 13:41 | 7440-42-8  |      |
| Calcium, Total Recoverable          | 169      | mg/L   | 0.20                      | 2                        | 06/01/17 09:44 | 06/08/17 13:07 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <0.0050  | mg/L   | 0.0050                    | 1                        | 06/01/17 09:44 | 06/08/17 13:41 | 7440-47-3  |      |
| Lead, Total Recoverable             | <0.0050  | mg/L   | 0.0050                    | 1                        | 06/01/17 09:44 | 06/08/17 13:41 | 7439-92-1  |      |
| Lithium                             | <0.020   | mg/L   | 0.020                     | 2                        | 06/01/17 09:44 | 06/08/17 13:07 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |          | 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 19:20 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <0.0010  | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:20 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <0.00050 | mg/L   | 0.00050                   | 1                        | 05/30/17 16:33 | 06/15/17 19:20 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <0.0010  | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:20 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | 0.0038   | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:20 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <0.0010  | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:20 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <0.0010  | mg/L   | 0.0010                    | 1                        | 05/30/17 16:33 | 06/15/17 19:20 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |          | 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 11:59 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | 1040     | mg/L   | 5.0                       | 1                        |                | 05/31/17 09:41 |            |      |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | 7.3      | Std. Units   | 0.10                      | 1                        |                | 06/06/17 12:00 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |          | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | 85.3     | mg/L   | 10.0                      | 10                       |                | 06/01/17 00:09 | 16887-00-6 |      |
| Fluoride                            | 0.31     | mg/L   | 0.20                      | 1                        |                | 05/31/17 23:54 | 16984-48-8 |      |
| Sulfate                             | 398      | mg/L   | 50.0                      | 50                       |                | 05/31/17 23:09 | 14808-79-8 |      |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

QC Batch: 479800 Analysis Method: EPA 245.1  
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury  
 Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

METHOD BLANK: 1965095 Matrix: Water  
 Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

| 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 |       | MSD         |             | MS     |        | MSD   |        | % Rec Limits | RPD | Max RPD | Qual |
|-----------|-------|-------------|-------|-------------|-------------|--------|--------|-------|--------|--------------|-----|---------|------|
|           |       | Result      | Conc. | Spike Conc. | Spike Conc. | Result | Result | % Rec | % Rec  |              |     |         |      |
| Mercury   | mg/L  | ND          | .005  | .005        | .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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

QC Batch: 479127 Analysis Method: EPA 200.7  
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total  
Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

METHOD BLANK: 1962383 Matrix: Water  
Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

| 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         |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

| MATRIX SPIKE SAMPLE: |       | 1962387               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60245129002<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

QC Batch: 478816 Analysis Method: EPA 200.8  
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET  
 Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

METHOD BLANK: 1961478 Matrix: Water  
 Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

| 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

| MATRIX SPIKE SAMPLE: |       | 1961482               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60245129001<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>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          |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

QC Batch: 478945 Analysis Method: SM 2540C  
 QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
 Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

METHOD BLANK: 1961877 Matrix: Water  
 Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

| 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      |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

QC Batch: 479836 Analysis Method: SM 4500-H+B

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

Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

SAMPLE DUPLICATE: 1965272

| Parameter          | Units      | 60245292001<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 7.6                   | 7.6           | 0   | 5          | H6         |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

QC Batch: 478968 Analysis Method: EPA 300.0  
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

METHOD BLANK: 1961900 Matrix: Water  
 Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

| 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 | % Rec  | % 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

QC Batch: 479186

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 60245292002

METHOD BLANK: 1962661

Matrix: Water

Associated Lab Samples: 60245292002

| 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 |                 | 1962663        |                 | 1962664   |            | % Rec Limits | RPD | Max RPD | Qual |          |
|-----------|-------|-------------|-----------------|----------------|-----------------|-----------|------------|--------------|-----|---------|------|----------|
|           |       | MS Result   | MSD Spike Conc. | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result |              |     |         |      | MS % Rec |
| Sulfate   | mg/L  | ND          | 50              | 50             | 50              | 53.6      | 53.8       | 107          | 108 | 80-120  | 0    | 15       |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

**Sample: FGD-1-052617**      **Lab ID: 60245292001**      Collected: 05/26/17 13:11      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                | <b>0.501 ± 0.463 (0.674)</b><br>C:NA T:90%  | pCi/L | 06/12/17 21:34 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.426 ± 0.294 (0.561)</b><br>C:82% T:93% | pCi/L | 06/14/17 14:28 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.927 ± 0.757 (1.24)</b>                 | pCi/L | 06/15/17 12:46 | 7440-14-4  |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

**Sample: FGD-2-052617**      **Lab ID: 60245292002**      Collected: 05/26/17 13:58      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                | <b>0.385 ± 0.504 (0.840)</b><br>C:NA T:87%  | pCi/L | 06/12/17 21:48 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.535 ± 0.391 (0.762)</b><br>C:74% T:83% | pCi/L | 06/14/17 14:28 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.920 ± 0.895 (1.60)</b>                 | pCi/L | 06/15/17 12:46 | 7440-14-4  |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

**Sample: FGD-3-052617**      **Lab ID: 60245292003**      Collected: 05/26/17 14:42      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                | <b>1.10 ± 0.526 (0.166)</b><br><b>C:NA T:96%</b>   | pCi/L | 06/12/17 21:48 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.402 ± 0.411 (0.846)</b><br><b>C:74% T:67%</b> | pCi/L | 06/14/17 14:29 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>1.50 ± 0.937 (1.01)</b>                         | pCi/L | 06/15/17 12:46 | 7440-14-4  |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

**Sample: FGD-4-052617**      **Lab ID: 60245292004**      Collected: 05/26/17 15:47      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                | <b>0.367 ± 0.417 (0.658)</b><br>C:NA T:93%  | pCi/L | 06/12/17 21:48 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.285 ± 0.325 (0.679)</b><br>C:68% T:85% | pCi/L | 06/14/17 14:29 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.652 ± 0.742 (1.34)</b>                 | pCi/L | 06/15/17 12:46 | 7440-14-4  |      |

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

QC Batch: 260596

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

METHOD BLANK: 1283376

Matrix: Water

Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

| 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 |            |

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

QC Batch: 260868

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

METHOD BLANK: 1284605

Matrix: Water

Associated Lab Samples: 60245292001, 60245292002, 60245292003, 60245292004

| 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

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## QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

---

### 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

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245292

| Lab ID      | Sample ID    | QC Batch Method          | QC Batch | Analytical Method | Analytical Batch |
|-------------|--------------|--------------------------|----------|-------------------|------------------|
| 60245292001 | FGD-1-052617 | EPA 200.7                | 479127   | EPA 200.7         | 479269           |
| 60245292002 | FGD-2-052617 | EPA 200.7                | 479127   | EPA 200.7         | 479269           |
| 60245292003 | FGD-3-052617 | EPA 200.7                | 479127   | EPA 200.7         | 479269           |
| 60245292004 | FGD-4-052617 | EPA 200.7                | 479127   | EPA 200.7         | 479269           |
| 60245292001 | FGD-1-052617 | EPA 200.8                | 478816   | EPA 200.8         | 478960           |
| 60245292002 | FGD-2-052617 | EPA 200.8                | 478816   | EPA 200.8         | 478960           |
| 60245292003 | FGD-3-052617 | EPA 200.8                | 478816   | EPA 200.8         | 478960           |
| 60245292004 | FGD-4-052617 | EPA 200.8                | 478816   | EPA 200.8         | 478960           |
| 60245292001 | FGD-1-052617 | EPA 245.1                | 479800   | EPA 245.1         | 480611           |
| 60245292002 | FGD-2-052617 | EPA 245.1                | 479800   | EPA 245.1         | 480611           |
| 60245292003 | FGD-3-052617 | EPA 245.1                | 479800   | EPA 245.1         | 480611           |
| 60245292004 | FGD-4-052617 | EPA 245.1                | 479800   | EPA 245.1         | 480611           |
| 60245292001 | FGD-1-052617 | EPA 903.1                | 260596   |                   |                  |
| 60245292002 | FGD-2-052617 | EPA 903.1                | 260596   |                   |                  |
| 60245292003 | FGD-3-052617 | EPA 903.1                | 260596   |                   |                  |
| 60245292004 | FGD-4-052617 | EPA 903.1                | 260596   |                   |                  |
| 60245292001 | FGD-1-052617 | EPA 904.0                | 260868   |                   |                  |
| 60245292002 | FGD-2-052617 | EPA 904.0                | 260868   |                   |                  |
| 60245292003 | FGD-3-052617 | EPA 904.0                | 260868   |                   |                  |
| 60245292004 | FGD-4-052617 | EPA 904.0                | 260868   |                   |                  |
| 60245292001 | FGD-1-052617 | Total Radium Calculation | 261901   |                   |                  |
| 60245292002 | FGD-2-052617 | Total Radium Calculation | 261901   |                   |                  |
| 60245292003 | FGD-3-052617 | Total Radium Calculation | 261901   |                   |                  |
| 60245292004 | FGD-4-052617 | Total Radium Calculation | 261901   |                   |                  |
| 60245292001 | FGD-1-052617 | SM 2540C                 | 478945   |                   |                  |
| 60245292002 | FGD-2-052617 | SM 2540C                 | 478945   |                   |                  |
| 60245292003 | FGD-3-052617 | SM 2540C                 | 478945   |                   |                  |
| 60245292004 | FGD-4-052617 | SM 2540C                 | 478945   |                   |                  |
| 60245292001 | FGD-1-052617 | SM 4500-H+B              | 479836   |                   |                  |
| 60245292002 | FGD-2-052617 | SM 4500-H+B              | 479836   |                   |                  |
| 60245292003 | FGD-3-052617 | SM 4500-H+B              | 479836   |                   |                  |
| 60245292004 | FGD-4-052617 | SM 4500-H+B              | 479836   |                   |                  |
| 60245292001 | FGD-1-052617 | EPA 300.0                | 478968   |                   |                  |
| 60245292002 | FGD-2-052617 | EPA 300.0                | 478968   |                   |                  |
| 60245292002 | FGD-2-052617 | EPA 300.0                | 479186   |                   |                  |
| 60245292003 | FGD-3-052617 | EPA 300.0                | 478968   |                   |                  |
| 60245292004 | FGD-4-052617 | EPA 300.0                | 478968   |                   |                  |

### REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 60245292



Client Name: Nestor

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: RS 5/30/17

Temperature should be above freezing to 6°C

|  |   |           |
|--|---|-----------|
| Chain of Custody present:  | <input 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 checked="" 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>14</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>W</u>  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A            |           |
| Containers requiring pH preservation in compliance?<br>(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide)<br>(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: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

REVIEWED  
By hwilson at 9:58 am, 5/30/17



# Chain of Custody



Workorder: 60245292

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<br>Pace Analytical Kansas<br>9608 Loiret Blvd.<br>Lenexa, KS 66219<br>Phone 1(913)563-1407 |              | Pace Analytical Pittsburgh<br>1638 Roseytown Road<br>Suites 2,3, & 4<br>Greensburg, PA 15601<br>Phone (724)850-5600 |                   |                 |        | <div style="text-align: center;"> <p>WO#: 30220260</p> <p>30220260</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   | FGD-1-052617 | PS  | 5/26/2017 13:11   | 60245292001     | Water  | 2   |  |  |  | X          | X                         |              |  |  |  | 001 |
| 2   | FGD-2-052617 | PS  | 5/26/2017 13:58   | 60245292002     | Water  | 2   |  |  |  | X          | X                         |              |  |  |  | 002 |
| 3   | FGD-3-052617 | PS  | 5/26/2017 14:42   | 60245292003     | Water  | 2   |  |  |  | X          | X                         |              |  |  |  | 003 |
| 4   | FGD-4-052617 | PS  | 5/26/2017 15:47   | 60245292004     | Water  | 2   |  |  |  | X          | X                         |              |  |  |  | 004 |
| 5   |              |   |                   |                 |        |   |  |  |  |            |                           |              |  |  |  |     |
| Transfers   |              |   |                   |                 |        |   |  |  |  |            | Comments                  |              |  |  |  |     |
| Released By   | Date/Time    | Received By   | Date/Time         |                 |        |   |  |  |  |            |                           |              |  |  |  |     |
| <i>[Signature]</i>  | 5/26/17 1700 | Karen Hu  | 5/31/17 0955      |                 |        |   |  |  |  |            |                           |              |  |  |  |     |
|   |              |   |                   |                 |        |   |  |  |  |            |                           |              |  |  |  |     |
|   |              |   |                   |                 |        |   |  |  |  |            |                           |              |  |  |  |     |
| Cooler Temperature on Receipt   |              | Custody Seal  |                   | Received on Ice |        | Samples Intact  |  |  |  |            |                           |              |  |  |  |     |
| N/A °C  |              | Y or N  |                   | Y or N          |        | 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

30220260

KEH



Client Name: Pau Kansas Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: 7285 6592 8380

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 &lt; 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 25, 2017

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

RE: Project: JEC CCR GROUNDWATER  
Pace Project No.: 60247861

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.

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

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## CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

---

### 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

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### 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

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

| Lab ID      | Sample ID    | Matrix | Date Collected | Date Received  |
|-------------|--------------|--------|----------------|----------------|
| 60247861001 | FGD-1-062917 | Water  | 06/29/17 15:35 | 07/01/17 09:00 |
| 60247861002 | FGD-2-063017 | Water  | 06/30/17 08:17 | 07/01/17 09:00 |
| 60247861003 | FGD-3-063017 | Water  | 06/30/17 09:38 | 07/01/17 09:00 |
| 60247861004 | FGD-4-063017 | Water  | 06/30/17 10:58 | 07/01/17 09:00 |
| 60247861005 | DUP-063017   | Water  | 06/30/17 06:00 | 07/01/17 09:00 |

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

| Lab ID      | Sample ID    | Method                   | Analysts | Analytes Reported | Laboratory |
|-------------|--------------|--------------------------|----------|-------------------|------------|
| 60247861001 | FGD-1-062917 | 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     |
|             |              | SM 4500-H+B              | JSS      | 1                 | PASI-K     |
|             |              | EPA 300.0                | OL       | 3                 | PASI-K     |
| 60247861002 | FGD-2-063017 | 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     |
|             |              | SM 4500-H+B              | JSS      | 1                 | PASI-K     |
|             |              | EPA 300.0                | OL       | 3                 | PASI-K     |
| 60247861003 | FGD-3-063017 | 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     |
|             |              | SM 4500-H+B              | JSS      | 1                 | PASI-K     |
|             |              | EPA 300.0                | OL       | 3                 | PASI-K     |
| 60247861004 | FGD-4-063017 | 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     |
|             |              | SM 4500-H+B              | JSS      | 1                 | PASI-K     |
|             |              | EPA 300.0                | OL       | 3                 | PASI-K     |
| 60247861005 | DUP-063017   | EPA 200.7                | TDS      | 7                 | PASI-K     |

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

| Lab ID | Sample ID | Method                   | Analysts | Analytes Reported | Laboratory |
|--------|-----------|--------------------------|----------|-------------------|------------|
|        |           | 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     |
|        |           | EPA 300.0                | OL       | 3                 | PASI-K     |

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

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**Method:** EPA 200.7

**Description:** 200.7 Metals, Total

**Client:** WESTAR ENERGY

**Date:** July 25, 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:**

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

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**Method:** EPA 200.8

**Description:** 200.8 MET ICPMS

**Client:** WESTAR ENERGY

**Date:** July 25, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

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**Method:** EPA 245.1

**Description:** 245.1 Mercury

**Client:** WESTAR ENERGY

**Date:** July 25, 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:**

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

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**Method:** EPA 903.1

**Description:** 903.1 Radium 226

**Client:** WESTAR ENERGY

**Date:** July 25, 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:**

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

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**Method:** EPA 904.0

**Description:** 904.0 Radium 228

**Client:** WESTAR ENERGY

**Date:** July 25, 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

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**Method:** Total Radium Calculation

**Description:** Total Radium 228+226

**Client:** WESTAR ENERGY

**Date:** July 25, 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:**

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

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**Method:** SM 2540C

**Description:** 2540C Total Dissolved Solids

**Client:** WESTAR ENERGY

**Date:** July 25, 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.

QC Batch: 483904

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 1982355)
- Total Dissolved Solids

**Additional Comments:**

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

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**Method:** SM 4500-H+B

**Description:** 4500H+ pH, Electrometric

**Client:** WESTAR ENERGY

**Date:** July 25, 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.

- DUP-063017 (Lab ID: 60247861005)
- FGD-1-062917 (Lab ID: 60247861001)
- FGD-2-063017 (Lab ID: 60247861002)
- FGD-3-063017 (Lab ID: 60247861003)
- FGD-4-063017 (Lab ID: 60247861004)

### 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

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## PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

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**Method:** EPA 300.0

**Description:** 300.0 IC Anions 28 Days

**Client:** WESTAR ENERGY

**Date:** July 25, 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

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

| Sample: FGD-1-062917                | Lab ID: 60247861001 | Collected: 06/29/17 15:35                                  |              | Received: 07/01/17 09:00 |                | Matrix: Water  |            |      |
|-------------------------------------|---------------------|--|--------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results             | Units  | Report Limit | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.29</b>         | mg/L   | 0.0050       | 1                        | 07/12/17 16:35 | 07/15/17 13:29 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 07/12/17 16:35 | 07/15/17 13:29 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.11</b>         | mg/L   | 0.10         | 1                        | 07/12/17 16:35 | 07/15/17 13:29 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>90.4</b>         | mg/L   | 0.10         | 1                        | 07/12/17 16:35 | 07/15/17 13:29 | 7440-70-2  | M1   |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 07/12/17 16:35 | 07/15/17 13:29 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 07/12/17 16:35 | 07/15/17 13:29 | 7439-92-1  |      |
| Lithium                             | <b>0.015</b>        | mg/L   | 0.010        | 1                        | 07/12/17 16:35 | 07/15/17 13:29 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 07/12/17 16:35 | 07/16/17 14:52 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 07/12/17 16:35 | 07/16/17 14:52 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050      | 1                        | 07/12/17 16:35 | 07/16/17 14:52 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 07/12/17 16:35 | 07/16/17 14:52 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0013</b>       | mg/L   | 0.0010       | 1                        | 07/12/17 16:35 | 07/16/17 14:52 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 07/12/17 16:35 | 07/16/17 14:52 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 07/12/17 16:35 | 07/16/17 14:52 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>  | mg/L   | 0.00020      | 1                        | 07/17/17 16:19 | 07/19/17 10:10 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |              |                          |                |                |            |      |
| Total Dissolved Solids              | <b>515</b>          | mg/L   | 5.0          | 1                        |                | 07/05/17 15:55 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |              |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.3</b>          | Std. Units   | 0.10         | 1                        |                | 07/05/17 12:04 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |              |                          |                |                |            |      |
| Chloride                            | <b>49.7</b>         | mg/L   | 5.0          | 5                        |                | 07/23/17 13:06 | 16887-00-6 |      |
| Fluoride                            | <b>0.35</b>         | mg/L   | 0.20         | 1                        |                | 07/22/17 16:30 | 16984-48-8 |      |
| Sulfate                             | <b>93.1</b>         | mg/L   | 5.0          | 5                        |                | 07/23/17 13:06 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

| Sample: FGD-2-063017                | Lab ID: 60247861002 | Collected: 06/30/17 08:17                                  |              | Received: 07/01/17 09:00 |                | Matrix: Water  |            |      |
|-------------------------------------|---------------------|--|--------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results             | Units  | Report Limit | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |                     | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                          |                |                |            |      |
| Barium, Total Recoverable           | <b>0.076</b>        | mg/L   | 0.0050       | 1                        | 07/12/17 16:35 | 07/15/17 13:47 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 07/12/17 16:35 | 07/15/17 13:47 | 7440-41-7  |      |
| Boron, Total Recoverable            | <b>0.23</b>         | mg/L   | 0.10         | 1                        | 07/12/17 16:35 | 07/15/17 13:47 | 7440-42-8  |      |
| Calcium, Total Recoverable          | <b>131</b>          | mg/L   | 0.10         | 1                        | 07/12/17 16:35 | 07/15/17 13:47 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 07/12/17 16:35 | 07/15/17 13:47 | 7440-47-3  |      |
| Lead, Total Recoverable             | <b>&lt;0.0050</b>   | mg/L   | 0.0050       | 1                        | 07/12/17 16:35 | 07/15/17 13:47 | 7439-92-1  |      |
| Lithium                             | <b>&lt;0.010</b>    | mg/L   | 0.010        | 1                        | 07/12/17 16:35 | 07/15/17 13:47 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |                     | Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |              |                          |                |                |            |      |
| Antimony, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 07/12/17 16:35 | 07/16/17 14:56 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 07/12/17 16:35 | 07/16/17 14:56 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <b>&lt;0.00050</b>  | mg/L   | 0.00050      | 1                        | 07/12/17 16:35 | 07/16/17 14:56 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | <b>0.0010</b>       | mg/L   | 0.0010       | 1                        | 07/12/17 16:35 | 07/16/17 14:56 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | <b>0.0037</b>       | mg/L   | 0.0010       | 1                        | 07/12/17 16:35 | 07/16/17 14:56 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 07/12/17 16:35 | 07/16/17 14:56 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <b>&lt;0.0010</b>   | mg/L   | 0.0010       | 1                        | 07/12/17 16:35 | 07/16/17 14:56 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |                     | Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |              |                          |                |                |            |      |
| Mercury                             | <b>&lt;0.00020</b>  | mg/L   | 0.00020      | 1                        | 07/17/17 16:19 | 07/19/17 10:12 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |                     | Analytical Method: SM 2540C                                |              |                          |                |                |            |      |
| Total Dissolved Solids              | <b>710</b>          | mg/L   | 5.0          | 1                        |                | 07/06/17 16:16 |            |      |
| <b>4500H+ pH, Electrometric</b>     |                     | Analytical Method: SM 4500-H+B                             |              |                          |                |                |            |      |
| pH at 25 Degrees C                  | <b>7.2</b>          | Std. Units   | 0.10         | 1                        |                | 07/05/17 12:12 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |                     | Analytical Method: EPA 300.0                               |              |                          |                |                |            |      |
| Chloride                            | <b>35.6</b>         | mg/L   | 5.0          | 5                        |                | 07/23/17 14:41 | 16887-00-6 |      |
| Fluoride                            | <b>0.31</b>         | mg/L   | 0.20         | 1                        |                | 07/22/17 17:14 | 16984-48-8 |      |
| Sulfate                             | <b>247</b>          | mg/L   | 20.0         | 20                       |                | 07/23/17 15:45 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

| Sample: FGD-3-063017                                       | Lab ID: 60247861003 | Collected: 06/30/17 09:38 | Received: 07/01/17 09:00 | Matrix: Water |                |                |            |      |
|--|---------------------|---------------------------|--------------------------|---------------|----------------|----------------|------------|------|
| Parameters   | Results             | Units                     | Report Limit             | DF            | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>                                 |                     |                           |                          |               |                |                |            |      |
| Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                     |                           |                          |               |                |                |            |      |
| Barium, Total Recoverable                                  | <b>0.14</b>         | mg/L                      | 0.0050                   | 1             | 07/12/17 16:35 | 07/15/17 13:51 | 7440-39-3  |      |
| Beryllium, Total Recoverable                               | <b>&lt;0.0010</b>   | mg/L                      | 0.0010                   | 1             | 07/12/17 16:35 | 07/15/17 13:51 | 7440-41-7  |      |
| Boron, Total Recoverable                                   | <b>0.13</b>         | mg/L                      | 0.10                     | 1             | 07/12/17 16:35 | 07/15/17 13:51 | 7440-42-8  |      |
| Calcium, Total Recoverable                                 | <b>142</b>          | mg/L                      | 0.10                     | 1             | 07/12/17 16:35 | 07/15/17 13:51 | 7440-70-2  |      |
| Chromium, Total Recoverable                                | <b>&lt;0.0050</b>   | mg/L                      | 0.0050                   | 1             | 07/12/17 16:35 | 07/15/17 13:51 | 7440-47-3  |      |
| Lead, Total Recoverable                                    | <b>&lt;0.0050</b>   | mg/L                      | 0.0050                   | 1             | 07/12/17 16:35 | 07/15/17 13:51 | 7439-92-1  |      |
| Lithium  | <b>0.016</b>        | mg/L                      | 0.010                    | 1             | 07/12/17 16:35 | 07/15/17 13:51 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>                                     |                     |                           |                          |               |                |                |            |      |
| Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 |                     |                           |                          |               |                |                |            |      |
| Antimony, Total Recoverable                                | <b>&lt;0.0010</b>   | mg/L                      | 0.0010                   | 1             | 07/12/17 16:35 | 07/16/17 15:00 | 7440-36-0  |      |
| Arsenic, Total Recoverable                                 | <b>&lt;0.0010</b>   | mg/L                      | 0.0010                   | 1             | 07/12/17 16:35 | 07/16/17 15:00 | 7440-38-2  |      |
| Cadmium, Total Recoverable                                 | <b>&lt;0.00050</b>  | mg/L                      | 0.00050                  | 1             | 07/12/17 16:35 | 07/16/17 15:00 | 7440-43-9  |      |
| Cobalt, Total Recoverable                                  | <b>&lt;0.0010</b>   | mg/L                      | 0.0010                   | 1             | 07/12/17 16:35 | 07/16/17 15:00 | 7440-48-4  |      |
| Molybdenum, Total Recoverable                              | <b>0.0055</b>       | mg/L                      | 0.0010                   | 1             | 07/12/17 16:35 | 07/16/17 15:00 | 7439-98-7  |      |
| Selenium, Total Recoverable                                | <b>&lt;0.0010</b>   | mg/L                      | 0.0010                   | 1             | 07/12/17 16:35 | 07/16/17 15:00 | 7782-49-2  |      |
| Thallium, Total Recoverable                                | <b>&lt;0.0010</b>   | mg/L                      | 0.0010                   | 1             | 07/12/17 16:35 | 07/16/17 15:00 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                                       |                     |                           |                          |               |                |                |            |      |
| Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 |                     |                           |                          |               |                |                |            |      |
| Mercury  | <b>&lt;0.00020</b>  | mg/L                      | 0.00020                  | 1             | 07/17/17 16:19 | 07/19/17 10:14 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b>                        |                     |                           |                          |               |                |                |            |      |
| Analytical Method: SM 2540C                                |                     |                           |                          |               |                |                |            |      |
| Total Dissolved Solids                                     | <b>825</b>          | mg/L                      | 5.0                      | 1             |                | 07/06/17 16:16 |            |      |
| <b>4500H+ pH, Electrometric</b>                            |                     |                           |                          |               |                |                |            |      |
| Analytical Method: SM 4500-H+B                             |                     |                           |                          |               |                |                |            |      |
| pH at 25 Degrees C   | <b>7.2</b>          | Std. Units                | 0.10                     | 1             |                | 07/05/17 12:14 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>                             |                     |                           |                          |               |                |                |            |      |
| Analytical Method: EPA 300.0                               |                     |                           |                          |               |                |                |            |      |
| Chloride   | <b>59.1</b>         | mg/L                      | 5.0                      | 5             |                | 07/23/17 16:17 | 16887-00-6 |      |
| Fluoride   | <b>0.24</b>         | mg/L                      | 0.20                     | 1             |                | 07/22/17 17:44 | 16984-48-8 |      |
| Sulfate  | <b>246</b>          | mg/L                      | 20.0                     | 20            |                | 07/23/17 16:33 | 14808-79-8 |      |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

| Sample: FGD-4-063017                |          | Lab ID: 60247861004  |              | Collected: 06/30/17 10:58 |                | Received: 07/01/17 09:00 |            | Matrix: Water |  |
|-------------------------------------|----------|--|--------------|---------------------------|----------------|--------------------------|------------|---------------|--|
| Parameters                          | Results  | Units  | Report Limit | DF                        | Prepared       | Analyzed                 | CAS No.    | Qual          |  |
| <b>200.7 Metals, Total</b>          |          | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |              |                           |                |                          |            |               |  |
| Barium, Total Recoverable           | 0.052    | mg/L   | 0.0050       | 1                         | 07/12/17 16:35 | 07/15/17 13:54           | 7440-39-3  |               |  |
| Beryllium, Total Recoverable        | <0.0010  | mg/L   | 0.0010       | 1                         | 07/12/17 16:35 | 07/15/17 13:54           | 7440-41-7  |               |  |
| Boron, Total Recoverable            | 0.28     | mg/L   | 0.10         | 1                         | 07/12/17 16:35 | 07/15/17 13:54           | 7440-42-8  |               |  |
| Calcium, Total Recoverable          | 164      | mg/L   | 0.10         | 1                         | 07/12/17 16:35 | 07/15/17 13:54           | 7440-70-2  |               |  |
| Chromium, Total Recoverable         | <0.0050  | mg/L   | 0.0050       | 1                         | 07/12/17 16:35 | 07/15/17 13:54           | 7440-47-3  |               |  |
| Lead, Total Recoverable             | <0.0050  | mg/L   | 0.0050       | 1                         | 07/12/17 16:35 | 07/15/17 13:54           | 7439-92-1  |               |  |
| Lithium                             | 0.012    | mg/L   | 0.010        | 1                         | 07/12/17 16:35 | 07/15/17 13:54           | 7439-93-2  |               |  |
| <b>200.8 MET ICPMS</b>              |          | 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 15:04           | 7440-36-0  |               |  |
| Arsenic, Total Recoverable          | <0.0010  | mg/L   | 0.0010       | 1                         | 07/12/17 16:35 | 07/16/17 15:04           | 7440-38-2  |               |  |
| Cadmium, Total Recoverable          | <0.00050 | mg/L   | 0.00050      | 1                         | 07/12/17 16:35 | 07/16/17 15:04           | 7440-43-9  |               |  |
| Cobalt, Total Recoverable           | <0.0010  | mg/L   | 0.0010       | 1                         | 07/12/17 16:35 | 07/16/17 15:04           | 7440-48-4  |               |  |
| Molybdenum, Total Recoverable       | 0.0036   | mg/L   | 0.0010       | 1                         | 07/12/17 16:35 | 07/16/17 15:04           | 7439-98-7  |               |  |
| Selenium, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 07/12/17 16:35 | 07/16/17 15:04           | 7782-49-2  |               |  |
| Thallium, Total Recoverable         | <0.0010  | mg/L   | 0.0010       | 1                         | 07/12/17 16:35 | 07/16/17 15:04           | 7440-28-0  |               |  |
| <b>245.1 Mercury</b>                |          | 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 10:16           | 7439-97-6  |               |  |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |              |                           |                |                          |            |               |  |
| Total Dissolved Solids              | 1010     | mg/L   | 5.0          | 1                         |                | 07/06/17 16:21           |            |               |  |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |              |                           |                |                          |            |               |  |
| pH at 25 Degrees C                  | 7.2      | Std. Units   | 0.10         | 1                         |                | 07/05/17 12:22           |            | H6            |  |
| <b>300.0 IC Anions 28 Days</b>      |          | Analytical Method: EPA 300.0                               |              |                           |                |                          |            |               |  |
| Chloride                            | 85.7     | mg/L   | 10.0         | 10                        |                | 07/23/17 16:49           | 16887-00-6 |               |  |
| Fluoride                            | 0.43     | mg/L   | 0.20         | 1                         |                | 07/22/17 17:58           | 16984-48-8 |               |  |
| Sulfate                             | 409      | mg/L   | 50.0         | 50                        |                | 07/23/17 17:04           | 14808-79-8 |               |  |

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## ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

| Sample: DUP-063017                  |          | Lab ID: 60247861005  | Collected: 06/30/17 06:00 | Received: 07/01/17 09:00 | Matrix: Water  |                |            |      |
|-------------------------------------|----------|--|---------------------------|--------------------------|----------------|----------------|------------|------|
| Parameters                          | Results  | Units  | Report Limit              | DF                       | Prepared       | Analyzed       | CAS No.    | Qual |
| <b>200.7 Metals, Total</b>          |          | Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 |                           |                          |                |                |            |      |
| Barium, Total Recoverable           | 0.075    | mg/L   | 0.0050                    | 1                        | 07/12/17 16:35 | 07/15/17 13:58 | 7440-39-3  |      |
| Beryllium, Total Recoverable        | <0.0010  | mg/L   | 0.0010                    | 1                        | 07/12/17 16:35 | 07/15/17 13:58 | 7440-41-7  |      |
| Boron, Total Recoverable            | 0.23     | mg/L   | 0.10                      | 1                        | 07/12/17 16:35 | 07/15/17 13:58 | 7440-42-8  |      |
| Calcium, Total Recoverable          | 131      | mg/L   | 0.10                      | 1                        | 07/12/17 16:35 | 07/15/17 13:58 | 7440-70-2  |      |
| Chromium, Total Recoverable         | <0.0050  | mg/L   | 0.0050                    | 1                        | 07/12/17 16:35 | 07/15/17 13:58 | 7440-47-3  |      |
| Lead, Total Recoverable             | <0.0050  | mg/L   | 0.0050                    | 1                        | 07/12/17 16:35 | 07/15/17 13:58 | 7439-92-1  |      |
| Lithium                             | <0.010   | mg/L   | 0.010                     | 1                        | 07/12/17 16:35 | 07/15/17 13:58 | 7439-93-2  |      |
| <b>200.8 MET ICPMS</b>              |          | 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 15:09 | 7440-36-0  |      |
| Arsenic, Total Recoverable          | <0.0010  | mg/L   | 0.0010                    | 1                        | 07/12/17 16:35 | 07/16/17 15:09 | 7440-38-2  |      |
| Cadmium, Total Recoverable          | <0.00050 | mg/L   | 0.00050                   | 1                        | 07/12/17 16:35 | 07/16/17 15:09 | 7440-43-9  |      |
| Cobalt, Total Recoverable           | 0.0010   | mg/L   | 0.0010                    | 1                        | 07/12/17 16:35 | 07/16/17 15:09 | 7440-48-4  |      |
| Molybdenum, Total Recoverable       | 0.0036   | mg/L   | 0.0010                    | 1                        | 07/12/17 16:35 | 07/16/17 15:09 | 7439-98-7  |      |
| Selenium, Total Recoverable         | <0.0010  | mg/L   | 0.0010                    | 1                        | 07/12/17 16:35 | 07/16/17 15:09 | 7782-49-2  |      |
| Thallium, Total Recoverable         | <0.0010  | mg/L   | 0.0010                    | 1                        | 07/12/17 16:35 | 07/16/17 15:09 | 7440-28-0  |      |
| <b>245.1 Mercury</b>                |          | 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 10:19 | 7439-97-6  |      |
| <b>2540C Total Dissolved Solids</b> |          | Analytical Method: SM 2540C                                |                           |                          |                |                |            |      |
| Total Dissolved Solids              | 706      | mg/L   | 5.0                       | 1                        |                | 07/06/17 16:22 |            |      |
| <b>4500H+ pH, Electrometric</b>     |          | Analytical Method: SM 4500-H+B                             |                           |                          |                |                |            |      |
| pH at 25 Degrees C                  | 7.1      | Std. Units   | 0.10                      | 1                        |                | 07/05/17 12:09 |            | H6   |
| <b>300.0 IC Anions 28 Days</b>      |          | Analytical Method: EPA 300.0                               |                           |                          |                |                |            |      |
| Chloride                            | 35.5     | mg/L   | 5.0                       | 5                        |                | 07/23/17 17:20 | 16887-00-6 |      |
| Fluoride                            | 0.30     | mg/L   | 0.20                      | 1                        |                | 07/22/17 18:13 | 16984-48-8 |      |
| Sulfate                             | 243      | mg/L   | 20.0                      | 20                       |                | 07/23/17 17:36 | 14808-79-8 |      |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

QC Batch: 485719 Analysis Method: EPA 245.1  
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury  
 Associated Lab Samples: 60247861001, 60247861002, 60247861003, 60247861004, 60247861005

METHOD BLANK: 1989430 Matrix: Water  
 Associated Lab Samples: 60247861001, 60247861002, 60247861003, 60247861004, 60247861005

| 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 Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|-----------|-------|--------------------|----------------|-----------------|-----------|------------|----------|-----------|--------------|-----|---------|------|
| Mercury   | mg/L  | ND                 | .005           | .005            | 0.0050    | 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  | <0.00020           | .005        | 0.0049    | 98       | 70-130       |            |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER  
Pace Project No.: 60247861

QC Batch: 484970 Analysis Method: EPA 200.7  
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total  
Associated Lab Samples: 60247861001, 60247861002, 60247861003, 60247861004, 60247861005

METHOD BLANK: 1986115 Matrix: Water  
Associated Lab Samples: 60247861001, 60247861002, 60247861003, 60247861004, 60247861005

| 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    |                 | 1986118   |            | MS % Rec | MSD % Rec | % Rec Limits | RPD    | Max RPD | Qual  |
|-----------|-------|----------------|-----------------|-----------|------------|----------|-----------|--------------|--------|---------|-------|
|           |       | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result |          |           |              |        |         |       |
| 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       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

| MATRIX SPIKE SAMPLE: |       | 1986119               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60247926002<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>Limits | Qualifiers |
| Calcium              | mg/L  | 289                   | 10             | 302          | 129         | 70-130          |            |
| Chromium             | mg/L  | <0.0050               | 1              | 0.99         | 99          | 70-130          |            |
| Lead                 | mg/L  | <0.0050               | 1              | 0.94         | 94          | 70-130          |            |
| Lithium              | mg/L  | 0.015                 | 1              | 1.1          | 111         | 70-130          |            |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

QC Batch: 484967 Analysis Method: EPA 200.8  
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET  
 Associated Lab Samples: 60247861001, 60247861002, 60247861003, 60247861004, 60247861005

METHOD BLANK: 1986099 Matrix: Water  
 Associated Lab Samples: 60247861001, 60247861002, 60247861003, 60247861004, 60247861005

| 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  | <0.0010            | .04         | 0.036     | 90       | 70-130       |            |
| Arsenic   | mg/L  | <0.0010            | .04         | 0.038     | 93       | 70-130       |            |
| Cadmium   | mg/L  | <0.00050           | .04         | 0.033     | 83       | 70-130       |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

| MATRIX SPIKE SAMPLE: |       | 1986103               |                |              |             |                 |            |
|----------------------|-------|-----------------------|----------------|--------------|-------------|-----------------|------------|
| Parameter            | Units | 60247926001<br>Result | Spike<br>Conc. | MS<br>Result | MS<br>% Rec | % Rec<br>Limits | Qualifiers |
| Cobalt               | mg/L  | <0.0010               | .04            | 0.034        | 83          | 70-130          |            |
| Molybdenum           | mg/L  | 0.011                 | .04            | 0.049        | 96          | 70-130          |            |
| Selenium             | mg/L  | <0.0010               | .04            | 0.035        | 88          | 70-130          |            |
| Thallium             | mg/L  | <0.0010               | .04            | 0.033        | 83          | 70-130          |            |

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

QC Batch: 483904

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60247861001

METHOD BLANK: 1982353

Matrix: Water

Associated Lab Samples: 60247861001

| Parameter              | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|------------------------|-------|--------------|-----------------|----------------|------------|
| Total Dissolved Solids | mg/L  | <5.0         | 5.0             | 07/05/17 15:44 |            |

LABORATORY CONTROL SAMPLE: 1982354

| Parameter              | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|------------------------|-------|-------------|------------|-----------|--------------|------------|
| Total Dissolved Solids | mg/L  | 1000        | 951        | 95        | 80-120       |            |

SAMPLE DUPLICATE: 1982355

| Parameter              | Units | 60247636004 Result | Dup Result | RPD | Max RPD | Qualifiers |
|------------------------|-------|--------------------|------------|-----|---------|------------|
| Total Dissolved Solids | mg/L  | 468                | 419        | 11  | 10      | D6         |

SAMPLE DUPLICATE: 1982356

| Parameter              | Units | 60247916001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|------------------------|-------|--------------------|------------|-----|---------|------------|
| Total Dissolved Solids | mg/L  | 1010               | 1000       | 0   | 10      |            |

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

QC Batch: 484210

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60247861002, 60247861003, 60247861004, 60247861005

METHOD BLANK: 1983434

Matrix: Water

Associated Lab Samples: 60247861002, 60247861003, 60247861004, 60247861005

| Parameter              | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|------------------------|-------|--------------|-----------------|----------------|------------|
| Total Dissolved Solids | mg/L  | <5.0         | 5.0             | 07/06/17 16:11 |            |

LABORATORY CONTROL SAMPLE: 1983435

| Parameter              | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|------------------------|-------|-------------|------------|-----------|--------------|------------|
| Total Dissolved Solids | mg/L  | 1000        | 982        | 98        | 80-120       |            |

SAMPLE DUPLICATE: 1983436

| Parameter              | Units | 60248024001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|------------------------|-------|--------------------|------------|-----|---------|------------|
| Total Dissolved Solids | mg/L  | 440                | 434        | 1   | 10      |            |

SAMPLE DUPLICATE: 1983437

| Parameter              | Units | 60247926001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|------------------------|-------|--------------------|------------|-----|---------|------------|
| Total Dissolved Solids | mg/L  | 688                | 690        | 0   | 10      |            |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

QC Batch: 483969 Analysis Method: SM 4500-H+B

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

Associated Lab Samples: 60247861001, 60247861002, 60247861003, 60247861004, 60247861005

SAMPLE DUPLICATE: 1982512

| Parameter          | Units      | 60247835001<br>Result | Dup<br>Result | RPD | Max<br>RPD | Qualifiers |
|--------------------|------------|-----------------------|---------------|-----|------------|------------|
| pH at 25 Degrees C | Std. Units | 8.3                   | 8.2           | 1   | 5          | H6         |

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### QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

QC Batch: 486562 Analysis Method: EPA 300.0  
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 60247861001, 60247861002, 60247861003, 60247861004, 60247861005

METHOD BLANK: 1992836 Matrix: Water  
 Associated Lab Samples: 60247861001, 60247861002, 60247861003, 60247861004, 60247861005

| 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 |                 | 60247861004 |                 | % Rec Limits | RPD | Max RPD | Qual |
|-----------|-------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|--------------|-----|---------|------|
|           |       | MS Result   | MSD Spike Conc. |              |     |         |      |
| 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       |            |

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**QUALITY CONTROL DATA**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

QC Batch: 486575 Analysis Method: EPA 300.0  
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 60247861001, 60247861002, 60247861003, 60247861004, 60247861005

METHOD BLANK: 1993281 Matrix: Water  
 Associated Lab Samples: 60247861001, 60247861002, 60247861003, 60247861004, 60247861005

| 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 % Rec | MSD % Rec | % Rec Limits | RPD    | Max RPD | Qual |
|-----------|-------|-------------|----------------|-----------------|-----------|----------|-----------|--------------|--------|---------|------|
|           |       | Result      | MS Spike Conc. | MSD Spike Conc. | MS Result |          |           |              |        |         |      |
| 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       |            |

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**REPORT OF LABORATORY ANALYSIS**

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

**Sample: FGD-1-062917**      **Lab ID: 60247861001**      Collected: 06/29/17 15:35      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                | <b>0.416 ± 0.390 (0.552)</b><br>C:NA T:97%  | pCi/L | 07/17/17 12:22 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.264 ± 0.408 (0.882)</b><br>C:81% T:79% | pCi/L | 07/19/17 18:38 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.680 ± 0.798 (1.43)</b>                 | pCi/L | 07/20/17 16:45 | 7440-14-4  |      |

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

**Sample: FGD-2-063017**      **Lab ID: 60247861002**      Collected: 06/30/17 08:17      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                | <b>0.891 ± 0.567 (0.685)</b><br>C:NA T:87%   | pCi/L | 07/17/17 12:22 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>-0.185 ± 0.353 (0.871)</b><br>C:78% T:88% | pCi/L | 07/19/17 18:38 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>0.891 ± 0.920 (1.56)</b>                  | pCi/L | 07/20/17 16:45 | 7440-14-4  |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

**Sample: FGD-3-063017**      **Lab ID: 60247861003**      Collected: 06/30/17 09:38      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                   | <b>0.724 ± 0.538 (0.708)</b><br>C:NA T:87%  | pCi/L | 07/17/17 12:22 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                   | <b>0.337 ± 0.376 (0.781)</b><br>C:79% T:85% | pCi/L | 07/19/17 18:39 | 15262-20-1 |      |
| Total Radium | Total Radium<br>Calculation | <b>1.06 ± 0.914 (1.49)</b>                  | pCi/L | 07/20/17 16:45 | 7440-14-4  |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

**Sample: FGD-4-063017**      **Lab ID: 60247861004**      Collected: 06/30/17 10:58      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                | <b>0.395 ± 0.579 (0.989)</b><br><b>C:NA T:89%</b> | pCi/L | 07/17/17 12:22 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>1.13 ± 0.515 (0.832)</b><br><b>C:80% T:78%</b> | pCi/L | 07/19/17 18:39 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>1.53 ± 1.09 (1.82)</b>                         | pCi/L | 07/20/17 16:45 | 7440-14-4  |      |

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

**Sample: DUP-063017**      **Lab ID: 60247861005**      Collected: 06/30/17 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                | <b>0.726 ± 0.532 (0.732)</b><br>C:NA T:98%  | pCi/L | 07/17/17 12:22 | 13982-63-3 |      |
| Radium-228   | EPA 904.0                | <b>0.452 ± 0.456 (0.940)</b><br>C:76% T:83% | pCi/L | 07/19/17 18:39 | 15262-20-1 |      |
| Total Radium | Total Radium Calculation | <b>1.18 ± 0.988 (1.67)</b>                  | pCi/L | 07/20/17 16:45 | 7440-14-4  |      |

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## QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

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### 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.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

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

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

| Lab ID      | Sample ID    | QC Batch Method          | QC Batch | Analytical Method | Analytical Batch |
|-------------|--------------|--------------------------|----------|-------------------|------------------|
| 60247861001 | FGD-1-062917 | EPA 200.7                | 484970   | EPA 200.7         | 485208           |
| 60247861002 | FGD-2-063017 | EPA 200.7                | 484970   | EPA 200.7         | 485208           |
| 60247861003 | FGD-3-063017 | EPA 200.7                | 484970   | EPA 200.7         | 485208           |
| 60247861004 | FGD-4-063017 | EPA 200.7                | 484970   | EPA 200.7         | 485208           |
| 60247861005 | DUP-063017   | EPA 200.7                | 484970   | EPA 200.7         | 485208           |
| 60247861001 | FGD-1-062917 | EPA 200.8                | 484967   | EPA 200.8         | 485209           |
| 60247861002 | FGD-2-063017 | EPA 200.8                | 484967   | EPA 200.8         | 485209           |
| 60247861003 | FGD-3-063017 | EPA 200.8                | 484967   | EPA 200.8         | 485209           |
| 60247861004 | FGD-4-063017 | EPA 200.8                | 484967   | EPA 200.8         | 485209           |
| 60247861005 | DUP-063017   | EPA 200.8                | 484967   | EPA 200.8         | 485209           |
| 60247861001 | FGD-1-062917 | EPA 245.1                | 485719   | EPA 245.1         | 485787           |
| 60247861002 | FGD-2-063017 | EPA 245.1                | 485719   | EPA 245.1         | 485787           |
| 60247861003 | FGD-3-063017 | EPA 245.1                | 485719   | EPA 245.1         | 485787           |
| 60247861004 | FGD-4-063017 | EPA 245.1                | 485719   | EPA 245.1         | 485787           |
| 60247861005 | DUP-063017   | EPA 245.1                | 485719   | EPA 245.1         | 485787           |
| 60247861001 | FGD-1-062917 | EPA 903.1                | 264358   |                   |                  |
| 60247861002 | FGD-2-063017 | EPA 903.1                | 264358   |                   |                  |
| 60247861003 | FGD-3-063017 | EPA 903.1                | 264358   |                   |                  |
| 60247861004 | FGD-4-063017 | EPA 903.1                | 264358   |                   |                  |
| 60247861005 | DUP-063017   | EPA 903.1                | 264358   |                   |                  |
| 60247861001 | FGD-1-062917 | EPA 904.0                | 264520   |                   |                  |
| 60247861002 | FGD-2-063017 | EPA 904.0                | 264520   |                   |                  |
| 60247861003 | FGD-3-063017 | EPA 904.0                | 264520   |                   |                  |
| 60247861004 | FGD-4-063017 | EPA 904.0                | 264520   |                   |                  |
| 60247861005 | DUP-063017   | EPA 904.0                | 264520   |                   |                  |
| 60247861001 | FGD-1-062917 | Total Radium Calculation | 265753   |                   |                  |
| 60247861002 | FGD-2-063017 | Total Radium Calculation | 265753   |                   |                  |
| 60247861003 | FGD-3-063017 | Total Radium Calculation | 265753   |                   |                  |
| 60247861004 | FGD-4-063017 | Total Radium Calculation | 265753   |                   |                  |
| 60247861005 | DUP-063017   | Total Radium Calculation | 265753   |                   |                  |
| 60247861001 | FGD-1-062917 | SM 2540C                 | 483904   |                   |                  |
| 60247861002 | FGD-2-063017 | SM 2540C                 | 484210   |                   |                  |
| 60247861003 | FGD-3-063017 | SM 2540C                 | 484210   |                   |                  |
| 60247861004 | FGD-4-063017 | SM 2540C                 | 484210   |                   |                  |
| 60247861005 | DUP-063017   | SM 2540C                 | 484210   |                   |                  |
| 60247861001 | FGD-1-062917 | SM 4500-H+B              | 483969   |                   |                  |
| 60247861002 | FGD-2-063017 | SM 4500-H+B              | 483969   |                   |                  |
| 60247861003 | FGD-3-063017 | SM 4500-H+B              | 483969   |                   |                  |
| 60247861004 | FGD-4-063017 | SM 4500-H+B              | 483969   |                   |                  |
| 60247861005 | DUP-063017   | SM 4500-H+B              | 483969   |                   |                  |
| 60247861001 | FGD-1-062917 | EPA 300.0                | 486562   |                   |                  |
| 60247861001 | FGD-1-062917 | EPA 300.0                | 486575   |                   |                  |
| 60247861002 | FGD-2-063017 | EPA 300.0                | 486562   |                   |                  |

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247861

| Lab ID      | Sample ID    | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|-------------|--------------|-----------------|----------|-------------------|------------------|
| 60247861002 | FGD-2-063017 | EPA 300.0       | 486575   |                   |                  |
| 60247861003 | FGD-3-063017 | EPA 300.0       | 486562   |                   |                  |
| 60247861003 | FGD-3-063017 | EPA 300.0       | 486575   |                   |                  |
| 60247861004 | FGD-4-063017 | EPA 300.0       | 486562   |                   |                  |
| 60247861004 | FGD-4-063017 | EPA 300.0       | 486575   |                   |                  |
| 60247861005 | DUP-063017   | EPA 300.0       | 486562   |                   |                  |
| 60247861005 | DUP-063017   | EPA 300.0       | 486575   |                   |                  |

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Sample Condition Upon Receipt

WO#: 60247861
Barcode
60247861

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 / T(239) Type of Ice: Wet [x] Blue [ ] None [ ]

Cooler Temperature (°C): As-read 2-8/4.4 Corr. Factor CF +2.9 CF +0.7 Corrected 3-0/4.6

Date and initials of person examining contents: 7/1/17

Temperature should be above freezing to 6°C

Table with 3 columns: Question, Yes/No/N/A checkboxes, and handwritten notes (e.g., PH, Matrix: WT, 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: 7/3/17





Sample Condition Upon Receipt Pittsburgh

30223451



Client Name: Pace, KS

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: 7285 6593 7295

|            |           |
|------------|-----------|
| Label      | <u>AM</u> |
| LIMS Login | <u>AM</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: AMR 7-7-17

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>PHLZ</u>   |
| exceptions: VOA, coliform, TOC, O&G, Phenolics   |     |    |     | Initial when completed: <u>AMR</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>AMR</u> Date: <u>7-6-17</u>              |

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

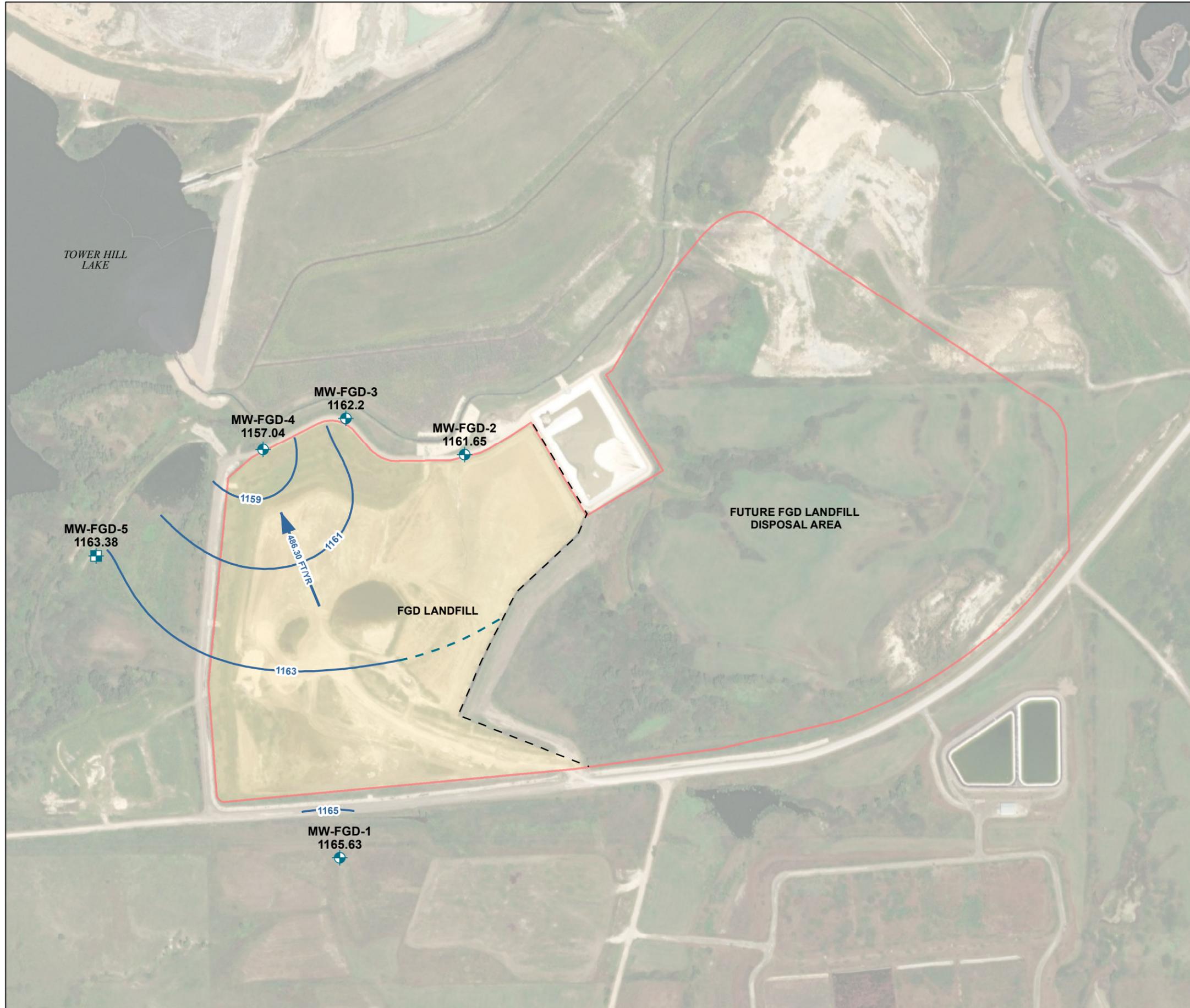
Comments/ Resolution: \_\_\_\_\_

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 2**  
**Groundwater Potentiometric Maps**



**LEGEND**

- MW-FGD-6** 1168.88 WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), AUGUST 2016
-  MONITORING WELL
-  PIEZOMETER OBSERVATION ONLY
-  GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
-  FGD LANDFILL
-  FUTURE FGD LANDFILL DISPOSAL

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 19 AUGUST 2016.
3. FGD LANDFILL BOUNDARY REPRESENTATIVE OF ACTIVE UNIT OPERATIONS, AS OUTLINED IN THE OCTOBER 2021 GROUNDWATER SAMPLING AND ANALYSIS PLAN.
4. 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.
5. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019



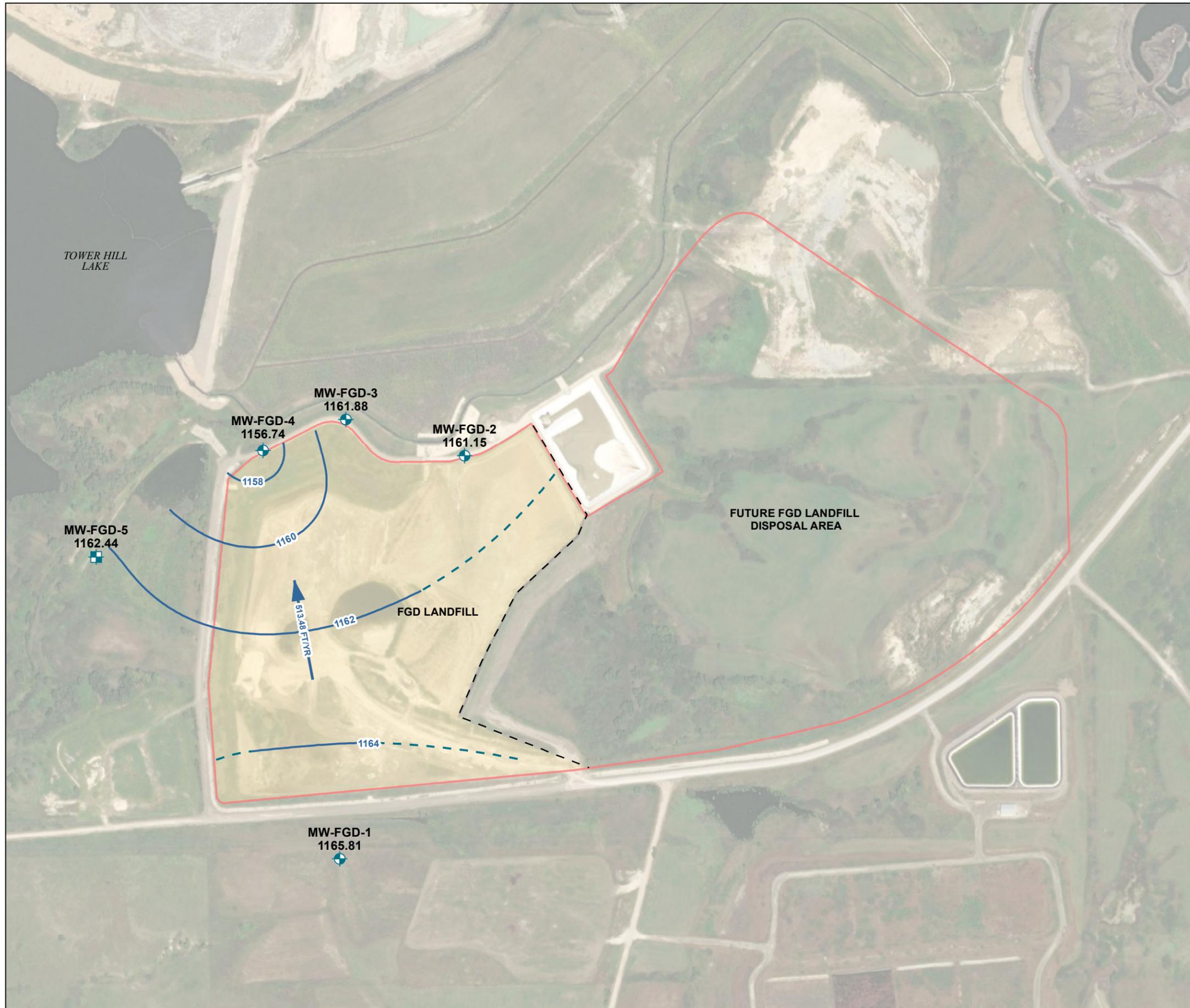
EVERGY KANSAS CENTRAL, INC.  
JEFFREY ENERGY CENTER  
ST. MARY'S, KANSAS

FGD LANDFILL  
GROUNDWATER POTENTIOMETRIC  
ELEVATION CONTOUR MAP  
AUGUST 19, 2016



NOVEMBER 2022

FIGURE 2



**LEGEND**

- MW-FGD-6** WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), SEPTEMBER 2016
- 1168.88**
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL), DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- FGD LANDFILL
- FUTURE FGD LANDFILL DISPOSAL

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 21 SEPTEMBER 2016.
3. FGD LANDFILL BOUNDARY REPRESENTATIVE OF ACTIVE UNIT OPERATIONS, AS OUTLINED IN THE OCTOBER 2021 GROUNDWATER SAMPLING AND ANALYSIS PLAN.
4. 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.
5. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019



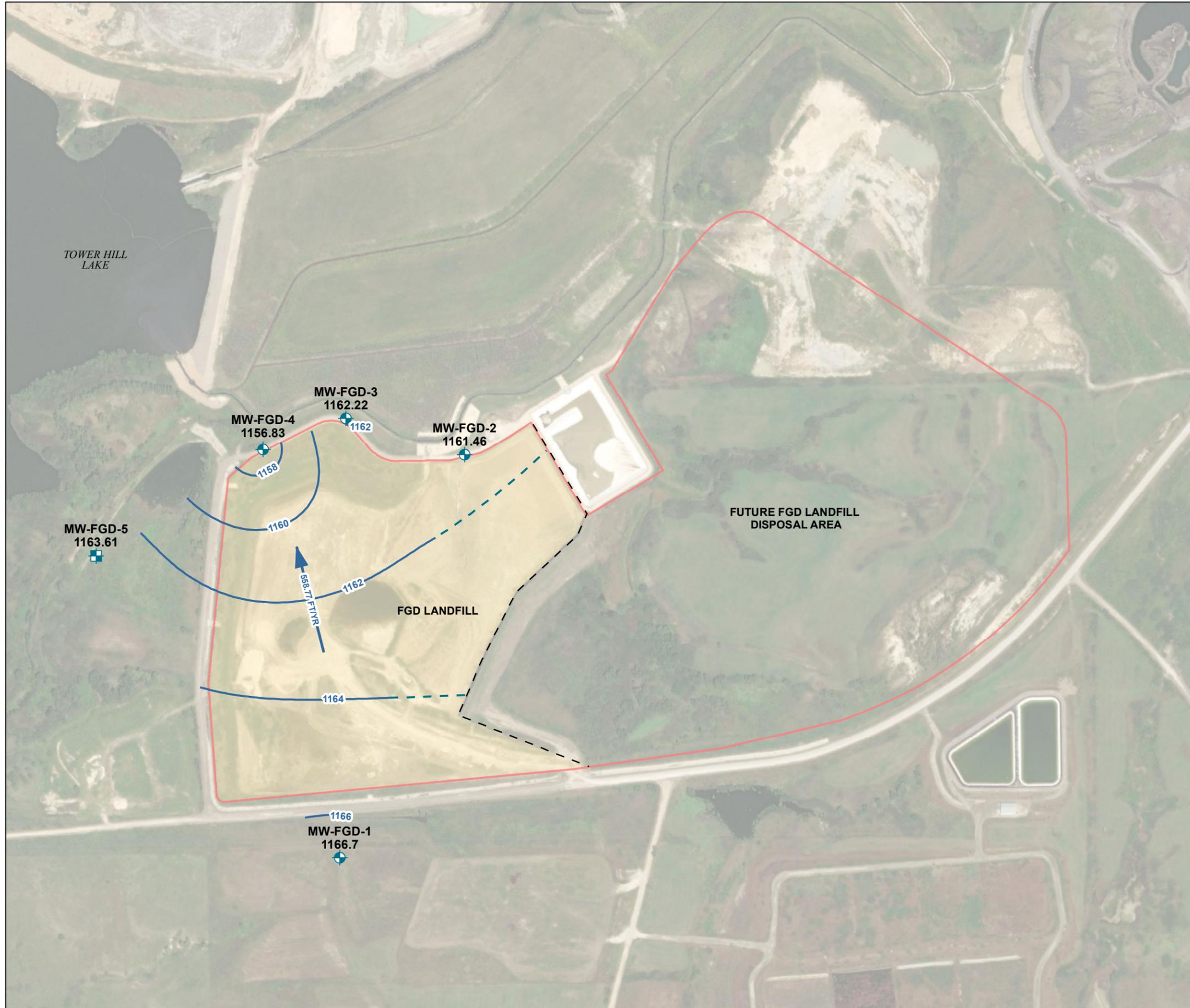
EVERGY KANSAS CENTRAL, INC.  
JEFFREY ENERGY CENTER  
ST. MARY'S, KANSAS

**FGD LANDFILL  
GROUNDWATER POTENTIOMETRIC  
ELEVATION CONTOUR MAP  
SEPTEMBER 21, 2016**



NOVEMBER 2022

FIGURE 3



**LEGEND**

- MW-FGD-6** WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), NOVEMBER 2016
- 1168.88**
-  MONITORING WELL
-  PIEZOMETER OBSERVATION ONLY
-  ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL), DASHED WHERE INFERRED
-  GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
-  FGD LANDFILL
-  FUTURE FGD LANDFILL DISPOSAL

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 02 NOVEMBER 2016.
3. FGD LANDFILL BOUNDARY REPRESENTATIVE OF ACTIVE UNIT OPERATIONS, AS OUTLINED IN THE OCTOBER 2021 GROUNDWATER SAMPLING AND ANALYSIS PLAN.
4. 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.
5. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019



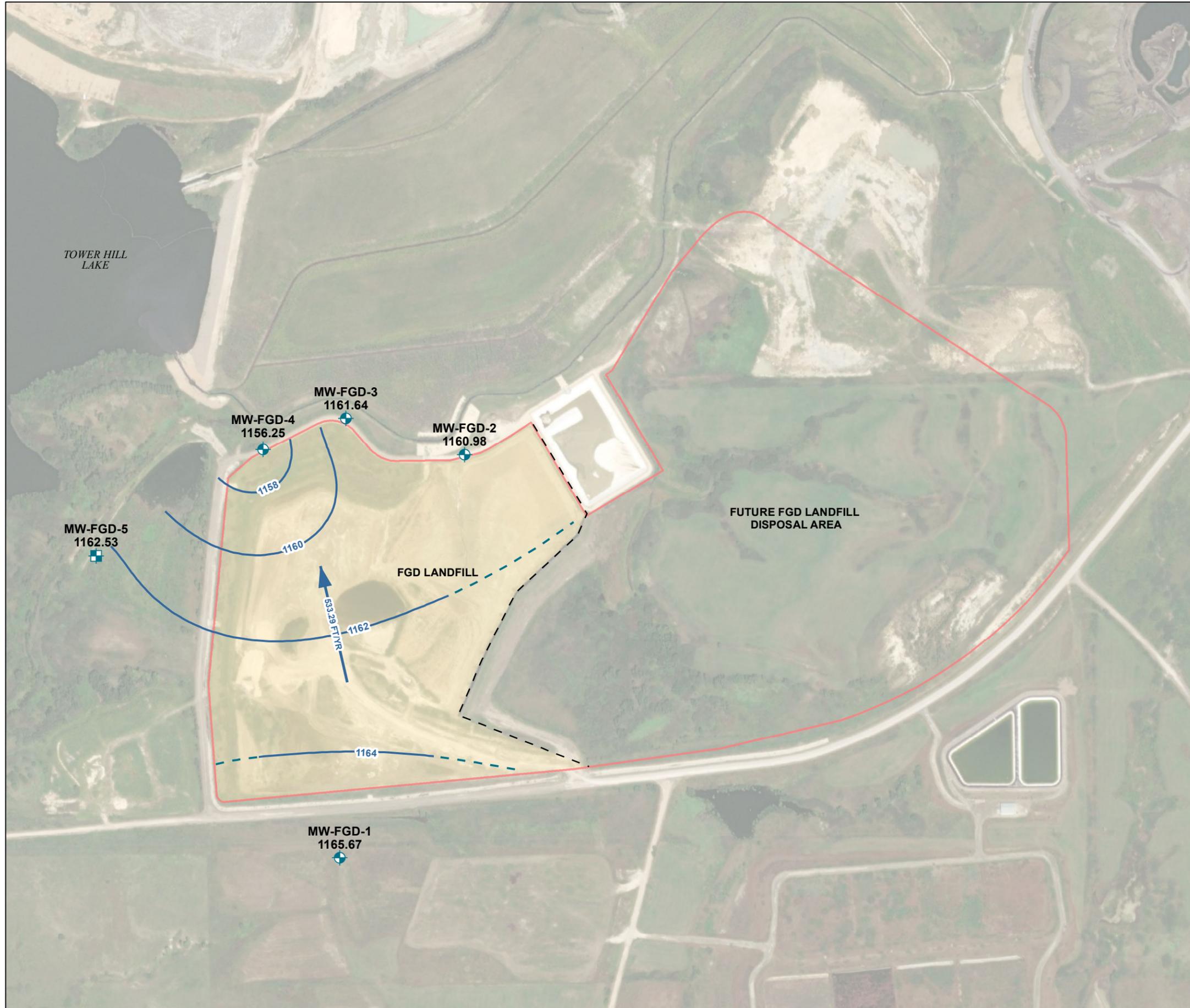
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JEFFREY ENERGY CENTER  
ST. MARY'S, KANSAS

FGD LANDFILL  
GROUNDWATER POTENTIOMETRIC  
ELEVATION CONTOUR MAP  
NOVEMBER 2, 2016



NOVEMBER 2022

FIGURE 4



**LEGEND**

- MW-FGD-6** WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), DECEMBER 2016
- 1168.88**
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL), DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- FGD LANDFILL
- FUTURE FGD LANDFILL DISPOSAL

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 14 DECEMBER 2016.
3. FGD LANDFILL BOUNDARY REPRESENTATIVE OF ACTIVE UNIT OPERATIONS, AS OUTLINED IN THE OCTOBER 2021 GROUNDWATER SAMPLING AND ANALYSIS PLAN.
4. 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.
5. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019



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FGD LANDFILL  
GROUNDWATER POTENTIOMETRIC  
ELEVATION CONTOUR MAP  
DECEMBER 14, 2016



NOVEMBER 2022



**LEGEND**

- MW-FGD-6** WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), FEBRUARY 2017
- 1168.88**
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL), DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- FGD LANDFILL
- FUTURE FGD LANDFILL DISPOSAL

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 08 FEBRUARY 2017.
3. FGD LANDFILL BOUNDARY REPRESENTATIVE OF ACTIVE UNIT OPERATIONS, AS OUTLINED IN THE OCTOBER 2021 GROUNDWATER SAMPLING AND ANALYSIS PLAN.
4. 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.
5. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019

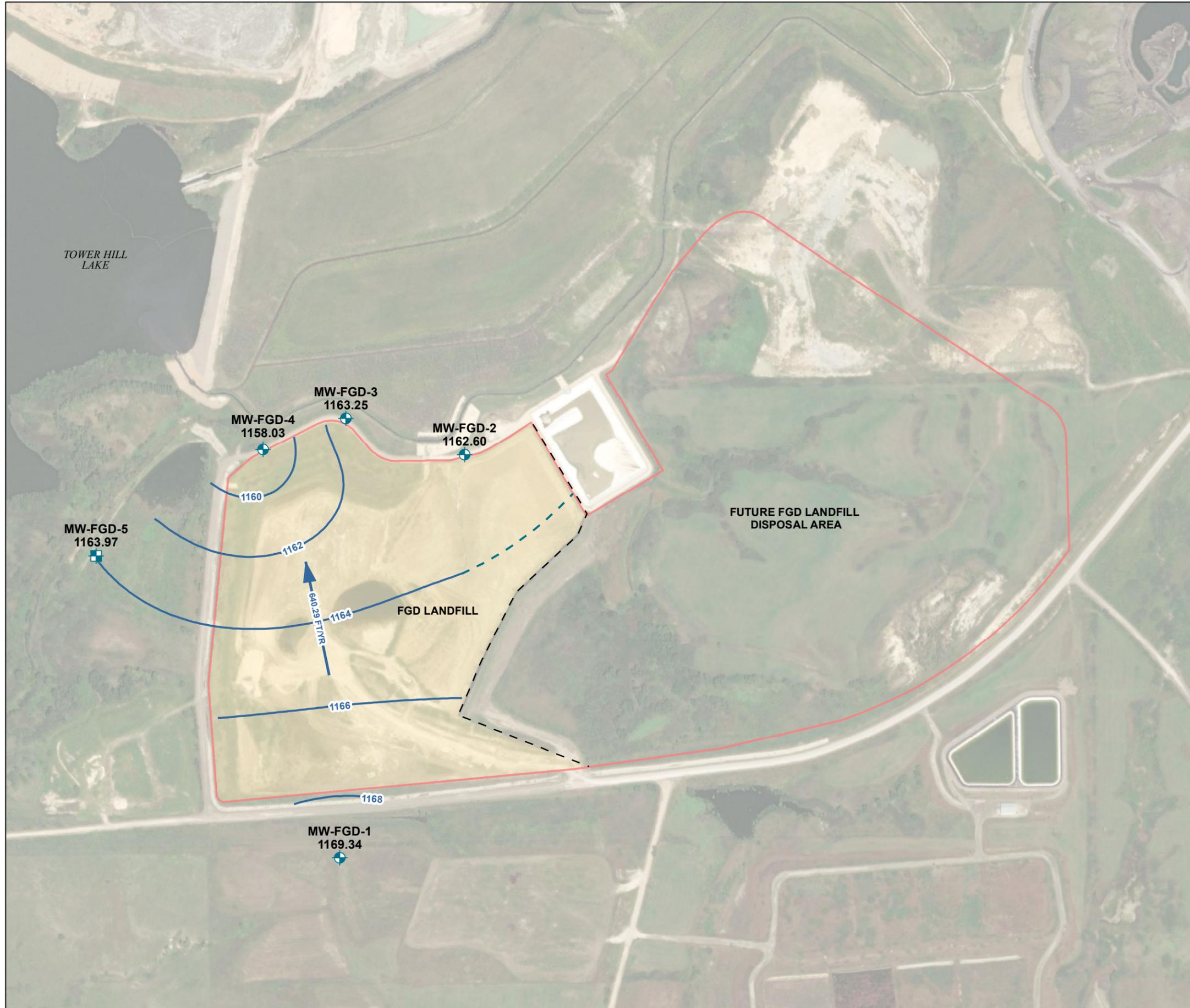


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ST. MARY'S, KANSAS

FGD LANDFILL  
GROUNDWATER POTENTIOMETRIC  
ELEVATION CONTOUR MAP  
FEBRUARY 8, 2017



NOVEMBER 2022



**LEGEND**

- MW-FGD-6** WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), APRIL 2017
- 1168.88**
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL), DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- FGD LANDFILL
- FUTURE FGD LANDFILL DISPOSAL

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 07 APRIL 2017.
3. FGD LANDFILL BOUNDARY REPRESENTATIVE OF ACTIVE UNIT OPERATIONS, AS OUTLINED IN THE OCTOBER 2021 GROUNDWATER SAMPLING AND ANALYSIS PLAN.
4. 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.
5. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019

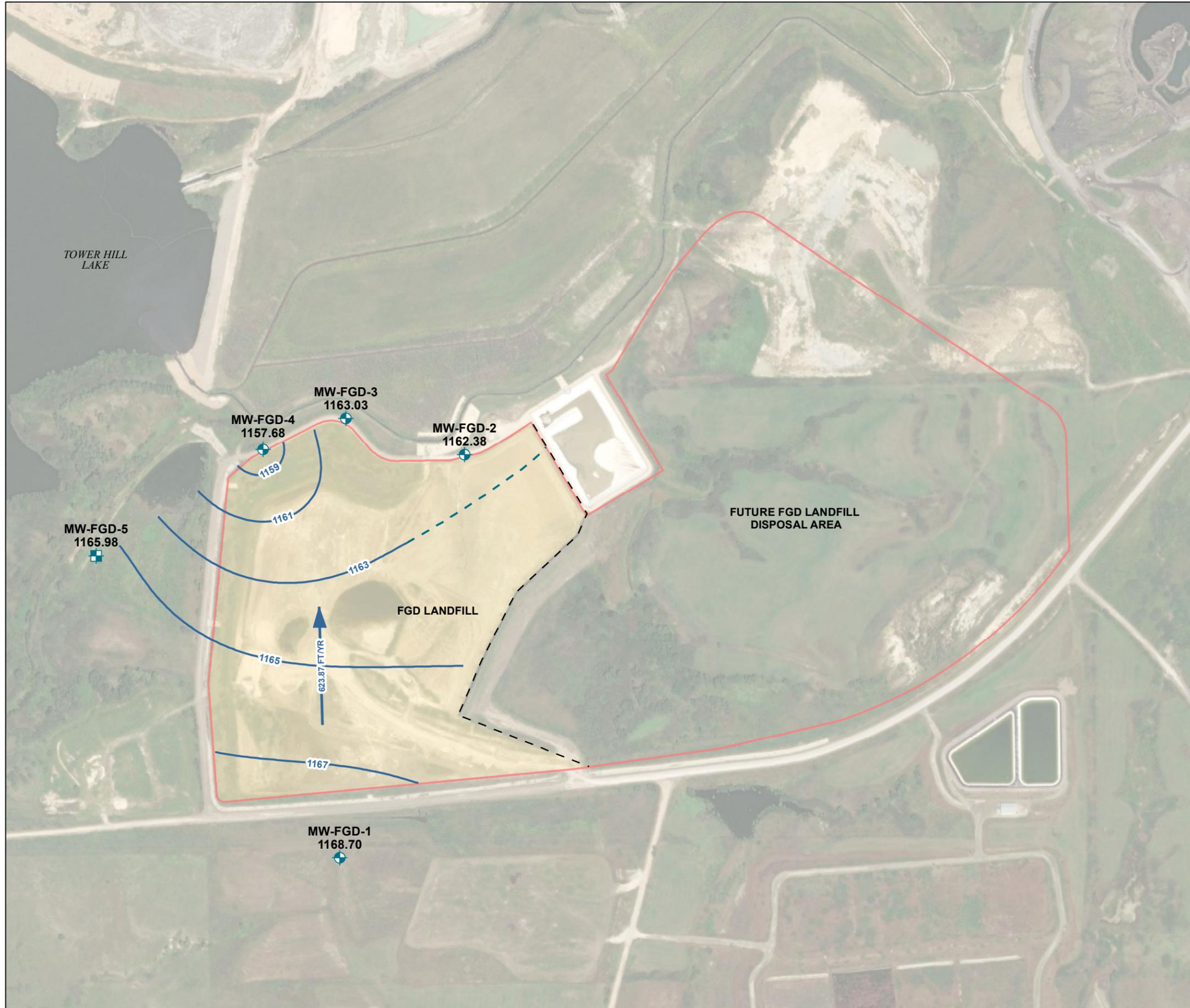


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ST. MARY'S, KANSAS

**FGD LANDFILL  
GROUNDWATER POTENTIOMETRIC  
ELEVATION CONTOUR MAP  
APRIL 7, 2017**



NOVEMBER 2022



**LEGEND**

- MW-FGD-6** 1168.88 WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), MAY 2017
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL), DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- FGD LANDFILL
- FUTURE FGD LANDFILL DISPOSAL

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 25 MAY 2017.
3. FGD LANDFILL BOUNDARY REPRESENTATIVE OF ACTIVE UNIT OPERATIONS, AS OUTLINED IN THE OCTOBER 2021 GROUNDWATER SAMPLING AND ANALYSIS PLAN.
4. 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.
5. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019



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ST. MARY'S, KANSAS

FGD LANDFILL  
GROUNDWATER POTENTIOMETRIC  
ELEVATION CONTOUR MAP  
MAY 25, 2017



NOVEMBER 2022



**LEGEND**

- MW-FGD-6** WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), JUNE 2017
- 1168.88**
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL), DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- FGD LANDFILL
- FUTURE FGD LANDFILL DISPOSAL

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 28 JUNE 2017.
3. FGD LANDFILL BOUNDARY REPRESENTATIVE OF ACTIVE UNIT OPERATIONS, AS OUTLINED IN THE OCTOBER 2021 GROUNDWATER SAMPLING AND ANALYSIS PLAN.
4. 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.
5. AERIAL IMAGERY SOURCE: ESRI, SEPTEMBER 3, 2019



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FGD LANDFILL  
GROUNDWATER POTENTIOMETRIC  
ELEVATION CONTOUR MAP  
JUNE 28, 2017



NOVEMBER 2022