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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



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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: Kansas License No.: Title: Company: Mark Nicholls Professional Geologist No. 881 Technical Expert 2 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 ISUMMARY OF ANALYTICAL RESULTSEVERGY KANSAS CENTRAL, INC.

TECUMSEH ENERGY CENTER 322 LANDFILL TECUMSEH, KANSAS

	cation	Measure Point	Sample Name	Sample Date	Depth to Water	Groundwater Elevation		Field Paramete		USEPA Appendix III Constituents (mg/L)							
201	cation	Elevation (TOC)	Sample Name	Sample Date	(btoc)	(ft AMSL)	Temperature (Deg C)	Conductivity (μS/cm)	Turbidity (NTU)	pH (su)	Boron, Total	Calcium, Total	Chloride	Fluoride	Sulfate	pH (su)	TDS
			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
ut			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
adie	MW-4	936.48	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
Up Gradient	10100-4	550.40	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
ň			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
			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
		904.65	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		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
		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
ient			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
irad	MW-5		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
Ę	10100-5		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
Down Gradient			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-6-081716	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	911.28	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
	10100-0	911.20	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



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# TABLE ISUMMARY OF ANALYTICAL RESULTSEVERGY KANSAS CENTRAL, INC.

TECUMSEH ENERGY CENTER 322 LANDFILL TECUMSEH, KANSAS

Location		Measure Point	Sample Name	Sample Date	Depth to Water	Groundwater Elevation	USEPA Appendix IV Constituents (mg/L)														USEPA Appendix IV Constituents (pCi/L)
20	cution	Elevation (TOC)	oumple nume	Sumple Dute	(btoc)	(ft AMSL)	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
			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
sut			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
Gradie	MW-4	936.48	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
G		550.40	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
ę			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
			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	904.65	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
		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
ų			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
dien			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
Grac	MW-5		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
LA LA			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
ĎŎ			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-6-081716	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	911.28	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

pci/L - picocurie per

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.



760

380 SCALE IN FEET

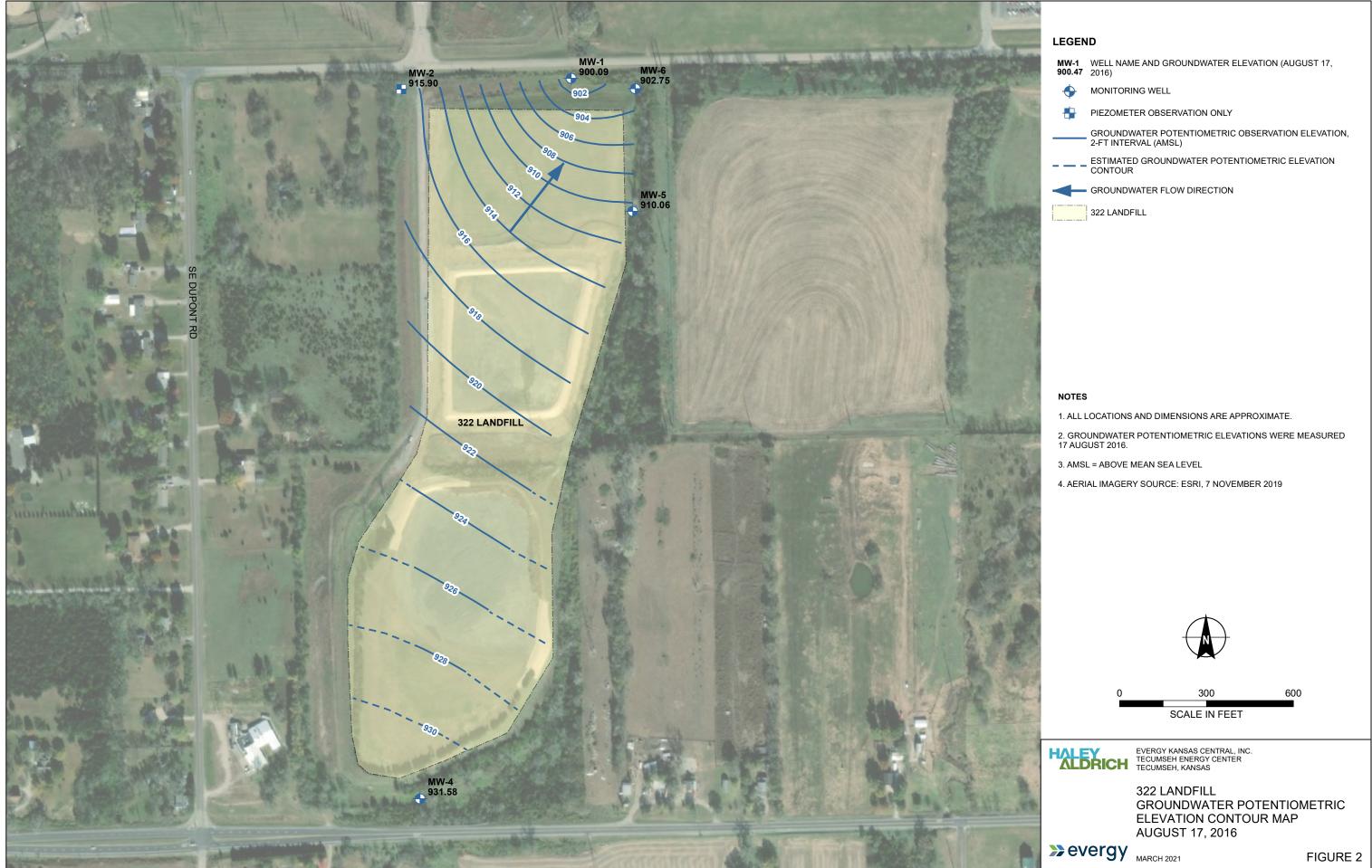


WESTAR ENERGY TECUMSEH ENERGY CENTER TECUMSEH, KANSAS

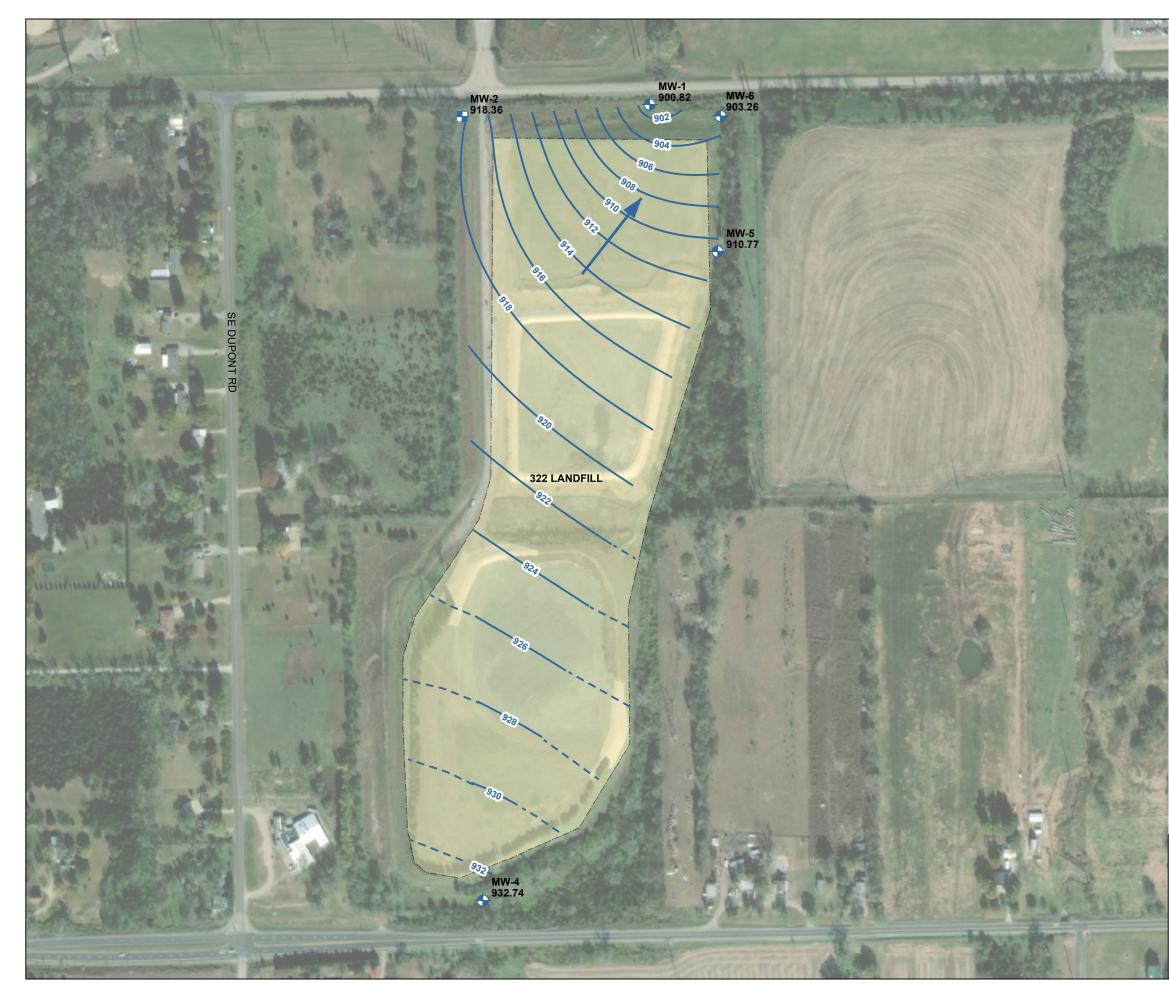
## 322 LANDFILL MONITORING WELL LOCATION MAP

MARCH 2021 SCALE: AS SHOWN

### FIGURE 1



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					



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				

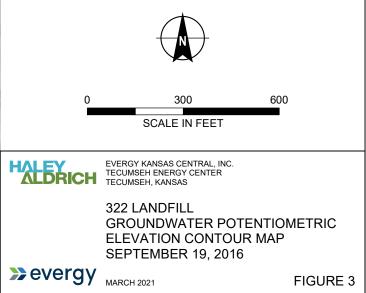
#### NOTES

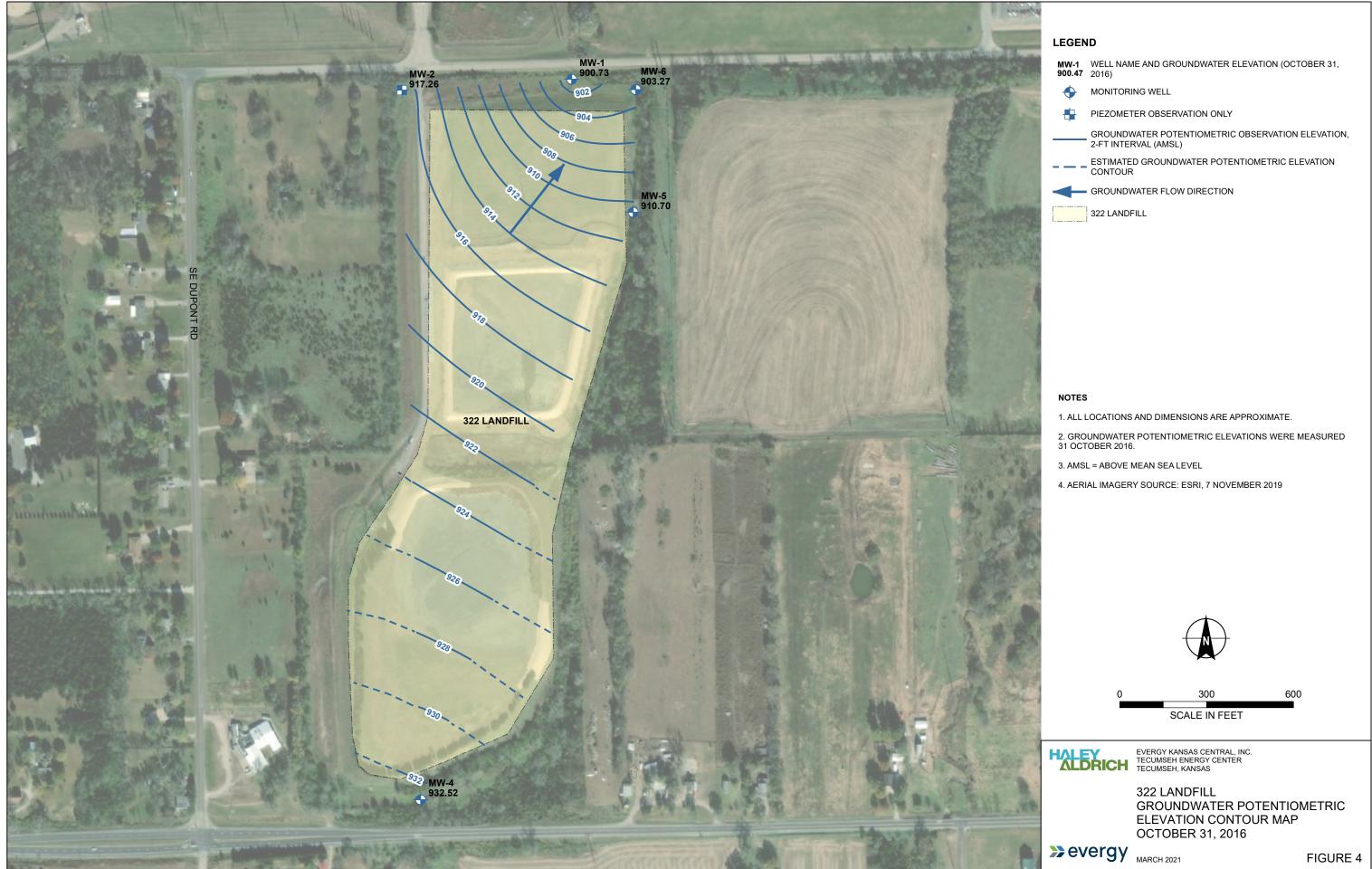
1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 19 SEPTEMBER 2016.

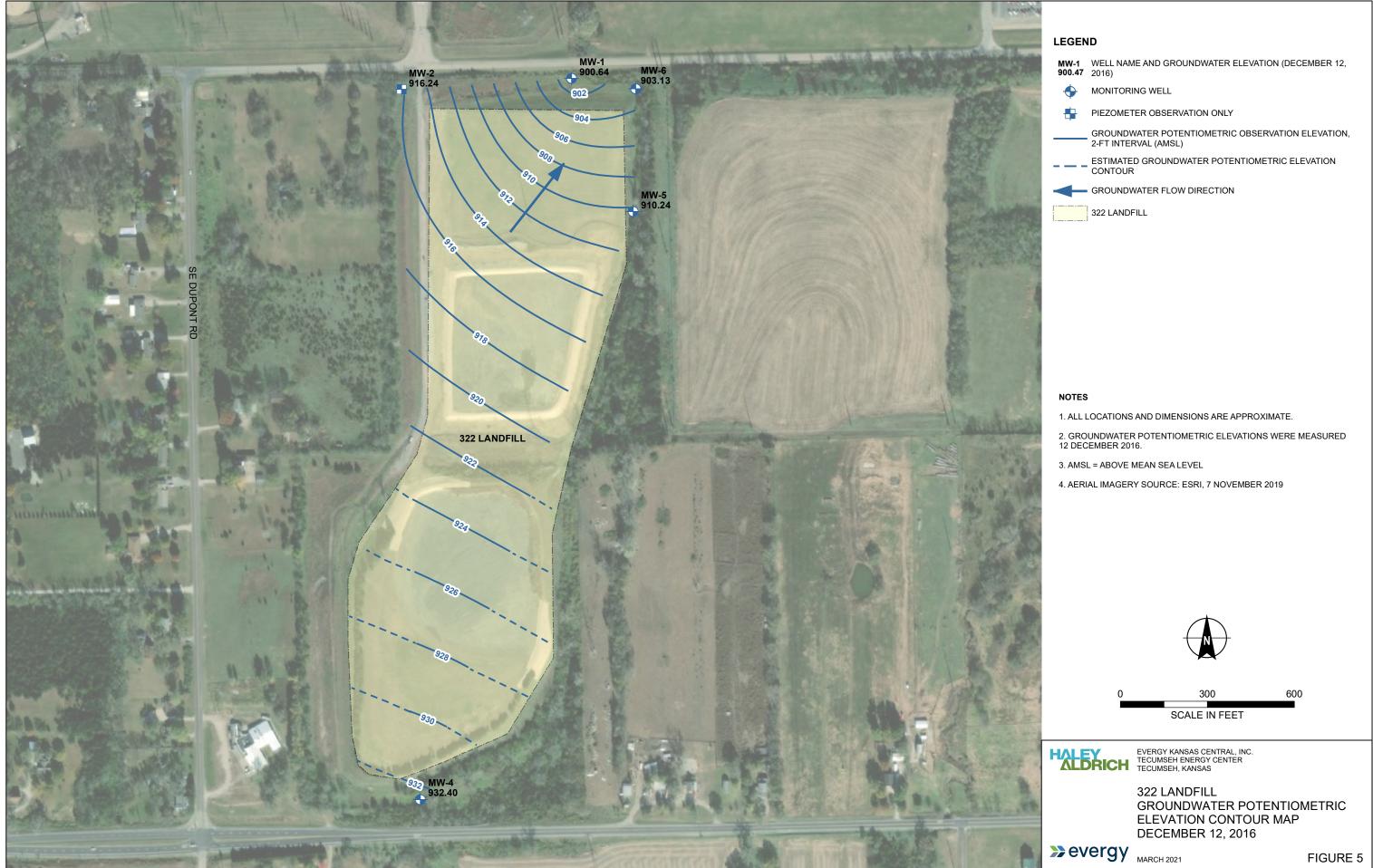
3. AMSL = ABOVE MEAN SEA LEVEL

4. AERIAL IMAGERY SOURCE: ESRI, 7 NOVEMBER 2019

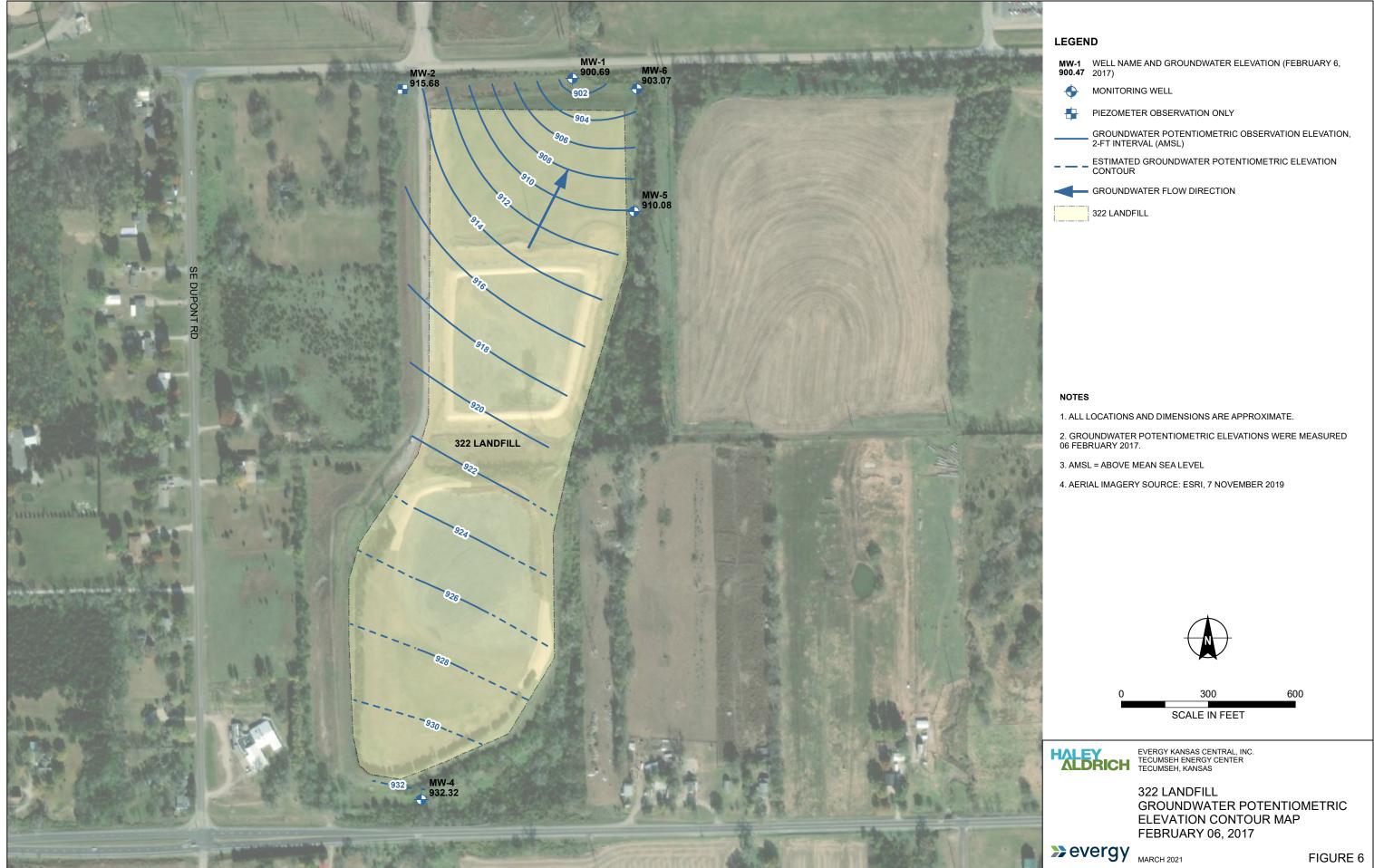




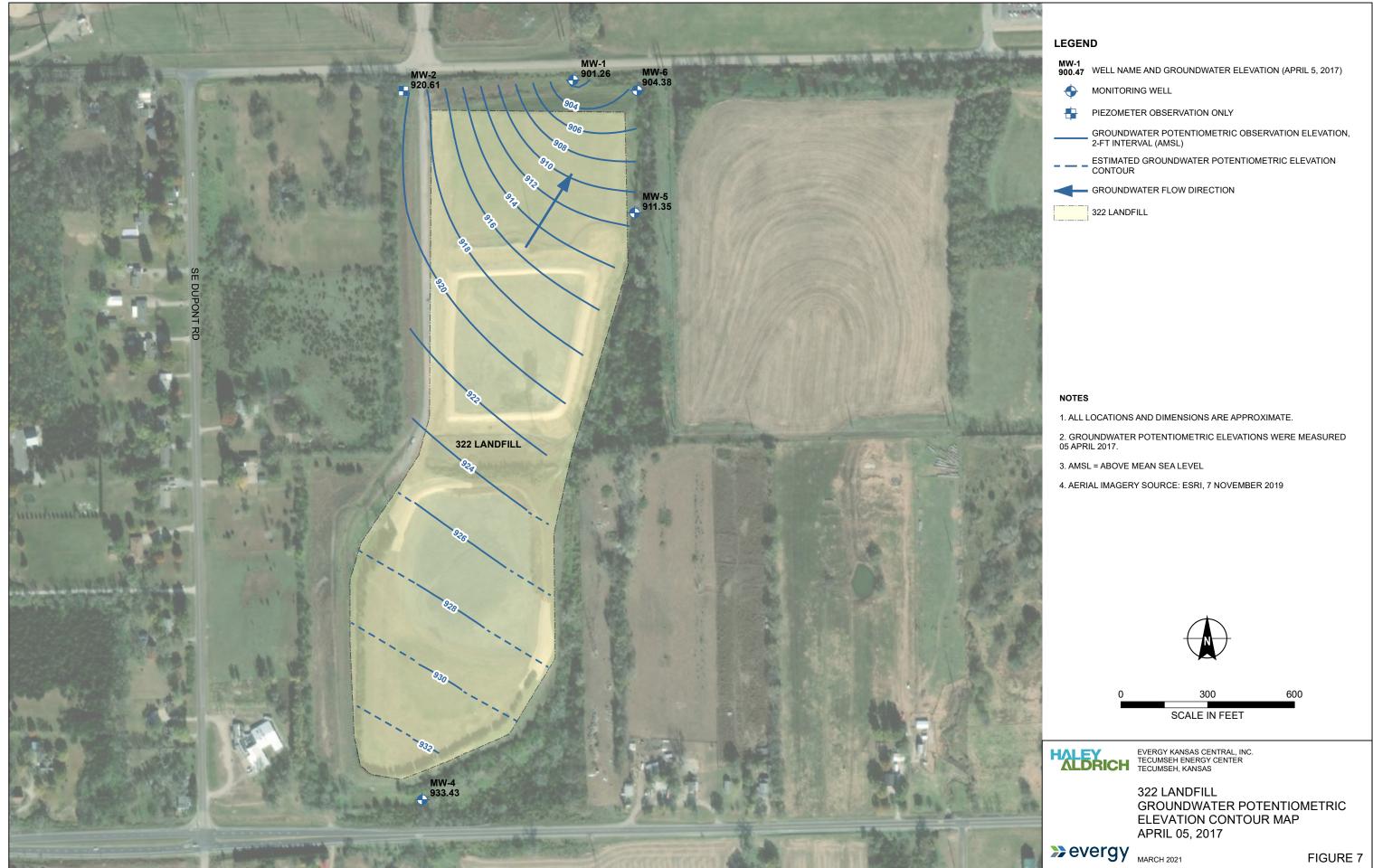
LEGEND						
MW-1 900.47	WELL NAME AND GROUNDWATER ELEVATION (OCTOBER 31, 2016)					
÷	MONITORING WELL					
-	PIEZOMETER OBSERVATION ONLY					
	GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION, 2-FT INTERVAL (AMSL)					
	ESTIMATED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR					
-	GROUNDWATER FLOW DIRECTION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



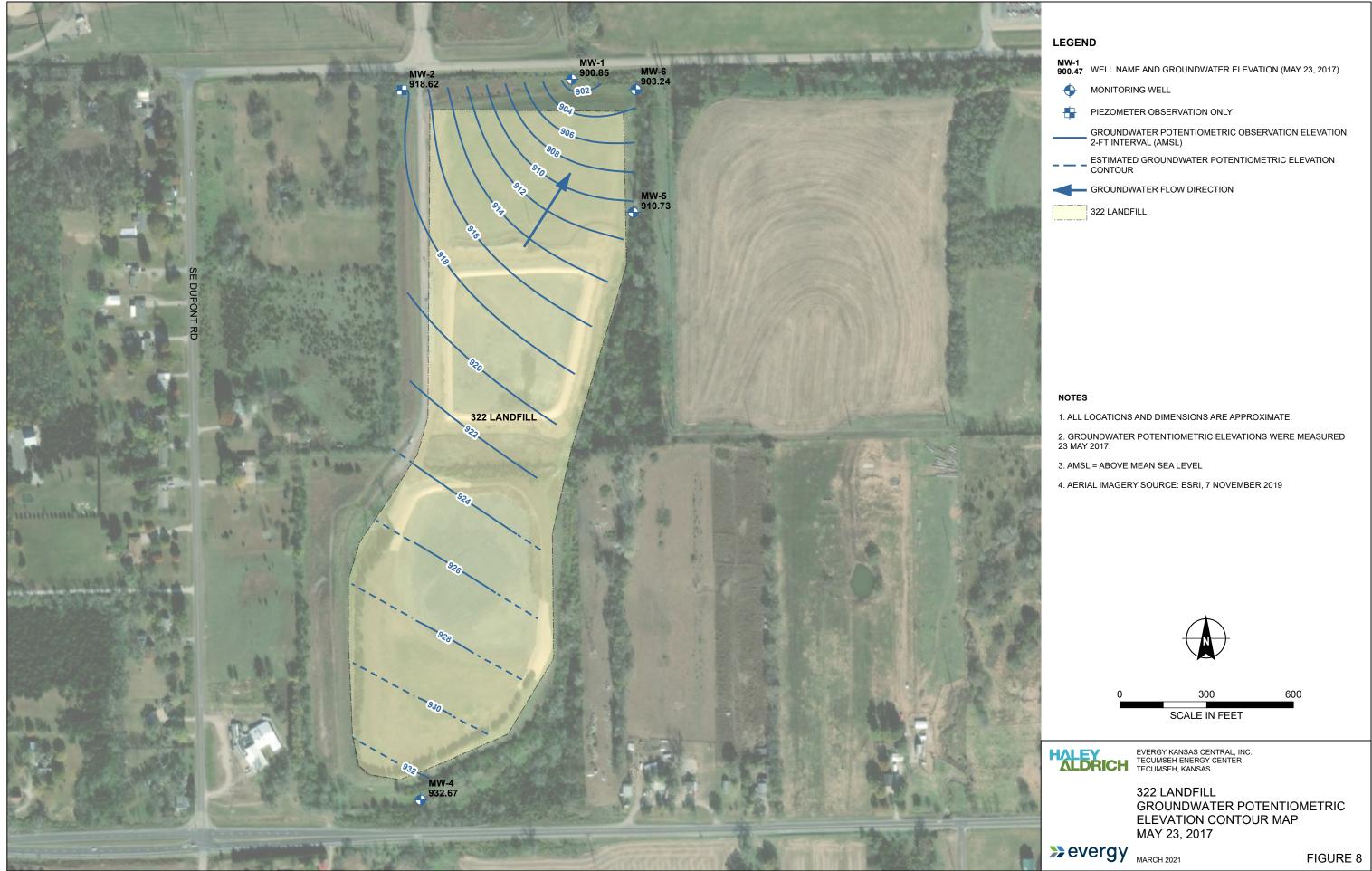
LEGEND						
MW-1 900.47	WELL NAME AND GROUNDWATER ELEVATION (DECEMBER 12, 2016)					
÷	MONITORING WELL					
-	PIEZOMETER OBSERVATION ONLY					
	GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION, 2-FT INTERVAL (AMSL)					
	ESTIMATED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR					
-	GROUNDWATER FLOW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



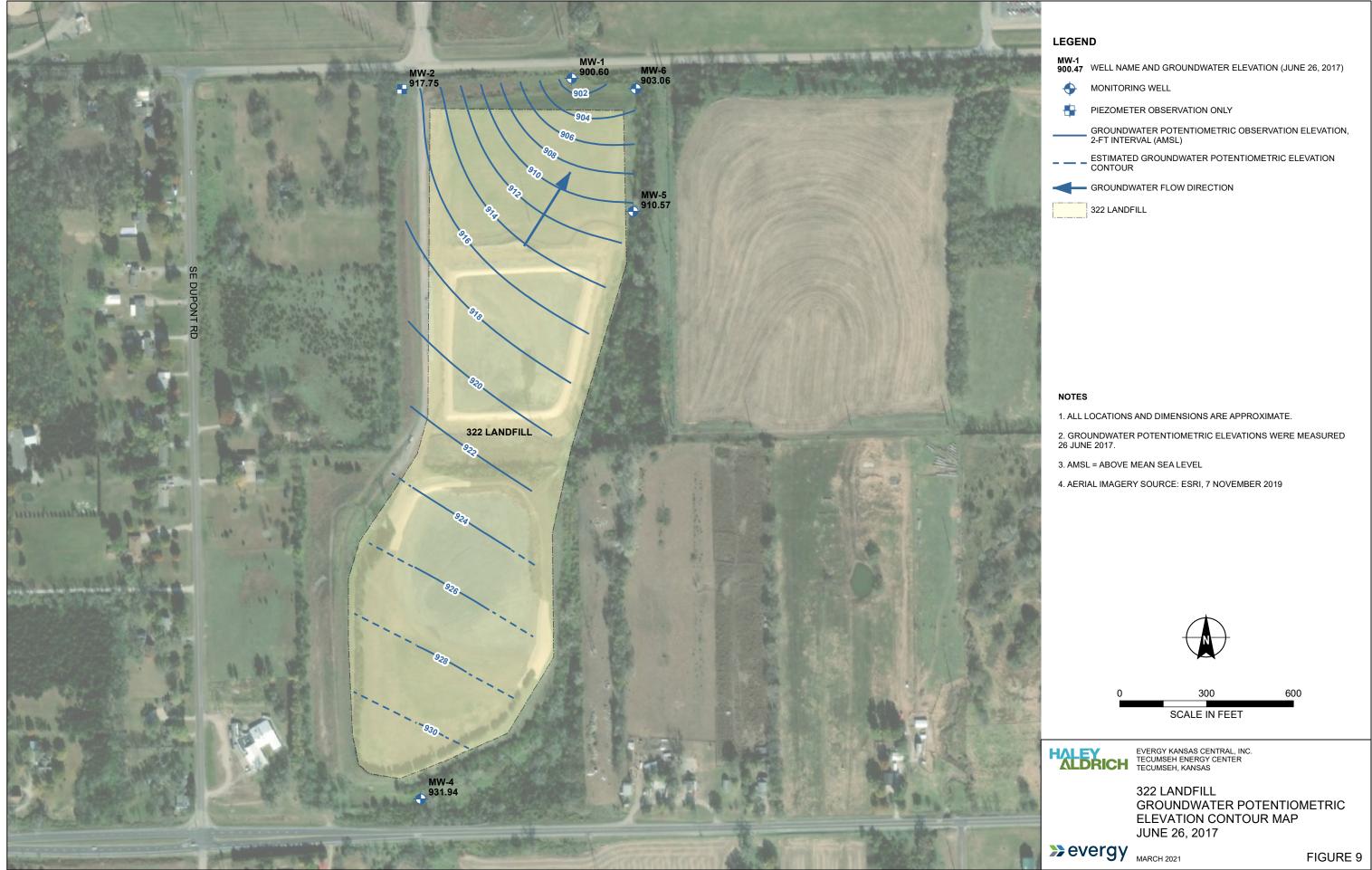
LEGEND						
MW-1 900.47	WELL NAME AND GROUNDWATER ELEVATION (FEBRUARY 6, 2017)					
÷	MONITORING WELL					
-	PIEZOMETER OBSERVATION ONLY					
	GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION, 2-FT INTERVAL (AMSL)					
	ESTIMATED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR					
-	GROUNDWATER FLOW DIRECTION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



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



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



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



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



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

Evergy Kansas Central, Inc. March 18, 2022 Page 2

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,

Autor m. Wilson

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

#### 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 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

Louisiana Certification #: 03055 Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587



#### 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



#### SAMPLE ANALYTE COUNT

Project: TEC CCR Groundwater

Pace Project No.: 60226095

₋ab 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
0226095002	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
)226095003	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
0226095004	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
0226095005	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

#### **REPORT OF LABORATORY ANALYSIS**

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



#### SAMPLE ANALYTE COUNT

Project:	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



Project: TEC CCR Groundwater

#### Pace Project No.: 60226095

Method:EPA 200.7Description:200.7 Metals, TotalClient:WESTAR ENERGYDate: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:



Project: TEC CCR Groundwater

#### Pace Project No.: 60226095

Method:EPA 200.8Description:200.8 MET ICPMSClient:WESTAR ENERGYDate: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:



Project: TEC CCR Groundwater

#### Pace Project No.: 60226095

Method:EPA 245.1Description:245.1 MercuryClient:WESTAR ENERGYDate: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:



Project: TEC CCR Groundwater

#### Pace Project No.: 60226095

Method:EPA 903.1Description:903.1 Radium 226Client:WESTAR ENERGYDate: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:



Project: TEC CCR Groundwater

#### Pace Project No.: 60226095

Method:EPA 904.0Description:904.0 Radium 228Client:WESTAR ENERGYDate: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:



Project: TEC CCR Groundwater

Pace Project No.: 60226095

#### Method: SM 2540C

Description:2540C Total Dissolved SolidsClient:WESTAR ENERGYDate: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:



#### **PROJECT NARRATIVE**

Project: TEC CCR Groundwater

Pace Project No.: 60226095

Method:	SM 4500-H+B
<b>Description:</b>	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:



#### **PROJECT NARRATIVE**

Project: TEC CCR Groundwater

Pace Project No.: 60226095

Method:EPA 300.0Description:300.0 IC Anions 28 DaysClient:WESTAR ENERGYDate: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.



#### Project: TEC CCR Groundwater

#### Pace Project No.: 60226095

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         -0.10         mg/L         0.10         1         08/22/16 16:30         08/23/16 11:44         7440-42-8           Calcium, Total Recoverable         -0.10         mg/L         0.100         1         08/22/16 16:30         08/23/16 11:44         7440-47-3           Lead, Total Recoverable         -0.0050         mg/L         0.0050         08/22/16 16:30         08/23/16 11:44         7439-37-1           Lead, Total Recoverable         -0.0050         mg/L         0.0010         1         08/22/16 16:30         08/23/16 11:44         7439-37-1           Lead, Total Recoverable         -0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:30         7440-48-4           Antimon, Total Recoverable         -0.0010         mg/L         0.0010         1         08/22/16 16:30         08/2	Sample: MW-4-081716	Lab ID: 60	226095001	Collected: 08/17/1	6 13:4 <sup>-</sup>	1 Received: 08	3/19/16 16:00 N	Aatrix: Water	
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         40.001         mg/L         0.010         1         08/22/16 16:30         08/23/16 11:44         7440-42-8           Calcium, Total Recoverable         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         0.0050         1         08/22/16 16:30         08/23/16 11:44         7440-47-3           Lead, Total Recoverable         40.0050         mg/L         0.0050         1         08/22/16 16:30         08/23/16 11:44         7440-47-3           Lithium         cd.010         mg/L         0.0050         1         08/22/16 16:30         08/23/16 11:44         7440-47-3           Lithium         cd.010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 11:44         7440-47-3           Lithium         cd.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 11:44         7440-36-0           Arsenic, Total Recoverable         cd.0010         mg/L         0.0010         1         08/22/16 16:30<	Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Beryllium, Total Recoverable       <0.0010	200.7 Metals, Total	Analytical Me	ethod: EPA 200	0.7 Preparation Met	hod: El	PA 200.7			
Boron, Total Recoverable       <0.10	Barium, Total Recoverable	0.14	mg/L	0.010	1	08/22/16 16:30	08/23/16 11:44	7440-39-3	
Calcium, Total Recoverable Chromium, Total Recoverable Lead, Total Recoverable         179         mg/L mg/L         0.10         1         08/22/16 16:30         08/23/16 11:44         7440-70-2 740-73           Lead, Total Recoverable Lithium         0.0050         mg/L         0.0050         1         08/22/16 16:30         08/23/16 11:44         7439-92-1           200.8 MET ICPMS         Analytical Method:         EPA 200.8 Preparation         Velocitie         Velocitie         740-36-0           Antimony, Total Recoverable         -0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:30         7440-38-0           Antimony, Total Recoverable         -0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:30         7440-38-0           Cobalt, Total Recoverable         -0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:30         7440-48-0           Aloybdenum, Total Recoverable         -0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:30         7440-48-0           Molybdenum, Total Recoverable         -0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:30         7440-48-0           Stotal Recoverable         -0.	Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/23/16 11:44	7440-41-7	
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	Boron, Total Recoverable	<0.10	mg/L	0.10	1	08/22/16 16:30	08/23/16 11:44	7440-42-8	
Lead, Total Recoverable         <0.0050         mg/L         0.0050         1         08/22/16 16:30         08/23/16 11:44         7439-92-1           200.8 MET ICPMS         Analytical Method:         EPA 200.8         Preparation         Nethod:         EPA 200.8         Preparation           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           Cobalt, Total Recoverable         <0.0010         mg/L         0.0010         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         7440-43-9           Cobalt, Total Recoverable         <0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:30         7440-43-9           Selenium, Total Recoverable         <0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:30         7440-48-0           Selenium, Total Recoverable         <0.0010         mg/L         0.	Calcium, Total Recoverable	179	mg/L	0.10	1	08/22/16 16:30	08/23/16 11:44	7440-70-2	
Lithium       <0.010       mg/L       0.010       1       08/22/16 16:0       08/23/16 11:44       7439-32         200.8 MET ICPMS       Analytical Wetty: EPA 200.8       Prepertor       EVA       Nontrop       0.0010       1       08/22/16 16:00       08/23/16 15:00       7440-36-0         Ansenic, Total Recoverable       <0.0010       mg/L       0.0010       1       08/22/16 16:00       08/23/16 15:00       7440-36-0         Codmium, Total Recoverable       <0.0010       mg/L       0.0010       1       08/22/16 16:00       08/23/16 15:00       7440-48-0         Molydenum, Total Recoverable       <0.0010       mg/L       0.0010       1       08/22/16 16:00       08/23/16 15:00       7440-48-0         Selenium, Total Recoverable       <0.0010       mg/L       0.0010       1       08/22/16 16:00       08/23/16 15:00       7440-48-0         Selenium, Total Recoverable       <0.0010       mg/L       0.0010       1       08/22/16 16:00       08/23/16 15:00       7440-48-0         Selenium, Total Recoverable       <0.0010       mg/L       0.0010       1       08/22/16 16:00       08/23/16 15:00       7440-48-0         Selenium, Total Recoverable       <0.0010       mg/L       0.010       1       08/23/16 16:00	Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	08/22/16 16:30	08/23/16 11:44	7440-47-3	
200.8 MET ICPMS       Analytical Metod:       EPA 200.8 Preparation Metod:       EPA 200.8 Preparation Metod:       EPA 200.8 Preparation Metod:       EPA 200.8 Preparation Metod:       EPA 200.8 Metod:       Metod:       7440-36-3       7440-36-3       7440-43-9         Antimony, Total Recoverable       <0.0010	Lead, Total Recoverable	<0.0050	mg/L	0.0050	1				
Antimony, 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       -0.0010       mg/L       0.00050       1       08/22/16 16:30       08/23/16 15:30       7440-38-2         Cadmium, Total Recoverable       -0.0010       mg/L       0.0010       1       08/22/16 16:30       08/23/16 15:30       7440-48-4         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       7440-48-4         Selenium, Total Recoverable       -0.0010       mg/L       0.0010       1       08/22/16 16:30       08/23/16 15:30       7440-48-4         Selenium, Total Recoverable       -0.0010       mg/L       0.0010       1       08/22/16 16:30       08/23/16 15:30       7440-48-4         Selenium, Total Recoverable       -0.0010       mg/L       0.0010       1       08/23/16 16:30       08/23/16 15:30       7440-48-0         245.1 Mercury       -0.20       ug/L       0.20       1       08/23/16 16:30       08/23/16 15:30       7440-48-0	Lithium	<0.010	mg/L	0.010	1	08/22/16 16:30	08/23/16 11:44	7439-93-2	
Arsenic, Total Recoverable       <0.0010	200.8 MET ICPMS	Analytical Me	ethod: EPA 200	0.8 Preparation Met	hod: El	PA 200.8			
Cadmiun, 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	Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:30	7440-36-0	
Cobalt, Total Recoverable       <0.0010	Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:30	7440-38-2	
Molyberum, Total Recoverable       <0.0010	Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	08/22/16 16:30	08/23/16 15:30	7440-43-9	
Selenium, Total Recoverable         <0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:30         7782-49-2           245.1 Mercury         Analytical Method         EPA 245.1         Preparator         EVA 245.1         Preparator         08/23/16 15:30         7782-49-2           Mercury         Analytical Method         EPA 245.1         Preparator         EVA 245.1         Preparator         EVA 245.1           Mercury         <0.00         1         08/23/16 08:40         08/23/16 12:15         7439-97-6           2540C Total Dissolved Solids         Analytical Method         SM 2540C         1         08/23/16 14:34         7439-97-6           Total Dissolved Solids         1070         mg/L         0.0         1         08/23/16 08:40         08/23/16 14:34         1           4500H+ pH, Electrometric         Analytical Method         SM 4500-H+B         1         08/23/16 08:45         H6           300.0 IC Anions 28 Days         Analytical Method         EPA 300.0         1         08/23/16 08:45         H6           Chloride         263         mg/L         20.0         20         09/08/16 12:04         16887-00-6           Guada         Mg/L         20.0         20         20         90/07/16 14:30<	Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:30	7440-48-4	
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       Preparation Method       0.200       1       08/23/16 08:40       08/23/16 12:15       7430-97-6         2540C Total Dissolved Solids       Analytical Method       SM 2540C       1       0.8/23/16 08:40       08/23/16 12:15       7439-97-6         2540C Total Dissolved Solids       Analytical Method       SM 2540C       1       0.8/23/16 14:34       7439-97-6         Total Dissolved Solids       1070       mg/L       5.0       1       08/23/16 14:34       2       2         4500H+ pH, Electrometric       Analytical Method       SM 4500-H+B       1       0.8/23/16 08:45       H6         300.0 IC Anions 28 Days       Analytical Method       EPA 300.0       1       09/08/16 12:04       16887-00-6       16887-00-6         Fluoride       263       mg/L       20.0       20       09/08/16 12:04       16887-00-6       16887-00-6         Gold       0.24       mg/L       20.0       20       09/07/16 14:30       16887-00-6       16884-48-8	Molybdenum, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:30	7439-98-7	
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   <	Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:30	7782-49-2	
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	Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:30	7440-28-0	
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 <th< td=""><td>245.1 Mercury</td><td>Analytical Me</td><td>ethod: EPA 245</td><td>5.1 Preparation Met</td><td>hod: El</td><td>PA 245.1</td><td></td><td></td><td></td></th<>	245.1 Mercury	Analytical Me	ethod: EPA 245	5.1 Preparation Met	hod: El	PA 245.1			
Total Dissolved Solids       1070       mg/L       5.0       1       08/23/16 14:34         4500H+ pH, Electrometric       Analytical Method: SM 4500-H+B       5.0       1       08/23/16 08:45       H6         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       EPA 300.0       20.0       20       09/08/16 12:04       16887-00-6         Chloride Fluoride       263       mg/L       20.0       20       09/07/16 14:30       16984-48-8	Mercury	<0.20	ug/L	0.20	1	08/23/16 08:40	08/23/16 12:15	7439-97-6	
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       20.0       20       09/08/16 12:04       16887-00-6         Chloride       263       mg/L       20.0       20       09/07/16 14:30       16984-48-8	2540C Total Dissolved Solids	Analytical Me	ethod: SM 254	0C					
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	Total Dissolved Solids	1070	mg/L	5.0	1		08/23/16 14:34		
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	4500H+ pH, Electrometric	Analytical Me	ethod: SM 450	0-H+B					
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	pH at 25 Degrees C	7.0	Std. Units	0.10	1		08/23/16 08:45		H6
Fluoride 0.24 mg/L 0.20 1 09/07/16 14:30 16984-48-8	300.0 IC Anions 28 Days	Analytical Me	ethod: EPA 300	0.0					
<b>3 1 1 1 1 1 1 1 1 1 1</b>	Chloride	263	mg/L	20.0	20		09/08/16 12:04	16887-00-6	
5	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	



#### Project: TEC CCR Groundwater

#### Pace Project No.: 60226095

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         0.0011         mg/L         0.0010         1         08/23/16         11:58         7440-39-3           Beryllium, Total Recoverable         1.1         mg/L         0.101         1         08/22/16         16:30         08/23/16         11:58         7440-42-8           Calcium, Total Recoverable         2.75         mg/L         0.1005         1         08/22/16         16:30         08/23/16         11:58         7440-47-3           Lead, Total Recoverable         2.75         mg/L         0.0050         1         08/22/16         16:30         08/23/16         11:58         7440-47-3           Lead, Total Recoverable         40.0050         mg/L         0.0010         1         08/22/16         16:30         08/23/16         11:58         7440-47-3           Lead, Total Recoverable         40.0010         mg/L         0.0010         1         08/23/16         15:34         7440-38-2           200.8 MET ICPMS         Analytical Me	Sample: MW-6-081716	Lab ID: 60	226095002	Collected: 08/17/1	16 15:17	Received: 08	B/19/16 16:00	Matrix: Water	
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         1.1         mg/L         0.010         1         08/22/16 16:30         08/23/16 11:58         7440-42-8           Calcium, Total Recoverable         2.75         mg/L         0.10         1         08/22/16 16:30         08/23/16 11:58         7440-42-8           Calcium, Total Recoverable         2.00050         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         7440-47-3           Lithium         0.018         mg/L         0.0050         1         08/22/16 16:30         08/23/16 11:58         7440-47-3           Lithium         0.018         mg/L         0.0010         1         08/22/16 16:30         08/23/16 11:58         7440-47-3           Lead, 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         <	Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Beryllium, Total Recoverable         <0.0010	200.7 Metals, Total	Analytical Me	ethod: EPA 200	0.7 Preparation Met	thod: EP	A 200.7			
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         0.0050         1         08/22/16 16:30         08/23/16 11:58         7440-42-8           Chromium, Total Recoverable         40.0050         mg/L         0.0050         1         08/22/16 16:30         08/23/16 11:58         7440-47-3           Lead, Total Recoverable         40.0050         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 15:34         7440-48-0           Antimony, Total Recoverable         <0.0010	Barium, Total Recoverable	0.041	mg/L	0.010	1	08/22/16 16:30	08/23/16 11:58	7440-39-3	
Calcium, Total Recoverable Chromium, Total Recoverable Lead, Total Recoverable         275         mg/L         0.10         1         08/22/16 16:30         08/23/16 11:58         7440-70-2           Lead, 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         0.018         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         New paration         08/22/16 16:30         08/23/16 15:34         7440-36-0           Antimony, Total Recoverable         -0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:34         7440-38-2           Cobalt, Total Recoverable         -0.0010         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         7440-48-4           Molybdenum, Total Recoverable         -0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:34         740-48-4	Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/23/16 11:58	7440-41-7	
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         0.018         mg/L         0.0050         1         08/22/16         16:30         08/23/16         11:58         7439-93-2           200.8 MET ICPMS         Analytical Metrod:         EPA 200.8         Preparation         Metrod:         EPA 200.8         0.0010         1         08/22/16         16:30         08/23/16         15:34         7440-47-3           Antimony, Total Recoverable         <0.0010	Boron, Total Recoverable	1.1	mg/L	0.10	1	08/22/16 16:30	08/23/16 11:58	7440-42-8	
Lead, Total Recoverable Lithium         <0.0050 0.018         mg/L mg/L         0.0050 0.010         1 08/22/16 16:30 0.8/23/16 11:58         7439-92-1 7439-93-2           200.8 MET ICPMS         Analytical Method: EPA 200.8 Preparation Method: Arsenic, Total Recoverable Arsenic, Total Recoverable Codmium, Total Recoverable Codmium, Total Recoverable Codmium, Total Recoverable 0.0010         0.0010 mg/L         1 0.0010         0.8/22/16 16:30 0.8/22/16 16:30         08/23/16 15:34 0.4/40-38-2         7440-38-2 7440-43-9           Cobalt, Total Recoverable Codmium, Total Recoverable Codmium, Total Recoverable 0.0031         mg/L         0.0010         1 0.8/22/16 16:30         08/23/16 15:34         7440-38-2 7440-43-9           Cobalt, Total Recoverable Codmium, Total Recoverable 0.0010         mg/L         0.0010         1 0.8/22/16 16:30         08/23/16 15:34         7440-43-9           Cobalt, Total Recoverable Codmum, Total Recoverable 4.0.0010         mg/L         0.0010         1 0.8/22/16 16:30         08/23/16 15:34         7440-43-9           Selenium, Total Recoverable 5.0010         mg/L         0.0010         1 0.8/22/16 16:30         08/23/16 15:34         7440-43-9           Cotal Dissolved Solids         mg/L         0.0010         1 0.8/22/16 16:30         08/23/16 15:34         7440-28-0           Stati Dissolved Solids         199         mg/L         0.20         1         08/23/16 16:30         08/23/16 12:17	Calcium, Total Recoverable	275	mg/L	0.10	1	08/22/16 16:30	08/23/16 11:58	7440-70-2	
Lithium         0.018         ng/L         0.010         1         08/22/16 16:30         08/23/16 11:38         7439-93-2           200.8 MET ICPMS         Analytical Networks         EPA 200.8         Preperton         EVA         Preperton         EVA           Antimony, 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         <0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:34         7440-43-9           Cobalt, Total Recoverable         <0.0013         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:34         7440-43-9           Cobalt, 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         <0.0019         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:34         7440-48-4           Molybdenum, Total Recoverable         <0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:34         7440-48-0           Selenium, Total Recoverable         <0.0010         mg/L         0.20         2	Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	08/22/16 16:30	08/23/16 11:58	7440-47-3	
200.8 MET ICPMS         Analytical Method: EPA 200.8 Preparation Method: EPA 200.8           Antimony, Total Recoverable Arsenic, Total Recoverable Cadmium, Total Recoverable         <0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:34         7440-38-2           Cobalt, Total Recoverable Cobalt, Total Recoverable         <0.00050         mg/L         0.0010         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         0.0031         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         7440-48-4           Molybdenum, Total Recoverable         0.0019         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:34         7440-48-0           Selenium, Total Recoverable         0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:34         7440-48-0           245.1 Mercury          0.020         1         0.8/23/16 0	Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/22/16 16:30	08/23/16 11:58	7439-92-1	
Antimony, 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       -0.0010       mg/L       0.0010       1       08/22/16 16:30       08/23/16 15:34       7440-38-2         Cadmium, Total Recoverable       -0.0010       mg/L       0.0010       1       08/22/16 16:30       08/23/16 15:34       7440-48-4         Molybdenum, Total Recoverable       -0.0011       mg/L       0.0010       1       08/22/16 16:30       08/23/16 15:34       7440-48-4         Molybdenum, Total Recoverable       -0.0010       mg/L       0.0010       1       08/22/16 16:30       08/23/16 15:34       7440-48-4         Molybdenum, Total Recoverable       -0.0010       mg/L       0.0010       1       08/22/16 16:30       08/23/16 15:34       7440-48-4         Molybdenum, Total Recoverable       -0.0010       mg/L       0.0010       1       08/22/16 16:30       08/23/16 15:34       7440-48-4         Molybdenum, 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       -0.20       ug/L       0.20       1       08/23/16 16:34       08/23/16 15:34	Lithium	0.018	mg/L	0.010	1	08/22/16 16:30	08/23/16 11:58	7439-93-2	
Arsenic, Total Recoverable       <0.0010	200.8 MET ICPMS	Analytical Me	ethod: EPA 200	0.8 Preparation Met	thod: EP	A 200.8			
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         0.0019         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         7440-48-4           Molybdenum, Total Recoverable         0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:34         7440-48-4           Selenium, 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 Methodication         mg/L         0.0010         1         08/23/16 08:40         08/23/16 12:17         7439-97-6           2540C Total Dissolved Solids         Analytical Methodication         mg/L         0.20         1         08/23/16 08:40         08/23/16 12:17         7439-97-6           2540C Total Dissolved Solids         1790         mg/L         5.0         1         08/23/16 14:34         5.0         5         08/23/16 08:45         H6           4500H + pH, Elec	Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:34	7440-36-0	
Cobalt, Total Recoverable Molybdenum, Total Recoverable Selenium, Total Recoverable Thallium, Total Recoverable Thallium, Total Recoverable         0.0031 0.0019         mg/L mg/L mg/L         0.0010 0.0010         1         08/22/16 16:30 08/22/16 16:30         08/23/16 15:34 08/23/16 15:34         7440-48-4 7430-98-7           245.1 Mercury         Analytical Method:         EPA 245.1         Preparation         0.0010         1         08/23/16 16:30         08/23/16 15:34         7440-48-4           245.1 Mercury         Analytical Method:         EPA 245.1         Preparation         0.0010         1         08/23/16 16:30         08/23/16 15:34         7440-48-4           245.1 Mercury         Analytical Method:         EPA 245.1         Preparation         0.0010         1         08/23/16 18:30         08/23/16 12:17         7430-97-6           2540C Total Dissolved Solids         Analytical Method::         SM 2540C         1         08/23/16 14:34         7440-28-0           4500H+ pH, Electrometric         Analytical Method::         SM 4500-H+B         1         0.10         1         08/23/16 18:45         H6           300.0 IC Anions 28 Days         Analytical Method:         EPA 300.0         1         0.10         1         08/23/16 08:45         H6           Gloride         65.8         mg/L         5.0         5 <td>Arsenic, Total Recoverable</td> <td>&lt;0.0010</td> <td>mg/L</td> <td>0.0010</td> <td>1</td> <td>08/22/16 16:30</td> <td>08/23/16 15:34</td> <td>7440-38-2</td> <td></td>	Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:34	7440-38-2	
Molyberum, Total Recoverable Selenium, Total Recoverable Thallium, Total Recoverable         0.0019 mg/L mg/L         0.0010         1         08/22/16 16:30 08/22/16 16:30         08/23/16 15:34 08/23/16 15:34         7439-98-7 7430-98-7           245.1 Mercury         Analytical Method         EPA 245.1         Preparation         84/22/16 16:30         08/23/16 15:34         7439-98-7           245.1 Mercury         Analytical Method         EPA 245.1         Preparation         84/22/16 16:30         08/23/16 15:34         7430-98-7           2540C Total Dissolved Solids         Analytical Method         EPA 245.1         Preparation         84/22/16 16:30         08/23/16 12:17         7439-97-6           2540C Total Dissolved Solids         Analytical Method         SM 2540C         1         0.8/23/16 14:34         7439-97-6           2540C Total Dissolved Solids         Analytical Method         SM 2540C         1         0.8/23/16 14:34         7439-97-6           2540C Total Dissolved Solids         1790         mg/L         5.0         1         08/23/16 14:34         7439-97-6           2500H+ pH, Electrometric         Analytical Method:         SM 4500-H+B         0.10         1         08/23/16 08:45         H6           300.0 IC Anions 28 Days         Analytical Method         EPA 300.0         5         09/08/	Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	08/22/16 16:30	08/23/16 15:34	7440-43-9	
Selenium, Total Recoverable         <0.0010         mg/L         0.0010         1         08/22/16 16:30         08/23/16 15:34         7782-49-2           245.1 Mercury         Analytical Method:         EPA 245.1         Preparation         EPA 245.1         Preparation         08/23/16 16:30         08/23/16 15:34         7782-49-2           Mercury         Analytical Method:         EPA 245.1         Preparation         EPA 245.1         Preparation         08/23/16 16:30         08/23/16 12:17         7430-97-6           Mercury         <0.00         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         1         08/23/16 14:34         740-28-0           Total Dissolved Solids         1790         mg/L         5.0         1         08/23/16 14:34         7439-97-6           Hat 25 Degrees C         7.0         Std. Units         0.10         1         08/23/16 14:34         168           9H 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         5.0         5         09/08/16 12:48         16887-00-6	Cobalt, Total Recoverable	0.0031	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:34	7440-48-4	
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 Met-U       EPA 245.1       Preparation Met-U       EPA 245.1       Preparation Met-U       EPA 245.1       Preparation Met-U         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 Met-U       SM 2540C       1       0.8/23/16 14:34       7440-28-0         Total Dissolved Solids       1790       mg/L       5.0       1       08/23/16 14:34       7439-97-6         4500H+ pH, Electrometric       Analytical Met-U       SM 4500-H+B       E       E       E       E       E         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 Met-U       EPA 300.0       I       09/08/16 12:48       16887-00-6         Fluoride       65.8       mg/L       5.0       5       09/08/16 12:48       16887-00-6         00/07/16 14:44       16984-48-8       Mg/L       0.20       1       09/07/16 14:44       16984-48-8	Molybdenum, Total Recoverable	0.0019	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:34	7439-98-7	
245.1 Mercury       Analytical Method: EPA 245.1 Preparation Method: EPA 245.1         Mercury       <0.20	Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:34	7782-49-2	
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	Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/23/16 15:34	7440-28-0	
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         V           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         V         V         V         V           Chloride         65.8 mg/L         5.0 5         09/08/16 12:48 16887-00-6         16887-00-6         0.28 mg/L         0.20 1         09/07/16 14:44 16984-48-8	245.1 Mercury	Analytical Me	ethod: EPA 24	5.1 Preparation Met	thod: EP	A 245.1			
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                 H6               H6	Mercury	<0.20	ug/L	0.20	1	08/23/16 08:40	08/23/16 12:17	7439-97-6	
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       1       08/23/16 08:45       H6         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	2540C Total Dissolved Solids	Analytical Me	ethod: SM 254	0C					
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	Total Dissolved Solids	1790	mg/L	5.0	1		08/23/16 14:34	Ļ	
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	4500H+ pH, Electrometric	Analytical Me	ethod: SM 450	0-H+B					
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	pH at 25 Degrees C	7.0	Std. Units	0.10	1		08/23/16 08:45	;	H6
Fluoride         0.28         mg/L         0.20         1         09/07/16 14:44         16984-48-8	300.0 IC Anions 28 Days	Analytical Me	ethod: EPA 300	0.0					
····· · · · · · · · · · · · · · · · ·	Chloride	65.8	mg/L	5.0	5		09/08/16 12:48	16887-00-6	
Sulfate 764 mg/L 100 100 09/08/16 13:02 14808-79-8	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	



#### Project: TEC CCR Groundwater

Pace Project No.: 60226095

Sample: MW-1-081816	Lab ID: 60	226095003	Collected: 08/18/	16 09:53	Received: 08	8/19/16 16:00	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 200	0.7 Preparation Me	thod: EF	PA 200.7			
Barium, Total Recoverable	0.094	mg/L	0.010	1	08/22/16 16:30	08/23/16 12:02	2 7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/23/16 12:02	2 7440-41-7	
Boron, Total Recoverable	<0.10	mg/L	0.10	1		08/23/16 12:02		
Calcium, Total Recoverable	158	mg/L	0.10	1	08/22/16 16:30	08/23/16 12:02	2 7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	08/22/16 16:30	08/23/16 12:02	2 7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/22/16 16:30	08/23/16 12:02	2 7439-92-1	
Lithium	<0.010	mg/L	0.010	1	08/22/16 16:30	08/23/16 12:02	2 7439-93-2	
200.8 MET ICPMS	Analytical Me	thod: EPA 200	0.8 Preparation Me	thod: EF	PA 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 Me	thod: EPA 24	5.1 Preparation Me	thod: EF	PA 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 Me	thod: SM 254	0C					
Total Dissolved Solids	920	mg/L	5.0	1		08/25/16 10:47	,	
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	0-H+B					
pH at 25 Degrees C	7.0	Std. Units	0.10	1		08/23/16 08:45	5	H6
300.0 IC Anions 28 Days	Analytical Me	thod: EPA 300	0.0					
Chloride	42.6	mg/L	5.0	5		09/08/16 13:45	5 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	



#### Project: TEC CCR Groundwater

Pace Project No.: 60226095

Sample: MW-5-081816	Lab ID: 602	226095004	Collected: 08/18/1	6 13:33	3 Received: 08	8/19/16 16:00 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 200	0.7 Preparation Met	hod: El	PA 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 Me	thod: EPA 20	0.8 Preparation Met	hod: El	PA 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 Me	thod: EPA 24	5.1 Preparation Met	hod: El	PA 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 Me	thod: SM 254	0C					
Total Dissolved Solids	1380	mg/L	5.0	1		08/25/16 10:48		
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	0-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 Me	thod: EPA 30	0.0					
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	



#### Project: TEC CCR Groundwater

#### Pace Project No.: 60226095

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         08/23/16 12:10         7440-39-3           Beryllium, Total Recoverable          0.010         mg/L         0.010         1         08/23/16 12:10         7440-31-7           Boron, Total Recoverable          0.10         mg/L         0.10         1         08/23/16 12:10         7440-42-8           Calcium, Total Recoverable          0.0050         mg/L         0.0050         0.08/23/16 12:10         7440-47-3           Lead, Total Recoverable           0.0050         mg/L         0.0050         08/23/16 12:10         7439-93-2           200.8 MET ICPMS         Analytical Method: EPA 200.8         Preparation Method: EPA 200.8         Veta         Yeta-39-82           Cadmium, Total Recoverable          0.0010         mg/L         0.0010         08/22/16 16:30         08/24/16 11:11         7440-38-2           Cadmium, Total Recoverable	Sample: DUP-081816	Lab ID: 602	26095005	Collected: 08/18/1	6 12:15	Received: 08	B/19/16 16:00	Matrix: Water	
Barlum, Total Recoverable         0.086         mg/L         0.010         1         08/22/16         08/22/16         12:10         7440-39-3           Beryllium, Total Recoverable         40.001         mg/L         0.010         1         08/22/16         16:30         08/23/16         12:10         7440-41-7           Boron, Total Recoverable         40.01         mg/L         0.10         1         08/22/16         16:30         08/23/16         12:10         7440-42-8           Calcium, Total Recoverable         40.0050         mg/L         0.0050         1         08/22/16         16:30         08/23/16         12:10         7440-42-8           Calcium, Total Recoverable         40.0050         mg/L         0.0050         1         08/22/16         16:30         08/23/16         12:10         7440-47-3           Lead, Total Recoverable         40.0050         mg/L         0.0010         1         08/22/16         16:30         08/23/16         12:10         7440-47-3           Lead, Total Recoverable         40.0010         mg/L         0.0010         1         08/22/16         16:30         08/23/16         12:10         7440-43-9           Cobal, Total Recoverable         40.0010         mg/L         0.0010         1 </th <th>Parameters</th> <th>Results</th> <th>Units</th> <th>Report Limit</th> <th>DF</th> <th>Prepared</th> <th>Analyzed</th> <th>CAS No.</th> <th>Qual</th>	Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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	200.7 Metals, Total	Analytical Met	hod: EPA 20	0.7 Preparation Met	hod: EP	PA 200.7			
Boron, Total Recoverable Calcium, 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         4.0005         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         7439-92-1           200.8 MET ICPMS         Analytical Method:         EPA 200.8 Preparation Method:         EVA         0.010         1         08/22/16 16:30         08/24/16 11:11         7440-47-3           Arisenic, Total Recoverable         <0.0010	Barium, Total Recoverable	0.086	mg/L	0.010	1	08/22/16 16:30	08/23/16 12:10	7440-39-3	
Calcium, Total Recoverable Chromium, Total Recoverable         145         mg/L         0.10         1         08/22/16 16:30         08/23/16 12:10         7440-77-3           Lead, Total Recoverable         40.0050         mg/L         0.0050         1         08/23/16 12:10         7440-47-3           Lead, Total Recoverable         -0.0050         mg/L         0.0050         1         08/23/16 12:10         7439-93-2           200.8 MET ICPMS         Analytical Method: EPA 200.8 Preparation Method:         EPA 200.8 Preparation Method:         EPA 200.8 Preparation Method:         08/22/16 16:30         08/23/16 11:11         7440-36-0           Ansenic, 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         -0.0010         mg/L         0.0010         1         08/22/16 16:30         08/24/16 11:11         7440-38-2           Cadmium, 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         -0.0010         mg/L         0.0010         1         08/22/16 16:30         08/24/16 11:11         7440-38-2           Selenium, Total Recoverable         -0.0010	Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/23/16 12:10	7440-41-7	
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         <0.010	Boron, Total Recoverable	<0.10	mg/L	0.10	1	08/22/16 16:30	08/23/16 12:10	7440-42-8	
Lead, Total Recoverable Lithium         <0.0050         mg/L mg/L         0.0050         1         08/22/16 16:30         08/23/16 12:10         7439-92-1           200.8 MET ICPMS         Analytical Method: EPA 200.8 Preparation Method: Arsenic, Total Recoverable Cadmium, Total Recoverable         <0.0010         1         08/22/16 16:30         08/24/16 11:11         7440-36-0           Antimony, Total Recoverable Cadmium, Total Recoverable         <0.0010         mg/L         0.0010         1         08/22/16 16:30         08/24/16 11:11         7440-38-2           Cobalt, Total Recoverable         <0.0010         mg/L         0.0010         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         7440-43-9           Cobalt, Total Recoverable         <0.0010         mg/L         0.0010         1         08/22/16 16:30         08/24/16 11:11         7440-43-9           Cobalt, Total Recoverable         <0.0010         mg/L         0.0010         1         08/22/16 16:30         08/24/16 11:11         7440-28-0           Selenium, Total Recoverable         <0.0010         mg/L         0.010         1         08/22/16 16:30         08/24/16 11:11         7440-28-0     <	Calcium, Total Recoverable	145	mg/L	0.10	1	08/22/16 16:30	08/23/16 12:10	7440-70-2	
Lithium       <0.010       mg/L       0.010       1       08/22/16 16:0       08/23/16 12:0       7439-93-2         20.0.8 MET ICPMS       Analytical Networkship       Analytical Networkship       Nmg/L       0.0010       1       08/22/16 16:0       08/24/16 11:11       7440-38-2         Antimony, Total Recoverable       <0.0010       mg/L       0.0010       1       08/22/16 16:0       08/24/16 11:11       7440-38-2         Cobalt, Total Recoverable       <0.0005       mg/L       0.0005       1       08/22/16 16:0       08/24/16 11:11       7440-38-2         Molydednum, Total Recoverable       <0.0007       mg/L       0.0010       1       08/22/16 16:0       08/24/16 11:11       7440-38-2         Selenium, Total Recoverable       <0.0010       mg/L       0.0010       1       08/22/16 16:0       08/24/16 11:11       7430-98-7         Othoring Recoverable       <0.0010       mg/L       0.0010       1       08/22/16 16:0       08/24/16 11:11       7430-98-7         Selenium, Total Recoverable       <0.0010       mg/L       0.0010       1       08/22/16 16:0       08/24/16 11:11       7430-98-7         Mercury       <0.0010       mg/L       0.010       1       08/23/16 08:0       08/23/16 08:0       7439-97-6	Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	08/22/16 16:30	08/23/16 12:10	7440-47-3	
200.8 MET ICPMS       Analytical Method: EPA 200.8 Preparation Method: EPA 200.8         Antimony, Total Recoverable       <0.0010	Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/22/16 16:30	08/23/16 12:10	7439-92-1	
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	Lithium	<0.010	mg/L	0.010	1	08/22/16 16:30	08/23/16 12:10	7439-93-2	
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	200.8 MET ICPMS	Analytical Met	hod: EPA 20	0.8 Preparation Met	hod: EP	PA 200.8			
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	Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:11	7440-36-0	
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	Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:11	7440-38-2	
Molyberum, Total Recoverable Selenium, Total Recoverable Thallium, Total Recoverable         <0.0010         mg/L mg/L         0.0010         1         08/22/16 16:30         08/24/16 11:11         7439-98-7 7439-98-7           245.1 Mercury         Analytical Method: EPA 245.1 Preparation Method: 40.0010         EPA 245.1 Preparation Method: 80/22/16 16:30         08/24/16 11:11         7439-98-7 7440-28-0           245.1 Mercury         Analytical Method: EPA 245.1 Preparation Method: 500 grad         0.0010         1         08/22/16 16:30         08/24/16 11:11         7439-98-7 7440-28-0           2540C Total Dissolved Solids         Analytical Method: 928         mg/L         0.20         1         08/23/16 08:40         08/23/16 12:24         7439-97-6           2540C Total Dissolved Solids         Analytical Method: 928         mg/L         5.0         1         08/23/16 08:40         08/23/16 10:49         2         7           4500H+ pH, Electrometric         Analytical Method: SM 4500-H+B         5.0         1         08/23/16 08:45         H6           300.0 IC Anions 28 Days         Analytical Method: SM 22.3         mg/L         5.0         5         09/08/16 14:43         16887-00-6 09/07/16 15:27         16984-48-8	Cadmium, Total Recoverable	<0.00050		0.00050	1	08/22/16 16:30	08/24/16 11:11	7440-43-9	
Selenium, Total Recoverable         <0.0010         mg/L         0.0010         1         08/22/16 16:30         08/24/16 11:11         7782-49-2           245.1 Mercury         Analytical Method:         EPA 245.1         Preparator         Vertor	Cobalt, Total Recoverable	0.0027	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:11	7440-48-4	
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 Met-U       EPA 245.1       Preparation Met-U       EPA 245.1       Preparation Met-U         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 Met-U       SM 2540C       1       08/23/16 08:40       08/23/16 12:24       7439-97-6         2540C Total Dissolved Solids       Analytical Met-U       SM 2540C       1       08/23/16 08:40       08/23/16 10:49       7439-97-6         Total Dissolved Solids       928       mg/L       5.0       1       08/23/16 08:40       928       7439-97-6         Hat 25 Degrees C       7.2       Std. Units       0.10       1       08/25/16 10:49       H6         300.0 IC Anions 28 Days       Analytical Met-U       EPA 300.0       1       08/23/16 08:45       H6         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	Molybdenum, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:11	7439-98-7	
245.1 Mercury       Analytical Method: EPA 245.1 Preparation Method: EPA 245.1         Mercury <t< td=""><td>Selenium, Total Recoverable</td><td>&lt;0.0010</td><td>mg/L</td><td>0.0010</td><td>1</td><td>08/22/16 16:30</td><td>08/24/16 11:11</td><td>7782-49-2</td><td></td></t<>	Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:11	7782-49-2	
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  <	Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/22/16 16:30	08/24/16 11:11	7440-28-0	
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 <th<< td=""><td>245.1 Mercury</td><td>Analytical Met</td><td>hod: EPA 24</td><td>5.1 Preparation Met</td><td>hod: EP</td><td>PA 245.1</td><td></td><td></td><td></td></th<<>	245.1 Mercury	Analytical Met	hod: EPA 24	5.1 Preparation Met	hod: EP	PA 245.1			
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	Mercury	<0.20	ug/L	0.20	1	08/23/16 08:40	08/23/16 12:24	7439-97-6	
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       1       08/23/16 08:45       H6         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	2540C Total Dissolved Solids	Analytical Met	hod: SM 254	-0C					
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	Total Dissolved Solids	928	mg/L	5.0	1		08/25/16 10:49		
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	4500H+ pH, Electrometric	Analytical Met	hod: SM 450	ю-H+B					
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	pH at 25 Degrees C	7.2	Std. Units	0.10	1		08/23/16 08:45		H6
Fluoride 0.32 mg/L 0.20 1 09/07/16 15:27 16984-48-8	300.0 IC Anions 28 Days	Analytical Met	hod: EPA 30	0.0					
Fluoride 0.32 mg/L 0.20 1 09/07/16 15:27 16984-48-8	Chloride	42.3	mg/L	5.0	5		09/08/16 14:43	16887-00-6	
Sulfate 334 mg/L 50.0 50 09/08/16 14:57 14808-79-8	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	



Project:	TEC CCR	Groundwater											
Pace Project No .:	60226095												
QC Batch:	443695			Analy	sis Method	: E	PA 245.1						
QC Batch Method:	EPA 245	.1		Analys	sis Descrip	tion: 2	45.1 Mercur	у					
Associated Lab San	mples: 60	226095001, 6	0226095002	, 60226095	5003, 6022	6095004, 6	8022609500	5					
METHOD BLANK:	1814564				Matrix: Wa	ater							
Associated Lab San	nples: 60	226095001, 6	0226095002	, 60226095	5003, 6022	6095004, 6	6022609500	5					
				Blan	k F	Reporting							
Paran	neter		Units	Resu	ılt	Limit	Analyz	ed	Qualifiers				
Mercury			ug/L		<0.20	0.20	08/23/16	11:44					
LABORATORY COM	NTROL SAM	MPLE: 1814	565										
Paran	neter		Units	Spike Conc.	LC: Resi		LCS % Rec	% Rec Limits		ualifiers			
Mercury			ug/L	Ę	5	5.2	104	85	5-115				
MATRIX SPIKE & M	IATRIX SPI	KE DUPLICAT	E: 18145	66		1814567							
				MS	MSD								
			226141001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	er	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Mercury		ug/L	<0.20	5	5	4.8	5.0	96	99	70-130	3	20	
MATRIX SPIKE SAI	MPLE:	1814	568										
				602261	41003	Spike	MS	N	IS	% Rec			
Paran	neter		Units	Res	sult	Conc.	Result	%	Rec	Limits		Qualif	iers
Mercury			ug/L		<0.20	5	3	3.4	67	70-1	130 M	1	

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.



Total

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, T
Associated Lab Sam	oles: 6022609500 <sup>,</sup>	1. 60226095002. 60226095003. 60226095004.	60226095005

#### METHOD BLANK: 1814601

Matrix: Water

Associated Lab Samples: 60226095001, 60226095002, 60226095003, 60226095004, 60226095005

		Blank	Reporting		
Parameter	Units	Result	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

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Barium	mg/L		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 SP	PIKE DUPLICA	TE: 18146	03		1814604							
			MS	MSD								
	6	0226099002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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											
			MS	MSD							
	60	0225865003	Spike	Spike	MS	MSD	MS	MSD	% Rec	Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD RPD	Qual
Barium	mg/L	0.18	1	1	1.2	1.2	100	100	70-130	0 20	

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

# **REPORT OF LABORATORY ANALYSIS**



Project: TEC CCR Groundwater

Pace Project No.: 60226095

MATRIX SPIKE & MATRIX S		ATE: 181460	MS Spike	MSD Spike	1814606 MS	MSD	MS	MSD	% Rec		Мах	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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 SP	PIKE DUPLICA	TE: 18146	07		1814608							
Parameter	6 Units	0226141001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium		<0.010		1	1.0	1.0	100	102	70-130		20	
Beryllium	mg/L mg/L	<0.010	1	1	1.0	1.0	100	102	70-130		20	
Boron	mg/L	1.2	1	1	2.2	2.3	100	109	70-130	-	-	
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	

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**



Project: TEC CCR Groundwater

Pace Project No.: 60226095

QC Batch:	4437	19	Analysis Method:	EPA 200.8
QC Batch Method:	EPA	200.8	Analysis Description:	200.8 MET
Associated Lab Sam	oles:	60226095001, 60226095002, 60	0226095003, 60226095004	, 60226095005

METHOD BLANK: 1814621

Matrix: Water

Associated Lab Samples: 60226095001, 60226095002, 60226095003, 60226095004, 60226095005

		Blank	Reporting		
Parameter	Units	Result	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 SPI	KE DUPLIC/	ATE: 18146	23		1814624							
			MS	MSD								
	6	0226141001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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						
		60226141002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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	

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**



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	

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.



Pace Project No.: 60226095							
QC Batch: 443884		Analysis M	ethod:	SM 2540C			
QC Batch Method: SM 2540C		Analysis De	escription:	2540C Total D	issolved Solids		
Associated Lab Samples: 6022609	5001, 60226095002	2					
METHOD BLANK: 1815159		Matrix	k: Water				
Associated Lab Samples: 6022609	5001, 60226095002	2					
_		Blank	Reporting				
Parameter	Units	Result	Limit	Analyze	ed Qual	ifiers	-
Total Dissolved Solids	mg/L	<5.0	) 5	5.0 08/23/16 1	4:20		
LABORATORY CONTROL SAMPLE:	1815160						
		Spike	LCS	LCS	% Rec		
Parameter	Units	Conc.	Result	% Rec	Limits	Qua	lifiers
Total Dissolved Solids	mg/L	1000	978	98	80-120		
SAMPLE DUPLICATE: 1815161							
		60225865003	Dup		Max		
Parameter	Units	Result	Result	RPD	RPD		Qualifiers
Total Dissolved Solids	mg/L	8200	84	00	2	10	
SAMPLE DUPLICATE: 1815162							
		60225902002	Dup		Max		
Parameter	Units	Result	Result	RPD	RPD		Qualifiers
Total Dissolved Solids	mg/L	293	2 0	98	2	10	

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



Project: TEC CCR Ground Pace Project No.: 60226095	dwater					
QC Batch: 444157		Analysis M	ethod:	SM 2540C		
QC Batch Method: SM 2540C		Analysis De	escription:	2540C Total Di	ssolved Solids	
Associated Lab Samples: 60226095	5003, 6022609500	04, 60226095005				
METHOD BLANK: 1816260		Matrix	k: Water			
Associated Lab Samples: 60226095	5003, 6022609500	04, 60226095005				
		Blank	Reporting	l		
Parameter	Units	Result	Limit	Analyze	d Quali	fiers
Total Dissolved Solids	mg/L	<5.0	)	5.0 08/25/16 1	0:45	
LABORATORY CONTROL SAMPLE:	1816261	Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	979	98	80-120	
SAMPLE DUPLICATE: 1816262						
_		60226141001	Dup		Max	
	Units	Result	Result	RPD	RPD	Qualifiers
Parameter						

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.



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 Sam	ples: 6022609	1, 60226095002, 60226095003, 602260950	04, 60226095005

SAMPLE DUPLICATE: 1814600						
		2041335001	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
pH at 25 Degrees C	Std. Units	9.7	9.7	0		5 H6

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



Project:	TEC C	CR Groundwater											
Pace Project No.:	602260	)95											
QC Batch:	44554	43		Analys	sis Method	: E	PA 300.0						
QC Batch Method:	EPA 3	300.0		Analys	sis Descrip	tion: 3	00.0 IC Anio	ns					
Associated Lab Sar	nples:	60226095001, 6	0226095002	, 60226095	6003, 6022	6095004, 6	0226095005	5					
METHOD BLANK:	182146	65		٦	Matrix: Wa	ter							
Associated Lab Sar	mples:	60226095001,6	0226095002	, 60226095	6003, 6022	6095004, 6	0226095005	5					
				Blank	K R	eporting							
Paran	neter		Units	Resu	lt	Limit	Analyz	ed	Qualifiers				
Fluoride			mg/L		<0.20	0.20	09/07/16	10:05					
LABORATORY COI	NTROLS	SAMPLE: 1821	466										
Paran	neter		Units	Spike Conc.	LCS Resu		LCS % Rec	% Rec Limits		ualifiers			
Fluoride			mg/L	2.5	5	2.6	103	90	-110				
MATRIX SPIKE & M	/ATRIX \$		ΓE: 18214	67		1821468							
				MS	MSD								
			226141001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	ər	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride		mg/L	0.64	2.5	2.5	3.1	3.1	96	99	80-120	2	15	
MATRIX SPIKE SAI	MPLE:	1821	469										
				602261	41002	Spike	MS	М	IS	% Rec			
Paran	neter		Units	Res	ult	Conc.	Result	% F	Rec	Limits		Qualif	iers
Fluoride			mg/L		0.29	2.5	2	2.7	95	80-1	120		

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# **QUALITY CONTROL DATA**

Project: TEC CO Pace Project No.: 602260	CR Groundwater 95										
QC Batch: 44571	7	Analys	sis Method	: E	PA 300.0						
QC Batch Method: EPA 3	00.0	Analys	sis Descrip	tion: 3	00.0 IC Anio	ns					
Associated Lab Samples:	60226095001, 602260950	02, 60226095	003, 6022	6095004, 6	0226095005	5					
METHOD BLANK: 182215	3	Ν	Matrix: Wa	ter							
Associated Lab Samples:	60226095001, 602260950	02, 60226095	003, 6022	6095004, 6	0226095005	5					
		Blank	K R	eporting							
Parameter	Units	Resu	t	Limit	Analyz	ed	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 S	SAMPLE: 1822154										
		Spike	LCS		LCS	% Rec					
Parameter	Units	Conc.	Resu	ılt	% Rec	Limits	Qu	alifiers			
Chloride	mg/L	5	i	4.8	96	90	-110				
Sulfate	mg/L	5	i	5.0	100	90	-110				
MATRIX SPIKE & MATRIX S	SPIKE DUPLICATE: 182	2155		1822156							
		MS	MSD								
	6022609500	1 Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L 26	63 100	100	367	372	104	109	80-120	1	15	
Sulfate	mg/L 13	37 50	50	187	186	100	97	80-120	1	15	
MATRIX SPIKE SAMPLE:	1822157										
		602261	41001	Spike	MS	М	S	% Rec			
Parameter	Units	Res	ult	Conc.	Result	% F	Rec	Limits		Qualif	iers
Chloride	mg/L		96.8	50	1.	46	98	80-	120		
Sulfate	mg/L		1010	500	15	00	99	80-	120		

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#### **REPORT OF LABORATORY ANALYSIS**



Project: TEC CCR Groundwater

Pace Project No.: 60226095

<b>Sample: MW-4-081716</b> PWS:	Lab ID: 60226 Site ID:	095001 Collected: 08/17/16 13:41 Sample Type:	Received:	08/19/16 16:00	Matrix: Water	
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	5 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	



Project: TEC CCR Groundwater

Pace Project No.: 60226095

<b>Sample: MW-6-081716</b> PWS:	Lab ID: 602260 Site ID:	95002 Collected: 08/17/16 15:17 Sample Type:	Received:	08/19/16 16:00	Matrix: Water	
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	4 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	2 15262-20-1	



Project: TEC CCR Groundwater

Pace Project No.: 60226095

Sample: MW-1-081816 PWS:	Lab ID: 602260 Site ID:	95003 Collected: 08/18/16 09:53 Sample Type:	Received:	08/19/16 16:00	Matrix: Water	
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	5 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	4 15262-20-1	



Project: TEC CCR Groundwater

Pace Project No.: 60226095

<b>Sample: MW-5-081816</b> PWS:	Lab ID: 602260 Site ID:	95004 Collected: 08/18/16 13:33 Sample Type:	Received:	08/19/16 16:00	Matrix: Water	
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	6 15262-20-1	



Project: TEC CCR Groundwater

Pace Project No.: 60226095

Sample: DUP-081816 PWS:	Lab ID: 60226 Site ID:	095005 Collected: 08/18/16 12:15 Sample Type:	Received:	08/19/16 16:00 I	Matrix: Water	
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	3 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	5 15262-20-1	



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	1-226		
Associated Lab Sa	mples: 60226095001, 60226095002,	60226095003				
METHOD BLANK:	1136737	Matrix: Water				
Associated Lab Sa	mples: 60226095001, 60226095002,	60226095003				
Para	meter Act ± Unc	(MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226	$0.245 \pm 0.341$ (0.8)	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**



Project:	TEC CCR Groun	dwater					
Pace Project No.:	60226095						
QC Batch:	232072		Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0		Analysis Description:	904.0 Radiu	ım 228		
Associated Lab Sa	mples: 6022609	5004, 602260950	05				
METHOD BLANK:	1137185		Matrix: Water				
Associated Lab Sa	mples: 6022609	5004, 602260950	05				
Para	meter	Act ± U	nc (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**



Project:	TEC CCR Groundw	ater				
Pace Project No.:	60226095					
QC Batch:	231993	Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radiur	n 228		
Associated Lab Sa	mples: 6022609500	01, 60226095002, 60226095003				
METHOD BLANK:	1136739	Matrix: Water				
Associated Lab Sa	mples: 6022609500	01, 60226095002, 60226095003				
Para	imeter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228	0	0.693 ± 0.333 (0.567) C:79% T:89%	pCi/L	09/10/16 02:02		-

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# **REPORT OF LABORATORY ANALYSIS**



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 Radiu	m-226		
Associated Lab Sar	mples: 60226095004, 602	226095005				
METHOD BLANK:	1137184	Matrix: Water				
Associated Lab Sa	mples: 60226095004, 602	226095005				
Para	neter	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		

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#### 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.



# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR Groundwater

Pace Project No.: 60226095

60228095001         NW-4-081716         EPA 200.7         443713         EPA 200.7         443733           60228095002         NW-4-081716         EPA 200.7         443713         EPA 200.7         443733           60228095004         NW-4-081716         EPA 200.7         443713         EPA 200.7         443733           60228095001         NW-4-081816         EPA 200.7         443713         EPA 200.7         443733           60228095001         NW-4-081716         EPA 200.7         443713         EPA 200.7         443733           60228095001         NW-4-081716         EPA 200.7         443713         EPA 200.8         443796           60228095002         NW-4-081716         EPA 200.8         443719         EPA 200.8         443796           60228095003         NW-1-081816         EPA 200.8         443796         443786           60228095001         NW-4-081716         EPA 200.8         443796         443786           60228095001         NW-4-081716         EPA 245.1         443685         EPA 245.1         443783           60228095001         NW-4-081716         EPA 245.1         443783         6022809500         MW-4-081716         EPA 245.1         443783           60228095001         NW-4-081716	Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60220095001NW-4-081816EPA 200.7443713EPA 200.744373360226095005DUP-081816EPA 200.7443713EPA 200.744373360226095005DUP-081816EPA 200.8443719EPA 200.844379660226095005NW-4-081716EPA 200.8443719EPA 200.844379660226095005NW-4-081816EPA 200.8443719EPA 200.844379660226095005DUP-081816EPA 200.8443719EPA 200.844379660226095005DUP-081816EPA 200.8443719EPA 200.844379660226095005DUP-081816EPA 245.1443655EPA 245.144378360226095005NW-4-081816EPA 245.1443655EPA 245.144378360226095005DUP-081816EPA 245.1443655EPA 245.144378360226095005DUP-081816EPA 903.1231925560226095005DUP-081816EPA 903.1231925560226095005DUP-081816EPA 904.02319335560226095005DUP-081816EPA 904.02319335560226095005DUP-081816EPA 904.02319335560226095005DUP-081816EPA 904.02319335560226095005DUP-081816EPA 904.02319335560226095005DUP-081816SM 2540C4437125560226095005DUP-081816SM 2540C4437125	60226095001	MW-4-081716	EPA 200.7	443713	EPA 200.7	443793
BR222095000         NW-4-081716         EPA 200.7         443713         EPA 200.7         443793           B0220095001         NW-4-081716         EPA 200.8         443719         EPA 200.8         443796           B0220095001         NW-4-081716         EPA 200.8         443719         EPA 200.8         443796           B0220095002         NW-4-081716         EPA 200.8         443719         EPA 200.8         443796           B0220095003         NW-4-081716         EPA 200.8         443719         EPA 200.8         443796           B0220095004         NW-4-081716         EPA 201.8         443796         EPA 201.4         43783           B0220095002         NW-4-081716         EPA 245.1         443695         EPA 245.1         443783           B0220095003         NW-4-081716         EPA 245.1         443695         EPA 245.1         443783           B0220095004         NW-4-081716         EPA 203.1         231992         231992         232070         33783           B0220095005         DUP-081816         EPA 290.0         231993         33993         33993         33993         33993         33993         33993         33993         33993         33993         33993         33993         33993         33993 <td>60226095002</td> <td>MW-6-081716</td> <td>EPA 200.7</td> <td>443713</td> <td>EPA 200.7</td> <td>443793</td>	60226095002	MW-6-081716	EPA 200.7	443713	EPA 200.7	443793
30226095005         DUP-081816         EPA 200.7         443713         EPA 200.7         443793           30226095001         MW4-081716         EPA 200.8         44379         EPA 200.8         443796           30226095003         MW4-081716         EPA 200.8         443719         EPA 200.8         443796           30226095004         MW4-081716         EPA 200.8         443719         EPA 200.8         443796           30226095001         MW4-081716         EPA 200.8         443719         EPA 200.8         443796           30226095001         MW4-081716         EPA 200.8         443798         EPA 245.1         443685         EPA 245.1         443783           30226095002         MW4-081716         EPA 245.1         443685         EPA 245.1         443783           30226095002         MW4-081716         EPA 245.1         443685         EPA 245.1         443783           30226095002         MW4-081716         EPA 245.1         433783         230270         443783           30226095002         MW4-081716         EPA 245.1         433783         230270         443783           30226095002         MW4-081716         EPA 245.1         433783         230270         443783           30226095003	60226095003	MW-1-081816	EPA 200.7	443713	EPA 200.7	443793
S022095001         MV-4-081716         EPA 200.8         443719         EPA 200.8         443796           S022095002         MV-4-081716         EPA 200.8         443719         EPA 200.8         443796           S022095004         MV-4-081816         EPA 200.8         443719         EPA 200.8         443796           S022095005         DUP-081816         EPA 200.8         443719         EPA 200.8         443796           S022095005         DUP-081816         EPA 200.8         443719         EPA 200.8         443796           S022095005         MV-4-081716         EPA 245.1         443695         EPA 245.1         443783           S022095005         MV-4-081716         EPA 245.1         443695         EPA 245.1         443783           S022095005         MV-4-081716         EPA 245.1         443695         EPA 245.1         443783           S022095005         MV-4-081716         EPA 903.1         231992         5022095003         MV-4-081716         EPA 903.1         231992           S022095000         MV-4-081716         EPA 903.1         231992         5022095003         MV-4-081716         EPA 903.1         231992           S022095001         MV-4-081716         EPA 904.0         231993         5022095003	60226095004	MW-5-081816	EPA 200.7	443713	EPA 200.7	443793
5022005002         MW-6.081716         EPA 200.8         443719         EPA 200.8         443719           5022005001         MW-6.081816         EPA 200.8         443719         EPA 200.8         443796           5022005001         MW-4.081716         EPA 200.8         443719         EPA 200.8         443796           5022005001         MW-4.081716         EPA 200.8         443719         EPA 200.8         443796           5022005001         MW-4.081716         EPA 245.1         443096         EPA 245.1         4437783           5022005003         MW-4.081716         EPA 245.1         443095         EPA 245.1         443783           5022005004         MW-4.081716         EPA 245.1         443783         502200500         MW-4.081716         EPA 245.1         443783           5022005005         DUP-081816         EPA 245.1         443783         502200500         MW-4.081716         EPA 903.1         231992         502200500         MW-4.081716         EPA 904.0         231993         502200500         MW-4.081716         EPA 904.0         231993         502200500         MW-4.081716         EPA 904.0         231993         502200500         MW-4.081716         SM 2540C         443584         502200500         MW-4.081716         SM 2540C         <	60226095005	DUP-081816	EPA 200.7	443713	EPA 200.7	443793
B0226095003         MW-1-081816         EPA 200.8         443719         EPA 200.8         443796           B0226095004         DV-0e1816         EPA 200.8         443719         EPA 200.8         443796           B0226095001         MW-4-081716         EPA 200.8         443796         EPA 200.8         443796           B0226095002         MW-4-081716         EPA 245.1         443695         EPA 245.1         443783           B0226095003         MW-4-081716         EPA 245.1         443695         EPA 245.1         443783           B0226095004         MW-4-081716         EPA 245.1         443695         EPA 245.1         443783           B0226095005         DUP-081816         EPA 245.1         443783         EPA 245.1         443783           B0226095005         MW-4-081716         EPA 903.1         231992         EPA 245.1         443783           B0226095005         MW-4-081716         EPA 903.1         232070         EPA 200.8         EPA 200.8 <td< td=""><td>60226095001</td><td>MW-4-081716</td><td>EPA 200.8</td><td>443719</td><td>EPA 200.8</td><td>443796</td></td<>	60226095001	MW-4-081716	EPA 200.8	443719	EPA 200.8	443796
B0226095001MW081716EPA 200.8443719EPA 200.8443796B0226095002MW-6081716EPA 200.8443719EPA 200.8443798B0226095002MW-6081716EPA 245.1443783443783B0226095003MW-1061816EPA 245.1443895EPA 245.1443783B0226095004MW-5081816EPA 245.1443985EPA 245.1443783B0226095005DUP-081816EPA 245.1443985EPA 245.1443783B0226095005DUP-081816EPA 903.1231992	60226095002	MW-6-081716	EPA 200.8	443719	EPA 200.8	443796
S0226095005DUP-081816EPA 200.8443719EPA 200.8443783S0226095001MW-4-081716EPA 245.1443665EPA 245.1443783S0226095002MW-5-081816EPA 245.1443695EPA 245.1443783S0226095003DUP-081816EPA 245.1443783443783S0226095005DUP-081816EPA 245.1443783443783S0226095005DUP-081816EPA 245.1443783443783S0226095005MW-4-081716EPA 903.1231992	60226095003	MW-1-081816	EPA 200.8	443719	EPA 200.8	443796
Nu-4-081716         EPA 245.1         433695         EPA 245.1         443783           N0226095002         MW-4-081716         EPA 245.1         443695         EPA 245.1         443783           N0226095004         MW-5-081716         EPA 245.1         443695         EPA 245.1         443783           N0226095005         DUP-081816         EPA 245.1         443783         443783           S0226095005         DUP-081816         EPA 245.1         443783         443783           S0226095005         DUP-081816         EPA 245.1         443783         443783           S0226095005         MW-4-081716         EPA 903.1         231992         57260500           NW-4-081716         EPA 903.1         232070         57260500	60226095004	MW-5-081816	EPA 200.8	443719	EPA 200.8	443796
50226095002         NW-6-081716         EPA 245.1         443695         EPA 245.1         443783           50226095003         NW-1-081816         EPA 245.1         443695         EPA 245.1         443783           50226095004         NW-6-081716         EPA 245.1         443695         EPA 245.1         443783           50226095005         NW-6-081716         EPA 903.1         231992         -         -         -         -         -         -         -         443783           50226095005         NW-6-081716         EPA 903.1         231992         -	60226095005	DUP-081816	EPA 200.8	443719	EPA 200.8	443796
50226095003 0UP-0018116         EPA 245.1         443695 EPA 245.1         EPA 245.1         443783 443783           50226095005 0UP-0018116         EPA 245.1         443695 EPA 245.1         EPA 245.1         443783 443783           50226095002 50226095003         MW-4-081716 MW-4-081716         EPA 903.1         231992         443783           50226095004         MW-4-081716         EPA 903.1         231992         443783           50226095005         MW-4-081716         EPA 903.1         232070         443783           50226095005         MW-4-081716         EPA 904.0         231993         443783           50226095005         MW-4-081716         EPA 904.0         231993         443783           50226095005         MW-4-081716         EPA 904.0         231993         443783           50226095005         MW-4-081716         SM 2540C         443884         443783           50226095005         DUP-081816         SM 2540C         443172         443712           50226095001         MW-4-081716         SM 2540C         443172         443712           50226095001         MW-4-081716         SM 2540C         443172         443712           50226095001         MW-4-081716         SM 4500-H+B         443712         443712	60226095001	MW-4-081716	EPA 245.1	443695	EPA 245.1	443783
S0226095004 S0226095005MW-4-081716 DUP-081816EPA 245.1 EPA 245.1443695 443695EPA 245.1 EPA 245.1443783 443783 443783S0226095002 S0226095003 S0226095003 S0226095004MW-4-081716 MW-4-081716EPA 903.1 EPA 903.1231992 231992S0226095004 S0226095005MW-5-081816 EPA 903.1231992 231992S0226095004 S0226095005MW-4-081716 EPA 903.1232070 231993S0226095004 S0226095002 MW-4-081716EPA 904.0 EPA 904.0231993 230226095003S0226095004 MW-4-081716EPA 904.0 EPA 904.0231993 230226095004S0226095004 MW-4-081716EPA 904.0 	60226095002	MW-6-081716	EPA 245.1	443695	EPA 245.1	443783
60226095005DUP-081816EPA 245.1443695EPA 245.144378360226095002MW-4-081716EPA 903.1231992111 </td <td>õ<b>0226095003</b></td> <td>MW-1-081816</td> <td>EPA 245.1</td> <td>443695</td> <td>EPA 245.1</td> <td>443783</td>	õ <b>0226095003</b>	MW-1-081816	EPA 245.1	443695	EPA 245.1	443783
60226095001         MW-4-081716         EPA 903.1         231992           60226095003         MW-4-081716         EPA 903.1         231992           60226095005         MW-3-081816         EPA 903.1         23070           60226095005         MW-4-081716         EPA 903.1         23070           60226095005         MW-4-081716         EPA 904.0         231993           60226095002         MW-6-081716         EPA 904.0         231993           60226095003         MW-4-081716         EPA 904.0         23070           60226095005         MW-9081816         EPA 904.0         23072           60226095005         MW-9081816         EPA 904.0         23072           60226095005         MW-9081816         EPA 904.0         23072           60226095005         MW-9081816         SM 2540C         44384           60226095005         MW-9081816         SM 2540C         444157           60226095005         MW-9081816         SM 4500-H+B         443712           60226095005         MW-9081816         SM 4500-H+B         443712           60226095004         MW-9081816         SM 4500-H+B         443712           60226095005         MW-9081816         SM 4500-H+B         443712 <t< td=""><td>5<b>022609500</b>4</td><td>MW-5-081816</td><td>EPA 245.1</td><td>443695</td><td>EPA 245.1</td><td>443783</td></t<>	5 <b>022609500</b> 4	MW-5-081816	EPA 245.1	443695	EPA 245.1	443783
60226095002         MW-6-081716         EPA 903.1         231992           60226095003         MW-5-081816         EPA 903.1         232070           60226095005         DUP-081816         EPA 903.1         232070           60226095002         MW-6-081716         EPA 903.1         232070           60226095002         MW-6-081716         EPA 904.0         231993           60226095003         MW-6-081716         EPA 904.0         232072           60226095004         MW-5-081816         EPA 904.0         232072           60226095005         DUP-081816         EPA 904.0         232072           60226095002         MW-6-081716         SM 2540C         443884           60226095002         MW-6-081716         SM 2540C         444157           60226095003         MW-5-081816         SM 2540C         444157           60226095004         MW-5-081816         SM 2540C         444157           60226095005         DUP-081816         SM 4500-H+B         443712           60226095003         MW-4-081716         SM 4500-H+B         443712           60226095004         MW-5-081816         SM 4500-H+B         443712           60226095005         DUP-081816         SM 4500-H+B         443712 </td <td>60226095005</td> <td>DUP-081816</td> <td>EPA 245.1</td> <td>443695</td> <td>EPA 245.1</td> <td>443783</td>	60226095005	DUP-081816	EPA 245.1	443695	EPA 245.1	443783
S0226095003MW-1-081816EPA 903.1231992S0226095005DUP-081816EPA 903.1232070S0226095005DUP-081816EPA 904.0231993S0226095002MW-6-081716EPA 904.0231993S0226095003MW-6-081716EPA 904.0232072S0226095005DUP-081816EPA 904.0232072S0226095005DUP-081816EPA 904.0232072S0226095005DUP-081816SM 2540C443884S0226095004MW-6-081716SM 2540C444157S0226095005DUP-081816SM 2540C444157S0226095005DUP-081816SM 2540C444157S0226095005DUP-081816SM 4500-H+B443712S0226095005MW-6-081716SM 4500-H+B443712S0226095005MW-6-081716SM 4500-H+B443712S0226095005DUP-081816SM 4500-H+B443712S0226095005DUP-081816SM 4500-H+B443712S0226095005MW-6-081716EPA 300.0445543S0226095001MW-4-081716EPA 300.0445543S0226095001MW-4-081716EPA 300.0445543S0226095002MW-6-081716EPA 300.0445543S0226095002MW-6-081716EPA 300.0445543S0226095002MW-6-081716EPA 300.0445543S0226095002MW-6-081716EPA 300.0445543S0226095002MW-6-081716EPA 300.045543S0226095002MW-6-081716EPA 300.045543 <td>60226095001</td> <td>MW-4-081716</td> <td>EPA 903.1</td> <td>231992</td> <td></td> <td></td>	60226095001	MW-4-081716	EPA 903.1	231992		
B0226095004         MW-5-081816         EPA 903.1         232070           S0226095002         MW-4-081716         EPA 904.0         231993           S0226095003         MW-4-081716         EPA 904.0         231993           S0226095003         MW-5-081816         EPA 904.0         231993           S0226095005         MW-5-081816         EPA 904.0         231993           S0226095005         MW-5-081816         EPA 904.0         232072           S0226095005         MW-5-081816         SM 2540C         443884           S0226095005         MW-6-081716         SM 2540C         444157           S0226095005         MW-4-081716         SM 2540C         444157           S0226095005         MW-4-081716         SM 4500-H+B         443712           S0226095001         MW-4-081716         SM 4500-H+B         443712<	60226095002	MW-6-081716	EPA 903.1	231992		
S0226095005DUP-081816EPA 903.1232070S0226095002MW-4-081716EPA 904.0231993S0226095003MW-5-081816EPA 904.0231993S0226095005DUP-081816EPA 904.0232072S0226095005DUP-081816EPA 904.0232072S0226095005DUP-081816SM 2540C443884S0226095005MW-4-081716SM 2540C444157S0226095005DUP-081816SM 2540C444157S0226095005DUP-081816SM 2540C444157S0226095005DUP-081816SM 2540C444157S0226095005DUP-081816SM 4500-H+B443712S0226095005MW-4-081716SM 4500-H+B443712S0226095005MW-4-081716SM 4500-H+B443712S0226095005DUP-081816SM 4500-H+B443712S0226095005DUP-081816SM 4500-H+B443712S0226095005MW-4-081716EPA 30.0445543S0226095005MW-4-081716EPA 30.0445543S0226095005MW-6-081716EPA 30.0445543S0226095005MW-6-081716EPA 30.0445543S0226095005MW-6-081716EPA 30.0445543S0226095005MW-6-081716EPA 30.0445543S0226095005MW-6-081716EPA 30.0445543S0226095005MW-6-081716EPA 30.0445543S0226095005MW-6-081716EPA 30.0445543S0226095005MW-6-081716EPA 30.0445543 <tr< td=""><td>60226095003</td><td>MW-1-081816</td><td>EPA 903.1</td><td>231992</td><td></td><td></td></tr<>	60226095003	MW-1-081816	EPA 903.1	231992		
S0226095001         MW-4-081716         EPA 904.0         231993           S0226095002         MW-6-081716         EPA 904.0         231993           S0226095003         MW-1-081816         EPA 904.0         232072           S0226095005         DUP-081816         EPA 904.0         232072           S0226095005         DUP-081816         SM 2540C         443884           S0226095005         MW-4-081716         SM 2540C         444157           S0226095005         DUP-081816         SM 4500-H+B         443712           S0226095005         MW-4-081716         SM 4500-H+B         443712           S0226095005         MW-5-081816         SM 4500-H+B         443712           S0226095005         DUP-081816         SM 4500-H+B         443712           S0226095005         DUP-081816         SM 4500-H+B         443712           S0226095005         DUP-081816         SM 4500-H+B         443712	60226095004	MW-5-081816	EPA 903.1	232070		
NU226095002 NWW-1-081816         NWW-6-081716 EPA 904.0         231993           S0226095003         NWW-5-081816 DUP-081816         EPA 904.0         232072           S0226095005         DUP-081816         EPA 904.0         232072           S0226095005         DUP-081816         SM 2540C         443884           S0226095002         MW-6-081716         SM 2540C         444157           S0226095003         MW-1-081816         SM 2540C         444157           S0226095004         MW-5-081816         SM 2540C         444157           S0226095005         DUP-081816         SM 2540C         444157           S0226095004         MW-5-081816         SM 2540C         444157           S0226095005         DUP-081816         SM 2540C         444157           S0226095004         MW-4-081716         SM 4500-H+B         443712           S0226095005         MW-6081716         SM 4500-H+B         443712           S0226095005         MW-6081716         SM 4500-H+B         443712           S0226095005         DUP-081816         SM 4500-H+B         443712           S0226095005         DUP-081816         SM 4500-H+B         443712           S0226095005         DUP-081816         SM 4500-H+B         443712	60226095005	DUP-081816	EPA 903.1	232070		
S0226095003         MW-1-081816         EPA 904.0         231993           S0226095005         DUP-081816         EPA 904.0         232072           S0226095002         MW-4-081716         SM 2540C         443884           S0226095003         MW-1-081816         SM 2540C         444157           S0226095004         MW-5-081816         SM 2540C         444157           S0226095005         DUP-081816         SM 4500-H+B         443712           S0226095003         MW-6081716         SM 4500-H+B         443712           S0226095004         MW-5081816         SM 4500-H+B         443712           S0226095005         DUP-081816         SM 4500-H+B         443712           S0226095005         DUP-081816         SM 4500-H+B         443712           S0226095001         MW-4-081716         EPA 300.0         445543           S0226095002         MW-6-081716         EPA 300.0         445543           S0226095002         MW-6-081716         EPA 300.0         445543	60226095001	MW-4-081716	EPA 904.0	231993		
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60226095003 MW-1-081816 EPA 300.0 445717	60226095003	MW-1-081816	EPA 300.0	445543		
			EPA 300.0			



# 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		



Sample Condition Upon Receipt

# 

Client Name: Wetter Ewergy	Optional
Courier: FedEx UPS VIA Clay PEX ECI	Pace 🙇 Other 🗆 Client 🗆 Proj Due Date:
Tracking #: Pace Shipping Labe	I Used? Yes D No D Proj Name:
Custody Seal on Cooler/Box Present: Yes 💆 No 🗆 Seals intact:	Yes 🛱 No 🗆
Packing Material: Bubble Wrap  Bubble Bags  Foam	n 🗆 🛛 None 🖄 Other 🗆
Thermometer Used: CF +1.1 CF -0.1 T-239 Type of Ice Wet	Blue None 🛛 Samples received on ice, cooling process has begun.
Cooler Temperature: <u>4,7</u> (cir	cle one) Date and initials of person examining
Temperature should be above freezing to 6°C	contents: 38914
Chain of Custody present:	1.
Chain of Custody filled out:	2.
Chain of Custody relinquished:	3.
Sampler name & signature on COC:	4.
Samples arrived within holding time:	5.
Short Hold Time analyses (<72hr): 🕅 Yes 🖾 No 🗆 N/A	6. pH
Rush Turn Around Time requested:	
Sufficient volume: 🛱 Yes 🗇 No 🗆 N/A	8.
Correct containers used: Ves 🛛 No 🗆 N/A	
Pace containers used:  Ves □No □N/A	9.
Containers intact: 🗱 Yes 🗆 No 🗆 N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	11.
Filtered volume received for dissolved tests?	12.
Sample labels match COC:	
Includes date/time/ID/analyses Matrix:	13.
All containers needing preservation have been checked.	
All containers needing preservation are found to be in compliance $(Yes \square No \square N/A)$ with EPA recommendation.	14.
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	Initial when Lot # of added completed preservative
Trip Blank present:	
Pace Trip Blank lot # (if purchased):	15.
Headspace in VOA vials ( >6mm): □Yes □No ₺N/A	· · · · · · · · · · · · · · · · · · ·
	16.
Project sampled in USDA Regulated Area:	
Additional labels attached to 5035A vials in the field? $\Box$ Yes $\Box$ No $\mathbf{V}$ N/A	
Client Notification/ Resolution: Copy COC to Client? Y /	
Person Contacted: Date/Time:	
Comments/ Resolution:	

Project Manager Review:



Date:

Pace Analytical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

WEXTAX ENERTY     Constrained     Constrained     Constrained     Constrained     Constrained       Toback     Toback     Toback     Countration     Project Name     Toback     Address       Toback     Toback     Project Name     TEC CR Groundwalter     Reasoned       Toback     Reasoned     Reasoned     Reasoned       Toback     Reasoned     Reasoned     Reasoned       Sample To     Reasoned     Reasoned     Reasoned       Mark     Reasoned     Reasoned     Reasoned       Reasoned     Reasoned     Reasoned     Reasoned <th>14</th> <th></th> <th>Report To Brandon Griffin</th> <th>Report To: Brandon Griffin</th> <th></th> <th></th> <th></th> <th>Attention:</th> <th>Attention: Jared N</th> <th>lared Morrison</th> <th></th> <th></th> <th>Г</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	14		Report To Brandon Griffin	Report To: Brandon Griffin				Attention:	Attention: Jared N	lared Morrison			Г						
Biology         Control         <	Company: W	WESTAR ENERGY	Report to. Brando	u Grinn					5		1		-0						
SG 5612         Counce         SEE SECTION A         Rev metal         Counce         SEE SECTION A         Counce         SEE SECTION A         Counce         Counc	0	8 Kansas Ave		Aorrison, He	ath Hornya	-13°	9	Company Na		STAR EN	IERGY		%E	GULATO	RY AGEN	ICY			
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Image: Health Million	Email To: br	andon.I.griffin@westarenergy.com	Purchase Order No.				<u>u</u> (ć	ace Quote						UST	RCF	\$A	L	OTHER	
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Ванимании         Bank	Section Required		odes coDE		COLLEC	TED			Preserv	ratives	† N /A			-					
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Tison Tison Vice Krastes Sec213 Se		Report To				o o	er Bilden og handeligt			.22P62	Podulaste	A Anolymic	,d By	9/13/2016	
Freesewed Containers           Freesewed Containers         Freesewed Containers           Sample ID         Type         Collect           Sample ID         Type         Collect           Sample ID         Type         Collect           Sample ID         Type         Bartum           Mw-dentrie         Type         Bartum           Mw-dentrie         Type         Bartum           Mw-dentrie         PS         Birn2016 13:41         Collect           Sample ID         Type         Bartum         R8           Mw-dentrie         PS         Birn2016 05:33         Birn2016 05:33         Birn2016 05:33           Mw-dentrie         PS         Birn2016 05:33         Birn2016 05:33         Birn2016 05:33         Birn2016 05:33           Mw-dentrie         PS         Birn2016 05:33         Birn2016 05:33         Birn2016 05:33         Birn2016 05:33           Du-Gensis         PS         Birn2016 13:33         Birn2016 05:33         Birn2016 05:33         Birn2016 05:33           Du-Gensis         PS         Pirn2         Pirn2         Pirn2         Pirn2           Du-Gensis         PS         Pirn2         Pirn2         Pirn2         Pirn2           Bir	iss Intac(Y)	Heather W Pace Anal 9608 Loire Lenexa, K Phone (91	/llson lytical Kansas at Blvd. S 66219 3)599-5665		Pace Ana 1638 Ros Suites 2,3 Greensbu Phone (72	lytical Pittsbur eytown Road s, & 4 'rg, PA 15601 'rg, PA 15600 24)850-5600	цр								
Sample ID         Collect Type         collect e         Matrix         Rd Rd         Rd Rd<	ss Intac(Y)							Preserved C	ontainers	Radiun					
Sample ID         Sample Date/Time         Lab (D)         Matrix         ZI         No         Res         No	as Intac (Yes				Salect					n 226					
WW-4-081716         PS         81/1/2016 13:41         60226095001         Water         2         1         X         1         1         1         2           MW-6-081716         PS         81/1/2016 13:17         60226095002         Water         2         1         X         1			tple ID	<u>w</u>			Matrix	BP1N		& 228					
MW-6-081716         PS         B/17/2016 15:17         60226095002         Water         2         N         X         N		1 MW-4-	-081716		-			2		×				100	1
IWW-1-08186         PS         8/18/2016 09:53         60226095003         Water         2         I         X         I			-081716					0		×				200	
8/18/2016 13:33         60226095004         Water         2         N         X         N			-081816							×				1 8 8	Т
8/18/2016 12:15     60226095005     Water     2     X     X     X     X     X     X       Date/Time     Received     Comments     Comments       Date/Time     Received     2/3-16     0/40       Date/Time     Comments     Comments       Date/Time     Received     8-23-16     0/40       A°C     Custody Seal     Y or     N     Received on Ice     Y or	tts sintac(Yer		-081816							×				827	
Date/Time     Received     Date/Time       Date/Time     Received     Date/Time       Date/Time     Received     8-23-16       Date/Time     8-23-16       Date/Time     8-23-16       A°C     Custody Seal Y or (N)	tts ss Intac(Yør		-081816	1001000			1000							eos	
8日前 CAP 11元1111111111111111111111111111111111	es Intac (Yør	Transfers	Released By		Date/Time	Received			Date/Time			Com	nents		
A°C Custody Seal Y or (N) Received on Ice Y or (N) Samples Intac(Y &r	es Intac(Yør		May the	Re-	BEAM CA		1 and	Let 1	8-23-19	3940					
A°C Custody Seal Y or (N) Received on Ice Y or (N) Samples IntactYer	es Intac(Yer	3 4	/												
	site, sampler's name and signature may not be provided on this COC	Cooler T	emperature on F	Receipt N/A°	_	≻		Re	ceived on		(z	Sam	ples Intact	lor N	1

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Age 43 Age 43 Aginday, August 22, 2016 10:35:10 AM

Sample Con	dition Upon Rece	ipt P	ittsb	ourg	h			30	1	93(	)6;
Pace Analytical	Client Name:			fe	we KS	_ Pi	roject #				<b>_</b>
Tracking #: <u>670316</u>			-								
Custody Seal on Coole	er/Box Present: 🛛 yes				s intact: U yes	∐n	0				
Thermometer Used	NIA	Туре	of Ice:		t Blue None						
Cooler Temperature	Observed Temp		°C	Corr	ection Factor:	<u></u>	°C Final	Temp:		• C	,
Temp should be above free	ezing to 6°C					Г	Date and I	nitials of p	person	,examinin	g
		<u> </u>	1 61-	1 11/0	7		contents		WIV	7.1/	Ĩ
Comments:		Yes √	No	N/A					<u>ð 1</u> .,	<u>3 1/2</u>	
Chain of Custody Prese	nt:	$\vdash$			1.						
Chain of Custody Filled	Out:				2.						
Chain of Custody Relinc	uished:	X			3.						
Sampler Name & Signal	ure on COC:		X		4.					,	
Sample Labels match C	OC:	LĂ		<u> </u>	5.						
-Includes date/time/II	D/Analysis Matrix:		WI	- T							
Samples Arrived within I	Hold Time:	X			6.						
Short Hold Time Analy	sis (<72hr remaining):		X	<u> </u>	7.					<u></u>	
Rush Turn Around Tim	e Requested:		X		8.						
Sufficient Volume:		X			9.						
Correct Containers Used	d:	LX_			10.						
-Pace Containers Us	ed:	X							_		
Containers Intact:		X			11.						
Filtered volume received	l for Dissolved tests			Х	12.						
All containers needing preser		X			13.						
All containers needing pres compliance with EPA recon	ervation are found to be in nemendation.	X									
				• • • • •	Initial when	D	ate/time of				
exceptions: VOA, colifo	orm, TOC, O&G, Phenolics				completed NT	<u>V Ib</u>	reservation				
				_	preservative						
Headspace in VOA Vials	s ( >6mm):			X	14.						
Trip Blank Present:				<u>Χ</u>	15.						
Trip Blank Custody Seal	s Present			X							
Rad Aqueous Samples	Screened > 0.5 mrem/hr		χ		Initial when completed: MT	V D	ate: 8	P-23-1	Έ		
Client Notification/ Res	solution:	<u> </u>		1	<u> </u>		¥				
	i:			Date/	Time:		Contac	ted By:			
	1:			-						<u> </u>	
Commence											
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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.

J:\QAQC\Master\Document Management\Sample Mgt\Sample Condition Upon Receipt Pittsburgh (C056-2 25Jul2016)

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,

Collen Clyre

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





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

#### 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 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

Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587 Missouri Certification: 10070



## SAMPLE SUMMARY

#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

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	Lab ID	Sample ID	Matrix	Date Collected	Date Received
60228265003         MW-6-092016         Water         09/20/16 10:32         09/21/16 16:40	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
60228265004 MW-1-092016 Water 09/20/16 12:37 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	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	60228265006	DUP-092016	Water	09/20/16 07:00	09/21/16 16:40



## SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60228265001		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
0228265002	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
0228265003	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
0228265004	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
0228265005	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



## 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



Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

## Method: EPA 200.7

Description:200.7 Metals, TotalClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

## Method: EPA 200.8

Description:200.8 MET ICPMSClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

# Method: EPA 245.1

Description:245.1 MercuryClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

Method:EPA 903.1Description:903.1 Radium 226Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

Method:EPA 904.0Description:904.0 Radium 228Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

#### Method: SM 2540C

Description:2540C Total Dissolved SolidsClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

Method:	SM 4500-H+B
<b>Description:</b>	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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

Method:EPA 300.0Description:300.0 IC Anions 28 DaysClient:WESTAR ENERGYDate: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.



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

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         Braium, 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         0.010         mg/L         0.010         1         09/23/16 12:00         09/28/16 17:22         7440-42-8           Calcium, Total Recoverable         0.10         mg/L         0.10         1         09/23/16 12:00         09/28/16 17:22         7440-47-3           Calcium, 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         7439-93-2           200.8 MET ICPMS         Analytical Method: EPA 200.8         Preparation Method: EPA 201         10/10/16 13:39         7440-38-0           Cadmium, Total Recoverable         <0.0010         mg/L         0.0010         09/23/16 12:00         10/10/16 13:39         7440-38-2	Sample: MW-4-092016	Lab ID: 60	228265001	Collected: 09/20/1	6 07:56	8 Received: 09	)/21/16 16:40 I	Matrix: Water	
Barlum, 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         40.010         mg/L         0.010         1         09/23/16 12:00         09/28/16 17:22         7440-42-8           Calcium, Total Recoverable         40.01         mg/L         0.10         1         09/23/16 12:00         09/28/16 17:22         7440-42-8           Calcium, Total Recoverable         40.0050         mg/L         0.0050         1         09/23/16 12:00         09/28/16 17:22         7440-47-3           Lead, Total Recoverable         40.0050         mg/L         0.0050         1         09/23/16 12:00         09/28/16 17:22         7440-47-3           Lithium         Collon         mg/L         0.0010         1         09/23/16 12:00         09/28/16 17:22         7440-36-3           Autimony, Total Recoverable         40.010         mg/L         0.0010         1         09/23/16 12:00         0/10/16 13:39         7440-36-3           Arsenic, Total Recoverable         40.0010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:39         7440-36-3           Cadmium, Total Recoverable         40.0010         mg/L         0.0010	Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Beryllium, Total Recoverable       <0.0010	200.7 Metals, Total	Analytical Me	ethod: EPA 200	0.7 Preparation Met	hod: EF	PA 200.7			
Boron, Total Recoverable         d. 0.0         mg/L         0.10         1         09/23/16 12:00         09/28/16 17:22         7440-42-8           Calcium, Total Recoverable         176         mg/L         0.0050         1         09/23/16 12:00         09/28/16 17:22         7440-42-8           Lead, Total Recoverable         d.0050         mg/L         0.0050         1         09/23/16 12:00         09/28/16 17:22         7440-47-3           Lead, Total Recoverable         d.0010         mg/L         0.0050         1         09/23/16 12:00         09/28/16 17:22         7439-92-1           Lithium         c.0010         mg/L         0.0010         1         09/23/16 12:00         09/28/16 17:32         7439-92-1           Lithium         c.0010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:39         7440-38-2           Cadmium, Total Recoverable         c.00010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:39         7440-48-4           Molybdenum, Total Recoverable         c.00010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:39         7440-48-4           Molybdenum, Total Recoverable         c.00010         mg/L         0.0010         1	Barium, Total Recoverable	0.13	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:22	2 7440-39-3	
Calcium, Total Recoverable Chromium, Total Recoverable Lead, Total Recoverable         176 e.0.0050 mg/L         mg/L 0.0050         0.10         1         09/23/16 12:00 09/28/16 17:22         7440-47-3           Lead, Total Recoverable Lithium         0.0050         mg/L         0.0050         1         09/23/16 12:00         09/28/16 17:22         7440-47-3           200.8 MET ICPMS         Analytical Method:         EPA 200.8 Prepartien Method:         EPA 200.8 Prepartien Method:         EPA 200.8 Prepartien Method:         EPA 200.8 Prepartien Method:         1         09/23/16 12:00         0/10/16 13:39         7440-38-0           Antimony, Total Recoverable         0.0010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:39         7440-38-0           Cobalt, Total Recoverable         0.0010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:39         7440-38-0           Antimony, 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         7440-48-4           Molybdenum, Total Recoverable         0.0010         mg/L         0.0010         1	Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	09/28/16 17:22	2 7440-41-7	
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         <0.010	Boron, Total Recoverable	<0.10	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:22	2 7440-42-8	
Lead, Total Recoverable Lithium         <0.0050 <0.010         mg/L mg/L         0.0050 0.010         1         09/23/16 12:00 09/23/16 12:00         09/28/16 17:22 09/28/16 17:22         7439-92-1 7439-93-2           200.8 MET ICPMS         Analytical Method: EPA 200.8         Preparation Method: Arsenic, Total Recoverable Arsenic, Total Recoverable Coduit, Total Recoverable Cod	Calcium, Total Recoverable	176	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:22	2 7440-70-2	
Lithium       <0.010       mg/L       0.010       1       09/23/16 12:00       09/28/16 17:22       7439-32         200.8 MET ICPMS       Analytical Metrical Metrical Metrical Recoverable       <0.0010       mg/L       0.0010       1       09/23/16 12:00       01/01/16 13:30       7440-38-2         Anismony, Total Recoverable       <0.0010       mg/L       0.0010       1       09/23/16 12:00       01/01/16 13:30       7440-38-2         Cadmium, Total Recoverable       <0.0010       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:30       7440-48-3         Oldydenum, Total Recoverable       <0.0010       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:30       7440-48-4         Molydenum, Total Recoverable       <0.0010       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:30       7482-49-2         Selenium, Total Recoverable       <0.0010       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:33       7482-49-2         Selenium, Total Recoverable       <0.0010       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:33       7482-49-2         Selenium, Total Recoverable       <0.0010       mg/L       0.0020       1       09/26/16 13:0 <th< td=""><td>Chromium, Total Recoverable</td><td>&lt;0.0050</td><td>mg/L</td><td>0.0050</td><td>1</td><td>09/23/16 12:00</td><td>09/28/16 17:22</td><td>2 7440-47-3</td><td></td></th<>	Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:22	2 7440-47-3	
200.8 MET ICPMS       Analytical Method:       EPA 200.8 Preparation Method:       EPA 200.0 Preparation Method:       EPA 200.0 Prepa	Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:22	2 7439-92-1	
Antimony, 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         <0.0010	Lithium	<0.010	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:22	2 7439-93-2	
Arsenic, Total Recoverable       <0.0010	200.8 MET ICPMS	Analytical Me	thod: EPA 200	0.8 Preparation Met	hod: EF	PA 200.8			
Cadmiun, 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	Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:39	7440-36-0	
Cobalt, Total Recoverable       <0.0010	Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:39	7440-38-2	
Molybdenum, Total Recoverable       <0.0010	Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	09/23/16 12:00	10/10/16 13:39	7440-43-9	
Selenium, Total Recoverable       <0.0010       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:39       7782-49-2         245.1 Mercury       Analytical Method       EPA 245.1       Preparation       Recoverable       0.0010       1       09/23/16 12:00       10/10/16 13:39       7782-49-2         Mercury       Analytical Method       EPA 245.1       Preparation       Recoverable       0.0010       1       09/23/16 12:00       10/10/16 13:39       7782-49-2         Mercury       Analytical Method       EPA 245.1       Preparation       Recoverable       09/23/16 12:00       09/27/16 08:53       7439-97-6         2540C Total Dissolved Solids       Analytical Method       SM 2540C       1       09/26/16 13:00       09/27/16 08:53       7439-97-6         Total Dissolved Solids       1080       mg/L       5.0       1       09/26/16 20:31       -       -         4500H+ pH, Electrometric       Analytical Method       SM 4500-H+B       0.10       1       09/27/16 12:40       H6         300.0 IC Anions 28 Days       Analytical Method       EPA 300.0       20       10/14/16 10:35       16887-00-6       M1         Fluoride       271       mg/L       20.0       20       10/14/16 10:35       16887-00-6       <	Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:39	7440-48-4	
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 Method       mg/L       0.0020       1       09/26/16 13:00       09/27/16 08:53       7439-97-6         2540C Total Dissolved Solids       Analytical Method Method       mg/L       5.0       1       09/26/16 13:00       09/27/16 08:53       7439-97-6         Total Dissolved Solids       Analytical Method Method       mg/L       5.0       1       09/25/16 20:31       -       -         4500H+ pH, Electrometric       Analytical Method Method       Std 4500-H+B       -       -       -       H6         300.0 IC Anions 28 Days       Analytical Method       EPA 300.0       2       10/14/16 10:35       16887-00-6       M1         Fluoride       271       mg/L       20.0       20       10/14/16 10:35       16887-00-6       M1	Molybdenum, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:39	7439-98-7	
245.1 MercuryAnalytical Metrical Set 245.1 Preparation NetworkMercury	Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:39	7782-49-2	
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	Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:39	7440-28-0	
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                  M1           Chloride         271         mg/L         20.0         20         1         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	245.1 Mercury	Analytical Me	ethod: EPA 24	5.1 Preparation Met	hod: EF	PA 245.1			
Total Dissolved Solids       1080       mg/L       5.0       1       09/25/16 20:31         4500H+ pH, Electrometric       Analytical Method: SM 4500-H+B       V       V       V       V         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       mg/L       20.0       20       10/14/16 10:35       16887-00-6       M1         Chloride Fluoride       0.24       mg/L       20.0       20       10       10/14/16 00:48       16984-48-8       M1	Mercury	<0.00020	mg/L	0.00020	1	09/26/16 13:00	09/27/16 08:53	3 7439-97-6	
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       20.0       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	2540C Total Dissolved Solids	Analytical Me	ethod: SM 254	0C					
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     EPA 300.0     K     K       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	Total Dissolved Solids	1080	mg/L	5.0	1		09/25/16 20:31		
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	4500H+ pH, Electrometric	Analytical Me	thod: SM 450	0-H+B					
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	pH at 25 Degrees C	7.2	Std. Units	0.10	1		09/27/16 12:40	)	H6
Fluoride 0.24 mg/L 0.20 1 10/14/16 00:48 16984-48-8	300.0 IC Anions 28 Days	Analytical Me	ethod: EPA 300	0.0					
Fluoride 0.24 mg/L 0.20 1 10/14/16 00:48 16984-48-8	Chloride	271	mg/L	20.0	20		10/14/16 10:35	5 16887-00-6	M1
5	Fluoride	0.24	-	0.20	1		10/14/16 00:48	16984-48-8	
	Sulfate	141	0	20.0	20		10/14/16 10:35	5 14808-79-8	



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

Sample: MW-5-092016	Lab ID: 60	228265002	Collected: 09/20/1	6 09:11	Received: 09	)/21/16 16:40 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 200	0.7 Preparation Met	hod: EF	PA 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 Me	thod: EPA 200	0.8 Preparation Met	hod: EF	PA 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 Me	thod: EPA 24	5.1 Preparation Met	hod: EF	PA 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 Me	thod: SM 254	0C					
Total Dissolved Solids	1690	mg/L	5.0	1		09/25/16 20:32		
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	0-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 Me	thod: EPA 300	0.0					
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	



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

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         Statum, Total Recoverable         0.034         mg/L         0.010         1         09/23/16 12:00         09/28/16 17:26         7440-39-3           Baryllium, Total Recoverable         1.1         mg/L         0.010         1         09/23/16 12:00         09/28/16 17:26         7440-42-8           Calcium, Total Recoverable         1.1         mg/L         0.101         09/23/16 12:00         09/28/16 17:26         7440-47-8         M1           Chromium, Total Recoverable         276         mg/L         0.0050         1         09/23/16 12:00         09/28/16 17:26         7439-92-1           Lead, Total Recoverable         <0.0050         mg/L         0.0050         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 201.7         M2/23/16 12:00         10/10/16 13:47         7440-38-0           Cadmium, Total Recoverable         <0.0010         mg/L         0.0010         09/23/16 12:00         10/10/16 13:47         7440-38-2 <t< th=""><th>Sample: MW-6-092016</th><th>Lab ID: 60</th><th>228265003</th><th>Collected: 09/20/1</th><th>6 10:32</th><th>Received: 09</th><th>)/21/16 16:40 M</th><th>Matrix: Water</th><th></th></t<>	Sample: MW-6-092016	Lab ID: 60	228265003	Collected: 09/20/1	6 10:32	Received: 09	)/21/16 16:40 M	Matrix: Water	
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         1.1         mg/L         0.010         1         09/23/16         12:00         09/28/16         17:26         7440-41-7           Boron, Total Recoverable         2.76         mg/L         0.0050         1         09/23/16         12:00         09/28/16         17:26         7440-47-3           Chromium, Total Recoverable         2.0050         mg/L         0.0050         1         09/23/16         12:00         09/28/16         17:26         7440-47-3           Lead, Total Recoverable         2.0050         mg/L         0.0050         1         09/23/16         12:00         09/28/16         17:26         7440-47-3           Autimon, Total Recoverable         2.00050         mg/L         0.0010         1         09/23/16         12:00         10/10/16         13:47         7440-36-0           Ansinytical Method:         EPA 200.8         Preparation Method:         EPA 200.8         10/10/16         13:47         7440-48-4           Molybdenum, Total Recoverable         0.0010         mg/L         0.0010         1         09/23/16 <th>Parameters</th> <th>Results</th> <th>Units</th> <th>Report Limit</th> <th>DF</th> <th>Prepared</th> <th>Analyzed</th> <th>CAS No.</th> <th>Qual</th>	Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Beryllium, Total Recoverable       <0.0010	200.7 Metals, Total	Analytical Me	ethod: EPA 200	0.7 Preparation Met	hod: EP	A 200.7			
Boron, Total Recoverable         1.1         mg/L         0.10         1         09/23/16         12:00         09/28/16         17:26         7440-42-8         M1           Calcium, Total Recoverable         276         mg/L         0.0050         1         09/23/16         12:00         09/28/16         17:26         7440-47-3         M1           Chromium, Total Recoverable         <0.0050	Barium, Total Recoverable	0.034	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:26	7440-39-3	
Calcium, Total Recoverable Chromium, Total Recoverable         276 e.0.0050 mg/L         mg/L 0.0050         1         09/23/16 12:00 09/28/16 17:26         7440-47-3         M1           Lead, Total Recoverable Lithium         0.017 mg/L         0.0050         1         09/23/16 12:00         09/28/16 17:26         7440-47-3         M1           200.8 MET ICPMS         Analytical Method: EPA 200.8 Preparation Method: Arsenic, Total Recoverable         -0.0010         mg/L         0.0010         1         09/23/16 12:00         09/28/16 17:26         7440-47-3           Antimony, Total Recoverable         -0.0010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:47         7440-38-0           Cobalt, Total Recoverable         -0.0010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:47         7440-48-0           Cobalt, Total Recoverable         -0.0010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:47         7440-48-0           Gobalt, Total Recoverable         -0.0010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:47         7440-48-0           Molybdenum, Total Recoverable         -0.0010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:47         7440	Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	09/28/16 17:26	7440-41-7	
Chromium, Total Recoverable       <0.0050       mg/L       0.0050       1       0.9/23/16 12:00       09/28/16 17:26       7440-47-3         Lead, Total Recoverable       0.017       mg/L       0.0050       1       0.9/23/16 12:00       09/28/16 17:26       7439-92-1         200.8 MET LCPMS       Analytical Metro:       EPA 200.8       Preparation       EPA 200.8       Preparation       09/23/16 12:00       0/10/16 13:47       7440-47-3         Antimony, Total Recoverable         0.010       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:47       7440-34-2         Cadmium, Total Recoverable          0.0010       1       09/23/16 12:00       10/10/16 13:47       7440-43-9         Cobalt, Total Recoverable          0.0010       1       09/23/16 12:00       10/10/16 13:47       7440-43-9         Cobalt, Total Recoverable          0.0010       1       09/23/16 12:00       10/10/16 13:47       7440-43-9         Cobalt, Total Recoverable          0.0010       1       09/23/16 12:00       10/10/16 13:47       7440-43-9         Selenium, Total Recoverable	Boron, Total Recoverable	1.1	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:26	7440-42-8	
Lead, Total Recoverable Lithium         <0.0050 0.017         mg/L mg/L         0.0050 0.010         1         09/23/16 12:00 09/28/16 17:26         7439-92-1 7439-93-2           200.8 MET ICPMS         Analytical Method: EPA 200.8         Preparation Method: Arsenic, Total Recoverable Arsenic, Total Recoverable 4.0.0010         mg/L mg/L         0.0010         1         09/23/16 12:00 09/23/16 12:00         0/10/16 13:47         7440-36-0 7440-38-2           Cadmium, Total Recoverable Cobalt, Total Recoverable         <0.0010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:47         7440-38-2           Cobalt, Total Recoverable         0.0033         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:47         7440-43-9           Molybdenum, Total Recoverable         0.0014         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:47         7440-38-2           Selenium, Total Recoverable         0.0014         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:47         7440-38-2           Selenium, Total Recoverable         0.0014         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:47         7440-28-0           Selenium, Total Recoverable         0.0010         mg/L         0.0010         1         0	Calcium, Total Recoverable	276	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:26	7440-70-2	M1
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 Networkship       Analytical Networkship       Name       0.0010       mg/L       0.0010       1       09/23/16 12:00       0/10/16 13:47       7440-38-0         Ansenic, Total Recoverable       <0.00050       mg/L       0.00050       1       09/23/16 12:00       10/10/16 13:47       7440-38-0         Cobint, Total Recoverable       0.0033       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:47       7440-38-0         Molybdenum, Total Recoverable       0.0034       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:47       7440-38-0         Molybdenum, Total Recoverable       0.0014       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:47       7440-38-0         Selenium, Total Recoverable       0.0014       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:47       7440-38-0         Selenium, Total Recoverable       0.0014       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:47       7440-38-0         Selenium, Total Recoverable       Audotical Method       mg/L       0.00020       1	Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:26	7440-47-3	
200.8 MET ICPMS       Analytical Method:       EPA 200.8       Preparation Method:       EPA 200.8         Antimony, Total Recoverable       <0.0010	Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:26	7439-92-1	
Antimony, 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       7440-38-2         Cadmium, 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       7440-48-4         Molybdenum, Total Recoverable       -0.0014       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       7440-48-4         Molybdenum, Total Recoverable       -0.0010       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:47       7440-48-4         Molybdenum, Total Recoverable       -0.0010       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:47       7440-48-4         Z45.1 Mercury       Analytical Method: EPA 245.1 Prepartion Method:       EPA       245.1       10/16 12:10       7439-97-6	Lithium	0.017	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:26	7439-93-2	
Arsenic, Total Recoverable       <0.0010	200.8 MET ICPMS	Analytical Me	ethod: EPA 200	0.8 Preparation Met	hod: EP	A 200.8			
Arsenic, Total Recoverable       <0.0010	Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:47	7440-36-0	
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       7440-28-0         245.1 Mercury       Analytical Method       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:47       7440-28-0         245.1 Mercury       Analytical Method       mg/L       0.0010       1       09/23/16 12:00       10/10/16 01:47       7440-28-0         245.1 Mercury       Analytical Method       mg/L       0.0010       1       09/23/16 12:00       10/10/16 01:47       7440-28-0         2540C Total Dissolved Solids       Malytical Method       mg/L       0.0020       1       09/26/16 10:50       7439-97-6         500H+ pH, Electrometric       Analytical Method       SM 4500-H+B       99/25/16 20:32       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1	Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:47	7440-38-2	
Molyberum, 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       7439-98-7         245.1 Mercury       Analytical Method: EPA 245.1       Preparation Method: EPA 245.1       Preparation Method: EPA 245.1       Preparation Method: EPA 245.1       Preparation Method: EPA 245.1         2540C Total Dissolved Solids       Analytical Method: SM 2540C       10/10/16 13:47       7439-98-7       7440-28-0         2540C Total Dissolved Solids       Analytical Method: SM 2540C       10/10/16 13:47       7439-97-6       10/10/16 13:47       7439-97-6         2540C Total Dissolved Solids       Analytical Method: SM 2540C       90/25/16 20:32       7439-97-6       10/10/16 13:47       7439-97-6         2500H+ pH, Electrometric       Analytical Method: SM 4500-H+B       90/25/16 20:32       10/14/16 20:32       10/14/16 20:32       10/14/16 20:32       10/14/16 20:32         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       1       10/14/16 12:15       16887-00-6       10/14/16 01:16       16984-48-8	Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	09/23/16 12:00	10/10/16 13:47	7440-43-9	
Selenium, Total Recoverable       <0.0010       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:47       7782-49-2         245.1 Mercury       Analytical Method:       EPA 245.1       Preparation Method:       EPA 245.1         Mercury       <0.00020       mg/L       0.0020       1       09/23/16 12:00       10/10/16 13:47       7782-49-2         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                09/26/16 13:00       09/27/16 09:08       7439-97-6         2540C Total Dissolved Solids       1690       mg/L       5.0       1       09/25/16 20:32           Total Dissolved Solids       1690       mg/L       5.0       1       09/28/16 10:55       H6         300.0 IC Anions 28 Days       Analytical Method:       EPA 300.0       1       10/14/16 12:15       16887-00-6       10/14/16 01:16       16984-48-8         Chloride       64.3       mg/L <td>Cobalt, Total Recoverable</td> <td>0.0033</td> <td>mg/L</td> <td>0.0010</td> <td>1</td> <td>09/23/16 12:00</td> <td>10/10/16 13:47</td> <td>7440-48-4</td> <td></td>	Cobalt, Total Recoverable	0.0033	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:47	7440-48-4	
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       Output and the second and the sec	Molybdenum, Total Recoverable	0.0014	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:47	7439-98-7	
245.1 Mercury       Analytical Method: EPA 245.1 Preparation Method: EPA 245.1         Mercury <t< td=""><td>Selenium, Total Recoverable</td><td>&lt;0.0010</td><td>mg/L</td><td>0.0010</td><td>1</td><td>09/23/16 12:00</td><td>10/10/16 13:47</td><td>7782-49-2</td><td></td></t<>	Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:47	7782-49-2	
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	Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:47	7440-28-0	
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         EPA 300.0            10/14/16 12:15 16887-00-6         16887-00-6         10/14/16 01:16 16984-48-8	245.1 Mercury	Analytical Me	ethod: EPA 24	5.1 Preparation Met	hod: EP	A 245.1			
Total Dissolved Solids       1690       mg/L       5.0       1       09/25/16 20:32         4500H+ pH, Electrometric       Analytical Method: SM 4500-H+B       SM 4500-H+B       SM 4500-H+B       H6         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       SM 4500-H       SM 4500-H       SM 4500-H       SM 4500-H         Chloride Fluoride       64.3       mg/L       5.0       5       10/14/16 12:15       16887-00-6         Might of the state of the s	Mercury	<0.00020	mg/L	0.00020	1	09/26/16 13:00	09/27/16 09:08	7439-97-6	
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       5.0       5       10/14/16 12:15       16887-00-6         Chloride       64.3       mg/L       5.0       5       10/14/16 12:15       16984-48-8	2540C Total Dissolved Solids	Analytical Me	ethod: SM 254	0C					
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	Total Dissolved Solids	1690	mg/L	5.0	1		09/25/16 20:32		
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	4500H+ pH, Electrometric	Analytical Me	ethod: SM 450	0-H+B					
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	pH at 25 Degrees C	7.1	Std. Units	0.10	1		09/28/16 10:55		H6
Fluoride 0.31 mg/L 0.20 1 10/14/16 01:16 16984-48-8	300.0 IC Anions 28 Days	Analytical Me	ethod: EPA 300	0.0					
Fluoride         0.31         mg/L         0.20         1         10/14/16 01:16         16984-48-8	Chloride	64.3	mg/L	5.0	5		10/14/16 12:15	16887-00-6	
5	Fluoride	0.31	-	0.20			10/14/16 01:16	16984-48-8	
	Sulfate	857	mg/L	100	100		10/14/16 12:29	14808-79-8	



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

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         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           Boron, Total Recoverable         0.15         mg/L         0.10         1         09/23/16 12:00         09/28/16 17:31         7440-47-8           Calcium, Total Recoverable         0.15         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         7430-92-1           Lithium          0.0010         mg/L         0.0050         1         09/23/16 12:00         09/28/16 17:31         7440-47-3           Lead, Total Recoverable          0.0010         mg/L         0.0010         09/23/16 12:00         09/28/16 17:31         7440-47-3           Lead, Total Recoverable           0.0010         mg/L         0.00	Sample: MW-1-092016	Lab ID: 6	0228265004	Collected: 09/20/1	6 12:37	Received: 09	)/21/16 16:40 I	Matrix: Water	
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         0.15         mg/L         0.10         1         09/23/16         12:00         09/28/16         17:31         7440-42-8           Calcium, Total Recoverable         0.15         mg/L         0.100         1         09/23/16         12:00         09/28/16         17:31         7440-42-8           Calcium, Total Recoverable         0.0050         mg/L         0.0050         1         09/23/16         12:00         09/28/16         17:31         7440-42-8           Chromium, Total Recoverable         -0.0050         mg/L         0.0050         1         09/23/16         12:00         09/28/16         17:31         7440-42-8           Lithium         -0.0050         mg/L         0.0010         1         09/23/16         12:00         09/28/16         17:31         7440-42-8           Autional Recoverable         -0.0010         mg/L         0.0010         1         09/23/16         12:00         10/10/16         13:52         7440-38-2           Cadmium, Total Recoverable         -0.0010         mg/L         0.0010 <td< th=""><th>Parameters</th><th>Results</th><th>Units</th><th>Report Limit</th><th>DF</th><th>Prepared</th><th>Analyzed</th><th>CAS No.</th><th>Qual</th></td<>	Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Beryllium, Total Recoverable       <0.0010	200.7 Metals, Total	Analytical M	ethod: EPA 20	0.7 Preparation Met	hod: EP	PA 200.7			
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         0.0050         1         09/23/16         12:00         09/28/16         17:31         7440-70-2           Chromium, Total Recoverable         40.0050         mg/L         0.0050         1         09/23/16         12:00         09/28/16         17:31         7440-47-3           Lead, Total Recoverable         40.0050         mg/L         0.0050         1         09/23/16         12:00         09/28/16         17:31         7439-92-1           Lithium         <0.010	Barium, Total Recoverable	0.12	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:31	7440-39-3	
Calcium, Total Recoverable Chromium, Total Recoverable Lead, Total Recoverable         158         mg/L         0.10         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         7440-47-3           Lead, Total Recoverable         -0.0050         mg/L         0.010         1         09/23/16 12:00         09/28/16 17:31         7439-92-1           200.8 MET ICPMS         Analytical Method: EPA 200.8 Prepartion Method:         EPA 200.8         Prepartion Method:         EPA 200.8         1         09/23/16 12:00         10/10/16 13:52         7440-38-2           Antimony, Total Recoverable         -0.0010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:52         7440-438-2           Cobalt, Total Recoverable         -0.0010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:52         7440-438-2           Cobalt, Total Recoverable         -0.0010         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         7	Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	09/28/16 17:31	7440-41-7	
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         200.8 MET ICPMS       Analytical Metro:       EPA 200.8 Preparation       Netroit       EPA 200.8       Preparation       09/23/16 12:00       00/10/16 13:52       7440-47-3         Antimony, Total Recoverable         0.0010       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:52       7440-36-0         Cadmium, Total Recoverable         0.0010       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:52       7440-34-0         Cobalt, Total Recoverable         0.00050       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:52       7440-34-2         Cobalt, Total Recoverable         0.0054       mg/L       0.0010       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       7440-43-3 <t< td=""><td>Boron, Total Recoverable</td><td>0.15</td><td>mg/L</td><td>0.10</td><td>1</td><td>09/23/16 12:00</td><td>09/28/16 17:31</td><td>7440-42-8</td><td></td></t<>	Boron, Total Recoverable	0.15	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:31	7440-42-8	
Lead, Total Recoverable Lithium         <0.0050         mg/L mg/L         0.0050         1         0.9/23/16 12:00         0.9/28/16 17:31         7439-92-1           200.8 MET ICPMS         Analytical Method: EPA 200.8 Preparation Method: Arsenic, Total Recoverable Arsenic, Total Recoverable         <0.0010         1         0.9/23/16 12:00         10/10/16 13:52         7440-38-0           Codult         mg/L         0.0010         1         0.9/23/16 12:00         10/10/16 13:52         7440-38-0           Antimony, Total Recoverable Arsenic, Total Recoverable         <0.0010         mg/L         0.0010         1         0.9/23/16 12:00         10/10/16 13:52         7440-38-2           Cobalt, Total Recoverable         <0.0054         mg/L         0.0010         1         0.9/23/16 12:00         10/10/16 13:52         7440-43-9           Cobalt, Total Recoverable         <0.0054         mg/L         0.0010         1         0.9/23/16 12:00         10/10/16 13:52         7440-43-9           Selenium, Total Recoverable         <0.0010         mg/L         0.0010         1         0.9/23/16 12:00         10/10/16 13:52         7440-43-9           Selenium, Total Recoverable         <0.0010         mg/L         0.0010         1         0.9/23/16 12:00         10/10/16 13:52         7440-48-4           Molyto	Calcium, Total Recoverable	158	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:31	7440-70-2	
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 Metrical Me	Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:31	7440-47-3	
200.8 MET ICPMS       Analytical Method: EPA 200.8 Preparation Method: EPA 200.8         Antimony, Total Recoverable       <0.0010	Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:31	7439-92-1	
Antimony, Total Recoverable         <0.0010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:52         7440-36-2           Cadmium, Total Recoverable         <0.0010	Lithium	<0.010	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:31	7439-93-2	
Arsenic, Total Recoverable       <0.0010	200.8 MET ICPMS	Analytical M	ethod: EPA 20	0.8 Preparation Met	hod: EP	PA 200.8			
Cadmiun, 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	Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:52	7440-36-0	
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         Thallium, Total Recoverable       -0.0010       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:52       7440-48-4         Z45.1 Mercury       Analytical Method       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:52       7440-28-0         Z45.1 Mercury       Analytical Method       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:52       7440-28-0         Z450 C Total Dissolved Solids       Analytical Method       mg/L       0.0020       1       09/26/16 13:00       09/27/16 09:11       7439-97-6         Z540C Total Dissolved Solids       913       mg/L       5.0       1       09/26/16 10:55       913       7439-97-6         Gtotal Dissolved Solids       913       mg/L       5.0       1       09/26/16 10:55       913       7439-97-6         Flue dissolved Solids       913       mg/L       5.0       1       09/25/16 20:32       1       1       1       1       1	Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:52	7440-38-2	
Molyberum, Total Recoverable Selenium, Total Recoverable Thallium, Total Recoverable         <0.0010         mg/L         0.0010         1         09/23/16 12:00         10/10/16 13:52         7439-98-7           245.1 Mercury         Analytical Method         EPA 245.1         Preparation         80/0000         1         09/23/16 12:00         10/10/16 13:52         7439-98-7           245.1 Mercury         Analytical Method         EPA 245.1         Preparation         80/0002         1         09/23/16 12:00         10/10/16 13:52         7439-98-7           245.1 Mercury         Analytical Method         EPA 245.1         Preparation         80/0020         1         09/23/16 12:00         10/10/16 13:52         7439-98-7           2540C Total Dissolved Solids         Analytical Method         EVA         80/0020         1         09/26/16 13:00         09/27/16 09:11         7439-97-6           2540C Total Dissolved Solids         Analytical Method         SM 2540C         1         09/26/16 20:32         1         1           Year         Analytical Method         SM 4500-H+B         5.0         1         09/28/16 10:55         H6           300.0 IC Anions 28 Days         Analytical Method         EPA 300.0         1         0.010/14/16 10:19         16887-00-6         10/14/16 01:30         16984-48	Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	09/23/16 12:00	10/10/16 13:52	7440-43-9	
Selenium, Total Recoverable       <0.0010       mg/L       0.0010       1       09/23/16 12:00       10/10/16 13:52       7782-49-2         245.1 Mercury       Analytical Method:       EPA 245.1       Preparation Method:       EPA 245.1       0.0010       1       09/23/16 12:00       10/10/16 13:52       7782-49-2         Mercury       Analytical Method:       EPA 245.1       Preparation Method:       EPA 245.1       0.0020       1       09/26/16 13:00       09/27/16 09:11       7439-97-6         2540C Total Dissolved Solids       Analytical Method:       SM 2540C       1       09/26/16 13:00       09/27/16 09:11       7439-97-6         Total Dissolved Solids       913       mg/L       5.0       1       09/26/16 13:00       09/27/16 09:11       7439-97-6         H at 25 Degrees C       913       mg/L       5.0       1       09/25/16 20:32       1         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       1       10/14/16 10:19       16887-00-6         Guide       39.3       mg/L       5.0       5       10/14/16 10:19       16887-00-6         Guide       0.36       mg/L	Cobalt, Total Recoverable	0.0054	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:52	7440-48-4	
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 Met-U       EPA 245.1       Preparation Met-U       EPA 245.1       0.0020       1       09/26/16 13:00       09/27/16 09:11       7439-97-6         2540C Total Dissolved Solids       Analytical Met-U       SM 2540C       1       09/26/16 13:00       09/27/16 09:11       7439-97-6         Total Dissolved Solids       Analytical Met-U       SM 2540C       1       09/26/16 13:00       09/27/16 09:11       7439-97-6         Total Dissolved Solids       913       mg/L       5.0       1       09/25/16 20:32       -         4500H+ pH, Electrometric       Analytical Met-U       SM 4500-H+B       -       -       9/25/16 20:32       H6         300.0 IC Anions 28 Days       Analytical Met-U       EPA 300.0       1       09/28/16 10:55       H6         Ghloride       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	Molybdenum, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:52	7439-98-7	
245.1 MercuryAnalytical Metrical Set 245.1 Preparation Metrical Set 245.1Mercury<0.00020	Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:52	7782-49-2	
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	Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	10/10/16 13:52	7440-28-0	
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         V           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         10/14/16 10:19 16887-00-6         10/14/16 10:19 16887-00-6           Fluoride         39.3 mg/L         5.0 5         10/14/16 10:30 16984-48-8	245.1 Mercury	Analytical M	ethod: EPA 24	5.1 Preparation Met	hod: EP	PA 245.1			
Total Dissolved Solids       913       mg/L       5.0       1       09/25/16 20:32         4500H+ pH, Electrometric       Analytical Method: SM 4500-H+B       V       V       V         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       Solution       5.0       5       10/14/16 10:19       16887-00-6         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	Mercury	<0.00020	mg/L	0.00020	1	09/26/16 13:00	09/27/16 09:11	7439-97-6	
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       5.0       5       10/14/16 10:19       16887-00-6         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	2540C Total Dissolved Solids	Analytical M	ethod: SM 254	OC					
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	Total Dissolved Solids	913	mg/L	5.0	1		09/25/16 20:32	2	
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	4500H+ pH, Electrometric	Analytical M	ethod: SM 450	ю-H+B					
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	pH at 25 Degrees C	7.2	Std. Units	0.10	1		09/28/16 10:55	i	H6
Fluoride 0.36 mg/L 0.20 1 10/14/16 01:30 16984-48-8	300.0 IC Anions 28 Days	Analytical M	ethod: EPA 30	0.0					
Fluoride 0.36 mg/L 0.20 1 10/14/16 01:30 16984-48-8	Chloride	39.3	mg/L	5.0	5		10/14/16 10:19	16887-00-6	
5	Fluoride	0.36	-	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	



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

Sample: MW-7-092016	Lab ID: 602	228265005	Collected: 09/20/1	6 13:36	6 Received: 09	0/21/16 16:40	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 20	0.7 Preparation Met	hod: Ef	PA 200.7			
Barium, Total Recoverable	0.079	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:33	3 7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/23/16 12:00	09/28/16 17:33	3 7440-41-7	
Boron, Total Recoverable	0.75	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:33	3 7440-42-8	
Calcium, Total Recoverable	146	mg/L	0.10	1	09/23/16 12:00	09/28/16 17:33	3 7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:33	3 7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	09/23/16 12:00	09/28/16 17:33	3 7439-92-1	
Lithium	0.024	mg/L	0.010	1	09/23/16 12:00	09/28/16 17:33	3 7439-93-2	
200.8 MET ICPMS	Analytical Me	thod: EPA 20	0.8 Preparation Met	hod: EF	PA 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 Me	thod: EPA 24	5.1 Preparation Met	hod: EF	PA 245.1			
Mercury	<0.00020	mg/L	0.00020	1	09/26/16 13:00	09/27/16 09:13	3 7439-97-6	
2540C Total Dissolved Solids	Analytical Me	thod: SM 254	OC					
Total Dissolved Solids	1110	mg/L	5.0	1		09/25/16 20:33	3	
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	0-H+B					
pH at 25 Degrees C	7.2	Std. Units	0.10	1		09/28/16 10:55	5	H6
300.0 IC Anions 28 Days	Analytical Me	thod: EPA 30	0.0					
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	



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 602282

## 60228265

Sample: DUP-092016	Lab ID: 6	0228265006	Collected: 09/20/1	6 07:00	) Received: 09	9/21/16 16:40 N	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical N	1ethod: EPA 20	0.7 Preparation Met	thod: EF	PA 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 M	1ethod: EPA 20	0.8 Preparation Met	thod: EF	PA 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 N	lethod: EPA 24	5.1 Preparation Met	thod: EF	PA 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 M	lethod: SM 254	łoC					
Total Dissolved Solids	1700	mg/L	5.0	1		09/25/16 20:34		
4500H+ pH, Electrometric	Analytical M	lethod: SM 450	)0-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 M	lethod: EPA 30	0.0					
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	
		3						



Project: Pace Project No.:	TEC CCF 60228265	R GROUNDWA	TER										
QC Batch:	447972			Analys	sis Method	:	EPA 245.1						
QC Batch Method:	EPA 245	5.1		Analys	sis Descrip	tion:	245.1 Mercur	у					
Associated Lab San	nples: 6	0228265001,6	60228265002	, 60228265	003, 6022	8265004,	60228265005	5, 6022826	5006				
METHOD BLANK:	1832810			Ν	Matrix: Wa	ter							
Associated Lab San	nples: 6	0228265001,6	60228265002	, 60228265 Blank		8265004, eporting	60228265005	5, 6022826	5006				
Paran	neter		Units	Resu		Limit	Analyz	ed	Qualifiers				
Mercury			mg/L	<0.0	00020	0.0002	0 09/27/16	08:48		_			
LABORATORY COM	NTROL SA	MPLE: 1832	2811										
Paran	neter		Units	Spike Conc.	LCS Resu		LCS % Rec	% Rec Limits		alifiers			
Mercury			mg/L	.005	. (	0.0056	112	85	5-115				
MATRIX SPIKE & N	IATRIX SP	IKE DUPLICA	TE: 18328 <sup>-</sup>	12		1832813	}						
				MS	MSD								
Paramete	er	60 Units	228265001 Result	Spike Conc.	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	6 0.0058	111	116	70-130	4	20	
MATRIX SPIKE SAM	MPLE:	1832	2814										
				602282		Spike	MS		IS	% Rec			
Paran	neter		Units	Res	ult	Conc.	Result	%I	Rec	Limits		Qualif	iers
Mercury			mg/L	<	0.00020	.005	0.00	33	67	70-1	130 M	1	

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.



Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

QC Batch:	44770	00		Analysis M	ethod:	EPA 200.7	
QC Batch Method:	EPA 2	200.7		Analysis D	escription:	200.7 Metals, 7	Total
Associated Lab Samp	oles:	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 SI	PIKE DUPLICA	TE: 18313	71		1831372							
Parameter	6 Units	0228263003 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	102	100	70-130	1	20	
Beryllium	mg/L	< 0.0010	1	1	1.0	1.0	104	102	70-130	2	-	
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					_	
		60228265003	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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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#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

MATRIX SPIKE SAMPLE:	1831373						
		60228265003	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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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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 Sam	oles: 6022826	001, 60228265002	2, 60228265003, 6022826500	4, 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 S		ATE: 18313	76		1831377							
	-	0228264001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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	60228265004	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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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#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

MATRIX SPIKE SAMPLE:	1831378						
		60228265004	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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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Project: TEC CCR GROU Pace Project No.: 60228265	NDWATER					
QC Batch: 447881		Analysis Me	ethod:	SM 2540C		
QC Batch Method: SM 2540C		Analysis De	escription:	2540C Total Di	ssolved Solids	
Associated Lab Samples: 60228265	5001, 6022826500	2, 60228265003,	60228265004,	60228265005,	60228265006	
METHOD BLANK: 1832511		Matrix	: Water			
Associated Lab Samples: 60228265	5001, 6022826500	2, 60228265003,	60228265004,	60228265005,	60228265006	
		Blank	Reporting			
Parameter	Units	Result	Limit	Analyze	d Quali	fiers
Total Dissolved Solids	mg/L	<5.0	5	.0 09/25/16 2	0:25	
LABORATORY CONTROL SAMPLE:	1832512					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1050	105	80-120	
SAMPLE DUPLICATE: 1832513			_			
Deremeter	Linito	60228264001	Dup	200	Max RPD	Qualifiers
Parameter	Units	Result	Result			Qualifiers
Total Dissolved Solids	mg/L	497	49	96	0	10
SAMPLE DUPLICATE: 1832514						
		60228265004	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers

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Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

QC Batch:	448150		Analysis Meth	nod:	SM 4500-H+B		
QC Batch Method:	SM 4500-H+B		Analysis Desc	cription:	4500H+B pH		
		004 0000000000					
Associated Lab Sam	ples: 60228265	001, 6022826500	)6				
		001, 6022826500	16				
SAMPLE DUPLICAT		001, 6022826500	60228264005	Dup		Мах	

 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.



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 Sam	ples: 60228265002, 602	28265003, 60228265004, 6022826500	5
SAMPLE DUPLICAT	F 1833942		

SAMPLE DUPLICATE. 1633942		60228265002	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	7.0	1	ţ	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.



Project: Pace Project No.:	TEC CCR GROU 60228265	JNDWATER										
QC Batch:	450241		Analys	sis Method	: E	PA 300.0						
QC Batch Method:	EPA 300.0		Analys	sis Descrip	tion: 3	00.0 IC Anio	ons					
Associated Lab San	nples: 6022826	60228265002	, 60228265	5003, 6022	8265004, 6	0228265005	5					
METHOD BLANK:	1842319		ſ	Matrix: Wa	ter							
Associated Lab San	nples: 6022826	5001, 60228265002	, 60228265	5003, 6022	8265004, 6	022826500	5					
			Blanl	K R	Reporting							
Paran	neter	Units	Resu	lt	Limit	Analyz	ed	Qualifiers				
Fluoride		mg/L		<0.20	0.20	10/13/16	18:26					
LABORATORY CON	NTROL SAMPLE:	1842320	Spike	LCS		LCS	% Rec					
Paran	neter	Units	Conc.	Resu		% Rec	Limits		alifiers			
Fluoride		mg/L	2.5	5	2.7	107	90	-110				
MATRIX SPIKE & M	IATRIX SPIKE DL	JPLICATE: 18423	21		1842322							
			MS	MSD								
		60228263001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	er U	nits Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride	m	ng/L 0.44	2.5	2.5	3.0	3.1	105	108	80-120	3	15	
MATRIX SPIKE SAI	MPLE:	1842323										
			602282	64001	Spike	MS	М	S	% Rec			
Paran	neter	Units	Res	ult	Conc.	Result	% F	Rec	Limits		Qualif	iers
Fluoride		mg/L		0.23	2.5	2	2.9	105	80-1	120		

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Project:	TEC CCR GRO	UNDW	/ATER										
Pace Project No.:	60228265												
QC Batch:	450555			Analys	sis Method:	E	PA 300.0						
QC Batch Method:	: EPA 300.0			Analys	sis Descripti	ion: 3	0.0 IC Anio	ns					
Associated Lab Sa	amples: 602282	65001	, 60228265002	, 60228265	003								
METHOD BLANK:	1843629			Ν	Matrix: Wate	er							
Associated Lab Sa	amples: 602282	65001	, 60228265002	, 60228265	003								
				Blank	k Re	eporting							
Para	ameter		Units	Resul	t	Limit	Analyz	ed	Qualifiers				
Chloride			mg/L		<1.0	1.0	10/14/16	08:42					
Chilonae													
			mg/L		<1.0	1.0	10/14/16	08:42					
Sulfate	DNTROL SAMPLE	: 184	0	Spike Conc.	<1.0 LCS Resul		10/14/16	08:42 % Rec Limits		ualifiers			
Sulfate		: 184	mg/L 43630		LCS Resul		LCS	% Rec Limits		ualifiers			
Sulfate LABORATORY CC Para		: 184 	mg/L 43630 Units	Conc.	LCS Resul	lt	LCS % Rec	% Rec Limits 90	Q	ualifiers	_		
Sulfate LABORATORY CO Para Chloride Sulfate	ameter		mg/L 43630 Units mg/L mg/L	Conc. 5 5	LCS Resul	lt	LCS % Rec 91	% Rec Limits 90	-110 QI	ualifiers	-		
Sulfate LABORATORY CC Para Chloride	ameter		mg/L 43630 Units mg/L mg/L	Conc. 5 5	LCS Resul	lt 4.5 4.9	LCS % Rec 91	% Rec Limits 90	-110 QI	ualifiers	-		
Sulfate LABORATORY CO Para Chloride Sulfate	ameter	UPLIC	mg/L 43630 Units mg/L mg/L	Conc. 5 5	LCS Resul	lt 4.5 4.9	LCS % Rec 91	% Rec Limits 90	-110 QI	ualifiers % Rec	-	Мах	
Sulfate LABORATORY CO Para Chloride Sulfate	Ameter MATRIX SPIKE D	UPLIC	mg/L 43630 Units mg/L mg/L ATE: 184363	Conc. 5 5 31 MS	LCS Resul	lt 4.5 4.9 1843632	LCS % Rec 91 97	% Rec Limits 90 90	Qu -110 -110		RPD	Max RPD	Qual
Sulfate LABORATORY CO Para Chloride Sulfate MATRIX SPIKE &	MATRIX SPIKE D	UPLIC	mg/L 43630 Units mg/L mg/L ATE: 184363	Conc. 5 5 31 MS Spike	LCS Resul	lt 4.5 4.9 1843632 MS	LCS % Rec 91 97 MSD	% Rec Limits 90 90 MS	Qu -110 -110 MSD	% Rec			

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.



Qualifiers

## **QUALITY CONTROL DATA**

Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

	220205				
QC Batch:	150558		Analysis Meth	nod: EF	PA 300.0
QC Batch Method:	EPA 300.0		Analysis Dese	cription: 30	0.0 IC Anions
Associated Lab Sample	es: 6022826500	04, 60228265005	, 60228265006		
METHOD BLANK: 18	43633		Matrix:	Water	
Associated Lab Sample	es: 6022826500	04, 60228265005	, 60228265006		
			Blank	Reporting	
Paramet	er	Units	Result	Limit	Analyzed
Chloride		mg/L	<1.0	1.0	10/14/16 08:42
Fluoride		mg/L	<0.20	0.20	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 SP	VIKE DUPLICA	TE: 18436	35		1843636							
MS				MSD								
	6	0228264005	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	95.5	50	50	153	154	116	116	80-120	0	15	

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Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

<b>Sample: MW-4-092016</b> PWS:	Lab ID: 60228 Site ID:	265001 Collected: 09/20/16 07:56 Sample Type:	Received:	09/21/16 16:40	Matrix: Water	
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	3 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	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

<b>Sample: MW-5-092016</b> PWS:	Lab ID: 60228 Site ID:	265002 Collected: 09/20/16 09:11 Sample Type:	Received:	09/21/16 16:40	Matrix: Water	
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	9 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	3 15262-20-1	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

<b>Sample: MW-6-092016</b> PWS:	Lab ID: 60228 Site ID:	265003 Collected: 09/20/16 10:32 Sample Type:	Received:	09/21/16 16:40	Matrix: Water	
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	4 15262-20-1	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

Sample: MW-1-092016 PWS:	Lab ID: 60228 Site ID:	265004 Collected: 09/20/16 12:37 Sample Type:	Received:	09/21/16 16:40	Matrix: Water	
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	2 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	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

<b>Sample: MW-7-092016</b> PWS:	Lab ID: 60228 Site ID:	2265005 Collected: 09/20/16 13:36 Sample Type:	Received:	09/21/16 16:40	Matrix: Water	
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	9 15262-20-1	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60228265

Sample: DUP-092016 PWS:	Lab ID: 602282 Site ID:	265006 Collected: 09/20/16 07:00 Sample Type:	Received:	09/21/16 16:40	Matrix: Water	
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	5 15262-20-1	



## **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 Radiu	m 228		
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006						
METHOD BLANK: 1152992 Matrix: Water						
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006						
Para	meter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228	0.87		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 Radiun	n-226		
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006						
METHOD BLANK: 1152976 Matrix: Water						
Associated Lab Samples: 60228265001, 60228265002, 60228265003, 60228265004, 60228265005, 60228265006						
Para	meter	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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## 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.



## 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
0228265003	MW-6-092016	EPA 200.8	447701	EPA 200.8	447804
0228265004	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		
0228265003	MW-6-092016	EPA 903.1	234935		
0228265004	MW-1-092016	EPA 903.1	234935		
0228265005	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		
0228265005	MW-7-092016	SM 25400	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		
0228265004	MW-1-092016	SM 4500-H+B	448294		
0228265005	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		



## 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 60228265006	MW-7-092016 DUP-092016	EPA 300.0 EPA 300.0	450558 450558		



Sample Condition Upon Receipt

# WO#:60228265

			Hm
Client Name: Westar Energy			
Courier: FedEx 🗆 UPS 🗆 VIA 🗆 🕑 Clay 🗆		ace ᡇ 🛛 Xroads 🗆	Client  Other
Tracking #: Pa	ce 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 🗆 Ot	her U2.PL
Thermometer Used: <u>T-266 / (T-239</u> ) Type of	of Ice: Wet Blue None		Determed initials of several
Cooler Temperature (°C): As-read 4.1/2.2corr. Fac	ctor CF +1 CF -0.1 Corrected	(4.0/2.)	Date and initials of person examining contents: $\begin{cases} 9/2 \\ 9/2 \end{cases}$
Temperature should be above freezing to 6°C			
Chain of Custody present:	Yes DNo DN/A		
Chain of Custody relinquished:			
Samples arrived within holding time:	Kes DNO DN/A		
Short Hold Time analyses (<72hr):	Yes No N/A		
Rush Turn Around Time requested:			
Sufficient volume:			
Correct containers used:			
Pace containers used:			
Containers intact:	Nyes DNo DN/A		
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	TYes No DN/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: WL			
Containers requiring pH preservation in compliance? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)			
Cyanide water sample checks: 🛛 N/A			
Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)			
Trip Blank present:			
Headspace in VOA vials ( >6mm):			
Samples from USDA Regulated Area: State:			
Additional labels attached to 5035A / TX1005 vials in the fiel	d? IYes No DNA		
Client Notification/ Resolution: Copy COC		Field Data Required	1? Y / N
Person Contacted: Date	/Time:		
Comments/ Resolution:			

Project Manager Review:

-Amw

Date: 9/22/16

Pace Analytical

# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

VESTAR ENLERC VESTAR ENLERCE VI N U ACCEPTED BY ACCEPTED BY ACCEP		Report to. Brandon Grillin		Attantion'	Attention Interference				Þ	
318 Kansas Ave Topeka, KS 66613     Corp. To benation. Jarred Morrison, Health Homya     Commercy Annex     Commercy Annex     Commercy Annex       Topeka, KS 66613     Portose Orde NG     Proper Lensing     Proper Lensing     Read Morrison, Healther Wilcon, 193.663-1       Topeka, KS 66613     Propeka Lensing     Proper Lensing     Propeka Lensing     Read Morrison, Healther Wilcon, 193.663-1       Propeka Lensing     Propeka Lensing     Propeka Lensing     Propeka Lensing     Propeka Lensing       Read Morrison, Healther Wilcon, 193.663-13     Far.     Propeka Lensing     Propeka Lensing       Read Morrison, Healther Wilcon, 193.663-1     Propeka Lensing     Propeka Lensing     Propeka Lensing       Read Morrison, Healther Wilcon, Healther Wilcon, Healther Wilcon, Propeka Lensing     Propeka Lensing     Propeka Lensing       Read Morrison, Healther Wilcon, Healther Wilcon, Healther Wilcon, Healther Wilcon, Healther Wilcon, 193.663-1     Propeka Lensing       Read Morrison, Healther Wilcon, Healther Wilcon, Healther Wilcon, Healther Wilcon, 193.663-1     Propeka Lensing       Read Morrison, Healther Wilcon, Healther Wilcon, Healther Wilcon, Healther Wilcon, 193.663-1     Propeka Lensing       Read Morrison, Healther Wilcon, Healther Wilcon, Healther Wilcon, Healther Wilcon, 193.663-1     Propeka Lensing       Read Morrison, Healther Wilcon, Healther Wilcon, Healther Wilcon, Healther Wilcon, 193.75     Propeka Lensing       Read Morison, Healther Wilcon, Healther Wilcon, Healther	818 Kansas Ave Topeka, KS 66612			Allenuoli,	05				N. C.	
Topeku, KS 66612         Topeku, KS 66612         Address         SEE SECTION A <sup>21</sup> Drandoni griftin@westarenergy.com         Presenter	Topeka, KS 66612	1	eath Hornya	Company Nai		VERGY	REGULATORY AGENCY	<b>AGENCY</b>		
Paradon Lgriffin@westarererery.com     Protees Order Nome:     TEC CCR Groundwatter     Protees Order Nome:     TEC CCR Groundwatter       7(85) 575-6135     Fact     Protees Order Nome:     TEC CCR Groundwatter     Protees Order Nome:     Protees Order Nome:       7(85) 575-6135     Fact     Protees Order Nome:     Protees Order Nome:     Protees Order Nome:     Protees Order Nome:       7(85) 575-6135     Fact     Protees Order Nome:     Protees Order Nome:     Protees Order Nome:     Protees Order Nome:       7(85) 575-6135     Fact     Protees Order Nome:     Protees Order Nome:     Protees Order Nome:     Protees Order Nome:       7(85) 575-6135     Fact     Protees Order Nome:     Protees Order Nome:     Protees Order Nome:     Protees Order Nome:       8eedon D     Max     Protees Nome:     Protees Order Nome:     Protees Order Nome:     Protees Order Nome:       8eedon D     Max     Protees Nome:     Protees Nome:     Protees Nome:     Protees Order Nome:       8eedon D     Max     Protees Nome:     Protees Nome:     Protees Nome:     Protees Order Nome:       8eedon D     Max     Protees Nome:     Protees Nome:     Protees Nome:     Protees Nome:       8eedon D     Max     Protees Nome:     Protees Nome:     Protees Nome:     Protees Nome:       8eedon D     Max<				Address:	SEE SECTIO	N A	VPDES I	F GROUND WATER	L	DRINKING WATER
(785)         575-8135         Fact         Proper Name         Heather         Pace Project         Heather         Number Name         Number Name         Number Name         Number Name         Heather         Number Name         Number Nam         Number Name<	brandon.l.griffin@westarenergy.com	Purchase Order No :		Pace Quote Reference:			L UST	RCRA	L	OTHER
TDAY         TORY         TORY <th< td=""><td></td><td>-</td><td>oundwater</td><td>Pace Project Manager</td><td>Heather Wilson,</td><td>913-563-1407</td><td>Site Location</td><td>د کر</td><td></td><td></td></th<>		-	oundwater	Pace Project Manager	Heather Wilson,	913-563-1407	Site Location	د کر		
Alight Mirrir Marken		Project Number:		Pace Profile #:			STATE:	2		
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1875/ westar grans 1500 Shall MUL		RELINQUISHED BY			A ACCEI	PTED BY / AFFILIATION	DATE	TIME	SAMP	SAMPLE CONDITIONS
1 1 1 1 1 1	otal Metals: Ba, Be, B, Ca, Cr, Pb, Li	MVN/W		5 150	) Shall	MOL PAST	9/2/16	0-7 0H91	0	
	Total Metals: Co, As, Se, Mo, Cd, Sb, Tl		Ι.		2	, )		a		ili da
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e e 4.			SAMPLER NAME AND SIGN	TURE			AN STATES		uo pe	Seale (V/Y) Intac
PRINT Name of SAMPLER: Graden SATTIN	3 of	ж 5	PRINT Name of SAMP	ER: Ban	der Git	fin .			i qme eviece Y) ec	oojet
SIGNATURE of SAMPLER:	45		SIGNATURE of SAMP	- CAL	1	MM/DD/YY): 09	1/02/60	9	э H	co

"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 involcement paid within 30 days.

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

Chaii	Chain of Custody				S <b>■</b>	W0#:30196935	96935				Pace Analytical	tical ************************************
Workord Report To	er: 60228265	rkorder N	Workorder Name:TEC CCR GROUNDWATER	GROUNDW/	ATER		Owner F	eceived Dat	e: 9/21/2016	Owner Received Date: 9/21/2016 Results Requested By: 10/14/2016	sted By: 10/14	2016
Heather Wilson	Vilson		Dara Ar	u 10 Jahdical Dittehu	40%				Requested Analysis	llysis		
Pace Ané 9608 Loir Lenexa, M	Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665		1638 Ru 1638 Ru Suites 2 Greenst	r ace Anarytical Fillsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone 774/850-5600								
								R;				
						Preserved Containers		adiı				
								ım 22				
		Sample	Collect Date/Tim			BP		26 & 2				
Item Sai	Sample ID	Type		Lab ID	Matrix	'1N		228			LAB USE ONLY	ONLY
1 MW-	MW-4-092016	PS	9/20/2016 07:56	60228265001	Water	2		×			8	
2 MW-5	MW-5-092016	PS	9/20/2016 09:11	60228265002	Water	2	×				38	
3 MW-6	MW-6-092016	PS	9/20/2016 10:32	60228265003	Water	5	×					
4 MW-1	MW-1-092016	PS	9/20/2016 12:37	60228265004	Water	2		×			38	
5 MW-7	MW-7-092016	PS	9/20/2016 13:36	60228265005	Water	7	×				ζξ	ßı
6 DUF	DUP-092016	PS	9/20/2016 07:00	60228265006	Water	7	×				3E	
										Comments		
Transfers	Released By	9	Date/Time	Received	7		Date/Time					
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		<u>N N 14</u>	n cusu	Custody Seal (Y	V Dr	Re	Received on Ice	e Yor N		Samples Intact Y	lot Y br N	
docum	***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.	identiality, dy is cons	location/name	of the samplir. e as is since ti	ng site, si his inforn	ite, sampler's name and signature may not be <i>k</i> information is available in the owner laboratory.	e and signatu able in the ov	re may not b <sub>i</sub> iner laborato	e provided on 'Y.	this COC		

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Sample Condition Upon Rece	ipt P	ittsb	urg	h	
Pace Analytical Client Name:				e KS	<b>30 1 9 6 9 3 5</b> Project #
Courier: [ℤ] Fed Ex □ UPS □ USPS □ Clier Tracking #: <u>104466538641</u>		•			
Custody Seal on Cooler/Box Present: 🕅 yes					no no
Thermometer Used <u>NIA</u>	Туре			t Blue (None)	°C Final Temp: °C
Cooler Temperature Observed Temp		°C	Corr	ection Factor:	°C Final Temp:
Temp should be above freezing to 6°C					Date and Initials of person examining
	Yes	No	N/A	7	contents:
Comments:	V			1.	
Chain of Custody Present:	┼╈╴			2.	
Chain of Custody Filled Out:	<del>Γχ΄</del>			3.	
Chain of Custody Relinquished:	1/-	X		4.	
Sampler Name & Signature on COC:	$\mathbf{x}$			5.	
Sample Labels match COC:		WI			
-Includes date/time/ID/Analysis Matrix:	X		<u> </u>	6.	
Samples Arrived within Hold Time:		X		7.	
Short Hold Time Analysis (<72hr remaining):		Ŷ		8,	
Rush Turn Around Time Requested:	$\mathbf{x}$	1		9.	
Sufficient Volume:	Ϋ́			10.	
Correct Containers Used:	Ŷ				
-Pace Containers Used:	Ϋ́			11.	
Containers Intact:			X	12.	
Filtered volume received for Dissolved tests All containers needing preservation have been checked.	X			40	
All containers needing preservation are found to be in compliance with EPA recommendation.	X			13. pHLZ	
				Initial when completed	Date/time of preservation
exceptions: VOA, coliform, TOC, O&G, Phenolics				Lot # of added	preservation
Headspace in VOA Vials ( >6mm):			χ	14.	
Trip Blank Present:			X	15.	
Trip Blank Custody Seals Present			X		
Rad Aqueous Samples Screened > 0.5 mrem/hr		X		Initial when completed: NN	Date: 9-23-16
Client Notification/ Resolution: Person Contacted:				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,

Autor m. Wilson

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

## 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 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

Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587 Missouri Certification: 10070



## 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



## SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60231381001		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
0231381003	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



## 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
0231381006	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
0231381007	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
0231381008	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
0231381009	DUP-110116	EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	7	PASI-K



## 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



Project: TEC CCR GROUNDWATER

## Pace Project No.: 60231381

## Method: EPA 200.7

Description:200.7 Metals, TotalClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

## Pace Project No.: 60231381

## Method: EPA 200.8

Description:200.8 MET ICPMSClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

## Method: EPA 245.1

Description:245.1 MercuryClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

Method:EPA 903.1Description:903.1 Radium 226Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

## Method:EPA 904.0Description:904.0 Radium 228Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

## Method: Total Radium Calculation

Description:Total Radium 228+226Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

## Method: SM 2540C

Description:2540C Total Dissolved SolidsClient:WESTAR ENERGYDate: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:**



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

Method:	SM 4500-H+B
<b>Description:</b>	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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

Method:EPA 300.0Description:300.0 IC Anions 28 DaysClient:WESTAR ENERGYDate: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.



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

Sample: MW-4-110116	Lab ID: 602	231381001	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 Met	thod: EPA 20	0.7 Preparation Me	thod: EF	PA 200.7			
Barium, Total Recoverable	0.12	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:4 <sup>-</sup>	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/03/16 05:45	11/07/16 18:4	7440-41-7	
Boron, Total Recoverable	<0.10	mg/L	0.10	1	11/03/16 05:45	11/07/16 18:4	7440-42-8	
Calcium, Total Recoverable	180	mg/L	0.10	1	11/03/16 05:45	11/07/16 18:4	7440-70-2	M1
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:4	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/03/16 05:45	11/07/16 18:4	7439-92-1	
Lithium	<0.010	mg/L	0.010	1	11/03/16 05:45	11/07/16 18:4	7439-93-2	
200.8 MET ICPMS	Analytical Met	thod: EPA 20	0.8 Preparation Me	thod: EF	PA 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 Met	thod: EPA 24	5.1 Preparation Me	thod: EF	PA 245.1			
Mercury	<0.00020	mg/L	0.00020	1	11/15/16 08:30	11/16/16 12:03	3 7439-97-6	
2540C Total Dissolved Solids	Analytical Met	thod: SM 254	OC					
Total Dissolved Solids	1060	mg/L	5.0	1		11/04/16 12:04	1	
4500H+ pH, Electrometric	Analytical Met	thod: SM 450	ю-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 Met	thod: EPA 30	0.0					
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	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

Sample: MW-5-110116	Lab ID: 60	231381002	Collected: 11/01	/16 09:23	B Received: 11	/02/16 16:16	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 20	0.7 Preparation M	ethod: EF	PA 200.7			
Barium, Total Recoverable	0.030	mg/L	0.0050	) 1	11/03/16 05:45	11/07/16 18:48	3 7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	) 1	11/03/16 05:45	11/07/16 18:48	3 7440-41-7	
Boron, Total Recoverable	1.2	mg/L	0.10	) 1	11/03/16 05:45	11/07/16 18:48	3 7440-42-8	
Calcium, Total Recoverable	316	mg/L	0.10	) 1	11/03/16 05:45	11/07/16 18:48	3 7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	) 1	11/03/16 05:45	11/07/16 18:48	3 7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	) 1	11/03/16 05:45	11/07/16 18:48	3 7439-92-1	
Lithium	0.022	mg/L	0.010	) 1	11/03/16 05:45	11/07/16 18:48	3 7439-93-2	
200.8 MET ICPMS	Analytical Me	thod: EPA 20	0.8 Preparation M	ethod: EF	PA 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 Me	thod: EPA 24	5.1 Preparation M	ethod: EF	PA 245.1			
Mercury	<0.00020	mg/L	0.00020	) 1	11/15/16 08:30	11/16/16 12:06	6 7439-97-6	
2540C Total Dissolved Solids	Analytical Me	thod: SM 254	0C					
Total Dissolved Solids	1810	mg/L	5.0	) 1		11/04/16 12:05	5	
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	0-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 Me	thod: EPA 30	0.0					
Chloride	45.3	mg/L	5.0	) 5		11/28/16 14:06	6 16887-00-6	
Fluoride	0.33	mg/L	0.20	) 1		11/22/16 14:06	6 16984-48-8	
Sulfate	1020	mg/L	100	100		11/28/16 14:22	2 14808-79-8	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

Sample: MW-6-110116	Lab ID: 602	231381003	Collected: 11/01/	16 11:04	Received: 11	/02/16 16:16 I	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	hod: EPA 20	0.7 Preparation Me	ethod: EF	PA 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 Met	hod: EPA 20	0.8 Preparation Me	ethod: EF	PA 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 Met	hod: EPA 24	5.1 Preparation Me	ethod: EF	PA 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 Met	hod: SM 254	OC					
Total Dissolved Solids	1690	mg/L	5.0	1		11/04/16 12:05	i	
4500H+ pH, Electrometric	Analytical Met	hod: SM 450	0-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 Met	hod: EPA 30	0.0					
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	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

Sample: MW-1-110116	Lab ID: 602	231381004	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 Me	thod: EPA 20	0.7 Preparation Me	ethod: EF	PA 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 Me	thod: EPA 20	0.8 Preparation Me	ethod: EF	PA 200.8			
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:58	3 7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:58	3 7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/05/16 10:30	11/13/16 00:58	3 7440-43-9	
Cobalt, Total Recoverable	0.0086	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:58	3 7440-48-4	
Molybdenum, Total Recoverable	<0.0010	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:58	3 7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:58	3 7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/05/16 10:30	11/13/16 00:58	3 7440-28-0	
245.1 Mercury	Analytical Me	thod: EPA 24	5.1 Preparation Me	thod: EF	PA 245.1			
Mercury	<0.00020	mg/L	0.00020	1	11/15/16 08:30	11/16/16 12:15	5 7439-97-6	
2540C Total Dissolved Solids	Analytical Me	thod: SM 254	l0C					
Total Dissolved Solids	925	mg/L	5.0	1		11/04/16 12:06	6	
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	)0-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 Me	thod: EPA 30	0.0					
Chloride	29.6	mg/L	5.0	5		11/28/16 15:39	9 16887-00-6	
Fluoride	0.39	mg/L	0.20	1		11/22/16 14:53	3 16984-48-8	
Sulfate	452	mg/L	50.0	50		11/28/16 15:54	14808-79-8	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

Sample: MW-7-110116	Lab ID: 602	231381005	Collected: 11/01/	16 13:4 <i>°</i>	1 Received: 11	/02/16 16:16 I	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 20	0.7 Preparation Me	ethod: El	PA 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 Me	thod: EPA 20	0.8 Preparation Me	ethod: El	PA 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 Me	thod: EPA 24	5.1 Preparation Me	ethod: El	PA 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 Me	thod: SM 254	l0C					
Total Dissolved Solids	1100	mg/L	5.0	1		11/04/16 12:06	i	
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	00-H+B					
pH at 25 Degrees C	7.1	Std. Units	0.10	1		11/09/16 14:50	I	H6
300.0 IC Anions 28 Days	Analytical Me	thod: EPA 30	0.0					
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	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

Sample: MW-10-110116	Lab ID: 60	231381006	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 Me	thod: EPA 20	0.7 Preparation Me	thod: EF	PA 200.7			
Barium, Total Recoverable	0.30	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:02	2 7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/03/16 05:45	11/07/16 19:02	2 7440-41-7	
Boron, Total Recoverable	0.25	mg/L	0.10	1	11/03/16 05:45	11/07/16 19:02	2 7440-42-8	
Calcium, Total Recoverable	182	mg/L	0.10	1	11/03/16 05:45	11/07/16 19:02	2 7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:02	2 7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:02	2 7439-92-1	
Lithium	0.011	mg/L	0.010	1	11/03/16 05:45	11/07/16 19:02	2 7439-93-2	
200.8 MET ICPMS	Analytical Me	thod: EPA 20	0.8 Preparation Me	thod: EF	PA 200.8			
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:06	3 7440-36-0	
Arsenic, Total Recoverable	0.065	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:06	6 7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/05/16 10:30	11/13/16 01:06	6 7440-43-9	
Cobalt, Total Recoverable	0.0043	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:06	6 7440-48-4	
Molybdenum, Total Recoverable	0.0034	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:06	6 7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:06	6 7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:06	6 7440-28-0	
245.1 Mercury	Analytical Me	thod: EPA 24	5.1 Preparation Me	thod: EF	PA 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 Me	thod: SM 254	OC					
Total Dissolved Solids	1220	mg/L	5.0	1		11/04/16 12:15	5	
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	0-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 Me	thod: EPA 30	0.0					
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	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

Sample: MW-9-110116	Lab ID: 602	231381007	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 Me	thod: EPA 20	0.7 Preparation Me	thod: EF	PA 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 Me	thod: EPA 20	0.8 Preparation Me	thod: EF	PA 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 Me	thod: EPA 24	5.1 Preparation Me	thod: EF	PA 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 Me	thod: SM 254	0C					
Total Dissolved Solids	1230	mg/L	5.0	1		11/04/16 12:15		
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	0-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 Me	thod: EPA 30	0.0					
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	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

Sample: MW-8-110116	Lab ID: 60	231381008	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 Me	thod: EPA 20	0.7 Preparation Me	ethod: EF	PA 200.7			
Barium, Total Recoverable	0.058	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:07	7 7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/03/16 05:45	11/07/16 19:07	7 7440-41-7	
Boron, Total Recoverable	1.4	mg/L	0.10	1	11/03/16 05:45	11/07/16 19:07	7 7440-42-8	
Calcium, Total Recoverable	214	mg/L	0.10	1	11/03/16 05:45	11/07/16 19:07	7 7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:07	7 7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/03/16 05:45	11/07/16 19:07	7 7439-92-1	
Lithium	0.022	mg/L	0.010	1	11/03/16 05:45	11/07/16 19:07	7 7439-93-2	
200.8 MET ICPMS	Analytical Me	thod: EPA 20	0.8 Preparation Me	ethod: EF	PA 200.8			
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:1	5 7440-36-0	
Arsenic, Total Recoverable	0.0020	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:1	5 7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/05/16 10:30	11/13/16 01:1	5 7440-43-9	
Cobalt, Total Recoverable	0.0015	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:1	5 7440-48-4	
Molybdenum, Total Recoverable	0.042	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:1	5 7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:1	5 7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/05/16 10:30	11/13/16 01:1	5 7440-28-0	
245.1 Mercury	Analytical Me	thod: EPA 24	5.1 Preparation Me	ethod: EF	PA 245.1			
Mercury	<0.00020	mg/L	0.00020	1	11/15/16 08:30	11/16/16 12:23	3 7439-97-6	
2540C Total Dissolved Solids	Analytical Me	thod: SM 254	l0C					
Total Dissolved Solids	1390	mg/L	5.0	1		11/04/16 12:10	3	
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	00-H+B					
pH at 25 Degrees C	7.0	Std. Units	0.10	1		11/09/16 16:12	2	H6
300.0 IC Anions 28 Days	Analytical Me	thod: EPA 30	0.0					
Chloride	185	mg/L	25.0	25		11/28/16 17:1 <sup>2</sup>	16887-00-6	
Fluoride	0.29	mg/L	0.20	1		11/22/16 16:2	5 16984-48-8	
Sulfate	785	mg/L	100	100		11/28/16 17:23	7 14808-79-8	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

Sample: DUP-110116	Lab ID: 60	231381009	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 Me	thod: EPA 200	0.7 Preparation Me	thod: EF	PA 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 Me	thod: EPA 200	0.8 Preparation Me	thod: EF	PA 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 Me	thod: EPA 24	5.1 Preparation Me	thod: EF	PA 245.1			
Mercury	<0.00020	mg/L	0.00020	1	11/15/16 08:30	11/16/16 12:26	6 7439-97-6	
2540C Total Dissolved Solids	Analytical Me	thod: SM 254	0C					
Total Dissolved Solids	927	mg/L	5.0	1		11/04/16 12:06	3	
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	0-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 Me	thod: EPA 300	0.0					
Chloride	30.4	mg/L	5.0	5		11/28/16 17:42	2 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	



Project:	TEC CCR GR		VATER										
Pace Project No.:	60231381												
QC Batch:	455023			Analys	is Method		EPA 245.1						
QC Batch Method:	EPA 245.1			Analys	is Descrip	tion: 2	245.1 Mercury	/					
Associated Lab Sam			, 60231381002, , 60231381009	, 60231381	003, 6023	1381004,	60231381005	5, 6023138 <sup>-</sup>	1006, 6023	1381007,			
METHOD BLANK:	1863355			Ν	/latrix: Wa	ter							
Associated Lab Sam			, 60231381002, , 60231381009	60231381	003, 6023	1381004,	60231381005	5, 6023138 <sup>,</sup>	1006, 6023	1381007,			
				Blank		eporting							
Param	eter		Units	Resul	t	Limit	Analyz	ed	Qualifiers	_			
Mercury			mg/L	<0.0	0020	0.0002	0 11/16/16 <sup>-</sup>	11:59					
LABORATORY CON	TROL SAMPL	.E: 18	63356										
Param	eter		Units	Spike Conc.	LCS Resu		LCS % Rec	% Rec Limits		alifiers			
Mercury			mg/L	.005	C	.0051	102	85	-115				
MATRIX SPIKE & M/	ATRIX SPIKE	DUPLIC	ATE: 18633			1863358							
				MS	MSD					_			
Demonstra			60231979001	Spike	Spike	MS	MSD	MS	MSD	% Rec	000	Max	0
Parameter Mercury		Units mg/L	Result 	Conc. .005	Conc. .005	Result <0.0002		% Rec 3	% Rec 1	Limits 70-130	RPD	20	Qual M1
						(	) 0						
MATRIX SPIKE SAM	IPLE:	18	63359										
Param	eter		Units	602320 Res		Spike Conc.	MS Result	M % F	-	% Rec Limits		Qualit	fiers
				<0								1	

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EPA 200.7

200.7 Metals, Total

Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

QC Batch:453405QC Batch Method:EPA 200.7

Analysis Method:

Analysis Description:

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

		Blank	Reporting		
Parameter	Units	Result	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 SPI	KE DUPLIC	ATE: 185599	91		1855992						
Parameter	e 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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Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

QC Batch: 453594

QC Batch Method: EPA 200.8 Associated Lab Samples: 6023 Analysis Method: Analysis Description:

00.8 Analysis Description: 200.8 MET 60231381001, 60231381002, 60231381003, 60231381004, 60231381005, 60231381006, 60231381007,

EPA 200.8

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 S	PIKE DUPLIC	ATE: 18569	71		1856972							
			MS	MSD								
	6	60231472001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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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## 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	

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.



Project:	TEC CCR GROU	NDWATER							
Pace Project No.:	60231381				014 05 400				
QC Batch:	453479		Analysis Me		SM 2540C				
QC Batch Method:	SM 2540C		Analysis De	scription:	2540C Total I	Dissolved Solids			
Associated Lab Sam		001, 6023138100 008, 6023138100		6023138100	4, 60231381005	5, 60231381006,	60231	381007,	
METHOD BLANK:	1856318		Matrix	: Water					
Associated Lab Sam		001, 6023138100 008, 6023138100		6023138100	4, 60231381005	5, 60231381006,	60231	381007,	
			Blank	Reportin	-				
Param	leter	Units	Result	Limit	Analyz	ed Quali	fiers	_	
Total Dissolved Solid	ls	mg/L	<5.0		5.0 11/04/16	12:02		_	
LABORATORY CON		1856319 Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qua	alifiers	
Total Dissolved Solid	ls	mg/L	1000	1030	103	80-120			
SAMPLE DUPLICAT	E: 1856320								
Param	leter	Units	60231381001 Result	Dup Result	RPD	Max RPD		Qualifiers	
Total Dissolved Solid		mg/L	1060		050	1	10		
SAMPLE DUPLICAT	E: 1856321		60231419005	Dup		Мах			
Param	neter	Units	Result	Result	RPD	RPD		Qualifiers	
Total Dissolved Solid		mg/L	879	·	877	0	10		

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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 Sam	ples: 60231381001, 6023	1381002, 60231381003, 6023138100	9
SAMPLE DUPLICAT	E: 1859039		

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



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 Sam	Associated Lab Samples: 60231381004, 60231381005, 60231381006			
SAMPLE DUPLICAT	E: 1859730			

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

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Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

pH at 25 Degrees C		Std. Units	6.8	6	5.8	0	5 H6	6
Param	ieter	Units	Result	Result	RPD	RP		Qualifiers
			60231381007	Dup		Ма	x	
SAMPLE DUPLICAT	E: 1859816							
Associated Lab Sam	ples: 602313810	07, 60231381008	5					
QC Batch Method:	SM 4500-H+B		Analysis Desc	ription:	4500H+B pH			
QC Batch:	454194		Analysis Meth	od:	SM 4500-H+B			

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.



,	TEC CCR GROU 60231381	NDWATER										
QC Batch:	456102		Analys	sis Method	: E	PA 300.0						
QC Batch Method:	EPA 300.0		Analys	sis Descrip	tion: 3	00.0 IC Anio	ns					
Associated Lab Sam		1001, 60231381002 1008, 60231381009		003, 6023	1381004, 6	6023138100	5, 6023138	1006, 6023	1381007,			
METHOD BLANK:	1867494		Ν	Matrix: Wa	ter							
Associated Lab Sam		1001, 60231381002 1008, 60231381009		003, 6023	1381004, 6	6023138100	5, 6023138	1006, 6023	1381007,			
Param	eter	Units	Blank Resul		eporting Limit	Analyz	ed	Qualifiers				
Fluoride		mg/L		<0.20	0.20	· ·			_			
LABORATORY CON	ITROL SAMPLE:	1867495										
Param	eter	Units	Spike Conc.	LCS Resu		LCS % Rec	% Rec Limits		alifiers			
Fluoride		mg/L	2.5		2.4	97	90	)-110				
MATRIX SPIKE & M	ATRIX SPIKE DUI	PLICATE: 18674	96		1867497							
Parameter	r Un	60231381001 its Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg	g/L 0.23	2.5	2.5	3.3		123	118	80-120	3	15	M1
MATRIX SPIKE SAM	1PLE:	1867498										
Param	eter	Units	602313 Res		Spike Conc.	MS Result	N % I	IS Rec	% Rec Limits		Quali	fiers
Fluoride		mg/L	·	0.33	2.5	3	3.2	114	80-1	20		

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Project:	TEC C	CR GROUNI	DWATER										
Pace Project No.:	602313	381											
QC Batch:	45659	93		Analys	is Method	EF	PA 300.0						
QC Batch Method:	EPA 3	300.0		Analys	is Descrip	tion: 30	0.0 IC Anio	ns					
Associated Lab Sar	nples:		001, 60231381002 008, 60231381009		003, 6023	1381004, 60	0231381005	5, 6023138 <sup>-</sup>	1006, 6023	1381007,			
METHOD BLANK:	186958	35		Ν	/latrix: Wa	ter							
Associated Lab Sar	nples:		001, 60231381002 008, 60231381009	, 60231381	003, 6023	1381004, 60	0231381005	5, 6023138 <sup>-</sup>	1006, 6023	1381007,			
				Blank	K R	eporting							
Parar	neter		Units	Resu	t	Limit	Analyz	ed	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 CO	NTROL	SAMPLE:	1869586										
				Spike	LCS	3	LCS	% Rec	:				
Parar	neter		Units	Conc.	Resu	ılt '	% Rec	Limits	Qu	alifiers			
Chloride			mg/L	5		4.8	96	90	-110				
Sulfate			mg/L	5		4.8	96	90	-110				
MATRIX SPIKE & N	IATRIX :	SPIKE DUPL	_ICATE: 18695	87		1869588							
				MS	MSD								
			60231381001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	-
_				•	•						RPD	RPD	Qua
Paramete	er	Units		Conc.	Conc.	Result	Result	% Rec	% Rec	Limits			
Chloride	er	mg/L	s Result _ 251	Conc. 125	Conc. 125	Result 404	405	122	123	80-120	0	15	M1
Chloride	er		s Result _ 251	Conc.	Conc.	Result						15 15	M1
Chloride Sulfate		mg/L mg/L	s Result _ 251	Conc. 125	Conc. 125	Result 404	405	122	123	80-120	0	-	M1
Chloride Sulfate		mg/L mg/L	s Result 251 128 1869589	Conc. 125	Conc. 125 125	Result 404 269 Spike	405	122 113 M	123 113 S	80-120 80-120 % Rec	0	15	
Paramete Chloride Sulfate MATRIX SPIKE SA	MPLE:	mg/L mg/L	s <u>Result</u> 251 128	Conc. 125 125	Conc. 125 125 75006	Result 404 269	405 270	122 113	123 113 S	80-120 80-120	0	-	
Chloride Sulfate MATRIX SPIKE SA	MPLE:	mg/L mg/L	s Result 251 128 1869589	Conc. 125 125 602320	Conc. 125 125 75006	Result 404 269 Spike	405 270 MS	122 113 	123 113 S	80-120 80-120 % Rec	000	15	

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Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

<b>Sample: MW-4-110116</b> PWS:	Lab ID: 602313 Site ID:	<b>381001</b> Collected: 11/01/16 08:11 Sample Type:	Received:	11/02/16 16:16	Matrix: Water	
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	7 15262-20-1	
Total Radium	Total Radium Calculation	2.11 ± 1.13 (1.81)	pCi/L	12/01/16 10:58	8 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

<b>Sample: MW-5-110116</b> PWS:	Lab ID: 60231: Site ID:	381002 Collected: 11/01/16 09:23 Sample Type:	Received:	11/02/16 16:16	Matrix: Water	
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	7 15262-20-1	
Total Radium	Total Radium Calculation	1.48 ± 0.898 (1.51)	pCi/L	12/01/16 10:58	8 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

<b>Sample: MW-6-110116</b> PWS:	Lab ID: 60231 Site ID:	381003 Collected: 11/01/16 11:04 Sample Type:	Received:	11/02/16 16:16	Matrix: Water	
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	7 15262-20-1	
Total Radium	Total Radium Calculation	0.688 ± 0.755 (1.38)	pCi/L	12/01/16 10:58	3 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

<b>Sample: MW-1-110116</b> PWS:	Lab ID: 60231 Site ID:	381004 Collected: 11/01/16 12:34 Sample Type:	Received:	11/02/16 16:16	Matrix: Water	
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	3 15262-20-1	
Total Radium	Total Radium Calculation	0.997 ± 0.742 (1.27)	pCi/L	12/01/16 10:58	3 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

<b>Sample: MW-7-110116</b> PWS:	Lab ID: 60231 Site ID:	381005 Collected: 11/01/16 13:41 Sample Type:	Received:	11/02/16 16:16	Matrix: Water	
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	3 15262-20-1	
Total Radium	Total Radium Calculation	0.454 ± 0.629 (1.16)	pCi/L	12/01/16 10:58	3 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

<b>Sample: MW-10-110116</b> PWS:	Lab ID: 602313 Site ID:	81006 Collected: 11/02/16 08:05 Sample Type:	Received:	11/02/16 16:16	Matrix: Water	
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	7 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	8 15262-20-1	
Total Radium	Total Radium Calculation	2.08 ± 1.09 (1.68)	pCi/L	12/01/16 10:58	8 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

<b>Sample: MW-9-110116</b> PWS:	Lab ID: 602313 Site ID:	81007 Collected: 11/02/16 09:32 Sample Type:	Received:	11/02/16 16:16	Matrix: Water	
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	7 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	3 15262-20-1	
Total Radium	Total Radium Calculation	1.58 ± 0.825 (0.946)	pCi/L	12/01/16 10:58	8 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

<b>Sample: MW-8-110116</b> PWS:	Lab ID: 60231 Site ID:	381008 Collected: 11/02/16 11:26 Sample Type:	Received:	11/02/16 16:16	Matrix: Water	
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	7 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	3 15262-20-1	
Total Radium	Total Radium Calculation	1.31 ± 0.783 (1.04)	pCi/L	12/01/16 10:58	3 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

Sample: DUP-110116 PWS:	Lab ID: 60231: Site ID:	<b>381009</b> Collected: 11/01/16 06:00 Sample Type:	Received:	11/02/16 16:16	Matrix: Water	
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 12:4	7 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	8 15262-20-1	
Total Radium	Total Radium Calculation	0.595 ± 0.756 (1.52)	pCi/L	12/01/16 10:5	8 7440-14-4	



## **QUALITY CONTROL - RADIOCHEMISTRY**

Project:	TEC C	CR GROUND	WATER						
Pace Project No.:	602313	381							
QC Batch:	2408	38		Analysis Meth	nod:	EPA 904.0			
QC Batch Method:	EPAS	904.0		Analysis Des	cription:	904.0 Radiu	ım 228		
Associated Lab Sar	mples:	60231381001 60231381008	,	, , ,	0231381004,	, 602313810	05, 60231381006, 602	231381007,	
METHOD BLANK:	118360	)6		Matrix:	Water				
Associated Lab Sar	nples:	60231381001 60231381008	,	, , ,	0231381004,	, 602313810	05, 60231381006, 602	231381007,	
Parar	neter		Act ±	Unc (MDC) Carr Trac		Units	Analyzed	Qualifiers	
Radium-228		0.5	531 ± 0.391	(0.759) C:67% T:82%	6	pCi/L	11/30/16 15:26		

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



## **QUALITY CONTROL - RADIOCHEMISTRY**

Project:		CR GROUNDV	VATER					
Pace Project No.:	602313	381						
QC Batch:	2408	35		Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 9	903.1		Analysis Descrip	ion: 903.1 Radiu	m-226		
Associated Lab Sar	mples:	60231381001 60231381008	,	002, 60231381003, 6023 009	1381004, 6023138100	95, 60231381006, 602	231381007,	
METHOD BLANK:	118359	99		Matrix: Wa	ter			
Associated Lab Sar	mples:	60231381001 60231381008	,	002, 60231381003, 6023 009	1381004, 6023138100	95, 60231381006, 602	231381007,	
Parar	meter		Act ± I	Jnc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.0	00 ± 0.296	(0.663) C:NA T:84%	pCi/L	11/29/16 12:00		

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.



## 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 (%)

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.



# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TEC CCR GROUNDWATER

Pace Project No.: 60231381

B0231381002MV-5-110116EPA 200.7453405EPA 200.7453436B0231381003MV-4-110116EPA 200.7453436EPA 200.7453436B0231381005MV-7-110116EPA 200.7453436EPA 200.7453436B0231381005MV-9-110116EPA 200.7453436EPA 200.7453436B0231381007MV-9-110116EPA 200.7453436EPA 200.7453458B0231381007MV-9-110116EPA 200.7453436EPA 200.7453458B0231381009DUP-110116EPA 200.7453458453691EPA 200.7453458B0231381009DUP-110116EPA 200.8453694EPA 200.8453693B0231381009MV-6-110116EPA 200.8453694EPA 200.8453693B0231381005MV-6-110116EPA 200.8453694EPA 200.8453693B0231381006MV-7-110116EPA 200.8453694EPA 200.8453693B0231381007MV-9-110116EPA 200.8453694EPA 200.8453693B0231381007MV-9-110116EPA 200.8453694EPA 200.8453693B0231381007MV-9-110116EPA 200.8453694EPA 200.8453693B0231381007MV-9-110116EPA 200.8453694EPA 200.8453693B0231381007MV-9-110116EPA 245.1455073455073B0231381008MV-9-110116EPA 245.1455073455073B0231381009MV-9-110116EPA 245.1455073455073B	Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
B023131003MV-4-110116EPA 200.7453405EPA 200.7453458B0231381004MV-4-110116EPA 200.7453405EPA 200.7453458B0231381005MV-7-110116EPA 200.7453405EPA 200.7453458B0231381007MV-9-110116EPA 200.7453405EPA 200.7453458B0231381007MV-9-110116EPA 200.7453405EPA 200.7453458B0231381001MV-9-110116EPA 200.7453458453693453693B0231381001MV-9-110116EPA 200.8453594EPA 200.8453693B0231381002MV-9-110116EPA 200.8453694EPA 200.8453693B0231381004MV-9-110116EPA 200.8453694EPA 200.8453693B0231381005MV-9-110116EPA 200.8453694EPA 200.8453693B0231381006MV-10-110116EPA 200.8453694EPA 200.8453693B0231381007MV-9-110116EPA 200.8453693453693453693B0231381007MV-9-110116EPA 200.8453693453693453693B0231381008MV-4-110116EPA 245.1455073455073455073B0231381009MV-4-110116EPA 245.1455073455073455073B0231381008MV-4-110116EPA 245.1455073455073455073B0231381009MV-4-110116EPA 245.1455073455073455073B0231381009MV-4-110116EPA 245.1455073455073 <td< td=""><td>60231381001</td><td>MW-4-110116</td><td>EPA 200.7</td><td>453405</td><td>EPA 200.7</td><td>453458</td></td<>	60231381001	MW-4-110116	EPA 200.7	453405	EPA 200.7	453458
B0231381004 B0231381005 B014-110116EPA 200.7453405 453405EPA 200.7453405 	60231381002	MW-5-110116	EPA 200.7	453405	EPA 200.7	453458
B0231381005MW-7-110116EPA 20.7453405EPA 20.7453405B0231381006MW-4-110116EPA 20.7453405EPA 20.7453405B0231381007MW-4-110116EPA 20.7453405EPA 20.7453405B0231381007MW-4-110116EPA 20.7453405EPA 20.7453405B0231381007MW-4-110116EPA 20.0.8453694EPA 20.8453693B0231381001MW-4-110116EPA 20.8453694EPA 20.8453693B0231381002MW-4-110116EPA 20.8453694EPA 20.8453693B0231381004MW-1-110116EPA 20.8453694EPA 20.8453693B0231381005MW-1-110116EPA 20.8453694EPA 20.8453693B0231381005MW-1-110116EPA 20.8453694EPA 20.8453693B0231381006MW-1-110116EPA 20.8453694EPA 20.8453693B0231381007MW-8-110116EPA 20.8453694EPA 20.8453693B0231381007MW-8-110116EPA 245.1455023EPA 245.1455073B0231381007MW-8-110116EPA 245.1455023EPA 245.1455073B0231381007MW-9-110116EPA 245.1455023EPA 245.1455073B0231381007MW-9-110116EPA 245.1455023EPA 245.1455073B0231381007MW-9-110116EPA 245.1455023EPA 245.1455073B0231381007MW-9-110116EPA 245.1455023EPA 245.1455073	60231381003	MW-6-110116	EPA 200.7	453405	EPA 200.7	453458
S0221381006MW-10-110116EPA 200.7453405EPA 200.7453458S0221381007MW-9-110116EPA 200.7453405EPA 200.7453405S0221381008DUP-110116EPA 200.7453405EPA 200.7453495S0221381008MW-4-110116EPA 200.8453594EPA 200.8453693S0221381008MW-4-110116EPA 200.8453594EPA 20.8453693S0221381007MW-5-110116EPA 200.8453594EPA 20.8453693S0221381005MW-7-110116EPA 200.8453694EPA 20.8453693S0221381005MW-7-110116EPA 200.8453694EPA 20.8453693S0221381006MW-7-110116EPA 200.8453694EPA 20.8453693S0221381006MW-7-110116EPA 200.8453694EPA 20.8453693S0221381007MW-9-110116EPA 20.8453694EPA 20.8453693S0221381007MW-9-110116EPA 245.1455023EPA 245.1455073S0221381009DUP-110116EPA 245.1455023EPA 245.1455073S0221381009DUP-110116EPA 245.1455023EPA 245.1455073S0221381009MW-7-110116EPA 245.1455023EPA 245.1455073S0221381009MW-7-110116EPA 245.1455023EPA 245.1455073S0221381009MW-7-110116EPA 245.1455023EPA 245.1455073S0221381009MW-7-110116EPA 245.1455023EPA 245.1 <td>60231381004</td> <td>MW-1-110116</td> <td>EPA 200.7</td> <td>453405</td> <td>EPA 200.7</td> <td>453458</td>	60231381004	MW-1-110116	EPA 200.7	453405	EPA 200.7	453458
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S0231381006MW-8-110116EPA 200.7453.405EPA 200.7453.445S0231381001MW-4-110116EPA 200.8453594EPA 200.8453693S0231381002MW-5-110116EPA 200.8453594EPA 200.8453693S0231381003MW-6-110116EPA 200.8453594EPA 200.8453693S0231381004MW-1-110116EPA 200.8453594EPA 200.8453693S0231381005MW-7-110116EPA 200.8453594EPA 200.8453693S0231381007MW-9-110116EPA 200.8453594EPA 200.8453693S0231381007MW-9-110116EPA 200.8453594EPA 200.8453693S0231381007MW-9-110116EPA 200.8453594EPA 200.8453693S0231381003DUF-110116EPA 245.1455023EPA 245.1455073S0231381004MW-4-110116EPA 245.1455023EPA 245.1455073S0231381005MW-7-110116EPA 245.1455023EPA 245.1455073S0231381005MW-7-110116EPA 245.1455023EPA 245.1455073S0231381005MW-7-110116EPA 245.1455023EPA 245.1455073S0231381006MW-8-110116EPA 245.1455023EPA 245.1455073S0231381006MW-8-110116EPA 245.1455023EPA 245.1455073S0231381005MW-7-110116EPA 903.124083555S0231381005MW-8-110116EPA 903.124083555 <td>60231381006</td> <td>MW-10-110116</td> <td>EPA 200.7</td> <td>453405</td> <td>EPA 200.7</td> <td>453458</td>	60231381006	MW-10-110116	EPA 200.7	453405	EPA 200.7	453458
30231381009         DUP-110116         EPA 200.7         453405         EPA 200.7         453405           30231381001         MW-4-110116         EPA 200.8         453594         EPA 200.8         453693           30231381003         MW-6-110116         EPA 200.8         453594         EPA 200.8         453693           30231381004         MW-1-110116         EPA 200.8         453594         EPA 200.8         453693           30231381005         MW-7-110116         EPA 200.8         453594         EPA 200.8         453693           30231381005         MW-10-110116         EPA 200.8         453594         EPA 200.8         453693           30231381006         MW-8-110116         EPA 200.8         453594         EPA 200.8         453693           30231381007         MW-8-110116         EPA 200.8         453594         EPA 200.8         453693           30231381008         MW-4-110116         EPA 245.1         455023         EPA 245.1         455073           30231381008         MW-7-110116         EPA 245.1         455023         EPA 245.1         455073           30231381005         MW-7-110116         EPA 245.1         455073         EPA 245.1         455073           30231381005         MW-7-110116	60231381007	MW-9-110116	EPA 200.7	453405	EPA 200.7	453458
S0231381001         MW-4-110116         EPA 200.8         453594         EPA 200.8         453693           S0231381002         MW-5-110116         EPA 200.8         453594         EPA 200.8         453693           S0231381003         MW-6-110116         EPA 200.8         453594         EPA 200.8         453693           S0231381005         MW-7-110116         EPA 200.8         453594         EPA 200.8         453693           S0231381007         MW-0-110116         EPA 200.8         453594         EPA 200.8         453693           S0231381007         MW-0-110116         EPA 200.8         453594         EPA 200.8         453693           S0231381007         MW-0-110116         EPA 200.8         453594         EPA 200.8         453693           S0231381007         MW-4-110116         EPA 20.9         453594         EPA 200.8         453693           S0231381002         MW-5-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381002         MW-4-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381004         MW-1-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381004         MW-1-110116         <	60231381008	MW-8-110116	EPA 200.7	453405	EPA 200.7	453458
S0233381002NW-5-110116EPA 200.8453894EPA 200.8453893S0231381004NW-6-110116EPA 200.8453894EPA 200.8453893S0231381005NW-7-110116EPA 200.8453894EPA 200.8453893S0231381005MW-6-110116EPA 200.8453894EPA 200.8453893S0231381006MW-6-110116EPA 200.8453894EPA 200.8453893S0231381007MW-9-110116EPA 200.8453894EPA 200.8453893S0231381009DUP-110116EPA 200.8453894EPA 200.8453893S0231381001MW-4-110116EPA 245.1455023EPA 245.1455073S0231381002MW-5-110116EPA 245.1455023EPA 245.1455073S0231381004MW-1-110116EPA 245.1455023EPA 245.1455073S0231381005MW-7-110116EPA 245.1455023EPA 245.1455073S0231381006MW-0-110116EPA 245.1455023EPA 245.1455073S0231381007MW-8-110116EPA 245.1455023EPA 245.1455073S0231381007MW-8-110116EPA 245.1240835455073S0231381008MW-8-110116EPA 903.1240835455073S0231381004MW-4-110116EPA 903.1240835455073S0231381005MW-7-110116EPA 903.1240835455073S0231381004MW-4-110116EPA 903.1240835455073S0231381005MW-7-110116EPA 904.0 </td <td>60231381009</td> <td>DUP-110116</td> <td>EPA 200.7</td> <td>453405</td> <td>EPA 200.7</td> <td>453458</td>	60231381009	DUP-110116	EPA 200.7	453405	EPA 200.7	453458
00231381003NW-6-110116EPA 200.8453594EPA 200.84536930231381004MW-1-110116EPA 200.8453594EPA 200.84536930231381005MW-10-110116EPA 200.8453594EPA 200.84536930231381005MW-9-110116EPA 200.8453594EPA 200.84536930231381005MW-9-110116EPA 200.8453594EPA 200.84536930231381009DUP-110116EPA 200.8453594EPA 200.84536930231381001MW-4-110116EPA 245.1455023EPA 245.14550730231381003MW-6-110116EPA 245.1455023EPA 245.14550730231381004MW-1-110116EPA 245.1455023EPA 245.14550730231381005MW-7-110116EPA 245.1455023EPA 245.14550730231381005MW-7-110116EPA 245.1455023EPA 245.14550730231381005MW-4-110116EPA 245.1455023EPA 245.14550730231381005MW-4-110116EPA 245.1455023EPA 245.14550730231381005MW-4-110116EPA 303.12408355451734550730231381005MW-4-110116EPA 303.12408355451734550730231381005MW-4-110116EPA 303.12408355451734550730231381005MW-4-110116EPA 903.12408355451734550730231381005MW-4-110116EPA 903.124083554517355073<	0231381001	MW-4-110116	EPA 200.8	453594	EPA 200.8	453693
S0231381003MW-6-110116EPA 200.8453594EPA 200.8453693S0231381005MW-7-110116EPA 200.8453594EPA 200.8453693S0231381005MW-7-110116EPA 200.8453594EPA 200.8453693S0231381005MW-9-110116EPA 200.8453594EPA 200.8453693S0231381005MW-9-110116EPA 200.8453594EPA 200.8453693S0231381005MW-9-110116EPA 200.8453594EPA 200.8453693S0231381005MW-4-110116EPA 245.1455023EPA 245.1455073S0231381003MW-6-110116EPA 245.1455023EPA 245.1455073S0231381004MW-1-110116EPA 245.1455023EPA 245.1455073S0231381005MW-7-110116EPA 245.1455023EPA 245.1455073S0231381005MW-7-110116EPA 245.1455023EPA 245.1455073S0231381005MW-4-110116EPA 245.1455023EPA 245.1455073S0231381005MW-4-110116EPA 245.1455023EPA 245.1455073S0231381005MW-4-110116EPA 903.1240835455073455073S0231381005MW-4-110116EPA 903.1240835455073S0231381005MW-4-110116EPA 903.1240835455073S0231381005MW-4-110116EPA 903.1240835455073S0231381005MW-4-110116EPA 903.1240835455073S0231381005MW-4-110116 <td>60231381002</td> <td>MW-5-110116</td> <td>EPA 200.8</td> <td>453594</td> <td>EPA 200.8</td> <td>453693</td>	60231381002	MW-5-110116	EPA 200.8	453594	EPA 200.8	453693
00231381004       NW-1-110116       EPA 200.8       453694       EPA 200.8       453693         00231381005       MW-7-110116       EPA 200.8       453594       EPA 200.8       453693         00231381007       MW-9-110116       EPA 200.8       453694       EPA 200.8       453693         00231381007       MW-9-110116       EPA 200.8       453694       EPA 200.8       453693         00231381009       DUP-110116       EPA 200.8       453694       EPA 200.8       453693         00231381002       MW-4-110116       EPA 200.8       453693       EPA 245.1       455073         00231381002       MW-4-110116       EPA 245.1       455023       EPA 245.1       455073         00231381003       MW-4-110116       EPA 245.1       455023       EPA 245.1       455073         00231381004       MW-1-110116       EPA 245.1       455073       EPA 245.1       455073         00231381005       MW-1-110116       EPA 245.1       455073       EPA 245.1       455073         00231381007       MW-9-110116       EPA 245.1       455073       EPA 245.1       455073         00231381006       MW-1-110116       EPA 245.1       455073       EPA 245.1       455073         00231381007<	0231381003	MW-6-110116				
0231381005         NW-7-110116         EPA 200.8         453594         EPA 200.8         453693           0231381006         NW-10-110116         EPA 200.8         453594         EPA 200.8         453693           0231381007         NW-8-110116         EPA 200.8         453594         EPA 200.8         453693           0231381008         NW-8-110116         EPA 200.8         453594         EPA 200.8         453693           0231381009         DUP-110116         EPA 200.8         453694         EPA 200.8         453693           0231381001         MW-8-110116         EPA 245.1         455023         EPA 245.1         455073           0231381003         MW-6-110116         EPA 245.1         455023         EPA 245.1         455073           0231381004         MW-1-110116         EPA 245.1         455023         EPA 245.1         455073           0231381005         MW-7-110116         EPA 245.1         455023         EPA 245.1         455073           0231381006         MW-4-110116         EPA 245.1         455023         EPA 245.1         455073           0231381004         MW-4-110116         EPA 903.1         240835         245.1         455073           0231381005         MW-7-110116         EPA 903.1 <td>0231381004</td> <td>MW-1-110116</td> <td></td> <td></td> <td></td> <td></td>	0231381004	MW-1-110116				
0231381006       MW-10-110116       EPA 200.8       453594       EPA 200.8       453693         0231381007       MW-9-110116       EPA 200.8       453594       EPA 200.8       453693         0231381008       MW-8-110116       EPA 200.8       453594       EPA 200.8       453693         0231381001       MW-4-110116       EPA 200.8       453594       EPA 200.8       453693         0231381001       MW-4-110116       EPA 245.1       455023       EPA 245.1       455073         0231381002       MW-5-110116       EPA 245.1       455023       EPA 245.1       455073         0231381003       MW-6-110116       EPA 245.1       455023       EPA 245.1       455073         0231381004       MW-1-110116       EPA 245.1       455023       EPA 245.1       455073         0231381005       MW-7-110116       EPA 245.1       455023       EPA 245.1       455073         0231381006       MW-8-110116       EPA 245.1       455023       EPA 245.1       455073         0231381007       MW-8-110116       EPA 245.1       455023       EPA 245.1       455073         0231381007       MW-8-110116       EPA 903.1       240835       240835       223138103       MW-6-110116       EPA 903.1						
50231381007       MW-9-110116       EPA 200.8       453594       EPA 200.8       453693         50231381008       MW-8-110116       EPA 200.8       453594       EPA 200.8       453693         50231381009       DUP-110116       EPA 200.8       453594       EPA 200.8       453693         50231381002       MW-8-110116       EPA 245.1       455023       EPA 245.1       455073         50231381002       MW-6-110116       EPA 245.1       455023       EPA 245.1       455073         50231381003       MW-6-110116       EPA 245.1       455023       EPA 245.1       455073         50231381006       MW-7-110116       EPA 245.1       455023       EPA 245.1       455073         50231381006       MW-9-110116       EPA 245.1       455023       EPA 245.1       455073         50231381007       MW-9-110116       EPA 245.1       455023       EPA 245.1       455073         50231381008       MW-8-110116       EPA 245.1       455023       EPA 245.1       455073         50231381009       DUP-110116       EPA 245.1       455073       EPA 245.1       455073         50231381001       MW-4-10116       EPA 245.1       455023       EPA 245.1       455073         50231381002 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
S0231381008         MW-8-110116         EPA 200.8         453594         EPA 200.8         453693           S0231381009         DUP-110116         EPA 200.8         453594         EPA 200.8         453693           S0231381001         MW-4-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381003         MW-6-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381004         MW-1-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381005         MW-7-110116         EPA 245.1         455073         EPA 245.1         455073           S0231381006         MW-10-110116         EPA 245.1         455073         EPA 245.1         455073           S0231381007         MW-9-110116         EPA 245.1         455073         EPA 245.1         455073           S0231381009         DUP-110116         EPA 245.1         455073         EPA 245.1         455073           S0231381000         MW-4-110116         EPA 245.1         455073         EPA 245.1         455073           S0231381000         MW-4-110116         EPA 903.1         240835         EPA 245.1         455073           S0231381000         MW-4-110116         <						
50231381009         DUP-110116         EPA 200.8         453594         EPA 200.8         453693           50231381001         MW-4-110116         EPA 245.1         455023         EPA 245.1         455073           50231381002         MW-5-110116         EPA 245.1         455023         EPA 245.1         455073           50231381003         MW-6-110116         EPA 245.1         455023         EPA 245.1         455073           50231381004         MW-1-110116         EPA 245.1         455023         EPA 245.1         455073           50231381005         MW-7-110116         EPA 245.1         455023         EPA 245.1         455073           50231381007         MW-9-110116         EPA 245.1         455023         EPA 245.1         455073           50231381008         MW-9-110116         EPA 245.1         455023         EPA 245.1         455073           50231381008         MW-9-110116         EPA 245.1         455073         240835         2231381003         MW-9-110116         240835           50231381001         MW-9-110116         EPA 903.1         240835         245.1         455073           50231381003         MW-6-110116         EPA 903.1         240835         245.1         455073           502313810						
S0231381002         MW-5-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381003         MW-6-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381004         MW-1-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381006         MW-7-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381006         MW-9-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381007         MW-9-110116         EPA 245.1         455073         EPA 245.1         455073           S0231381008         MW-8-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381009         DUP-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381002         MW-8-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381002         MW-5-110116         EPA 903.1         240835         50231381006         MW-7-110116         EPA 903.1         240835         50231381006         MW-4-110116         EPA 903.1         240835         50231381006         MW-4-110116         EPA 903.1         2						
S0231381002         MW-5-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381003         MW-6-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381004         MW-1-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381006         MW-7-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381006         MW-9-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381007         MW-9-110116         EPA 245.1         455073         EPA 245.1         455073           S0231381008         MW-8-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381009         DUP-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381002         MW-8-110116         EPA 245.1         455023         EPA 245.1         455073           S0231381002         MW-5-110116         EPA 903.1         240835         50231381006         MW-7-110116         EPA 903.1         240835         50231381006         MW-4-110116         EPA 903.1         240835         50231381006         MW-4-110116         EPA 903.1         2	60231381001	MW-4-110116	EPA 245.1	455023	EPA 245.1	455073
30231381003       MW-6-110116       EPA 245.1       455023       EPA 245.1       455073         30231381004       MW-1-110116       EPA 245.1       455023       EPA 245.1       455073         30231381005       MW-7-110116       EPA 245.1       455023       EPA 245.1       455073         30231381006       MW-9-110116       EPA 245.1       455023       EPA 245.1       455073         30231381007       MW-9-110116       EPA 245.1       455023       EPA 245.1       455073         30231381008       MW-8-110116       EPA 245.1       455023       EPA 245.1       455073         30231381009       DUP-110116       EPA 245.1       455023       EPA 245.1       455073         30231381001       MW-8-110116       EPA 903.1       240835       245.1       455073         30231381002       MW-5-110116       EPA 903.1       240835       240836       240835       240835						
0231381004       MW-1-110116       EPA 245.1       455023       EPA 245.1       455073         0231381005       MW-7-110116       EPA 245.1       455023       EPA 245.1       455073         0231381007       MW-9-110116       EPA 245.1       455023       EPA 245.1       455073         0231381007       MW-9-110116       EPA 245.1       455023       EPA 245.1       455073         0231381008       MW-8-110116       EPA 245.1       455023       EPA 245.1       455073         0231381009       DUP-110116       EPA 245.1       455023       EPA 245.1       455073         0231381001       MW-8-110116       EPA 903.1       240835       245.1       455073         0231381002       MW-5-110116       EPA 903.1       240835 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
00231381005       MW-7-110116       EPA 245.1       455023       EPA 245.1       455073         00231381006       MW-0-110116       EPA 245.1       455023       EPA 245.1       455073         00231381007       MW-9-110116       EPA 245.1       455023       EPA 245.1       455073         00231381008       MW-8-10116       EPA 245.1       455023       EPA 245.1       455073         00231381009       DUP-110116       EPA 245.1       455023       EPA 245.1       455073         00231381001       MW-4-110116       EPA 245.1       455023       EPA 245.1       455073         00231381002       MW-5-110116       EPA 903.1       240835						
30231381006       MW-10-110116       EPA 245.1       455023       EPA 245.1       455073         30231381007       MW-9-110116       EPA 245.1       455023       EPA 245.1       455073         30231381008       MW-8-110116       EPA 245.1       455023       EPA 245.1       455073         30231381009       DUP-110116       EPA 245.1       455023       EPA 245.1       455073         30231381009       DUP-110116       EPA 245.1       455023       EPA 245.1       455073         30231381001       MW-4-110116       EPA 903.1       240835       EPA 245.1       455073         30231381004       MW-5-110116       EPA 903.1       240835       EPA 245.1       455073         30231381005       MW-7-110116       EPA 903.1       240835       EPA 245.1       455073         30231381006       MW-1-110116       EPA 903.1       240835       EPA 245.1       EPA 245.1         30231381007       MW-9-110116       EPA 903.1       240835       EPA 245.1       EPA 245.1         30231381008       MW-8-10116       EPA 904.0       240835       EPA 245.1       EPA 245.1         30231381009       DUP-110116       EPA 904.0       240838       EPA 240835       EPA 245.1       EPA 240835						
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30231381008       MW-8-110116       EPA 245.1       455023       EPA 245.1       455073         30231381009       DUP-110116       EPA 245.1       455023       EPA 245.1       455073         30231381001       MW-4-110116       EPA 903.1       240835       240835       455073         30231381002       MW-5-110116       EPA 903.1       240835       455073       455073         30231381003       MW-6-110116       EPA 903.1       240835       455073       455073         30231381004       MW-110116       EPA 903.1       240835       455073       455073         30231381005       MW-7-110116       EPA 903.1       240835       455073       455073         30231381006       MW-10-110116       EPA 903.1       240835       455073       455073         30231381008       MW-8-110116       EPA 903.1       240835       455073       455073         30231381008       MW-8-110116       EPA 903.1       240835       455073       455073         30231381009       DUP-110116       EPA 904.0       240838       455073       455073         30231381002       MW-8-110116       EPA 904.0       240838       455073       455073         30231381005       MW-7-110116						
S0231381009       DUP-110116       EPA 245.1       455023       EPA 245.1       455073         S0231381001       MW-4-110116       EPA 903.1       240835						
S0231381002       MW-5-110116       EPA 903.1       240835         S0231381003       MW-6-110116       EPA 903.1       240835         S0231381004       MW-1-110116       EPA 903.1       240835         S0231381005       MW-7-110116       EPA 903.1       240835         S0231381006       MW-7-110116       EPA 903.1       240835         S0231381006       MW-10-110116       EPA 903.1       240835         S0231381007       MW-9-110116       EPA 903.1       240835         S0231381008       MW-8-110116       EPA 903.1       240835         S0231381009       DUP-110116       EPA 903.1       240835         S0231381008       MW-8-110116       EPA 903.1       240835         S0231381001       MW-4-110116       EPA 904.0       240838         S0231381002       MW-5-110116       EPA 904.0       240838         S0231381003       MW-6-110116       EPA 904.0       240838         S0231381005       MW-7-110116       EPA 904.0       240838         S0231381005       MW-7-110116       EPA 904.0       240838         S0231381006       MW-10-110116       EPA 904.0       240838         S0231381007       MW-8-110116       EPA 904.0       240838						
S0231381002       MW-5-110116       EPA 903.1       240835         S0231381003       MW-6-110116       EPA 903.1       240835         S0231381004       MW-1-110116       EPA 903.1       240835         S0231381005       MW-7-110116       EPA 903.1       240835         S0231381006       MW-7-110116       EPA 903.1       240835         S0231381006       MW-10-110116       EPA 903.1       240835         S0231381007       MW-9-110116       EPA 903.1       240835         S0231381008       MW-8-110116       EPA 903.1       240835         S0231381009       DUP-110116       EPA 903.1       240835         S0231381008       MW-8-110116       EPA 903.1       240835         S0231381001       MW-4-110116       EPA 904.0       240838         S0231381002       MW-5-110116       EPA 904.0       240838         S0231381003       MW-6-110116       EPA 904.0       240838         S0231381005       MW-7-110116       EPA 904.0       240838         S0231381005       MW-7-110116       EPA 904.0       240838         S0231381006       MW-10-110116       EPA 904.0       240838         S0231381007       MW-8-110116       EPA 904.0       240838	60231381001	MW-4-110116	EPA 903.1	240835		
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30231381006MW-10-110116EPA 903.124083530231381007MW-9-110116EPA 903.124083530231381008MW-8-110116EPA 903.124083530231381009DUP-110116EPA 903.124083530231381001MW-4-110116EPA 904.024083830231381002MW-5-110116EPA 904.024083830231381003MW-6-110116EPA 904.024083830231381004MW-1-110116EPA 904.024083830231381005MW-7-110116EPA 904.024083830231381006MW-10-110116EPA 904.024083830231381007MW-9-110116EPA 904.024083830231381008MW-8-110116EPA 904.024083830231381009DUP-110116EPA 904.0240838						
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30231381008MW-8-110116EPA 903.124083530231381009DUP-110116EPA 903.124083530231381001MW-4-110116EPA 904.024083830231381002MW-5-110116EPA 904.024083830231381003MW-6-110116EPA 904.024083830231381004MW-1-110116EPA 904.024083830231381005MW-7-110116EPA 904.024083830231381006MW-10-110116EPA 904.024083830231381007MW-9-110116EPA 904.024083830231381008MW-8-110116EPA 904.024083830231381009DUP-110116EPA 904.0240838						
50231381009DUP-110116EPA 903.124083550231381001MW-4-110116EPA 904.024083850231381002MW-5-110116EPA 904.024083850231381003MW-6-110116EPA 904.024083850231381004MW-1-110116EPA 904.024083850231381005MW-7-110116EPA 904.024083850231381006MW-10-110116EPA 904.024083850231381007MW-9-110116EPA 904.024083850231381008MW-8-110116EPA 904.024083850231381009DUP-110116EPA 904.0240838						
50231381002MW-5-110116EPA 904.024083850231381003MW-6-110116EPA 904.024083850231381004MW-1-110116EPA 904.024083850231381005MW-7-110116EPA 904.024083850231381006MW-10-110116EPA 904.024083850231381007MW-9-110116EPA 904.024083850231381008MW-8-110116EPA 904.024083850231381009DUP-110116EPA 904.0240838						
50231381002MW-5-110116EPA 904.024083850231381003MW-6-110116EPA 904.024083850231381004MW-1-110116EPA 904.024083850231381005MW-7-110116EPA 904.024083850231381006MW-10-110116EPA 904.024083850231381007MW-9-110116EPA 904.024083850231381008MW-8-110116EPA 904.024083850231381009DUP-110116EPA 904.0240838	60231381001	MW-4-110116	EPA 904 0	240838		
60231381003MW-6-110116EPA 904.024083860231381004MW-1-110116EPA 904.024083860231381005MW-7-110116EPA 904.024083860231381006MW-10-110116EPA 904.024083860231381007MW-9-110116EPA 904.024083860231381008MW-8-110116EPA 904.024083860231381009DUP-110116EPA 904.0240838						
30231381004MW-1-110116EPA 904.024083830231381005MW-7-110116EPA 904.024083830231381006MW-10-110116EPA 904.024083830231381007MW-9-110116EPA 904.024083830231381008MW-8-110116EPA 904.024083830231381009DUP-110116EPA 904.0240838						
60231381005MW-7-110116EPA 904.024083860231381006MW-10-110116EPA 904.024083860231381007MW-9-110116EPA 904.024083860231381008MW-8-110116EPA 904.024083860231381009DUP-110116EPA 904.0240838						
30231381006MW-10-110116EPA 904.024083830231381007MW-9-110116EPA 904.024083830231381008MW-8-110116EPA 904.024083830231381009DUP-110116EPA 904.0240838						
\$0231381007MW-9-110116EPA 904.0240838\$0231381008MW-8-110116EPA 904.0240838\$0231381009DUP-110116EPA 904.0240838						
S0231381008         MW-8-110116         EPA 904.0         240838           S0231381009         DUP-110116         EPA 904.0         240838						
50231381009         DUP-110116         EPA 904.0         240838						
	60231381001	MW-4-110116	Total Radium Calculation	241944		



## 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 60231381009	MW-8-110116 DUP-110116	Total Radium Calculation Total Radium Calculation	241944 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		



# 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		

$\sim$		WO#:60231381
Pace Analytical Sample Condition U	pon Receipt	60231381
		Hmu
Client Name: Wester Enurgy		
,		Pace Xroads Client Other
Tracking #: Pac Custody Seal on Cooler/Box Present: Yes	e Shipping Label Used Seals intact: Yes	
Packing Material: Bubble Wrap  Bubble Bags	societics weight State	None Other D
CE/29-7 CF -0.5	Ice: Wet Blue No	
Cooler Temperature (°C): As-read 0.7/2.9 Corr. Factor	or CF -0.5 Correct	ted $/ \frac{1}{4}/3.6$ examining contents:
Temperature should be above freezing to 6°C	-	PV10 PV11/3/16
Chain of Custody present:		
Chain of Custody relinquished:		
Samples arrived within holding time:		
Short Hold Time analyses (<72hr):		۳H
Rush Turn Around Time requested:		
Sufficient volume:		
Correct containers used:		
Pace containers used:		
Containers intact:		
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?		
Filtered volume received for dissolved tests?		
Sample labels match COC: Date / time / ID / analyses		
Samples contain multiple phases? Matrix: VT		
Containers requiring pH preservation in compliance? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCI<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	Yes No IN/A	
Cyanide water sample checks: AN/A 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 ØN/A	
Samples from USDA Regulated Area: State:		
Additional labels attached to 5035A / TX1005 vials in the field	//	
Client Notification/ Resolution: Copy COC to		Field Data Required? Y / N
Person Contacted: Date/T Comments/ Resolution:	ime:	
Project Manager Review:	Date	e: 11/3/11/2

Pace Analytical

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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.

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**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,

Autor m. Wilson

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.: 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

## 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 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

Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587 Missouri Certification: 10070



# 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



# 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
0234340004	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
0234340005	DUP-121316	EPA 200.7	JGP	7	PASI-K



# 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



Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

## Method: EPA 200.7

Description:200.7 Metals, TotalClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

## Method: EPA 200.8

Description:200.8 MET ICPMSClient:WESTAR ENERGYDate: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:



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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

# Method: EPA 903.1

Description:903.1 Radium 226Client:WESTAR ENERGYDate: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:



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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

#### Method: Total Radium Calculation

Description:Total Radium 228+226Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

#### Method: SM 2540C

Description:2540C Total Dissolved SolidsClient:WESTAR ENERGYDate: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:**



## **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:



## **PROJECT NARRATIVE**

Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

Method:EPA 300.0Description:300.0 IC Anions 28 DaysClient:WESTAR ENERGYDate: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.



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

Sample: MW-4-121316	Lab ID: 602	234340001	Collected: 12/1	3/16 09:08	8 Received: 12	/14/16 16:10	Matrix: Water	
Parameters	Results	Units	Report Limi	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	hod: EPA 20	0.7 Preparation N	lethod: El	PA 200.7			
Barium, Total Recoverable	0.12	mg/L	0.005	0 1	12/21/16 15:15	12/28/16 18:14	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.001	01	12/21/16 15:15	12/28/16 18:14	7440-41-7	
Boron, Total Recoverable	<0.10	mg/L	0.1	01	12/21/16 15:15			
Calcium, Total Recoverable	183	mg/L	0.1	01	12/21/16 15:15			
Chromium, Total Recoverable	<0.0050	mg/L	0.005	01	12/21/16 15:15	12/28/16 18:14	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.005	01	12/21/16 15:15	12/28/16 18:14	7439-92-1	
Lithium	<0.010	mg/L	0.01	01	12/21/16 15:15	12/28/16 18:14	7439-93-2	
200.8 MET ICPMS	Analytical Met	hod: EPA 20	0.8 Preparation N	lethod: El	PA 200.8			
Antimony, Total Recoverable	<0.0010	mg/L	0.001	0 1	12/21/16 15:15	12/29/16 15:05	5 7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.001	0 1	12/21/16 15:15	12/29/16 15:05	5 7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.0005	0 1	12/21/16 15:15	12/29/16 15:05	5 7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.001	0 1	12/21/16 15:15	12/29/16 15:05	5 7440-48-4	
Molybdenum, Total Recoverable	<0.0010	mg/L	0.001	0 1	12/21/16 15:15	12/29/16 15:05	5 7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.001	0 1	12/21/16 15:15	12/29/16 15:05	5 7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.001	01	12/21/16 15:15	12/29/16 15:05	5 7440-28-0	
245.1 Mercury	Analytical Met	hod: EPA 24	5.1 Preparation N	lethod: El	PA 245.1			
Mercury	<0.00020	mg/L	0.0002	01	12/19/16 16:15	12/20/16 09:36	5 7439-97-6	
2540C Total Dissolved Solids	Analytical Met	hod: SM 254	10C					
Total Dissolved Solids	935	mg/L	5.	01		12/16/16 10:23	3	
4500H+ pH, Electrometric	Analytical Met	hod: SM 450	)0-H+B					
pH at 25 Degrees C	7.3	Std. Units	0.1	01		12/23/16 13:32	2	H6
300.0 IC Anions 28 Days	Analytical Met	hod: EPA 30	0.0					
Chloride	268	mg/L	20.	0 20		01/04/17 15:56	6 16887-00-6	
Fluoride	0.24	mg/L	0.2	0 1		01/03/17 15:35	5 16984-48-8	
Sulfate	142	mg/L	20.	0 20		01/04/17 15:56	6 14808-79-8	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

Sample: MW-5-121316	Lab ID: 602	34340002	Collected: 12/13/2	16 11:05	Received: 12	2/14/16 16:10 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	hod: EPA 20	0.7 Preparation Me	thod: EF	PA 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 Met	hod: EPA 20	0.8 Preparation Me	thod: EF	PA 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 Met	hod: EPA 24	5.1 Preparation Me	thod: EF	PA 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 Met	hod: SM 254	OC					
Total Dissolved Solids	1620	mg/L	5.0	1		12/16/16 10:23		
4500H+ pH, Electrometric	Analytical Met	hod: SM 450	0-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 Met	hod: EPA 30	0.0					
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		



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

Sample: MW-6-121316	Lab ID: 602	34340003	Collected: 12/13/	16 13:02	Received: 12	2/14/16 16:10	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	hod: EPA 20	0.7 Preparation Me	thod: EF	PA 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	5 7440-41-7	
Boron, Total Recoverable	1.0	mg/L	0.10	1	12/21/16 15:15	12/28/16 18:36	5 7440-42-8	
Calcium, Total Recoverable	302	mg/L	0.10	1	12/21/16 15:15	12/28/16 18:36	5 7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	12/21/16 15:15	12/28/16 18:36	5 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 Met	hod: EPA 20	0.8 Preparation Me	thod: EF	PA 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 Met	hod: EPA 24	5.1 Preparation Me	thod: EF	PA 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 Met	hod: SM 254	0C					
Total Dissolved Solids	1620	mg/L	5.0	1		12/16/16 10:24	ļ	
4500H+ pH, Electrometric	Analytical Met	hod: SM 450	0-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 Met	hod: EPA 30	0.0					
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	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

Sample: MW-1-121316	Lab ID: 602	34340004	Collected: 12/13/2	16 15:00	6 Received: 12	2/14/16 16:10 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	hod: EPA 20	0.7 Preparation Me	thod: El	PA 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		12/28/16 18:40	-	
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 Met	hod: EPA 20	0.8 Preparation Me	thod: El	PA 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 Met	hod: EPA 24	5.1 Preparation Me	thod: El	PA 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 Met	hod: SM 254	40C					
Total Dissolved Solids	937	mg/L	5.0	1		12/16/16 10:24		
4500H+ pH, Electrometric	Analytical Met	hod: SM 450	)0-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 Met	hod: EPA 30	0.0					
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	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

## 34340

Sample: DUP-121316	Lab ID: 60	234340005	Collected: 12/13/1	6 06:00	Received: 12	2/14/16 16:10 M	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	ethod: EPA 20	0.7 Preparation Met	hod: Ef	PA 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 Me	thod: EPA 20	0.8 Preparation Met	hod: EF	PA 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 Me	ethod: EPA 24	5.1 Preparation Met	hod: EF	PA 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 Me	ethod: SM 254	-0C					
Total Dissolved Solids	928	mg/L	5.0	1		12/16/16 10:25		
4500H+ pH, Electrometric	Analytical Me	ethod: SM 450	0-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 Me	ethod: EPA 30	0.0					
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	
		U U						



Project: Pace Project No.:	TEC C 602343	CR GROUNDW. 340	ATER										
QC Batch:	45952			Analys	sis Method	: E	PA 245.1						
QC Batch Method:	EPA 2	245.1		Analys	sis Descrip	tion: 2	45.1 Mercury	/					
Associated Lab San	nples:	60234340001,	60234340002	, 60234340	0003, 6023	4340004, 6	60234340005	i					
METHOD BLANK:	188150	03		٦	Matrix: Wa	ter							
Associated Lab San	nples:	60234340001,	60234340002	, 60234340	0003, 6023	4340004, 6	60234340005	i					
				Blank	k R	Reporting							
Paran	neter		Units	Resu	lt	Limit	Analyz	ed	Qualifiers				
Mercury			mg/L	<0.0	00020	0.00020	) 12/20/16 (	09:20					
LABORATORY COM	NTROL	SAMPLE: 188	1504										
Paran	neter		Units	Spike Conc.	LCS Resi		LCS % Rec	% Rec Limits		ualifiers			
Mercury			mg/L	.005	5 0	).0048	96	85	5-115				
MATRIX SPIKE & M	IATRIX		TE: 18815	05		1881506							
				MS	MSD								
Paramete	er	6 Units	0234342001 Result	Spike Conc.	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 SAI	MPLE:	188	1507										
				602343	840001	Spike	MS	N	IS	% Rec			
Paran	neter		Units	Res	sult	Conc.	Result	%I	Rec	Limits		Qualif	iers
Mercury			mg/L	<	<0.00020	.005	0.004	19	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.



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 Sam	ples: 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 S		ATE: 188284	46		1882847							
Parameter	6 Units	0234340002 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						
		60234594003	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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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## Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

MATRIX SPIKE SAMPLE:	1882848						
		60234594003	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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	

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.



Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

QC Batch:	45990	)3		Analysis M	ethod:	EPA 200.8
QC Batch Method:	EPA 2	200.8		Analysis De	escription:	200.8 MET
Associated Lab Samp	oles:	60234340001, 6	60234340002,	60234340003,	60234340004	, 60234340005

#### METHOD BLANK: 1882849

Matrix: Water

Associated Lab Samples: 60234340001, 60234340002, 60234340003, 60234340004, 60234340005

		Blank	Reporting		
Parameter	Units	Result	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 S		ATE: 18828	51		1882852							
Parameter	6 Units	0234340003 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	60234594002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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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## Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

MATRIX SPIKE SAMPLE:	1882853	60234594002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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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- <b>)</b>	EC CCR GROU 0234340	NDWATER					
QC Batch:	459249		Analysis M	ethod:	SM 2540C		
QC Batch Method:	SM 2540C		Analysis De	escription:	2540C Total D	issolved Solids	
Associated Lab Sampl	es: 60234340	0001, 602343400	02, 60234340003,	60234340004	, 60234340005		
METHOD BLANK: 1	880227		Matrix	k: Water			
Associated Lab Sampl	es: 60234340	0001, 602343400	02, 60234340003,	60234340004	, 60234340005		
			Blank	Reporting			
Paramet	ter	Units	Result	Limit	Analyz	ed Quali	fiers
Total Dissolved Solids		mg/L	<5.0	) 5	5.0 12/16/16 <sup>-</sup>	10:19	
		4000000					
LABORATORY CONT	ROL SAMPLE:	1880228	Spike	LCS	LCS	% Rec	
Paramet	ter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Total Dissolved Solids		mg/L	1000	976	98	80-120	
SAMPLE DUPLICATE	: 1880229						
			60234204001	Dup		Max	
Paramet	er	Units	Result	Result	RPD	RPD	Qualifiers
Total Dissolved Solids		mg/L	1370	) 13	70	0	10
SAMPLE DUPLICATE	: 1880230						
			60234341002	Dup		Max	
Paramet	ter	Units	Result	Result	RPD	RPD	Qualifiers
Total Dissolved Solids		mg/L	1150	) 11	70	2	10

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



Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

QC Batch:	459833		Analysis Method:	SM 4500-H+B
QC Batch Method:	SM 450	Ю-H+B	Analysis Description:	4500H+B pH
Associated Lab Sam	ples: 6	60234340001, 60234340	002, 60234340003, 60234340004	4, 60234340005

SAMPLE DUPLICATE: 1882586						
		60234308002	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.7	7.7	1	į	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.



Project: Pace Project No.:	TEC CCR GRO 60234340	UNDWATER											
QC Batch:	460944			Analysi	s Method:	E	PA 300.0						
QC Batch Method:	EPA 300.0			Analysi	s Descript	ion: 3	0.0 IC Anio	ns					
Associated Lab Sar	nples: 602343	40001, 602343	40002, 60	2343400	003, 60234	1340004, 6	0234340005	5					
METHOD BLANK:	1886766			N	latrix: Wat	er							
Associated Lab Sar	nples: 602343	40001, 602343	40002, 60	2343400	003, 60234	1340004, 6	0234340005	5					
				Blank	R	eporting							
Paran	neter	Units		Result		Limit	Analyz	ed	Qualifiers	_			
Fluoride		mg/L		<	0.20	0.20	01/03/17 (	08:57					
LABORATORY COI	NTROL SAMPLE	: 1886767											
Paran	neter	Units		Spike Conc.	LCS Resu		LCS % Rec	% Rec Limits		alifiers			
Fluoride		mg/L		2.5		2.4	97	90	-110				
MATRIX SPIKE & M	IATRIX SPIKE D	UPLICATE:	1886768			1886769							
			ſ	ИS	MSD								
		60234718		pike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	er l	Jnits Res	ult Co	onc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride	r	ng/L	0.25	2.5	2.5	2.7	2.7	99	97	80-120	2	15	
MATRIX SPIKE SAI	MPLE:	1886770											
				6023471	8005	Spike	MS	М	S	% Rec			
Parar	neter	Units		Resu	ılt	Conc.	Result	% F	Rec	Limits		Qualifi	ers
Fluoride		mg/L			0.21	2.5	2	.7	100	80-1	20		

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Project:	TEC CCR GF	ROUNDW	/ATER										
Pace Project No.:	60234340												
QC Batch:	461087			Analys	sis Method	: E	PA 300.0						
QC Batch Method:	EPA 300.0			Analys	sis Descrip	tion: 3	00.0 IC Anio	ns					
Associated Lab San	nples: 6023	4340001	, 60234340002	60234340	003, 6023	4340004, 6	6023434000	5					
METHOD BLANK:	1887361			Ν	Matrix: Wa	ter							
Associated Lab San	nples: 6023	4340001	, 60234340002	60234340	003, 6023	4340004, 6	023434000	5					
				Blank	K R	eporting							
Paran	neter		Units	Resu	t	Limit	Analyz	ed	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 COM	NTROL SAMP	LE: 18	87362										
Paran			Units	Spike Conc.	LCS Resu		LCS % Rec	% Rec Limits		alifiers			
	letel									laimers			
Chloride			mg/L	5		5.2	103		)-110				
Sulfate			mg/L	5	•	5.2	104	90	)-110				
MATRIX SPIKE & N	IATRIX SPIKE	DUPLIC	ATE: 188736	53 MS	MSD	1887364							
		(	60234718008	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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 SAI	MPLE:	18	87365										
				602347		Spike	MS		IS	% Rec			
Paran	neter		Units	Result		Conc.	Result	%	% Rec Limits			Qualif	iers

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Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

<b>Sample: MW-4-121316</b> PWS:	Lab ID: 602343 Site ID:	40001 Collected: 12/13/16 09:08 Sample Type:	Received:	12/14/16 16:10	Matrix: Water	
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	3 13982-63-3	
Radium-228	EPA 904.0	1.12 ± 0.472 (0.748) C:67% T:93%	pCi/L	01/15/17 17:00	6 15262-20-1	
Total Radium	Total Radium Calculation	1.12 ± 0.793 (1.27)	pCi/L	01/16/17 15:00	6 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

<b>Sample: MW-5-121316</b> PWS:	Lab ID: 602343 Site ID:	40002 Collected: 12/13/16 11:05 Sample Type:	Received:	12/14/16 16:10	Matrix: Water	
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	8 13982-63-3	
Radium-228	EPA 904.0	0.759 ± 0.472 (0.873) C:65% T:80%	pCi/L	01/15/17 17:00	6 15262-20-1	
Total Radium	Total Radium Calculation	1.06 ± 0.887 (1.57)	pCi/L	01/16/17 15:00	6 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

<b>Sample: MW-6-121316</b> PWS:	Lab ID: 602343 Site ID:	340003 Collected: 12/13/16 13:02 Sample Type:	Received:	12/14/16 16:10	Matrix: Water	
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	3 13982-63-3	
Radium-228	EPA 904.0	0.653 ± 0.580 (1.17) C:53% T:81%	pCi/L	01/15/17 17:00	6 15262-20-1	
Total Radium	Total Radium Calculation	0.653 ± 0.937 (2.01)	pCi/L	01/16/17 15:00	6 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

<b>Sample: MW-1-121316</b> PWS:	Lab ID: 60234 Site ID:	340004 Collected: 12/13/16 15:06 Sample Type:	Received:	12/14/16 16:10	Matrix: Water	
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	8 13982-63-3	
Radium-228	EPA 904.0	0.0895 ± 0.465 (1.07) C:53% T:79%	pCi/L	01/15/17 17:00	6 15262-20-1	
Total Radium	Total Radium Calculation	0.164 ± 0.804 (1.62)	pCi/L	01/16/17 15:00	6 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60234340

Sample: DUP-121316 PWS:	Lab ID: 60234 Site ID:	340005 Collected: 12/13/16 06:00 Sample Type:	Received:	12/14/16 16:10	Matrix: Water	
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	8 13982-63-3	
Radium-228	EPA 904.0	1.11 ± 0.504 (0.792) C:56% T:88%	pCi/L	01/15/17 17:00	6 15262-20-1	
Total Radium	Total Radium Calculation	1.11 ± 0.862 (1.52)	pCi/L	01/16/17 15:00	6 7440-14-4	



## **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Pace Project No.:	TEC CCR GROU 60234340	JNDWATER				
QC Batch:	245349	Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radiu	m-226		
Associated Lab Sa	mples: 6023434	0001, 60234340002, 60234340003, 60234340	0004, 6023434000	05		
METHOD BLANK:	1207402	Matrix: Water				
Associated Lab Sa	mples: 6023434	0001, 60234340002, 60234340003, 60234340	0004, 6023434000	)5		
Para	meter	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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## **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Pace Project No.:	TEC CCR GROU 60234340	JNDWATER				
QC Batch:	245350	Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radiu	m 228		
Associated Lab Sa	mples: 6023434	0001, 60234340002, 60234340003, 60234340	004, 6023434000	05		
METHOD BLANK:	1207404	Matrix: Water				
Associated Lab Sa	mples: 6023434	0001, 60234340002, 60234340003, 60234340	004, 6023434000	)5		
Para	meter	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.



# 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		
	MW-5-121316				



# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:TEC CCR GROUNDWATERPace 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		

-0		WO#:60234340
Sample Condition L	Jpon Receipt	60234340
Client Name: Wester Ence		nou
<u></u>	PEX 🗆 ECI 🗆 Pad	xe
Custody Seal on Cooler/Box Present: Yes 🗟 No 🗆		No 🗆 🔹
Packing Material: Bubble Wrap  Bubble Bags		None  Other  Cay
QF +0.7 CF -0.5	f Ice: Wet Blue None	÷E
Cooler Temperature (°C): As-read 3, Corr. Fact	tor CF +0.7 CF -0.5 Corrected	Date and initials of person examining contents: $\{x_i\}_{i=1}^{N}$
Temperature should be above freezing to 6°C		<u> </u>
Chain of Custody present:	VQYes □No □N/A	
Chain of Custody relinguished:		
Samples arrived within holding time:	Yes INO IN/A	
Short Hold Time analyses (<72hr):	⊠xes □No □N/A	
Rush Turn Around Time requested:	TYes DNg DN/A	
Sufficient volume:		
Correct containers used:	Diges INO IN/A	
Pace containers used:		
Containers intact:		
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?		
Filtered volume received for dissolved tests?		
Sample labels match COC: Date / time / ID / analyses		
Samples contain multiple phases? Matrix:	) ⊡Yes □No □N/A	
Containers requiring pH preservation in compliance?	SYes □No □N/A	
(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide)	`	
(Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) Cyanide water sample checks:  □ N/A		
Lead acetate strip tums dark? (Record only)	□Yes □No	
Potassium iodide test strip turns blue/purple? (Preserve)	□Yes □No	1
Trip Blank present:	□Yes □No \$N/A	
Headspace in VOA vials ( >6mm):		
Samples from USDA Regulated Area: State:		
Additional labels attached to 5035A / TX1005 vials in the field	? 🗆 Yes 🗆 No 🔍 N/A	
Client Notification/ Resolution: Copy COC to	o Client? Y / N	Field Data Required? Y / N
Person Contacted: Date/T Comments/ Resolution:	ime:	

Project Manager Review:

anw

Date: 12/15/16

Pace Analytical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

Client	Section B Required Project Information:	mation:			Sect Invoid	Section C Invoice Information:	2			1			Page:	ä	of	1
Company: WESTAR ENERGY	Report To: Brandon Griffin	Griffin	Ĩ	1000	Attention:	7	Jared Morrison			1				altra della		
Address: 818 Kansas Ave	Copy To: Jared Mo	Jared Morrison, Heath Hornya	h Hornya		Comp	Company Name:	WESTAR ENERGY	NERGY		RE	GULATO	REGULATORY AGENCY	cγ			
Topeka, KS 66612					Address:	SS:	SEE SECTION A	ON A		D.	NPDES	L GRC	GROUND WATER	TER	DRINKING WATER	WATER
Email To: brandon.I.griffin@westarenergy.com	Purchase Order No.	n.			Pace Quote Reference:	2uote nce:					UST	L RCRA	A.	L.	OTHER	
Phone: (785) 575-8135 Fax:	Project Name: TEC	TEC CCR Groundwater	Idwater		Pace Proj Manager	ect	Heather Wilson, 913-563-1407	1, 913-56;	3-1407	S	Site Location	1	9			
Requested Due Date/TAT: 7 DAY	Project Number:		N N		Pace	file #:	9656, 1			0.0	STATE:		2			
8	944 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	1.4	市区地	1000		12.4		100	Reques	sted Ana	<b>Iysis Filt</b>	Requested Analysis Filtered (Y/N)				
Section D Valid Matrix Codes Required Client Information MATRIX CODE	to left)		COLLECTED	<u> </u>		Pre	Preservatives	<b>†</b> N /A	i kon 1993 Ni h			1911				
WATER WATER WATER PRODUCT SOUSCUD		COMFOSITE		COMPOSITE END/GRAB	0.0		er da er da	1	**S  *S				(N/A)	0-1288		
SAMPLE ID WIFE (A-Z, 0-9 /) AIR Sample IDs MUST BE UNIQUE TISSUE	CODE (se 23 더 44 년 22				ор та ямат Сядинатис	рәліә		vsis Test	otal Meta otal Meta otal Merc	+OS 'IJ 'I	1 226 TDS	077	al Chlorine		60254340	oh
* MƏTI	XIATAM SIPLE	DATE	TIME	DATE TIME	100000	HNO <sup>3</sup> H <sup>5</sup> 2O <sup>4</sup> Nublese	N <sup>gSS</sup> O N <sup>g</sup> OH HCI	Methan Other Isnal)	T 7.002 T 8.002		Radium 2540C	muibeA	anbiz9Я	1.0	Project N	Pace Project No. Lab I.D.
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12 approved construction			CILIA TION	DATE		TIME	ACCE	DTED BV	ACCEDTED BY / AFEI IATION	-	DATE	TIME		SAM	SAMPI E CONDITIONS	SNC
*200.7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li	MAN .	1 hol	14	410	2	7421	110	MA	210.	754	Ipliel	0	13 3.4	Ľ		7
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl	010.					2								<b>s</b> t - 1		
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F-ALL-Q-020rev.08, 12-Oct-2007

C	Chain of Custody					X	WO#:30205832	020	583	2			Ç	
)							30205832						Pace	ace Analytical "
۶ ۲	<b>ler:</b> 60234340	korder N	Workorder Name: TEC CCR GROUNDWATER	GROUNDW/	ATER	0	Owner Received	eived D	Date: 12	114/20	16 Resu	12/14/2016 Results Requested By: 1/9/2017	ed By: 1/9	3/2017
Ret	Keport I o		Subcontract To	0						Reque	Requested Analysis	sis		
Her 960 Phy	Heather Wilson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665		Pace Ane 1638 Ros Suites 2,5 Greensbu Phone (7/	Pace Analytical Pittsburg 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600	ЧĎ			Radium						
						Preserved	<b>Preserved Containers</b>	226						
Item	n Sample ID	Sample Type	Collect Date/Tim e	Lab ID	Matrix	BP1N		6 & total sum	Radium 228				Ĺ	LAB USE ONLY
~	MW-4-121316	PS	12/13/2016 09:08 60	60234340001	Water	2		X	×				N N	10
2	MW-5-121316	PS	12/13/2016 11:05 60	60234340002	Water	2		×	×				3	22
m	MW-6-121316	PS	12/13/2016 13:02 60	60234340003	Water	2		X	×				Č	03
4	MW-1-121316	PS	12/13/2016 15:06 60	60234340004	Water	2		×	×				8	04
2	DUP-121316	PS	12/13/2016 06:00 6	60234340005	Water	2		×	×				<u>ð</u>	205
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ပိ	<b>Cooler Temperature on Receipt</b>	2	AC Custoe	Custody Seal Y o	or	Ľ	Received on Ice		Y or	N		Samples Intact Y	ntact Y or	Z
) // <sub>***</sub>	***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.	dentiality, dy is con:	, location/name oi sidered complete	f the samplinç as is since th	g site, sa is inform	mpler's nar iation is ave	ne and sig ailable in th	nature r ie ownei	nay not ' labora	be prov tory.	vided on t	his COC	)	

bage 41 Pursday, December 15, 2016 10:07:16 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Sample Condition Upon Rec	ceipt	Pitts	bu	rgh	
Face Analytical Client Name:			Pl	ICLKS	<b>302058</b> 3 Project #
Courier: D Fed Ex D UPS D USPS D Cli Tracking #: KIDHOOH	ent 🗆	Comr	nerc	al 🛛 Pace Other	
Custody Seal on Cooler/Box Present:	; []/	no	Se	als intact: Byes	🔲 no
Thermometer Used N\A_	Тур	e of Ice	: V		
Cooler Temperature Observed Temp		۰C		prrection Factor:	°C Final Temp: °C
Temp should be above freezing to 6°C				kasamaning	• • • • • • • • • • • • • • • • •
					Date and Initials of person examining
Comments:	Yes	s / No	N/	A	contents:
Chain of Custody Present:		1		1.	
Chain of Custody Filled Out:		K		2.	
Chain of Custody Relinquished:				3.	
Sampler Name & Signature on COC:			ľ	4.	
Sample Labels match COC:	/	1		5.	
-Includes date/time/ID/Analysis Matrix:	$\mathcal{N}$	IT	_		
Samples Arrived within Hold Time:		$\square$		6.	
Short Hold Time Analysis (<72hr remaining):			/	7.	· · · · · · · · · · · · · · · · · · ·
Rush Turn Around Time Requested:	·			8.	
Sufficient Volume:				9.	
Correct Containers Used:		$\sim$		10.	
-Pace Containers Used:					
Containers Intact:				11.	
Filtered volume received for Dissolved tests				12.	
All containers needing preservation have been checked.			/	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	/			p1+22	
				Initial when ARV	Date/time of
exceptions: VOA, coliform, TOC, O&G, Phenolics				Lot # of added	preservation
· · · · · · · · · · · · · · · · · · ·				preservative	
Headspace in VOA Vials ( >6mm):		_		14.	
Frip Blank Present:			/	15.	
Frip Blank Custody Seals Present			1		
Rad Aqueous Samples Screened > 0.5 mrem/hr		Λ		Initial when completed:	Date: 12/17//0
Client Notification/ Resolution:				Completed. / ICIVI	Date. CITING
Person Contacted:		ח	ateЛ	Time:	Contacted By:
Comments/ Resolution:		Ľ			
		17 <i>4 - 1</i> .			

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.

J:\QAQC\Master\Document Management\Sample Mgt\Sample Condition Upon Receipt Pittsburgh (C056-2 25Jul2016)

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,

Autor m. Wilson

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.: 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

## 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 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

Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587 Missouri Certification: 10070



# 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



# SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60237408001 MW-4-020617	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	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	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
0237408004	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
0237408005	DUP-020617	EPA 200.7	JGP	7	PASI-K



# 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



Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

## Method: EPA 200.7

Description:200.7 Metals, TotalClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

## Method: EPA 200.8

Description:200.8 MET ICPMSClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

## Method:EPA 245.1Description:245.1 Mercury

Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

Method:EPA 903.1Description:903.1 Radium 226Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

## Method:EPA 904.0Description:904.0 Radium 228Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

## Method: Total Radium Calculation

Description:Total Radium 228+226Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

## Method: SM 2540C

Description:2540C Total Dissolved SolidsClient:WESTAR ENERGYDate: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:**



Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

Method:	SM 4500-H+B
<b>Description:</b>	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



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.



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

Sample: MW-4-020617	Lab ID: 602	37408001	Collected: 02/06/1	7 15:39	9 Received: 02	2/07/17 15:15 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	hod: EPA 20	0.7 Preparation Met	hod: El	PA 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 Met	hod: EPA 20	0.8 Preparation Met	hod: El	PA 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 Met	hod: EPA 24	5.1 Preparation Met	hod: El	PA 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 Met	hod: SM 254	40C					
Total Dissolved Solids	1000	mg/L	5.0	1		02/09/17 15:47		
4500H+ pH, Electrometric	Analytical Met	hod: SM 450	)0-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 Met	hod: EPA 30	0.0					
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	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

Sample: MW-5-020617	Lab ID: 602	237408002	Collected: 02/07/1	7 07:41	Received: 02	2/07/17 15:15 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 20	0.7 Preparation Met	hod: EF	PA 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 Me	thod: EPA 20	0.8 Preparation Met	hod: EF	PA 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 Me	thod: EPA 24	5.1 Preparation Met	hod: EF	PA 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 Me	thod: SM 254	0C					
Total Dissolved Solids	1740	mg/L	5.0	1		02/13/17 14:21		
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	0-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 Me	thod: EPA 30	0.0					
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	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

Sample: MW-6-020617	Lab ID: 602	237408003	Collected: 02/07/1	7 08:46	8 Received: 02	2/07/17 15:15 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 200	0.7 Preparation Met	hod: EF	PA 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		02/09/17 15:31		
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 Me	thod: EPA 200	0.8 Preparation Met	hod: EF	PA 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 Me	thod: EPA 24	5.1 Preparation Met	hod: EF	PA 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 Me	thod: SM 254	0C					
Total Dissolved Solids	1800	mg/L	5.0	1		02/13/17 14:23		
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	0-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 Me	thod: EPA 300	0.0					
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	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

Sample: MW-1-020617	Lab ID: 602	237408004	Collected: 02/07/1	7 10:46	6 Received: 02	2/07/17 15:15 N	latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	hod: EPA 20	0.7 Preparation Met	hod: El	PA 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 Met	hod: EPA 20	0.8 Preparation Met	hod: El	PA 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 Met	hod: EPA 24	5.1 Preparation Met	hod: El	PA 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 Met	hod: SM 254	łoC					
Total Dissolved Solids	993	mg/L	5.0	1		02/13/17 14:24		
4500H+ pH, Electrometric	Analytical Met	hod: SM 450	00-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 Met	hod: EPA 30	0.0					
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	



## Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

Sample: DUP-020617	Lab ID: 602	237408005	Collected: 02/07/1	7 06:00	0 Received: 02	2/07/17 15:15	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 200	0.7 Preparation Met	hod: El	PA 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 Me	thod: EPA 200	0.8 Preparation Met	hod: El	PA 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 Me	thod: EPA 24	5.1 Preparation Met	hod: El	PA 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 Me	thod: SM 254	0C					
Total Dissolved Solids	993	mg/L	5.0	1		02/13/17 14:24	Ļ	
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	0-H+B					
pH at 25 Degrees C	7.0	Std. Units	0.10	1		02/11/17 09:28	i	H6
300.0 IC Anions 28 Days	Analytical Me	thod: EPA 300	0.0					
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	



,	EC CCR GROUND 0237408	WATER										
QC Batch:	465226		Analys	sis Method	: E	PA 245.1						
QC Batch Method:	EPA 245.1		Analys	sis Descrip	tion: 2	45.1 Mercury	y					
Associated Lab Samp	les: 6023740800	1, 60237408002	, 60237408	8003, 6023	7408004, 6	60237408005	5					
METHOD BLANK: 1	904490		Ν	Matrix: Wa	ter							
Associated Lab Samp	les: 6023740800	1, 60237408002	, 60237408 Blank	-	7408004, 6 Reporting	60237408005	5					
Parame	ter	Units	Resu	lt	Limit	Analyz	ed	Qualifiers				
Mercury		mg/L	<0.0	00020	0.00020	02/13/17	15:14		_			
LABORATORY CONT	ROL SAMPLE: 1	904491										
Parame	ter	Units	Spike Conc.	LCS Resu		LCS % Rec	% Rec Limits		alifiers			
Mercury		mg/L	.005	; (	0.0052	104	85	-115				
MATRIX SPIKE & MA	TRIX SPIKE DUPLI	CATE: 19044	92		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 SAMP	PLE: 1	904494										
Parame	ter	Units	602374 Res		Spike Conc.	MS Result	M % F	-	% Rec Limits		Qualif	iers
Mercury		mg/L		0.00020	.005	0.00		105	70-			
					.000	0.000			.0			

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.



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, 6023	37408005
		,,	,		

<b>-</b>		Blank	Reporting		0 11/1
Parameter	Units	Result	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

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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 S	PIKE DUPLICA	ATE: 190218	80		1902181							
Parameter	6 Units	0237344001 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	

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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Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

QC Batch:	4647	78	Analysis Method:	EPA 200.8
QC Batch Method:	EPA	200.8	Analysis Description:	200.8 MET
Associated Lab Sam	ples:	60237408001, 60237408002, 6	0237408003, 60237408004	4, 60237408005

## METHOD BLANK: 1902182

Matrix: Water

Associated Lab Samples: 60237408001, 60237408002, 60237408003, 60237408004, 60237408005

		Blank	Reporting		
Parameter	Units	Result	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 S	SPIKE DUPLIC	ATE: 19021	84		1902185							
Parameter	e 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	

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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## 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		.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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Project: TEC CCR GRO	UNDWATER						
Pace Project No.: 60237408							
QC Batch: 464879		Analysis M	lethod:	SM 2540C			
QC Batch Method: SM 2540C		Analysis D	escription:	2540C Total Dis	ssolved Solids		
Associated Lab Samples: 6023740	08001						
METHOD BLANK: 1902679		Matri	ix: Water				
Associated Lab Samples: 6023740	08001						
Parameter	Units	Blank Result	Reporting Limit	Analyze	d Qual	fiers	
Total Dissolved Solids	mg/L	<5.	0 5	5.0 02/09/17 15	5:35		
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							
		60237373003			Max		
Parameter	Units	Result	Result	RPD	RPD	Qualifiers	
Total Dissolved Solids	mg/L	44	5 4	41	1	10	
SAMPLE DUPLICATE: 1902682							
		60237344005			Max	0 11	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers	
Total Dissolved Solids	mg/L	800	0 77	00	4	10	

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



Project: TEC CCR G	ROUNDWATER						
Pace Project No.: 60237408							
QC Batch: 465288		Analysis M	ethod:	SM 2540C			
QC Batch Method: SM 2540C		Analysis D	escription:	2540C Total Di	issolved Solids	i	
Associated Lab Samples: 6023	37408002, 602374080	03, 60237408004,	60237408005				
METHOD BLANK: 1904626		Matri	x: Water				
Associated Lab Samples: 6023	37408002, 602374080	03, 60237408004,	60237408005				
		Blank	Reporting				
Parameter	Units	Result	Limit	Analyze	ed Qual	lifiers	
Total Dissolved Solids	mg/L	<5.0	0 5.	.0 02/13/17 1	4:18		
LABORATORY CONTROL SAMP	PLE: 1904627						
		Spike	LCS	LCS	% Rec		
Parameter	Units	Conc.	Result	% Rec	Limits	Qual	lifiers
Total Dissolved Solids	mg/L	1000	1010	101	80-120		
SAMPLE DUPLICATE: 1904628	3						
5	11.5	60237755001			Max		0 11
Parameter	Units	Result	Result	RPD	RPD		Qualifiers
Total Dissolved Solids	mg/L	3040	0 303	80	0	10	
SAMPLE DUPLICATE: 1904629	9						
	-	60237408005	Dup		Max		
Parameter	Units	Result	Result	RPD	RPD		Qualifiers
	mg/L	993	3 101		2	10	

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



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 Sam	ples: 6023740800	, 60237408002, 60237408003, 60237408004	, 60237408005

SAMPLE DUPLICATE: 1903941						
		40145474001	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.8	7.8	0		5 H6

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



Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

acci	10,000.100	00207400

QC Batch:	4661	58		Analysis M	ethod:	EPA 300.0
QC Batch Method:	EPA :	300.0		Analysis De	escription:	300.0 IC Anions
Associated Lab Sam	ples:	60237408001	60237408002	60237408003,	60237408004	, 60237408005

METHOD BLANK: 19079	33	Matrix: Water	
Associated Lab Samples:	60237408001, 60237408002	2, 60237408003, 6023740800	4, 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 SPI	KE DUPLICA	ΓE: 19079	35		1907936							
			MS	MSD								
	60	237439001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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						
		60237980003	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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	

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.



Project: Pace Project No.:	TEC CCR GR 60237408	OUNDWA	TER										
QC Batch:	466679			•	sis Method		PA 300.0						
QC Batch Method: Associated Lab Sam	EPA 300.0 ples: 60237	408005		Analys	sis Descrip	tion: 3	00.0 IC Anio	ins					
METHOD BLANK:				٦	Matrix: Wa	ter							
Associated Lab Sam	ples: 60237	408005		Blank	K R	eporting							
Param	neter		Units	Resu	lt	Limit	Analyz	ed	Qualifiers				
Sulfate			mg/L		<1.0	1.0	02/24/17	13:38					
LABORATORY CON	ITROL SAMPL	.E: 1909	872										
Param	ieter		Units	Spike Conc.	LCS Resu		LCS % Rec	% Rec Limits		ualifiers			
Sulfate			mg/L	5	5	4.9	97	90	-110				
MATRIX SPIKE & M	ATRIX SPIKE	DUPLICA	TE: 19098	73		1909874							
				MS	MSD								
Paramete	r	60 Units	238051001 Result	Spike Conc.	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 SAM	IPLE:	1909	875										
				602374		Spike	MS	Μ		% Rec			
Param	leter		Units	Res	ult	Conc.	Result	% F	Rec	Limits		Qualif	iers
Sulfate			mg/L		420	250	6	80	104	80-1	20		

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Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

<b>Sample: MW-4-020617</b> PWS:	Lab ID: 602374 Site ID:	Collected: 02/06/17 15:39 Sample Type:	Received:	02/07/17 15:15	Matrix: Water	
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	3 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	8 15262-20-1	
Total Radium	Total Radium Calculation	0.879 ± 0.784 (1.37)	pCi/L	03/07/17 20:4	5 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

<b>Sample: MW-5-020617</b> PWS:	Lab ID: 60237 Site ID:	408002 Collected: 02/07/17 07:41 Sample Type:	Received:	02/07/17 15:15	Matrix: Water	
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	3 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	3 15262-20-1	
Total Radium	Total Radium Calculation	0.893 ± 1.05 (1.84)	pCi/L	03/07/17 20:4	5 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

<b>Sample: MW-6-020617</b> PWS:	Lab ID: 602374 Site ID:	408003 Collected: 02/07/17 08:46 Sample Type:	Received:	02/07/17 15:15	Matrix: Water	
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	3 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	9 15262-20-1	
Total Radium	Total Radium Calculation	0.582 ± 0.707 (1.03)	pCi/L	03/07/17 20:4	5 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

<b>Sample: MW-1-020617</b> PWS:	Lab ID: 60237 Site ID:	408004 Collected: 02/07/17 10:46 Sample Type:	Received:	02/07/17 15:15	Matrix: Water	
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	3 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	9 15262-20-1	
Total Radium	Total Radium Calculation	0.467 ± 0.609 (1.12)	pCi/L	03/07/17 20:45	5 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60237408

Sample: DUP-020617 PWS:	Lab ID: 602374 Site ID:	408005 Collected: 02/07/17 06:00 Sample Type:	Received:	02/07/17 15:15	Matrix: Water	
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	3 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	9 15262-20-1	
Total Radium	Total Radium Calculation	0.595 ± 0.715 (1.22)	pCi/L	03/07/17 20:4	5 7440-14-4	



## **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Pace Project No.:	TEC CCR GROU 60237408	NDWATER				
QC Batch:	249984	Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 903.1	Analysis Descripti	on: 903.1 Radiun	n-226		
Associated Lab Sa	mples: 6023740	8001, 60237408002, 60237408003, 60237	408004, 6023740800	5		
METHOD BLANK:	1229900	Matrix: Wate	er			
Associated Lab Sa	mples: 6023740	8001, 60237408002, 60237408003, 60237	408004, 6023740800	5		
Para	meter	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: Pace Project No.:	TEC CCR GROL 60237408	INDWATER				
QC Batch:	250069	Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0	Analysis Descriptio	n: 904.0 Radiur	n 228		
Associated Lab Sa	mples: 6023740	8001, 60237408002, 60237408003, 602374	08004, 6023740800	5		
METHOD BLANK:	1230258	Matrix: Water	r			
Associated Lab Sa	mples: 6023740	8001, 60237408002, 60237408003, 602374	08004, 6023740800	5		
Para	meter	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		

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.



## 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.



## 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
0237408002	MW-5-020617	EPA 200.8	464778	EPA 200.8	464815
0237408003	MW-6-020617	EPA 200.8	464778	EPA 200.8	464815
0237408004	MW-1-020617	EPA 200.8	464778	EPA 200.8	464815
0237408005	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		
0237408003	MW-6-020617	EPA 903.1	249984		
0237408004	MW-1-020617	EPA 903.1	249984		
0237408005	DUP-020617	EPA 903.1	249984		
0237408001	MW-4-020617	EPA 904.0	250069		
0237408002	MW-5-020617	EPA 904.0	250069		
0237408003	MW-6-020617	EPA 904.0	250069		
0237408004	MW-1-020617	EPA 904.0	250069		
0237408005	DUP-020617	EPA 904.0	250069		
60237408001	MW-4-020617	Total Radium Calculation	251396		
0237408002	MW-5-020617	Total Radium Calculation	251396		
0237408003	MW-6-020617	Total Radium Calculation	251396		
0237408004	MW-1-020617	Total Radium Calculation	251396		
60237408005	DUP-020617	Total Radium Calculation	251396		
60237408001	MW-4-020617	SM 2540C	464879		
0237408002	MW-5-020617	SM 2540C	465288		
0237408003	MW-6-020617	SM 2540C	465288		
0237408004	MW-1-020617	SM 2540C	465288		
0237408005	DUP-020617	SM 2540C	465288		
0237408001	MW-4-020617	SM 4500-H+B	465132		
0237408002	MW-5-020617	SM 4500-H+B	465132		
0237408003	MW-6-020617	SM 4500-H+B	465132		
0237408004	MW-1-020617	SM 4500-H+B	465132		
0237408005	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		



## 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		



Sample Condition Upon Receipt

# WO#:60237408

Client Name: Wester Energy	< H
0	EX 🗆 ECI 🗆 Pace 🗹 Xroads 🗆 Client 🗔 Other 🗆
Tracking #: Pace	Shipping Label Used? Yes 🗆 No 🗷
Custody Seal on Cooler/Box Present: Yes 🗆 No ⁄ 🕫	Seals intact: Yes 🗆 No🗷
Packing Material: Bubble Wrap ☑ Bubble Bags □	Foam  None  Other
Thermometer Used: (T-266 / T-239 Type of lo	ce: Wet Blue None
Cooler Temperature (°C): As-read Corr. Factor	
Temperature should be above freezing to 6°C	
Chain of Custody present:	
Chain of Custody relinquished:	ØYes □No □N/A
Samples arrived within holding time:	
Short Hold Time analyses (<72hr):	
Rush Turn Around Time requested:	
Sufficient volume:	
Correct containers used:	
Pace containers used:	ŹYes □No □N/A
Containers intact:	ZYes No N/A
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	
Filtered volume received for dissolved tests?	
Sample labels match COC: Date / time / ID / analyses	ŹľYes □No □N/A
Samples contain multiple phases? Matrix: weter	
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)	
Cyanide water sample checks: PN/A Lead acetate strip turns dark? (Record only)	
Potassium iodide test strip turns blue/purple? (Preserve)	□Yes □No
Trip Blank present:	
Headspace in VOA vials ( >6mm):	
Samples from USDA Regulated Area: State:	
Additional labels attached to 5035A / TX1005 vials in the field?	
Client Notification/ Resolution: Copy COC to C	
Person Contacted: Date/Tin	
Comments/ Resolution:	

Project Manager Review:

Anw

Date: 27/17

Pace Analytical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

Company:	Required Client Information:	Required Project Information:	ct Inform;	ation:			1	Invoice	Invoice Information:	:uo					ĺ						_,		
	WESTAR ENERGY	Report To: Brandon Griffin	andon G	Sriffin				Attention:		ared N	Jared Morrison												
Address:	818 Kansas Ave	Copy To: Jar	ed Mor	Jared Morrison, Heath Hornya	ath Horn	ya		Compa	Company Name:		WESTAR ENERGY	INERG	~		R	EGUL	ATOR	REGULATORY AGENCY	CΥ	urii	-11		
	Topeka, KS 66612							Address	S:	SEE	SEE SECTION A	ON A				NP NP	NPDES	ר GR(	GROUND WATER	ATER	Ц Ц	DRINKING WATER	NATER
Email To:	brandon.l.griffin@westarenergy.com	Purchase Order No.:	No.:					Pace Quote Reference:	Jote te:						T	- UST	F	L RCRA	Ą		TO T	OTHER	
Phone:	(785) 575-8135 Fax	Project Name:	TEC	TEC CCR Groundwater	undwate			Pace Project Manager:		leathe	Heather Wilson, 913-563-1407	1, 913-:	563-14	20		Site Lo	Site Location		0/				
Requeste	Requested Due Date/TAT: 7 DAY	Project Number.			4			Pace Profile #:	file #:	9656, 1						S	STATE:		2				
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	Section D Valid Matrix Codes Required Client Information MATRIX CODE				COLLECTED	CTED		- 1414		Preservatives	atives		<b>↑</b> N /A	- D									
		و valid codes l P valid codes l	00=0 8AA6	COMPOSITE	SITE	COMPOSITE END/GRAB									the second se						0	¢,	0
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F-ALL-Q-020rev.08, 12-Oct-2007

"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 involces not paid within 30 days.

Pace Analytical	Results Requested By: 3/2/2017	Attalysis	LAB USE ONLY	/Q0		003		Comments			e.	on this COC document.	
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W0#:30210240	Owner Received Date:		Lesered Containers	2	2	2 5	л и		Date/Time	Jak 2-9-17118		sampler's name and signature vailable in the owner laborato	
WO#COT COE	R GROUNDWATER	Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600	Lab ID Matrix	60237408001 Water		60237408003 Water		1		10 Million	Circtody Seal V or M	e of the sampling site, s ice this information is a	
	Workorder Name:TEC CCR GROUN	Pace 1638 Suite Gree Phon	Sample Collect Type Date/Time	PS 2/6/2017 15:39		PS 2/7/2017 08:46 PS 2/7/2017 10:46			∕ Date/Time	2/0/1-17	MMA °C	dentiality, location/nam lered complete as is sir	
Chain of Custody	Workorder: 60237408 Wor Report To	Heather Wilson Pace Analytical Kansas 9608 Loiet Blvd. Lenexa, KS 66219 Phone (913)599-5665	Item Sample ID			3 MW-6-020617 4 MW-1-020617			Transfers Released By	2 kun M	3 Cooler Temperature on Receint	This chain of custody is considered complete as is since this information is available in the owner laboratory.	

Wednesday, February 08, 2017 11:05:14 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Face Analytical Client Name:	9	ace	2	Kansas	Pro	ject #_	302	2102	4 (
Courier: Fed Ex 🗌 UPS 🗌 USPS 🗌 Cli Tracking #:	ent	] Comm	nercia	I 🗌 Pace Other					
Tracking #: Custody Seal on Cooler/Box Present: 🗌 yes				s intact: 🔲 yes	no 🗌				
Thermometer Used MA	Тур	e of Ice:	We	t Blue None					
Cooler Temperature Observed Temp	A	°C	Corr	rection Factor:	°C 👡	Final Te	emp: 🦟	° C	
Temp should be above freezing to 6°C	•								
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Sampler Name & Signature on COC:				4.					
Sample Labels match COC:				5.					
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Samples Arrived within Hold Time:	X			6.				·	
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Organic Samples checked for dechlorination:	<u> </u>		X	13.					
Filtered volume received for Dissolved tests All containers have been checked for preservation.	ļ		$\geq$	14					
An containers have been checked for preservation.	$\times$			15. $\mathcal{O}$	2				
All containers needing preservation are found to be in compliance with EPA recommendation.	X			Ync	4				
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exceptions: VOA, coliform, TOC, O&G, Phenolics			-	completed ////	preserv			····	_
				Lot # of added preservative					
Headspace in VOA Vials ( >6mm):				16.					1
Trip Blank Present:		×		17.					-
Frip Blank Custody Seals Present			$\mathbf{X}$						
Rad Aqueous Samples Screened > 0.5 mrem/hr	4			nitial when completed: M	Date:	2-0	9-1-7		1
Client Notification/ Resolution:			<u> </u>		Lucie.	~	-//		1
Person Contacted:		Da	ate/Ti	me:		Contacted	Bv:		
Comments/ Resolution:				<u> </u>			<u>.</u>		-
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## $\Box$ 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.

1

## **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,

Autor m. Wilson

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

#### 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 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

Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587 Missouri Certification: 10070



## 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



## 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
0241617002	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
0241617003	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
0241617004	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
0241617005	DUP-040517	EPA 200.7	SMW	7	PASI-K



## 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	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

#### Method: EPA 200.7

Description:200.7 Metals, TotalClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

#### Method: EPA 200.8

Description:200.8 MET ICPMSClient:WESTAR ENERGYDate: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:



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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

## Method:EPA 903.1Description:903.1 Radium 226Client: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

# Method:EPA 904.0Description:904.0 Radium 228Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

#### Method: Total Radium Calculation

Description:Total Radium 228+226Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

#### Method: SM 2540C

Description:2540C Total Dissolved SolidsClient:WESTAR ENERGYDate: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:**



Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

Method:	SM 4500-H+B
<b>Description:</b>	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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

Method:EPA 300.0Description:300.0 IC Anions 28 DaysClient:WESTAR ENERGYDate: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.



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

Sample: MW-4-040517	Lab ID: 602	241617001	Collected: 04/05/1	7 11:14	Received: 04	/07/17 14:47 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	thod: EPA 20	0.7 Preparation Met	hod: El	PA 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 Met	thod: EPA 20	0.8 Preparation Met	hod: El	PA 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 Met	thod: EPA 24	5.1 Preparation Met	hod: El	PA 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 Met	thod: SM 254	0C					
Total Dissolved Solids	1030	mg/L	5.0	1		04/11/17 16:03		
4500H+ pH, Electrometric	Analytical Met	thod: SM 450	0-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 Met	thod: EPA 30	0.0					
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	



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

Sample: MW-5-040517	Lab ID: 602	241617002	Collected: 04/05/1	7 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 Met	thod: EPA 200	0.7 Preparation Met	hod: EF	PA 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 Met	thod: EPA 200	0.8 Preparation Met	hod: EF	PA 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 Met	thod: EPA 24	5.1 Preparation Met	hod: EF	PA 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 Met	thod: SM 254	0C					
Total Dissolved Solids	1650	mg/L	5.0	1		04/11/17 16:04		
4500H+ pH, Electrometric	Analytical Met	thod: SM 450	0-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 Met	thod: EPA 300	0.0					
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	



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

Sample: MW-6-040517	Lab ID: 602	241617003	Collected: 04/05/1	7 15:03	B Received: 04	/07/17 14:47	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 20	0.7 Preparation Met	hod: EF	PA 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 Me	thod: EPA 20	0.8 Preparation Met	hod: EF	PA 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 Me	thod: EPA 24	5.1 Preparation Met	hod: EF	PA 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 Me	thod: SM 254	0C					
Total Dissolved Solids	1810	mg/L	5.0	1		04/11/17 16:04		
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	0-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 Me	thod: EPA 30	0.0					
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	



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

Sample: MW-1-040517	Lab ID: 602	241617004	Collected: 04/05/1	7 16:46	6 Received: 04	1/07/17 14:47 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 200	0.7 Preparation Met	hod: El	PA 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 Me	thod: EPA 200	0.8 Preparation Met	hod: El	PA 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 Me	thod: EPA 24	5.1 Preparation Met	hod: El	PA 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 Me	thod: SM 254	0C					
Total Dissolved Solids	984	mg/L	5.0	1		04/11/17 16:04		
4500H+ pH, Electrometric	Analytical Me	thod: SM 450	0-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 Me	thod: EPA 300	0.0					
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	



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

#### 241617

Parameters	Desults							
	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	hod: EPA 200	0.7 Preparation Met	hod: El	PA 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 Met	hod: EPA 200	0.8 Preparation Met	hod: El	PA 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 Met	hod: EPA 24	5.1 Preparation Met	hod: El	PA 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 Met	hod: SM 254	0C					
Total Dissolved Solids	984	mg/L	5.0	1		04/11/17 16:05		
4500H+ pH, Electrometric	Analytical Met	hod: SM 450	0-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 Met	hod: EPA 300	0.0					
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	



,	EC CCR GROUNI 0241617	DWATER										
	472110		Analys	sis Method	: E	PA 245.1						
QC Batch Method:	EPA 245.1		Analys	sis Descrip	tion: 2	45.1 Mercur	у					
Associated Lab Samp	les: 602416170	01, 60241617002	, 60241617	003, 6024	1617004, 6	60241617005	5					
METHOD BLANK: 1	933355		٦	Matrix: Wa	iter							
Associated Lab Samp	les: 602416170	01, 60241617002	, 60241617 Blanl		1617004, 6 Reporting	60241617005	5					
Parame	ter	Units	Resu		Limit	Analyz	ed	Qualifiers				
Mercury		mg/L	<0.0	00020	0.00020	04/11/17	09:25					
LABORATORY CONT	ROL SAMPLE:	1933356										
Parame	ter	Units	Spike Conc.	LCS Resu		LCS % Rec	% Rec Limits		ualifiers			
Mercury		mg/L	.005	; (	0.0046	92	85	-115				
MATRIX SPIKE & MA	TRIX SPIKE DUPL	ICATE: 19333	57		1933358							
			MS	MSD								
Parameter	Units	60241514001 Result	Spike Conc.	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 SAME	PLE:	1933359										
_			602415		Spike	MS	Μ		% Rec			
Parame	ter	Units	Res		Conc.	Result	%F	Rec	Limits		Qualif	iers
Mercury		mg/L		ND	.005	0.00	49	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.



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 Same	oles: 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		1.0	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	

			MS	MSD								
	6	0241813002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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	60241617002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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	

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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#### 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 I	V1
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	

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.



Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

QC Batch:	4725	93	Analysis Method:	EPA 200.8
QC Batch Method:	EPA	200.8	Analysis Description:	200.8 MET
Associated Lab Sam	ples:	60241617001, 60241617002, 6	0241617003, 60241617004	4, 60241617005

#### METHOD BLANK: 1934995

Matrix: Water

Associated Lab Samples: 60241617001, 60241617002, 60241617003, 60241617004, 60241617005

		Blank	Reporting		
Parameter	Units	Result	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 SF	VIKE DUPLIC	ATE: 19349	97		1934999							
			MS	MSD								
		7563633001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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					_	
		60241616001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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	

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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#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

MATRIX SPIKE SAMPLE:	1935000						
		60241616001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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	

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.



- <b>,</b>	CCR GROUI 41617	NDWATER						
QC Batch: 47	2273		Analysis M	ethod:	SM 2540C			
QC Batch Method: SI	A 2540C		Analysis De	escription:	2540C Total E	Dissolved Solids		
Associated Lab Samples	: 60241617	001, 6024161700	02, 60241617003,	60241617004	, 60241617005	5		
METHOD BLANK: 193	3845		Matrix	: Water				
Associated Lab Samples	60241617	001, 6024161700	02, 60241617003,	60241617004	, 60241617005	5		
			Blank	Reporting				
Parameter		Units	Result	Limit	Analyz	ed Qua	lifiers	
Total Dissolved Solids		mg/L	<5.0	) 5	5.0 04/11/17	16:00		
LABORATORY CONTRO	DL SAMPLE:	1933846						
			Spike	LCS	LCS	% Rec		
Parameter		Units	Conc.	Result	% Rec	Limits	Qu	alifiers
Total Dissolved Solids		mg/L	1000	982	98	80-120		
	4000047							
SAMPLE DUPLICATE:	1933847		60241444010	Dup		Мах		
Parameter		Units	Result	Result	RPD	RPD		Qualifiers
Total Dissolved Solids		mg/L	3600	35	30	2	10	
SAMPLE DUPLICATE:	1933848							
			60241654001	Dup		Max		
Parameter		Units	Result	Result	RPD	RPD		Qualifiers
Total Dissolved Solids		mg/L	57000	) 590	00	3	10	

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



Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

Parame	eter	Units	Result	Result	RPD		Qualifiers
Dama		11-26-	60241329005	Dup		Max	Qualifian
SAMPLE DUPLICATI	E: 1934025						
Associated Lab Samp	oles: 602416170	05					
QC Batch Method:	SM 4500-H+B		Analysis Desc	cription:	4500H+B pH		
QC Batch:	472307		Analysis Meth	nod:	SM 4500-H+B		

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.



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 Sam	ples: 60241617001, 6024	1617002, 60241617003, 6024161700	4
SAMPLE DUPLICAT	E: 1934027		

Parameter	Units	60241275001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units				KF D	

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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Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

QC Batch:	4720	89	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 3	300.0	Analysis Description:	300.0 IC Anions
Associated Lab Samp	oles:	60241617001, 60241617002, 60	241617003, 60241617004	, 60241617005

METHOD BLANK: 19333	04 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 SPIK	E DUPLICA	TE: 19333	06		1933307							
			MS	MSD								
	6	0241580003	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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						
		60241581003	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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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Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

<b>Sample: MW-4-040517</b> PWS:	Lab ID: 602416 Site ID:	<b>17001</b> Collected: 04/05/17 11:14 Sample Type:	Received:	04/07/17 14:47	Matrix: Water	
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	6 15262-20-1	
Total Radium	Total Radium Calculation	1.10 ± 1.02 (1.85)	pCi/L	09/07/17 14:58	3 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

<b>Sample: MW-5-040517</b> PWS:	Lab ID: 602410 Site ID:	617002 Collected: 04/05/17 13:19 Sample Type:	Received:	04/07/17 14:47	Matrix: Water	
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	6 15262-20-1	
Total Radium	Total Radium Calculation	0.970 ± 1.04 (1.93)	pCi/L	09/07/17 14:58	3 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

<b>Sample: MW-6-040517</b> PWS:	Lab ID: 60241 Site ID:	617003 Collected: 04/05/17 15:03 Sample Type:	Received:	04/07/17 14:47	Matrix: Water	
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	6 15262-20-1	
Total Radium	Total Radium Calculation	0.224 ± 0.835 (1.79)	pCi/L	09/07/17 14:58	3 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

<b>Sample: MW-1-040517</b> PWS:	Lab ID: 602416 Site ID:	<b>Collected:</b> 04/05/17 16:46 Sample Type:	Received:	04/07/17 14:47	Matrix: Water	
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	6 15262-20-1	
Total Radium	Total Radium Calculation	0.455 ± 0.949 (2.02)	pCi/L	09/07/17 14:58	3 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60241617

Sample: DUP-040517 PWS:	Lab ID: 60241 Site ID:	617005 Collected: 04/05/17 08:00 Sample Type:	Received:	04/07/17 14:47	Matrix: Water	
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	6 15262-20-1	
Total Radium	Total Radium Calculation	1.75 ± 0.994 (1.48)	pCi/L	09/07/17 14:58	3 7440-14-4	



## **QUALITY CONTROL - RADIOCHEMISTRY**

Project:	TEC CCR GRO	UNDWATER			
Pace Project No.:	60241617				
QC Batch:	255827	Analysis Method:	EPA 904.0		
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radiu	m 228	
Associated Lab Sa	mples: 602416	17001, 60241617002, 60241617003, 602416170	004, 6024161700	)5	
METHOD BLANK:	1259996	Matrix: Water			
Associated Lab Sa	mples: 602416	17001, 60241617002, 60241617003, 602416170	004, 6024161700	)5	
Para	meter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228		$\frac{1}{0.308 \pm 0.372}  (0.788) \text{ C}:76\% \text{ T}:80\%$	pCi/L	04/25/17 14:56	

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.



# **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Pace Project No.:	TEC CCR GROUN 60241617	IDWATER				
QC Batch:	255826	Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radiu	m-226		
Associated Lab Sa	mples: 60241617	001, 60241617002, 60241617003, 602416170	04, 6024161700	)5		
METHOD BLANK:	1259995	Matrix: Water				
Associated Lab Sa	mples: 60241617	001, 60241617002, 60241617003, 602416170	04, 6024161700	)5		
Para	meter	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		

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.



# 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 (%)

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.



# 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
602416170 <b>0</b> 4	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		



# 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		



Sample Condition Upon Receipt

# WO#:60241617

Client Name:	Nestar									Home
Courier: FedEx [		′IA⊡ Clay	- y⊡ Pl	EX 🗆	EC		Pace 🛍	Xroads 🗖	Client 🗆	Other 🗆
Tracking #:				Shipp			d? Yes □	No 🗆		
Custody Seal on Co	oler/Box Presen	t: Yes 📈 🛚 N	No 🗆		-	: Yes				
Packing Material:	Bubble Wrap	Bubbl	e Bags 🗆			oam □	None	K Oth	ier 🗆	
Thermometer Used:	(CE+15) CE+0.9		Type of I	ce: W	et B	lue No				
Cooler Temperature	(°C): As-read	Oil co	orr. Facto	CF +1.5	5 + + 0.9	Correc	ted Zol		Date and i examining	initials of person
Temperature should be a	bove freezing to 6°	°C								,,
Chain of Custody pres	ent:		ж	Yes	□No	⊡n/A				
Chain of Custody relin	quished:			<b>Ø</b> Yes	□No	□n/A				
Samples arrived withir	1 holding time:			<b>E</b> Yes	□No	□n/A				
Short Hold Time ana	iyses (<72hr):			<b>₫</b> ¥es	□No	□n/A	PA			
Rush Turn Around T	ime requested:			□Yes		□n/A	1 I			
Sufficient volume:				Kyes	⊡No	□n/A				
Correct containers use	ed:			<b>I</b> ⊈ Yes	□No	⊡n/A				
Pace containers used:				Yes	ПNо	□n/A	_			
Containers intact:				<b>∦</b> ΩYes	□No	□n/A				X
Unpreserved 5035A /	TX1005/1006 soi	ls frozen in 48	hrs?	□Yes	□No					
Filtered volume receive	ed for dissolved t	ests?		□Yes	⊡No	🕅 N/A				
Sample labels match (	OC: Date / time	/ ID / analyses	3	<b>L</b> Yes	⊡No	□n/A				
Samples contain multi	ole phases?	Matrix:	WT	□Yes	10 No	□n/A			12	
Containers requiring p				Yes	□No	□n/A				
(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; Na			)							
(Exceptions: VOA, Micro Cyanide water sample		K-DRO)								
Lead acetate strip turn	•••••	only)		□Yes	□No					
Potassium iodide test	strip turns blue/pi	urple? (Preserv	ve)	□Yes	□No					
Trip Blank present:				□Yes						0
Headspace in VOA via	ls ( >6mm):			□Yes		100 N/A				
Samples from USDA R	equiated Area:	State:		□Yes	ΠNo					
Additional labels attach			the field?	□Yes		Men/A				
Client Notification/ Re			by COC to C			/ N	Field D	ata Required?	Y / N	
Person Contacted:		30P	Date/Tim		. ,			ala noquirou:	1 / 1	•
Comments/ Resolution	:		Date/ IIII							

Project Manager Review:

1		
40	mw	

Date: 4101

Pace Analytical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A	liant Information:	Section B Required Project Information:	nformation					Section C	Section C Invoice Information:	:uo									Page:		-	of /		
Company:	ENERGY	Report To: Brandon Griffin	don Griff	'n				Attention:		ared N	Jared Morrison				Г									
Address:	818 Kansas Ave	Copy To: Jared	1 Morrisc	in, Heath	Jared Morrison, Heath Hornya			Compar	Company Name:		WESTAR ENERGY	NERG	~		R	EGUL	TOR	REGULATORY AGENCY	X	Sile	(12)			
	Topeka, KS 66612							Address:		SEE	SEE SECTION A	ONA			Ŀ	NPDES	)ES	L GRO	GROUND WATER		ר DRI	DRINKING WATER	ATER	
Email To:		Purchase Order No	0					Pace Quote Reference	ote e						L	- UST		L RCRA	A		C OTHER	ER		
Phone:	(785) 575-8135 Fax:	Project Name:	TEC CCR Groundwater	R Groun	dwater			Pace Project Manager	12161	leathe	Heather Wilson, 913-563-1407	1, 913-t	563-14	07		Site Location	cation		0/1					
Request	Requested Due Date/TAT: 7 DAY	Project Number.						Pace Profile #:		9656, 1						S	STATE:		2					
														eques	ted An	alysis	Filter	Requested Analysis Filtered (Y/N)						
	Section D Valid Matrix Codes		(aw		COLLECTED	TED	-		۵.	Preservatives	atives	1074	1 N /A						77117					
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F-ALL-Q-020rev.08, 12-Oct-2007

-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.

	>		e e e e e e e e e e e e e e e e e e e	30015760				Face Analytical <sup>®</sup>	ttical stabs.com
Workorder: 60241617	Workorder	Workorder Name: TEC CCR GROUNDWATER	ROUNDW	VTER	Owner R	Owner Received Date:	4/7/2017	Results Requested By: 5/1/2017	2017
Report To		Subcontract To	t To				Requested Analysis	Analysis	
Heather Wilson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219		Pace A 1638 F Suites Greens	Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601	ırgh . 1		٤			
Phone 1(913)563-1407		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(724)850-5600			8 lejoT <i>/</i> 8 855 852-muit			
				Prese	Preserved Containers	z-wn			
Item Sample ID	Sample Type	- Collect Date/Time		HINO3 Watti X Watti X Matti X		ibeЯ		LAB USE ONLY	Ε ΟΝΓΥ
1 MW-4-040517	PS	4/5/2017 11:14	60241617001	Water 2		××		8	
2 MW-5-040517	PS	4/5/2017 13:19	60241617002	Water 2		××		5G 2	
3 MVV-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		18	
5 DUP-040517	PS	4/5/2017 08:00	60241617005	Water 2		X X		002	
								Comments	
Transfers Released By	ç	Date/Time	Received By	>	Da	Date/Time			
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ñ									
Cooler Temperature on Receipt	sceipt N/A °C		Custody Seal Y	or (N)	Receive	Received on Ice Y o	or (N)	Samples Intact V or N	7

Monday, April 10, 2017 9:19:02 AM bage 41 of 45

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Sample Condition Upon Rec	ceipt	Pitts	sbur	gh	
Face Analytical Client Name:		Pa	ĥ (l	Kansas	Project # <u>30 2 1 5 7 6</u> 0
Courier: 2 Fed Ex UPS USPS CI Tracking #: 7285 6591 4130, 7					
Custody Seal on Cooler/Box Present: Ve	s 🗌	no	Se	als intact: 🖉 yes	no
Thermometer Used				et Blue Mone	
Cooler Temperature Observed Temp	NA	- ° C	Со	rrection Factor <u>:</u> N	∫_°C Final Temp <u>: NV</u> A_°C
			<del>- 1</del>	-	Date and Initials of person examining contents: KTA 4/11/17
Comments:	Yes	s No	5   N/	A	· · · · · · · · · · · · · · · · · · ·
Chain of Custody Present:	$\vdash$			1.	
Chain of Custody Filled Out:	$\parallel$			2	
Chain of Custody Relinquished:	<	+		3.	
Sampler Name & Signature on COC:		$\not\models$		4.	
Sample Labels match COC:				5.	
-Includes date/time/ID Matrix: W	+	1	<del></del>		
Samples Arrived within Hold Time:	$\swarrow$		_	6.	
Short Hold Time Analysis (<72hr remaining):		$\mid$		7.	
Rush Turn Around Time Requested:		$\mid$		8.	·
Sufficient Volume:				9.	
Correct Containers Used:				10.	
-Pace Containers Used:	/				
Containers Intact:	$\square$		1.5-12-22	11.	
Orthophosphate field filtered	<u> </u>	<u> </u>	1	12.	
Organic Samples checked for dechlorination:			12	13.	
Filtered volume received for Dissolved tests			/	14.	
All containers have been checked for preservation.	/			15. pH 22	
All containers needing preservation are found to be in compliance with EPA recommendation.					
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when KH	Date/time of preservation
				Lot # of added	
	1 1			preservative	
leadspace in VOA Vials ( >6mm):			$\vdash$	16.	
rip Blank Present:	┠	_		17.	
rip Blank Custody Seals Present Rad Aqueous Samples Screened > 0.5 mrem/hr		·	$\leq$	Initial when	
au Aqueous Samples Screeneu > 0.5 mrem/mr		_		Initial when completed: KH	Date: 4/11/17
lient Notification/ Resolution:					
Person Contacted:			Date/	Fime:	Contacted By:
Comments/ Resolution:					·····
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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.

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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,

Autor m. Wilson

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.: 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

# 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 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

Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587 Missouri Certification: 10070



# 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



# SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60245012001		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
0245012002	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
0245012003	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
0245012004	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
0245012005	DUP-052417	EPA 200.7	TDS	7	PASI-K



# 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



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

# Method: EPA 200.7

Description:200.7 Metals, TotalClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

# Method: EPA 200.8

Description:200.8 MET ICPMSClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

# Method: EPA 245.1

Description:245.1 MercuryClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

Method:EPA 903.1Description:903.1 Radium 226Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

# Method:EPA 904.0Description:904.0 Radium 228

Client:WESTAR ENERGYDate: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



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

# Method: Total Radium Calculation

Description:Total Radium 228+226Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

#### Method: SM 2540C

Description:2540C Total Dissolved SolidsClient:WESTAR ENERGYDate: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:**



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

Method:	SM 4500-H+B
<b>Description:</b>	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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

Method:EPA 300.0Description:300.0 IC Anions 28 DaysClient:WESTAR ENERGYDate: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.



# Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

Sample: MW-4-052317	Lab ID: 602	245012001	Collected: 05/23/1	7 14:03	3 Received: 05	5/24/17 16:20 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	hod: EPA 200	0.7 Preparation Met	hod: El	PA 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 Met	hod: EPA 200	0.8 Preparation Met	hod: El	PA 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 Met	hod: EPA 24	5.1 Preparation Met	hod: El	PA 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 Met	hod: SM 254	0C					
Total Dissolved Solids	980	mg/L	5.0	1		05/26/17 09:59		
4500H+ pH, Electrometric	Analytical Met	hod: SM 450	0-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 Met	hod: EPA 300	0.0					
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		



# Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

Sample: MW-5-052317	Lab ID: 602	245012002	Collected: 05/23/1	7 15:18	Received: 05	5/24/17 16:20 I	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	thod: EPA 200	0.7 Preparation Met	hod: EF	PA 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 Met	thod: EPA 200	0.8 Preparation Met	hod: EF	PA 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 Met	thod: EPA 24	5.1 Preparation Met	hod: EF	PA 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 Met	thod: SM 254	0C					
Total Dissolved Solids	1530	mg/L	5.0	1		05/26/17 09:59	1	
4500H+ pH, Electrometric	Analytical Met	thod: SM 450	0-H+B					
pH at 25 Degrees C	7.4	Std. Units	0.10	1		05/31/17 09:20	1	H6
300.0 IC Anions 28 Days	Analytical Met	thod: EPA 300	0.0					
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	



# Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

Sample: MW-6-052417	Lab ID: 602	245012003	Collected: 05/24/1	7 07:27	7 Received: 05	5/24/17 16:20 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	hod: EPA 200	0.7 Preparation Met	thod: EF	PA 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 Met	hod: EPA 200	0.8 Preparation Met	thod: EF	PA 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 Met	hod: EPA 24	5.1 Preparation Met	thod: EF	PA 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 Met	hod: SM 254	0C					
Total Dissolved Solids	1680	mg/L	5.0	1		05/26/17 09:59		
4500H+ pH, Electrometric	Analytical Met	hod: SM 450	0-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 Met	hod: EPA 300	0.0					
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	



# Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

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           Beryllum, 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         0.88         mg/L         0.100         1         05/25/17         15:06         06/12/17         14:24         7440-42-8           Calcium, Total Recoverable         0.0050         mg/L         0.0050         1         05/25/17         15:06         06/12/17         14:24         7439-92-1           Lithium         d.0010         mg/L         0.0050         1         05/26/17         15:06         06/12/17         14:24         7439-92-1           Cons MET ICPMS         Analytical Method:         EPA 200.8         Preparation Method:         EPA 200.7         740-38-0           Cadmium, Total Recoverable	Sample: MW-1-052417	Lab ID: 6	0245012004	Collected: 05/24/1	7 11:57	Received: 05	5/24/17 16:20 I	Matrix: Water	
Barium, Total Recoverable         0.19         mg/L         0.0050         1         06/25/17         15:06         06/12/17         14:24         7440-39-3           Beryllium, Total Recoverable         0.38         mg/L         0.101         1         05/25/17         15:06         06/12/17         14:24         7440-41-7           Boron, Total Recoverable         0.38         mg/L         0.10         1         05/25/17         15:06         06/12/17         14:24         7440-42-8           Calcium, Total Recoverable         0.0050         mg/L         0.0050         1         05/25/17         15:06         06/12/17         14:24         7440-42-8           Calcium, Total Recoverable         -0.0050         mg/L         0.0050         1         05/25/17         15:06         06/12/17         14:24         7449-92-1           Lithium         -0.0050         mg/L         0.0010         1         05/25/17         15:06         06/12/17         14:24         7449-92-1           200.8 MET ICPMS         Analytical Method: EPA 200.8 Preparation Method:         EPA 200.8         Preparation Method:         EPA 200.8         06/15/17         17:27         7440-36-0           Cobalt, Total Recoverable         -0.0010         mg/L         0.0010	Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Beryllium, Total Recoverable         <0.0010         mg/L         0.010         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         -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           Lead, Total Recoverable         -0.0010         mg/L         0.010         1         05/25/17         15:06         06/12/17         14:24         7440-47-3           Lead, Total Recoverable         -0.0010         mg/L         0.010         1         05/25/17         15:06         06/12/17         14:24         7440-36-2           Arsenic, Total Recoverable         -0.0010         mg/L         0.0010         1         05/30/17         05:33         06/15/17         17:27         7440-38-2           Cadmium, Total Recoverable         -0.0010         mg/L         0.0	200.7 Metals, Total	Analytical M	1ethod: EPA 20	0.7 Preparation Met	hod: EF	PA 200.7			
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         0.0050         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         0.0010         1         05/25/17         05:30         06/15/17         17:27         7440-38-2           200.8 MET ICPMS         Analytical Method: EPA 200.8         regretarion Method:         EPA 200.8         06/30/17         16:33         06/15/17         17:27         7440-38-2           Cadium, Total Recoverable         -0.0010         mg/L         0.0010         1         05/30/17         06/15/17         17:27         7440-43-9           Cobalt, Total Recoverable         -0.0010         mg/L         0.0010         1	Barium, Total Recoverable	0.19	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:24	7440-39-3	
Calcium, Total Recoverable Chromium, Total Recoverable         165         mg/L         0.10         1         05/25/17 15:06         06/12/17 14:24         7440-70-2           Chromium, Total Recoverable         40.0050         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         7439-93-2           200.8 MET ICPMS         Analytical Method: EPA 200.8 Prepartion Method:         EPA 200.8 Prepartion Method:         EPA 200.8 Prepartion Method:         EPA 200.7 16:33         06/15/17 17:27         7440-36-0           Antimony, Total Recoverable         <0.0017	Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	05/25/17 15:06	06/12/17 14:24	7440-41-7	
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	Boron, Total Recoverable	0.88	mg/L	0.10	1	05/25/17 15:06	06/12/17 14:24	7440-42-8	
Lead, Total Recoverable         <0.0050         mg/L         0.0050         1         05/25/17 15:06         06/12/17 14:24         7439-92-1           200.8 MET ICPMS         Analytical Method: EPA 200.8 Preparation Method:         EPA 200.8         Preparation 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           Cadmium, Total Recoverable         <0.0017         mg/L         0.0010         1         05/30/17 16:33         06/15/17 17:27         7440-38-2           Cobalt, Total Recoverable         <0.0010         mg/L         0.0010         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         7440-43-9           Cobalt, Total Recoverable         <0.0011         mg/L         0.0010         1         05/30/17 16:33         06/15/17 17:27         7440-48-4           Molybdenum, 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         <	Calcium, Total Recoverable	165	mg/L	0.10	1	05/25/17 15:06	06/12/17 14:24	7440-70-2	
Lithium         <0.010         mg/L         0.010         1         05/25/17 15:0         06/12/17 14:24         7439-32           200.8 MET ICPMS         Analytical Network         EVA200.8 Projection         View         Vie	Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:24	7440-47-3	
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       7440-38-2         Cadmium, Total Recoverable       -0.00050       mg/L       0.00010       1       05/30/17 16:33       06/15/17 17:27       7440-43-9         Cobalt, Total Recoverable       -0.00050       mg/L       0.0010       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       7440-43-9         Cobalt, Total Recoverable       -0.0011       mg/L       0.0010       1       05/30/17 16:33       06/15/17 17:27       7440-48-4         Molybdenum, Total Recoverable       -0.0010       mg/L       0.0010       1       05/30/17 16:33       06/15/17 17:27       7440-48-9         Analytical Method:       EPA 245.1       Preparation Method:       District Method:       0.0010       1       05/30/17 16:33       06/15/17 17:27       7440-48-9         Verati       Analytical Method:       EPA 245.1       Preparation Method:       District Method:       District Method:       District Method:       District Method:       Distri	Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	05/25/17 15:06	06/12/17 14:24	7439-92-1	
Antimony, Total Recoverable       <0.0010	Lithium	<0.010	mg/L	0.010	1	05/25/17 15:06	06/12/17 14:24	7439-93-2	
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	200.8 MET ICPMS	Analytical M	1ethod: EPA 20	0.8 Preparation Met	hod: EF	PA 200.8			
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	Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:27	7440-36-0	
Cobalt, Total Recoverable Molybdenum, Total Recoverable Selenium, Total Recoverable Thallium, Total Recoverable Thallium, Total Recoverable Thallium, Total Recoverable </td <td>Arsenic, Total Recoverable</td> <td>0.0017</td> <td>mg/L</td> <td>0.0010</td> <td>1</td> <td>05/30/17 16:33</td> <td>06/15/17 17:27</td> <td>7440-38-2</td> <td></td>	Arsenic, Total Recoverable	0.0017	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:27	7440-38-2	
Molyberum, Total Recoverable Selenium, Total Recoverable Thallium, Total Recoverable         0.0011         mg/L         0.0010         1         05/30/17 16:33         06/15/17 17:27         7439-98-7           245.1 Mercury         Analytical Method         EPA 245.1         Preparation         0.0010         1         05/30/17 16:33         06/15/17 17:27         7439-98-7           245.1 Mercury         Analytical Method         EPA 245.1         Preparation         Method         EPA 245.1         Preparation         06/02/17 16:33         06/15/17 17:27         7439-98-7           Mercury         Analytical Method         EPA 245.1         Preparation         0.0010         1         05/30/17 16:33         06/15/17 17:27         7439-98-7           Mercury         Analytical Method         EPA 245.1         Preparation         0.0010         1         05/30/17 16:33         06/15/17 17:27         7439-98-7           Mercury         Analytical Method         EPA 245.1         Preparation         0.0010         1         0.602/17 15:45         06/05/17 10:40         7439-97-6           2540C Total Dissolved Solids         Analytical Method         SM 2540C         1         0.5/26/17 09:59         Method           4500H+ pH, Electrometric         Analytical Method         SM 400-H+B         0.10 <th< td=""><td>Cadmium, Total Recoverable</td><td>&lt;0.00050</td><td>mg/L</td><td>0.00050</td><td>1</td><td>05/30/17 16:33</td><td>06/15/17 17:27</td><td>7440-43-9</td><td></td></th<>	Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	05/30/17 16:33	06/15/17 17:27	7440-43-9	
Selenium, Total Recoverable         <0.0010         mg/L         0.0010         1         05/30/17 16:33         06/15/17 17:27         7782-49-2           245.1 Mercury         Analytical Method         EPA 245.1         Preparation         8440-28-0           Mercury         <0.0000         mg/L         0.0010         1         05/30/17 16:33         06/15/17 17:27         7782-49-2           Mercury          Analytical Method         EPA 245.1         Preparation         8450         9400         7430-97-6           2540C Total Dissolved Solids         Analytical Method         SM 2540C         1         06/02/17 15:45         06/05/17 10:40         7439-97-6           Total Dissolved Solids         905         mg/L         0.00020         1         06/02/17 15:45         06/05/17 10:40         7439-97-6           H at 25 Degrees C         905         mg/L         5.0         1         05/26/17 09:59         H6           300.0 IC Anions 28 Days         Analytical Method         EPA 300.0         1         05/26/17 05:29         16887-00-6           Gloride         18.7         mg/L         1.0         1         05/26/17 05:29         16887-00-6           Bluoride         0.37         mg/L         0.20         1 <th< td=""><td>Cobalt, Total Recoverable</td><td>&lt;0.0010</td><td>mg/L</td><td>0.0010</td><td>1</td><td>05/30/17 16:33</td><td>06/15/17 17:27</td><td>7440-48-4</td><td></td></th<>	Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:27	7440-48-4	
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 Met-U       EPA 245.1       Preparation Met-U       EPA 245.1       0.0020       1       06/02/17 15:45       06/05/17 10:40       7439-97-6         2540C Total Dissolved Solids       Analytical Met-U       SM 2540C       1       06/02/17 15:45       06/05/17 10:40       7439-97-6         Total Dissolved Solids       Analytical Met-U       SM 2540C       1       06/02/17 15:45       06/05/17 10:40       7439-97-6         Total Dissolved Solids       905       mg/L       5.0       1       05/26/17 09:59       -       -         4500H+ pH, Electrometric       Analytical Met-U       SM 4500-H+B       1       05/31/17 10:13       H6         300.0 IC Anions 28 Days       Analytical Met-U       EPA 300.0       1       05/26/17 05:29       16887-00-6         Fluoride       18.7       mg/L       1.0       1       05/26/17 05:29       16887-00-6         0.020       1       0.20       1       05/26/17 05:29       16887-00-6       16884-48-8	Molybdenum, Total Recoverable	0.0011	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:27	7439-98-7	
245.1 Mercury       Analytical Method: EPA 245.1 Preparation Method: EPA 245.1         Mercury <t< td=""><td>Selenium, Total Recoverable</td><td>&lt;0.0010</td><td>mg/L</td><td>0.0010</td><td>1</td><td>05/30/17 16:33</td><td>06/15/17 17:27</td><td>7782-49-2</td><td></td></t<>	Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:27	7782-49-2	
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 <th< th=""> <t< td=""><td>Thallium, Total Recoverable</td><td>&lt;0.0010</td><td>mg/L</td><td>0.0010</td><td>1</td><td>05/30/17 16:33</td><td>06/15/17 17:27</td><td>7440-28-0</td><td></td></t<></th<>	Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 17:27	7440-28-0	
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                  10         05/26/17 05:29 16887-00-6	245.1 Mercury	Analytical M	lethod: EPA 24	5.1 Preparation Met	hod: EF	PA 245.1			
Total Dissolved Solids       905       mg/L       5.0       1       05/26/17 09:59         4500H+ pH, Electrometric       Analytical Method: SM 4500-H+B       V       V       V         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       V       V       V       V         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       16887-00-6	Mercury	<0.00020	mg/L	0.00020	1	06/02/17 15:45	06/05/17 10:40	7439-97-6	
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       1       05/26/17 05:29       16887-00-6         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	2540C Total Dissolved Solids	Analytical M	lethod: SM 254	10C					
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       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	Total Dissolved Solids	905	mg/L	5.0	1		05/26/17 09:59	)	
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	4500H+ pH, Electrometric	Analytical M	lethod: SM 450	00-H+B					
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	pH at 25 Degrees C	7.4	Std. Units	0.10	1		05/31/17 10:13	5	H6
Fluoride 0.37 mg/L 0.20 1 05/26/17 05:29 16984-48-8	300.0 IC Anions 28 Days	Analytical M	lethod: EPA 30	0.0					
Fluoride 0.37 mg/L 0.20 1 05/26/17 05:29 16984-48-8	Chloride	18.7	mg/L	1.0	1		05/26/17 05:29	16887-00-6	
<b>.</b>	Fluoride	0.37	-		1		05/26/17 05:29	16984-48-8	
	Sulfate	357	mg/L	50.0	50		05/26/17 04:43	14808-79-8	



# Project: TEC CCR GROUNDWATER

Pace Project No.: 602450

# 60245012

Sample: DUP-052417	Lab ID: 6	0245012005	Collected: 05/24/	17 06:00	Received: 05	5/24/17 16:20 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical M	ethod: EPA 20	0.7 Preparation Me	thod: EF	PA 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 M	ethod: EPA 20	0.8 Preparation Me	thod: EF	PA 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 M	ethod: EPA 24	5.1 Preparation Me	thod: EF	PA 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 M	ethod: SM 254	OC					
Total Dissolved Solids	1660	mg/L	5.0	1		05/26/17 10:00		
4500H+ pH, Electrometric	Analytical M	ethod: SM 450	)0-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 M	ethod: EPA 30	0.0					
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	



,		OWATER										
·	60245012											
QC Batch:	479454		Analys	sis Method	: E	PA 245.1						
QC Batch Method:	EPA 245.1		Analys	sis Descrip	tion: 2	45.1 Mercury	/					
Associated Lab Samp	les: 602450120	01, 60245012002	, 60245012	2003, 6024	5012004, 6	0245012005	5					
METHOD BLANK: 1	963749		٦	Matrix: Wa	ter							
Associated Lab Samp	les: 602450120	01, 60245012002	, 60245012	2003, 6024	5012004, 6	0245012005	5					
			Blank		leporting							
Parame	ter	Units	Resu	lt	Limit	Analyz	ed	Qualifiers				
Mercury		mg/L	<0.0	00020	0.00020	06/05/17	10:03					
LABORATORY CONT	ROL SAMPLE:	1963750										
Parame	ter	Units	Spike Conc.	LCS Resu		LCS % Rec	% Rec Limits		alifiers			
Mercury		mg/L	.005	;	0.0046	92	85	5-115		-		
MATRIX SPIKE & MA	TRIX SPIKE DUPL	ICATE: 19637	51		1963752							
			MS	MSD								
Parameter	Units	60244908002 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury			.005	.005	0.0045		90	86	70-130	4		Quui
MATRIX SPIKE SAMI	PLE:	1963753			- ··			-				
Parame	tor	Units	602454 Res		Spike Conc.	MS Result	M % F		% Rec Limits		Qualif	iors
				ND							Quali	
Mercury		mg/L		UVI	.005	0.004	40	93	70-1	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.



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

QC Batch:	4784	03	Analysis Method:	EPA 200.7
QC Batch Method:	EPA	200.7	Analysis Description:	200.7 Metals, Total
Associated Lab Sam	oles:	60245012001, 60245012002, 60	0245012003. 60245012004	. 60245012005

# METHOD BLANK: 1959584

Matrix: Water

Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

		Blank	Reporting		
Parameter	Units	Result	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
1 aldificter				70 1100		Quanners
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 S	SPIKE DUPLICA	ATE: 19595			1959588							
Demonstra		0244275002	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	0
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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	60245012001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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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# 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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Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

QC Batch:	4788	16	Analysis Method:	EPA 200.8
QC Batch Method:	EPA	200.8	Analysis Description:	200.8 MET
Associated Lab Sam	ples:	60245012001, 60245012002,	60245012003, 6024501200	04, 60245012005

# METHOD BLANK: 1961478

Matrix: Water

Associated Lab Samples: 60245012001, 60245012002, 60245012003, 60245012004, 60245012005

		Blank	Reporting		
Parameter	Units	Result	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 S		ATE: 19614	80		1961481							
			MS	MSD								
	6	0245311001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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	00045400004	Creiles	MC	MC	% Dee	
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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# Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

MATRIX SPIKE SAMPLE:	1961482						
		60245129001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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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Project: Pace Project No.:	TEC CCR GROU 60245012	INDWATER					
QC Batch:	478497		Analysis M	ethod:	SM 2540C		
QC Batch Method:	SM 2540C		Analysis De	escription:	2540C Total Dis	ssolved Solids	
Associated Lab Sam	nples: 6024501	2001, 602450120	02, 60245012003,	60245012004	, 60245012005		
METHOD BLANK:	1959902		Matrix	k: Water			
Associated Lab Sam	nples: 6024501	2001, 602450120	02, 60245012003, Blank	60245012004 Reporting	, 60245012005		
Param	neter	Units	Result	Limit	Analyze	d Quali	fiers
Total Dissolved Solid	ds	mg/L	<5.0	) 5	5.0 05/26/17 09	9:56	
LABORATORY CON	NTROL SAMPLE:	1959903	0	1.00	1.00	0/ D	
Param	neter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solid	ds	mg/L	1000	957	96	80-120	
SAMPLE DUPLICAT	TE: 1959904						
			60244977001	Dup		Max	
Param	neter	Units	Result	Result	RPD	RPD	Qualifiers
Total Dissolved Solid	ds	mg/L	483	3 40	67	3	10
SAMPLE DUPLICAT	TE: 1959905						
-	-		60245105001	Dup		Max	
Param	neter	Units	Result	Result	RPD	RPD	Qualifiers
Total Dissolved Solid		mg/L			61	1	10

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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 Sam	ples: 60245012001, 6024	5012002, 60245012003	
SAMPLE DUPLICAT	E: 1961738		

		60244894002	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.7	7.7	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.



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

QC Batch:	478998		Analysis Meth	od:	SM 4500-H+B		
QC Batch Method:	SM 4500-H+B		Analysis Desc	ription:	4500H+B pH		
Associated Lab Sar	nples: 60245012004						
SAMPLE DUPLICA	TE: 1961976						
			60245063001	Dup		Max	
Parar	neter	Units	60245063001 Result	Dup Result	RPD	Max RPD	Qualifiers

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.



# **QUALITY CONTROL DATA**

Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

pH at 25 Degrees C		Std. Units	6.4	6	5.4	0	5 H6
Param	ieter	Units	Result	Result	RPD	RPD	
			60245259004	Dup		Max	
SAMPLE DUPLICAT	E: 1962378						
Associated Lab Sam	ples: 602450120	05					
QC Batch Method:	SM 4500-H+B		Analysis Desc	ription:	4500H+B pH		
QC Batch:	479125		Analysis Meth	od:	SM 4500-H+B		

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.



# **QUALITY CONTROL DATA**

Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

QC Batch:	4783	69	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 3	300.0	Analysis Description:	300.0 IC Anions
Associated Lab Samp	oles:	60245012001, 60245012002, 6	0245012003, 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 SPI	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1959407											
			MS	MSD								
	60	0245000004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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						
		60245054008	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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	

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

QC Batch: 478801		Analysis N	Method:	EP	PA 300.0		
QC Batch Method: EPA 300.0		Analysis [	Description:	30	0.0 IC Anion	S	
Associated Lab Samples: 60245012	005						
METHOD BLANK: 1961443		Mat	rix: Water				
Associated Lab Samples: 60245012	005						
		Blank	Reportin	g			
Parameter	Units	Result	Limit		Analyze	d Qualif	iers
Chloride	mg/L		.0	1.0	05/30/17 08	3:55	
Sulfate	mg/L	<1	.0	1.0	05/30/17 08	3:55	
ABORATORY CONTROL SAMPLE:	1961444						
		Spike	LCS		LCS	% Rec	
Parameter	Units	Conc.	Result	%	% Rec	Limits	Qualifiers
Chloride	mg/L		4.6		92	90-110	
Sulfate	mg/L	5	5.3		106	90-110	

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



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

<b>Sample: MW-4-052317</b> PWS:	Lab ID: 60245 Site ID:	012001 Collected: 05/23/17 14:03 Sample Type:	Received:	05/24/17 16:20	Matrix: Water	
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 20:33	7 13982-63-3	
Radium-228	EPA 904.0	0.885 ± 0.454 (0.806) C:71% T:88%	pCi/L	06/09/17 15:3	1 15262-20-1	
Total Radium	Total Radium Calculation	0.885 ± 0.807 (1.57)	pCi/L	06/13/17 11:19	9 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

<b>Sample: MW-5-052317</b> PWS:	Lab ID: 602450 Site ID:	012002 Collected: 05/23/17 15:18 Sample Type:	Received:	05/24/17 16:20	Matrix: Water	
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 20:3	7 13982-63-3	
Radium-228	EPA 904.0	0.321 ± 0.462 (0.995) C:70% T:78%	pCi/L	06/09/17 15:3	1 15262-20-1	
Total Radium	Total Radium Calculation	0.940 ± 1.02 (1.82)	pCi/L	06/13/17 11:19	9 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

<b>Sample: MW-6-052417</b> PWS:	Lab ID: 602450 Site ID:	012003 Collected: 05/24/17 07:27 Sample Type:	Received:	05/24/17 16:20	Matrix: Water	
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 20:33	7 13982-63-3	
Radium-228	EPA 904.0	0.849 ± 0.463 (0.838) C:72% T:82%	pCi/L	06/09/17 15:3	1 15262-20-1	
Total Radium	Total Radium Calculation	1.13 ± 1.01 (1.81)	pCi/L	06/13/17 11:19	9 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

<b>Sample: MW-1-052417</b> PWS:	Lab ID: 602450 Site ID:	012004 Collected: 05/24/17 11:57 Sample Type:	Received:	05/24/17 16:20	Matrix: Water	
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 20:3	7 13982-63-3	
Radium-228	EPA 904.0	0.590 ± 0.445 (0.881) C:69% T:84%	pCi/L	06/09/17 15:3	1 15262-20-1	
Total Radium	Total Radium Calculation	1.07 ± 0.972 (1.71)	pCi/L	06/13/17 11:19	9 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60245012

Sample: DUP-052417 PWS:	Lab ID: 60245 Site ID:	012005 Collected: 05/24/17 06:00 Sample Type:	Received:	05/24/17 16:20	Matrix: Water	
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	2 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	2 15262-20-1	1e
Total Radium	Total Radium Calculation	1.60 ± 1.05 (1.84)	pCi/L	06/13/17 11:19	9 7440-14-4	



# **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Pace Project No.:	TEC CCR GROUNI 60245012	DWATER				
QC Batch:	260151	Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radiu	m-226		
Associated Lab Sa	mples: 602450120	01, 60245012002, 60245012003, 602450120	04, 6024501200	5		
METHOD BLANK:	1281549	Matrix: Water				
Associated Lab Sa	mples: 602450120	01, 60245012002, 60245012003, 602450120	04, 6024501200	5		
Para	meter	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		

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.



# **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Pace Project No.:	TEC CCR GROUI 60245012	NDWATER				
QC Batch:	260205	Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium	228		
Associated Lab Sa	mples: 60245012	2001, 60245012002, 60245012003, 602450120	04, 60245012005	5		
METHOD BLANK:	1281745	Matrix: Water				
Associated Lab Sa	mples: 60245012	2001, 60245012002, 60245012003, 602450120	04, 60245012005	5		
Para	meter	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	-

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.



# 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 (%)

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

TNI - The NELAC Institute.

#### LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

#### ANALYTE QUALIFIERS

- 1e 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.



# 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		



# 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		



Sample Condition Upon Receipt

# WO#:60245012 60245012

Client Name: Weyhar Energy		
Courier: FedEx UPS VIA Clay PE		Pace 🛍 🛛 Xroads 🗆 Client 🗆 Other 🗆
Tracking #: Pace	Shipping Label Used	d?Yes 🗆 No 🗆
Custody Seal on Cooler/Box Present: Yes 🗆 No 🕅	Seals intact: Yes	⊐ No 🗖
Packing Material: Bubble Wrap Q Bubble Bags	Foam 🗆	None 🛍 🛛 Other 🗆
Thermometer Used: $T-266$ ( $T-239$ ) Type of lo	ce Wet Blue Nor	
Cooler Temperature (°C): As-read 2.4 Corr. Factor	CF +2.9 CF +0.2 Correct	ted 2.4 Date and initials of person examining contents:
Temperature should be above freezing to 6°C		
Chain of Custody present:	¥yes □No □N/A	
Chain of Custody relinquished:	Kyes □No □N/A	
Samples arrived within holding time:	Yes No N/A	
Short Hold Time analyses (<72hr):	¥Yes □No □N/A	ρH
Rush Turn Around Time requested:	□Yes 🖾No □N/A	•
Sufficient volume:	∦Yes □No □N/A	
Correct containers used:	KΩYes □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 IIIN/A	
Sample labels match COC: Date / time / ID / analyses	¥Yes □No □N/A	
Samples contain multiple phases? Matrix: VT	□Yes 🗰No □N/A	
Containers requiring pH preservation in compliance?	XYes □No □N/A	
(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCI<2; NaOH>9 Sulfide, NaOH>10 Cyanide)		
(Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) 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 MN/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		Field Data Required? Y / N
Person Contacted: Date/Tir	me:	
Comments/ Resolution:		

Project Manager Review:

Date: 5/25/17

Pace Analytical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

n, Heath Hornya COLLECTED COLLECTED COMPOSITE START COLLECTED COLLECTED COMPOSITE START TIME DATE SS/34 DDD SS/34 DDD DDD SS/34 DDD SS/34 DDD SS/34 DDD SS/34 DDD SS/34 SS/34 DDD SS/34 SS/34 DDD SS/34 SS/3	Section A		Section B Required Project Information:	t Informati	ion:				Section C Invoice Information:	C Struction:								L a	Page:	/ of	1	
101 Materia Marca M	:ompany:	ENERGY	Report To: Bra	ndon Gi	riffin				Attention:	Jare	d Morris	ы				-						
Topolar, 16         Tenden         Te	Address:			ed Morri	ison, Hea	th Hornya			Company		VESTAF	R ENER	37		REC	SULATO	IRY AGE	NCY				
Trunch         Trunch         Trunch         Trunch         Trunch         Trunch         Truch		Topeka, KS 66612							Address:	S	SEE SEC	TION A			D	NPDES	ц Ц	N DUND			KING WAT	R
Пакт         Таку         Таку         Таку         Ван совано         Состо Созановано         За уда совано         Подании         Подании <td>Email To:</td> <td></td> <td>Purchase Order</td> <td>No.:</td> <td></td> <td></td> <td></td> <td></td> <td>Pace Quote Reference:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>L</td> <td>UST</td> <td>L RC</td> <td>RA</td> <td></td> <td>OTHE</td> <td>2</td> <td></td>	Email To:		Purchase Order	No.:					Pace Quote Reference:						L	UST	L RC	RA		OTHE	2	
Tork         Tork         Sanze         S		Fax:	Project Name:	TEC C	CR Grou	Indwater			Pace Projec Manager:		ther Wils	son, 913	-563-14	201	Sit	e Locati	uc	с X				
али и и и и и и и и и и и и и и и и и и	Requested	7 DAY	Project Number.						Pace Profile		6, 1					STAT	ů		- ////			
Повеление         <												Π	11	equest	ed Anal	ysis Fi	tered (YII	1				
	01 @		- H			COLLEC	TED			Pres	ervative	5	1 N /A									
Same         Same <t< td=""><td></td><td>DRINKING WATER WATER WASTE WATER PRODUCT SOLIDO</td><td></td><td></td><td>COMPOSI</td><td>Ш</td><td>COMPOSITE END/GRAB</td><td>OLLECTION</td><td></td><td></td><td></td><td></td><td></td><td>**SI6</td><td>4</td><td></td><td></td><td></td><td></td><td>245</td><td>20</td><td></td></t<>		DRINKING WATER WATER WASTE WATER PRODUCT SOLIDO			COMPOSI	Ш	COMPOSITE END/GRAB	OLLECTION						**SI6	4					245	20	
Samples (Heed, Collocy: Sealed Collocy: Sealed Milling (File)     Milling (File)       Samples (Heed, Collocy: Sealed Collocy: Sealed Milling (File)     Milling (File)       Collocy: Sealed Collocy: Sealed Milling (File)     Milling (File)       Collocy: Sealed Milling (File)     Milling (File)       Milling (File)		UIL MIPE AIR OTHER TISSUE						D TA 9M9T :	ЯЗИІАТИС		٤(			tetal MetoT			822 u					
3733     141     3     141     3     141     3       17     16     5733     1718     141     3     141       17     16     5724     1737     141     3     141       17     17     141     3     141     3     141       17     141     3     141     3     141     3       17     141     3     141     3     141     141       17     141     3     141     3     141     141       17     141     3     141     3     141     141       17     141     3     141     3     141     141       17     141     3     141     3     141     141       17     141     3     141     3     141     141       17     141     13     141     141     141     141       17     141     13     141     141     141     141       17     141     13     141     141     141     141       141     141     141     141     141     141     141       141     141     141     141     141	# WBJ		XIATAN		TFAC				# OF CC	<sup>€</sup> ONH <sup>₽</sup> OS <sup>7</sup> H	HOBN	Methan		L 8.002		_	nuibeA			ace Proj	ect No./ L	ab I.D.
WTG     5/33     1578     41     3       WTG     5/24     0217     41     3       WTG     5/24     020     41     3       WTG     5/24     020     41     3       MTG     0     41     3     1       MTG     1     1     1     1       MTG     1     1 </td <td>u .</td> <td>-4-</td> <td>13</td> <td></td> <td></td> <td>-</td> <td></td> <td>1.</td> <td>7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>248</td> <td></td> <td>A198(2)</td> <td>2</td>	u .	-4-	13			-		1.	7										248		A198(2)	2
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F-ALL-Q-020rev.08, 12-Oct-2007

"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 involces not paid within 30 days.

Chair	Chain of Custody	dy								6	) es <sup>101</sup>
		ň								Pace	ace Analytical www.pacelabs.com
Workord	Workorder: 60245012	Workorder N	Workorder Name: TEC CCR GROUNDWAT	R GROUNDW	ATER	0	Owner Received Date:	ived Date:	5/24/2017 Res	Results Requested By:	6/5/2017
Report To			Subcontract To	xt To					Requested Analysis	ysis	
Heather Wilson Pace Analytical k 9608 Loiret Blvd. Lenexa, KS 662 Phone 1(913)563	Heather Wilson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 1(913)563-1407		Pace / 1638 F Suites Green Phone	Pace Analytical Pittsburg 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600	d d 01				N0#:30	V0#:30219988	
						Preserved	Preserved Containers	2-muibeA 0T & ð22-n			
Item Sam	Sample ID	Sample Collect Type Date/Tii	Collect Date/Time	Lab ID	Matrix	ЕОИН		nuibe A			LAB USE ONLY
1 MW-4-	MW-4-052317	PS	5/23/2017 14:03	60245012001	Water	2		××			100
2 MW-5-	MW-5-052317	PS	5/23/2017 15:18	60245012002	Water	2		××			CM2
3 MW-6-	MW-6-052417	PS	5/24/2017 07:27	60245012003	Water	2 4 5		××			202
4 MW-1-	MW-1-052417	PS	5/24/2017 11:57	60245012004	Water	2		××			84
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Cooler T	<b>Cooler Temperature on Receipt</b>	214	C Cus	Custody Seal Y	or N		Received on Ice	۲	or (N)	Samples Intact (Y)	Sor N
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\*\*\*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.

MA 25, 2017 8:32:28 AM Thursday, May 25, 2017 8:32:28 AM

Page 1 of 1

Cooler Temperature       Observed Temp       Correction Factor       Fillal Temp         Temp should be above freezing to 6°C       Date and Initials of perconceration contents       Date and Initials of perconceration contents         Chain of Custody Present:       1       1       Chain of Custody Present:       1         Chain of Custody Present:       1       2       Contents       2         Chain of Custody Relinguished:       3       3       3         Sampler Name & Signature on COC:       4       4         Sample Labels match COC:       4       5         -Includes date/lime/ID       Matrix:       Within Hold Time:       8         Samples Arrived within Hold Time:       8       8       5         Short Hold Time Analysis (<72hr remaining):       7.       7       7         Rush Turn Around Time Requested:       9       9       6         Correct Containers Used:       10.       9       10.       9         -Containers Intact:       11.       11.       11.       11         Organic Samples checked for dechlorination:       13.       14.       14.         All containers Intact:       11.       11.       11.       11.         Organic Samples checked for preservation.       13.						No.
Sample Condition Upon Receipt Pittsburgh <i>Flace Analytical</i> Client Name:         Page Association Project #         Counter:         Flace Exc UPS USPS clear         Connercial Page Other         Tracking #:         T235 5292         T1         Custody Seat on Cooler/Box Present:         Ves UPS of tes:         Ves         Ves UPS of tes:         Ves						70910000
Client Name:     Page KS     Project #       Courter:     Arachage Commencial     Page Conter     Tracking #:     1235     6592     774     n     Seals Intact:     Ves     n     Seals Intact:     Ves     n     Thermometer Used     Ves     N     N     N     Color Temperature     Ves     N     N     N     Thermometer Used     Ves     N     N     N     Color Temperature     Ves     N     N     N     Construct     Ves     N     N     N     N     N     Construct     Ves     N     N     N     N     N     N     Sample Labeles     Math     Construct     Ves     N     N     N     Sample Labeles     Math     Construct     Ves     N	Sample Condition Upon Race	aint E	litteh	ural	'n	20 C 1 2 2 0 0 · :
Client Name: <u>PAGE A</u> Project # Courter:    Fed Ex    UPS    USPS    Ckent    Commercial    Pace Other Tracking #: <u>1235_6592_7744</u> Custedy Seal on Cooler/box Present:    yes    no Seals intact:    yes    no Thermometer Used <u>With</u> type of ice: Wet Blue Nov Cooler Tamperature Observed Temp' C Correction Factor' C Final Temp' Temp should be above freezing to 6'C Comments: Yes No NA Chain of Custody Present: 1. Chain of Custody Present: 1. Chain of Custody Present: 1. Chain of Custody Present: 1. Chain of Custody Present: 2. Chain of Custody Relinquished: 2. Chain of Custody Relinquished: 2. Chain of Custody Relinquished: 4. Sampler Name & Signature on COC: 4. Sampler Satisfie OVOM Samples Arrived within Hold Time: 6. Short Hold Time Analysis (CZPH remaining): 7. Rush Trum Around Time Requested: 9. Correat Containers Used: 9. Correat Containers Used: 9. Correat Containers Used: 11. Orthophosphals field filtered 12. Orthophosphals field filtered 13. Filtered volume received for dechorination: 13. Filtered volume received for dechorination: 13. Filtered volume received for dechorination: 15. Filtered volume received for dechorination: 16. Filtered volume received for dechorination:	Sample Condition Opon Nece	apti	mən	urgi	1	
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Thermometer Used       With       Type of Ice:       Wet       Blue       King         Coolor Tomperature       Observed Temp       'C       Correction Factor:       'C       Final Temp:       ''C         Temp should be above freezing to 6'C       Date and Initiate of preconcetable contents:       Met       Contents:       Contents:       Met       Contents:       Met       Contents:       Contents:       Met       Contents:	Courier: $\square$ Fed Ex $\square$ UPS $\square$ USPS $\square$ Clie Tracking #: <u>1235</u> 6592 77		Comn	nercial	Pace Other	appropries with a state of a
Cooler Temperature       Observed Temp       *C       Correction Factor	Custody Seal on Cooler/Box Present:	ф	no	Seals	s intact: 🗌 yes [	no
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Comments:       Yes       No       N/A       Date and Initials of personazable contents:       Date and Initials of personazable contents: <td>Cooler Temperature Observed Temp</td> <td>Indiation (Sector C</td> <td>°C</td> <td>Corre</td> <td>ection Factor:</td> <td>°C Final Temp:°C</td>	Cooler Temperature Observed Temp	Indiation (Sector C	°C	Corre	ection Factor:	°C Final Temp:°C
Comments:       Yes       NA       1.         Chain of Custody Present:       1.       2.         Chain of Custody Relinguished:       3.         Sampler Name & Signature on COC:       4.         Sample Labels match COC:       5.         -Includes date/fume/ID       Math:         Samples Arrived within Hold Time:       6.         Short Hold Time Analysis (<72hr remaining):	Temp should be above freezing to 6°C					Date and Initials of person examining
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Containers Intact:       11.         Orthophosphate field filtered       12.         Organic Samples checked for dechlorination:       13.         Filtered volume received for Dissolved tests       14.         All containers have been checked for preservation.       15.         All containers needing preservation are found to be in compliance with EPA recommendation.       15.         exceptions: VOA, coliform, TOC, O&G, Phenolics       Initial when UM R Date/time of preservation Lot # of added preservative         Headspace in VOA Vials ( >6mm):       16.         Trip Blank Present:       17.         Trip Blank Custody Seals Present       17.         Rad Aqueous Samples Screened > 0.5 mrem/hr       Initial when completed:       Date: 5-26-14         Client Notification/ Resolution:       Date/Time:       Contacted By:		X				
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Rad Aqueous Samples Screened > 0.5 mrem/hr     Initial when completed:     On P     Date:     5-26-17       Client Notification/ Resolution:     Person Contacted:			-	$\overline{\mathbf{x}}$	17.	
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					1999	
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 Worksrder Edit Screen.

J:\QAQC\Master\Document Management\Sample Mgi\Sample Condition Upon Receipt Pittsburgh (C056-4 15Dec2016)

# **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,

Autor m. Wilson

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.: 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

# 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 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

Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407 Utah Certification #: KS00021 Kansas Field Laboratory Accreditation: # E-92587 Missouri Certification: 10070



# 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



# SAMPLE ANALYTE COUNT

Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

_ab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60247586001		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
0247586002	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
247586003	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
0247586004	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
0247586005	DUP-062717	EPA 200.7	TDS	7	PASI-K



# 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	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

#### Method: EPA 200.7

Description:200.7 Metals, TotalClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

#### Method: EPA 200.8

Description:200.8 MET ICPMSClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

# Method: EPA 245.1

Description:245.1 MercuryClient:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

# Method:EPA 903.1Description:903.1 Radium 226

Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

#### Method: EPA 904.0 Description: 904.0 Radium 228 Cliant: WESTAR ENERCY

Client:WESTAR ENERGYDate: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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

#### Method: Total Radium Calculation

Description:Total Radium 228+226Client:WESTAR ENERGYDate: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:



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:



Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

Method:	SM 4500-H+B
<b>Description:</b>	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:



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.



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

Sample: MW-4-062717	Lab ID: 602	247586001	Collected: 06/27/1	7 08:4	5 Received: 06	6/28/17 16:40 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	hod: EPA 200	0.7 Preparation Met	hod: El	PA 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 Met	hod: EPA 200	0.8 Preparation Met	hod: El	PA 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 Met	hod: EPA 248	5.1 Preparation Met	hod: El	PA 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 Met	hod: SM 254	0C					
Total Dissolved Solids	1040	mg/L	5.0	1		07/03/17 11:15		
4500H+ pH, Electrometric	Analytical Met	hod: SM 450	0-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 Met	hod: EPA 300	0.0					
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	



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

Sample: MW-5-062717	Lab ID: 602	247586002	Collected: 06/27/1	7 10:37	Received: 06	6/28/17 16:40 N	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	thod: EPA 200	0.7 Preparation Met	thod: EF	PA 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 Met	thod: EPA 200	0.8 Preparation Met	thod: EF	PA 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 Met	thod: EPA 24	5.1 Preparation Met	thod: EF	PA 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 Met	thod: SM 254	0C					
Total Dissolved Solids	1690	mg/L	5.0	1		07/03/17 11:16		
4500H+ pH, Electrometric	Analytical Met	thod: SM 450	0-H+B					
pH at 25 Degrees C	7.0	Std. Units	0.10	1		06/30/17 09:55	i	H6
300.0 IC Anions 28 Days	Analytical Met	thod: EPA 300	0.0					
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	



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

Sample: MW-6-062717	Lab ID: 602	247586003	Collected: 06/27/2	17 11:49	Received: 06	6/28/17 16:40 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	thod: EPA 200	0.7 Preparation Me	thod: EF	PA 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 Met	thod: EPA 200	0.8 Preparation Me	thod: EF	PA 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 Met	thod: EPA 24	5.1 Preparation Me	thod: EF	PA 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 Met	thod: SM 254	0C					
Total Dissolved Solids	1700	mg/L	5.0	1		07/03/17 11:16		
4500H+ pH, Electrometric	Analytical Met	thod: SM 450	0-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 Met	thod: EPA 300	0.0					
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	



#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

Sample: MW-1-062717	Lab ID: 602	247586004	Collected: 06/27/1	17 13:16	6 Received: 06	6/28/17 16:40 N	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Met	hod: EPA 20	0.7 Preparation Met	thod: EF	PA 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 Met	hod: EPA 20	0.8 Preparation Met	thod: EF	PA 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 Met	hod: EPA 24	5.1 Preparation Met	thod: EF	PA 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 Met	hod: SM 254	OC					
Total Dissolved Solids	999	mg/L	5.0	1		07/03/17 11:16		
4500H+ pH, Electrometric	Analytical Met	hod: SM 450	ю-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 Met	hod: EPA 30	0.0					
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	



# ANALYTICAL RESULTS

#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

Sample: DUP-062717	Lab ID: 602	247586005	Collected: 06/27/1	7 07:00	D Received: 06	6/28/17 16:40 I	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Me	thod: EPA 200	0.7 Preparation Met	hod: El	PA 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 Me	thod: EPA 200	0.8 Preparation Met	hod: El	PA 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 Me	thod: EPA 245	5.1 Preparation Met	hod: El	PA 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 Me	thod: SM 2540	C					
Total Dissolved Solids	1050	mg/L	5.0	1		07/03/17 11:18		
4500H+ pH, Electrometric	Analytical Me	thod: 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 Me	thod: EPA 300	0.0					
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	



Project: Pace Project No.:	TEC CCR GROU 60247586	NDWATER										
QC Batch:	485332		Analys	is Method:	E	PA 245.1						
QC Batch Method:	EPA 245.1		Analys	is Descript	ion: 2	45.1 Mercur	у					
Associated Lab Sam	nples: 60247586	6001, 60247586002	2, 60247586	003, 60247	7586004, 6	0247586005	5					
METHOD BLANK:	1987526		Ν	Aatrix: Wat	ter							
Associated Lab Sam	ples: 60247586	6001, 60247586002	2, 60247586	003, 60247	7586004, 6	024758600	5					
			Blank	K R	eporting							
Param	neter	Units	Resul	t	Limit	Analyz	zed	Qualifiers				
Mercury		mg/L	<0.0	0020	0.00020	07/14/17	14:02					
LABORATORY CON	ITROL SAMPLE:	1987527										
			Spike	LCS	;	LCS	% Re	с				
Param	neter	Units	Conc.	Resu	lt	% Rec	Limite	s Qu	alifiers			
Mercury		mg/L	.005	0	.0051	102	8	5-115				
MATRIX SPIKE & M	ATRIX SPIKE DUI	PLICATE: 19875	28		1987529							
			MS	MSD								
		60248020001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Un	its Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Mercury	mç	g/L <0.20 ug/L	.005	.005	0.0047	0.0047	93	93	70-130	0	20	
MATRIX SPIKE & M	ATRIX SPIKE DU	PLICATE: 19875	30		1987531							
			MS	MSD								
		60248127001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Un	its Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Mercury	mg	g/L <0.20 ug/L	.005	.005	0.0048	0.0048	96	95	70-130	1	20	

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Matrix: Water

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 Sam	ples: 60247586001	60247586002, 60247586003, 60247586004	, 60247586005

#### METHOD BLANK: 1980483

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 SP	PIKE DUPLICA	TE: 19804	85		1980486							
			MS	MSD								
	6	0246928002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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						
		60247365006	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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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#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

MATRIX SPIKE SAMPLE:	1980487	60247365006	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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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Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

QC Batch:	4833	71	Analysis Method:	EPA 200.8
QC Batch Method:	EPA	200.8	Analysis Description:	200.8 MET
Associated Lab Sam	ples:	60247586001, 60247586002, 6	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 S		ATE: 19801	03		1980104							
Parameter	6 Units	0246928001 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						
		60247365005	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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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#### Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

MATRIX SPIKE SAMPLE:	1980105						
		60247365005	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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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- <b>,</b>	EC CCR GROU	NDWATER						
QC Batch:	483738		Analysis Me	ethod:	SM 2540C			
QC Batch Method:	SM 2540C		Analysis De	escription:	2540C Total D	issolved Solids		
Associated Lab Samp	les: 60247586	6001, 602475860	02, 60247586003,	60247586004,	60247586005			
METHOD BLANK: 1	981962		Matrix	: Water				
Associated Lab Samp	les: 60247586	001, 602475860	02, 60247586003,	60247586004,	60247586005			
			Blank	Reporting				
Parame	ter	Units	Result	Limit	Analyze	ed Quali	ifiers	
Total Dissolved Solids		mg/L	<5.0	5	.0 07/03/17 1	1:12		
LABORATORY CONT	ROL SAMPLE:	1981963						
			Spike	LCS	LCS	% Rec		
Parame	ter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
Total Dissolved Solids	i	mg/L	1000	964	96	80-120		
SAMPLE DUPLICATE	. 1091064							
SAMPLE DUPLICATE	1901904		60247514002	Dup		Max		
Parame	ter	Units	Result	Result	RPD	RPD	Qualifiers	
Total Dissolved Solids		mg/L	899	94	45	5	10	
SAMPLE DUPLICATE	: 1981965							
			60247587002	Dup		Max		
Parame	ter	Units	Result	Result	RPD	RPD	Qualifiers	
Total Dissolved Solids		mg/L	1380	138	30	0	10	

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Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

QC Batch:	483453		Analysis Method:	SM 4500-H+B
QC Batch Method:	SM 450	0-H+B	Analysis Description:	4500H+B pH
Associated Lab Sam	ples: 6	0247586001, 60247586002	2, 60247586003, 60247586004	, 60247586005

SAMPLE DUPLICATE: 1980388						
		60247516002	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.7	8.7	0		5 H6

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Project: Pace Project No.:	TEC CCR GRC 60247586	DUNDWATER										
QC Batch:	485617		Analys	sis Method	: E	PA 300.0						
QC Batch Method:	EPA 300.0		Analys	sis Descrip	tion: 3	00.0 IC Anio	ns					
Associated Lab San	nples: 602475	86001, 60247586002	2, 60247586	6003, 6024	7586004, 6	60247586005	5					
METHOD BLANK:	1989208		ſ	Matrix: Wa	ter							
Associated Lab San	nples: 602475	86001, 60247586002	-			60247586005	5					
Paran	neter	Units	Blanl Resu		eporting Limit	Analyz	ed	Qualifiers				
Fluoride		mg/L	,	<0.20	0.20	07/16/17	09:11					
LABORATORY COM	NTROL SAMPLE	: 1989209										
Paran	neter	Units	Spike Conc.	LCS Resu		LCS % Rec	% Rec Limits		alifiers			
Fluoride		mg/L	2.5	5	2.5	101	90	-110		-		
MATRIX SPIKE & N	IATRIX SPIKE D	UPLICATE: 19892	210		1989211							
Paramete	~ I	60247586001 Units Result	MS Spike	MSD Spike Conc.	MS	MSD	MS	MSD % Rec	% Rec Limits	חחח	Max RPD	Qual
Fluoride		mg/L <0.20	Conc. 2.5	2.5	Result 3.1	Result 3.1	% Rec 115	% Rec 114	80-120	0 RPD		Qual
MATRIX SPIKE SAI		1000212										
WAIKIA SPIKE SAI		1989212	602475	86002	Spike	MS	м	s	% Rec			
Paran	neter	Units	Res		Conc.	Result	% F	-	Limits		Qualif	iers
Fluoride		mg/L		0.42	2.5	3	5.0	105	80-1	120		

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Project: TEC CCI Pace Project No.: 6024758	R GROUNDWATER 6										
QC Batch: 486220		Analys	sis Method	: E	PA 300.0						
QC Batch Method: EPA 30	0.0	Analys	sis Descrip	tion: 3	00.0 IC Anio	ons					
Associated Lab Samples: 6	60247586001, 60247586002	2, 60247586	6003, 6024	7586004							
METHOD BLANK: 1991175		٦	Matrix: Wa	ter							
Associated Lab Samples: 6	60247586001, 60247586002	2, 60247586	6003, 6024	7586004							
		Blank	K R	eporting							
Parameter	Units	Resu	lt	Limit	Analyz	ed	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 SA	MPLE: 1991176	Spike	LCS		LCS	% Rec					
Parameter	Units	Conc.	Resu		% Rec	Limits		alifiers			
Chloride	mg/L	5	 5	4.7	94	90	-110				
Sulfate	mg/L	5	5	4.7	94	90	-110				
MATRIX SPIKE & MATRIX SF	PIKE DUPLICATE: 19911	77		1991178							
		MS	MSD								
	60247150009	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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										
		602475	87002	Spike	MS	Μ	S	% Rec			
Parameter	Units	Res	ult	Conc.	Result	% F	Rec	Limits		Qualif	iers
Chloride	mg/L		193	100	3	02	109	80-1	20		
Sulfate	mg/L		264	100	3	69	105	80-1	20		

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Project: TEC CCR GROUNDWATER

10,000	ence en en											
Pace Project No.: 60247586												
QC Batch: 486228			Analys	sis Method:	I	EPA 300.0						
QC Batch Method: EPA 300	.0		Analys	sis Descript	ion:	300.0 IC Anio	ons					
Associated Lab Samples: 60	247586005											
METHOD BLANK: 1991250			Ν	Matrix: Wat	ter							
Associated Lab Samples: 60	247586005											
			Blank		eporting							
Parameter		Units	Resu	lt	Limit	Analyz	.ed	Qualifiers	_			
Chloride		mg/L		<1.0	1.0							
Sulfate		mg/L		<1.0	1.	0 07/20/17	09:05					
LABORATORY CONTROL SAM	MPLE: 1991	251										
_			Spike	LCS		LCS	% Rec					
Parameter		Units	Conc.	Resu	lt	% Rec	Limits	Qi	ualifiers	_		
Chloride		mg/L	5		4.6	93		-110				
Sulfate		mg/L	5	5	4.8	96	90	-110				
MATRIX SPIKE & MATRIX SPI	KE DUPLICA	TE: 19912			1991253							
	60	247587003	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Мах	
Parameter	Units	Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	% Rec	RPD		Qual
Chloride	mg/L	217	100	100	323	324	106	106	80-120	0	15	
Sulfate	mg/L	178	100	100	277		99	99	80-120	-		
	-											

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



Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

<b>Sample: MW-4-062717</b> PWS:	Lab ID: 602475 Site ID:	586001 Collected: 06/27/17 08:45 Sample Type:	Received:	06/28/17 16:40	Matrix: Water	
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	0 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	0 15262-20-1	
Total Radium	Total Radium Calculation	2.64 ± 1.11 (1.27)	pCi/L	07/19/17 14:19	9 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

<b>Sample: MW-5-062717</b> PWS:	Lab ID: 60247 Site ID:	586002 Collected: 06/27/17 10:37 Sample Type:	Received:	06/28/17 16:40	Matrix: Water	
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	3 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	9 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

<b>Sample: MW-6-062717</b> PWS:	Lab ID: 60247 Site ID:	586003 Collected: 06/27/17 11:49 Sample Type:	Received:	06/28/17 16:40	Matrix: Water	
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	3 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	9 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

<b>Sample: MW-1-062717</b> PWS:	Lab ID: 60247 Site ID:	586004 Collected: 06/27/17 13:16 Sample Type:	Received:	06/28/17 16:40	Matrix: Water	
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	3 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	0 15262-20-1	
Total Radium	Total Radium Calculation	0.174 ± 0.770 (1.63)	pCi/L	07/19/17 14:19	9 7440-14-4	



Project: TEC CCR GROUNDWATER

Pace Project No.: 60247586

Sample: DUP-062717 PWS:	Lab ID: 60247 Site ID:	586005 Collected: 06/27/17 07:00 Sample Type:	Received:	06/28/17 16:40	Matrix: Water	
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	8 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	0 15262-20-1	
Total Radium	Total Radium Calculation	0.849 ± 1.08 (1.99)	pCi/L	07/19/17 14:19	9 7440-14-4	



#### **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Pace Project No.:	TEC CCR GROU 60247586	JNDWATER				
	00247 300					
QC Batch:	264503	Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radiu	m 228		
Associated Lab Sa	mples: 6024758	6001, 60247586002, 60247586003, 60247586	004, 6024758600	05		
METHOD BLANK:	1302867	Matrix: Water				
Associated Lab Sa	mples: 6024758	6001, 60247586002, 60247586003, 60247586	004, 6024758600	05		
Para	meter	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		

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.



#### **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Pace Project No.:	TEC CCR GROU 60247586	NDWATER					
QC Batch:	264174	Analysi	s Method:	EPA 903.1			
QC Batch Method:	EPA 903.1	Analysi	s Description:	903.1 Radium-	226		
Associated Lab Sa	mples: 60247586	6001, 60247586002, 602475860	003, 60247586004	, 60247586005			
METHOD BLANK:	1301274	Μ	atrix: Water				
Associated Lab Sa	mples: 60247586	6001, 60247586002, 602475860	003, 60247586004	, 60247586005			
Para	meter	Act ± Unc (MDC) Carr	Trac	Units	Analyzed	Qualifiers	

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.



# 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.



# 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		



# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:TEC CCR GROUNDWATERPace 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		

		WO#:6	0247586
Pace Analytical Sample Condition Up	on Receipt	60247586	
Client Name: Werar			hmm
	EX 🗆 ECI 🗔 Pad	cer⊄I Xroads □ Cli	ent 🗆 Other 🗆
		Yes 🗆 No 🗹	
Custody Seal on Cooler/Box Present: Yes D No 🗹		No 🗆	
Packing Material: Bubble Wrap D Bubble Bags D	Foam	None Z Other	
or an of the	ce: What Blue None		
Cooler Temperature (°C): As-read <u>4.6</u> Corr. Factor		4.8 D	ate and initials of person xamining contents: た 6.28・リ
Temperature should be above freezing to 6°C			
Chain of Custody present:	⊠Yes □No □N/A		
Chain of Custody relinquished:	Kes No N/A		
Samples arrived within holding time:	ØYes □No □N/A	$\bigcap$	
Short Hold Time analyses (<72hr):	ZYes No N/A	H (0545)	
Rush Turn Around Time requested:	□Yes @No □N/A		
Sufficient volume:	ØYes □No □N/A		
Correct containers used:	Øyes □No □N/A		
Pace containers used:	⊠¥yes □No □N/A		
Containers intact:	ØYes □No □N/A		
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	□Yes □No □,41/A		
Filtered volume received for dissolved tests?	□Yes □No □#Ñ/A		
Sample labels match COC: Date / time / ID / analyses	ØYes □No □N/A		
Samples contain multiple phases? Matrix: WT	□Yes □N/A		
Containers requiring pH preservation in compliance?	ZYes No N/A		
(HNO₃, H₂SO₄, HCI<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)			
Cyanide water sample checks:			
Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)			
	□Yes □No □Yes □No ☑N/A		
Trip Blank present:			
Headspace in VOA vials ( >6mm):			
Samples from USDA Regulated Area: State:			
Additional labels attached to 5035A / TX1005 vials in the field? Client Notification/ Resolution: Copy COC to		Field Data Required?	Y / N
Person Contacted: Date/Til		now Data Nequileu?	i / i <b>x</b>
Comments/ Resolution:			

Project Manager Review:

Date: UR117

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# CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A		Section B					Sec	Section C										Page:	e:	of	-	
Required (	Required Client Information:	Required Project Information:	Information:				Invo	Invoice Information:	ation:					٢							+	
Company:	WESTAR ENERGY	Report To: Brandon Griffin	don Griffir.	-			Atter	Attention:	Jared	Jared Morrison				_		1						
Address:	818 Kansas Ave	Copy To: Jare	Jared Morrison, Heath Hornya	, Heath F	lornya		Com	Company Name:		WESTAR ENERGY	NERG			R	EGUL	ATOR	REGULATORY AGENCY	cγ				
	Topeka, KS 66612						Address	ess:	SE	SEE SECTION A	A NC			D.		NPDES	GRC	<b>GROUND WATER</b>	ATER	L DRIN	DRINKING WATER	TER
Email To:	brandon.l.griffin@westarenergy.com	Purchase Order No :	lo :				Pace Refer	Pace Quote Reference:						L	- UST	F	L RCRA	A		C OTHER	۲ ۲	
Phone: (	(785) 575-8135 Fax	Project Name:	TEC CCR Groundwater	Ground	vater	7	Pace Mana	Pace Project Manager:		Heather Wilson, 913-563-1407	, 913-5	63-14	07	0,	Site Lo	Site Location		6				
Requested	Requested Due Date/TAT: 7 DAY	Project Number.					Pace	Profile #:	9656, 1	-					S	STATE:		2				
											-	Å	saups	ed An	alysis	Filter	Requested Analysis Filtered (Y/N)	حده				
0 2	Section D Valid Matrix Codes Required Client Information MATRIX COL		(JM		COLLECTED				Preser	Preservatives	¶ N /A		-									
			00=0 8AA6	COMPOSITE START	COMP	COMPOSITE						*SI					·					
	SAMPLE ID WIE (A-Z, 0-9/-;) OTHER Sample IDS MUST BE UNIQUE TISSUE		YPE (G=	-	-			рәл				steM liste		'EI' SO						120	9QSZ h209	_0
TEM #		О ХІЯТАМ	T 3J9MA2	TIME	AF DATE	I	* OF CON	H <sup>s</sup> SO <sup>¢</sup> Nubreser	нсі нио <sup>з</sup>	HOAU <sub>5</sub> O <sub>2</sub> S <sub>2</sub> SN onsdfano	Ther Other	oT 7.002	245.1 To	4200 H+ 300'0 CI	5640C T	adium : muibe?			Residual	ace Proj	Pace Project No./ Lab I.D.	ab I.D.
	LILLYO-H-INW	13	+	-	9		1		m			-	-					F	00	BIWO.5	1-622	100 1
	m ~ - 5-062717	5	0		627	1037	2	-	M											-	-	2007
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	MW-1-062717	ET.	9		6/27	1316	5	-	3		-					$\neg$			_			18
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12		i.c			MOLLAI	ATC			-			V / AFF				DATE	TIME		-	SAMPLEC	SAMPLE CONDITIONS	
	ADDITIONAL COMMENTS	KEL	INGUISHED	BT / ALTI	NULIN	TAN .				inne .					+			t			-	
*200 7 To	*200 7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li	1	N	west	Par l	6/281	17 6	1030	10	Ch.I	· lace				62	6-22-17	1670	8.5	32	×	2	
**200.8 Tu	**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl	0 0			_	-			3													***
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	Ра						_								-			_	_			
	ge 4			SAI	SAMPLER NAME AND SIGNATURE	AND SIGN	ATURE			20,0				載				0. ui	_	(N/)		
	1 of 4				PRINT Name SIGNATURE	ame of SAMPLER: URE of SAMPLER:	LER:	2 mil	Var C	Scith	5	đ	DATE Signed	pau			1	dueT	Receiv	Vbofeu () eol	Cooler	səlqmas IVY)
	13							X	A			(N	(YYY):		9	0	+	-	2			s

F-ALL-Q-020rev\_08, 12-Oct-2007

"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 involces net paid within 30 days.

Chain	Chain of Custody			n para la constante de la const	Name of the second s							FaceA	Pace Analytical "
Workorde Report To	Workorder: 60247586 Report To	Workorder	Workorder Name:TEC CCR GROUNI		DWATER	J	Owner Received Date:	eived	Date:	6/28/2017	Results	Requested By:	7/21/2017
Heather Wilson Pace Analytical Kar 9608 Loiret Blvd. Lenexa, KS 66219 Phone 1(913)563-1	Heather Wrilson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 1(913)563-1407		Pace 1638 Suite Greel	/tical Pi ytown P & 4 g, PA 1 4)850-5	ttsburgh Road 5601 600			8	5258		WO#:30223094	3094	
						Preserved	Preserved Containers	ZZ-muibe8	8 922-muib				
ttem Sample ID		Sample Type	Collect Date/Time	Lab ID	Matrix	EONH			9999 <u>7</u> 1		-		LAB USE ONLY
1 MW-4-062717	62717	PS	6/27/2017 08:45	60247586001	Water	2		$ \times$	×				2
	62717	PS	6/27/2017 10:37	60247586002	Water	2		×	×				
3 MW-6-062717	62717	PS	6/27/2017 11:49	60247586003	Water	2		$\times$	×				25
4 MW-1-062717	62717	PS	6/27/2017 13:16	60247586004	Water	2		×	×				
5 DUP-062717	2717	PS	6/27/2017 07:00	60247586005	Water	2		×	×				
											Comments	Sector	
Transfers	Released By		Date/Time	Received		(	Date/Time	me	Protoco				
7	Ja -	Me.	61 62/0	<u>)</u> 38	A		10801	19	0				
3	N.				7					1		(	
Cooler Te	Cooler Temperature on Receipt	seipt \\\A °C		Custody Seal	or N		Received on Ice	n Ice	ور ح	Z	Samples Intakt	Intakt V	N
***In order This chi	***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature m This chain of custody is considered complete as is since this information is available in the owner laboratory.	confidentiality nsidered cor	, location/name mplete as is sin	of the sampli ce this informé	ng site, sai ation is ava	mpler's nar ilable in th	me and sig e owner lat	nature boratoi	may no Y.	t be provi	pling site, sampler's name and signature may not be provided on this COC document. mation is available in the owner laboratory.	_})	

We 25:27 AM Thursday, June 29, 2017 8:57:27 AM bage 45 of 43

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Sample Condition Upon Reco	eipt F	Pittsl	burg	h 3	0223094 At
Pace Analytical Client Name:		<u>D</u> A	UE	-KAISAS P	roject #
Courier: Fed Ex UPS USPS Clie Tracking #: 734076878160	$\mathbf{O}$	_	nercia		
Custody Seal on Cooler/Box Present:		no	Seal	intact: 🗹 yes 🗌 r	no
Thermometer Used	Туре	of Ice		A REAL PROPERTY AND A REAL	
Cooler Temperature Observed Temp Temp should be above freezing to 6°C		-°C	Corr	ection Factor:	
				4	Date and Initials of person examining contents: $\frac{24}{6} \left( \frac{36}{64} \right)$
Comments:	Yes	No	N/A		
Chain of Custody Present:				1	
Chain of Custody Filled Out:		<u> </u>		2.	
Chain of Custody Relinquished:		1		3.	
Sampler Name & Signature on COC:	_	/_	ļ	4.	
Sample Labels match COC:		<u> </u>		5.	
-Includes date/time/ID Matrix:	$\underline{w_1}$	1			
Samples Arrived within Hold Time:				6.	
Short Hold Time Analysis (<72hr remaining):			<u> </u>	7.	
Rush Turn Around Time Requested:		-		8.	
Sufficient Volume:	<			9.	
Correct Containers Used:	/			10.	
-Pace Containers Used:			:		
Containers Intact:	/			11.	
Orthophosphate field filtered			30	12.	
Organic Samples checked for dechlorination:				13.	
Filtered volume received for Dissolved tests				14.	
All containers have been checked for preservation.	/			15.	~
All containers needing preservation are found to be in compliance with EPA recommendation.				CHL	
exceptions: VOA, coliform, TOC, O&G, Phenolics					ate/time of eservation
exceptions. VOA, contorn, TOC, Oad, Friendrics				Lot # of added preservative	
Headspace in VOA Vials ( >6mm):				16.	
Trip Blank Present:			6	17.	
Trip Blank Custody Seals Present			~		
Rad Aqueous Samples Screened > 0.5 mrem/hr				nitial when completed: 21+ Da	te: (0130117.
Client Notification/ Resolution:					
Person Contacted:			Date/T	me:	Contacted By:
Comments/ Resolution:				· · · · · · · · · · · · · · · · · · ·	
☐ A check in this box indicates that addit	ional	inform	natior	has been stored in ere	eports.

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.

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ATTACHMENT 2

Revised Groundwater Potentiometric Maps



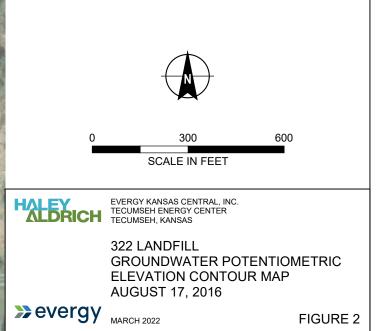
1		
	LEGEN	ID
	MW-1 900.47	WELL NAME AND GROUNDWATER ELEVATION, (FEET AMSL) AUGUST 2016
	<b>•</b>	MONITORING WELL
	-	PIEZOMETER OBSERVATION ONLY
5		GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
		INFERRED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
		GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
in harden		322 LANDFILL

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.





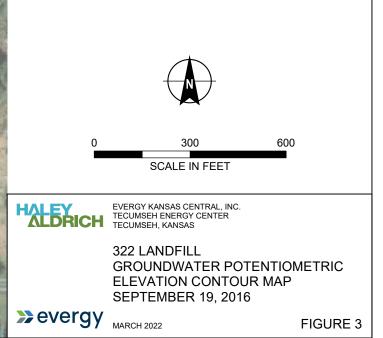
13		
	LEGEN	ID
	MW-1 900.47	WELL NAME AND GROUNDWATER ELEVATION, (FEET AMSL) SEPTEMBER 2016
	<b>•</b>	MONITORING WELL
	-	PIEZOMETER OBSERVATION ONLY
5		GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
		INFERRED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
1		GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
		322 LANDFILL

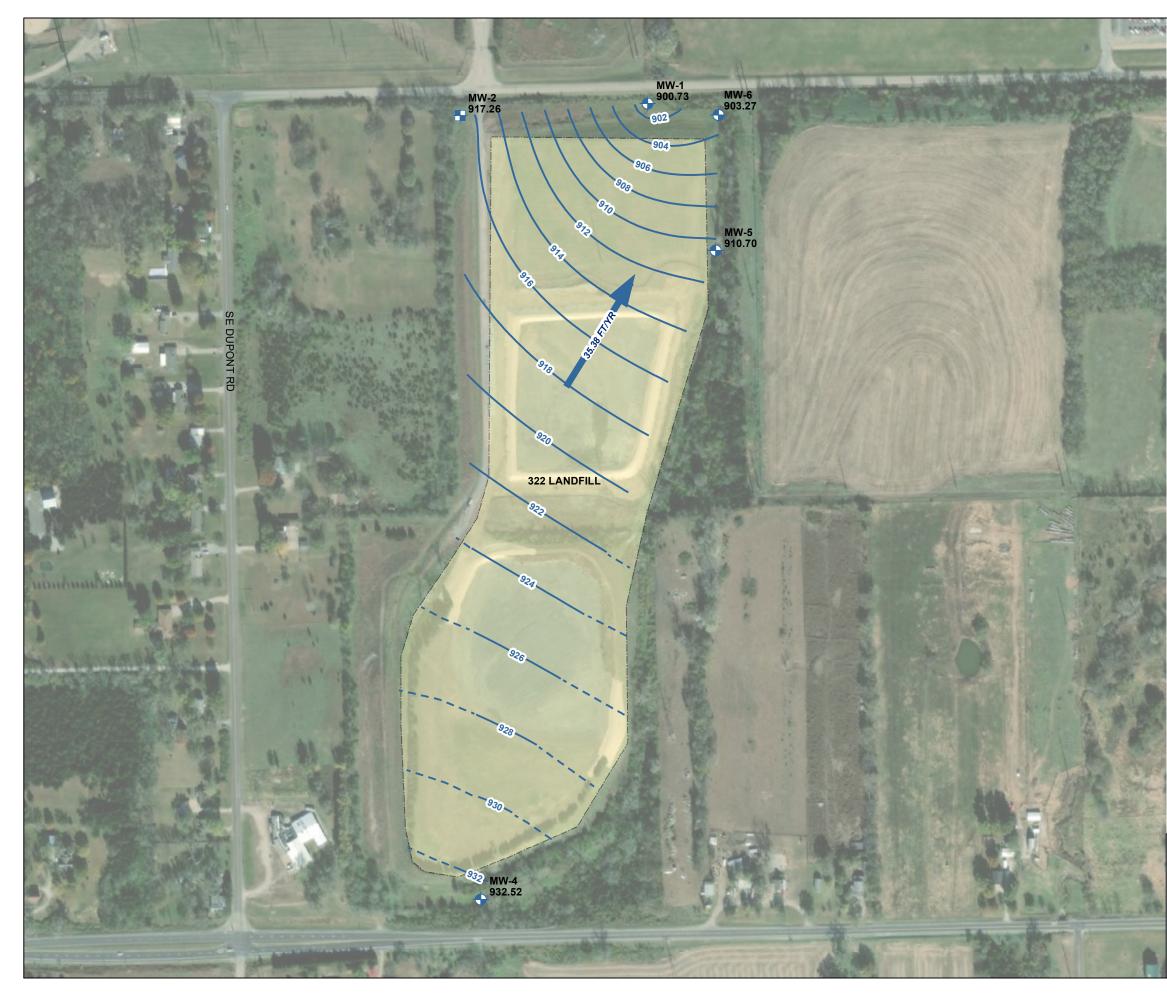
1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

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.





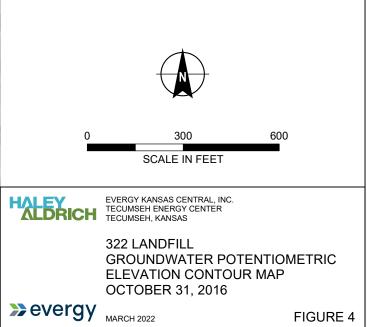
LEGEND	
MW-1 900.47	WELL NAME AND GROUNDWATER ELEVATION (OCTOBER 31, 2016)
<b>•</b>	MONITORING WELL
-	PIEZOMETER OBSERVATION ONLY
	GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
	INFERRED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
	GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
	322 LANDFILL

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.





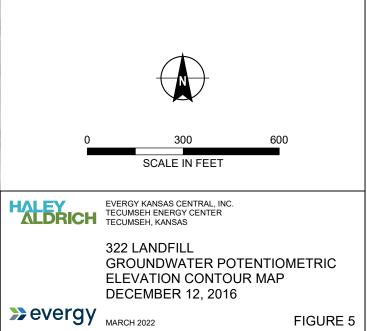
LEGEND		
MW-1 900.47	WELL NAME AND GROUNDWATER ELEVATION (DECEMBER 12, 2016)	
÷	MONITORING WELL	
-	PIEZOMETER OBSERVATION ONLY	
	GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)	
	INFERRED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR	
	GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)	
i	322 LANDFILL	

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.





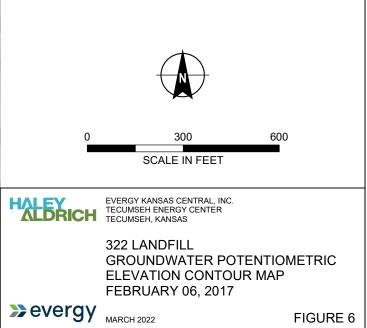
LEGEND	
MW-1 900.47	WELL NAME AND GROUNDWATER ELEVATION (FEBRUARY 6, 2017)
÷	MONITORING WELL
-	PIEZOMETER OBSERVATION ONLY
	GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
	INFERRED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR
-	GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
	322 LANDFILL

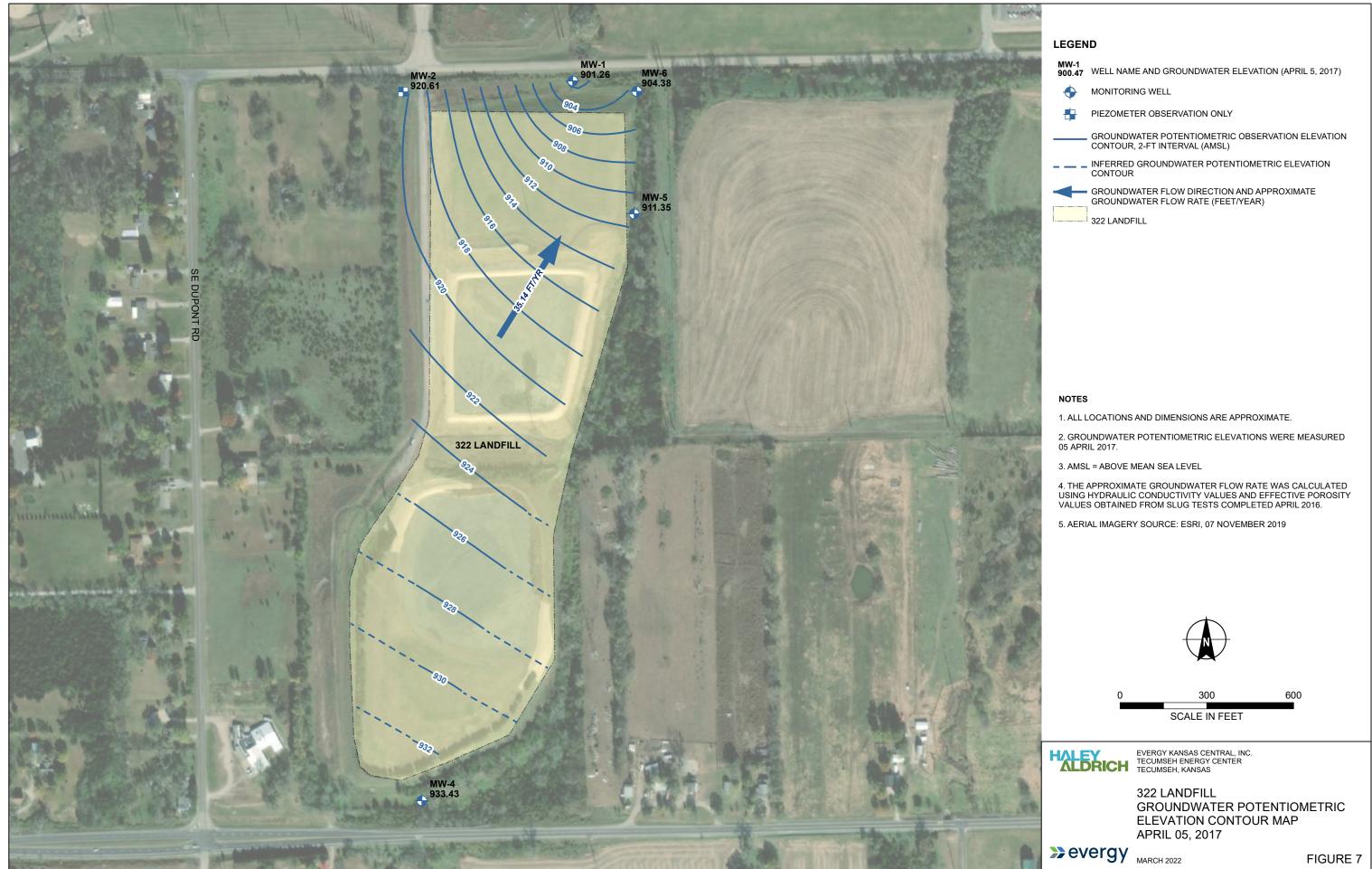
1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 06 FEBRUARY 2017.

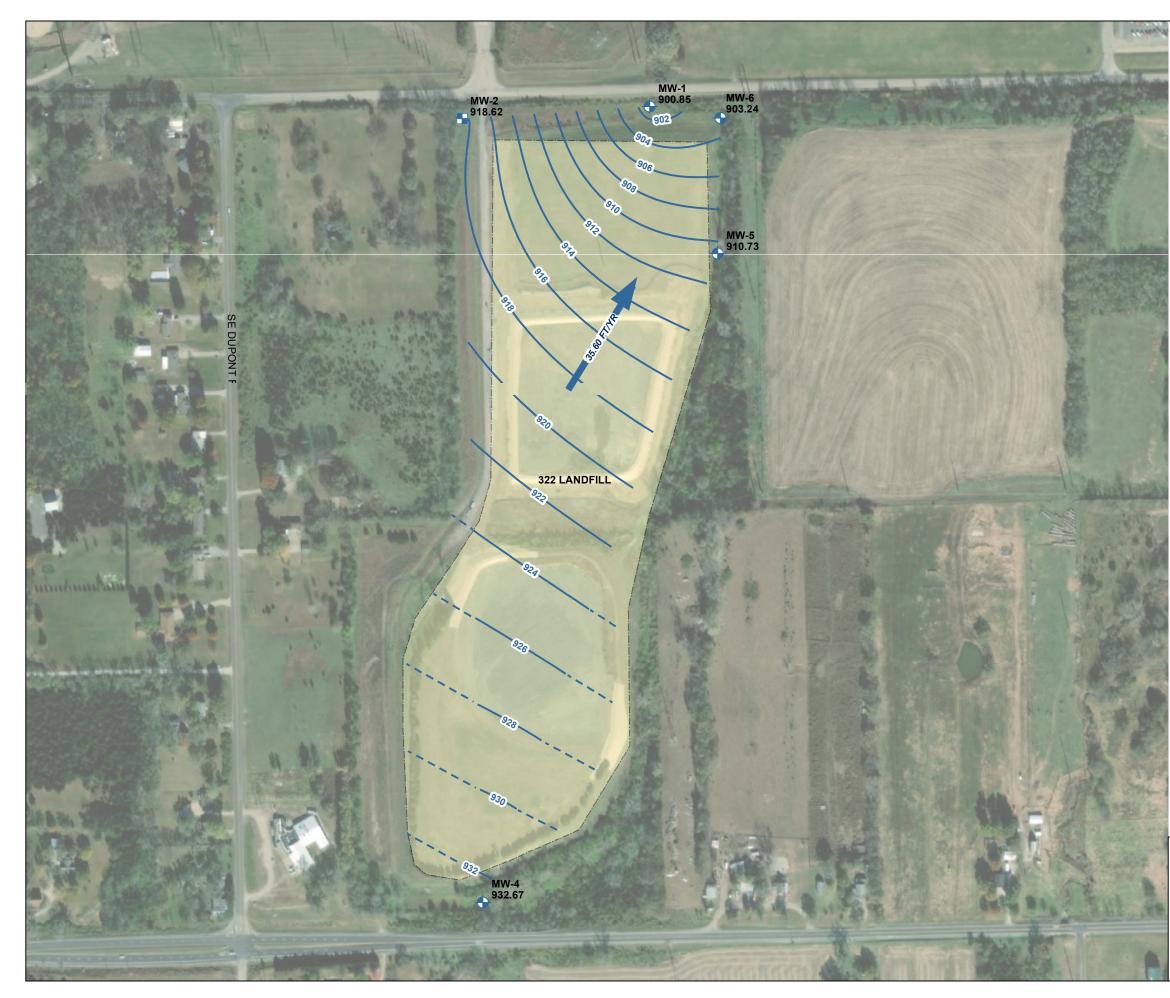
3. AMSL = ABOVE MEAN SEA LEVEL

4. THE APPROXIMATE GROUNDWATER FLOW RATE WAS CALCULATED USING HYDRAULIC CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.





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)	
i	322 LANDFILL	



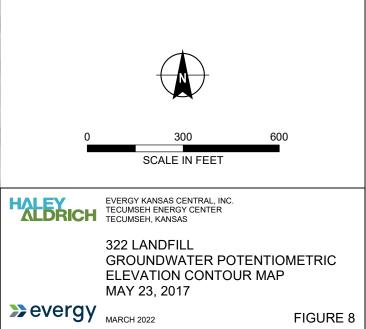
LEGEND		
MW-1 900.47	WELL NAME AND GROUNDWATER ELEVATION (MAY 23, 2017)	
<b>•</b>	MONITORING WELL	
	PIEZOMETER OBSERVATION ONLY	
	GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)	
	INFERRED GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR	
	GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)	
i	322 LANDFILL	

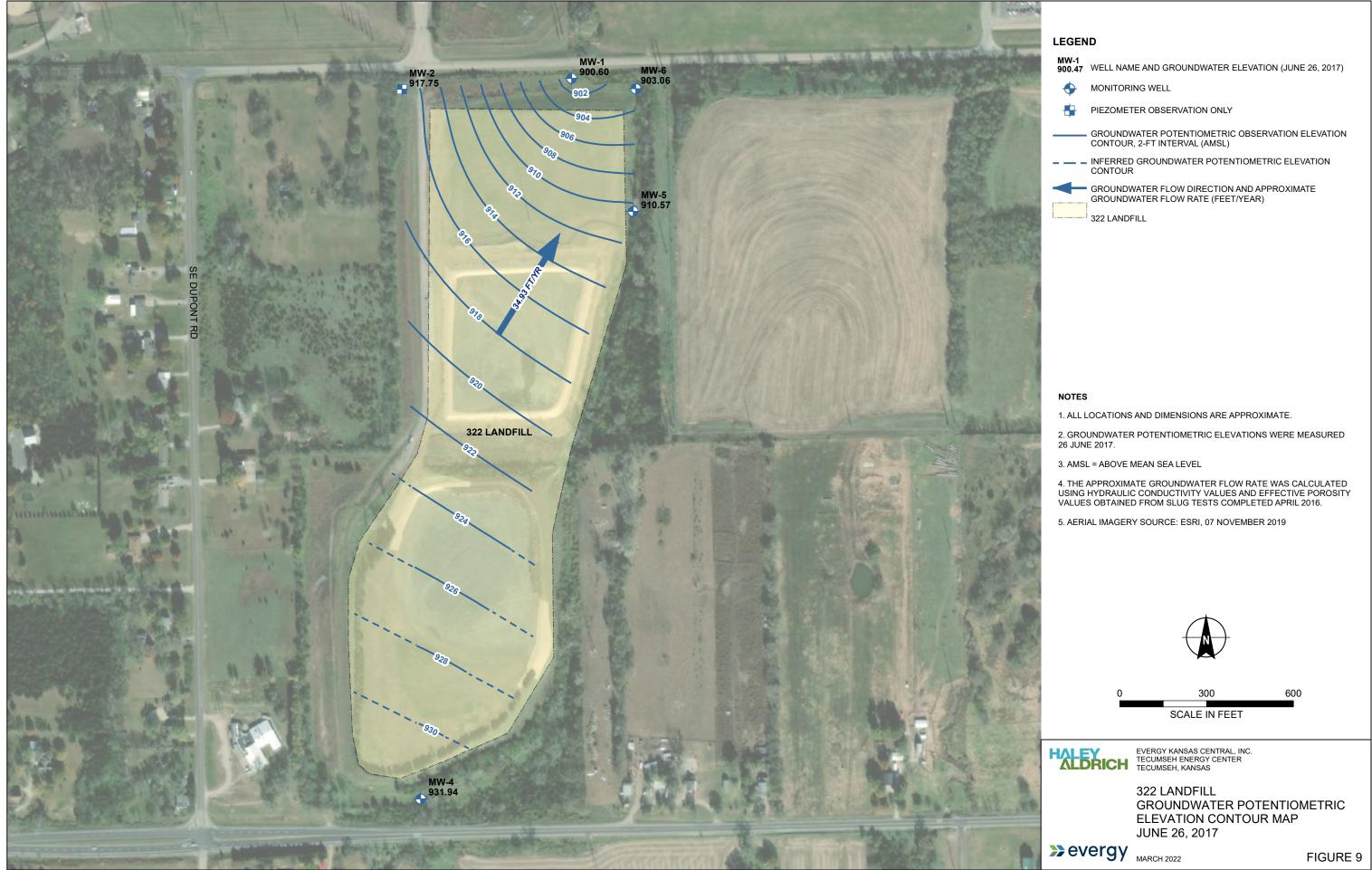
1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

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.





LEGEND		
MW-1	-	
900.47	WELL NAME AND GROUNDWATER ELEVATION (JUNE 26, 2017)	
<b>•</b>	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)	
l	322 LANDFILL	