HALEY ALDRICH

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2017 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
322 LANDFILL
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

by Haley & Aldrich, Inc.
Cleveland, Ohio

for Evergy Kansas Central, Inc. (f/k/a Westar Energy, Inc.)
Topeka, Kansas

File No. 129778-041
January 2018
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Revision No.	Date	Notes
0	January 2018	Original
1	March 2021	Revised to include groundwater potentiometric contour maps covered in this 2017 annual report

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This Annual Groundwater Monitoring and Corrective Action Report documents the groundwater monitoring system for the Tecumseh Energy Center (TEC) 322 Landfill consistent with applicable sections of 257.90 through 257.98, and describes activities conducted in the prior calendar year (2017) and documents compliance with the U.S. Environmental Protection Agency Coal Combustion Residual Rule. I certify that the 2017 Annual Groundwater Monitoring and Corrective Action Report for the TEC 322 Landfill is, to the best of my knowledge, accurate and complete.

Signed: _____
Professional Geologist

Print Name:	Mark Nicholls
Kansas License No.:	Professional Geologist No. 881
Title:	Technical Expert 2
Company:	Haley & Aldrich, Inc.

1. Introduction

This 2017 Annual Groundwater Monitoring and Corrective Action Report (Annual Report) addresses the 322 Landfill at the Tecumseh Energy Center (TEC), operated by Evergy Kansas Central, Inc. (Evergy; f/k/a Westar Energy, Inc.). This Annual Report was developed in accordance with the U.S. Environmental Protection Agency Coal Combustion Residual (CCR) Rule effective October 19, 2015 (Rule), specifically Code of Federal Regulations Title 40 (40 CFR), subsection § 257.90(e). The Annual Report documents the groundwater monitoring system for the TEC 322 Landfill consistent with applicable sections of 257.90 through 257.98, and describes activities conducted in the prior calendar year (2017) and documents compliance with the Rule. The specific requirements for the annual report listed in § 257.90(e) of the Rule are provided in Section 2 of this Annual Report and are in bold italic font, followed by a short narrative describing how each Rule requirement has been met.

2. 40 CFR § 257.90 Applicability

2.1 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 322 Landfill at the Tecumseh Energy Center (TEC), 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).

2.2 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 TEC 322 Landfill as required by the Rule as the groundwater monitoring system was established and certified by October 17, 2017. Prior to October 17, 2017, Evergy Kansas Central, Inc. (Evergy; f/k/a Westar Energy, Inc.) installed a groundwater monitoring system at the 322 Landfill consistent with § 257.91. Groundwater sampling and analysis were 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.

2.3 40 CFR § 257.90(e) – INFORMATION

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

2.3.1 40 CFR § 257.90(e)(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 322 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 Evergy, which was placed in the facility's operating record by October 17, 2017 as required by § 257.105(h)(2).

2.3.2 40 CFR § 257.90(e)(2) – Monitoring System Changes

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

The design and construction of the monitoring well network for the TEC 322 Landfill are described in the CCR Groundwater Monitoring Network Description Report dated October 17, 2017. This report was placed in the facility's operating record by October 17, 2017, as required by § 257.105(h)(2). Since the groundwater monitoring system was certified, no new monitoring wells were installed or decommissioned.

2.3.3 40 CFR § 257.90(e)(3) – Summary of Sampling Events

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 October 17, 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 322 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. Groundwater potentiometric elevation contour maps associated with each groundwater monitoring sampling event in 2016 and 2017 are provided in Figures 2 through 9.

2.3.4 40 CFR § 257.90(e)(4) – Monitoring Transition Narrative

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 322 Landfill in calendar year 2017.

2.3.5 40 CFR § 257.90(e)(5) – Other Requirements

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.

TABLE

TABLE I
SUMMARY OF ANALYTICAL RESULTS
EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
322 LANDFILL
TECUMSEH, 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)						
							Temperature (Deg C)	Conductivity (µS/cm)	Turbidity (NTU)	pH (su)	Boron, Total	Calcium, Total	Chloride	Fluoride	Sulfate	pH (su)	TDS
Up Gradient	MW-4	936.48	MW-4-081716	8/17/2016	4.90	931.58	**21.04**	**1730**	**6.2**	**7.09**	<0.10	**179**	**263**	**0.24**	**137**	**7.0**	**1070**
			MW-4-092016	9/20/2016	3.74	932.74	**19.14**	**1780**	**3.4**	**6.90**	<0.10	**176**	**271**	**0.24**	**141**	**7.2**	**1080**
			MW-4-110116	11/1/2016	3.96	932.52	**16.52**	**1720**	**3.4**	**6.87**	<0.10	**180**	**251**	**0.23**	**128**	**7.2**	**1060**
			MW-4-121316	12/13/2016	4.08	932.40	**10.26**	**1740**	**7.0**	**6.85**	<0.10	**183**	**268**	**0.24**	**142**	**7.3**	**935**
			MW-4-020617	2/6/2017	4.16	932.32	**10.54**	**1710**	**4.4**	**6.86**	<0.10	**188**	**263**	<0.20	**140**	**7.2**	**1000**
			MW-4-040517	4/5/2017	3.05	933.43	**11.78**	**1700**	**5.4**	**7.04**	<0.10	**182**	**261**	**0.23**	**143**	**7.2**	**1030**
			MW-4-052317	5/23/2017	3.81	932.67	**15.45**	**1720**	**5.1**	**6.96**	<0.10	**173**	**266**	<0.20	**126**	**7.3**	**980**
			MW-4-062717	6/27/2017	4.54	931.94	**15.97**	**1710**	**3.4**	**6.71**	<0.10	**180**	**255**	<0.20	**137**	**7.2**	**1040**
Down Gradient	MW-1	904.65	MW-1-081816	8/18/2016	4.56	900.09	**17.84**	**1266**	**4.0**	**7.03**	<0.10	**158**	**42.6**	**0.32**	**337**	**7.0**	**920**
			MW-1-092016	9/20/2016	3.83	900.82	**19.09**	**1305**	**2.6**	**6.85**	**0.15**	**158**	**39.3**	**0.36**	**359**	**7.2**	**913**
			MW-1-110116	11/1/2016	3.92	900.73	**16.69**	**1388**	**8.3**	**6.69**	**0.31**	**171**	**29.6**	**0.39**	**452**	**7.1**	**925**
			MW-1-121316	12/13/2016	4.01	900.64	**11.82**	**1405**	**40.9**	**6.93**	**0.38**	**168**	**21.4**	**0.36**	**400**	**7.3**	**937**
			MW-1-020617	2/6/2017	3.96	900.69	**10.37**	**1390**	**45.5**	**6.89**	**0.34**	**184**	**22.5**	**0.30**	**450**	**7.0**	**993**
			MW-1-040517	4/5/2017	3.39	901.26	**11.48**	**1385**	**25.6**	**6.97**	**0.50**	**176**	**22.5**	**0.46**	**455**	**7.1**	**984**
			MW-1-052417	5/24/2017	3.80	900.85	**14.04**	**1330**	**9.7**	**6.90**	**0.88**	**165**	**18.7**	**0.37**	**357**	**7.4**	**905**
			MW-1-062717	6/27/2017	4.05	900.60	**16.06**	**1387**	**6.3**	**6.82**	**0.84**	**171**	**19.4**	**0.39**	**358**	**7.1**	**999**
	MW-5	916.18	MW-5-081816	8/18/2016	6.12	910.06	**20.91**	**1800**	**25.6**	**7.00**	**0.35**	**241**	**49.2**	**0.25**	**653**	**6.9**	**1380**
			MW-5-092016	9/20/2016	5.41	910.77	**19.14**	**2280**	**3.5**	**6.79**	**1.2**	**291**	**49.3**	**0.28**	**868**	**7.0**	**1690**
			MW-5-110116	11/1/2016	5.48	910.70	**16.63**	**2340**	**3.0**	**6.57**	**1.2**	**316**	**45.3**	**0.33**	**1020**	**7.0**	**1810**
			MW-5-121316	12/13/2016	5.94	910.24	**10.15**	**2280**	**6.7**	**6.69**	**1.0**	**303**	**45.3**	**0.33**	**797**	**7.1**	**1620**
			MW-5-020617	2/6/2017	6.10	910.08	**10.69**	**2280**	**4.9**	**6.49**	**0.98**	**321**	**45.9**	<0.20	**874**	**6.9**	**1740**
			MW-5-040517	4/5/2017	4.83	911.35	**12.15**	**2240**	**5.3**	**6.81**	**1.2**	**318**	**42.9**	**0.30**	**892**	**7.0**	**1650**
			MW-5-052317	5/23/2017	5.45	910.73	**14.64**	**2180**	**3.8**	**6.85**	**1.1**	**299**	**40.9**	**0.28**	**829**	**7.4**	**1530**
			MW-5-062717	6/27/2017	5.61	910.57	**16.38**	**2160**	**2.6**	**6.65**	**1.1**	**297**	**39.6**	**0.42**	**786**	**7.0**	**1690**
	MW-6	911.28	MW-6-081716	8/17/2016	8.53	902.75	**20.71**	**2110**	**188**	**7.08**	**1.1**	**275**	**65.8**	**0.28**	**764**	**7.0**	**1790**
			MW-6-092016	9/20/2016	8.02	903.26	**19.75**	**2160**	**94.0**	**6.93**	**1.1**	**276**	**64.3**	**0.31**	**857**	**7.1**	**1690**
			MW-6-110116	11/1/2016	8.01	903.27	**18.26**	**2210**	**23.5**	**6.75**	**1.1**	**311**	**59.4**	**0.39**	**975**	**7.1**	**1690**
			MW-6-121316	12/13/2016	8.15	903.13	**13.10**	**2250**	**22.0**	**6.91**	**1.0**	**302**	**60.3**	**0.29**	**835**	**7.2**	**1620**
			MW-6-020617	2/6/2017	8.21	903.07	**10.91**	**2250**	**7.3**	**6.73**	**1.1**	**323**	**59.8**	**0.28**	**876**	**7.0**	**1800**
			MW-6-040517	4/5/2017	6.90	904.38	**12.30**	**2320**	**6.4**	**6.98**	**0.98**	**328**	**59.8**	**0.38**	**967**	**7.2**	**1810**
			MW-6-052417	5/24/2017	8.04	903.24	**11.98**	**2300**	**7.8**	**6.75**	**0.92**	**330**	**63.0**	**0.31**	**853**	**7.4**	**1680**
			MW-6-062717	6/27/2017	8.22	903.06	**15.74**	**2240**	**5.2**	**6.76**	**0.86**	**323**	**61.1**	**0.50**	**874**	**7.1**	**1700**

ABBREVIATIONS AND NOTES:

Bold value: Detection above laboratory reporting limit

USEPA. 2016. Final Rule: Disposal of Coal Combustion Residuals from Electric Utilities. July 26. 40 CFR Part 257. https://www.epa.gov/coalash/coal-ash-rule

µS/cm = microSiemen per centimeter

btoc = below top of casing

C = Celsius

CCR = coal combustion residuals

ft AMSL = feet above mean sea level

MCL = maximum contaminant level

mg/L = milligrams per liter

NA = not applicable

NTU = Nephelometric Turbidity Units

pCi/L = picoCurie per liter

su = standard units

TDS = total dissolved solids

TOC = top of casing

USEPA = United States Environmental Protection Agency

TABLE I
SUMMARY OF ANALYTICAL RESULTS
EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
322 LANDFILL
TECUMSEH, KANSAS

Location		Measure Point Elevation (TOC)	Sample Name	Sample Date	Depth to Water (btoc)	Groundwater Elevation (ft AMSL)	USEPA Appendix IV Constituents (mg/L)													USEPA Appendix IV Constituents (pCi/L)
							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-4	936.48	MW-4-081716	8/17/2016	4.90	931.58	<0.0010	<0.0010	**0.14**	<0.0010	<0.00050	<0.0050	<0.0010	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	**0.24**	**1.92**
			MW-4-092016	9/20/2016	3.74	932.74	<0.0010	<0.0010	**0.13**	<0.0010	<0.00050	<0.0050	<0.0010	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	**0.24**	**2.46**
			MW-4-110116	11/1/2016	3.96	932.52	<0.0010	<0.0010	**0.12**	<0.0010	<0.00050	<0.0050	<0.0010	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	**0.23**	**2.11**
			MW-4-121316	12/13/2016	4.08	932.40	<0.0010	<0.0010	**0.12**	<0.0010	<0.00050	<0.0050	<0.0010	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	**0.24**	**1.12**
			MW-4-020617	2/6/2017	4.16	932.32	<0.0010	<0.0010	**0.12**	<0.0010	<0.00050	<0.0050	<0.0010	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	<0.20	**0.879**
			MW-4-040517	4/5/2017	3.05	933.43	<0.0010	<0.0010	**0.11**	<0.0010	<0.00050	<0.0050	<0.0010	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	**0.23**	**1.10**
			MW-4-052317	5/23/2017	3.81	932.67	<0.0010	<0.0010	**0.11**	<0.0010	<0.00050	<0.0050	<0.0010	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	<0.20	**0.885**
			MW-4-062717	6/27/2017	4.54	931.94	<0.0010	<0.0010	**0.12**	<0.0010	<0.00050	<0.0050	<0.0010	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	<0.20	**2.64**
Down Gradient	MW-1	904.65	MW-1-081816	8/18/2016	4.56	900.09	<0.0010	<0.0010	**0.094**	<0.0010	<0.00050	<0.0050	**0.0029**	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	**0.32**	**0.56**
			MW-1-092016	9/20/2016	3.83	900.82	<0.0010	<0.0010	**0.12**	<0.0010	<0.00050	<0.0050	**0.0054**	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	**0.36**	**1.78**
			MW-1-110116	11/1/2016	3.92	900.73	<0.0010	<0.0010	**0.20**	<0.0010	<0.00050	<0.0050	**0.0086**	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	**0.39**	**0.997**
			MW-1-121316	12/13/2016	4.01	900.64	<0.0010	<0.0010	**0.16**	<0.0010	<0.00050	<0.0050	<0.0010	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	**0.36**	**0.164**
			MW-1-020617	2/6/2017	3.96	900.69	<0.0010	<0.0010	**0.20**	<0.0010	<0.00050	<0.0050	<0.0010	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	**0.30**	**0.467**
			MW-1-040517	4/5/2017	3.39	901.26	<0.0010	<0.0010	**0.20**	<0.0010	<0.00050	<0.0050	**0.0014**	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	**0.46**	**0.455**
			MW-1-052417	5/24/2017	3.80	900.85	<0.0010	**0.0017**	**0.19**	<0.0010	<0.00050	<0.0050	<0.0010	<0.0050	<0.010	**0.0011**	<0.0010	<0.0010	<0.00020	**0.37**	**1.07**
			MW-1-062717	6/27/2017	4.05	900.60	<0.0010	**0.0023**	**0.20**	<0.0010	<0.00050	<0.0050	**0.0014**	<0.0050	<0.010	**0.0011**	<0.0010	<0.0010	<0.00020	**0.39**	**0.174**
	MW-5	916.18	MW-5-081816	8/18/2016	6.12	910.06	<0.0010	<0.0010	**0.04**	<0.0010	<0.00050	<0.0050	**0.0011**	<0.0050	**0.021**	<0.0010	<0.0010	<0.0010	<0.00020	**0.25**	**1.04**
			MW-5-092016	9/20/2016	5.41	910.77	<0.0010	<0.0010	**0.033**	<0.0010	<0.00050	<0.0050	**0.0018**	<0.0050	**0.019**	<0.0010	<0.0010	<0.0010	<0.00020	**0.28**	**1.07**
			MW-5-110116	11/1/2016	5.48	910.70	<0.0010	<0.0010	**0.030**	<0.0010	<0.00050	<0.0050	**0.0021**	<0.0050	**0.022**	<0.0010	<0.0010	<0.0010	<0.00020	**0.33**	**1.48**
			MW-5-121316	12/13/2016	5.94	910.24	<0.0010	<0.0010	**0.028**	<0.0010	<0.00050	<0.0050	**0.0020**	<0.0050	**0.024**	<0.0010	<0.0010	<0.0010	<0.00020	**0.33**	**1.06**
			MW-5-020617	2/6/2017	6.10	910.08	<0.0010	<0.0010	**0.026**	<0.0010	<0.00050	<0.0050	**0.0018**	<0.0050	**0.014**	<0.0010	<0.0010	<0.0010	<0.00020	<0.20	**0.893**
			MW-5-040517	4/5/2017	4.83	911.35	<0.0010	<0.0010	**0.021**	<0.0010	<0.00050	<0.0050	**0.0021**	<0.0050	<0.010	**0.0010**	<0.0010	<0.0010	<0.00020	**0.30**	**0.970**
			MW-5-052317	5/23/2017	5.45	910.73	<0.0010	<0.0010	**0.022**	<0.0010	<0.00050	<0.0050	**0.0021**	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	**0.28**	**0.940**
			MW-5-062717	6/27/2017	5.61	910.57	<0.0010	<0.0010	**0.026**	<0.0010	<0.00050	<0.0050	**0.0020**	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	**0.42**	**1.23**
	MW-6	911.28	MW-6-081716	8/17/2016	8.53	902.75	<0.0010	<0.0010	**0.041**	<0.0010	<0.00050	<0.0050	**0.0031**	<0.0050	**0.018**	**0.0019**	<0.0010	<0.0010	<0.00020	**0.28**	**0.68**
			MW-6-092016	9/20/2016	8.02	903.26	<0.0010	<0.0010	**0.034**	<0.0010	<0.00050	<0.0050	**0.0033**	<0.0050	**0.017**	**0.0014**	<0.0010	<0.0010	<0.00020	**0.31**	**0.35**
			MW-6-110116	11/1/2016	8.01	903.27	<0.0010	<0.0010	**0.029**	<0.0010	<0.00050	<0.0050	**0.0031**	<0.0050	**0.018**	**0.0012**	<0.0010	<0.0010	<0.00020	**0.39**	**0.688**
			MW-6-121316	12/13/2016	8.15	903.13	<0.0010	<0.0010	**0.028**	<0.0010	<0.00050	<0.0050	**0.0029**	<0.0050	**0.022**	<0.0010	<0.0010	<0.0010	<0.00020	**0.29**	**0.653**
			MW-6-020617	2/6/2017	8.21	903.07	<0.0010	<0.0010	**0.028**	<0.0010	<0.00050	<0.0050	**0.0016**	<0.0050	**0.013**	**0.0011**	<0.0010	<0.0010	<0.00020	**0.28**	**0.582**
			MW-6-040517	4/5/2017	6.90	904.38	<0.0010	<0.0010	**0.023**	<0.0010	<0.00050	<0.0050	**0.0016**	<0.0050	**0.011**	**0.0012**	<0.0010	<0.0010	<0.00020	**0.38**	**0.224**
			MW-6-052417	5/24/2017	8.04	903.24	<0.0010	<0.0010	**0.021**	<0.0010	<0.00050	<0.0050	**0.0017**	<0.0050	<0.010	**0.0010**	<0.0010	<0.0010	<0.00020	**0.31**	**1.13**
			MW-6-062717	6/27/2017	8.22	903.06	<0.0010	<0.0010	**0.019**	<0.0010	<0.00050	<0.0050	**0.0018**	<0.0050	<0.010	<0.0010	<0.0010	<0.0010	<0.00020	**0.50**	**0.545**

ABBREVIATIONS AND NOTES:

Bold value: Detection above laboratory reporting limit

USEPA. 2016. Final Rule: Disposal of Coal Combustion Residuals from Electric Utilities. July 26. 40 CFR Part 257. https://www.epa.gov/coalash/coal-ash-rule

µS/cm = microSiemen per centimeter

btoc = below top of casing

C = Celsius

CCR = coal combustion residuals

ft AMSL = feet above mean sea level

MCL = maximum contaminant level

mg/L = milligrams per liter

NA = not applicable

NTU = Nephelometric Turbidity Units

pCi/L = picoCurie per liter

su = standard units

TDS = total dissolved solids

TOC = top of casing

USEPA = United States Environmental Protection Agency

FIGURES

LEGEND

- MONITORING WELL
- PIEZOMETRIC OBSERVATION ONLY
- ASH LANDFILL NO. 322
- PROPERTY BOUNDARY

NOTE

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: ESRI, 7 NOVEMBER 2015.

N

0 380 760

SCALE IN FEET

HALEY ALDRICH

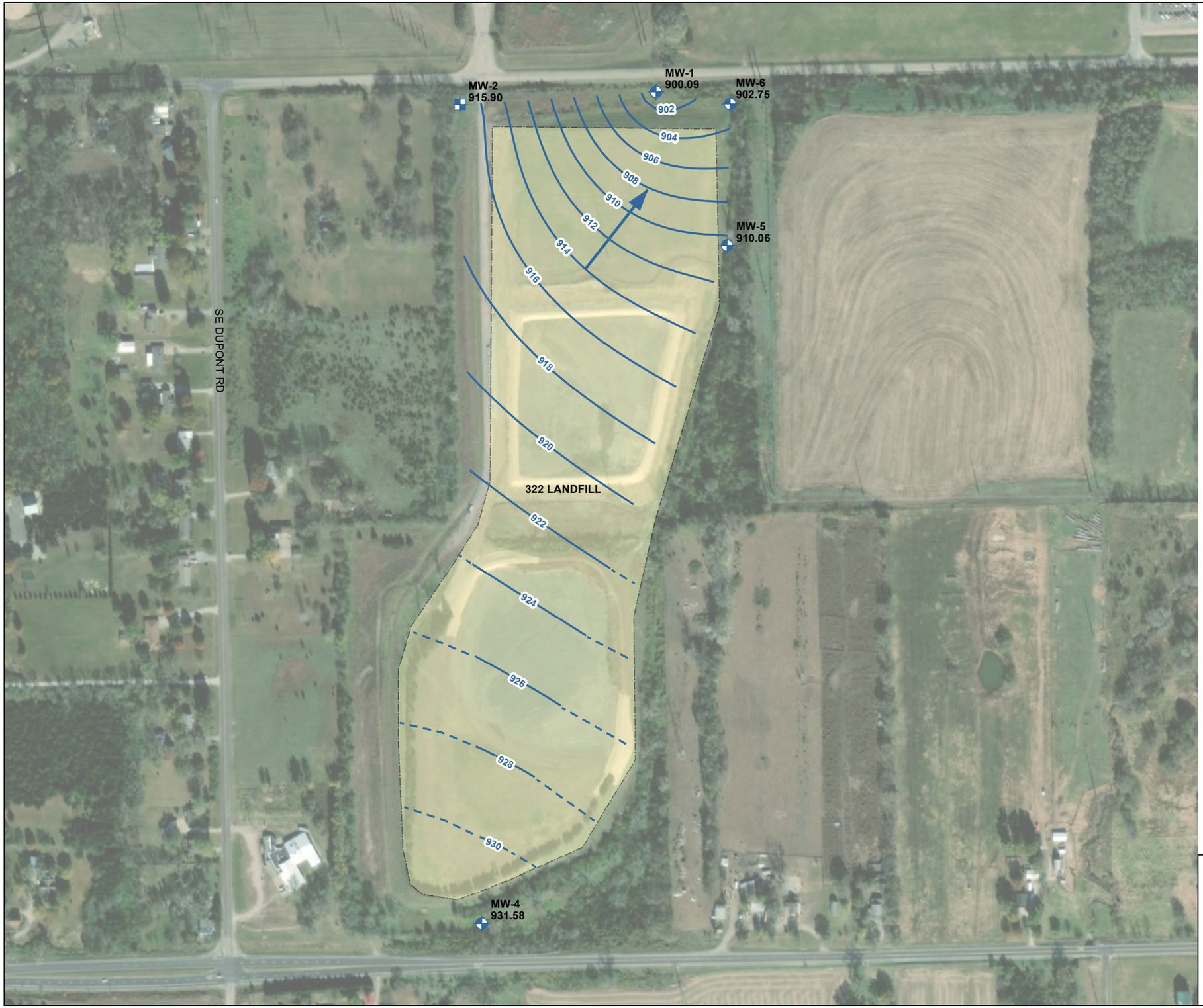
WESTAR ENERGY
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL MONITORING WELL LOCATION MAP

MARCH 2021
SCALE: AS SHOWN

FIGURE 1

GIS FILE PATH: G:\Projects\Westar\Tecumseh Energy Center (TEC)\GIS\MXDs\2018_01\TEC_PROPOSED_MW_LOC_LANDFILL.mxd — USER: rabrown — LAST SAVED: 1/26/2018 1:41:26 PM



LEGEND

- **MW-1 900.47** WELL NAME AND GROUNDWATER ELEVATION (AUGUST 17, 2016)
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION, 2-FT INTERVAL (AMSL)
- ESTIMATED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 17 AUGUST 2016.
3. AMSL = ABOVE MEAN SEA LEVEL
4. AERIAL IMAGERY SOURCE: ESRI, 7 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

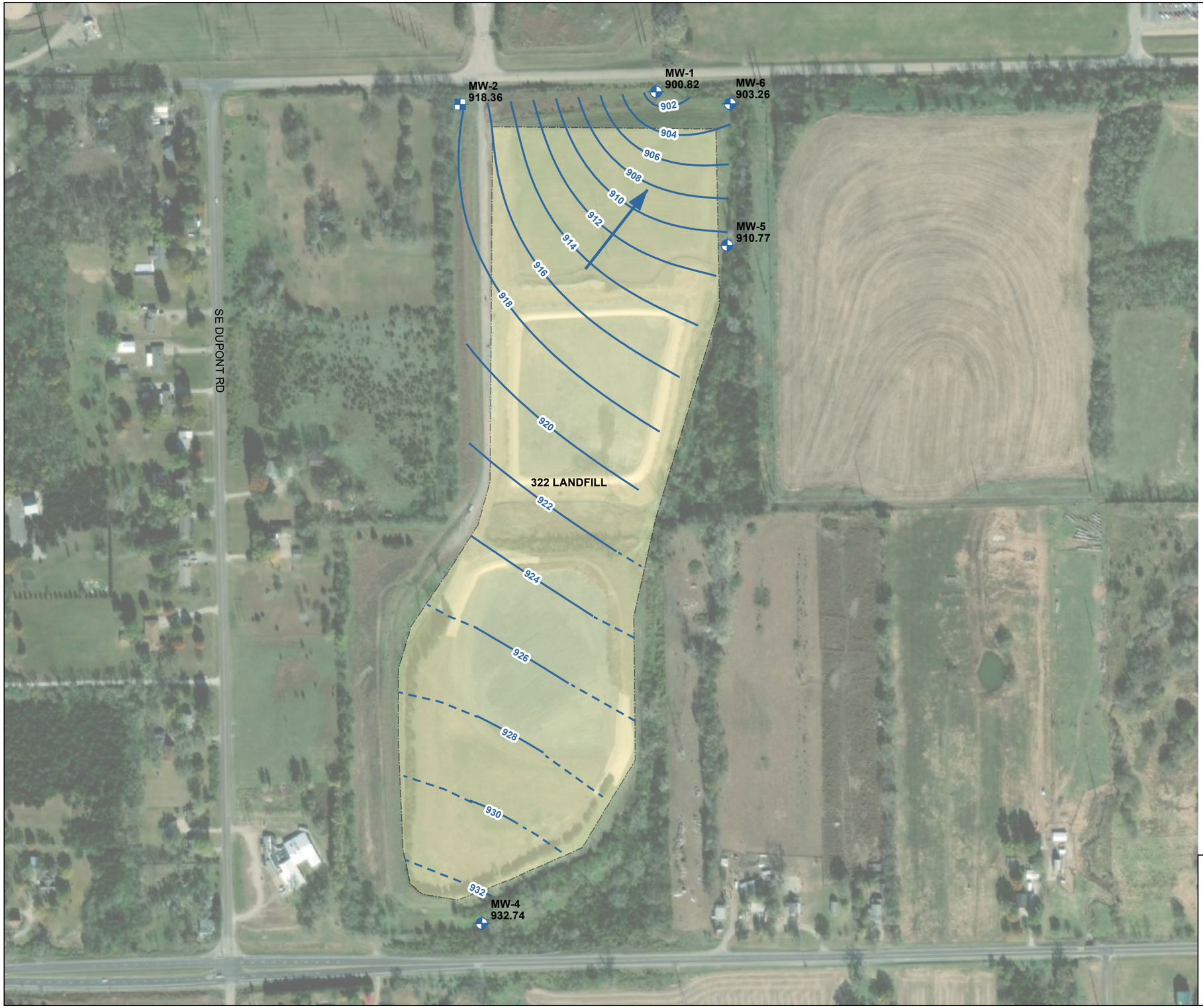
EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP AUGUST 17, 2016

evergy

MARCH 2021

FIGURE 2



LEGEND

- **MW-1 900.47** WELL NAME AND GROUNDWATER ELEVATION (SEPTEMBER 19, 2016)
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION, 2-FT INTERVAL (AMSL)
- ESTIMATED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 19 SEPTEMBER 2016.
3. AMSL = ABOVE MEAN SEA LEVEL
4. AERIAL IMAGERY SOURCE: ESRI, 7 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP SEPTEMBER 19, 2016

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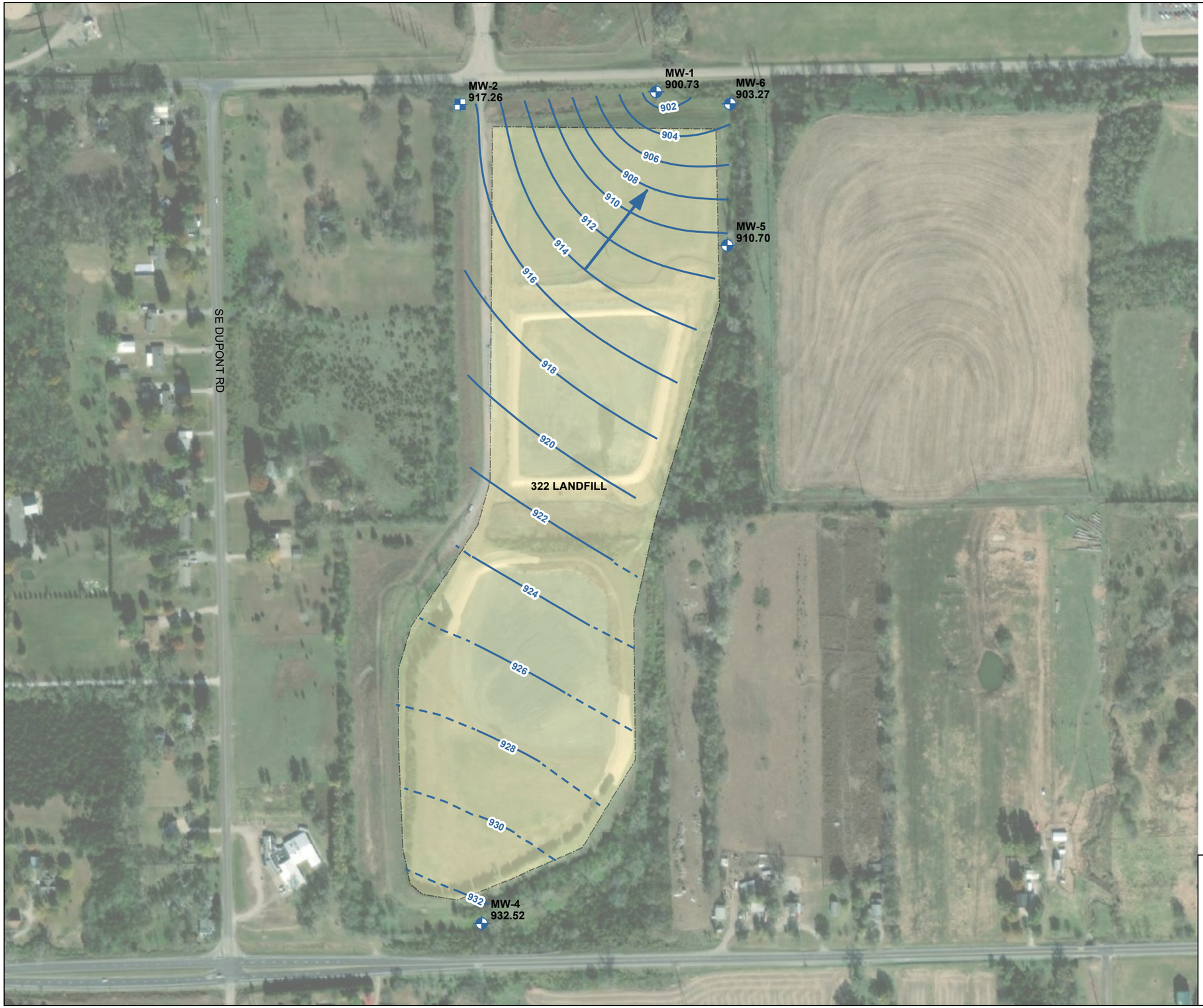
MARCH 2021

FIGURE 3



LEGEND

- **MW-1 900.47** WELL NAME AND GROUNDWATER ELEVATION (OCTOBER 31, 2016)
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION, 2-FT INTERVAL (AMSL)
- ESTIMATED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 31 OCTOBER 2016.
3. AMSL = ABOVE MEAN SEA LEVEL
4. AERIAL IMAGERY SOURCE: ESRI, 7 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP OCTOBER 31, 2016

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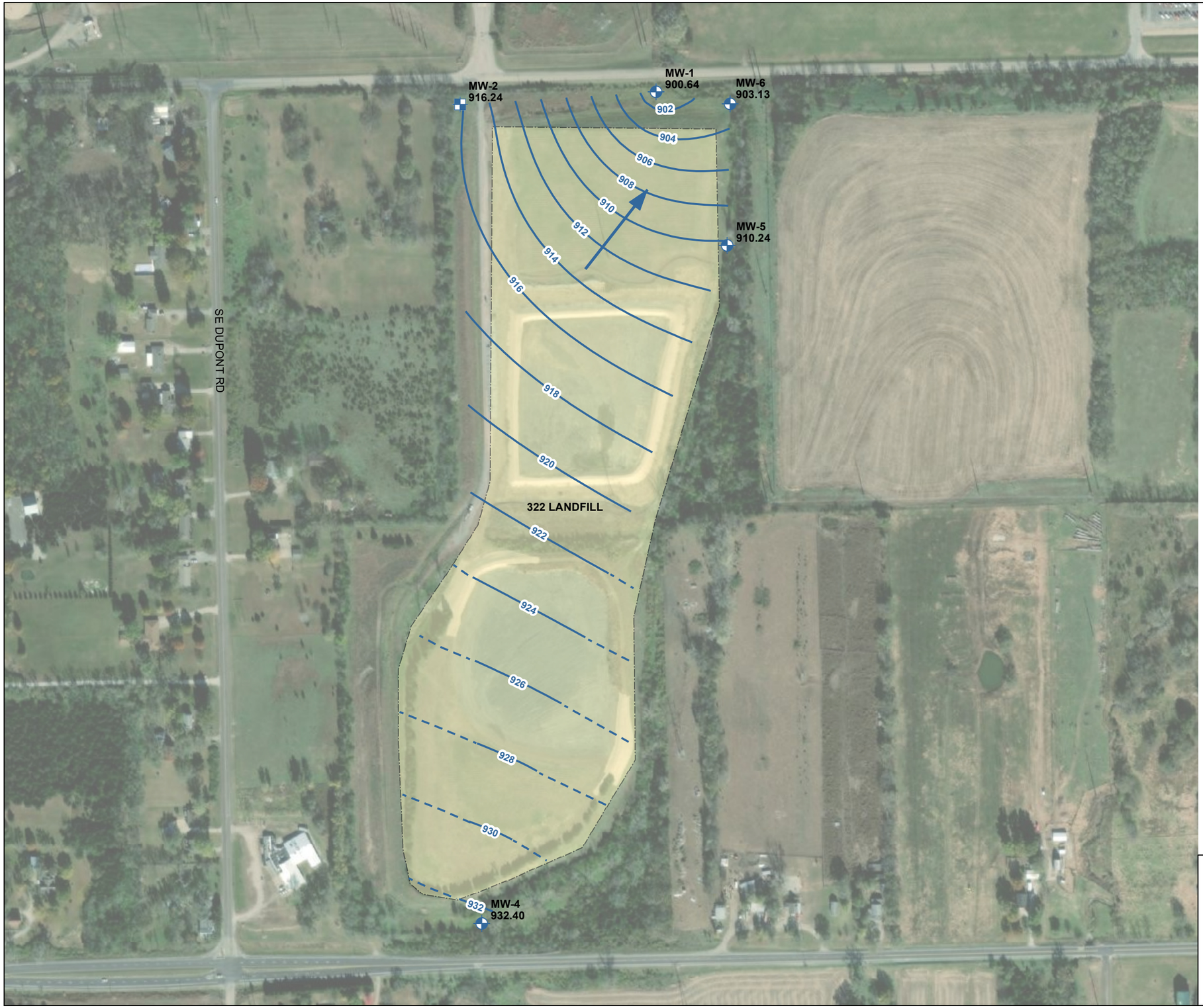
MARCH 2021

FIGURE 4



LEGEND

- **MW-1 900.47** WELL NAME AND GROUNDWATER ELEVATION (DECEMBER 12, 2016)
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION, 2-FT INTERVAL (AMSL)
- ESTIMATED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 12 DECEMBER 2016.
3. AMSL = ABOVE MEAN SEA LEVEL
4. AERIAL IMAGERY SOURCE: ESRI, 7 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP DECEMBER 12, 2016

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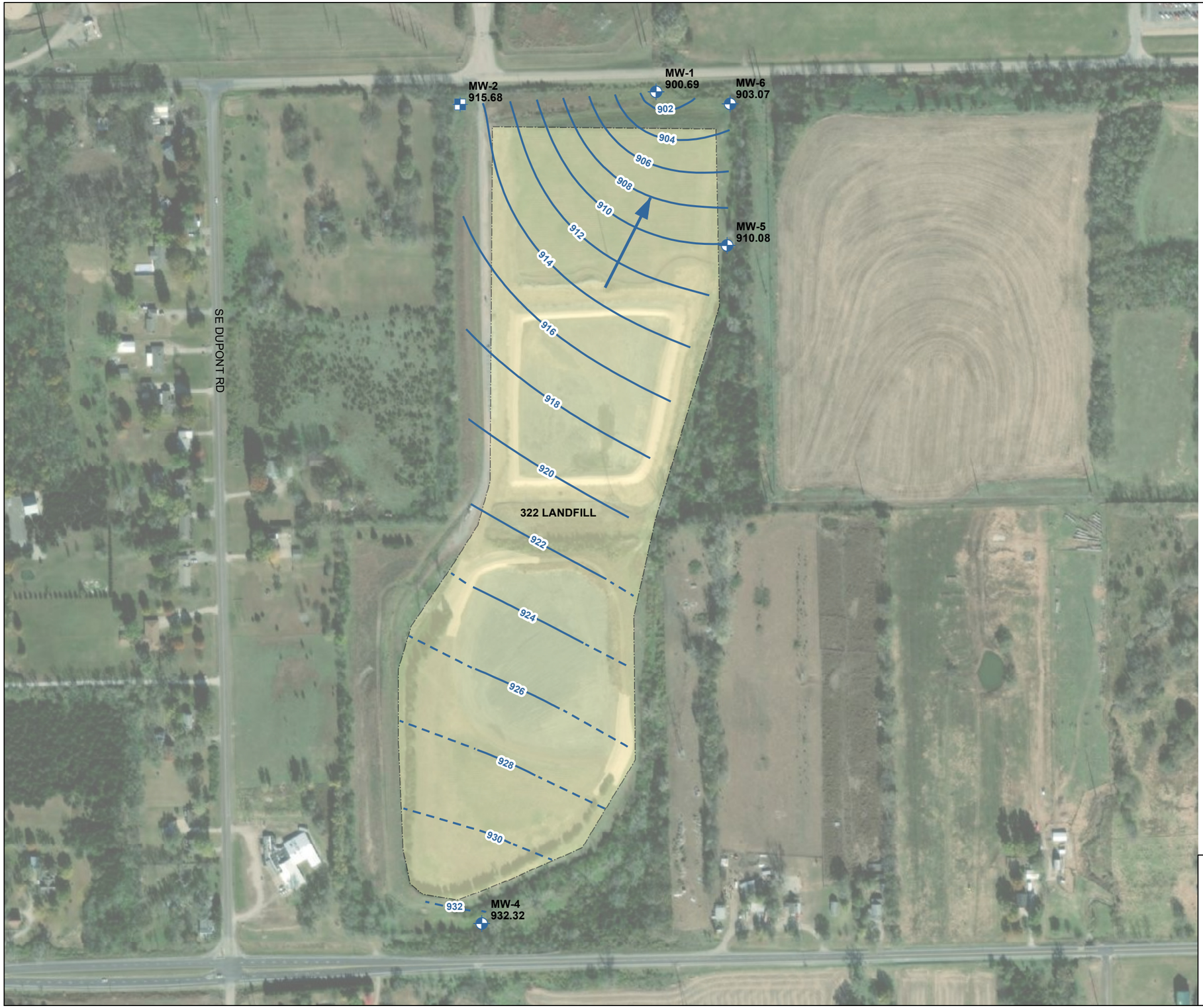
MARCH 2021

FIGURE 5



LEGEND

- **MW-1 900.47** WELL NAME AND GROUNDWATER ELEVATION (FEBRUARY 6, 2017)
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION, 2-FT INTERVAL (AMSL)
- ESTIMATED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 06 FEBRUARY 2017.
3. AMSL = ABOVE MEAN SEA LEVEL
4. AERIAL IMAGERY SOURCE: ESRI, 7 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

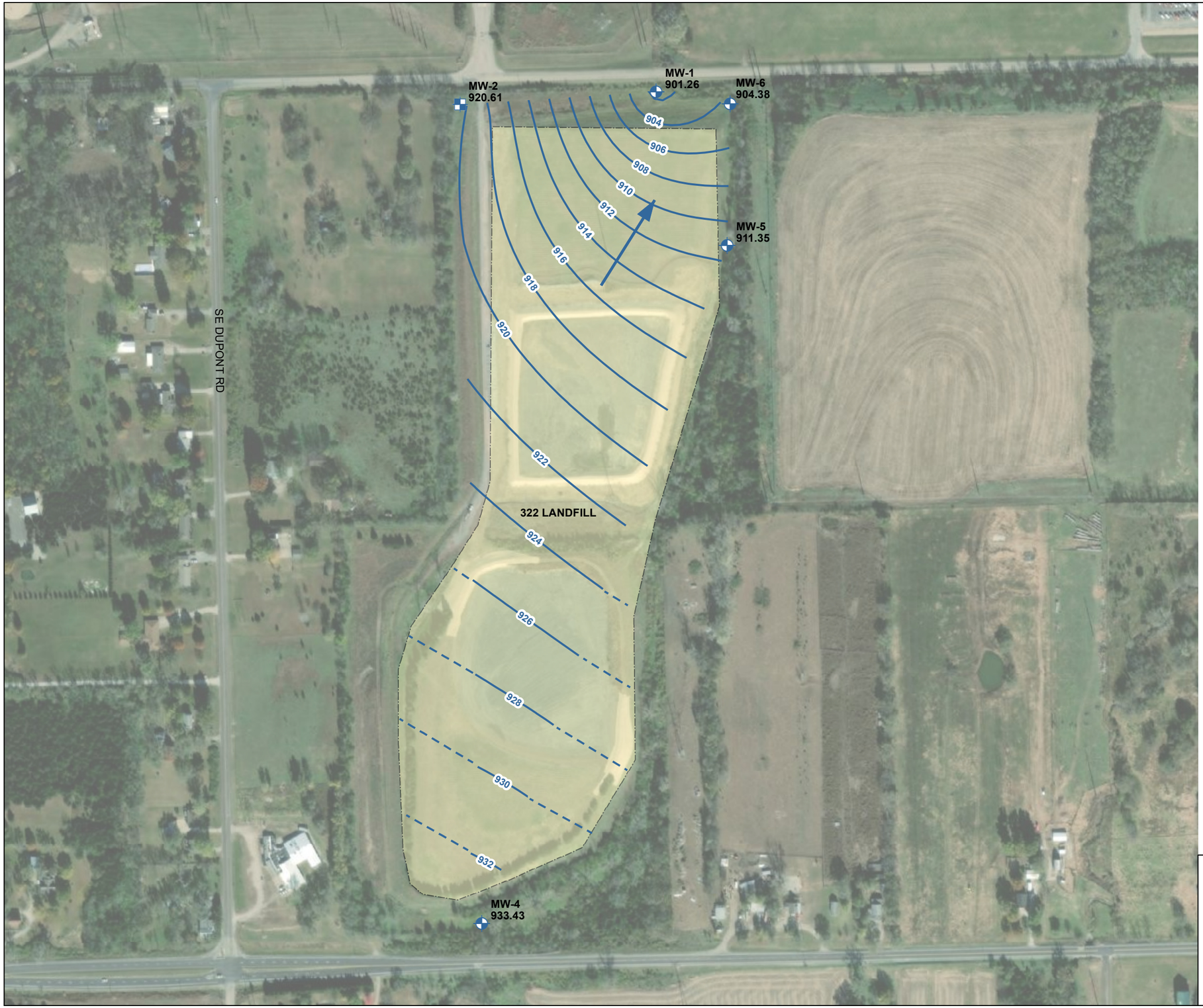
EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP FEBRUARY 06, 2017

evergy

MARCH 2021

FIGURE 6



LEGEND

- MW-1 900.47 — WELL NAME AND GROUNDWATER ELEVATION (APRIL 5, 2017)
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION, 2-FT INTERVAL (AMSL)
- ESTIMATED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 05 APRIL 2017.
3. AMSL = ABOVE MEAN SEA LEVEL
4. AERIAL IMAGERY SOURCE: ESRI, 7 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP APRIL 05, 2017

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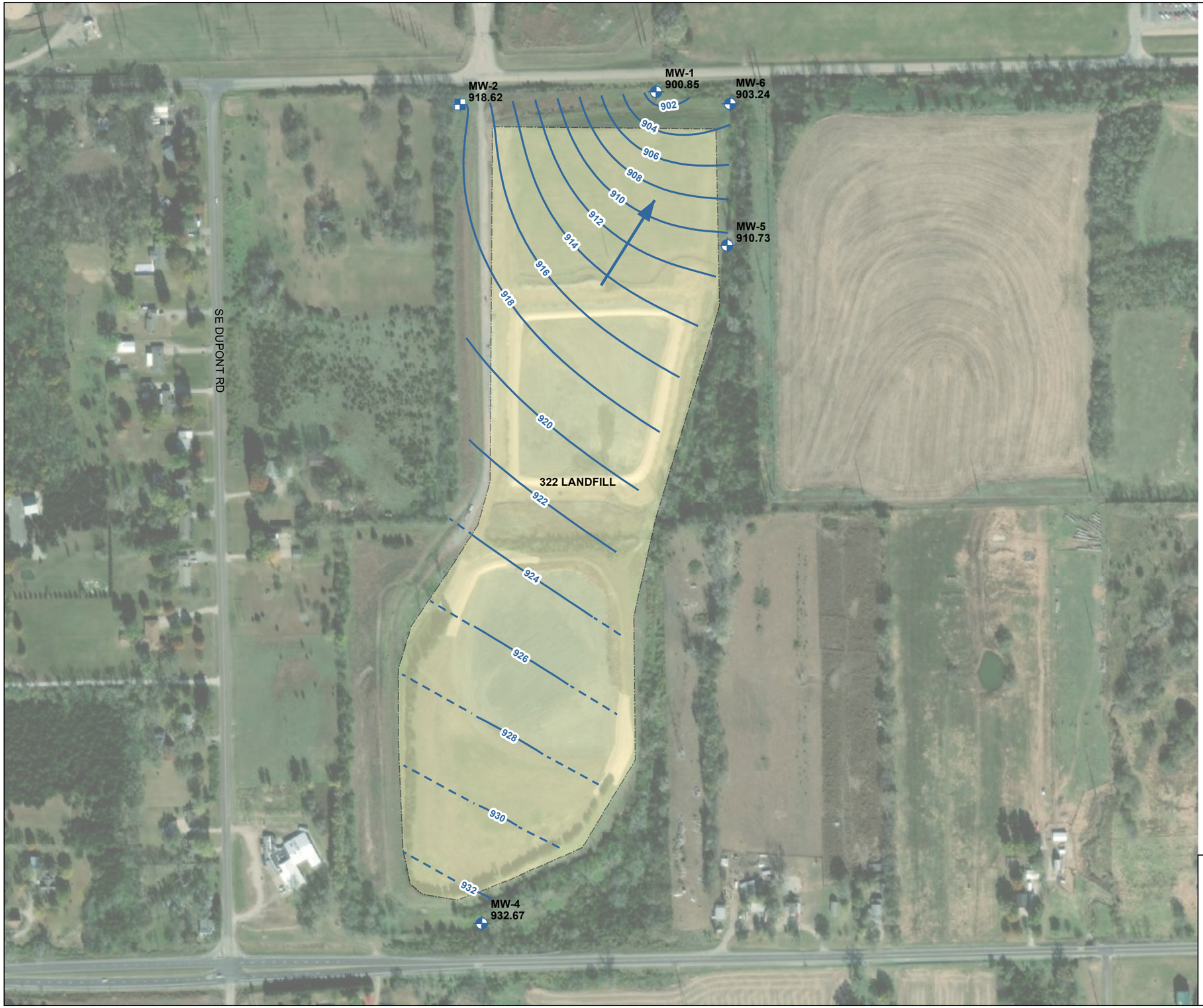
MARCH 2021

FIGURE 7



LEGEND

- MW-1 900.47 — WELL NAME AND GROUNDWATER ELEVATION (MAY 23, 2017)
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION, 2-FT INTERVAL (AMSL)
- ESTIMATED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 23 MAY 2017.
3. AMSL = ABOVE MEAN SEA LEVEL
4. AERIAL IMAGERY SOURCE: ESRI, 7 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP MAY 23, 2017

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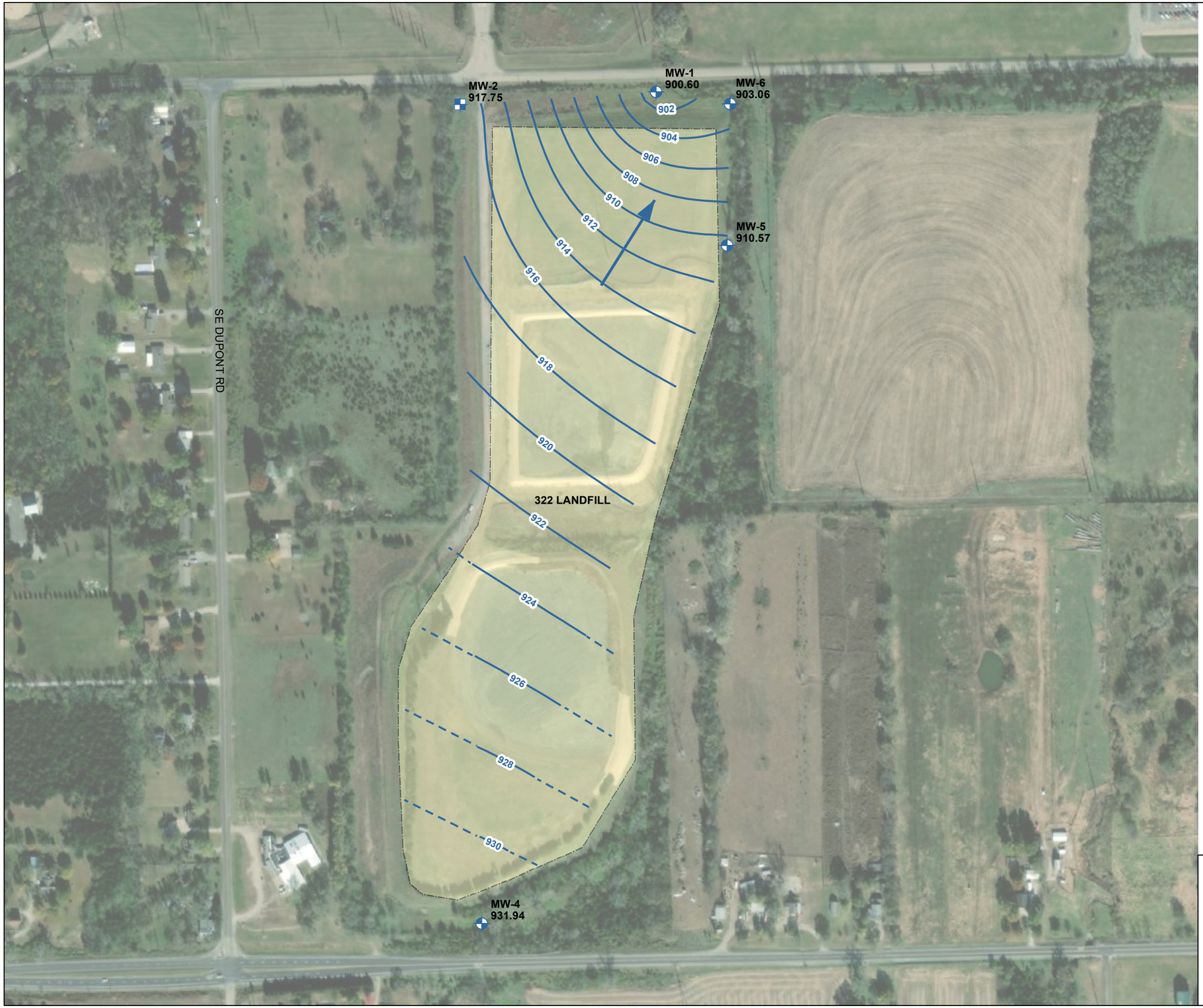
MARCH 2021

FIGURE 8



LEGEND

- **MW-1 900.47** WELL NAME AND GROUNDWATER ELEVATION (JUNE 26, 2017)
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION, 2-FT INTERVAL (AMSL)
- ESTIMATED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 26 JUNE 2017.
3. AMSL = ABOVE MEAN SEA LEVEL
4. AERIAL IMAGERY SOURCE: ESRI, 7 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP JUNE 26, 2017

evergy

MARCH 2021

FIGURE 9

HALEY & ALDRICH, INC.
6500 Rockside Road
Suite 200
Cleveland, OH 44131
216.739.0555

Mark Nicholls
Digitally signed by Mark Nicholls
Date: 2022.03.18 13:06:48 -07'00'

March 18, 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. (Evergy)
322 Landfill
Tecumseh Energy Center – Tecumseh, Kansas

The 322 Landfill at the Evergy Tecumseh Energy Center (TEC) 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 322 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. Revision 1 of the 2017 GWMCA Report does include a "Groundwater Potentiometric Elevation Contour Map" for each of the 2017 sampling events as

Figures 2 through 9. In those figures, the measured groundwater elevations for each well are listed. Those maps have been duplicated in this addendum and were modified to include the calculated groundwater flow rate and direction.

The attachments to this addendum are as follows providing the additional information:

- 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 background sampling events completed in August, September, November, and December 2016, and February, April, May, and June 2017 are provided.
- Attachment 2 – Revised 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, October, 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

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

September 19, 2016

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

RE: Project: TEC CCR Groundwater
Pace Project No.: 60226095

Dear Brandon Griffin:
Enclosed are the analytical results for sample(s) received by the laboratory on August 19, 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

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: TEC CCR Groundwater
Pace Project No.: 60226095

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

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60226095001	**MW-4-081716**	Water	08/17/16 13:41	08/19/16 16:00
60226095002	**MW-6-081716**	Water	08/17/16 15:17	08/19/16 16:00
60226095003	**MW-1-081816**	Water	08/18/16 09:53	08/19/16 16:00
60226095004	**MW-5-081816**	Water	08/18/16 13:33	08/19/16 16:00
60226095005	**DUP-081816**	Water	08/18/16 12:15	08/19/16 16:00

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60226095001	**MW-4-081716**	EPA 200.7	JGP	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
60226095002	**MW-6-081716**	EPA 200.7	JGP	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
60226095003	**MW-1-081816**	EPA 200.7	JGP	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
60226095004	**MW-5-081816**	EPA 200.7	JGP	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
60226095005	**DUP-081816**	EPA 200.7	JGP	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

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: TEC CCR Groundwater
Pace Project No.: 60226095

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

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PROJECT NARRATIVE

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: WESTAR ENERGY
Date: September 19, 2016

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: 443713

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60225865003,60226099002,60226141001

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

- MS (Lab ID: 1814603)
  - Calcium
- MS (Lab ID: 1814605)
  - Calcium
- MSD (Lab ID: 1814606)
  - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: WESTAR ENERGY
Date: September 19, 2016

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:

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PROJECT NARRATIVE

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Method: **EPA 245.1**
Description: 245.1 Mercury
Client: WESTAR ENERGY
Date: September 19, 2016

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.

QC Batch: 443695

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60226141001,60226141003

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

- MS (Lab ID: 1814568)
  - Mercury

Additional Comments:

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PROJECT NARRATIVE

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: WESTAR ENERGY
Date: September 19, 2016

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: TEC CCR Groundwater
Pace Project No.: 60226095

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: WESTAR ENERGY
Date: September 19, 2016

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:

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PROJECT NARRATIVE

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: WESTAR ENERGY
Date: September 19, 2016

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:

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PROJECT NARRATIVE

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: WESTAR ENERGY
Date: September 19, 2016

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-081816 (Lab ID: 60226095005)
- MW-1-081816 (Lab ID: 60226095003)
- MW-4-081716 (Lab ID: 60226095001)
- MW-5-081816 (Lab ID: 60226095004)
- MW-6-081716 (Lab ID: 60226095002)

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: TEC CCR Groundwater
Pace Project No.: 60226095

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: WESTAR ENERGY
Date: September 19, 2016

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.

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ANALYTICAL RESULTS

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Sample: MW-4-081716 **Lab ID: 60226095001** Collected: 08/17/16 13:41 Received: 08/19/16 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.14**	mg/L	0.010	1	08/22/16 16:30	08/23/16 11:44	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 11:44	7440-41-7	
Boron, Total Recoverable	**<0.10**	mg/L	0.10	1	08/22/16 16:30	08/23/16 11:44	7440-42-8	
Calcium, Total Recoverable	**179**	mg/L	0.10	1	08/22/16 16:30	08/23/16 11:44	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	08/22/16 16:30	08/23/16 11:44	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	08/22/16 16:30	08/23/16 11:44	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	08/22/16 16:30	08/23/16 11:44	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:30	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:30	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	08/22/16 16:30	08/23/16 15:30	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:30	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:30	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:30	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:30	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.20**	ug/L	0.20	1	08/23/16 08:40	08/23/16 12:15	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1070**	mg/L	5.0	1		08/23/16 14:34		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		08/23/16 08:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**263**	mg/L	20.0	20		09/08/16 12:04	16887-00-6	
Fluoride	**0.24**	mg/L	0.20	1		09/07/16 14:30	16984-48-8	
Sulfate	**137**	mg/L	10.0	10		09/08/16 11:21	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Sample: MW-6-081716 **Lab ID: 60226095002** Collected: 08/17/16 15:17 Received: 08/19/16 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.041**	mg/L	0.010	1	08/22/16 16:30	08/23/16 11:58	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 11:58	7440-41-7	
Boron, Total Recoverable	**1.1**	mg/L	0.10	1	08/22/16 16:30	08/23/16 11:58	7440-42-8	
Calcium, Total Recoverable	**275**	mg/L	0.10	1	08/22/16 16:30	08/23/16 11:58	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	08/22/16 16:30	08/23/16 11:58	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	08/22/16 16:30	08/23/16 11:58	7439-92-1	
Lithium	**0.018**	mg/L	0.010	1	08/22/16 16:30	08/23/16 11:58	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:34	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:34	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	08/22/16 16:30	08/23/16 15:34	7440-43-9	
Cobalt, Total Recoverable	**0.0031**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:34	7440-48-4	
Molybdenum, Total Recoverable	**0.0019**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:34	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:34	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:34	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.20**	ug/L	0.20	1	08/23/16 08:40	08/23/16 12:17	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1790**	mg/L	5.0	1		08/23/16 14:34		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		08/23/16 08:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**65.8**	mg/L	5.0	5		09/08/16 12:48	16887-00-6	
Fluoride	**0.28**	mg/L	0.20	1		09/07/16 14:44	16984-48-8	
Sulfate	**764**	mg/L	100	100		09/08/16 13:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Sample: MW-1-081816 **Lab ID: 60226095003** Collected: 08/18/16 09:53 Received: 08/19/16 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.094**	mg/L	0.010	1	08/22/16 16:30	08/23/16 12:02	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 12:02	7440-41-7	
Boron, Total Recoverable	**<0.10**	mg/L	0.10	1	08/22/16 16:30	08/23/16 12:02	7440-42-8	
Calcium, Total Recoverable	**158**	mg/L	0.10	1	08/22/16 16:30	08/23/16 12:02	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	08/22/16 16:30	08/23/16 12:02	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	08/22/16 16:30	08/23/16 12:02	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	08/22/16 16:30	08/23/16 12:02	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:03	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:03	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	08/22/16 16:30	08/24/16 11:03	7440-43-9	
Cobalt, Total Recoverable	**0.0029**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:03	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:03	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:03	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:03	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.20**	ug/L	0.20	1	08/23/16 08:40	08/23/16 12:20	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**920**	mg/L	5.0	1		08/25/16 10:47		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		08/23/16 08:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**42.6**	mg/L	5.0	5		09/08/16 13:45	16887-00-6	
Fluoride	**0.32**	mg/L	0.20	1		09/07/16 14:58	16984-48-8	
Sulfate	**337**	mg/L	50.0	50		09/08/16 14:00	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Sample: MW-5-081816 **Lab ID: 60226095004** Collected: 08/18/16 13:33 Received: 08/19/16 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.040**	mg/L	0.010	1	08/22/16 16:30	08/23/16 12:06	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 12:06	7440-41-7	
Boron, Total Recoverable	**0.35**	mg/L	0.10	1	08/22/16 16:30	08/23/16 12:06	7440-42-8	
Calcium, Total Recoverable	**241**	mg/L	0.10	1	08/22/16 16:30	08/23/16 12:06	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	08/22/16 16:30	08/23/16 12:06	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	08/22/16 16:30	08/23/16 12:06	7439-92-1	
Lithium	**0.021**	mg/L	0.010	1	08/22/16 16:30	08/23/16 12:06	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:07	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:07	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	08/22/16 16:30	08/24/16 11:07	7440-43-9	
Cobalt, Total Recoverable	**0.0011**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:07	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:07	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:07	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:07	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.20**	ug/L	0.20	1	08/23/16 08:40	08/23/16 12:22	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1380**	mg/L	5.0	1		08/25/16 10:48		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**6.9**	Std. Units	0.10	1		08/23/16 08:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**49.2**	mg/L	5.0	5		09/08/16 14:14	16887-00-6	
Fluoride	**0.25**	mg/L	0.20	1		09/07/16 15:13	16984-48-8	
Sulfate	**653**	mg/L	50.0	50		09/08/16 14:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Sample: DUP-081816 **Lab ID: 60226095005** Collected: 08/18/16 12:15 Received: 08/19/16 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.086**	mg/L	0.010	1	08/22/16 16:30	08/23/16 12:10	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/23/16 12:10	7440-41-7	
Boron, Total Recoverable	**<0.10**	mg/L	0.10	1	08/22/16 16:30	08/23/16 12:10	7440-42-8	
Calcium, Total Recoverable	**145**	mg/L	0.10	1	08/22/16 16:30	08/23/16 12:10	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	08/22/16 16:30	08/23/16 12:10	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	08/22/16 16:30	08/23/16 12:10	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	08/22/16 16:30	08/23/16 12:10	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:11	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:11	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	08/22/16 16:30	08/24/16 11:11	7440-43-9	
Cobalt, Total Recoverable	**0.0027**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:11	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:11	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:11	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:11	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.20**	ug/L	0.20	1	08/23/16 08:40	08/23/16 12:24	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**928**	mg/L	5.0	1		08/25/16 10:49		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		08/23/16 08:45		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**42.3**	mg/L	5.0	5		09/08/16 14:43	16887-00-6	
Fluoride	**0.32**	mg/L	0.20	1		09/07/16 15:27	16984-48-8	
Sulfate	**334**	mg/L	50.0	50		09/08/16 14:57	14808-79-8	

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QUALITY CONTROL DATA

Project: TEC CCR Groundwater
Pace Project No.: 60226095

QC Batch: 443695 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
Associated Lab Samples: 60226095001, 60226095002, 60226095003, 60226095004, 60226095005

METHOD BLANK: 1814564 Matrix: Water
Associated Lab Samples: 60226095001, 60226095002, 60226095003, 60226095004, 60226095005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.20	0.20	08/23/16 11:44	

LABORATORY CONTROL SAMPLE: 1814565

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.2	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1814566 1814567

Parameter	Units	60226141001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.20	5	5	4.8	5.0	96	99	70-130	3	20	

MATRIX SPIKE SAMPLE: 1814568

Parameter	Units	60226141003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	<0.20	5	3.4	67	70-130	M1

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QUALITY CONTROL DATA

Project: TEC CCR Groundwater
Pace Project No.: 60226095

QC Batch: 443713 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60226095001, 60226095002, 60226095003, 60226095004, 60226095005

METHOD BLANK: 1814601 Matrix: Water
Associated Lab Samples: 60226095001, 60226095002, 60226095003, 60226095004, 60226095005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.010	0.010	08/23/16 10:28	
Beryllium	mg/L	<0.0010	0.0010	08/23/16 10:28	
Boron	mg/L	<0.10	0.10	08/23/16 10:28	
Calcium	mg/L	<0.10	0.10	08/23/16 10:28	
Chromium	mg/L	<0.0050	0.0050	08/23/16 10:28	
Lead	mg/L	<0.0050	0.0050	08/23/16 10:28	
Lithium	mg/L	<0.010	0.010	08/23/16 10:28	

LABORATORY CONTROL SAMPLE: 1814602

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	0.99	99	85-115	
Calcium	mg/L	10	10.0	100	85-115	
Chromium	mg/L	1	1.0	104	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: 1814603 1814604

Parameter	Units	60226099002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	547 ug/L	1	1	1.6	1.6	104	103	70-130	1	20	
Beryllium	mg/L	<1.0 ug/L	1	1	1.0	1.0	102	101	70-130	1	20	
Boron	mg/L	658 ug/L	1	1	1.7	1.7	105	104	70-130	1	20	
Calcium	mg/L	288000 ug/L	10	10	304	298	152	96	70-130	2	20	M1
Chromium	mg/L	<5.0 ug/L	1	1	1.0	1.0	103	103	70-130	0	20	
Lead	mg/L	<5.0 ug/L	1	1	0.99	0.99	99	98	70-130	1	20	
Lithium	mg/L	57.8 ug/L	1	1	1.1	1.1	104	103	70-130	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1814605 1814606

Parameter	Units	60225865003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.18	1	1	1.2	1.2	100	100	70-130	0	20	

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QUALITY CONTROL DATA

Project: TEC CCR Groundwater
Pace Project No.: 60226095

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1814605 1814606

Parameter	Units	60225865003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Beryllium	mg/L	<0.0010	1	1	1.0	1.0	102	101	70-130	1	20	
Boron	mg/L	0.71	1	1	1.7	1.7	102	102	70-130	0	20	
Calcium	mg/L	214	10	10	216	216	21	19	70-130	0	20	M1
Chromium	mg/L	<0.0050	1	1	1.0	1.0	105	104	70-130	1	20	
Lead	mg/L	<0.0050	1	1	0.95	0.95	95	95	70-130	0	20	
Lithium	mg/L	0.12	1	1	1.2	1.2	106	105	70-130	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1814607 1814608

Parameter	Units	60226141001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	<0.010	1	1	1.0	1.0	100	102	70-130	1	20	
Beryllium	mg/L	<0.0010	1	1	1.0	1.0	100	101	70-130	1	20	
Boron	mg/L	1.2	1	1	2.2	2.3	104	109	70-130	2	20	
Calcium	mg/L	290	10	10	300	303	92	129	70-130	1	20	
Chromium	mg/L	<0.0050	1	1	1.0	1.0	104	104	70-130	0	20	
Lead	mg/L	<0.0050	1	1	1.0	1.0	100	100	70-130	0	20	
Lithium	mg/L	0.089	1	1	1.1	1.1	103	105	70-130	2	20	

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QUALITY CONTROL DATA

Project: TEC CCR Groundwater
Pace Project No.: 60226095

QC Batch: 443719 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60226095001, 60226095002, 60226095003, 60226095004, 60226095005

METHOD BLANK: 1814621 Matrix: Water
Associated Lab Samples: 60226095001, 60226095002, 60226095003, 60226095004, 60226095005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	08/23/16 14:54	
Arsenic	mg/L	<0.0010	0.0010	08/23/16 14:54	
Cadmium	mg/L	<0.00050	0.00050	08/23/16 14:54	
Cobalt	mg/L	<0.0010	0.0010	08/23/16 14:54	
Molybdenum	mg/L	<0.0010	0.0010	08/23/16 14:54	
Selenium	mg/L	<0.0010	0.0010	08/23/16 14:54	
Thallium	mg/L	<0.0010	0.0010	08/23/16 14:54	

LABORATORY CONTROL SAMPLE: 1814622

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.042	105	85-115	
Arsenic	mg/L	.04	0.043	108	85-115	
Cadmium	mg/L	.04	0.042	105	85-115	
Cobalt	mg/L	.04	0.040	101	85-115	
Molybdenum	mg/L	.04	0.042	105	85-115	
Selenium	mg/L	.04	0.045	113	85-115	
Thallium	mg/L	.04	0.039	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1814623 1814624

Parameter	Units	60226141001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	<0.0010	.04	.04	0.040	0.041	100	101	70-130	1	20	
Arsenic	mg/L	0.0012	.04	.04	0.041	0.042	100	103	70-130	3	20	
Cadmium	mg/L	<0.00050	.04	.04	0.038	0.038	95	94	70-130	1	20	
Cobalt	mg/L	<0.0010	.04	.04	0.038	0.039	95	96	70-130	1	20	
Molybdenum	mg/L	0.025	.04	.04	0.068	0.068	107	106	70-130	1	20	
Selenium	mg/L	0.0030	.04	.04	0.045	0.045	104	105	70-130	1	20	
Thallium	mg/L	<0.0010	.04	.04	0.042	0.042	104	105	70-130	1	20	

MATRIX SPIKE SAMPLE: 1814625

Parameter	Units	60226141002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<0.0010	.04	0.042	104	70-130	
Arsenic	mg/L	<0.0010	.04	0.042	104	70-130	
Cadmium	mg/L	<0.00050	.04	0.039	98	70-130	

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QUALITY CONTROL DATA

Project: TEC CCR Groundwater
Pace Project No.: 60226095

MATRIX SPIKE SAMPLE: 1814625

Parameter	Units	60226141002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	<0.0010	.04	0.039	96	70-130	
Molybdenum	mg/L	0.0026	.04	0.045	106	70-130	
Selenium	mg/L	<0.0010	.04	0.041	102	70-130	
Thallium	mg/L	<0.0010	.04	0.041	104	70-130	

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QUALITY CONTROL DATA

Project: TEC CCR Groundwater
Pace Project No.: 60226095

QC Batch: 443884 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60226095001, 60226095002

METHOD BLANK: 1815159 Matrix: Water
Associated Lab Samples: 60226095001, 60226095002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	08/23/16 14:20	

LABORATORY CONTROL SAMPLE: 1815160

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	978	98	80-120	

SAMPLE DUPLICATE: 1815161

Parameter	Units	60225865003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	8200	8400	2	10	

SAMPLE DUPLICATE: 1815162

Parameter	Units	60225902002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	293	298	2	10	

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QUALITY CONTROL DATA

Project: TEC CCR Groundwater
Pace Project No.: 60226095

QC Batch: 444157 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60226095003, 60226095004, 60226095005

METHOD BLANK: 1816260 Matrix: Water
Associated Lab Samples: 60226095003, 60226095004, 60226095005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	08/25/16 10:45	

LABORATORY CONTROL SAMPLE: 1816261

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	979	98	80-120	

SAMPLE DUPLICATE: 1816262

Parameter	Units	60226141001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2410	2360	2	10	

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QUALITY CONTROL DATA

Project: TEC CCR Groundwater
Pace Project No.: 60226095

QC Batch: 443712 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60226095001, 60226095002, 60226095003, 60226095004, 60226095005

SAMPLE DUPLICATE: 1814600

Parameter	Units	2041335001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	9.7	9.7	0	5	H6

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QUALITY CONTROL DATA

Project: TEC CCR Groundwater
Pace Project No.: 60226095

QC Batch: 445543 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60226095001, 60226095002, 60226095003, 60226095004, 60226095005

METHOD BLANK: 1821465 Matrix: Water
Associated Lab Samples: 60226095001, 60226095002, 60226095003, 60226095004, 60226095005

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 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.64	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: TEC CCR Groundwater
Pace Project No.: 60226095

QC Batch: 445717 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60226095001, 60226095002, 60226095003, 60226095004, 60226095005

METHOD BLANK: 1822153 Matrix: Water
Associated Lab Samples: 60226095001, 60226095002, 60226095003, 60226095004, 60226095005

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 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Sample: MW-4-081716 **Lab ID: 60226095001** Collected: 08/17/16 13:41 Received: 08/19/16 16:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.230 ± 0.351 (0.565) C:NA T:82%**	pCi/L	09/13/16 23:35	13982-63-3	
Radium-228	EPA 904.0	**1.69 ± 0.510 (0.624) C:73% T:81%**	pCi/L	09/10/16 02:04	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Sample: MW-6-081716 **Lab ID: 60226095002** Collected: 08/17/16 15:17 Received: 08/19/16 16:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.143 ± 0.396 (0.768) C:NA T:86%**	pCi/L	09/13/16 23:24	13982-63-3	
Radium-228	EPA 904.0	**0.541 ± 0.333 (0.602) C:77% T:78%**	pCi/L	09/10/16 02:22	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Sample: MW-1-081816 **Lab ID: 60226095003** Collected: 08/18/16 09:53 Received: 08/19/16 16:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.208 ± 0.317 (0.510) C:NA T:92%**	pCi/L	09/13/16 23:36	13982-63-3	
Radium-228	EPA 904.0	**0.350 ± 0.268 (0.513) C:80% T:89%**	pCi/L	09/10/16 02:04	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Sample: MW-5-081816 **Lab ID: 60226095004** Collected: 08/18/16 13:33 Received: 08/19/16 16:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.428 ± 0.394 (0.232) C:NA T:90%**	pCi/L	09/16/16 15:04	13982-63-3	
Radium-228	EPA 904.0	**0.612 ± 0.393 (0.740) C:69% T:91%**	pCi/L	09/12/16 12:36	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Sample: DUP-081816 **Lab ID: 60226095005** Collected: 08/18/16 12:15 Received: 08/19/16 16:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.182 ± 0.417 (0.671) C:NA T:86%**	pCi/L	09/16/16 21:53	13982-63-3	
Radium-228	EPA 904.0	**0.400 ± 0.387 (0.796) C:79% T:83%**	pCi/L	09/12/16 12:36	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR Groundwater
Pace Project No.: 60226095

QC Batch: 231992 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60226095001, 60226095002, 60226095003

METHOD BLANK: 1136737 Matrix: Water
Associated Lab Samples: 60226095001, 60226095002, 60226095003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.245 ± 0.341 (0.570) C:NA T:96%	pCi/L	09/13/16 22:43	

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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(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR Groundwater
Pace Project No.: 60226095

QC Batch: 232072 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60226095004, 60226095005

METHOD BLANK: 1137185 Matrix: Water
Associated Lab Samples: 60226095004, 60226095005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.258 ± 0.297 (0.622) C:77% T:94%	pCi/L	09/12/16 12:37	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR Groundwater
Pace Project No.: 60226095

QC Batch: 231993 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60226095001, 60226095002, 60226095003

METHOD BLANK: 1136739 Matrix: Water
Associated Lab Samples: 60226095001, 60226095002, 60226095003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.693 ± 0.333 (0.567) C:79% T:89%	pCi/L	09/10/16 02:02	

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

Pace Analytical Services, Inc.
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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR Groundwater
Pace Project No.: 60226095

QC Batch: 232070 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60226095004, 60226095005

METHOD BLANK: 1137184 Matrix: Water
Associated Lab Samples: 60226095004, 60226095005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.235 ± 0.359 (0.577) C:NA T:95%	pCi/L	09/16/16 15:07	

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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(913)599-5665

QUALIFIERS

Project: TEC CCR Groundwater
Pace Project No.: 60226095

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.

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60226095001	**MW-4-081716**	EPA 200.7	443713	EPA 200.7	443793
60226095002	**MW-6-081716**	EPA 200.7	443713	EPA 200.7	443793
60226095003	**MW-1-081816**	EPA 200.7	443713	EPA 200.7	443793
60226095004	**MW-5-081816**	EPA 200.7	443713	EPA 200.7	443793
60226095005	**DUP-081816**	EPA 200.7	443713	EPA 200.7	443793
60226095001	**MW-4-081716**	EPA 200.8	443719	EPA 200.8	443796
60226095002	**MW-6-081716**	EPA 200.8	443719	EPA 200.8	443796
60226095003	**MW-1-081816**	EPA 200.8	443719	EPA 200.8	443796
60226095004	**MW-5-081816**	EPA 200.8	443719	EPA 200.8	443796
60226095005	**DUP-081816**	EPA 200.8	443719	EPA 200.8	443796
60226095001	**MW-4-081716**	EPA 245.1	443695	EPA 245.1	443783
60226095002	**MW-6-081716**	EPA 245.1	443695	EPA 245.1	443783
60226095003	**MW-1-081816**	EPA 245.1	443695	EPA 245.1	443783
60226095004	**MW-5-081816**	EPA 245.1	443695	EPA 245.1	443783
60226095005	**DUP-081816**	EPA 245.1	443695	EPA 245.1	443783
60226095001	**MW-4-081716**	EPA 903.1	231992		
60226095002	**MW-6-081716**	EPA 903.1	231992		
60226095003	**MW-1-081816**	EPA 903.1	231992		
60226095004	**MW-5-081816**	EPA 903.1	232070		
60226095005	**DUP-081816**	EPA 903.1	232070		
60226095001	**MW-4-081716**	EPA 904.0	231993		
60226095002	**MW-6-081716**	EPA 904.0	231993		
60226095003	**MW-1-081816**	EPA 904.0	231993		
60226095004	**MW-5-081816**	EPA 904.0	232072		
60226095005	**DUP-081816**	EPA 904.0	232072		
60226095001	**MW-4-081716**	SM 2540C	443884		
60226095002	**MW-6-081716**	SM 2540C	443884		
60226095003	**MW-1-081816**	SM 2540C	444157		
60226095004	**MW-5-081816**	SM 2540C	444157		
60226095005	**DUP-081816**	SM 2540C	444157		
60226095001	**MW-4-081716**	SM 4500-H+B	443712		
60226095002	**MW-6-081716**	SM 4500-H+B	443712		
60226095003	**MW-1-081816**	SM 4500-H+B	443712		
60226095004	**MW-5-081816**	SM 4500-H+B	443712		
60226095005	**DUP-081816**	SM 4500-H+B	443712		
60226095001	**MW-4-081716**	EPA 300.0	445543		
60226095001	**MW-4-081716**	EPA 300.0	445717		
60226095002	**MW-6-081716**	EPA 300.0	445543		
60226095002	**MW-6-081716**	EPA 300.0	445717		
60226095003	**MW-1-081816**	EPA 300.0	445543		
60226095003	**MW-1-081816**	EPA 300.0	445717		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR Groundwater
Pace Project No.: 60226095

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60226095004	**MW-5-081816**	EPA 300.0	445543		
60226095004	**MW-5-081816**	EPA 300.0	445717		
60226095005	**DUP-081816**	EPA 300.0	445543		
60226095005	**DUP-081816**	EPA 300.0	445717		

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Sample Condition Upon Receipt

WO# : 60226095

60226095

Client Name: Westar Energy

Optional
Proj Due Date:
Proj Name:

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 (circle one) ☐ Samples received on ice, cooling process has begun.

Cooler Temperature: 4.7

Temperature should be above freezing to 6°C

Date and initials of person examining contents: JB 8/19

Chain of Custody present:	☒Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☒Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☒Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☒Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	6. pH
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	7.
Sufficient volume:	☒Yes ☐No ☐N/A	8.
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	9.
Containers intact:	☒Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☒N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	12.
Sample labels match COC:	☒Yes ☐No ☐N/A	
Includes date/time/ID/analyses Matrix: WT		13.
All containers needing preservation have been checked.	☒Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes ☐No ☐N/A	14.
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	☐Yes ☒No	Initial when completed / Lot # of added preservative
Trip Blank present:	☐Yes ☐No ☒N/A	
Pace Trip Blank lot # (if purchased): _____		15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☒N/A	17. List State:
Additional labels attached to 5035A vials in the field?	☐Yes ☐No ☒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 10:25 am, 8/22/16

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: of

Section A — **Required** Client Information:

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

Section B — **Required** Project Information:

Report To:	Brandon Griffin
Copy To:	Jared Morrison, Heath Hornya
Purchase Order No.:	
Project Name:	TEC CCR Groundwater
Project Number:	

Section C — Invoice Information:

Attention:	Jared Morrison
Company Name:	WESTAR ENERGY
Address:	SEE SECTION A
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson, 913-563-1407
Pace Profile #:	9656, 1

REGULATORY AGENCY

☑ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: KS

Section D — **Required** Client Information

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

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: 200.7 Total Metals*	200.8 Total Metals**	245.1 Total Mercury	300.0 Cl, Fl, SO4	4500 H+B	2540C TDS	Radium 226	Radium 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60226095
1	MW-4-081716	WT	G			8/17/16	1341		4	1		3															001
2	MW-6-081716	WT	G			8/17/16	1517		4	1		3															002
3	MW-1-081816	WT	G			8/18/16	0953		4	1		3															003
4	MW-5-081816	WT	G			8/18/16	1333		4	1		3															004
5																											
6																											
7																											
8																											
9																											
10	DUP-081816	WT	G			8/18/16	1215		4	1		3															005
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*200.7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li	Westar	8/18/16	1622		8/19	1000	4.7	Y	Y	Y
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brandon Griffin

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 08/18/16

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Chain of Custody

WO# : 30193962

Pace Analytical®
www.pacelabs.com

Workorder: 60226095 **Workorder Name:** TEC CCR Groundwater **Owner R[illegible]d By:** 9/13/2016

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

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: BP1N	Requested Analysis: Radium 226 & 228	LAB USE ONLY
1	MW-4-081716	PS	8/17/2016 13:41	60226095001	Water	2	X	001
2	MW-6-081716	PS	8/17/2016 15:17	60226095002	Water	2	X	002
3	MW-1-081816	PS	8/18/2016 09:53	60226095003	Water	2	X	003
4	MW-5-081816	PS	8/18/2016 13:33	60226095004	Water	2	X	004
5	DUP-081816	PS	8/18/2016 12:15	60226095005	Water	2	X	005

Transfers	Released By	Date/Time	Received	Date/Time
1	[signature]	8/22/16 0700	[signature]	8-23-16 0940
2				
3				

Comments

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

30193962

Pace Analytical

Client Name: Pace KS Project #

Courier: [X] Fed Ex [ ] UPS [ ] USPS [ ] Client [ ] Commercial [ ] Pace Other

Tracking #: 670316479358

Custody Seal on Cooler/Box Present: [ ] yes [X] 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: NJV 8-23-16

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: WT				
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			
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed NJV / 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: NJV / Date: 8-23-16

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

October 14, 2016

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

RE: Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Dear Brandon Griffin:
Enclosed are the analytical results for sample(s) received by the laboratory on September 21, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Colleen Clyne 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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

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SAMPLE SUMMARY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60228265001	**MW-4-092016**	Water	09/20/16 07:56	09/21/16 16:40
60228265002	**MW-5-092016**	Water	09/20/16 09:11	09/21/16 16:40
60228265003	**MW-6-092016**	Water	09/20/16 10:32	09/21/16 16:40
60228265004	**MW-1-092016**	Water	09/20/16 12:37	09/21/16 16:40
60228265005	**MW-7-092016**	Water	09/20/16 13:36	09/21/16 16:40
60228265006	**DUP-092016**	Water	09/20/16 07:00	09/21/16 16:40

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SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60228265001	**MW-4-092016**	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	LDB	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60228265002	**MW-5-092016**	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	LDB	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60228265003	**MW-6-092016**	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	LDB	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60228265004	**MW-1-092016**	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	LDB	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60228265005	**MW-7-092016**	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

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SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2540C	LDB	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60228265006	**DUP-092016**	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	LDB	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K

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PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: WESTAR ENERGY
Date: October 14, 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: 447700

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60228263003,60228265003

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

- MS (Lab ID: 1831373)
  - Calcium

Additional Comments:

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PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: WESTAR ENERGY
Date: October 14, 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:

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PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Method: **EPA 245.1**
Description: 245.1 Mercury
Client: WESTAR ENERGY
Date: October 14, 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:

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PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: WESTAR ENERGY
Date: October 14, 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: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: WESTAR ENERGY
Date: October 14, 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: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: WESTAR ENERGY
Date: October 14, 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: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: WESTAR ENERGY
Date: October 14, 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-092016 (Lab ID: 60228265006)
- MW-1-092016 (Lab ID: 60228265004)
- MW-4-092016 (Lab ID: 60228265001)
- MW-5-092016 (Lab ID: 60228265002)
- MW-6-092016 (Lab ID: 60228265003)
- MW-7-092016 (Lab ID: 60228265005)

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: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: WESTAR ENERGY
Date: October 14, 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: 450555

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

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

- MS (Lab ID: 1843631)
  - Chloride
- MSD (Lab ID: 1843632)
  - Chloride

Additional Comments:

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

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Sample: MW-4-092016 **Lab ID: 60228265001** Collected: 09/20/16 07:56 Received: 09/21/16 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.13**	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:22	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	09/28/16 17:22	7440-41-7	
Boron, Total Recoverable	**<0.10**	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:22	7440-42-8	
Calcium, Total Recoverable	**176**	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:22	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:22	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:22	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:22	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:39	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:39	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	09/23/16 12:00	10/10/16 13:39	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:39	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:39	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:39	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:39	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	09/26/16 13:00	09/27/16 08:53	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1080**	mg/L	5.0	1		09/25/16 20:31		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		09/27/16 12:40		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**271**	mg/L	20.0	20		10/14/16 10:35	16887-00-6	M1
Fluoride	**0.24**	mg/L	0.20	1		10/14/16 00:48	16984-48-8	
Sulfate	**141**	mg/L	20.0	20		10/14/16 10:35	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Sample: MW-5-092016 **Lab ID: 60228265002** Collected: 09/20/16 09:11 Received: 09/21/16 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.033**	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:24	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	09/28/16 17:24	7440-41-7	
Boron, Total Recoverable	**1.2**	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:24	7440-42-8	
Calcium, Total Recoverable	**291**	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:24	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:24	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:24	7439-92-1	
Lithium	**0.019**	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:24	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:43	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:43	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	09/23/16 12:00	10/10/16 13:43	7440-43-9	
Cobalt, Total Recoverable	**0.0018**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:43	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:43	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:43	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:43	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	09/26/16 13:00	09/27/16 09:00	7439-97-6	M1
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1690**	mg/L	5.0	1		09/25/16 20:32		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		09/28/16 10:55		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**49.3**	mg/L	5.0	5		10/14/16 11:46	16887-00-6	
Fluoride	**0.28**	mg/L	0.20	1		10/14/16 01:02	16984-48-8	
Sulfate	**868**	mg/L	100	100		10/14/16 12:01	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Sample: MW-6-092016 **Lab ID: 60228265003** Collected: 09/20/16 10:32 Received: 09/21/16 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.034**	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:26	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	09/28/16 17:26	7440-41-7	
Boron, Total Recoverable	**1.1**	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:26	7440-42-8	
Calcium, Total Recoverable	**276**	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:26	7440-70-2	M1
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:26	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:26	7439-92-1	
Lithium	**0.017**	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:26	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:47	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:47	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	09/23/16 12:00	10/10/16 13:47	7440-43-9	
Cobalt, Total Recoverable	**0.0033**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:47	7440-48-4	
Molybdenum, Total Recoverable	**0.0014**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:47	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:47	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:47	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	09/26/16 13:00	09/27/16 09:08	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1690**	mg/L	5.0	1		09/25/16 20:32		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		09/28/16 10:55		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**64.3**	mg/L	5.0	5		10/14/16 12:15	16887-00-6	
Fluoride	**0.31**	mg/L	0.20	1		10/14/16 01:16	16984-48-8	
Sulfate	**857**	mg/L	100	100		10/14/16 12:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Sample: MW-1-092016 **Lab ID: 60228265004** Collected: 09/20/16 12:37 Received: 09/21/16 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.12**	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:31	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	09/28/16 17:31	7440-41-7	
Boron, Total Recoverable	**0.15**	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:31	7440-42-8	
Calcium, Total Recoverable	**158**	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:31	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:31	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:31	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:31	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:52	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:52	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	09/23/16 12:00	10/10/16 13:52	7440-43-9	
Cobalt, Total Recoverable	**0.0054**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:52	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:52	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:52	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:52	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	09/26/16 13:00	09/27/16 09:11	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**913**	mg/L	5.0	1		09/25/16 20:32		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		09/28/16 10:55		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**39.3**	mg/L	5.0	5		10/14/16 10:19	16887-00-6	
Fluoride	**0.36**	mg/L	0.20	1		10/14/16 01:30	16984-48-8	
Sulfate	**359**	mg/L	50.0	50		10/14/16 10:33	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Sample: MW-7-092016 **Lab ID: 60228265005** Collected: 09/20/16 13:36 Received: 09/21/16 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.079**	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:33	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	09/28/16 17:33	7440-41-7	
Boron, Total Recoverable	**0.75**	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:33	7440-42-8	
Calcium, Total Recoverable	**146**	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:33	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:33	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:33	7439-92-1	
Lithium	**0.024**	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:33	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 14:00	7440-36-0	
Arsenic, Total Recoverable	**0.0015**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 14:00	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	09/23/16 12:00	10/10/16 14:00	7440-43-9	
Cobalt, Total Recoverable	**0.0019**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 14:00	7440-48-4	
Molybdenum, Total Recoverable	**0.012**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 14:00	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 14:00	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 14:00	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	09/26/16 13:00	09/27/16 09:13	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1110**	mg/L	5.0	1		09/25/16 20:33		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		09/28/16 10:55		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**187**	mg/L	20.0	20		10/14/16 11:16	16887-00-6	
Fluoride	**0.32**	mg/L	0.20	1		10/14/16 01:44	16984-48-8	
Sulfate	**466**	mg/L	50.0	50		10/14/16 11:30	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Sample: DUP-092016 **Lab ID: 60228265006** Collected: 09/20/16 07:00 Received: 09/21/16 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.032**	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:36	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	09/28/16 17:36	7440-41-7	
Boron, Total Recoverable	**1.1**	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:36	7440-42-8	
Calcium, Total Recoverable	**280**	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:36	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:36	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:36	7439-92-1	
Lithium	**0.015**	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:36	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 14:13	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 14:13	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	09/23/16 12:00	10/10/16 14:13	7440-43-9	
Cobalt, Total Recoverable	**0.0032**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 14:13	7440-48-4	
Molybdenum, Total Recoverable	**0.0014**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 14:13	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 14:13	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	09/23/16 12:00	10/10/16 14:13	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	09/26/16 13:00	09/27/16 09:15	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1700**	mg/L	5.0	1		09/25/16 20:34		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		09/27/16 12:40		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**63.3**	mg/L	5.0	5		10/14/16 11:58	16887-00-6	
Fluoride	**0.35**	mg/L	0.20	1		10/14/16 11:44	16984-48-8	
Sulfate	**869**	mg/L	100	100		10/14/16 12:12	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

QC Batch: 447972 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006

METHOD BLANK: 1832810 Matrix: Water
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006

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 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	0.0056	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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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

QC Batch: 447700 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006

METHOD BLANK: 1831369 Matrix: Water
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	09/28/16 16:44	
Beryllium	mg/L	<0.0010	0.0010	09/28/16 16:44	
Boron	mg/L	<0.10	0.10	09/28/16 16:44	
Calcium	mg/L	<0.10	0.10	09/28/16 16:44	
Chromium	mg/L	<0.0050	0.0050	09/28/16 16:44	
Lead	mg/L	<0.0050	0.0050	09/28/16 16:44	
Lithium	mg/L	<0.010	0.010	09/28/16 16:44	

LABORATORY CONTROL SAMPLE: 1831370

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	101	85-115	
Beryllium	mg/L	1	1.0	102	85-115	
Boron	mg/L	1	1.0	100	85-115	
Calcium	mg/L	10	10.2	102	85-115	
Chromium	mg/L	1	1.0	103	85-115	
Lead	mg/L	1	1.0	102	85-115	
Lithium	mg/L	1	1.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1831371 1831372

Parameter	Units	60228263003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.058	1	1	1.1	1.1	102	100	70-130	1	20	
Beryllium	mg/L	<0.0010	1	1	1.0	1.0	104	102	70-130	2	20	
Boron	mg/L	1.3	1	1	2.4	2.4	108	105	70-130	1	20	
Calcium	mg/L	217	10	10	229	228	119	116	70-130	0	20	
Chromium	mg/L	<0.0050	1	1	1.0	1.0	104	102	70-130	2	20	
Lead	mg/L	<0.0050	1	1	0.98	0.97	98	97	70-130	1	20	
Lithium	mg/L	0.020	1	1	1.1	1.0	104	102	70-130	2	20	

MATRIX SPIKE SAMPLE: 1831373

Parameter	Units	60228265003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.034	1	1.0	100	70-130	
Beryllium	mg/L	<0.0010	1	1.0	101	70-130	
Boron	mg/L	1.1	1	2.2	111	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

MATRIX SPIKE SAMPLE: 1831373

Parameter	Units	60228265003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	276	10	307	306	70-130	M1
Chromium	mg/L	<0.0050	1	1.0	102	70-130	
Lead	mg/L	<0.0050	1	0.97	97	70-130	
Lithium	mg/L	0.017	1	1.0	103	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

QC Batch: 447701 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006

METHOD BLANK: 1831374 Matrix: Water
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	10/10/16 12:29	
Arsenic	mg/L	<0.0010	0.0010	10/10/16 12:29	
Cadmium	mg/L	<0.00050	0.00050	10/10/16 12:29	
Cobalt	mg/L	<0.0010	0.0010	10/10/16 12:29	
Molybdenum	mg/L	<0.0010	0.0010	10/10/16 12:29	
Selenium	mg/L	<0.0010	0.0010	10/10/16 12:29	
Thallium	mg/L	<0.0010	0.0010	10/10/16 12:29	

LABORATORY CONTROL SAMPLE: 1831375

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.040	99	85-115	
Arsenic	mg/L	.04	0.040	101	85-115	
Cadmium	mg/L	.04	0.040	101	85-115	
Cobalt	mg/L	.04	0.040	101	85-115	
Molybdenum	mg/L	.04	0.042	105	85-115	
Selenium	mg/L	.04	0.040	101	85-115	
Thallium	mg/L	.04	0.039	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1831376 1831377

Parameter	Units	60228264001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	<0.0010	.04	.04	0.040	0.041	99	102	70-130	2	20	
Arsenic	mg/L	<0.0010	.04	.04	0.040	0.040	99	101	70-130	2	20	
Cadmium	mg/L	<0.00050	.04	.04	0.039	0.039	98	98	70-130	1	20	
Cobalt	mg/L	<0.0010	.04	.04	0.038	0.038	94	94	70-130	0	20	
Molybdenum	mg/L	<0.0010	.04	.04	0.044	0.044	109	110	70-130	2	20	
Selenium	mg/L	<0.0010	.04	.04	0.038	0.039	96	96	70-130	0	20	
Thallium	mg/L	<0.0010	.04	.04	0.041	0.041	101	102	70-130	0	20	

MATRIX SPIKE SAMPLE: 1831378

Parameter	Units	60228265004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<0.0010	.04	0.040	99	70-130	
Arsenic	mg/L	<0.0010	.04	0.040	100	70-130	
Cadmium	mg/L	<0.00050	.04	0.040	99	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

MATRIX SPIKE SAMPLE: 1831378

Parameter	Units	60228265004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	0.0054	.04	0.042	92	70-130	
Molybdenum	mg/L	<0.0010	.04	0.045	112	70-130	
Selenium	mg/L	<0.0010	.04	0.040	100	70-130	
Thallium	mg/L	<0.0010	.04	0.041	104	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

QC Batch: 447881 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006

METHOD BLANK: 1832511 Matrix: Water
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	09/25/16 20:25	

LABORATORY CONTROL SAMPLE: 1832512

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1050	105	80-120	

SAMPLE DUPLICATE: 1832513

Parameter	Units	60228264001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	497	496	0	10	

SAMPLE DUPLICATE: 1832514

Parameter	Units	60228265004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	913	912	0	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

QC Batch: 448150 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60228265001, 60228265006

SAMPLE DUPLICATE: 1833401

Parameter	Units	60228264005 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.5	7.6	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

QC Batch: 448294 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60228265002, 60228265003, 60228265004, 60228265005

SAMPLE DUPLICATE: 1833942

Parameter	Units	60228265002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	7.0	1	5	H6

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

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

QC Batch: 450241 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005

METHOD BLANK: 1842319 Matrix: Water
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	10/13/16 18:26	

LABORATORY CONTROL SAMPLE: 1842320

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: 1842321 1842322

Parameter	Units	60228263001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.44	2.5	2.5	3.0	3.1	105	108	80-120	3	15	

MATRIX SPIKE SAMPLE: 1842323

Parameter	Units	60228264001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.23	2.5	2.9	105	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

QC Batch: 450555 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60228265001, 60228265002, 60228265003

METHOD BLANK: 1843629 Matrix: Water
Associated Lab Samples: 60228265001, 60228265002, 60228265003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	10/14/16 08:42	
Sulfate	mg/L	<1.0	1.0	10/14/16 08:42	

LABORATORY CONTROL SAMPLE: 1843630

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.5	91	90-110	
Sulfate	mg/L	5	4.9	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1843631 1843632

Parameter	Units	60228265001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	271	100	100	398	392	127	121	80-120	1	15	M1
Sulfate	mg/L	141	100	100	254	252	113	111	80-120	1	15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

QC Batch: 450558 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60228265004, 60228265005, 60228265006

METHOD BLANK: 1843633 Matrix: Water
Associated Lab Samples: 60228265004, 60228265005, 60228265006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	10/14/16 08:42	
Fluoride	mg/L	<0.20	0.20	10/14/16 08:42	
Sulfate	mg/L	<1.0	1.0	10/14/16 08:42	

LABORATORY CONTROL SAMPLE: 1843634

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	93	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	5	5.0	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1843635 1843636

Parameter	Units	60228264005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	95.5	50	50	153	154	116	116	80-120	0	15	

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Sample: MW-4-092016 **Lab ID: 60228265001** Collected: 09/20/16 07:56 Received: 09/21/16 16:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.665 ± 0.564 (0.699) C:NA T:85%**	pCi/L	10/07/16 11:38	13982-63-3	
Radium-228	EPA 904.0	**1.79 ± 0.501 (0.530) C:70% T:88%**	pCi/L	10/06/16 20:04	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Sample: MW-5-092016 **Lab ID: 60228265002** Collected: 09/20/16 09:11 Received: 09/21/16 16:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.498 ± 0.519 (0.732) C:NA T:86%**	pCi/L	10/07/16 11:49	13982-63-3	
Radium-228	EPA 904.0	**0.575 ± 0.352 (0.632) C:67% T:83%**	pCi/L	10/06/16 20:18	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Sample: MW-6-092016 **Lab ID: 60228265003** Collected: 09/20/16 10:32 Received: 09/21/16 16:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.401 (0.817) C:NA T:92%**	pCi/L	10/07/16 11:51	13982-63-3	
Radium-228	EPA 904.0	**0.353 ± 0.368 (0.742) C:73% T:79%**	pCi/L	10/06/16 20:04	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Sample: MW-1-092016 **Lab ID: 60228265004** Collected: 09/20/16 12:37 Received: 09/21/16 16:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.660 ± 0.495 (0.256) C:NA T:87%**	pCi/L	10/07/16 11:52	13982-63-3	
Radium-228	EPA 904.0	**1.12 ± 0.478 (0.753) C:58% T:83%**	pCi/L	10/06/16 20:04	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Sample: MW-7-092016 **Lab ID: 60228265005** Collected: 09/20/16 13:36 Received: 09/21/16 16:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**5.46 ± 1.61 (1.24) C:NA T:87%**	pCi/L	10/07/16 12:01	13982-63-3	
Radium-228	EPA 904.0	**0.420 ± 0.375 (0.731) C:61% T:75%**	pCi/L	10/06/16 20:19	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Sample: DUP-092016 **Lab ID: 60228265006** Collected: 09/20/16 07:00 Received: 09/21/16 16:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.166 ± 0.461 (0.895) C:NA T:95%**	pCi/L	10/07/16 12:01	13982-63-3	
Radium-228	EPA 904.0	**0.435 ± 0.304 (0.568) C:78% T:81%**	pCi/L	10/06/16 20:05	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

QC Batch: 234946 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006

METHOD BLANK: 1152992 Matrix: Water
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.876 ± 0.397 (0.651) C:72% T:83%	pCi/L	10/06/16 20:17	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

QC Batch: 234935 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006

METHOD BLANK: 1152976 Matrix: Water
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.423 (0.683) C:NA T:89%	pCi/L	10/07/16 11:21	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

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.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60228265001	**MW-4-092016**	EPA 200.7	447700	EPA 200.7	447802
60228265002	**MW-5-092016**	EPA 200.7	447700	EPA 200.7	447802
60228265003	**MW-6-092016**	EPA 200.7	447700	EPA 200.7	447802
60228265004	**MW-1-092016**	EPA 200.7	447700	EPA 200.7	447802
60228265005	**MW-7-092016**	EPA 200.7	447700	EPA 200.7	447802
60228265006	**DUP-092016**	EPA 200.7	447700	EPA 200.7	447802
60228265001	**MW-4-092016**	EPA 200.8	447701	EPA 200.8	447804
60228265002	**MW-5-092016**	EPA 200.8	447701	EPA 200.8	447804
60228265003	**MW-6-092016**	EPA 200.8	447701	EPA 200.8	447804
60228265004	**MW-1-092016**	EPA 200.8	447701	EPA 200.8	447804
60228265005	**MW-7-092016**	EPA 200.8	447701	EPA 200.8	447804
60228265006	**DUP-092016**	EPA 200.8	447701	EPA 200.8	447804
60228265001	**MW-4-092016**	EPA 245.1	447972	EPA 245.1	448022
60228265002	**MW-5-092016**	EPA 245.1	447972	EPA 245.1	448022
60228265003	**MW-6-092016**	EPA 245.1	447972	EPA 245.1	448022
60228265004	**MW-1-092016**	EPA 245.1	447972	EPA 245.1	448022
60228265005	**MW-7-092016**	EPA 245.1	447972	EPA 245.1	448022
60228265006	**DUP-092016**	EPA 245.1	447972	EPA 245.1	448022
60228265001	**MW-4-092016**	EPA 903.1	234935		
60228265002	**MW-5-092016**	EPA 903.1	234935		
60228265003	**MW-6-092016**	EPA 903.1	234935		
60228265004	**MW-1-092016**	EPA 903.1	234935		
60228265005	**MW-7-092016**	EPA 903.1	234935		
60228265006	**DUP-092016**	EPA 903.1	234935		
60228265001	**MW-4-092016**	EPA 904.0	234946		
60228265002	**MW-5-092016**	EPA 904.0	234946		
60228265003	**MW-6-092016**	EPA 904.0	234946		
60228265004	**MW-1-092016**	EPA 904.0	234946		
60228265005	**MW-7-092016**	EPA 904.0	234946		
60228265006	**DUP-092016**	EPA 904.0	234946		
60228265001	**MW-4-092016**	SM 2540C	447881		
60228265002	**MW-5-092016**	SM 2540C	447881		
60228265003	**MW-6-092016**	SM 2540C	447881		
60228265004	**MW-1-092016**	SM 2540C	447881		
60228265005	**MW-7-092016**	SM 2540C	447881		
60228265006	**DUP-092016**	SM 2540C	447881		
60228265001	**MW-4-092016**	SM 4500-H+B	448150		
60228265002	**MW-5-092016**	SM 4500-H+B	448294		
60228265003	**MW-6-092016**	SM 4500-H+B	448294		
60228265004	**MW-1-092016**	SM 4500-H+B	448294		
60228265005	**MW-7-092016**	SM 4500-H+B	448294		
60228265006	**DUP-092016**	SM 4500-H+B	448150		
60228265001	**MW-4-092016**	EPA 300.0	450241		
60228265001	**MW-4-092016**	EPA 300.0	450555		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60228265

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60228265002	**MW-5-092016**	EPA 300.0	450241		
60228265002	**MW-5-092016**	EPA 300.0	450555		
60228265003	**MW-6-092016**	EPA 300.0	450241		
60228265003	**MW-6-092016**	EPA 300.0	450555		
60228265004	**MW-1-092016**	EPA 300.0	450241		
60228265004	**MW-1-092016**	EPA 300.0	450558		
60228265005	**MW-7-092016**	EPA 300.0	450241		
60228265005	**MW-7-092016**	EPA 300.0	450558		
60228265006	**DUP-092016**	EPA 300.0	450558		

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Sample Condition Upon Receipt

WO# : 60228265

60228265

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: CF +1.1 / CF -0.1 T-266 / T-239 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): As-read 4.1/2.2 **Corr. Factor** CF +1.1 CF -0.1 **Corrected** 4.0/2.1

Date and initials of person examining contents: 9/21/16

Temperature should be above freezing to 6°C

Chain of Custody present:	☐Yes ☐No ☐N/A	
Chain of Custody relinquished:	☐Yes ☐No ☐N/A	
Samples arrived within holding time:	☐Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☐No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☐No ☐N/A	
Sufficient volume:	☐Yes ☐No ☐N/A	
Correct containers used:	☐Yes ☐No ☐N/A	
Pace containers used:	☐Yes ☐No ☐N/A	
Containers intact:	☐Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☐N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☐Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☐No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☐Yes ☐No ☐N/A	
Cyanide water sample checks: ☐ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☐N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☐N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☐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: 9/22/16

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A — **Required** Client Information:

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

Section B — **Required** Project Information:

Report To:	Brandon Griffin
Copy To:	Jared Morrison, Heath Hornya
Purchase Order No.:	
Project Name:	TEC CCR Groundwater
Project Number:	

Section C — Invoice Information:

Attention:	Jared Morrison
Company Name:	WESTAR ENERGY
Address:	SEE SECTION A
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson, 913-563-1407
Pace Profile #:	9656, 1

REGULATORY AGENCY

☑ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: KS

Section D — **Required** Client Information

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

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	200.7 Total Metals*	200.8 Total Metals**	245.1 Total Mercury	300.0 Cl, Fl, SO_4	4500 H+B	2540C TDS	Radium 226	Radium 228		Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-4-092016	WT	G			9/20/16	0756		4	1		3															001		60228265
2	MW-5-092016	WT	G			9/20/16	0911		4	1		3															002		2(BP1N) BB2N, BB2U
3	MW-6-092016	WT	G			9/20/16	1032		4	1		3															003		2-4 2-0
4	MW-1-092016	WT	G			9/20/16	1237		4	1		3															004		
5	MW-7-092016	WT	G			9/20/16	1336		4	1		3															005		
6																													
7																													
8																													
9																													
10																													
11																													
12	Dup-092016	WT	G			9/20/16	0700		4	1		3															006		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
*200.7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li	/westar	9/20/16	1500	MCL/PACE	9/21/16	1640	4.0
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl							2.1

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brandon Griffin

SIGNATURE of SAMPLER: _____ DATE Signed (MM/DD/YY): 09/20/16

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Chain of Custody

WO#:30196935

30196935

Pace Analytical®
www.pacelabs.com

Workorder: 60228265 **Workorder Name:** TEC CCR GROUNDWATER **Owner Received Date:** 9/21/2016 **Results Requested By:** 10/14/2016

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

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: BP1N	Requested Analysis: Radium 226 & 228	LAB USE ONLY
1	MW-4-092016	PS	9/20/2016 07:56	60228265001	Water	2	X	001
2	MW-5-092016	PS	9/20/2016 09:11	60228265002	Water	2	X	002
3	MW-6-092016	PS	9/20/2016 10:32	60228265003	Water	2	X	003
4	MW-1-092016	PS	9/20/2016 12:37	60228265004	Water	2	X	004
5	MW-7-092016	PS	9/20/2016 13:36	60228265005	Water	2	X	005
6	DUP-092016	PS	9/20/2016 07:00	60228265006	Water	2	X	006

Transfers	Released By	Date/Time	Received	Date/Time
1		9/20/16 1700		9-23-16 1030
2				
3				

Comments

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

Pace Analytical

Client Name: Pace KS

Project # 30196935

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 704466538647

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: NTV 9-23-16

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: -Includes date/time/ID/Analysis Matrix: WT	X			5.
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. pH<2
All containers needing preservation are found to be in compliance with EPA recommendation. exceptions: VOA, coliform, TOC, O&G, Phenolics	X			Initial when completed NTV 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: NTV Date: 9-23-16

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

December 01, 2016

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

RE: Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Dear Brandon Griffin:
Enclosed are the analytical results for sample(s) received by the laboratory on November 02, 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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

Pace Analytical Services, LLC
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(913)599-5665

SAMPLE SUMMARY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60231381001	**MW-4-110116**	Water	11/01/16 08:11	11/02/16 16:16
60231381002	**MW-5-110116**	Water	11/01/16 09:23	11/02/16 16:16
60231381003	**MW-6-110116**	Water	11/01/16 11:04	11/02/16 16:16
60231381004	**MW-1-110116**	Water	11/01/16 12:34	11/02/16 16:16
60231381005	**MW-7-110116**	Water	11/01/16 13:41	11/02/16 16:16
60231381006	**MW-10-110116**	Water	11/02/16 08:05	11/02/16 16:16
60231381007	**MW-9-110116**	Water	11/02/16 09:32	11/02/16 16:16
60231381008	**MW-8-110116**	Water	11/02/16 11:26	11/02/16 16:16
60231381009	**DUP-110116**	Water	11/01/16 06:00	11/02/16 16:16

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SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60231381001	**MW-4-110116**	EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	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	OL, RAB	3	PASI-K
60231381002	**MW-5-110116**	EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	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	OL, RAB	3	PASI-K
60231381003	**MW-6-110116**	EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	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	OL, RAB	3	PASI-K
60231381004	**MW-1-110116**	EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	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	OL, RAB	3	PASI-K
60231381005	**MW-7-110116**	EPA 200.7	NDJ	7	PASI-K

Pace Analytical Services, LLC
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SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 200.8	SMW	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	OL, RAB	3	PASI-K
60231381006	**MW-10-110116**	EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	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	OL, RAB	3	PASI-K
60231381007	**MW-9-110116**	EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	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	OL, RAB	3	PASI-K
60231381008	**MW-8-110116**	EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	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	OL, RAB	3	PASI-K
60231381009	**DUP-110116**	EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	7	PASI-K

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SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		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	OL, RAB	3	PASI-K

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PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: WESTAR ENERGY
Date: December 01, 2016

General Information:
9 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: 453405

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60231381001

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

- MS (Lab ID: 1855991)
  - Calcium

Additional Comments:

Pace Analytical Services, LLC
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(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: WESTAR ENERGY
Date: December 01, 2016

General Information:
9 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:

Pace Analytical Services, LLC
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Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Method: **EPA 245.1**
Description: 245.1 Mercury
Client: WESTAR ENERGY
Date: December 01, 2016

General Information:
9 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: 455023

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60231979001,60232004006

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

- MS (Lab ID: 1863357)
  - Mercury
- MS (Lab ID: 1863359)
  - Mercury
- MSD (Lab ID: 1863358)
  - Mercury

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: WESTAR ENERGY
Date: December 01, 2016

General Information:
9 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: WESTAR ENERGY
Date: December 01, 2016

General Information:
9 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: WESTAR ENERGY
Date: December 01, 2016

General Information:
9 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: WESTAR ENERGY
Date: December 01, 2016

General Information:
9 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: WESTAR ENERGY
Date: December 01, 2016

General Information:
9 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-110116 (Lab ID: 60231381009)
- MW-1-110116 (Lab ID: 60231381004)
- MW-10-110116 (Lab ID: 60231381006)
- MW-4-110116 (Lab ID: 60231381001)
- MW-5-110116 (Lab ID: 60231381002)
- MW-6-110116 (Lab ID: 60231381003)
- MW-7-110116 (Lab ID: 60231381005)
- MW-8-110116 (Lab ID: 60231381008)
- MW-9-110116 (Lab ID: 60231381007)

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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: WESTAR ENERGY
Date: December 01, 2016

General Information:
9 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: 456102

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60231381001,60231381002

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

- MS (Lab ID: 1867496)
  - Fluoride

QC Batch: 456593

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60231381001,60232075006

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

- MS (Lab ID: 1869587)
  - Chloride
- MSD (Lab ID: 1869588)
  - Chloride

Additional Comments:

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

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-4-110116 **Lab ID: 60231381001** Collected: 11/01/16 08:11 Received: 11/02/16 16:16 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.12**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:41	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/03/16 05:45	11/07/16 18:41	7440-41-7	
Boron, Total Recoverable	**<0.10**	mg/L	0.10	1	11/03/16 05:45	11/07/16 18:41	7440-42-8	
Calcium, Total Recoverable	**180**	mg/L	0.10	1	11/03/16 05:45	11/07/16 18:41	7440-70-2	M1
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:41	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:41	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	11/03/16 05:45	11/07/16 18:41	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:17	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:17	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	11/05/16 10:30	11/13/16 00:17	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:17	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:17	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:17	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:17	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	11/15/16 08:30	11/16/16 12:03	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1060**	mg/L	5.0	1		11/04/16 12:04		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		11/08/16 16:19		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**251**	mg/L	25.0	25		11/28/16 13:20	16887-00-6	M1
Fluoride	**0.23**	mg/L	0.20	1		11/22/16 13:20	16984-48-8	M1
Sulfate	**128**	mg/L	25.0	25		11/28/16 13:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-5-110116 **Lab ID: 60231381002** Collected: 11/01/16 09:23 Received: 11/02/16 16:16 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.030**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:48	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/03/16 05:45	11/07/16 18:48	7440-41-7	
Boron, Total Recoverable	**1.2**	mg/L	0.10	1	11/03/16 05:45	11/07/16 18:48	7440-42-8	
Calcium, Total Recoverable	**316**	mg/L	0.10	1	11/03/16 05:45	11/07/16 18:48	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:48	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:48	7439-92-1	
Lithium	**0.022**	mg/L	0.010	1	11/03/16 05:45	11/07/16 18:48	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:40	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:40	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	11/05/16 10:30	11/13/16 00:40	7440-43-9	
Cobalt, Total Recoverable	**0.0021**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:40	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:40	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:40	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:40	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	11/15/16 08:30	11/16/16 12:06	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1810**	mg/L	5.0	1		11/04/16 12:05		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		11/08/16 16:19		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**45.3**	mg/L	5.0	5		11/28/16 14:06	16887-00-6	
Fluoride	**0.33**	mg/L	0.20	1		11/22/16 14:06	16984-48-8	
Sulfate	**1020**	mg/L	100	100		11/28/16 14:22	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-6-110116 **Lab ID: 60231381003** Collected: 11/01/16 11:04 Received: 11/02/16 16:16 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.029**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:50	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/03/16 05:45	11/07/16 18:50	7440-41-7	
Boron, Total Recoverable	**1.1**	mg/L	0.10	1	11/03/16 05:45	11/07/16 18:50	7440-42-8	
Calcium, Total Recoverable	**311**	mg/L	0.10	1	11/03/16 05:45	11/07/16 18:50	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:50	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:50	7439-92-1	
Lithium	**0.018**	mg/L	0.010	1	11/03/16 05:45	11/07/16 18:50	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:53	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:53	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	11/05/16 10:30	11/13/16 00:53	7440-43-9	
Cobalt, Total Recoverable	**0.0031**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:53	7440-48-4	
Molybdenum, Total Recoverable	**0.0012**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:53	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:53	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:53	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	11/15/16 08:30	11/16/16 12:08	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1690**	mg/L	5.0	1		11/04/16 12:05		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		11/08/16 16:19		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**59.4**	mg/L	10.0	10		11/28/16 14:37	16887-00-6	
Fluoride	**0.39**	mg/L	0.20	1		11/22/16 14:37	16984-48-8	
Sulfate	**975**	mg/L	100	100		11/28/16 14:53	14808-79-8	

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-1-110116 **Lab ID: 60231381004** Collected: 11/01/16 12:34 Received: 11/02/16 16:16 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.20**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:57	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/03/16 05:45	11/07/16 18:57	7440-41-7	
Boron, Total Recoverable	**0.31**	mg/L	0.10	1	11/03/16 05:45	11/07/16 18:57	7440-42-8	
Calcium, Total Recoverable	**171**	mg/L	0.10	1	11/03/16 05:45	11/07/16 18:57	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:57	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:57	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	11/03/16 05:45	11/07/16 18:57	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:58	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:58	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	11/05/16 10:30	11/13/16 00:58	7440-43-9	
Cobalt, Total Recoverable	**0.0086**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:58	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:58	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:58	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:58	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	11/15/16 08:30	11/16/16 12:15	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**925**	mg/L	5.0	1		11/04/16 12:06		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		11/09/16 14:50		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**29.6**	mg/L	5.0	5		11/28/16 15:39	16887-00-6	
Fluoride	**0.39**	mg/L	0.20	1		11/22/16 14:53	16984-48-8	
Sulfate	**452**	mg/L	50.0	50		11/28/16 15:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-7-110116 **Lab ID: 60231381005** Collected: 11/01/16 13:41 Received: 11/02/16 16:16 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.074**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:00	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/03/16 05:45	11/07/16 19:00	7440-41-7	
Boron, Total Recoverable	**0.73**	mg/L	0.10	1	11/03/16 05:45	11/07/16 19:00	7440-42-8	
Calcium, Total Recoverable	**148**	mg/L	0.10	1	11/03/16 05:45	11/07/16 19:00	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:00	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:00	7439-92-1	
Lithium	**0.024**	mg/L	0.010	1	11/03/16 05:45	11/07/16 19:00	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:02	7440-36-0	
Arsenic, Total Recoverable	**0.0014**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:02	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	11/05/16 10:30	11/13/16 01:02	7440-43-9	
Cobalt, Total Recoverable	**0.0016**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:02	7440-48-4	
Molybdenum, Total Recoverable	**0.012**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:02	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:02	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:02	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	11/15/16 08:30	11/16/16 12:17	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1100**	mg/L	5.0	1		11/04/16 12:06		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		11/09/16 14:50		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**193**	mg/L	25.0	25		11/28/16 16:10	16887-00-6	
Fluoride	**0.33**	mg/L	0.20	1		11/22/16 15:08	16984-48-8	
Sulfate	**459**	mg/L	25.0	25		11/28/16 16:10	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-10-110116 **Lab ID: 60231381006** Collected: 11/02/16 08:05 Received: 11/02/16 16:16 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.30**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:02	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/03/16 05:45	11/07/16 19:02	7440-41-7	
Boron, Total Recoverable	**0.25**	mg/L	0.10	1	11/03/16 05:45	11/07/16 19:02	7440-42-8	
Calcium, Total Recoverable	**182**	mg/L	0.10	1	11/03/16 05:45	11/07/16 19:02	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:02	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:02	7439-92-1	
Lithium	**0.011**	mg/L	0.010	1	11/03/16 05:45	11/07/16 19:02	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:06	7440-36-0	
Arsenic, Total Recoverable	**0.065**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:06	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	11/05/16 10:30	11/13/16 01:06	7440-43-9	
Cobalt, Total Recoverable	**0.0043**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:06	7440-48-4	
Molybdenum, Total Recoverable	**0.0034**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:06	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:06	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:06	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	11/15/16 08:30	11/16/16 12:19	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1220**	mg/L	5.0	1		11/04/16 12:15		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**6.8**	Std. Units	0.10	1		11/09/16 14:50		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**229**	mg/L	25.0	25		11/28/16 16:40	16887-00-6	
Fluoride	**0.46**	mg/L	0.20	1		11/22/16 15:23	16984-48-8	
Sulfate	**177**	mg/L	25.0	25		11/28/16 16:40	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-9-110116 **Lab ID: 60231381007** Collected: 11/02/16 09:32 Received: 11/02/16 16:16 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.85**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:04	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/03/16 05:45	11/07/16 19:04	7440-41-7	
Boron, Total Recoverable	**0.15**	mg/L	0.10	1	11/03/16 05:45	11/07/16 19:04	7440-42-8	
Calcium, Total Recoverable	**232**	mg/L	0.10	1	11/03/16 05:45	11/07/16 19:04	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:04	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:04	7439-92-1	
Lithium	**0.014**	mg/L	0.010	1	11/03/16 05:45	11/07/16 19:04	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:11	7440-36-0	
Arsenic, Total Recoverable	**0.14**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:11	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	11/05/16 10:30	11/13/16 01:11	7440-43-9	
Cobalt, Total Recoverable	**0.013**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:11	7440-48-4	
Molybdenum, Total Recoverable	**0.0029**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:11	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:11	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:11	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	11/15/16 08:30	11/16/16 12:21	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1230**	mg/L	5.0	1		11/04/16 12:15		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**6.8**	Std. Units	0.10	1		11/09/16 16:12		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**187**	mg/L	20.0	20		11/28/16 16:56	16887-00-6	
Fluoride	**0.39**	mg/L	0.20	1		11/22/16 15:39	16984-48-8	
Sulfate	**124**	mg/L	20.0	20		11/28/16 16:56	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-8-110116 **Lab ID: 60231381008** Collected: 11/02/16 11:26 Received: 11/02/16 16:16 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.058**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:07	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/03/16 05:45	11/07/16 19:07	7440-41-7	
Boron, Total Recoverable	**1.4**	mg/L	0.10	1	11/03/16 05:45	11/07/16 19:07	7440-42-8	
Calcium, Total Recoverable	**214**	mg/L	0.10	1	11/03/16 05:45	11/07/16 19:07	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:07	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:07	7439-92-1	
Lithium	**0.022**	mg/L	0.010	1	11/03/16 05:45	11/07/16 19:07	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:15	7440-36-0	
Arsenic, Total Recoverable	**0.0020**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:15	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	11/05/16 10:30	11/13/16 01:15	7440-43-9	
Cobalt, Total Recoverable	**0.0015**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:15	7440-48-4	
Molybdenum, Total Recoverable	**0.042**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:15	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:15	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:15	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	11/15/16 08:30	11/16/16 12:23	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1390**	mg/L	5.0	1		11/04/16 12:16		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		11/09/16 16:12		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**185**	mg/L	25.0	25		11/28/16 17:11	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	1		11/22/16 16:25	16984-48-8	
Sulfate	**785**	mg/L	100	100		11/28/16 17:27	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: DUP-110116 **Lab ID: 60231381009** Collected: 11/01/16 06:00 Received: 11/02/16 16:16 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.19**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:09	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/03/16 05:45	11/07/16 19:09	7440-41-7	
Boron, Total Recoverable	**0.29**	mg/L	0.10	1	11/03/16 05:45	11/07/16 19:09	7440-42-8	
Calcium, Total Recoverable	**167**	mg/L	0.10	1	11/03/16 05:45	11/07/16 19:09	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:09	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:09	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	11/03/16 05:45	11/07/16 19:09	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:20	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:20	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	11/05/16 10:30	11/13/16 01:20	7440-43-9	
Cobalt, Total Recoverable	**0.0082**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:20	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:20	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:20	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:20	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	11/15/16 08:30	11/16/16 12:26	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**927**	mg/L	5.0	1		11/04/16 12:06		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		11/08/16 16:19		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**30.4**	mg/L	5.0	5		11/28/16 17:42	16887-00-6	
Fluoride	**0.38**	mg/L	0.20	1		11/22/16 16:40	16984-48-8	
Sulfate	**368**	mg/L	50.0	50		11/28/16 17:57	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

QC Batch: 455023 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

METHOD BLANK: 1863355 Matrix: Water
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	11/16/16 11:59	

LABORATORY CONTROL SAMPLE: 1863356

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0051	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1863357 1863358

Parameter	Units	60231979001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	<0.20 ug/L	.005	.005	<0.00020	<0.00020	3	1	70-130		20	M1

MATRIX SPIKE SAMPLE: 1863359

Parameter	Units	60232004006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.20 ug/L	.005	0.0022	45	70-130	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

QC Batch: 453405 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

METHOD BLANK: 1855989 Matrix: Water
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	11/07/16 18:39	
Beryllium	mg/L	<0.0010	0.0010	11/07/16 18:39	
Boron	mg/L	<0.10	0.10	11/07/16 18:39	
Calcium	mg/L	<0.10	0.10	11/07/16 18:39	
Chromium	mg/L	<0.0050	0.0050	11/07/16 18:39	
Lead	mg/L	<0.0050	0.0050	11/07/16 18:39	
Lithium	mg/L	<0.010	0.010	11/07/16 18:39	

LABORATORY CONTROL SAMPLE: 1855990

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	101	85-115	
Boron	mg/L	1	0.99	99	85-115	
Calcium	mg/L	10	10.3	103	85-115	
Chromium	mg/L	1	1.0	103	85-115	
Lead	mg/L	1	1.0	105	85-115	
Lithium	mg/L	1	1.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1855991 1855992

Parameter	Units	60231381001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.12	1	1	1.1	1.1	100	101	70-130	1	20	
Beryllium	mg/L	<0.0010	1	1	1.0	1.0	101	101	70-130	1	20	
Boron	mg/L	<0.10	1	1	1.1	1.1	102	103	70-130	1	20	
Calcium	mg/L	180	10	10	186	190	60	99	70-130	2	20	M1
Chromium	mg/L	<0.0050	1	1	1.0	1.0	101	102	70-130	1	20	
Lead	mg/L	<0.0050	1	1	1.0	1.0	100	100	70-130	0	20	
Lithium	mg/L	<0.010	1	1	1.0	1.0	102	102	70-130	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

QC Batch: 453594 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

METHOD BLANK: 1856969 Matrix: Water
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	11/12/16 22:57	
Arsenic	mg/L	<0.0010	0.0010	11/12/16 22:57	
Cadmium	mg/L	<0.00050	0.00050	11/12/16 22:57	
Cobalt	mg/L	<0.0010	0.0010	11/12/16 22:57	
Molybdenum	mg/L	<0.0010	0.0010	11/12/16 22:57	
Selenium	mg/L	<0.0010	0.0010	11/12/16 22:57	
Thallium	mg/L	<0.0010	0.0010	11/12/16 22:57	

LABORATORY CONTROL SAMPLE: 1856970

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	97	85-115	
Cadmium	mg/L	.04	0.039	98	85-115	
Cobalt	mg/L	.04	0.040	99	85-115	
Molybdenum	mg/L	.04	0.041	103	85-115	
Selenium	mg/L	.04	0.038	94	85-115	
Thallium	mg/L	.04	0.038	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1856971 1856972

Parameter	Units	60231472001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	0.76J ug/L	.04	.04	0.039	0.040	97	97	70-130	0	20	
Arsenic	mg/L	0.43J ug/L	.04	.04	0.039	0.039	95	96	70-130	1	20	
Cadmium	mg/L	0.053J ug/L	.04	.04	0.038	0.038	95	96	70-130	0	20	
Cobalt	mg/L	<0.50 ug/L	.04	.04	0.039	0.039	97	97	70-130	0	20	
Molybdenum	mg/L	2.9 ug/L	.04	.04	0.045	0.045	106	106	70-130	1	20	
Selenium	mg/L	0.37J ug/L	.04	.04	0.036	0.037	89	91	70-130	2	20	
Thallium	mg/L	1.5 ug/L	.04	.04	0.041	0.041	99	99	70-130	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

MATRIX SPIKE SAMPLE: 1856973

Parameter	Units	60231472006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.11J ug/L	.04	0.040	99	70-130	
Arsenic	mg/L	0.16J ug/L	.04	0.039	97	70-130	
Cadmium	mg/L	4.8 ug/L	.04	0.044	98	70-130	
Cobalt	mg/L	2.9 ug/L	.04	0.042	98	70-130	
Molybdenum	mg/L	0.48J ug/L	.04	0.043	106	70-130	
Selenium	mg/L	<0.18 ug/L	.04	0.036	89	70-130	
Thallium	mg/L	<0.50 ug/L	.04	0.040	98	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

QC Batch: 453479 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

METHOD BLANK: 1856318 Matrix: Water
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	11/04/16 12:02	

LABORATORY CONTROL SAMPLE: 1856319

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1030	103	80-120	

SAMPLE DUPLICATE: 1856320

Parameter	Units	60231381001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1060	1050	1	10	

SAMPLE DUPLICATE: 1856321

Parameter	Units	60231419005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	879	877	0	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

QC Batch: 454034 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381009

SAMPLE DUPLICATE: 1859039

Parameter	Units	60231176002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.9	6.9	0	5	H6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

QC Batch: 454181 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60231381004, 60231381005, 60231381006

SAMPLE DUPLICATE: 1859730

Parameter	Units	60231192001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.9	7.9	0	5	H6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

QC Batch: 454194
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60231381007, 60231381008

SAMPLE DUPLICATE: 1859816

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

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

QC Batch: 456102 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

METHOD BLANK: 1867494 Matrix: Water
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	11/22/16 10:01	

LABORATORY CONTROL SAMPLE: 1867495

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: 1867496 1867497

Parameter	Units	60231381001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.23	2.5	2.5	3.3	3.2	123	118	80-120	3	15	M1

MATRIX SPIKE SAMPLE: 1867498

Parameter	Units	60231381002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.33	2.5	3.2	114	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

QC Batch: 456593 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

METHOD BLANK: 1869585 Matrix: Water
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	11/28/16 10:15	
Sulfate	mg/L	<1.0	1.0	11/28/16 10:15	

LABORATORY CONTROL SAMPLE: 1869586

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: 1869587 1869588

Parameter	Units	60231381001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	251	125	125	404	405	122	123	80-120	0	15	M1
Sulfate	mg/L	128	125	125	269	270	113	113	80-120	0	15	

MATRIX SPIKE SAMPLE: 1869589

Parameter	Units	60232075006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5.1	25	31.2	105	80-120	
Sulfate	mg/L	29.0	25	57.0	112	80-120	

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-4-110116 **Lab ID: 60231381001** Collected: 11/01/16 08:11 Received: 11/02/16 16:16 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.436 ± 0.408 (0.578) C:NA T:83%**	pCi/L	11/29/16 12:30	13982-63-3	
Radium-228	EPA 904.0	**1.67 ± 0.718 (1.23) C:60% T:79%**	pCi/L	11/30/16 15:27	15262-20-1	
Total Radium	Total Radium Calculation	**2.11 ± 1.13 (1.81)**	pCi/L	12/01/16 10:58	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-5-110116 **Lab ID: 60231381002** Collected: 11/01/16 09:23 Received: 11/02/16 16:16 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.249 ± 0.386 (0.669) C:NA T:89%**	pCi/L	11/29/16 12:30	13982-63-3	
Radium-228	EPA 904.0	**1.23 ± 0.512 (0.843) C:68% T:87%**	pCi/L	11/30/16 15:27	15262-20-1	
Total Radium	Total Radium Calculation	**1.48 ± 0.898 (1.51)**	pCi/L	12/01/16 10:58	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-6-110116 **Lab ID: 60231381003** Collected: 11/01/16 11:04 Received: 11/02/16 16:16 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.272 ± 0.284 (0.400) C:NA T:95%**	pCi/L	11/29/16 12:30	13982-63-3	
Radium-228	EPA 904.0	**0.416 ± 0.471 (0.978) C:58% T:76%**	pCi/L	11/30/16 15:27	15262-20-1	
Total Radium	Total Radium Calculation	**0.688 ± 0.755 (1.38)**	pCi/L	12/01/16 10:58	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-1-110116 **Lab ID: 60231381004** Collected: 11/01/16 12:34 Received: 11/02/16 16:16 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.124 ± 0.282 (0.455) C:NA T:83%**	pCi/L	11/29/16 12:30	13982-63-3	
Radium-228	EPA 904.0	**0.873 ± 0.460 (0.814) C:64% T:81%**	pCi/L	11/30/16 15:28	15262-20-1	
Total Radium	Total Radium Calculation	**0.997 ± 0.742 (1.27)**	pCi/L	12/01/16 10:58	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-7-110116 **Lab ID: 60231381005** Collected: 11/01/16 13:41 Received: 11/02/16 16:16 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.129 ± 0.296 (0.476) C:NA T:89%**	pCi/L	11/29/16 12:30	13982-63-3	
Radium-228	EPA 904.0	**0.325 ± 0.333 (0.681) C:71% T:82%**	pCi/L	11/30/16 15:28	15262-20-1	
Total Radium	Total Radium Calculation	**0.454 ± 0.629 (1.16)**	pCi/L	12/01/16 10:58	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-10-110116 **Lab ID: 60231381006** Collected: 11/02/16 08:05 Received: 11/02/16 16:16 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.387 ± 0.475 (0.775) C:NA T:89%**	pCi/L	11/29/16 12:47	13982-63-3	
Radium-228	EPA 904.0	**1.69 ± 0.611 (0.905) C:66% T:76%**	pCi/L	11/30/16 15:28	15262-20-1	
Total Radium	Total Radium Calculation	**2.08 ± 1.09 (1.68)**	pCi/L	12/01/16 10:58	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-9-110116 **Lab ID: 60231381007** Collected: 11/02/16 09:32 Received: 11/02/16 16:16 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.555 ± 0.350 (0.150) C:NA T:96%**	pCi/L	11/29/16 12:47	13982-63-3	
Radium-228	EPA 904.0	**1.02 ± 0.475 (0.796) C:70% T:71%**	pCi/L	11/30/16 15:28	15262-20-1	
Total Radium	Total Radium Calculation	**1.58 ± 0.825 (0.946)**	pCi/L	12/01/16 10:58	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: MW-8-110116 **Lab ID: 60231381008** Collected: 11/02/16 11:26 Received: 11/02/16 16:16 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.238 ± 0.273 (0.161) C:NA T:90%**	pCi/L	11/29/16 12:47	13982-63-3	
Radium-228	EPA 904.0	**1.07 ± 0.510 (0.879) C:61% T:84%**	pCi/L	11/30/16 15:28	15262-20-1	
Total Radium	Total Radium Calculation	**1.31 ± 0.783 (1.04)**	pCi/L	12/01/16 10:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Sample: DUP-110116 **Lab ID: 60231381009** Collected: 11/01/16 06:00 Received: 11/02/16 16:16 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0711 ± 0.369 (0.766) C:NA T:77%**	pCi/L	11/29/16 12:47	13982-63-3	
Radium-228	EPA 904.0	**0.524 ± 0.387 (0.756) C:75% T:79%**	pCi/L	11/30/16 15:28	15262-20-1	
Total Radium	Total Radium Calculation	**0.595 ± 0.756 (1.52)**	pCi/L	12/01/16 10:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

QC Batch: 240838 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

METHOD BLANK: 1183606 Matrix: Water
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.531 ± 0.391 (0.759) C:67% T:82%	pCi/L	11/30/16 15:26	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

QC Batch: 240835 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

METHOD BLANK: 1183599 Matrix: Water
Associated Lab Samples: 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007, 60231381008, 60231381009

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.296 (0.663) C:NA T:84%	pCi/L	11/29/16 12:00	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

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

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: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60231381001	**MW-4-110116**	EPA 200.7	453405	EPA 200.7	453458
60231381002	**MW-5-110116**	EPA 200.7	453405	EPA 200.7	453458
60231381003	**MW-6-110116**	EPA 200.7	453405	EPA 200.7	453458
60231381004	**MW-1-110116**	EPA 200.7	453405	EPA 200.7	453458
60231381005	**MW-7-110116**	EPA 200.7	453405	EPA 200.7	453458
60231381006	**MW-10-110116**	EPA 200.7	453405	EPA 200.7	453458
60231381007	**MW-9-110116**	EPA 200.7	453405	EPA 200.7	453458
60231381008	**MW-8-110116**	EPA 200.7	453405	EPA 200.7	453458
60231381009	**DUP-110116**	EPA 200.7	453405	EPA 200.7	453458
60231381001	**MW-4-110116**	EPA 200.8	453594	EPA 200.8	453693
60231381002	**MW-5-110116**	EPA 200.8	453594	EPA 200.8	453693
60231381003	**MW-6-110116**	EPA 200.8	453594	EPA 200.8	453693
60231381004	**MW-1-110116**	EPA 200.8	453594	EPA 200.8	453693
60231381005	**MW-7-110116**	EPA 200.8	453594	EPA 200.8	453693
60231381006	**MW-10-110116**	EPA 200.8	453594	EPA 200.8	453693
60231381007	**MW-9-110116**	EPA 200.8	453594	EPA 200.8	453693
60231381008	**MW-8-110116**	EPA 200.8	453594	EPA 200.8	453693
60231381009	**DUP-110116**	EPA 200.8	453594	EPA 200.8	453693
60231381001	**MW-4-110116**	EPA 245.1	455023	EPA 245.1	455073
60231381002	**MW-5-110116**	EPA 245.1	455023	EPA 245.1	455073
60231381003	**MW-6-110116**	EPA 245.1	455023	EPA 245.1	455073
60231381004	**MW-1-110116**	EPA 245.1	455023	EPA 245.1	455073
60231381005	**MW-7-110116**	EPA 245.1	455023	EPA 245.1	455073
60231381006	**MW-10-110116**	EPA 245.1	455023	EPA 245.1	455073
60231381007	**MW-9-110116**	EPA 245.1	455023	EPA 245.1	455073
60231381008	**MW-8-110116**	EPA 245.1	455023	EPA 245.1	455073
60231381009	**DUP-110116**	EPA 245.1	455023	EPA 245.1	455073
60231381001	**MW-4-110116**	EPA 903.1	240835		
60231381002	**MW-5-110116**	EPA 903.1	240835		
60231381003	**MW-6-110116**	EPA 903.1	240835		
60231381004	**MW-1-110116**	EPA 903.1	240835		
60231381005	**MW-7-110116**	EPA 903.1	240835		
60231381006	**MW-10-110116**	EPA 903.1	240835		
60231381007	**MW-9-110116**	EPA 903.1	240835		
60231381008	**MW-8-110116**	EPA 903.1	240835		
60231381009	**DUP-110116**	EPA 903.1	240835		
60231381001	**MW-4-110116**	EPA 904.0	240838		
60231381002	**MW-5-110116**	EPA 904.0	240838		
60231381003	**MW-6-110116**	EPA 904.0	240838		
60231381004	**MW-1-110116**	EPA 904.0	240838		
60231381005	**MW-7-110116**	EPA 904.0	240838		
60231381006	**MW-10-110116**	EPA 904.0	240838		
60231381007	**MW-9-110116**	EPA 904.0	240838		
60231381008	**MW-8-110116**	EPA 904.0	240838		
60231381009	**DUP-110116**	EPA 904.0	240838		
60231381001	**MW-4-110116**	Total Radium Calculation	241944		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60231381002	**MW-5-110116**	Total Radium Calculation	241944		
60231381003	**MW-6-110116**	Total Radium Calculation	241944		
60231381004	**MW-1-110116**	Total Radium Calculation	241944		
60231381005	**MW-7-110116**	Total Radium Calculation	241944		
60231381006	**MW-10-110116**	Total Radium Calculation	241944		
60231381007	**MW-9-110116**	Total Radium Calculation	241944		
60231381008	**MW-8-110116**	Total Radium Calculation	241944		
60231381009	**DUP-110116**	Total Radium Calculation	241944		
60231381001	**MW-4-110116**	SM 2540C	453479		
60231381002	**MW-5-110116**	SM 2540C	453479		
60231381003	**MW-6-110116**	SM 2540C	453479		
60231381004	**MW-1-110116**	SM 2540C	453479		
60231381005	**MW-7-110116**	SM 2540C	453479		
60231381006	**MW-10-110116**	SM 2540C	453479		
60231381007	**MW-9-110116**	SM 2540C	453479		
60231381008	**MW-8-110116**	SM 2540C	453479		
60231381009	**DUP-110116**	SM 2540C	453479		
60231381001	**MW-4-110116**	SM 4500-H+B	454034		
60231381002	**MW-5-110116**	SM 4500-H+B	454034		
60231381003	**MW-6-110116**	SM 4500-H+B	454034		
60231381004	**MW-1-110116**	SM 4500-H+B	454181		
60231381005	**MW-7-110116**	SM 4500-H+B	454181		
60231381006	**MW-10-110116**	SM 4500-H+B	454181		
60231381007	**MW-9-110116**	SM 4500-H+B	454194		
60231381008	**MW-8-110116**	SM 4500-H+B	454194		
60231381009	**DUP-110116**	SM 4500-H+B	454034		
60231381001	**MW-4-110116**	EPA 300.0	456102		
60231381001	**MW-4-110116**	EPA 300.0	456593		
60231381002	**MW-5-110116**	EPA 300.0	456102		
60231381002	**MW-5-110116**	EPA 300.0	456593		
60231381003	**MW-6-110116**	EPA 300.0	456102		
60231381003	**MW-6-110116**	EPA 300.0	456593		
60231381004	**MW-1-110116**	EPA 300.0	456102		
60231381004	**MW-1-110116**	EPA 300.0	456593		
60231381005	**MW-7-110116**	EPA 300.0	456102		
60231381005	**MW-7-110116**	EPA 300.0	456593		
60231381006	**MW-10-110116**	EPA 300.0	456102		
60231381006	**MW-10-110116**	EPA 300.0	456593		
60231381007	**MW-9-110116**	EPA 300.0	456102		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60231381

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60231381007	**MW-9-110116**	EPA 300.0	456593		
60231381008	**MW-8-110116**	EPA 300.0	456102		
60231381008	**MW-8-110116**	EPA 300.0	456593		
60231381009	**DUP-110116**	EPA 300.0	456102		
60231381009	**DUP-110116**	EPA 300.0	456593		

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Sample Condition Upon Receipt

WO# : 60231381

60231381

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: CF +0.7 T-266 / CF -0.5 T-239 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): As-read 0.7/2.9 **Corr. Factor** CF +0.7 CF -0.5 **Corrected** 1.4/3.6

Date and initials of person examining contents: PV to PV 11/3/16

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	pH
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	
Cyanide water sample checks: ☑ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑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: 11/3/16

CHAIN-OF-CUSTODY / Analytical Request Document

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

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Page: 1 of 1

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Brandon Griffin
Copy To:	Jared Morrison, Heath Hornya
Purchase Order No.:	
Project Name:	TEC CCR Groundwater
Project Number:	

Section C Invoice Information:

Attention:	Jared Morrison
Company Name:	WESTAR ENERGY
Address:	SEE SECTION A
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson, 913-563-1407
Pace Profile #:	9656, 1

REGULATORY AGENCY

☑ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: KS

Section D Required Client Information

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

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	200.7 Total Metals*	200.8 Total Metals**	245.1 Total Mercury	300.0 Cl, Fl, SO4	4500 H+B	2540C TDS	Radium 226	Radium 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-4-110116	WT	G			11/1/16	0811		4	1		3														60231381
2	MW-5-110116	WT	G			11/1/16	0923		4	1		3														
3	MW-6-110116	WT	G			11/1/16	1104		4	1		3														
4	MW-1-110116	WT	G			11/1/16	1234		4	1		3														
5	MW-7-110116	WT	G			11/1/16	1341		4	1		3														
6	MW-10-110216	WT	G			11/2/16	0805		4	1		3														
7	MW-9-110216	WT	G			11/2/16	0932		4	1		3														
8	MW-8-110216	WT	G			11/2/16	1126		4	1		3														
9																										
10																										
11																										
12	DUP-110116	WT	G			11/1/16	0600		4	1		3														

Requested Analysis Filtered (Y/N)

1BP2U 1BP2N 2BP1N
001 002 003 004 005 006 007 008 009

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*200.7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li	[signature] / WESTAR	11/02/16	1300	[signature] PACE	~~11/3~~ 11/2/16	1616	1-4	Y	Y	Y
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl							3-6	Y	Y	Y

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Brandon Griffin					
SIGNATURE of SAMPLER:	[signature]	DATE Signed (MM/DD/YY): 11/02/16				

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

ATTACHMENT 1-4

December 2016 Sampling Event Laboratory Analytical Report

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

January 17, 2017

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

RE: Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Dear Brandon Griffin:
Enclosed are the analytical results for sample(s) received by the laboratory on December 14, 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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

Pace Analytical Services, LLC
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Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60234340001	**MW-4-121316**	Water	12/13/16 09:08	12/14/16 16:10
60234340002	**MW-5-121316**	Water	12/13/16 11:05	12/14/16 16:10
60234340003	**MW-6-121316**	Water	12/13/16 13:02	12/14/16 16:10
60234340004	**MW-1-121316**	Water	12/13/16 15:06	12/14/16 16:10
60234340005	**DUP-121316**	Water	12/13/16 06:00	12/14/16 16:10

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SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60234340001	**MW-4-121316**	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
		EPA 300.0	OL	3	PASI-K
60234340002	**MW-5-121316**	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
		EPA 300.0	OL	3	PASI-K
60234340003	**MW-6-121316**	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
		EPA 300.0	OL	3	PASI-K
60234340004	**MW-1-121316**	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
		EPA 300.0	OL	3	PASI-K
60234340005	**DUP-121316**	EPA 200.7	JGP	7	PASI-K

Pace Analytical Services, LLC
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SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

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

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PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: WESTAR ENERGY
Date: January 17, 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:

Pace Analytical Services, LLC
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PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: WESTAR ENERGY
Date: January 17, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Method: **EPA 245.1**
Description: 245.1 Mercury
Client: WESTAR ENERGY
Date: January 17, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: WESTAR ENERGY
Date: January 17, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: WESTAR ENERGY
Date: January 17, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: WESTAR ENERGY
Date: January 17, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: WESTAR ENERGY
Date: January 17, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: WESTAR ENERGY
Date: January 17, 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-121316 (Lab ID: 60234340005)
- MW-1-121316 (Lab ID: 60234340004)
- MW-4-121316 (Lab ID: 60234340001)
- MW-5-121316 (Lab ID: 60234340002)
- MW-6-121316 (Lab ID: 60234340003)

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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: WESTAR ENERGY
Date: January 17, 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.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Sample: MW-4-121316 **Lab ID: 60234340001** Collected: 12/13/16 09:08 Received: 12/14/16 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.12**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:14	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/28/16 18:14	7440-41-7	
Boron, Total Recoverable	**<0.10**	mg/L	0.10	1	12/21/16 15:15	12/28/16 18:14	7440-42-8	
Calcium, Total Recoverable	**183**	mg/L	0.10	1	12/21/16 15:15	12/28/16 18:14	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:14	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:14	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	12/21/16 15:15	12/28/16 18:14	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:05	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:05	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	12/21/16 15:15	12/29/16 15:05	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:05	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:05	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:05	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:05	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	12/19/16 16:15	12/20/16 09:36	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**935**	mg/L	5.0	1		12/16/16 10:23		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.3**	Std. Units	0.10	1		12/23/16 13:32		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**268**	mg/L	20.0	20		01/04/17 15:56	16887-00-6	
Fluoride	**0.24**	mg/L	0.20	1		01/03/17 15:35	16984-48-8	
Sulfate	**142**	mg/L	20.0	20		01/04/17 15:56	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Sample: MW-5-121316 **Lab ID: 60234340002** Collected: 12/13/16 11:05 Received: 12/14/16 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.028**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:17	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/28/16 18:17	7440-41-7	
Boron, Total Recoverable	**1.0**	mg/L	0.10	1	12/21/16 15:15	12/28/16 18:17	7440-42-8	
Calcium, Total Recoverable	**303**	mg/L	0.10	1	12/21/16 15:15	12/28/16 18:17	7440-70-2	M1
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:17	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:17	7439-92-1	
Lithium	**0.024**	mg/L	0.010	1	12/21/16 15:15	12/28/16 18:17	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:09	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:09	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	12/21/16 15:15	12/29/16 15:09	7440-43-9	
Cobalt, Total Recoverable	**0.0020**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:09	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:09	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:09	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:09	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	12/19/16 16:15	12/20/16 09:40	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1620**	mg/L	5.0	1		12/16/16 10:23		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		12/23/16 13:32		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**45.3**	mg/L	5.0	5		01/04/17 16:10	16887-00-6	
Fluoride	**0.33**	mg/L	0.20	1		01/03/17 15:50	16984-48-8	
Sulfate	**797**	mg/L	100	100		01/04/17 16:24	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Sample: MW-6-121316 **Lab ID: 60234340003** Collected: 12/13/16 13:02 Received: 12/14/16 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.028**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:36	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/28/16 18:36	7440-41-7	
Boron, Total Recoverable	**1.0**	mg/L	0.10	1	12/21/16 15:15	12/28/16 18:36	7440-42-8	
Calcium, Total Recoverable	**302**	mg/L	0.10	1	12/21/16 15:15	12/28/16 18:36	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:36	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:36	7439-92-1	
Lithium	**0.022**	mg/L	0.010	1	12/21/16 15:15	12/28/16 18:36	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:14	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:14	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	12/21/16 15:15	12/29/16 15:14	7440-43-9	
Cobalt, Total Recoverable	**0.0029**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:14	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:14	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:14	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:14	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	12/19/16 16:15	12/20/16 09:47	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1620**	mg/L	5.0	1		12/16/16 10:24		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		12/23/16 13:32		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**60.3**	mg/L	5.0	5		01/04/17 17:06	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	1		01/03/17 16:52	16984-48-8	
Sulfate	**835**	mg/L	100	100		01/04/17 17:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Sample: MW-1-121316 **Lab ID: 60234340004** Collected: 12/13/16 15:06 Received: 12/14/16 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.16**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:40	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/28/16 18:40	7440-41-7	
Boron, Total Recoverable	**0.38**	mg/L	0.10	1	12/21/16 15:15	12/28/16 18:40	7440-42-8	
Calcium, Total Recoverable	**168**	mg/L	0.10	1	12/21/16 15:15	12/28/16 18:40	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:40	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:40	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	12/21/16 15:15	12/28/16 18:40	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:27	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:27	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	12/21/16 15:15	12/29/16 15:27	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:27	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:27	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:27	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:27	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	12/19/16 16:15	12/20/16 09:49	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**937**	mg/L	5.0	1		12/16/16 10:24		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.3**	Std. Units	0.10	1		12/23/16 13:32		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**21.4**	mg/L	2.0	2		01/04/17 17:34	16887-00-6	
Fluoride	**0.36**	mg/L	0.20	1		01/03/17 17:07	16984-48-8	
Sulfate	**400**	mg/L	50.0	50		01/04/17 17:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Sample: DUP-121316 **Lab ID: 60234340005** Collected: 12/13/16 06:00 Received: 12/14/16 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.13**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:44	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/28/16 18:44	7440-41-7	
Boron, Total Recoverable	**<0.10**	mg/L	0.10	1	12/21/16 15:15	12/28/16 18:44	7440-42-8	
Calcium, Total Recoverable	**180**	mg/L	0.10	1	12/21/16 15:15	12/28/16 18:44	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:44	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:44	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	12/21/16 15:15	12/28/16 18:44	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:31	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:31	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	12/21/16 15:15	12/29/16 15:31	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:31	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:31	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:31	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	12/21/16 15:15	12/29/16 15:31	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	12/19/16 16:15	12/20/16 09:51	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**928**	mg/L	5.0	1		12/16/16 10:25		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		12/23/16 13:32		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**269**	mg/L	20.0	20		01/04/17 18:01	16887-00-6	
Fluoride	**0.24**	mg/L	0.20	1		01/03/17 17:23	16984-48-8	
Sulfate	**141**	mg/L	20.0	20		01/04/17 18:01	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

QC Batch: 459521 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

METHOD BLANK: 1881503 Matrix: Water
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

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 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	<0.20 ug/L	.005	.005	0.0041	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	

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 DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

QC Batch: 459902 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

METHOD BLANK: 1882844 Matrix: Water
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

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

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 DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

MATRIX SPIKE SAMPLE: 1882848

Parameter	Units	60234594003 Result	Spike Conc.	MS Result	MS % Rec	% Rec 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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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

QC Batch: 459903 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

METHOD BLANK: 1882849 Matrix: Water
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

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 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

MATRIX SPIKE SAMPLE: 1882853

Parameter	Units	60234594002 Result	Spike Conc.	MS Result	MS % Rec	% Rec 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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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

QC Batch: 459249 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

METHOD BLANK: 1880227 Matrix: Water
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	12/16/16 10:19	

LABORATORY CONTROL SAMPLE: 1880228

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	976	98	80-120	

SAMPLE DUPLICATE: 1880229

Parameter	Units	60234204001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1370	1370	0	10	

SAMPLE DUPLICATE: 1880230

Parameter	Units	60234341002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1150	1170	2	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

QC Batch: 459833 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

SAMPLE DUPLICATE: 1882586

Parameter	Units	60234308002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.7	7.7	1	5	H6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

QC Batch: 460944 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

METHOD BLANK: 1886766 Matrix: Water
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	01/03/17 08:57	

LABORATORY CONTROL SAMPLE: 1886767

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: 1886768 1886769

Parameter	Units	60234718001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.25	2.5	2.5	2.7	2.7	99	97	80-120	2	15	

MATRIX SPIKE SAMPLE: 1886770

Parameter	Units	60234718005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.21	2.5	2.7	100	80-120	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

QC Batch: 461087 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

METHOD BLANK: 1887361 Matrix: Water
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	01/04/17 14:19	
Sulfate	mg/L	<1.0	1.0	01/04/17 14:19	

LABORATORY CONTROL SAMPLE: 1887362

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	103	90-110	
Sulfate	mg/L	5	5.2	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1887363 1887364

Parameter	Units	60234718008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	19.0	25	25	47.4	47.4	114	114	80-120	0	15	
Sulfate	mg/L	37.0	25	25	65.2	65.4	113	114	80-120	0	15	

MATRIX SPIKE SAMPLE: 1887365

Parameter	Units	60234718009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	0.77J	5	6.4	112	80-120	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Sample: MW-4-121316 **Lab ID: 60234340001** Collected: 12/13/16 09:08 Received: 12/14/16 16:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.321 (0.518) C:NA T:87%**	pCi/L	01/15/17 18:18	13982-63-3	
Radium-228	EPA 904.0	**1.12 ± 0.472 (0.748) C:67% T:93%**	pCi/L	01/15/17 17:06	15262-20-1	
Total Radium	Total Radium Calculation	**1.12 ± 0.793 (1.27)**	pCi/L	01/16/17 15:06	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Sample: MW-5-121316 **Lab ID: 60234340002** Collected: 12/13/16 11:05 Received: 12/14/16 16:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.299 ± 0.415 (0.693) C:NA T:89%**	pCi/L	01/15/17 18:18	13982-63-3	
Radium-228	EPA 904.0	**0.759 ± 0.472 (0.873) C:65% T:80%**	pCi/L	01/15/17 17:06	15262-20-1	
Total Radium	Total Radium Calculation	**1.06 ± 0.887 (1.57)**	pCi/L	01/16/17 15:06	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Sample: MW-6-121316 **Lab ID: 60234340003** Collected: 12/13/16 13:02 Received: 12/14/16 16:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.078 ± 0.357 (0.842) C:NA T:82%**	pCi/L	01/15/17 18:18	13982-63-3	
Radium-228	EPA 904.0	**0.653 ± 0.580 (1.17) C:53% T:81%**	pCi/L	01/15/17 17:06	15262-20-1	
Total Radium	Total Radium Calculation	**0.653 ± 0.937 (2.01)**	pCi/L	01/16/17 15:06	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Sample: MW-1-121316 **Lab ID: 60234340004** Collected: 12/13/16 15:06 Received: 12/14/16 16:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0742 ± 0.339 (0.546) C:NA T:90%**	pCi/L	01/15/17 18:18	13982-63-3	
Radium-228	EPA 904.0	**0.0895 ± 0.465 (1.07) C:53% T:79%**	pCi/L	01/15/17 17:06	15262-20-1	
Total Radium	Total Radium Calculation	**0.164 ± 0.804 (1.62)**	pCi/L	01/16/17 15:06	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Sample: DUP-121316 **Lab ID: 60234340005** Collected: 12/13/16 06:00 Received: 12/14/16 16:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.358 (0.729) C:NA T:82%**	pCi/L	01/15/17 18:18	13982-63-3	
Radium-228	EPA 904.0	**1.11 ± 0.504 (0.792) C:56% T:88%**	pCi/L	01/15/17 17:06	15262-20-1	
Total Radium	Total Radium Calculation	**1.11 ± 0.862 (1.52)**	pCi/L	01/16/17 15:06	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

QC Batch: 245349 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

METHOD BLANK: 1207402 Matrix: Water
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.156 ± 0.357 (0.574) C:NA T:79%	pCi/L	01/15/17 17:33	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

QC Batch: 245350 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

METHOD BLANK: 1207404 Matrix: Water
Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.461 ± 0.371 (0.733) C:71% T:87%	pCi/L	01/15/17 17:03	

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QUALIFIERS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

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.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60234340001	**MW-4-121316**	EPA 200.7	459902	EPA 200.7	459945
60234340002	**MW-5-121316**	EPA 200.7	459902	EPA 200.7	459945
60234340003	**MW-6-121316**	EPA 200.7	459902	EPA 200.7	459945
60234340004	**MW-1-121316**	EPA 200.7	459902	EPA 200.7	459945
60234340005	**DUP-121316**	EPA 200.7	459902	EPA 200.7	459945
60234340001	**MW-4-121316**	EPA 200.8	459903	EPA 200.8	459947
60234340002	**MW-5-121316**	EPA 200.8	459903	EPA 200.8	459947
60234340003	**MW-6-121316**	EPA 200.8	459903	EPA 200.8	459947
60234340004	**MW-1-121316**	EPA 200.8	459903	EPA 200.8	459947
60234340005	**DUP-121316**	EPA 200.8	459903	EPA 200.8	459947
60234340001	**MW-4-121316**	EPA 245.1	459521	EPA 245.1	459549
60234340002	**MW-5-121316**	EPA 245.1	459521	EPA 245.1	459549
60234340003	**MW-6-121316**	EPA 245.1	459521	EPA 245.1	459549
60234340004	**MW-1-121316**	EPA 245.1	459521	EPA 245.1	459549
60234340005	**DUP-121316**	EPA 245.1	459521	EPA 245.1	459549
60234340001	**MW-4-121316**	EPA 903.1	245349		
60234340002	**MW-5-121316**	EPA 903.1	245349		
60234340003	**MW-6-121316**	EPA 903.1	245349		
60234340004	**MW-1-121316**	EPA 903.1	245349		
60234340005	**DUP-121316**	EPA 903.1	245349		
60234340001	**MW-4-121316**	EPA 904.0	245350		
60234340002	**MW-5-121316**	EPA 904.0	245350		
60234340003	**MW-6-121316**	EPA 904.0	245350		
60234340004	**MW-1-121316**	EPA 904.0	245350		
60234340005	**DUP-121316**	EPA 904.0	245350		
60234340001	**MW-4-121316**	Total Radium Calculation	246590		
60234340002	**MW-5-121316**	Total Radium Calculation	246590		
60234340003	**MW-6-121316**	Total Radium Calculation	246590		
60234340004	**MW-1-121316**	Total Radium Calculation	246590		
60234340005	**DUP-121316**	Total Radium Calculation	246590		
60234340001	**MW-4-121316**	SM 2540C	459249		
60234340002	**MW-5-121316**	SM 2540C	459249		
60234340003	**MW-6-121316**	SM 2540C	459249		
60234340004	**MW-1-121316**	SM 2540C	459249		
60234340005	**DUP-121316**	SM 2540C	459249		
60234340001	**MW-4-121316**	SM 4500-H+B	459833		
60234340002	**MW-5-121316**	SM 4500-H+B	459833		
60234340003	**MW-6-121316**	SM 4500-H+B	459833		
60234340004	**MW-1-121316**	SM 4500-H+B	459833		
60234340005	**DUP-121316**	SM 4500-H+B	459833		
60234340001	**MW-4-121316**	EPA 300.0	460944		
60234340001	**MW-4-121316**	EPA 300.0	461087		
60234340002	**MW-5-121316**	EPA 300.0	460944		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60234340

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60234340002	**MW-5-121316**	EPA 300.0	461087		
60234340003	**MW-6-121316**	EPA 300.0	460944		
60234340003	**MW-6-121316**	EPA 300.0	461087		
60234340004	**MW-1-121316**	EPA 300.0	460944		
60234340004	**MW-1-121316**	EPA 300.0	461087		
60234340005	**DUP-121316**	EPA 300.0	460944		
60234340005	**DUP-121316**	EPA 300.0	461087		

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Sample Condition Upon Receipt

WO# : 60234340

60234340

Client Name: Weston Env

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 ☒ Bag

Thermometer Used: CF +0.7 / CF -0.5 T-266 / T-239 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 3.1 **Corr. Factor** CF +0.7 CF -0.5 **Corrected** 3.8

Date and initials of person examining contents: 12/14/16

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☐N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix:	☐Yes ☐No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	
Cyanide water sample checks: ☐ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒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: 12/15/16

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A — **Required** Client Information:

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

Section B — **Required** Project Information:

Report To:	Brandon Griffin
Copy To:	Jared Morrison, Heath Hornya
Purchase Order No.:	
Project Name:	TEC CCR Groundwater
Project Number:	

Section C — Invoice Information:

Attention:	Jared Morrison
Company Name:	WESTAR ENERGY
Address:	SEE SECTION A
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson, 913-563-1407
Pace Profile #:	9656, 1

REGULATORY AGENCY

☑ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: KS

Section D — **Required** Client Information

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

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	200.7 Total Metals*	200.8 Total Metals**	245.1 Total Mercury	300.0 Cl, Fl, SO4	4500 H+B	2540C TDS	Radium 226	Radium 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-4-121316	WT	G			12/13/16	0908		4	1		3														60234340
2	MW-5-121316	WT	G			12/13/16	1105		4	1		3														
3	MW-6-121316	WT	G			12/13/16	1302		4	1		3														
4	MW-1-121316	WT	G			12/13/16	1506		4	1		3														
5																										
6																										
7																										
8																										
9																										
10	Dup-121316	WT	G			12/13/16	0600		4	1		3														
11																										
12																										

Requested Analysis Filtered (Y/N)

Pace Project No./ Lab I.D.: 2(BP2, BP1N) BP3N, BP4N → 001, 002, 003, 004

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*200.7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li	Westar	12/14/16	1245	PASE	12/14/16	1610	3.6	Y	Y	Y
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brandon Griffin

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 12/14/16

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Chain of Custody

WO#: 30205832

30205832

Pace Analytical® www.pacelabs.com

Workorder: 60234340 **Workorder Name:** TEC CCR GROUNDWATER **Owner Received Date:** 12/14/2016 **Results Requested By:** 1/9/2017

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

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: BP1N	Radium 226 & total sum	Radium 228	LAB USE ONLY
1	MW-4-121316	PS	12/13/2016 09:08	60234340001	Water	2	X	X	001
2	MW-5-121316	PS	12/13/2016 11:05	60234340002	Water	2	X	X	002
3	MW-6-121316	PS	12/13/2016 13:02	60234340003	Water	2	X	X	003
4	MW-1-121316	PS	12/13/2016 15:06	60234340004	Water	2	X	X	004
5	DUP-121316	PS	12/13/2016 06:00	60234340005	Water	2	X	X	005

Transfers	Released By	Date/Time	Received	Date/Time
1	[signature]	12/15/16 1200	Amar Mudhirey PACE	12/16/16 120
2				12/16/16
3				ARM 12/17/16

Comments

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

Pace Analytical

Client Name: PACKS Project # 30205832

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: Ripped Off

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: ARM 12/17/10

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓	✓		10.
Containers Intact:	✓			11.
Filtered volume received for Dissolved tests			✓	12.
All containers needing preservation have been checked. All containers needing preservation are found to be in compliance with EPA recommendation.	✓			13. pH<2
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed: ARM 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: ARM Date: 12/17/10

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

March 08, 2017

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

RE: Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Dear Brandon Griffin:
Enclosed are the analytical results for sample(s) received by the laboratory on February 07, 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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60237408001	**MW-4-020617**	Water	02/06/17 15:39	02/07/17 15:15
60237408002	**MW-5-020617**	Water	02/07/17 07:41	02/07/17 15:15
60237408003	**MW-6-020617**	Water	02/07/17 08:46	02/07/17 15:15
60237408004	**MW-1-020617**	Water	02/07/17 10:46	02/07/17 15:15
60237408005	**DUP-020617**	Water	02/07/17 06:00	02/07/17 15:15

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60237408001	**MW-4-020617**	EPA 200.7	JGP	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	OL	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60237408002	**MW-5-020617**	EPA 200.7	JGP	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	KAC	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	OL	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60237408003	**MW-6-020617**	EPA 200.7	JGP	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	KAC	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	OL	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60237408004	**MW-1-020617**	EPA 200.7	JGP	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	KAC	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	OL	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60237408005	**DUP-020617**	EPA 200.7	JGP	7	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	KAC	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	OL	1	PASI-K
		EPA 300.0	OL	3	PASI-K

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(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: WESTAR ENERGY
Date: March 08, 2017

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

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

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: WESTAR ENERGY
Date: March 08, 2017

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

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

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Method: **EPA 245.1**
Description: 245.1 Mercury
Client: WESTAR ENERGY
Date: March 08, 2017

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

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

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

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: WESTAR ENERGY
Date: March 08, 2017

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: WESTAR ENERGY
Date: March 08, 2017

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: WESTAR ENERGY
Date: March 08, 2017

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: WESTAR ENERGY
Date: March 08, 2017

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

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

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: WESTAR ENERGY
Date: March 08, 2017

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

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

H6: Analysis initiated outside of the 15 minute EPA required holding time.
- DUP-020617 (Lab ID: 60237408005)
- MW-1-020617 (Lab ID: 60237408004)
- MW-4-020617 (Lab ID: 60237408001)
- MW-5-020617 (Lab ID: 60237408002)
- MW-6-020617 (Lab ID: 60237408003)

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:

Analyte Comments:

QC Batch: 465132

- DUP (Lab ID: 1903941)
  - pH at 25 Degrees C
- DUP-020617 (Lab ID: 60237408005)
  - pH at 25 Degrees C
- MW-1-020617 (Lab ID: 60237408004)
  - pH at 25 Degrees C
- MW-4-020617 (Lab ID: 60237408001)
  - pH at 25 Degrees C
- MW-5-020617 (Lab ID: 60237408002)
  - pH at 25 Degrees C
- MW-6-020617 (Lab ID: 60237408003)
  - pH at 25 Degrees C

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PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: WESTAR ENERGY
Date: March 08, 2017

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

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

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

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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

QC Batch: 466158

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60237439001,60237980003

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

- MS (Lab ID: 1907935)
  - Chloride
  - Sulfate
- MSD (Lab ID: 1907936)
  - Chloride
  - Sulfate

Additional Comments:

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

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Sample: MW-4-020617 **Lab ID: 60237408001** Collected: 02/06/17 15:39 Received: 02/07/17 15:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.12**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:21	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 15:21	7440-41-7	
Boron, Total Recoverable	**<0.10**	mg/L	0.10	1	02/08/17 11:30	02/09/17 15:21	7440-42-8	
Calcium, Total Recoverable	**188**	mg/L	0.10	1	02/08/17 11:30	02/09/17 15:21	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:21	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:21	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	02/08/17 11:30	02/09/17 15:21	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:08	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:08	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	02/08/17 11:30	02/09/17 17:08	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:08	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:08	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:08	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:08	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	02/13/17 12:00	02/13/17 15:45	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1000**	mg/L	5.0	1		02/09/17 15:47		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		02/11/17 09:22		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**263**	mg/L	20.0	20		02/21/17 10:07	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		02/21/17 09:53	16984-48-8	
Sulfate	**140**	mg/L	20.0	20		02/21/17 10:07	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Sample: MW-5-020617 **Lab ID: 60237408002** Collected: 02/07/17 07:41 Received: 02/07/17 15:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.026**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:28	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 15:28	7440-41-7	
Boron, Total Recoverable	**0.98**	mg/L	0.10	1	02/08/17 11:30	02/09/17 15:28	7440-42-8	
Calcium, Total Recoverable	**321**	mg/L	0.10	1	02/08/17 11:30	02/09/17 15:28	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:28	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:28	7439-92-1	
Lithium	**0.014**	mg/L	0.010	1	02/08/17 11:30	02/09/17 15:28	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:12	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:12	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	02/08/17 11:30	02/09/17 17:12	7440-43-9	
Cobalt, Total Recoverable	**0.0018**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:12	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:12	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:12	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:12	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	02/13/17 12:00	02/13/17 15:49	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1740**	mg/L	5.0	1		02/13/17 14:21		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**6.9**	Std. Units	0.10	1		02/11/17 09:23		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**45.9**	mg/L	5.0	5		02/21/17 10:35	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		02/21/17 10:21	16984-48-8	
Sulfate	**874**	mg/L	100	100		02/21/17 10:49	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Sample: MW-6-020617 **Lab ID: 60237408003** Collected: 02/07/17 08:46 Received: 02/07/17 15:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.028**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:31	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 15:31	7440-41-7	
Boron, Total Recoverable	**1.1**	mg/L	0.10	1	02/08/17 11:30	02/09/17 15:31	7440-42-8	
Calcium, Total Recoverable	**323**	mg/L	0.10	1	02/08/17 11:30	02/09/17 15:31	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:31	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:31	7439-92-1	
Lithium	**0.013**	mg/L	0.010	1	02/08/17 11:30	02/09/17 15:31	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:15	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:15	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	02/08/17 11:30	02/09/17 17:15	7440-43-9	
Cobalt, Total Recoverable	**0.0016**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:15	7440-48-4	
Molybdenum, Total Recoverable	**0.0011**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:15	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:15	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:15	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	02/13/17 12:00	02/13/17 15:51	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1800**	mg/L	5.0	1		02/13/17 14:23		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		02/11/17 09:24		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**59.8**	mg/L	5.0	5		02/21/17 11:44	16887-00-6	
Fluoride	**0.28**	mg/L	0.20	1		02/21/17 11:30	16984-48-8	
Sulfate	**876**	mg/L	100	100		02/21/17 11:58	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Sample: MW-1-020617 **Lab ID: 60237408004** Collected: 02/07/17 10:46 Received: 02/07/17 15:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.20**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:33	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 15:33	7440-41-7	
Boron, Total Recoverable	**0.34**	mg/L	0.10	1	02/08/17 11:30	02/09/17 15:33	7440-42-8	
Calcium, Total Recoverable	**184**	mg/L	0.10	1	02/08/17 11:30	02/09/17 15:33	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:33	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:33	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	02/08/17 11:30	02/09/17 15:33	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:18	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:18	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	02/08/17 11:30	02/09/17 17:18	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:18	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:18	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:18	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:18	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	02/13/17 12:00	02/13/17 15:52	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**993**	mg/L	5.0	1		02/13/17 14:24		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		02/11/17 09:26		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**22.5**	mg/L	2.0	2		02/21/17 12:26	16887-00-6	
Fluoride	**0.30**	mg/L	0.20	1		02/21/17 12:12	16984-48-8	
Sulfate	**450**	mg/L	50.0	50		02/21/17 12:40	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Sample: DUP-020617 **Lab ID: 60237408005** Collected: 02/07/17 06:00 Received: 02/07/17 15:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.20**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:35	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 15:35	7440-41-7	
Boron, Total Recoverable	**0.33**	mg/L	0.10	1	02/08/17 11:30	02/09/17 15:35	7440-42-8	
Calcium, Total Recoverable	**185**	mg/L	0.10	1	02/08/17 11:30	02/09/17 15:35	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:35	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	02/08/17 11:30	02/09/17 15:35	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	02/08/17 11:30	02/09/17 15:35	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:21	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:21	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	02/08/17 11:30	02/09/17 17:21	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:21	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:21	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:21	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	02/08/17 11:30	02/09/17 17:21	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	02/13/17 12:00	02/13/17 15:55	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**993**	mg/L	5.0	1		02/13/17 14:24		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		02/11/17 09:28		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**22.8**	mg/L	2.0	2		02/21/17 13:08	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	1		02/21/17 12:54	16984-48-8	
Sulfate	**420**	mg/L	50.0	50		02/24/17 15:10	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

QC Batch: 465226 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
Associated Lab Samples: 60237408001, 60237408002, 60237408003, 60237408004, 60237408005

METHOD BLANK: 1904490 Matrix: Water
Associated Lab Samples: 60237408001, 60237408002, 60237408003, 60237408004, 60237408005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	02/13/17 15:14	

LABORATORY CONTROL SAMPLE: 1904491

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0052	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1904492 1904493

Parameter	Units	60237627001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	<0.20 ug/L	.005	.005	0.0051	0.0049	99	96	70-130	3	20	

MATRIX SPIKE SAMPLE: 1904494

Parameter	Units	60237408004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.00020	.005	0.0053	105	70-130	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

QC Batch: 464776 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60237408001, 60237408002, 60237408003, 60237408004, 60237408005

METHOD BLANK: 1902178 Matrix: Water
Associated Lab Samples: 60237408001, 60237408002, 60237408003, 60237408004, 60237408005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	02/09/17 15:00	
Beryllium	mg/L	<0.0010	0.0010	02/09/17 15:00	
Boron	mg/L	<0.10	0.10	02/09/17 15:00	
Calcium	mg/L	<0.10	0.10	02/09/17 15:00	
Chromium	mg/L	<0.0050	0.0050	02/09/17 15:00	
Lead	mg/L	<0.0050	0.0050	02/09/17 15:00	
Lithium	mg/L	<0.010	0.010	02/09/17 15:00	

LABORATORY CONTROL SAMPLE: 1902179

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	106	85-115	
Boron	mg/L	1	0.97	97	85-115	
Calcium	mg/L	10	10.4	104	85-115	
Chromium	mg/L	1	1.0	100	85-115	
Lead	mg/L	1	0.98	98	85-115	
Lithium	mg/L	1	1.1	108	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1902180 1902181

Parameter	Units	60237344001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.32	1	1	1.4	1.3	109	102	70-130	5	20	
Beryllium	mg/L	<0.0010	1	1	1.1	1.0	109	103	70-130	5	20	
Boron	mg/L	0.18	1	1	1.2	1.2	101	98	70-130	3	20	
Calcium	mg/L	61.9	10	10	73.6	70.6	117	87	70-130	4	20	
Chromium	mg/L	<0.0050	1	1	1.0	0.98	102	98	70-130	4	20	
Lead	mg/L	<0.0050	1	1	0.97	0.94	97	93	70-130	4	20	
Lithium	mg/L	0.012	1	1	1.1	1.1	110	104	70-130	6	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

QC Batch: 464778 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60237408001, 60237408002, 60237408003, 60237408004, 60237408005

METHOD BLANK: 1902182 Matrix: Water
Associated Lab Samples: 60237408001, 60237408002, 60237408003, 60237408004, 60237408005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	02/13/17 12:02	
Arsenic	mg/L	<0.0010	0.0010	02/13/17 12:02	
Cadmium	mg/L	<0.00050	0.00050	02/13/17 12:02	
Cobalt	mg/L	<0.0010	0.0010	02/13/17 12:02	
Molybdenum	mg/L	<0.0010	0.0010	02/13/17 12:02	
Selenium	mg/L	<0.0010	0.0010	02/13/17 12:02	
Thallium	mg/L	<0.0010	0.0010	02/13/17 12:02	

LABORATORY CONTROL SAMPLE: 1902183

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.038	96	85-115	
Arsenic	mg/L	.04	0.039	98	85-115	
Cadmium	mg/L	.04	0.039	98	85-115	
Cobalt	mg/L	.04	0.039	96	85-115	
Molybdenum	mg/L	.04	0.041	102	85-115	
Selenium	mg/L	.04	0.039	99	85-115	
Thallium	mg/L	.04	0.037	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1902184 1902185

Parameter	Units	60237356001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	0.25J ug/L	.04	.04	0.039	0.039	96	97	70-130	1	20	
Arsenic	mg/L	<0.052 ug/L	.04	.04	0.039	0.039	98	97	70-130	1	20	
Cadmium	mg/L	<0.018 ug/L	.04	.04	0.038	0.039	95	97	70-130	3	20	
Cobalt	mg/L	0.24J ug/L	.04	.04	0.037	0.038	92	94	70-130	3	20	
Molybdenum	mg/L	0.73J ug/L	.04	.04	0.042	0.042	102	104	70-130	1	20	
Selenium	mg/L	<0.086 ug/L	.04	.04	0.039	0.038	96	96	70-130	1	20	
Thallium	mg/L	<0.036 ug/L	.04	.04	0.036	0.037	90	92	70-130	2	20	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

MATRIX SPIKE SAMPLE: 1902186

Parameter	Units	60237356002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	1.4 ug/L	.04	0.040	96	70-130	
Arsenic	mg/L	2.9 ug/L	.04	0.042	97	70-130	
Cadmium	mg/L	1.7 ug/L	.04	0.039	94	70-130	
Cobalt	mg/L	31.0 ug/L	.04	0.067	89	70-130	
Molybdenum	mg/L	7.0 ug/L	.04	0.048	101	70-130	
Selenium	mg/L	<0.086 ug/L	.04	0.038	96	70-130	
Thallium	mg/L	0.16J ug/L	.04	0.036	90	70-130	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

QC Batch: 464879 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60237408001

METHOD BLANK: 1902679 Matrix: Water
Associated Lab Samples: 60237408001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	02/09/17 15:35	

LABORATORY CONTROL SAMPLE: 1902680

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1020	102	80-120	

SAMPLE DUPLICATE: 1902681

Parameter	Units	60237373003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	445	441	1	10	

SAMPLE DUPLICATE: 1902682

Parameter	Units	60237344005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	8000	7700	4	10	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

QC Batch: 465288 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60237408002, 60237408003, 60237408004, 60237408005

METHOD BLANK: 1904626 Matrix: Water
Associated Lab Samples: 60237408002, 60237408003, 60237408004, 60237408005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	02/13/17 14:18	

LABORATORY CONTROL SAMPLE: 1904627

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1010	101	80-120	

SAMPLE DUPLICATE: 1904628

Parameter	Units	60237755001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	3040	3030	0	10	

SAMPLE DUPLICATE: 1904629

Parameter	Units	60237408005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	993	1010	2	10	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

QC Batch: 465132 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60237408001, 60237408002, 60237408003, 60237408004, 60237408005

SAMPLE DUPLICATE: 1903941

Parameter	Units	40145474001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.8	7.8	0	5	H6

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

QC Batch: 466158 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60237408001, 60237408002, 60237408003, 60237408004, 60237408005

METHOD BLANK: 1907933 Matrix: Water
Associated Lab Samples: 60237408001, 60237408002, 60237408003, 60237408004, 60237408005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	02/21/17 09:22	
Fluoride	mg/L	<0.20	0.20	02/21/17 09:22	
Sulfate	mg/L	<1.0	1.0	02/21/17 09:22	

LABORATORY CONTROL SAMPLE: 1907934

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	2.6	106	90-110	
Sulfate	mg/L	5	5.0	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1907935 1907936

Parameter	Units	60237439001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	61.7	25	25	95.1	95.4	134	135	80-120	0	15	M1
Fluoride	mg/L	0.95J	12.5	12.5	13.8	14.1	103	105	80-120	2	15	
Sulfate	mg/L	97.7	25	25	135	134	148	144	80-120	1	15	M1

MATRIX SPIKE SAMPLE: 1907937

Parameter	Units	60237980003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	218	100	319	101	80-120	
Fluoride	mg/L	ND	50	53.4	107	80-120	
Sulfate	mg/L	75.7	100	176	100	80-120	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

QC Batch: 466679 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60237408005

METHOD BLANK: 1909871 Matrix: Water
Associated Lab Samples: 60237408005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	<1.0	1.0	02/24/17 13:38	

LABORATORY CONTROL SAMPLE: 1909872

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1909873 1909874

Parameter	Units	60238051001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	89.2	50	50	140	141	103	104	80-120	0	15	

MATRIX SPIKE SAMPLE: 1909875

Parameter	Units	60237408005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	420	250	680	104	80-120	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Sample: MW-4-020617 **Lab ID: 60237408001** Collected: 02/06/17 15:39 Received: 02/07/17 15:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0706 ± 0.322 (0.519) C:NA T:81%**	pCi/L	03/02/17 11:36	13982-63-3	
Radium-228	EPA 904.0	**0.808 ± 0.462 (0.855) C:77% T:85%**	pCi/L	03/04/17 14:28	15262-20-1	
Total Radium	Total Radium Calculation	**0.879 ± 0.784 (1.37)**	pCi/L	03/07/17 20:45	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Sample: MW-5-020617 **Lab ID: 60237408002** Collected: 02/07/17 07:41 Received: 02/07/17 15:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.855 ± 0.701 (1.04) C:NA T:88%**	pCi/L	03/02/17 11:36	13982-63-3	
Radium-228	EPA 904.0	**0.0379 ± 0.346 (0.798) C:75% T:82%**	pCi/L	03/04/17 14:28	15262-20-1	
Total Radium	Total Radium Calculation	**0.893 ± 1.05 (1.84)**	pCi/L	03/07/17 20:45	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Sample: MW-6-020617 **Lab ID: 60237408003** Collected: 02/07/17 08:46 Received: 02/07/17 15:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.194 ± 0.296 (0.175) C:NA T:91%**	pCi/L	03/02/17 11:36	13982-63-3	
Radium-228	EPA 904.0	**0.388 ± 0.411 (0.854) C:76% T:78%**	pCi/L	03/04/17 14:29	15262-20-1	
Total Radium	Total Radium Calculation	**0.582 ± 0.707 (1.03)**	pCi/L	03/07/17 20:45	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Sample: MW-1-020617 **Lab ID: 60237408004** Collected: 02/07/17 10:46 Received: 02/07/17 15:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.123 ± 0.281 (0.452) C:NA T:95%**	pCi/L	03/02/17 11:36	13982-63-3	
Radium-228	EPA 904.0	**0.344 ± 0.328 (0.667) C:74% T:89%**	pCi/L	03/04/17 14:29	15262-20-1	
Total Radium	Total Radium Calculation	**0.467 ± 0.609 (1.12)**	pCi/L	03/07/17 20:45	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Sample: DUP-020617 **Lab ID: 60237408005** Collected: 02/07/17 06:00 Received: 02/07/17 15:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.439 ± 0.373 (0.462) C:NA T:91%**	pCi/L	03/02/17 11:36	13982-63-3	
Radium-228	EPA 904.0	**0.156 ± 0.342 (0.758) C:75% T:85%**	pCi/L	03/04/17 14:29	15262-20-1	
Total Radium	Total Radium Calculation	**0.595 ± 0.715 (1.22)**	pCi/L	03/07/17 20:45	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

QC Batch: 249984 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60237408001, 60237408002, 60237408003, 60237408004, 60237408005

METHOD BLANK: 1229900 Matrix: Water
Associated Lab Samples: 60237408001, 60237408002, 60237408003, 60237408004, 60237408005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.057 ± 0.262 (0.534) C:NA T:96%	pCi/L	03/02/17 11:17	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

QC Batch: 250069 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60237408001, 60237408002, 60237408003, 60237408004, 60237408005

METHOD BLANK: 1230258 Matrix: Water
Associated Lab Samples: 60237408001, 60237408002, 60237408003, 60237408004, 60237408005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.167 ± 0.261 (0.551) C:77% T:85%	pCi/L	03/04/17 14:35	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

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.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60237408001	MW-4-020617	EPA 200.7	464776	EPA 200.7	464816
60237408002	MW-5-020617	EPA 200.7	464776	EPA 200.7	464816
60237408003	MW-6-020617	EPA 200.7	464776	EPA 200.7	464816
60237408004	MW-1-020617	EPA 200.7	464776	EPA 200.7	464816
60237408005	DUP-020617	EPA 200.7	464776	EPA 200.7	464816
60237408001	MW-4-020617	EPA 200.8	464778	EPA 200.8	464815
60237408002	MW-5-020617	EPA 200.8	464778	EPA 200.8	464815
60237408003	MW-6-020617	EPA 200.8	464778	EPA 200.8	464815
60237408004	MW-1-020617	EPA 200.8	464778	EPA 200.8	464815
60237408005	DUP-020617	EPA 200.8	464778	EPA 200.8	464815
60237408001	MW-4-020617	EPA 245.1	465226	EPA 245.1	465325
60237408002	MW-5-020617	EPA 245.1	465226	EPA 245.1	465325
60237408003	MW-6-020617	EPA 245.1	465226	EPA 245.1	465325
60237408004	MW-1-020617	EPA 245.1	465226	EPA 245.1	465325
60237408005	DUP-020617	EPA 245.1	465226	EPA 245.1	465325
60237408001	MW-4-020617	EPA 903.1	249984		
60237408002	MW-5-020617	EPA 903.1	249984		
60237408003	MW-6-020617	EPA 903.1	249984		
60237408004	MW-1-020617	EPA 903.1	249984		
60237408005	DUP-020617	EPA 903.1	249984		
60237408001	MW-4-020617	EPA 904.0	250069		
60237408002	MW-5-020617	EPA 904.0	250069		
60237408003	MW-6-020617	EPA 904.0	250069		
60237408004	MW-1-020617	EPA 904.0	250069		
60237408005	DUP-020617	EPA 904.0	250069		
60237408001	MW-4-020617	Total Radium Calculation	251396		
60237408002	MW-5-020617	Total Radium Calculation	251396		
60237408003	MW-6-020617	Total Radium Calculation	251396		
60237408004	MW-1-020617	Total Radium Calculation	251396		
60237408005	DUP-020617	Total Radium Calculation	251396		
60237408001	MW-4-020617	SM 2540C	464879		
60237408002	MW-5-020617	SM 2540C	465288		
60237408003	MW-6-020617	SM 2540C	465288		
60237408004	MW-1-020617	SM 2540C	465288		
60237408005	DUP-020617	SM 2540C	465288		
60237408001	MW-4-020617	SM 4500-H+B	465132		
60237408002	MW-5-020617	SM 4500-H+B	465132		
60237408003	MW-6-020617	SM 4500-H+B	465132		
60237408004	MW-1-020617	SM 4500-H+B	465132		
60237408005	DUP-020617	SM 4500-H+B	465132		
60237408001	MW-4-020617	EPA 300.0	466158		
60237408002	MW-5-020617	EPA 300.0	466158		
60237408003	MW-6-020617	EPA 300.0	466158		
60237408004	MW-1-020617	EPA 300.0	466158		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60237408

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60237408005	**DUP-020617**	EPA 300.0	466158		
60237408005	**DUP-020617**	EPA 300.0	466679		

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Sample Condition Upon Receipt

WO# : 60237408

60237408

Client Name: Westar Energy

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☒ Scott 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: CF +1.5 T-266 / CF +0.9 T-239 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 1.5 **Corr. Factor** CF +1.5 CF +0.9 **Corrected** 3.0

Date and initials of person examining contents: 1520 JA 2/7/17

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: water	☐Yes ☐No ☐N/A	
Containers requiring pH preservation in compliance? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	
Cyanide water sample checks: ☑N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑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: 2/7/17

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A — Required Client Information:

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

Section B — Required Project Information:

Report To:	Brandon Griffin
Copy To:	Jared Morrison, Heath Hornya
Purchase Order No.:	
Project Name:	TEC CCR Groundwater
Project Number:	

Section C — Invoice Information:

Attention:	Jared Morrison
Company Name:	WESTAR ENERGY
Address:	SEE SECTION A
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson, 913-563-1407
Pace Profile #:	9656, 1

REGULATORY AGENCY

☑ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: KS

Section D — Required Client Information

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

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	200.7 Total Metals*	200.8 Total Metals**	245.1 Total Mercury	300.0 Cl, Fl, SO4	4500 H+B	2540C TDS	Radium 226	Radium 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-4-020617	WT	G			2/6	1534		4	1		3															6023774.8 (2BP1N) (1BP2N) (1BP3N) 001
2	MW-5-020717	WT	G			2/7	0741		4	1		3															002
3	MW-6-020717	WT	G			2/7	0846		4	1		3															003
4	MW-1-020717	WT	G			2/7	1046		4	1		3															004
5																											
6																											
7																											
8																											
9	DUP-020717	WT	G			2/7	0600		4	1		3															005
10																											
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*200.7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li	Westar	2/7/17	1123		2-7	11:23				
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl					2/7/17	1515	3.0	Y	N	Y

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brandon Griffin

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 02/07/17

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Chain of Custody

WO# : 30210240

30210240

Pace Analytical®
www.pacelabs.com

Workorder: 60237408 **Workorder Name:** TEC CCR GROUNDWATER **Owner Received Date:** 2/7/2017 **Results Requested By:** 3/2/2017

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

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HNO3	Requested Analysis: Radium-226 & Total Sum Radium	Requested Analysis: Radium-228	LAB USE ONLY
1	MW-4-020617	PS	2/6/2017 15:39	60237408001	Water	2	X	X	001
2	MW-5-020617	PS	2/7/2017 07:41	60237408002	Water	2	X	X	002
3	MW-6-020617	PS	2/7/2017 08:46	60237408003	Water	2	X	X	003
4	MW-1-020617	PS	2/7/2017 10:46	60237408004	Water	2	X	X	004
5	DUP-020617	PS	2/7/2017 06:00	60237408005	Water	2	X	X	005

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature] 2/8/17	1700	[signature]	2-9-17 1110
2				
3				

Comments

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

Pace Analytical

Client Name: Pace Kansas Project # 30210240

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: _____

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

Thermometer Used NA **Type of Ice:** Wet Blue (None)

Cooler Temperature **Observed Temp** NA °C Correction Factor: — °C Final Temp: — °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: ML 2-9-17

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: -Includes date/time/ID Matrix: WT	X			5.
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. Low volume
Correct Containers Used: -Pace Containers Used:	X X			10.
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. All containers needing preservation are found to be in compliance with EPA recommendation.	X X			15. PH<2
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed ML 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: ML Date: 2-9-17

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

September 12, 2017

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

RE: Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Dear Brandon Griffin:
Enclosed are the analytical results for sample(s) received by the laboratory on April 07, 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.

Revision 1 - This report replaces the May 1, 2017 report. This report has been reissued on September 7, 2017 to correct the Total Radium Sum Calculations.

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

Pace Analytical Services, LLC
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Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60241617001	**MW-4-040517**	Water	04/05/17 11:14	04/07/17 14:47
60241617002	**MW-5-040517**	Water	04/05/17 13:19	04/07/17 14:47
60241617003	**MW-6-040517**	Water	04/05/17 15:03	04/07/17 14:47
60241617004	**MW-1-040517**	Water	04/05/17 16:46	04/07/17 14:47
60241617005	**DUP-040517**	Water	04/05/17 08:00	04/07/17 14:47

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60241617001	**MW-4-040517**	EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	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
60241617002	**MW-5-040517**	EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	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
60241617003	**MW-6-040517**	EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	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
60241617004	**MW-1-040517**	EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	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
60241617005	**DUP-040517**	EPA 200.7	SMW	7	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	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

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9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: WESTAR ENERGY
Date: September 12, 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: 473126

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60241617002,60241813002

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

- MS (Lab ID: 1937368)
  - Calcium

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: WESTAR ENERGY
Date: September 12, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Method: **EPA 245.1**
Description: 245.1 Mercury
Client: WESTAR ENERGY
Date: September 12, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: WESTAR ENERGY
Date: September 12, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: WESTAR ENERGY
Date: September 12, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: WESTAR ENERGY
Date: September 12, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: WESTAR ENERGY
Date: September 12, 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:

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PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: WESTAR ENERGY
Date: September 12, 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-040517 (Lab ID: 60241617005)
- MW-1-040517 (Lab ID: 60241617004)
- MW-4-040517 (Lab ID: 60241617001)
- MW-5-040517 (Lab ID: 60241617002)
- MW-6-040517 (Lab ID: 60241617003)

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: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: WESTAR ENERGY
Date: September 12, 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.

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Sample: MW-4-040517 **Lab ID: 60241617001** Collected: 04/05/17 11:14 Received: 04/07/17 14:47 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.11**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 17:57	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/17/17 17:20	04/18/17 17:57	7440-41-7	
Boron, Total Recoverable	**<0.10**	mg/L	0.10	1	04/17/17 17:20	04/18/17 17:57	7440-42-8	
Calcium, Total Recoverable	**182**	mg/L	0.10	1	04/17/17 17:20	04/18/17 17:57	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 17:57	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 17:57	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	04/17/17 17:20	04/18/17 17:57	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:27	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:27	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	04/13/17 10:30	04/25/17 17:27	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:27	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:27	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:27	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:27	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	04/10/17 15:45	04/11/17 10:07	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1030**	mg/L	5.0	1		04/11/17 16:03		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		04/12/17 11:39		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**261**	mg/L	20.0	20		04/10/17 21:27	16887-00-6	
Fluoride	**0.23**	mg/L	0.20	1		04/10/17 21:12	16984-48-8	
Sulfate	**143**	mg/L	20.0	20		04/10/17 21:27	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Sample: MW-5-040517 **Lab ID: 60241617002** Collected: 04/05/17 13:19 Received: 04/07/17 14:47 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.021**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 17:59	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/17/17 17:20	04/18/17 17:59	7440-41-7	
Boron, Total Recoverable	**1.2**	mg/L	0.10	1	04/17/17 17:20	04/18/17 17:59	7440-42-8	
Calcium, Total Recoverable	**318**	mg/L	0.10	1	04/17/17 17:20	04/18/17 17:59	7440-70-2	M1
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 17:59	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 17:59	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	04/17/17 17:20	04/18/17 17:59	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:31	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:31	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	04/13/17 10:30	04/25/17 17:31	7440-43-9	
Cobalt, Total Recoverable	**0.0021**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:31	7440-48-4	
Molybdenum, Total Recoverable	**0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:31	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:31	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:31	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	04/10/17 15:45	04/11/17 10:09	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1650**	mg/L	5.0	1		04/11/17 16:04		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		04/12/17 11:50		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**42.9**	mg/L	5.0	5		04/10/17 21:57	16887-00-6	
Fluoride	**0.30**	mg/L	0.20	1		04/10/17 21:42	16984-48-8	
Sulfate	**892**	mg/L	100	100		04/10/17 22:12	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Sample: MW-6-040517 **Lab ID: 60241617003** Collected: 04/05/17 15:03 Received: 04/07/17 14:47 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.023**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 18:08	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/17/17 17:20	04/18/17 18:08	7440-41-7	
Boron, Total Recoverable	**0.98**	mg/L	0.10	1	04/17/17 17:20	04/18/17 18:08	7440-42-8	
Calcium, Total Recoverable	**328**	mg/L	0.10	1	04/17/17 17:20	04/18/17 18:08	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 18:08	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 18:08	7439-92-1	
Lithium	**0.011**	mg/L	0.010	1	04/17/17 17:20	04/18/17 18:08	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:36	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:36	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	04/13/17 10:30	04/25/17 17:36	7440-43-9	
Cobalt, Total Recoverable	**0.0016**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:36	7440-48-4	
Molybdenum, Total Recoverable	**0.0012**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:36	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:36	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:36	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	04/10/17 15:45	04/11/17 10:11	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1810**	mg/L	5.0	1		04/11/17 16:04		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		04/12/17 11:52		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**59.8**	mg/L	5.0	5		04/10/17 22:27	16887-00-6	
Fluoride	**0.38**	mg/L	0.20	1		04/10/17 23:26	16984-48-8	
Sulfate	**967**	mg/L	100	100		04/10/17 22:42	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Sample: MW-1-040517 **Lab ID: 60241617004** Collected: 04/05/17 16:46 Received: 04/07/17 14:47 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.20**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 18:10	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/17/17 17:20	04/18/17 18:10	7440-41-7	
Boron, Total Recoverable	**0.50**	mg/L	0.10	1	04/17/17 17:20	04/18/17 18:10	7440-42-8	
Calcium, Total Recoverable	**176**	mg/L	0.10	1	04/17/17 17:20	04/18/17 18:10	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 18:10	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 18:10	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	04/17/17 17:20	04/18/17 18:10	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:40	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:40	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	04/13/17 10:30	04/25/17 17:40	7440-43-9	
Cobalt, Total Recoverable	**0.0014**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:40	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:40	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:40	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:40	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	04/10/17 15:45	04/11/17 10:14	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**984**	mg/L	5.0	1		04/11/17 16:04		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		04/12/17 11:55		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**22.5**	mg/L	2.0	2		04/10/17 23:56	16887-00-6	
Fluoride	**0.46**	mg/L	0.20	1		04/10/17 23:41	16984-48-8	
Sulfate	**455**	mg/L	50.0	50		04/11/17 00:11	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Sample: DUP-040517 **Lab ID: 60241617005** Collected: 04/05/17 08:00 Received: 04/07/17 14:47 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.12**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 18:12	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/17/17 17:20	04/18/17 18:12	7440-41-7	
Boron, Total Recoverable	**<0.10**	mg/L	0.10	1	04/17/17 17:20	04/18/17 18:12	7440-42-8	
Calcium, Total Recoverable	**182**	mg/L	0.10	1	04/17/17 17:20	04/18/17 18:12	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 18:12	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	04/17/17 17:20	04/18/17 18:12	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	04/17/17 17:20	04/18/17 18:12	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:45	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:45	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	04/13/17 10:30	04/25/17 17:45	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:45	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:45	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:45	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	04/13/17 10:30	04/25/17 17:45	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	04/10/17 15:45	04/11/17 10:16	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**984**	mg/L	5.0	1		04/11/17 16:05		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		04/12/17 11:06		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**250**	mg/L	50.0	50		04/11/17 00:56	16887-00-6	
Fluoride	**0.26**	mg/L	0.20	1		04/11/17 00:26	16984-48-8	
Sulfate	**141**	mg/L	50.0	50		04/11/17 00:56	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

QC Batch: 472110 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

METHOD BLANK: 1933355 Matrix: Water
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

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 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	0.0046	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	

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 DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

QC Batch: 473126 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

METHOD BLANK: 1937364 Matrix: Water
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	04/18/17 17:19	
Beryllium	mg/L	<0.0010	0.0010	04/18/17 17:19	
Boron	mg/L	<0.10	0.10	04/18/17 17:19	
Calcium	mg/L	<0.10	0.10	04/18/17 17:19	
Chromium	mg/L	<0.0050	0.0050	04/18/17 17:19	
Lead	mg/L	<0.0050	0.0050	04/18/17 17:19	
Lithium	mg/L	<0.010	0.010	04/18/17 17:19	

LABORATORY CONTROL SAMPLE: 1937365

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	100	85-115	
Beryllium	mg/L	1	1.0	102	85-115	
Boron	mg/L	1	0.98	98	85-115	
Calcium	mg/L	10	10.0	100	85-115	
Chromium	mg/L	1	1.0	100	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: 1937366 1937367

Parameter	Units	60241813002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	151 ug/L	1	1	1.2	1.2	101	101	70-130	0	20	
Beryllium	mg/L	<1.0 ug/L	1	1	1.0	1.0	102	101	70-130	1	20	
Boron	mg/L	1480 ug/L	1	1	2.5	2.5	100	100	70-130	0	20	
Calcium	mg/L	205000 ug/L	10	10	213	212	81	73	70-130	0	20	
Chromium	mg/L	<5.0 ug/L	1	1	1.0	0.99	100	98	70-130	1	20	
Lead	mg/L	<5.0 ug/L	1	1	0.99	0.98	98	98	70-130	0	20	
Lithium	mg/L	18.9 ug/L	1	1	1.1	1.1	106	106	70-130	0	20	

MATRIX SPIKE SAMPLE: 1937368

Parameter	Units	60241617002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.021	1	1.0	102	70-130	
Beryllium	mg/L	<0.0010	1	1.0	100	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

MATRIX SPIKE SAMPLE: 1937368

Parameter	Units	60241617002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	1.2	1	2.2	100	70-130	
Calcium	mg/L	318	10	319	6	70-130	M1
Chromium	mg/L	<0.0050	1	0.97	97	70-130	
Lead	mg/L	<0.0050	1	0.98	98	70-130	
Lithium	mg/L	<0.010	1	1.1	107	70-130	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

QC Batch: 472593 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

METHOD BLANK: 1934995 Matrix: Water
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	04/17/17 12:46	
Arsenic	mg/L	<0.0010	0.0010	04/17/17 12:46	
Cadmium	mg/L	<0.00050	0.00050	04/17/17 12:46	
Cobalt	mg/L	<0.0010	0.0010	04/17/17 12:46	
Molybdenum	mg/L	<0.0010	0.0010	04/17/17 12:46	
Selenium	mg/L	<0.0010	0.0010	04/17/17 12:46	
Thallium	mg/L	<0.0010	0.0010	04/17/17 12:46	

LABORATORY CONTROL SAMPLE: 1934996

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.042	105	85-115	
Arsenic	mg/L	.04	0.042	105	85-115	
Cadmium	mg/L	.04	0.041	102	85-115	
Cobalt	mg/L	.04	0.041	104	85-115	
Molybdenum	mg/L	.04	0.043	108	85-115	
Selenium	mg/L	.04	0.043	108	85-115	
Thallium	mg/L	.04	0.038	94	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1934997 1934999

Parameter	Units	7563633001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	.04	.04	0.042	0.043	104	106	70-130	2	20	
Arsenic	mg/L	1.5 ug/L	.04	.04	0.043	0.043	104	103	70-130	1	20	
Cadmium	mg/L	ND	.04	.04	0.041	0.040	102	100	70-130	2	20	
Cobalt	mg/L	13.2 ug/L	.04	.04	0.053	0.053	100	99	70-130	1	20	
Molybdenum	mg/L	276 ug/L	.04	.04	0.32	0.32	109	110	70-130	0	20	
Selenium	mg/L	0.0023	.04	.04	0.044	0.044	103	104	70-130	0	20	
Thallium	mg/L	ND	.04	.04	0.037	0.038	93	94	70-130	1	20	

MATRIX SPIKE SAMPLE: 1935000

Parameter	Units	60241616001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<0.0010	.04	0.039	97	70-130	
Arsenic	mg/L	0.0015	.04	0.040	97	70-130	
Cadmium	mg/L	<0.00050	.04	0.037	92	70-130	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

MATRIX SPIKE SAMPLE: 1935000

Parameter	Units	60241616001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	0.0012	.04	0.039	95	70-130	
Molybdenum	mg/L	0.0099	.04	0.053	109	70-130	
Selenium	mg/L	<0.0010	.04	0.034	84	70-130	
Thallium	mg/L	<0.0010	.04	0.043	106	70-130	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

QC Batch: 472273 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

METHOD BLANK: 1933845 Matrix: Water
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	04/11/17 16:00	

LABORATORY CONTROL SAMPLE: 1933846

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

SAMPLE DUPLICATE: 1933847

Parameter	Units	60241444010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	3600	3530	2	10	

SAMPLE DUPLICATE: 1933848

Parameter	Units	60241654001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	57000	59000	3	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

QC Batch: 472307
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60241617005

SAMPLE DUPLICATE: 1934025

Parameter	Units	60241329005 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.8	7.8	1	5	H6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

QC Batch: 472308 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004

SAMPLE DUPLICATE: 1934027

Parameter	Units	60241275001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.9	7.9	0	5	H6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

QC Batch: 472089 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

METHOD BLANK: 1933304 Matrix: Water
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

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 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Sample: MW-4-040517 **Lab ID: 60241617001** Collected: 04/05/17 11:14 Received: 04/07/17 14:47 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.277 ± 0.576 (1.04) C:NA T:93%**	pCi/L	04/26/17 11:21	13982-63-3	
Radium-228	EPA 904.0	**0.822 ± 0.448 (0.810) C:74% T:81%**	pCi/L	04/25/17 14:56	15262-20-1	
Total Radium	Total Radium Calculation	**1.10 ± 1.02 (1.85)**	pCi/L	09/07/17 14:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Sample: MW-5-040517 **Lab ID: 60241617002** Collected: 04/05/17 13:19 Received: 04/07/17 14:47 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.289 ± 0.568 (1.02) C:NA T:89%**	pCi/L	04/26/17 11:21	13982-63-3	
Radium-228	EPA 904.0	**0.681 ± 0.475 (0.913) C:76% T:71%**	pCi/L	04/25/17 14:56	15262-20-1	
Total Radium	Total Radium Calculation	**0.970 ± 1.04 (1.93)**	pCi/L	09/07/17 14:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Sample: MW-6-040517 **Lab ID: 60241617003** Collected: 04/05/17 15:03 Received: 04/07/17 14:47 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0691 ± 0.407 (0.830) C:NA T:98%**	pCi/L	04/26/17 11:21	13982-63-3	
Radium-228	EPA 904.0	**0.155 ± 0.428 (0.958) C:81% T:62%**	pCi/L	04/25/17 14:56	15262-20-1	
Total Radium	Total Radium Calculation	**0.224 ± 0.835 (1.79)**	pCi/L	09/07/17 14:58	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Sample: MW-1-040517 **Lab ID: 60241617004** Collected: 04/05/17 16:46 Received: 04/07/17 14:47 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.431 (0.933) C:NA T:82%**	pCi/L	04/26/17 11:40	13982-63-3	
Radium-228	EPA 904.0	**0.455 ± 0.518 (1.09) C:79% T:69%**	pCi/L	04/25/17 14:56	15262-20-1	
Total Radium	Total Radium Calculation	**0.455 ± 0.949 (2.02)**	pCi/L	09/07/17 14:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Sample: DUP-040517 **Lab ID: 60241617005** Collected: 04/05/17 08:00 Received: 04/07/17 14:47 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.534 ± 0.500 (0.709) C:NA T:84%**	pCi/L	04/26/17 11:40	13982-63-3	
Radium-228	EPA 904.0	**1.22 ± 0.494 (0.767) C:78% T:79%**	pCi/L	04/25/17 14:56	15262-20-1	
Total Radium	Total Radium Calculation	**1.75 ± 0.994 (1.48)**	pCi/L	09/07/17 14:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

QC Batch: 255827 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

METHOD BLANK: 1259996 Matrix: Water
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.308 ± 0.372 (0.788) C:76% T:80%	pCi/L	04/25/17 14:56	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

QC Batch: 255826 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

METHOD BLANK: 1259995 Matrix: Water
Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.293 ± 0.353 (0.538) C:NA T:91%	pCi/L	04/26/17 11:04	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

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 (%)

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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.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60241617001	MW-4-040517	EPA 200.7	473126	EPA 200.7	473169
60241617002	MW-5-040517	EPA 200.7	473126	EPA 200.7	473169
60241617003	MW-6-040517	EPA 200.7	473126	EPA 200.7	473169
60241617004	MW-1-040517	EPA 200.7	473126	EPA 200.7	473169
60241617005	DUP-040517	EPA 200.7	473126	EPA 200.7	473169
60241617001	MW-4-040517	EPA 200.8	472593	EPA 200.8	472697
60241617002	MW-5-040517	EPA 200.8	472593	EPA 200.8	472697
60241617003	MW-6-040517	EPA 200.8	472593	EPA 200.8	472697
60241617004	MW-1-040517	EPA 200.8	472593	EPA 200.8	472697
60241617005	DUP-040517	EPA 200.8	472593	EPA 200.8	472697
60241617001	MW-4-040517	EPA 245.1	472110	EPA 245.1	472162
60241617002	MW-5-040517	EPA 245.1	472110	EPA 245.1	472162
60241617003	MW-6-040517	EPA 245.1	472110	EPA 245.1	472162
60241617004	MW-1-040517	EPA 245.1	472110	EPA 245.1	472162
60241617005	DUP-040517	EPA 245.1	472110	EPA 245.1	472162
60241617001	MW-4-040517	EPA 903.1	255826		
60241617002	MW-5-040517	EPA 903.1	255826		
60241617003	MW-6-040517	EPA 903.1	255826		
60241617004	MW-1-040517	EPA 903.1	255826		
60241617005	DUP-040517	EPA 903.1	255826		
60241617001	MW-4-040517	EPA 904.0	255827		
60241617002	MW-5-040517	EPA 904.0	255827		
60241617003	MW-6-040517	EPA 904.0	255827		
60241617004	MW-1-040517	EPA 904.0	255827		
60241617005	DUP-040517	EPA 904.0	255827		
60241617001	MW-4-040517	Total Radium Calculation	257045		
60241617002	MW-5-040517	Total Radium Calculation	257045		
60241617003	MW-6-040517	Total Radium Calculation	257045		
60241617004	MW-1-040517	Total Radium Calculation	257045		
60241617005	DUP-040517	Total Radium Calculation	257045		
60241617001	MW-4-040517	SM 2540C	472273		
60241617002	MW-5-040517	SM 2540C	472273		
60241617003	MW-6-040517	SM 2540C	472273		
60241617004	MW-1-040517	SM 2540C	472273		
60241617005	DUP-040517	SM 2540C	472273		
60241617001	MW-4-040517	SM 4500-H+B	472308		
60241617002	MW-5-040517	SM 4500-H+B	472308		
60241617003	MW-6-040517	SM 4500-H+B	472308		
60241617004	MW-1-040517	SM 4500-H+B	472308		
60241617005	DUP-040517	SM 4500-H+B	472307		
60241617001	MW-4-040517	EPA 300.0	472089		
60241617002	MW-5-040517	EPA 300.0	472089		
60241617003	MW-6-040517	EPA 300.0	472089		
60241617004	MW-1-040517	EPA 300.0	472089		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60241617

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60241617005	**DUP-040517**	EPA 300.0	472089		

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Sample Condition Upon Receipt

WO#: 60241617

60241617

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: CF +1.5 T-266 / CF +0.9 T-239 **Type of Ice:** Wet / Blue / None

Cooler Temperature (°C): **As-read** 0.6 **Corr. Factor** CF +1.5 / CF +0.9 **Corrected** 2.1

Date and initials of person examining contents: JB 4/7/17

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	pH
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	
Cyanide water sample checks: ☒N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒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: 4/10/17

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Brandon Griffin
Copy To:	Jared Morrison, Heath Hornya
Purchase Order No.:	
Project Name:	TEC CCR Groundwater
Project Number:	

Section C Invoice Information:

Attention:	Jared Morrison
Company Name:	WESTAR ENERGY
Address:	SEE SECTION A
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson, 913-563-1407
Pace Profile #:	9656, 1

REGULATORY AGENCY

☑ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: KS

Section D Required Client Information

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

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	200.7 Total Metals*	200.8 Total Metals**	245.1 Total Mercury	300.0 Cl, Fl, SO_4	4500 H+B	2540C TDS	Radium 226	Radium 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-4-040517	WT	G			4/5	1114		4	1		3															6024617
2	MW-5-040517	WT	G			4/5	1319		4	1		3															
3	MW-6-040517	WT	G			4/5	1503		4	1		3															
4	MW-1-040517	WT	G			4/5	1646		4	1		3															
5																											
6																											
7																											
8																											
9																											
10																											
11	DUP-040517	WT	G			4/5	0800		4	1		3															
12																											

BP2N (2) BP1N BP2N 001 002 003 004 005

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
*200.7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li	/westar	4/6/17	1445		4/7/17	1047
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl						

SAMPLE CONDITIONS

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
2.1	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brandon Griffin

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 04/05/17

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Chain of Custody

WO#:30215760

30215760

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Workorder: 60241617 **Workorder Name:** TEC CCR GROUNDWATER **Owner Received Date:** 4/7/2017 **Results Requested By:** 5/1/2017

Report To	Subcontract To
Heather Wilson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 1(913)563-1407	Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers HNO3						Radium-226 & Total Sum	Radium-228											LAB USE ONLY
1	MW-4-040517	PS	4/5/2017 11:14	60241617001	Water	2						X	X											001
2	MW-5-040517	PS	4/5/2017 13:19	60241617002	Water	2						X	X											002
3	MW-6-040517	PS	4/5/2017 15:03	60241617003	Water	2						X	X											003
4	MW-1-040517	PS	4/5/2017 16:46	60241617004	Water	2						X	X											004
5	DUP-040517	PS	4/5/2017 08:00	60241617005	Water	2						X	X											005

Comments

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	4/10/17 A60	[signature]	4/11/17 0940
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.*

RTB

Sample Condition Upon Receipt Pittsburgh

Pace Analytical

Client Name: Pace Kansas Project # 30215760

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 NA Type of Ice: Wet Blue (None)

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

Temp should be above freezing to 6°C

Date and Initials of person examining contents: KH 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: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓ ✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Organic Samples checked for dechlorination:			✓	13.
Filtered volume received for Dissolved tests			✓	14.
All containers have been checked for preservation. All containers needing preservation are found to be in compliance with EPA recommendation.	✓ ✓			15. pH <2
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed KH; 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: KH Date: 4/11/17

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

June 16, 2017

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

RE: Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Dear Brandon Griffin:
Enclosed are the analytical results for sample(s) received by the laboratory on May 24, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

Pace Analytical Services, LLC
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Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60245012001	**MW-4-052317**	Water	05/23/17 14:03	05/24/17 16:20
60245012002	**MW-5-052317**	Water	05/23/17 15:18	05/24/17 16:20
60245012003	**MW-6-052417**	Water	05/24/17 07:27	05/24/17 16:20
60245012004	**MW-1-052417**	Water	05/24/17 11:57	05/24/17 16:20
60245012005	**DUP-052417**	Water	05/24/17 06:00	05/24/17 16:20

Pace Analytical Services, LLC
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(913)599-5665

SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60245012001	MW-4-052317	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	SMW	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60245012002	MW-5-052317	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	SMW	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60245012003	MW-6-052417	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	SMW	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60245012004	MW-1-052417	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	SMW	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60245012005	DUP-052417	EPA 200.7	TDS	7	PASI-K

Pace Analytical Services, LLC
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Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	SMW	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K

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(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: WESTAR ENERGY
Date: June 16, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: WESTAR ENERGY
Date: June 16, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Method: **EPA 245.1**
Description: 245.1 Mercury
Client: WESTAR ENERGY
Date: June 16, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: WESTAR ENERGY
Date: June 16, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: WESTAR ENERGY
Date: June 16, 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: 260205

1e: Analyte detected in MB above the RL and associated MDC. Activity results above MDC or RL are "B" qualified.

- DUP-052417 (Lab ID: 60245012005)
  - Radium-228

2e: Analyte detected in MB above the RL and associated MDC. Sample activity results below the RL or associated MDC are reportable without additional qualification.

- BLANK (Lab ID: 1281745)
  - Radium-228

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: WESTAR ENERGY
Date: June 16, 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:

Pace Analytical Services, LLC
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(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: WESTAR ENERGY
Date: June 16, 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:

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PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: WESTAR ENERGY
Date: June 16, 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-052417 (Lab ID: 60245012005)
- MW-1-052417 (Lab ID: 60245012004)
- MW-4-052317 (Lab ID: 60245012001)
- MW-5-052317 (Lab ID: 60245012002)
- MW-6-052417 (Lab ID: 60245012003)

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: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: WESTAR ENERGY
Date: June 16, 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.

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Sample: MW-4-052317 **Lab ID: 60245012001** Collected: 05/23/17 14:03 Received: 05/24/17 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.11**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:09	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/25/17 15:06	06/12/17 14:09	7440-41-7	
Boron, Total Recoverable	**<0.10**	mg/L	0.10	1	05/25/17 15:06	06/12/17 14:09	7440-42-8	
Calcium, Total Recoverable	**173**	mg/L	0.10	1	05/25/17 15:06	06/12/17 14:09	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:09	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:09	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	05/25/17 15:06	06/12/17 14:09	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:09	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:09	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	05/30/17 16:33	06/15/17 17:09	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:09	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:09	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:09	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:09	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	06/02/17 15:45	06/05/17 10:34	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**980**	mg/L	5.0	1		05/26/17 09:59		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.3**	Std. Units	0.10	1		05/31/17 09:20		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**266**	mg/L	20.0	20		05/26/17 02:55	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		05/26/17 02:40	16984-48-8	
Sulfate	**126**	mg/L	20.0	20		05/26/17 02:55	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Sample: MW-5-052317 **Lab ID: 60245012002** Collected: 05/23/17 15:18 Received: 05/24/17 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.022**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:13	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/25/17 15:06	06/12/17 14:13	7440-41-7	
Boron, Total Recoverable	**1.1**	mg/L	0.10	1	05/25/17 15:06	06/12/17 14:13	7440-42-8	
Calcium, Total Recoverable	**299**	mg/L	0.10	1	05/25/17 15:06	06/12/17 14:13	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:13	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:13	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	05/25/17 15:06	06/12/17 14:13	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:15	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:15	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	05/30/17 16:33	06/15/17 17:15	7440-43-9	
Cobalt, Total Recoverable	**0.0021**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:15	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:15	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:15	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:15	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	06/02/17 15:45	06/05/17 10:36	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1530**	mg/L	5.0	1		05/26/17 09:59		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		05/31/17 09:20		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**40.9**	mg/L	5.0	5		05/26/17 03:26	16887-00-6	
Fluoride	**0.28**	mg/L	0.20	1		05/26/17 03:11	16984-48-8	
Sulfate	**829**	mg/L	100	100		05/26/17 03:41	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Sample: MW-6-052417 **Lab ID: 60245012003** Collected: 05/24/17 07:27 Received: 05/24/17 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.021**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:21	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/25/17 15:06	06/12/17 14:21	7440-41-7	
Boron, Total Recoverable	**0.92**	mg/L	0.10	1	05/25/17 15:06	06/12/17 14:21	7440-42-8	
Calcium, Total Recoverable	**330**	mg/L	0.10	1	05/25/17 15:06	06/12/17 14:21	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:21	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:21	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	05/25/17 15:06	06/12/17 14:21	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:21	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:21	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	05/30/17 16:33	06/15/17 17:21	7440-43-9	
Cobalt, Total Recoverable	**0.0017**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:21	7440-48-4	
Molybdenum, Total Recoverable	**0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:21	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:21	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:21	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	06/02/17 15:45	06/05/17 10:38	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1680**	mg/L	5.0	1		05/26/17 09:59		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		05/31/17 09:20		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**63.0**	mg/L	5.0	5		05/26/17 04:12	16887-00-6	
Fluoride	**0.31**	mg/L	0.20	1		05/26/17 03:57	16984-48-8	
Sulfate	**853**	mg/L	100	100		05/26/17 04:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Sample: MW-1-052417 **Lab ID: 60245012004** Collected: 05/24/17 11:57 Received: 05/24/17 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.19**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:24	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/25/17 15:06	06/12/17 14:24	7440-41-7	
Boron, Total Recoverable	**0.88**	mg/L	0.10	1	05/25/17 15:06	06/12/17 14:24	7440-42-8	
Calcium, Total Recoverable	**165**	mg/L	0.10	1	05/25/17 15:06	06/12/17 14:24	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:24	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:24	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	05/25/17 15:06	06/12/17 14:24	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:27	7440-36-0	
Arsenic, Total Recoverable	**0.0017**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:27	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	05/30/17 16:33	06/15/17 17:27	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:27	7440-48-4	
Molybdenum, Total Recoverable	**0.0011**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:27	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:27	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:27	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	06/02/17 15:45	06/05/17 10:40	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**905**	mg/L	5.0	1		05/26/17 09:59		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		05/31/17 10:13		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**18.7**	mg/L	1.0	1		05/26/17 05:29	16887-00-6	
Fluoride	**0.37**	mg/L	0.20	1		05/26/17 05:29	16984-48-8	
Sulfate	**357**	mg/L	50.0	50		05/26/17 04:43	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Sample: DUP-052417 **Lab ID: 60245012005** Collected: 05/24/17 06:00 Received: 05/24/17 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.021**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:26	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/25/17 15:06	06/12/17 14:26	7440-41-7	
Boron, Total Recoverable	**0.92**	mg/L	0.10	1	05/25/17 15:06	06/12/17 14:26	7440-42-8	
Calcium, Total Recoverable	**337**	mg/L	0.10	1	05/25/17 15:06	06/12/17 14:26	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:26	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:26	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	05/25/17 15:06	06/12/17 14:26	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:33	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:33	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	05/30/17 16:33	06/15/17 17:33	7440-43-9	
Cobalt, Total Recoverable	**0.0020**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:33	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:33	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:33	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:33	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	06/02/17 15:45	06/05/17 10:42	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1660**	mg/L	5.0	1		05/26/17 10:00		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.7**	Std. Units	0.10	1		06/01/17 13:00		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**63.1**	mg/L	5.0	5		05/30/17 17:38	16887-00-6	
Fluoride	**0.31**	mg/L	0.20	1		05/26/17 06:00	16984-48-8	
Sulfate	**964**	mg/L	100	100		05/30/17 17:53	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

QC Batch: 479454 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

METHOD BLANK: 1963749 Matrix: Water
Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	06/05/17 10:03	

LABORATORY CONTROL SAMPLE: 1963750

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: 1963751 1963752

Parameter	Units	60244908002 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	0.0045	0.0043	90	86	70-130	4	20	

MATRIX SPIKE SAMPLE: 1963753

Parameter	Units	60245415001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	ND	.005	0.0048	93	70-130	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

QC Batch: 478403 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

METHOD BLANK: 1959584 Matrix: Water
Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	05/30/17 14:46	
Beryllium	mg/L	<0.0010	0.0010	05/30/17 14:46	
Boron	mg/L	<0.10	0.10	05/30/17 14:46	
Calcium	mg/L	<0.10	0.10	05/30/17 14:46	
Chromium	mg/L	<0.0050	0.0050	05/30/17 14:46	
Lead	mg/L	<0.0050	0.0050	05/30/17 14:46	
Lithium	mg/L	<0.010	0.010	05/30/17 14:46	

LABORATORY CONTROL SAMPLE: 1959586

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.1	106	85-115	
Beryllium	mg/L	1	1.1	106	85-115	
Boron	mg/L	1	1.0	103	85-115	
Calcium	mg/L	10	10.4	104	85-115	
Chromium	mg/L	1	1.0	103	85-115	
Lead	mg/L	1	1.1	106	85-115	
Lithium	mg/L	1	1.0	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1959587 1959588

Parameter	Units	60244275002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	115 ug/L	1	1	1.2	1.2	104	104	70-130	0	20	
Beryllium	mg/L	<1.0 ug/L	1	1	1.1	1.0	105	104	70-130	1	20	
Boron	mg/L	263 ug/L	1	1	1.3	1.3	104	104	70-130	0	20	
Calcium	mg/L	73700 ug/L	10	10	81.9	81.7	82	80	70-130	0	20	
Chromium	mg/L	<5.0 ug/L	1	1	1.0	1.0	102	102	70-130	0	20	
Lead	mg/L	<5.0 ug/L	1	1	1.0	1.0	101	101	70-130	0	20	
Lithium	mg/L	34.8 ug/L	1	1	1.1	1.0	102	102	70-130	0	20	

MATRIX SPIKE SAMPLE: 1959589

Parameter	Units	60245012001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.11	1	1.1	97	70-130	
Beryllium	mg/L	<0.0010	1	1.0	100	70-130	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

MATRIX SPIKE SAMPLE: 1959589

Parameter	Units	60245012001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	<0.10	1	1.1	100	70-130	
Calcium	mg/L	173	10	183	104	70-130	
Chromium	mg/L	<0.0050	1	0.99	99	70-130	
Lead	mg/L	<0.0050	1	0.95	95	70-130	
Lithium	mg/L	<0.010	1	1.0	100	70-130	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

QC Batch: 478816 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

METHOD BLANK: 1961478 Matrix: Water
Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

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 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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: TEC CCR GROUNDWATER
Pace Project No.: 60245012

MATRIX SPIKE SAMPLE: 1961482

Parameter	Units	60245129001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	<0.0010	.04	0.037	89	70-130	
Molybdenum	mg/L	0.0089	.04	0.051	104	70-130	
Selenium	mg/L	<0.0010	.04	0.033	83	70-130	
Thallium	mg/L	<0.0010	.04	0.034	85	70-130	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

QC Batch: 478497 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

METHOD BLANK: 1959902 Matrix: Water
Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	05/26/17 09:56	

LABORATORY CONTROL SAMPLE: 1959903

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	957	96	80-120	

SAMPLE DUPLICATE: 1959904

Parameter	Units	60244977001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	483	467	3	10	

SAMPLE DUPLICATE: 1959905

Parameter	Units	60245105001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	655	661	1	10	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

QC Batch: 478912 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60245012001, 60245012002, 60245012003

SAMPLE DUPLICATE: 1961738

Parameter	Units	60244894002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.7	7.7	1	5	H6

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

QC Batch: 478998
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60245012004

SAMPLE DUPLICATE: 1961976

Parameter	Units	60245063001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.1	8.1	0	5	H6

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

QC Batch: 479125
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60245012005

SAMPLE DUPLICATE: 1962378

Parameter	Units	60245259004 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.4	6.4	0	5	H6

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

QC Batch: 478369 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

METHOD BLANK: 1959405 Matrix: Water
Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	05/25/17 16:24	
Fluoride	mg/L	<0.20	0.20	05/25/17 16:24	
Sulfate	mg/L	<1.0	1.0	05/25/17 16:24	

LABORATORY CONTROL SAMPLE: 1959406

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	106	90-110	
Sulfate	mg/L	5	5.0	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1959407 1959408

Parameter	Units	60245000004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3200	1000	1000	4380	4370	118	118	80-120	0	15	
Fluoride	mg/L	ND	500	500	522	519	104	104	80-120	1	15	

MATRIX SPIKE SAMPLE: 1959689

Parameter	Units	60245054008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	6.7	5	12.0	107	80-120	
Fluoride	mg/L	0.27	2.5	2.9	105	80-120	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

QC Batch: 478801 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60245012005

METHOD BLANK: 1961443 Matrix: Water
Associated Lab Samples: 60245012005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	05/30/17 08:55	
Sulfate	mg/L	<1.0	1.0	05/30/17 08:55	

LABORATORY CONTROL SAMPLE: 1961444

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Sulfate	mg/L	5	5.3	106	90-110	

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Sample: MW-4-052317 **Lab ID: 60245012001** Collected: 05/23/17 14:03 Received: 05/24/17 16:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.353 (0.766) C:NA T:101%**	pCi/L	06/06/17 20:37	13982-63-3	
Radium-228	EPA 904.0	**0.885 ± 0.454 (0.806) C:71% T:88%**	pCi/L	06/09/17 15:31	15262-20-1	
Total Radium	Total Radium Calculation	**0.885 ± 0.807 (1.57)**	pCi/L	06/13/17 11:19	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Sample: MW-5-052317 **Lab ID: 60245012002** Collected: 05/23/17 15:18 Received: 05/24/17 16:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.619 ± 0.560 (0.826) C:NA T:93%**	pCi/L	06/06/17 20:37	13982-63-3	
Radium-228	EPA 904.0	**0.321 ± 0.462 (0.995) C:70% T:78%**	pCi/L	06/09/17 15:31	15262-20-1	
Total Radium	Total Radium Calculation	**0.940 ± 1.02 (1.82)**	pCi/L	06/13/17 11:19	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Sample: MW-6-052417 **Lab ID: 60245012003** Collected: 05/24/17 07:27 Received: 05/24/17 16:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.277 ± 0.543 (0.975) C:NA T:96%**	pCi/L	06/06/17 20:37	13982-63-3	
Radium-228	EPA 904.0	**0.849 ± 0.463 (0.838) C:72% T:82%**	pCi/L	06/09/17 15:31	15262-20-1	
Total Radium	Total Radium Calculation	**1.13 ± 1.01 (1.81)**	pCi/L	06/13/17 11:19	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Sample: MW-1-052417 **Lab ID: 60245012004** Collected: 05/24/17 11:57 Received: 05/24/17 16:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.483 ± 0.527 (0.828) C:NA T:93%**	pCi/L	06/06/17 20:37	13982-63-3	
Radium-228	EPA 904.0	**0.590 ± 0.445 (0.881) C:69% T:84%**	pCi/L	06/09/17 15:31	15262-20-1	
Total Radium	Total Radium Calculation	**1.07 ± 0.972 (1.71)**	pCi/L	06/13/17 11:19	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Sample: DUP-052417 **Lab ID: 60245012005** Collected: 05/24/17 06:00 Received: 05/24/17 16:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.465 (0.965) C:NA T:98%**	pCi/L	06/06/17 20:52	13982-63-3	
Radium-228	EPA 904.0	**1.60 ± 0.588 (0.875) C:69% T:82%**	pCi/L	06/09/17 15:32	15262-20-1	1e
Total Radium	Total Radium Calculation	**1.60 ± 1.05 (1.84)**	pCi/L	06/13/17 11:19	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

QC Batch: 260151 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

METHOD BLANK: 1281549 Matrix: Water
Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.286 (0.582) C:NA T:97%	pCi/L	06/06/17 20:23	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

QC Batch: 260205 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

METHOD BLANK: 1281745 Matrix: Water
Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	1.06 ± 0.446 (0.696) C:81% T:72%	pCi/L	06/09/17 11:37	2e

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

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	Analyte detected in MB above the RL and associated MDC. Activity results above MDC or RL are "B" qualified.
2e	Analyte detected in MB above the RL and associated MDC. Sample activity results below the RL or associated MDC are reportable without additional qualification.
H6	Analysis initiated outside of the 15 minute EPA required holding time.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60245012001	**MW-4-052317**	EPA 200.7	478403	EPA 200.7	478490
60245012002	**MW-5-052317**	EPA 200.7	478403	EPA 200.7	478490
60245012003	**MW-6-052417**	EPA 200.7	478403	EPA 200.7	478490
60245012004	**MW-1-052417**	EPA 200.7	478403	EPA 200.7	478490
60245012005	**DUP-052417**	EPA 200.7	478403	EPA 200.7	478490
60245012001	**MW-4-052317**	EPA 200.8	478816	EPA 200.8	478960
60245012002	**MW-5-052317**	EPA 200.8	478816	EPA 200.8	478960
60245012003	**MW-6-052417**	EPA 200.8	478816	EPA 200.8	478960
60245012004	**MW-1-052417**	EPA 200.8	478816	EPA 200.8	478960
60245012005	**DUP-052417**	EPA 200.8	478816	EPA 200.8	478960
60245012001	**MW-4-052317**	EPA 245.1	479454	EPA 245.1	479500
60245012002	**MW-5-052317**	EPA 245.1	479454	EPA 245.1	479500
60245012003	**MW-6-052417**	EPA 245.1	479454	EPA 245.1	479500
60245012004	**MW-1-052417**	EPA 245.1	479454	EPA 245.1	479500
60245012005	**DUP-052417**	EPA 245.1	479454	EPA 245.1	479500
60245012001	**MW-4-052317**	EPA 903.1	260151		
60245012002	**MW-5-052317**	EPA 903.1	260151		
60245012003	**MW-6-052417**	EPA 903.1	260151		
60245012004	**MW-1-052417**	EPA 903.1	260151		
60245012005	**DUP-052417**	EPA 903.1	260151		
60245012001	**MW-4-052317**	EPA 904.0	260205		
60245012002	**MW-5-052317**	EPA 904.0	260205		
60245012003	**MW-6-052417**	EPA 904.0	260205		
60245012004	**MW-1-052417**	EPA 904.0	260205		
60245012005	**DUP-052417**	EPA 904.0	260205		
60245012001	**MW-4-052317**	Total Radium Calculation	261677		
60245012002	**MW-5-052317**	Total Radium Calculation	261677		
60245012003	**MW-6-052417**	Total Radium Calculation	261677		
60245012004	**MW-1-052417**	Total Radium Calculation	261677		
60245012005	**DUP-052417**	Total Radium Calculation	261677		
60245012001	**MW-4-052317**	SM 2540C	478497		
60245012002	**MW-5-052317**	SM 2540C	478497		
60245012003	**MW-6-052417**	SM 2540C	478497		
60245012004	**MW-1-052417**	SM 2540C	478497		
60245012005	**DUP-052417**	SM 2540C	478497		
60245012001	**MW-4-052317**	SM 4500-H+B	478912		
60245012002	**MW-5-052317**	SM 4500-H+B	478912		
60245012003	**MW-6-052417**	SM 4500-H+B	478912		
60245012004	**MW-1-052417**	SM 4500-H+B	478998		
60245012005	**DUP-052417**	SM 4500-H+B	479125		
60245012001	**MW-4-052317**	EPA 300.0	478369		
60245012002	**MW-5-052317**	EPA 300.0	478369		
60245012003	**MW-6-052417**	EPA 300.0	478369		
60245012004	**MW-1-052417**	EPA 300.0	478369		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60245012

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60245012005	**DUP-052417**	EPA 300.0	478369		
60245012005	**DUP-052417**	EPA 300.0	478801		

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Sample Condition Upon Receipt

WO# : 60245012

60245012

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: CF +2.9 T-266 / CF +0.2 T-239 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 2.4 **Corr. Factor** CF +2.9 (CF +0.2) **Corrected** 2.6

Date and initials of person examining contents: JBS/24

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	pH
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒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: 5/25/17

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical
www.pacelabs.com

Page: 1 of 1

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Brandon Griffin
Copy To:	Jared Morrison, Heath Hornya
Purchase Order No.:	
Project Name:	TEC CCR Groundwater
Project Number:	

Section C Invoice Information:

Attention:	Jared Morrison
Company Name:	WESTAR ENERGY
Address:	SEE SECTION A
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson, 913-563-1407
Pace Profile #:	9656, 1

REGULATORY AGENCY

☑ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: KS

Section D Required Client Information

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

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: 200.7 Total Metals*	200.8 Total Metals**	245.1 Total Mercury	300.0 Cl, Fl, SO4	4500 H+B	2540C TDS	Radium 226	Radium 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-4-052317	WT	G			5/23	1403		4	1		3														60245012 BP2U 001
2	MW-5-052317	WT	G			5/23	1518		4	1		3														BP3N 002
3	MW-6-052417	WT	G			5/24	0727		4	1		3														BP1N 003
4	MW-1-052417	WT	G			5/24	1157		4	1		3														004
5																										
6																										
7																										
8																										
9																										
10																										
11	DUP-052417	WT	G			5/24	0600		4	1		3														↓ ↓
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*200.7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li	Westar	5/24/17	1230		5/24/17	1620	2.6	Y	N	Y
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brandon Griffin

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 05/24/17

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 60245012 **Workorder Name:** TEC CCR GROUNDWATER **Owner Received Date:** 5/24/2017 **Results Requested By:** 6/5/2017

Report To	Subcontract To
Heather Wilson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 1(913)563-1407	Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600

WO#:30219988

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HNO3	Radium-228	Radium-226 & Total Radium	LAB USE ONLY
1	MW-4-052317	PS	5/23/2017 14:03	60245012001	Water	2	X	X	001
2	MW-5-052317	PS	5/23/2017 15:18	60245012002	Water	2	X	X	002
3	MW-6-052417	PS	5/24/2017 07:27	60245012003	Water	2	X	X	003
4	MW-1-052417	PS	5/24/2017 11:57	60245012004	Water	2	X	X	004
5	DUP-052417	PS	5/24/2017 06:00	60245012005	Water	2	X	X	005

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	5/25/17 1300	[signature] Pace	5-26-17 1000
2				
3				

Comments

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.*

30219988

Sample Condition Upon Receipt Pittsburgh

Pace Analytical

Client Name: Pace, KS Project #

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 7235 6592 7791

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: AMM 5-26-17

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: WT				
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. pH<2
All containers needing preservation are found to be in compliance with EPA recommendation.	X			
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed: AMM 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: AMM Date: 5-26-17

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

July 21, 2017

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

RE: Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Dear Brandon Griffin:
Enclosed are the analytical results for sample(s) received by the laboratory on June 28, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60247586001	**MW-4-062717**	Water	06/27/17 08:45	06/28/17 16:40
60247586002	**MW-5-062717**	Water	06/27/17 10:37	06/28/17 16:40
60247586003	**MW-6-062717**	Water	06/27/17 11:49	06/28/17 16:40
60247586004	**MW-1-062717**	Water	06/27/17 13:16	06/28/17 16:40
60247586005	**DUP-062717**	Water	06/27/17 07:00	06/28/17 16:40

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60247586001	MW-4-062717	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	SMW	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	JAL	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	JMC1, OL	3	PASI-K
60247586002	MW-5-062717	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	SMW	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	JAL	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	JMC1, OL	3	PASI-K
60247586003	MW-6-062717	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	SMW	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	JAL	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	JMC1, OL	3	PASI-K
60247586004	MW-1-062717	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	SMW	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	JAL	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	JMC1, OL	3	PASI-K
60247586005	DUP-062717	EPA 200.7	TDS	7	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 200.8	SMW	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	JAL	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	JMC1, OL	3	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: WESTAR ENERGY
Date: July 21, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: WESTAR ENERGY
Date: July 21, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Method: **EPA 245.1**
Description: 245.1 Mercury
Client: WESTAR ENERGY
Date: July 21, 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:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: WESTAR ENERGY
Date: July 21, 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: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: WESTAR ENERGY
Date: July 21, 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:

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PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: WESTAR ENERGY
Date: July 21, 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: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: WESTAR ENERGY
Date: July 21, 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:

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PROJECT NARRATIVE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: WESTAR ENERGY
Date: July 21, 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-062717 (Lab ID: 60247586005)
- MW-1-062717 (Lab ID: 60247586004)
- MW-4-062717 (Lab ID: 60247586001)
- MW-5-062717 (Lab ID: 60247586002)
- MW-6-062717 (Lab ID: 60247586003)

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: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: WESTAR ENERGY
Date: July 21, 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.

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Sample: MW-4-062717 **Lab ID: 60247586001** Collected: 06/27/17 08:45 Received: 06/28/17 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.12**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:39	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/10/17 18:39	7440-41-7	
Boron, Total Recoverable	**<0.10**	mg/L	0.10	1	06/30/17 11:00	07/10/17 18:39	7440-42-8	
Calcium, Total Recoverable	**180**	mg/L	0.10	1	06/30/17 11:00	07/10/17 18:39	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:39	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:39	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	06/30/17 11:00	07/10/17 18:39	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:41	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:41	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	06/30/17 11:00	07/14/17 14:41	7440-43-9	
Cobalt, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:41	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:41	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:41	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:41	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	07/13/17 17:09	07/14/17 14:06	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1040**	mg/L	5.0	1		07/03/17 11:15		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		06/30/17 09:49		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**255**	mg/L	20.0	20		07/20/17 10:49	16887-00-6	
Fluoride	**<0.20**	mg/L	0.20	1		07/16/17 10:52	16984-48-8	
Sulfate	**137**	mg/L	10.0	10		07/20/17 11:03	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Sample: MW-5-062717 **Lab ID: 60247586002** Collected: 06/27/17 10:37 Received: 06/28/17 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.026**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:41	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/10/17 18:41	7440-41-7	
Boron, Total Recoverable	**1.1**	mg/L	0.10	1	06/30/17 11:00	07/10/17 18:41	7440-42-8	
Calcium, Total Recoverable	**297**	mg/L	0.10	1	06/30/17 11:00	07/10/17 18:41	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:41	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:41	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	06/30/17 11:00	07/10/17 18:41	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:49	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:49	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	06/30/17 11:00	07/14/17 14:49	7440-43-9	
Cobalt, Total Recoverable	**0.0020**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:49	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:49	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:49	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:49	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	07/13/17 17:09	07/14/17 14:09	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1690**	mg/L	5.0	1		07/03/17 11:16		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		06/30/17 09:55		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**39.6**	mg/L	5.0	5		07/20/17 11:18	16887-00-6	
Fluoride	**0.42**	mg/L	0.20	1		07/16/17 11:36	16984-48-8	
Sulfate	**786**	mg/L	100	100		07/20/17 11:33	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Sample: MW-6-062717 **Lab ID: 60247586003** Collected: 06/27/17 11:49 Received: 06/28/17 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.019**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:43	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/10/17 18:43	7440-41-7	
Boron, Total Recoverable	**0.86**	mg/L	0.10	1	06/30/17 11:00	07/10/17 18:43	7440-42-8	
Calcium, Total Recoverable	**323**	mg/L	0.10	1	06/30/17 11:00	07/10/17 18:43	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:43	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:43	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	06/30/17 11:00	07/10/17 18:43	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:58	7440-36-0	
Arsenic, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:58	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	06/30/17 11:00	07/14/17 14:58	7440-43-9	
Cobalt, Total Recoverable	**0.0018**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:58	7440-48-4	
Molybdenum, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:58	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:58	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 14:58	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	07/13/17 17:09	07/14/17 14:11	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1700**	mg/L	5.0	1		07/03/17 11:16		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		06/30/17 09:56		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**61.1**	mg/L	5.0	5		07/20/17 12:17	16887-00-6	
Fluoride	**0.50**	mg/L	0.20	1		07/16/17 12:06	16984-48-8	
Sulfate	**874**	mg/L	100	100		07/20/17 12:31	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Sample: MW-1-062717 **Lab ID: 60247586004** Collected: 06/27/17 13:16 Received: 06/28/17 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.20**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:45	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/10/17 18:45	7440-41-7	
Boron, Total Recoverable	**0.84**	mg/L	0.10	1	06/30/17 11:00	07/10/17 18:45	7440-42-8	
Calcium, Total Recoverable	**171**	mg/L	0.10	1	06/30/17 11:00	07/10/17 18:45	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:45	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:45	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	06/30/17 11:00	07/10/17 18:45	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 15:07	7440-36-0	
Arsenic, Total Recoverable	**0.0023**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 15:07	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	06/30/17 11:00	07/14/17 15:07	7440-43-9	
Cobalt, Total Recoverable	**0.0014**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 15:07	7440-48-4	
Molybdenum, Total Recoverable	**0.0011**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 15:07	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 15:07	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 15:07	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	07/13/17 17:09	07/14/17 14:13	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**999**	mg/L	5.0	1		07/03/17 11:16		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		06/30/17 10:02		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**19.4**	mg/L	2.0	2		07/20/17 12:46	16887-00-6	
Fluoride	**0.39**	mg/L	0.20	1		07/16/17 12:20	16984-48-8	
Sulfate	**358**	mg/L	50.0	50		07/20/17 13:01	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Sample: DUP-062717 **Lab ID: 60247586005** Collected: 06/27/17 07:00 Received: 06/28/17 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	**0.20**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 19:01	7440-39-3	
Beryllium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/10/17 19:01	7440-41-7	
Boron, Total Recoverable	**0.86**	mg/L	0.10	1	06/30/17 11:00	07/10/17 19:01	7440-42-8	
Calcium, Total Recoverable	**173**	mg/L	0.10	1	06/30/17 11:00	07/10/17 19:01	7440-70-2	
Chromium, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 19:01	7440-47-3	
Lead, Total Recoverable	**<0.0050**	mg/L	0.0050	1	06/30/17 11:00	07/10/17 19:01	7439-92-1	
Lithium	**<0.010**	mg/L	0.010	1	06/30/17 11:00	07/10/17 19:01	7439-93-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 15:59	7440-36-0	
Arsenic, Total Recoverable	**0.0024**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 15:59	7440-38-2	
Cadmium, Total Recoverable	**<0.00050**	mg/L	0.00050	1	06/30/17 11:00	07/14/17 15:59	7440-43-9	
Cobalt, Total Recoverable	**0.0014**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 15:59	7440-48-4	
Molybdenum, Total Recoverable	**0.0011**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 15:59	7439-98-7	
Selenium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 15:59	7782-49-2	
Thallium, Total Recoverable	**<0.0010**	mg/L	0.0010	1	06/30/17 11:00	07/14/17 15:59	7440-28-0	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**<0.00020**	mg/L	0.00020	1	07/13/17 17:09	07/14/17 14:28	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1050**	mg/L	5.0	1		07/03/17 11:18		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**6.9**	Std. Units	0.10	1		06/30/17 09:46		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**20.1**	mg/L	2.0	2		07/20/17 11:01	16887-00-6	
Fluoride	**0.38**	mg/L	0.20	1		07/16/17 14:03	16984-48-8	
Sulfate	**344**	mg/L	50.0	50		07/20/17 11:14	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

QC Batch: 485332 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

METHOD BLANK: 1987526 Matrix: Water
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	07/14/17 14:02	

LABORATORY CONTROL SAMPLE: 1987527

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0051	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1987528 1987529

Parameter	Units	60248020001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	<0.20 ug/L	.005	.005	0.0047	0.0047	93	93	70-130	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1987530 1987531

Parameter	Units	60248127001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	<0.20 ug/L	.005	.005	0.0048	0.0048	96	95	70-130	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

QC Batch: 483470 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

METHOD BLANK: 1980483 Matrix: Water
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	07/10/17 18:03	
Beryllium	mg/L	<0.0010	0.0010	07/10/17 18:03	
Boron	mg/L	<0.10	0.10	07/10/17 18:03	
Calcium	mg/L	<0.10	0.10	07/10/17 18:03	
Chromium	mg/L	<0.0050	0.0050	07/10/17 18:03	
Lead	mg/L	<0.0050	0.0050	07/10/17 18:03	
Lithium	mg/L	<0.010	0.010	07/10/17 18:03	

LABORATORY CONTROL SAMPLE: 1980484

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.98	98	85-115	
Beryllium	mg/L	1	1.0	100	85-115	
Boron	mg/L	1	0.97	97	85-115	
Calcium	mg/L	10	10.5	105	85-115	
Chromium	mg/L	1	1.0	102	85-115	
Lead	mg/L	1	1.0	101	85-115	
Lithium	mg/L	1	0.96	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1980485 1980486

Parameter	Units	60246928002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.051	1	1	1.0	1.0	100	99	70-130	0	20	
Beryllium	mg/L	<0.0010	1	1	1.0	0.99	100	99	70-130	1	20	
Boron	mg/L	0.79	1	1	1.8	1.8	101	102	70-130	0	20	
Calcium	mg/L	260	10	10	269	270	90	103	70-130	0	20	
Chromium	mg/L	<0.0050	1	1	1.0	1.0	101	100	70-130	1	20	
Lead	mg/L	<0.0050	1	1	0.98	0.97	98	97	70-130	1	20	
Lithium	mg/L	0.037	1	1	1.1	1.1	103	103	70-130	0	20	

MATRIX SPIKE SAMPLE: 1980487

Parameter	Units	60247365006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.12	1	1.1	100	70-130	
Beryllium	mg/L	<0.0010	1	0.98	98	70-130	
Boron	mg/L	2.0	1	3.0	102	70-130	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

MATRIX SPIKE SAMPLE: 1980487

Parameter	Units	60247365006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	227	10	236	87	70-130	
Chromium	mg/L	<0.0050	1	0.97	97	70-130	
Lead	mg/L	<0.0050	1	0.89	88	70-130	
Lithium	mg/L	0.22	1	1.3	113	70-130	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

QC Batch: 483371 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

METHOD BLANK: 1980101 Matrix: Water
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	07/03/17 11:39	
Arsenic	mg/L	<0.0010	0.0010	07/03/17 11:39	
Cadmium	mg/L	<0.00050	0.00050	07/03/17 11:39	
Cobalt	mg/L	<0.0010	0.0010	07/03/17 11:39	
Molybdenum	mg/L	<0.0010	0.0010	07/03/17 11:39	
Selenium	mg/L	<0.0010	0.0010	07/03/17 11:39	
Thallium	mg/L	<0.0010	0.0010	07/03/17 11:39	

LABORATORY CONTROL SAMPLE: 1980102

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.039	97	85-115	
Arsenic	mg/L	.04	0.039	97	85-115	
Cadmium	mg/L	.04	0.038	95	85-115	
Cobalt	mg/L	.04	0.039	99	85-115	
Molybdenum	mg/L	.04	0.040	99	85-115	
Selenium	mg/L	.04	0.037	93	85-115	
Thallium	mg/L	.04	0.036	89	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1980103 1980104

Parameter	Units	60246928001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	<0.0010	.04	.04	0.037	0.037	90	91	70-130	1	20	
Arsenic	mg/L	0.0049	.04	.04	0.040	0.040	88	88	70-130	0	20	
Cadmium	mg/L	<0.00050	.04	.04	0.031	0.031	78	78	70-130	0	20	
Cobalt	mg/L	0.0018	.04	.04	0.038	0.038	89	90	70-130	0	20	
Molybdenum	mg/L	0.31	.04	.04	0.36	0.36	116	105	70-130	1	20	
Selenium	mg/L	<0.0010	.04	.04	0.034	0.033	83	81	70-130	3	20	
Thallium	mg/L	<0.0010	.04	.04	0.033	0.033	82	82	70-130	0	20	

MATRIX SPIKE SAMPLE: 1980105

Parameter	Units	60247365005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<0.0050	.04	0.037	91	70-130	
Arsenic	mg/L	<0.0050	.04	0.037	86	70-130	
Cadmium	mg/L	<0.0025	.04	0.032	79	70-130	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

MATRIX SPIKE SAMPLE: 1980105

Parameter	Units	60247365005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	<0.0050	.04	0.036	88	70-130	
Molybdenum	mg/L	0.0054	.04	0.046	101	70-130	
Selenium	mg/L	<0.0050	.04	0.030	76	70-130	
Thallium	mg/L	<0.0050	.04	0.033	80	70-130	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

QC Batch: 483738 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

METHOD BLANK: 1981962 Matrix: Water
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	07/03/17 11:12	

LABORATORY CONTROL SAMPLE: 1981963

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	964	96	80-120	

SAMPLE DUPLICATE: 1981964

Parameter	Units	60247514002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	899	945	5	10	

SAMPLE DUPLICATE: 1981965

Parameter	Units	60247587002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1380	1380	0	10	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

QC Batch: 483453 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

SAMPLE DUPLICATE: 1980388

Parameter	Units	60247516002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.7	8.7	0	5	H6

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

QC Batch: 485617 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

METHOD BLANK: 1989208 Matrix: Water
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	07/16/17 09:11	

LABORATORY CONTROL SAMPLE: 1989209

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.5	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1989210 1989211

Parameter	Units	60247586001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	<0.20	2.5	2.5	3.1	3.1	115	114	80-120	0	15	

MATRIX SPIKE SAMPLE: 1989212

Parameter	Units	60247586002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.42	2.5	3.0	105	80-120	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

QC Batch: 486220 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004

METHOD BLANK: 1991175 Matrix: Water
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	07/20/17 08:22	
Sulfate	mg/L	<1.0	1.0	07/20/17 08:22	

LABORATORY CONTROL SAMPLE: 1991176

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1991177 1991178

Parameter	Units	60247150009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	ND	100	100	99.1	98.8	89	89	80-120	0	15	
Sulfate	mg/L	157	100	100	257	256	101	100	80-120	0	15	

MATRIX SPIKE SAMPLE: 1991179

Parameter	Units	60247587002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	193	100	302	109	80-120	
Sulfate	mg/L	264	100	369	105	80-120	

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QUALITY CONTROL DATA

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

QC Batch: 486228
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60247586005

METHOD BLANK: 1991250 Matrix: Water
Associated Lab Samples: 60247586005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	07/20/17 09:05	
Sulfate	mg/L	<1.0	1.0	07/20/17 09:05	

LABORATORY CONTROL SAMPLE: 1991251

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1991252 1991253

Parameter	Units	60247587003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	217	100	100	323	324	106	106	80-120	0	15	
Sulfate	mg/L	178	100	100	277	277	99	99	80-120	0	15	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Sample: MW-4-062717 **Lab ID: 60247586001** Collected: 06/27/17 08:45 Received: 06/28/17 16:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.901 ± 0.536 (0.510) C:NA T:87%**	pCi/L	07/13/17 10:10	13982-63-3	
Radium-228	EPA 904.0	**1.74 ± 0.572 (0.761) C:73% T:110%**	pCi/L	07/17/17 18:40	15262-20-1	
Total Radium	Total Radium Calculation	**2.64 ± 1.11 (1.27)**	pCi/L	07/19/17 14:19	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Sample: MW-5-062717 **Lab ID: 60247586002** Collected: 06/27/17 10:37 Received: 06/28/17 16:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.556 ± 0.473 (0.664) C:NA T:92%**	pCi/L	07/13/17 10:28	13982-63-3	
Radium-228	EPA 904.0	**0.675 ± 0.428 (0.791) C:77% T:89%**	pCi/L	07/17/17 18:40	15262-20-1	
Total Radium	Total Radium Calculation	**1.23 ± 0.901 (1.46)**	pCi/L	07/19/17 14:19	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Sample: MW-6-062717 **Lab ID: 60247586003** Collected: 06/27/17 11:49 Received: 06/28/17 16:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.370 ± 0.486 (0.809) C:NA T:95%**	pCi/L	07/13/17 10:28	13982-63-3	
Radium-228	EPA 904.0	**0.175 ± 0.412 (0.921) C:68% T:82%**	pCi/L	07/17/17 18:40	15262-20-1	
Total Radium	Total Radium Calculation	**0.545 ± 0.898 (1.73)**	pCi/L	07/19/17 14:19	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Sample: MW-1-062717 **Lab ID: 60247586004** Collected: 06/27/17 13:16 Received: 06/28/17 16:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.133 ± 0.414 (0.801) C:NA T:89%**	pCi/L	07/13/17 10:28	13982-63-3	
Radium-228	EPA 904.0	**0.0413 ± 0.356 (0.828) C:74% T:85%**	pCi/L	07/17/17 18:40	15262-20-1	
Total Radium	Total Radium Calculation	**0.174 ± 0.770 (1.63)**	pCi/L	07/19/17 14:19	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Sample: DUP-062717 **Lab ID: 60247586005** Collected: 06/27/17 07:00 Received: 06/28/17 16:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.510 ± 0.640 (1.06) C:NA T:89%**	pCi/L	07/13/17 10:28	13982-63-3	
Radium-228	EPA 904.0	**0.339 ± 0.438 (0.930) C:75% T:85%**	pCi/L	07/17/17 18:40	15262-20-1	
Total Radium	Total Radium Calculation	**0.849 ± 1.08 (1.99)**	pCi/L	07/19/17 14:19	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

QC Batch: 264503 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

METHOD BLANK: 1302867 Matrix: Water
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.669 ± 0.359 (0.629) C:76% T:82%	pCi/L	07/17/17 15:54	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

QC Batch: 264174 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

METHOD BLANK: 1301274 Matrix: Water
Associated Lab Samples: 60247586001, 60247586002, 60247586003, 60247586004, 60247586005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.065 ± 0.340 (0.787) C:NA T:90%	pCi/L	07/13/17 10:10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-PA	Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60247586001	**MW-4-062717**	EPA 200.7	483470	EPA 200.7	483561
60247586002	**MW-5-062717**	EPA 200.7	483470	EPA 200.7	483561
60247586003	**MW-6-062717**	EPA 200.7	483470	EPA 200.7	483561
60247586004	**MW-1-062717**	EPA 200.7	483470	EPA 200.7	483561
60247586005	**DUP-062717**	EPA 200.7	483470	EPA 200.7	483561
60247586001	**MW-4-062717**	EPA 200.8	483371	EPA 200.8	483560
60247586002	**MW-5-062717**	EPA 200.8	483371	EPA 200.8	483560
60247586003	**MW-6-062717**	EPA 200.8	483371	EPA 200.8	483560
60247586004	**MW-1-062717**	EPA 200.8	483371	EPA 200.8	483560
60247586005	**DUP-062717**	EPA 200.8	483371	EPA 200.8	483560
60247586001	**MW-4-062717**	EPA 245.1	485332	EPA 245.1	485347
60247586002	**MW-5-062717**	EPA 245.1	485332	EPA 245.1	485347
60247586003	**MW-6-062717**	EPA 245.1	485332	EPA 245.1	485347
60247586004	**MW-1-062717**	EPA 245.1	485332	EPA 245.1	485347
60247586005	**DUP-062717**	EPA 245.1	485332	EPA 245.1	485347
60247586001	**MW-4-062717**	EPA 903.1	264174		
60247586002	**MW-5-062717**	EPA 903.1	264174		
60247586003	**MW-6-062717**	EPA 903.1	264174		
60247586004	**MW-1-062717**	EPA 903.1	264174		
60247586005	**DUP-062717**	EPA 903.1	264174		
60247586001	**MW-4-062717**	EPA 904.0	264503		
60247586002	**MW-5-062717**	EPA 904.0	264503		
60247586003	**MW-6-062717**	EPA 904.0	264503		
60247586004	**MW-1-062717**	EPA 904.0	264503		
60247586005	**DUP-062717**	EPA 904.0	264503		
60247586001	**MW-4-062717**	Total Radium Calculation	265536		
60247586002	**MW-5-062717**	Total Radium Calculation	265536		
60247586003	**MW-6-062717**	Total Radium Calculation	265536		
60247586004	**MW-1-062717**	Total Radium Calculation	265536		
60247586005	**DUP-062717**	Total Radium Calculation	265536		
60247586001	**MW-4-062717**	SM 2540C	483738		
60247586002	**MW-5-062717**	SM 2540C	483738		
60247586003	**MW-6-062717**	SM 2540C	483738		
60247586004	**MW-1-062717**	SM 2540C	483738		
60247586005	**DUP-062717**	SM 2540C	483738		
60247586001	**MW-4-062717**	SM 4500-H+B	483453		
60247586002	**MW-5-062717**	SM 4500-H+B	483453		
60247586003	**MW-6-062717**	SM 4500-H+B	483453		
60247586004	**MW-1-062717**	SM 4500-H+B	483453		
60247586005	**DUP-062717**	SM 4500-H+B	483453		
60247586001	**MW-4-062717**	EPA 300.0	485617		
60247586001	**MW-4-062717**	EPA 300.0	486220		
60247586002	**MW-5-062717**	EPA 300.0	485617		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER
Pace Project No.: 60247586

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60247586002	**MW-5-062717**	EPA 300.0	486220		
60247586003	**MW-6-062717**	EPA 300.0	485617		
60247586003	**MW-6-062717**	EPA 300.0	486220		
60247586004	**MW-1-062717**	EPA 300.0	485617		
60247586004	**MW-1-062717**	EPA 300.0	486220		
60247586005	**DUP-062717**	EPA 300.0	485617		
60247586005	**DUP-062717**	EPA 300.0	486228		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60247586

60247586

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: CF +2.9 CF +0.2 T-266 / T-239 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 4.6 **Corr. Factor** CF +2.9 CF +0.2 **Corrected** 4.8

Date and initials of person examining contents: JL 6.28.17

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	pH 6.27 0845
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	
Cyanide water sample checks: ☑N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑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: 6/29/17

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: | of

Section A — **Required** Client Information:

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

Section B — **Required** Project Information:

Report To:	Brandon Griffin
Copy To:	Jared Morrison, Heath Hornya
Purchase Order No.:	
Project Name:	TEC CCR Groundwater
Project Number:	

Section C — Invoice Information:

Attention:	Jared Morrison
Company Name:	WESTAR ENERGY
Address:	SEE SECTION A
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson, 913-563-1407
Pace Profile #:	9656, 1

REGULATORY AGENCY

☑ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location — **STATE:** KS

Section D — **Required** Client Information

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

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	200.7 Total Metals*	200.8 Total Metals**	245.1 Total Mercury	300.0 Cl, Fl, SO4	4500 H+B	2540C TDS	Radium 226	Radium 228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60247586
1	MW-4-062717	WT	G			6/27	0845		4	1		3															3 BTEX 0.5, 1-BPZ ✓ 001
2	MW-5-062717	WT	G			6/27	1037		4	1		3															002
3	MW-6-062717	WT	G			6/27	1149		4	1		3															003
4	MW-1-062717	WT	G			6/27	1316		4	1		3															004
5																											
6																											
7																											
8																											
9																											
10																											
11	DUP-062717	WT	G			6/27	0700		4	1		3															005
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*200.7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li	Westar	6/28/17	1030		6/28/17	1640	4.8	Y	N	Y
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brandon Griffin

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 06/28/17

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 60247586 **Workorder Name:** TEC CCR GROUNDWATER **Owner Received Date:** 6/28/2017 **Results Requested By:** 7/21/2017

Report To	Subcontract To
Heather Wilson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 1(913)563-1407	Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600

WO#:30223094

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers HNO3	Radium-228	Radium-226 & 228	LAB USE ONLY
1	MW-4-062717	PS	6/27/2017 08:45	60247586001	Water	2	X	X	001
2	MW-5-062717	PS	6/27/2017 10:37	60247586002	Water	2	X	X	002
3	MW-6-062717	PS	6/27/2017 11:49	60247586003	Water	2	X	X	003
4	MW-1-062717	PS	6/27/2017 13:16	60247586004	Water	2	X	X	004
5	DUP-062717	PS	6/27/2017 07:00	60247586005	Water	2	X	X	005

Transfers	Released By	Date/Time	Received By	Date/Time
1		6/29 1700		6/30/17 1010
2				
3				

Comments

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

30223094 ZH

Pace Analytical

Client Name: PACE-KANSAS Project #

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 7340760878160

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

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

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

Temp should be above freezing to 6°C

Date and Initials of person examining contents: ZH 6/30/17

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: WT				
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. pH <2
All containers needing preservation are found to be in compliance with EPA recommendation.	✓			
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed ZH / 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: ZH / Date: 6/30/17

Client Notification/ Resolution:

Person Contacted: Date/Time: Contacted By:

Comments/ Resolution:

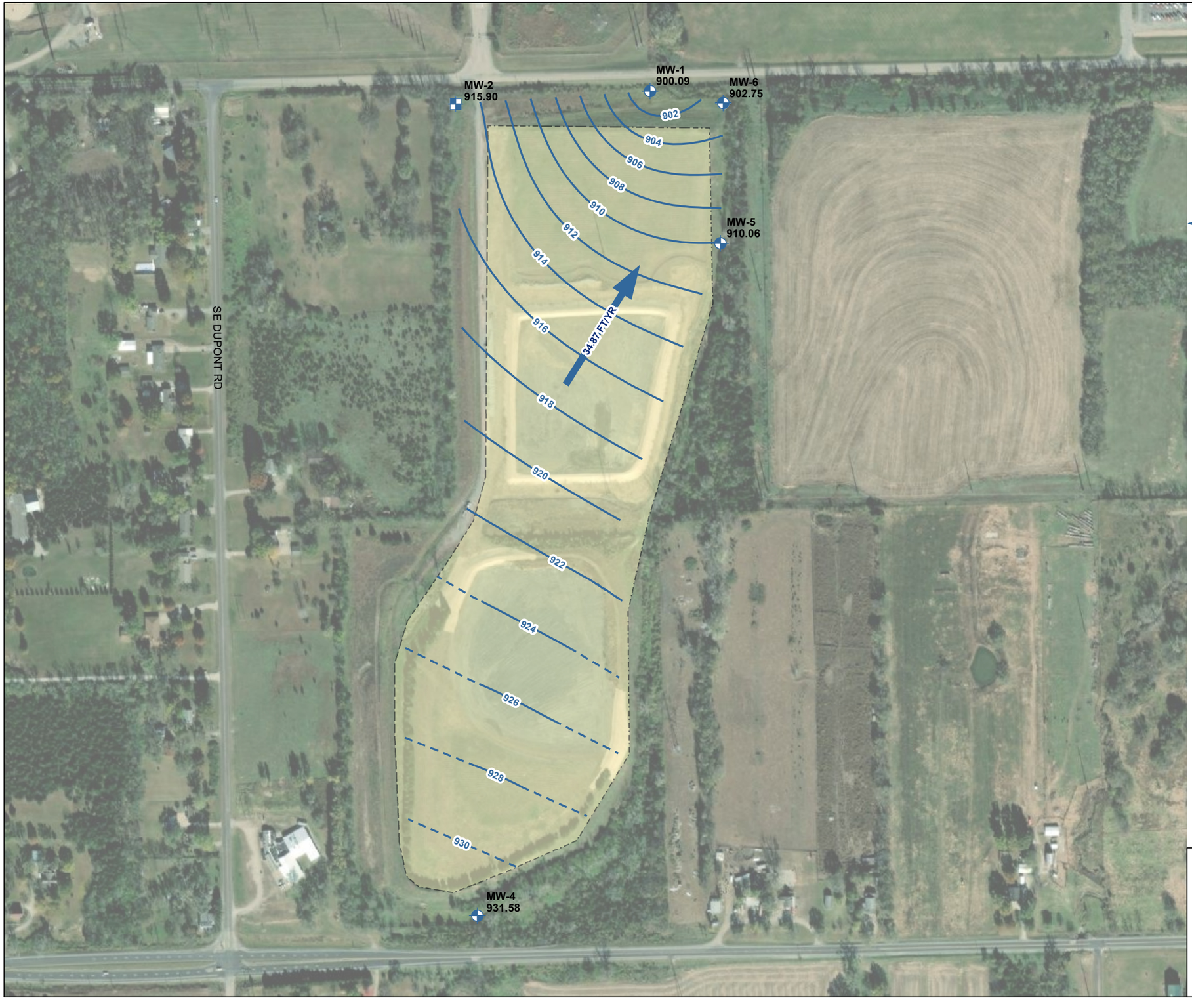
☐ **A check in this box indicates that additional information has been stored in ereports.**

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

Revised Groundwater Potentiometric Maps



LEGEND

- **MW-1 900.47** WELL NAME AND GROUNDWATER ELEVATION, (FEET AMSL) AUGUST 2016
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
- INFERRED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 17 AUGUST 2016.
3. AMSL = ABOVE MEAN SEA LEVEL
4. THE APPROXIMATE GROUNDWATER FLOW RATE WAS CALCULATED USING HYDRAULIC CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
5. AERIAL IMAGERY SOURCE: ESRI, 07 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

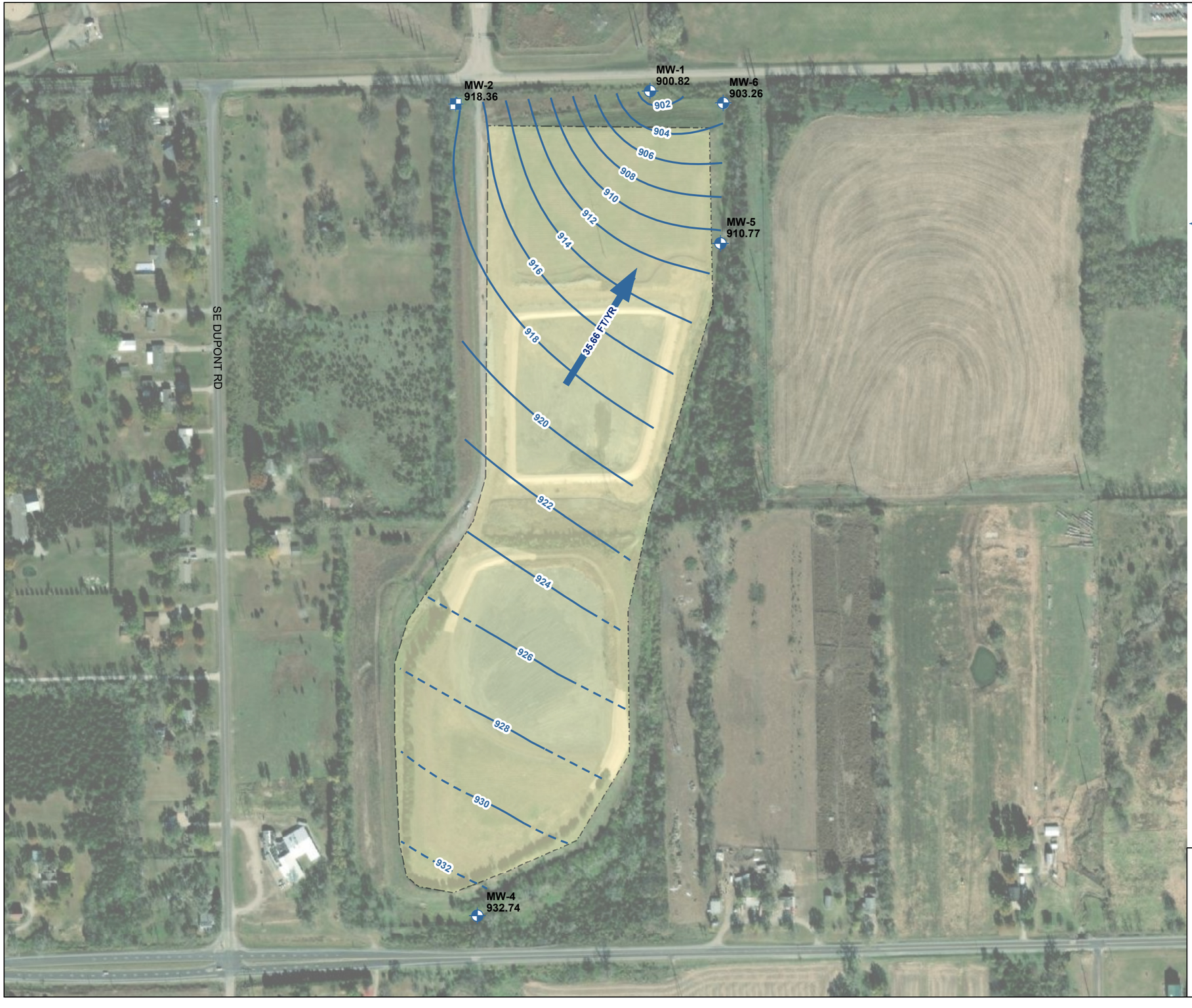
EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP AUGUST 17, 2016

evergy

MARCH 2022

FIGURE 2



LEGEND

- **MW-1 900.47** WELL NAME AND GROUNDWATER ELEVATION, (FEET AMSL) SEPTEMBER 2016
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
- INFERRED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 19 SEPTEMBER 2016.
3. AMSL = ABOVE MEAN SEA LEVEL
4. THE APPROXIMATE GROUNDWATER FLOW RATE WAS CALCULATED USING HYDRAULIC CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
5. AERIAL IMAGERY SOURCE: ESRI, 07 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

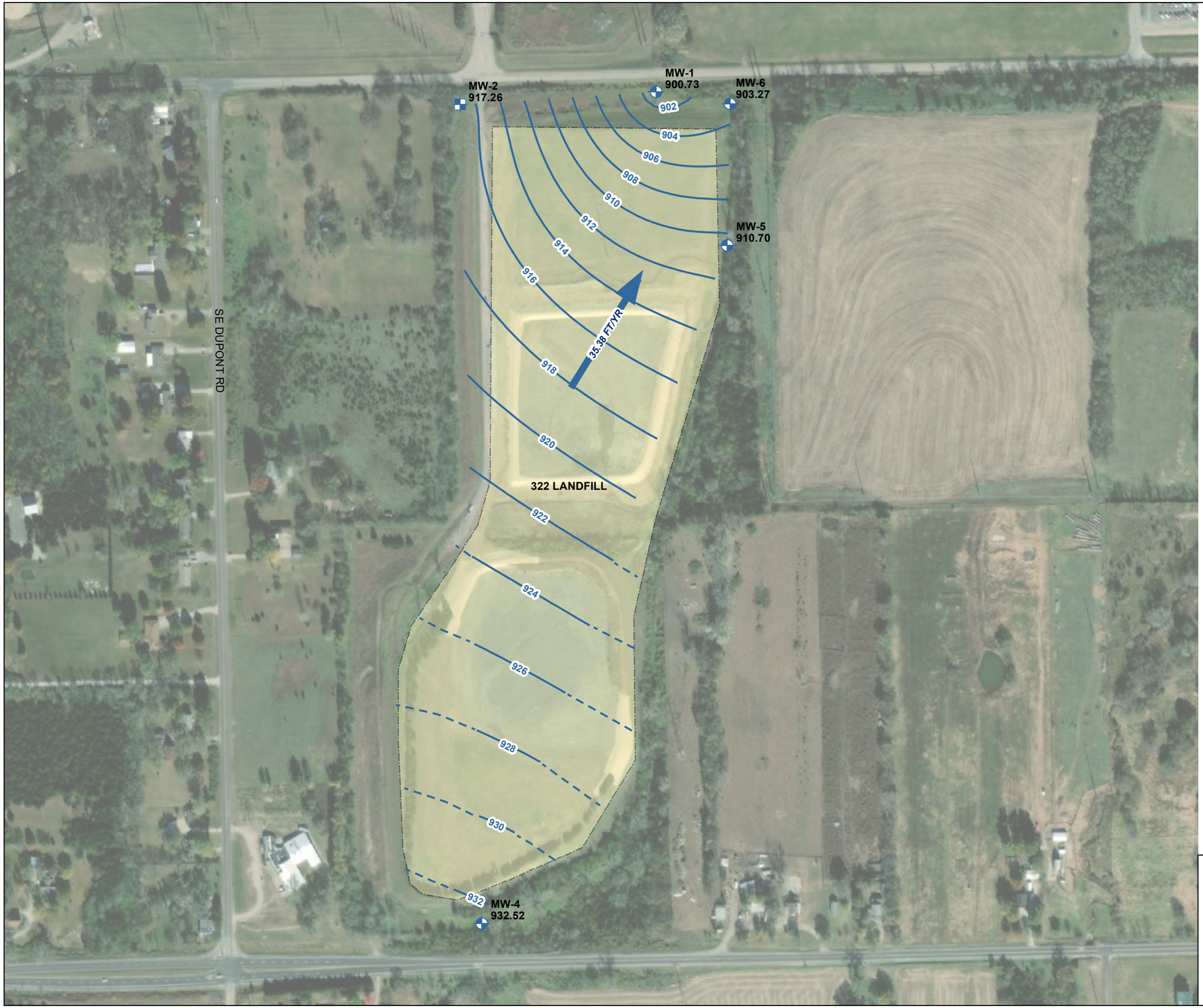
EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP SEPTEMBER 19, 2016

evergy

MARCH 2022

FIGURE 3



LEGEND

- **MW-1 900.47** — WELL NAME AND GROUNDWATER ELEVATION (OCTOBER 31, 2016)
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
- INFERRED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 31 OCTOBER 2016.

3. AMSL = ABOVE MEAN SEA LEVEL

4. THE APPROXIMATE GROUNDWATER FLOW RATE WAS CALCULATED USING HYDRAULIC CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.

5. AERIAL IMAGERY SOURCE: ESRI, 07 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

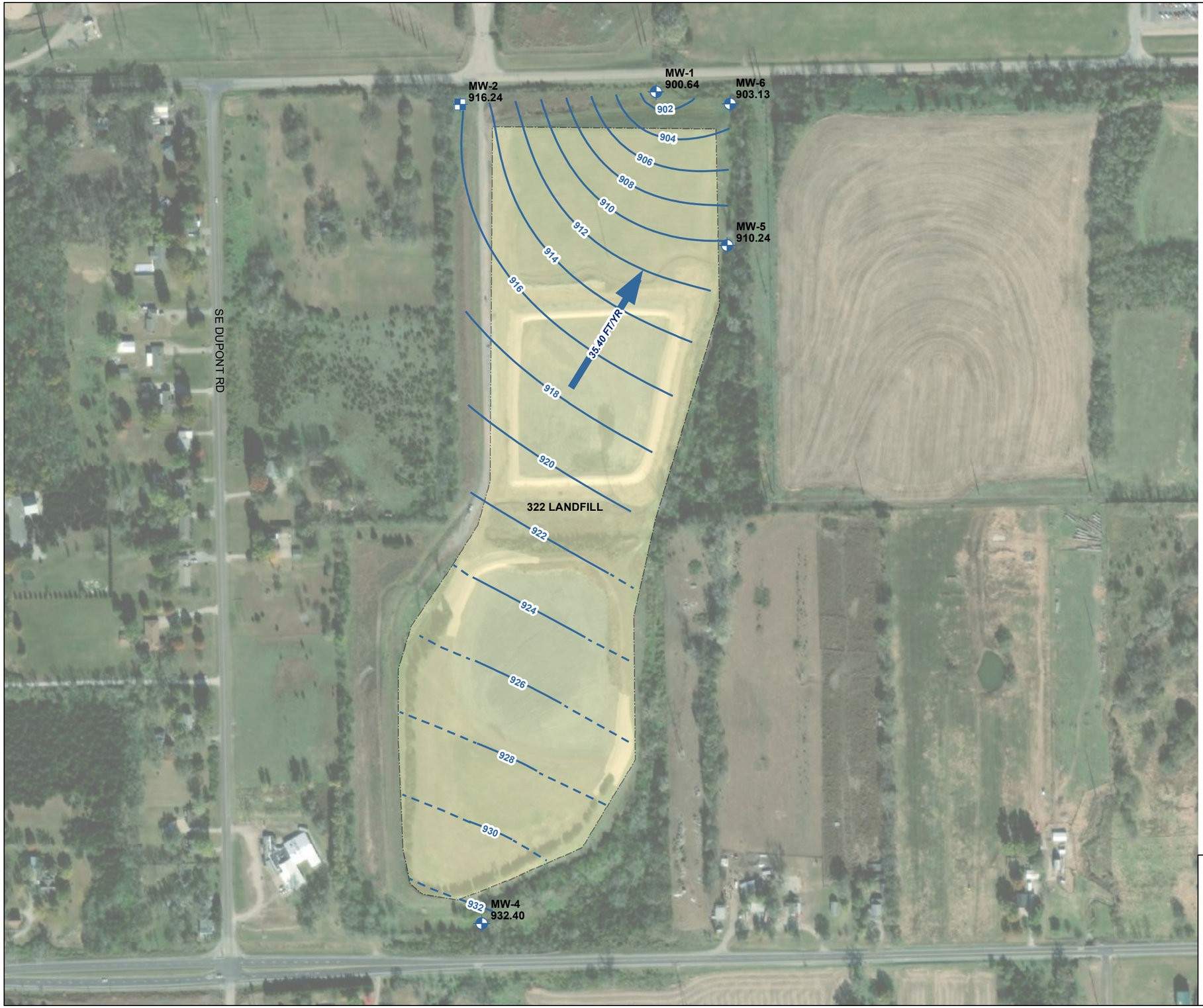
EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP OCTOBER 31, 2016

evergy

MARCH 2022

FIGURE 4



LEGEND

- **MW-1 900.47** WELL NAME AND GROUNDWATER ELEVATION (DECEMBER 12, 2016)
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
- INFERRED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 12 DECEBER 2016.
3. AMSL = ABOVE MEAN SEA LEVEL
4. THE APPROXIMATE GROUNDWATER FLOW RATE WAS CALCULATED USING HYDRAULIC CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
5. AERIAL IMAGERY SOURCE: ESRI, 07 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

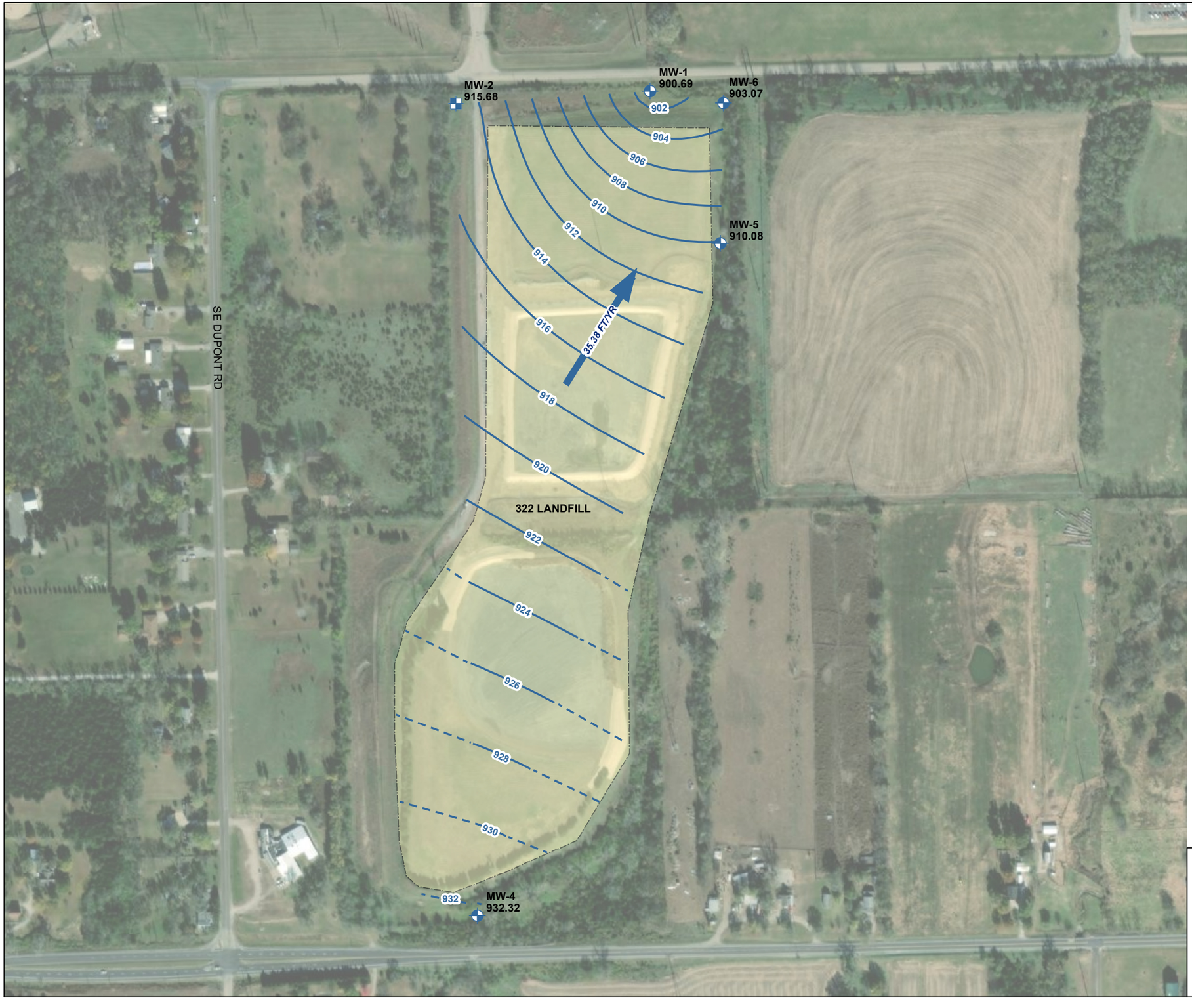
EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP DECEMBER 12, 2016

evergy

MARCH 2022

FIGURE 5



LEGEND

- **MW-1 900.47** — WELL NAME AND GROUNDWATER ELEVATION (FEBRUARY 6, 2017)
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
- INFERRED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 06 FEBRUARY 2017.
3. AMSL = ABOVE MEAN SEA LEVEL
4. THE APPROXIMATE GROUNDWATER FLOW RATE WAS CALCULATED USING HYDRAULIC CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
5. AERIAL IMAGERY SOURCE: ESRI, 07 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP FEBRUARY 06, 2017

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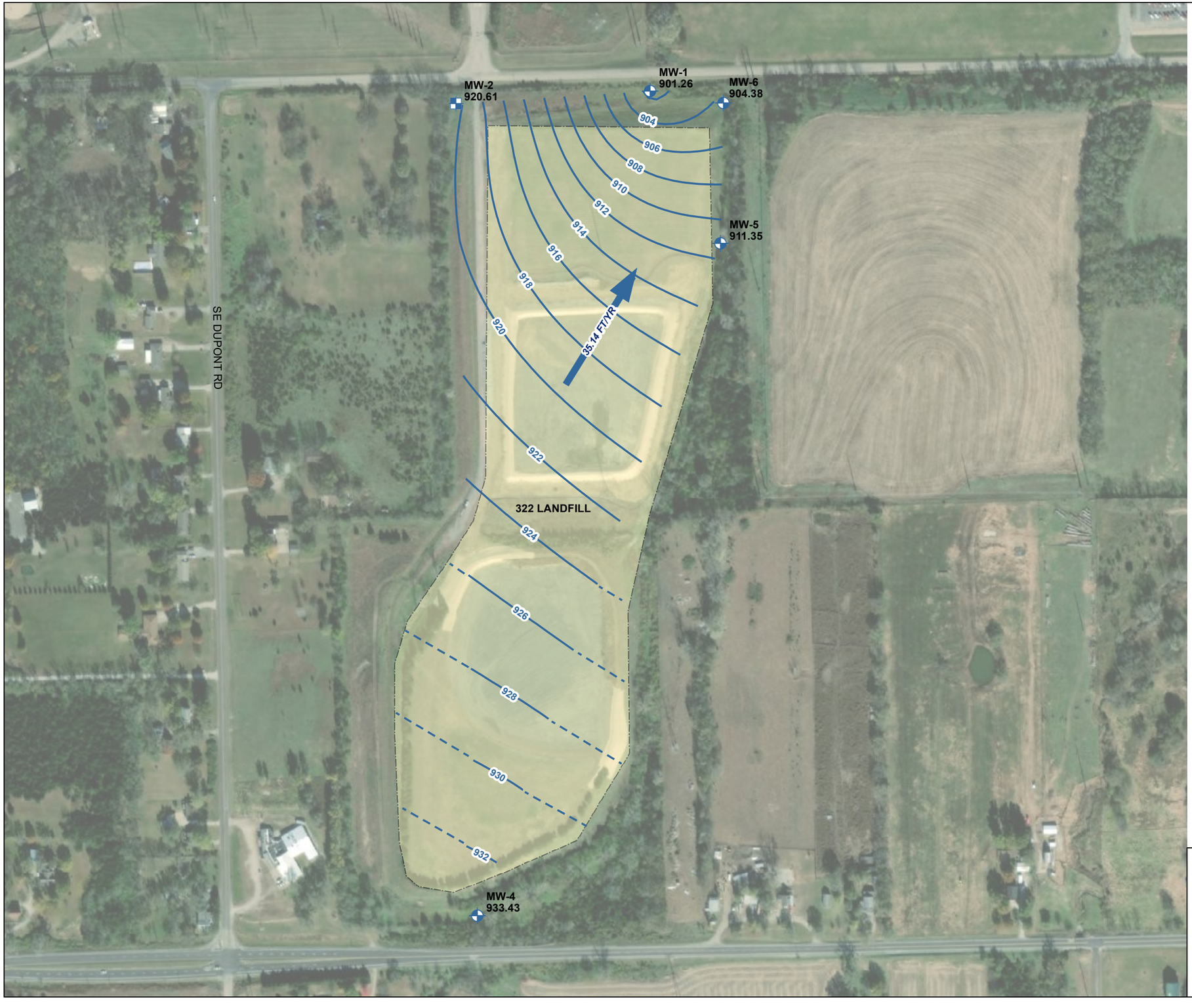
MARCH 2022

FIGURE 6



LEGEND

- MW-1 900.47 — WELL NAME AND GROUNDWATER ELEVATION (APRIL 5, 2017)
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
- INFERRED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 05 APRIL 2017.
3. AMSL = ABOVE MEAN SEA LEVEL
4. THE APPROXIMATE GROUNDWATER FLOW RATE WAS CALCULATED USING HYDRAULIC CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
5. AERIAL IMAGERY SOURCE: ESRI, 07 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP APRIL 05, 2017

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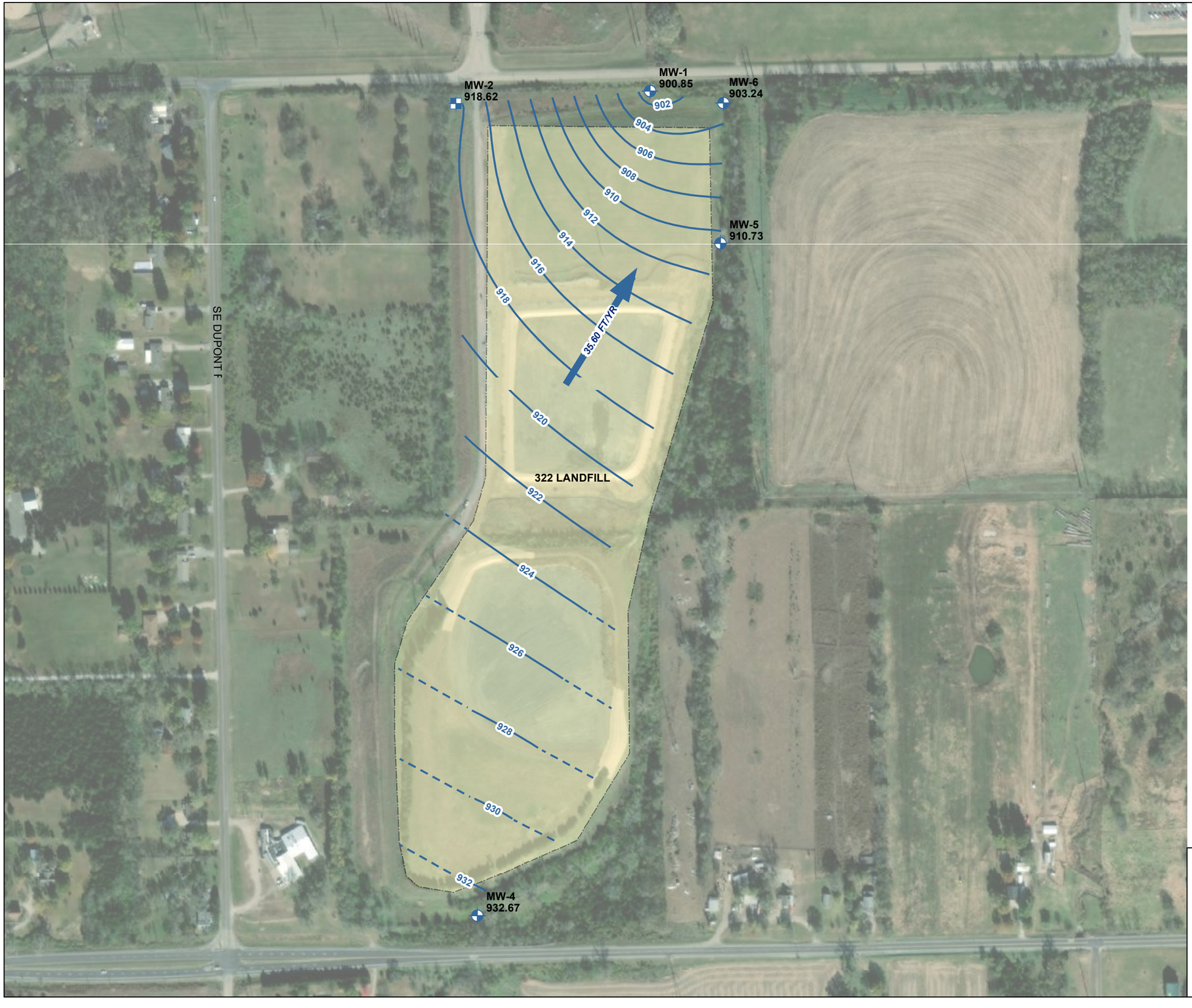
MARCH 2022

FIGURE 7



LEGEND

- MW-1 900.47 — WELL NAME AND GROUNDWATER ELEVATION (MAY 23, 2017)
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
- INFERRED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 23 MAY 2017.
3. AMSL = ABOVE MEAN SEA LEVEL
4. THE APPROXIMATE GROUNDWATER FLOW RATE WAS CALCULATED USING HYDRAULIC CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
5. AERIAL IMAGERY SOURCE: ESRI, 07 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP MAY 23, 2017

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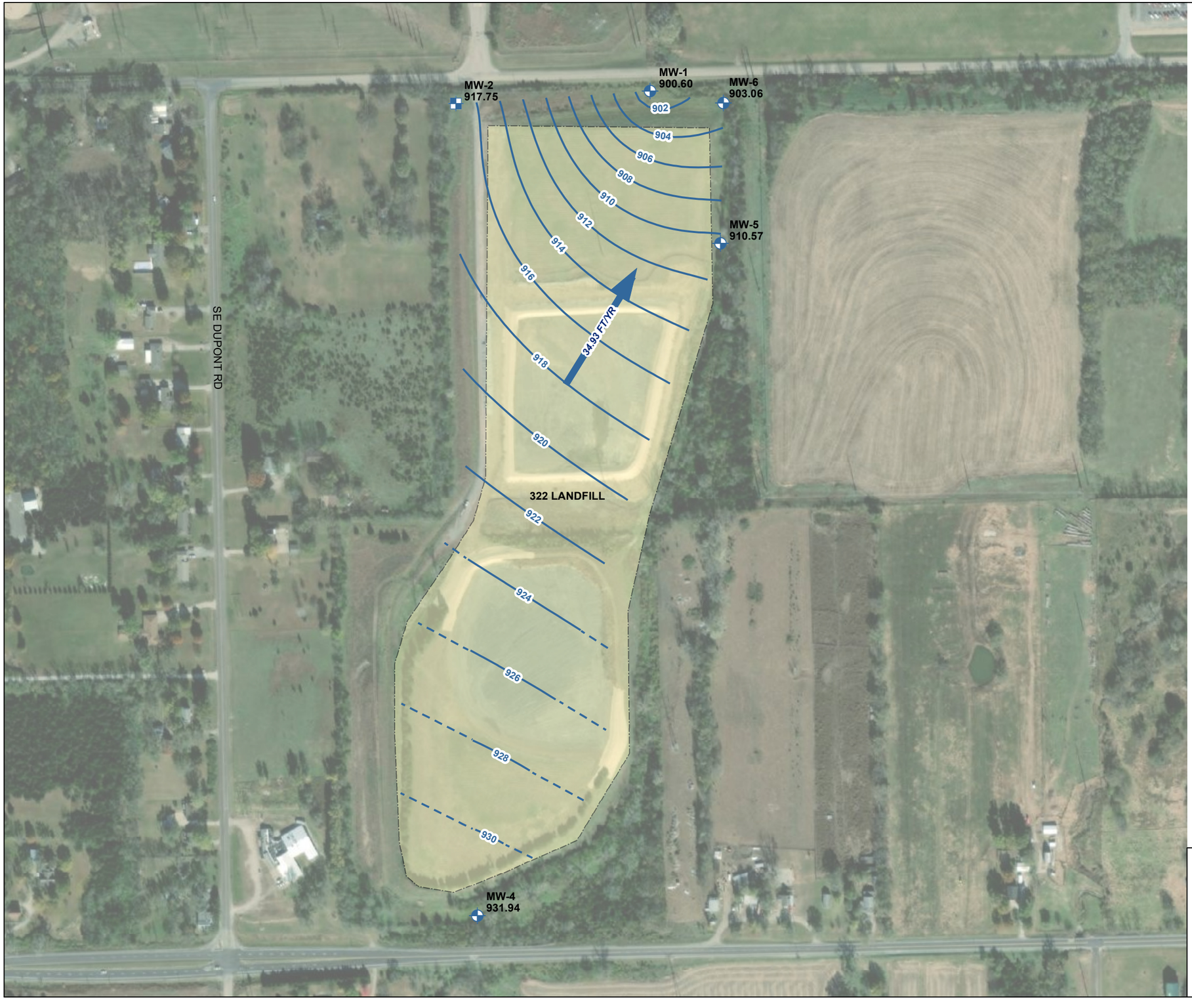
MARCH 2022

FIGURE 8



LEGEND

- **MW-1 900.47** WELL NAME AND GROUNDWATER ELEVATION (JUNE 26, 2017)
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
- INFERRED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- 322 LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 26 JUNE 2017.
3. AMSL = ABOVE MEAN SEA LEVEL
4. THE APPROXIMATE GROUNDWATER FLOW RATE WAS CALCULATED USING HYDRAULIC CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
5. AERIAL IMAGERY SOURCE: ESRI, 07 NOVEMBER 2019

N

0 300 600

SCALE IN FEET

HALEY ALDRICH

EVERGY KANSAS CENTRAL, INC.
TECUMSEH ENERGY CENTER
TECUMSEH, KANSAS

322 LANDFILL GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP JUNE 26, 2017

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MARCH 2022

FIGURE 9