

2018 – 2019 ANNUAL GROUNDWATER MONITORING
AND CORRECTIVE ACTION REPORT
AREA 2 POND, AREA 3 POND, AND AREA 4 POND
LAWRENCE ENERGY CENTER
LAWRENCE, KANSAS

by Haley & Aldrich, Inc.
Cleveland, Ohio

for Westar Energy, Inc.
Topeka, Kansas

File No. 129778-019
July 2019



Table of Contents

		Page
1.	Introduction	2
2.	40 CFR § 257.90 Applicability	3
2.1	40 CFR § 257.90(A)	3
2.2	40 CFR § 257.90(E) – SUMMARY	3
2.2.1	Status of the Groundwater Monitoring Program	3
2.2.2	Key Actions Completed	4
2.2.3	Problems Encountered	4
2.2.4	Actions to Resolve Problems	4
2.2.5	Project Key Activities for Upcoming Year	4
2.3	40 CFR § 257.90(E) – INFORMATION	4
2.3.1	40 CFR § 257.90(e)(1) – CCR Unit and Monitoring Well Network	4
2.3.2	40 CFR § 257.90(e)(2) – Monitoring System Changes	4
2.3.3	40 CFR § 257.90(e)(3) – Summary of Sampling Events	4
2.3.4	40 CFR § 257.90(e)(4) – Monitoring Transition Narrative	5
2.3.5	40 CFR § 257.90(e)(5) – Other Requirements	5

Revision No.	Date	Notes

List of Tables

Table No.	Title
I	Summary of Analytical Results

List of Figures

Figure No.	Title
1	Ash Ponds Monitoring Well Map

**2018 – 2019 Annual Groundwater Monitoring
and Corrective Action Report**

This Annual Groundwater Monitoring and Corrective Action Report documents the groundwater monitoring system results for the Lawrence Energy Center (LEC) inactive Area 2 Pond, Area 3 Pond, and Area 4 Pond (Ash Ponds) consistent with applicable sections of §§ 257.90 through 257.98, and describes activities conducted in 2018 and 2019 prior to July 2019 and documents compliance with the U.S. Environmental Protection Agency Coal Combustion Residual Rule. I certify that the 2018 – 2019 Annual Groundwater Monitoring and Corrective Action Report for the LEC Ash Ponds is, to the best of my knowledge, accurate and complete.

Signed: 
Professional Geologist

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



1. Introduction

This 2019 Annual Groundwater Monitoring and Corrective Action Report (Annual Report) addresses the inactive Area 2 Pond, Area 3 Pond, and Area 4 Pond (Ash Ponds) at the Lawrence Energy Center (LEC), operated by Westar Energy, Inc. (Westar). This Annual Report was developed in accordance with the U.S. Environmental Protection Agency (USEPA) Coal Combustion Residual (CCR) Rule, specifically Code of Federal Regulations Title 40 (40 CFR), subsections 257.90(e) and 257.100(e), effective 19 October 2015 (Rule) including subsequent revisions. Westar prepared and placed in the facility's operating record a notification of intent to initiate closure of the Ash Ponds by 17 December 2015. Due to the USEPA Extension of Compliance Deadlines for Certain Inactive Surface Impoundments, Response to Partial Vacatur effective 4 October 2016, in accordance with the requirement under § 257.100(e)(1), the alternative reporting timeframes specified in § 257.100(e)(2) through (6) are applicable for the Ash Ponds.

This Annual Report documents the groundwater monitoring system results for the Ash Ponds which are consistent with applicable sections of §§ 257.90 through 257.98 and describes activities conducted prior to July 2019, and documents compliance with the Rule. The specific requirements listed in § 257.90(e)(1) through (5) 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, except as provided in paragraph (g) of this section.

Westar has installed and certified a groundwater monitoring system at the LEC Ash Ponds. The Ash Ponds are monitored by a multi-unit groundwater monitoring system subject to the groundwater monitoring and corrective action requirements described under 40 CFR §§ 257.90 through 257.98. This document addresses the requirement for the Owner/Operator to prepare an Annual Report per § 257.90(e).

2.2 40 CFR § 257.90(e) – SUMMARY

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).

40 CFR § 257.100(e)(5)(ii)

No later than August 1, 2019, prepare the initial groundwater monitoring and corrective action report as set forth in 257.90(e.)

This Annual Report is the initial report for the LEC Ash Ponds, as required by the Rule. The groundwater monitoring system was established and certified prior to 17 April 2019, as required by § 257.100(e)(5)(i). Prior to 17 April 2019, Westar installed a groundwater monitoring system at the Ash Ponds consistent with § 257.91. Groundwater sampling and analysis was conducted in accordance with 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 prior to July 2019.

2.2.1 Status of the Groundwater Monitoring Program

The Ash Ponds are currently in the detection monitoring program.

2.2.2 Key Actions Completed

Detection monitoring was conducted at the Ash Ponds in 2018 and 2019 prior to July 2019.

2.2.3 Problems Encountered

No noteworthy problems (i.e., problems could include damaged wells, issues with sample collection or lack of sampling, or problems with analytical analysis) were encountered at the Ash Ponds in 2018 and 2019 prior to July 2019.

2.2.4 Actions to Resolve Problems

No problems were encountered at the Ash Ponds in 2018 and 2019 prior to July 2019, therefore, no actions to resolve the problems were required.

2.2.5 Project Key Activities for Upcoming Year

Key activities planned for July 2019 through June 2020 include the 2019 – 2020 Annual Groundwater Monitoring and Corrective Action Report, statistical analysis of detection monitoring analytical data collected in March 2019, and semi-annual detection monitoring.

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) – CCR Unit and Monitoring Well Network

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 Ash Ponds is included in this report as Figure 1.

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 system for the Ash Ponds at LEC are described in the CCR Groundwater Monitoring Network Description Report dated 17 April 2019. This report was placed in the facility's operating record by 17 April 2019, as required by § 257.105(h)(2). No new monitoring wells were installed or decommissioned since the groundwater monitoring system was certified.

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;

A total of eight independent detection monitoring samples from each background (upgradient) and downgradient monitoring well were collected during 2018 and 2019 prior to 17 April 2019. A summary table including the sample names, dates of sample collection, and monitoring data obtained for the groundwater monitoring program for the Ash Ponds is presented in Table I of this report. The groundwater monitoring sampling and laboratory analyses conducted in 2018 and 2019 prior to July 2019 were completed under a detection monitoring program.

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 transition between monitoring programs occurred for the Ash Ponds in calendar year 2018 or prior to July 2019.

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 the reporting period.

TABLE

TABLE I
SUMMARY OF ANALYTICAL RESULTS
 WESTAR LAWRENCE ENERGY CENTER
 AREA 2 POND, AREA 3 POND AND AREA 4 POND
 LAWRENCE, KANSAS

Location	Measure Point Elevation (TOC)	Sample Name	Sample Date	Event	Depth to Water (btoc)	Groundwater Elevation (ft AMSL)	Field Parameters				Detection Monitoring - USEPA Appendix III Constituents (mg/L)						Assessment Monitoring - USEPA Appendix IV Constituents (mg/L)											
							Temperature (Deg C)	Conductivity (µS/cm)	Turbidity (NTU)	pH (su)	Boron, Total	Calcium, Total	Chloride	Fluoride	pH	Sulfate	TDS	Antimony, Total	Arsenic, Total	Barium, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Cobalt, Total	Fluoride	Lead, Total	Lithium, Total	
Up Gradient	MW-37	833.29	MW-37-030718	3/7/2018	Round 1	10.04	823.25	12.94	936	0.59	7.21	2.2	134	27.2	0.37	7.3	335	735	<0.0010	0.0047	0.045	<0.0010	<0.00050	<0.0050	<0.0010	0.37	<0.010	0.013
			MW-37-050918	5/9/2018	Round 2	11.10	822.19	15.75	1017	2.71	7.39	2.2	138	31.1	0.36	7.2	355	776	<0.0010	0.0077	0.055	<0.0010	<0.00050	<0.0050	<0.0010	0.36	<0.010	0.014
			MW-37-070218	7/2/2018	Round 3	12.32	820.97	16.93	924	1.83	7.09	2.2	136	29.0	0.36	7.7	293	753	<0.0010	0.0056	0.048	<0.0010	<0.00050	<0.0050	<0.0010	0.36	<0.010	0.015
			MW-37-081418	8/14/2018	Round 4	14.38	818.91	16.62	934	0.56	7.16	2.1	135	29.4	0.41	7.2	294	759	<0.0010	0.0045	0.046	<0.0010	<0.00050	<0.0050	<0.0010	0.41	<0.010	0.011
			MW-37-100318	10/3/2018	Round 5	14.54	818.75	17.70	965	0.27	7.05	2.2	140	29.7	0.32	7.4	371	751	<0.0010	0.0053	0.050	<0.0010	<0.00050	<0.0050	<0.0010	0.32	<0.010	0.017
			MW-37-111918	11/19/2018	Round 6	11.39	821.90	13.63	926	0.80	6.83	2.0	143	29.7	0.44	7.2	275	3120	<0.0010	0.0054	0.051	<0.0010	<0.00050	<0.0050	<0.0010	0.44	<0.010	0.010
			MW-37-011119	1/11/2019	Round 7	8.51	824.78	12.69	929	18.2	6.95	2.1	140	28.8	0.28	7.4	283	722	<0.0010	0.0089	0.058	<0.0010	<0.00050	<0.0050	<0.0010	0.28	<0.010	0.018
			MW-37-031819	3/18/2019	Round 8	7.33	825.96	13.28	1022	10.79	6.96	1.9	138	33.5	0.38	7.2	297	734	<0.0010	0.0074	0.054	<0.0010	<0.00050	<0.0050	<0.0010	0.38	<0.010	0.018
Down Gradient	MW-38	832.626	MW-38-030718	3/7/2018	Round 1	16.11	816.52	14.00	2824	2.14	7.45	6.2	319	220	5.0	7.6	1390	2230	<0.0010	0.015	0.038	<0.0010	<0.00050	<0.0050	<0.0010	5.0	<0.010	0.079
			MW-38-050918	5/9/2018	Round 2	15.98	816.65	16.84	3080	0.46	7.75	6.0	312	237	5.0	7.5	1470	2520	<0.0010	0.014	0.037	<0.0010	<0.00050	<0.0050	<0.0010	5.0	<0.010	0.083
			MW-38-070218	7/2/2018	Round 3	16.43	816.20	17.88	2790	1.36	7.44	5.8	300	254	5.1	7.7	1560	2480	<0.0010	0.013	0.034	<0.0010	<0.00050	<0.00050	<0.0010	5.1	<0.010	0.077
			MW-38-081418	8/14/2018	Round 4	16.84	815.79	17.49	2770	1.41	7.51	5.7	312	206	5.5	7.5	1300	2250	<0.0010	0.013	0.034	<0.0010	<0.00050	<0.0050	<0.0010	5.5	<0.010	0.072
			MW-38-100318	10/3/2018	Round 5	16.69	815.94	18.50	2830	0.4	7.42	5.6	309	250	5.3	7.6	1370	461	<0.0010	0.014	0.032	<0.0010	<0.00050	<0.0050	<0.0010	5.3	<0.010	0.076
			MW-38-111918	11/19/2018	Round 6	14.56	818.07	14.38	2830	1.08	7.23	4.9	320	206	4.8	7.5	1220	1400	<0.0010	0.014	0.032	<0.0010	<0.00050	<0.0050	<0.0010	4.8	<0.010	0.071
			MW-38-011119	1/11/2019	Round 7	14.14	818.49	13.56	2800	0.72	7.41	5.4	322	202	4.7	7.6	1210	2600	<0.0010	0.014	0.032	<0.0010	<0.00050	<0.0050	<0.0010	4.7	<0.010	0.076
			MW-38-031919	3/19/2019	Round 8	14.29	818.34	13.70	2940	0.85	7.13	5.2	302	199	4.7	7.5	1350	2140	<0.0010	0.015	0.031	<0.0010	<0.00050	<0.0050	<0.0010	4.7	<0.010	0.076
	MW-39	830.615	MW-39-030818	3/8/2018	Round 1	15.60	815.02	12.22	3640	0.44	7.15	5.5	478	357	2.7	7.3	1920	3090	<0.0010	0.012	0.031	<0.0010	<0.00050	<0.0050	<0.0010	2.7	<0.010	0.038
			MW-39-050918	5/9/2018	Round 2	14.97	815.65	18.41	4030	0.27	7.34	5.4	490	375	2.9	7.3	1870	3400	<0.0010	0.013	0.033	<0.0010	<0.00050	<0.0050	0.0011	2.9	<0.010	0.050
			MW-39-070218	7/2/2018	Round 3	15.4	815.22	18.88	3850	0.03	7.03	5.3	478	487	3.3	7.5	2110	3390	<0.0010	0.013	0.032	<0.0010	<0.00050	<0.0050	0.0014	3.3	<0.010	0.049
			MW-39-081418	8/14/2018	Round 4	15.69	814.93	18.82	3880	0.02	7.15	5.5	511	403	3.0	7.1	1750	3550	<0.0010	0.013	0.032	<0.0010	<0.00050	<0.0050	0.0016	3.0	<0.010	0.047
			MW-39-100318	10/3/2018	Round 5	15.41	815.21	19.04	4030	0.15	7.06	5.4	493	535	3.2	7.2	1940	3550	<0.0010	0.013	0.033	<0.0010	<0.00050	<0.0050	0.0014	3.2	<0.010	0.049
			MW-39-111918	11/19/2018	Round 6	12.74	817.88	15.46	4010	0.54	6.95	4.3	486	443	3.5	7.4	1880	3640	<0.0010	0.014	0.032	<0.0010	<0.00050	<0.0050	<0.0010	3.5	<0.010	0.062
			MW-39-011119	1/11/2019	Round 7	12.21	818.41	14.01	3820	0.28	7.10	4.8	510	373	2.9	7.2	1730	3770	<0.0010	0.010	0.030	<0.0010	<0.00050	<0.0050	0.0013	2.9	<0.010	0.043
			MW-39-031919	3/19/2019	Round 8	12.65	817.97	15.09	4155	0.53	6.92	4.6	490	399	1.9	7.3	1810	3480	<0.0010	0.011	0.030	<0.0010	<0.00050	<0.00050	0.0012	1.9	<0.010	0.045
	MW-40	831.358	MW-40-030818	3/8/2018	Round 1	16.17	815.19	13.17	3767	0.79	7.11	7.4	526	410	1.6	7.0	1930	3180	<0.0010	0.013	0.037	<0.0010	<0.00050	<0.0050	<0.0010	1.6	<0.010	0.046
			MW-40-050918	5/9/2018	Round 2	15.60	815.76	18.47	3980	0.21	7.45	7.2	527	412	1.9	7.0	1890	3300	<0.0010	0.014	0.039	<0.0010	<0.00050	<0.0050	<0.0010	1.9	<0.010	0.056
			MW-40-070218	7/2/2018	Round 3	16.01	815.35	20.00	3600	0.39	7.21	7.0	487	429	2.1	7.0	2160	3190	<0.0010	0.014	0.036	<0.0010	<0.00050	<0.0050	<0.0010	2.1	<0.010	0.052
			MW-40-081418	8/14/2018	Round 4	16.25	815.11	20.03	3550	0.10	7.36	6.9	506	331	1.9	7.0	1770	3310	<0.0010	0.014	0.035	<0.0010	<0.00050	<0.0050	<0.0010	1.9	<0.010	0.048
			MW-40-100318	10/3/2018	Round 5	16.01	815.35	20.63	3610	1.2	7.2	6.7	512	356	2.0	7.0	1830	3230	<0.0010	0.014	0.036	<0.0010	<0.00050	<0.0050	<0.0010	2.0	<0.010	0.053
			MW-40-111918	11/19/2018	Round 6	13.43	817.93	15.34	3580	0.82	7.00	6.1	536	351	1.7	7.0	1780	3100	<0.0010	0.027	0.035	<0.0010	<0.00050	<0.0050	<0.0010	1.7	<0.010	0.047
			MW-40-011119	1/11/2019	Round 7	12.72	818.64	13.79	3440	0.75	7.14	6.4	504	306	1.5	7.0	1610	3100	<0.0010	0.014	0.034	<0.0010	<0.00050	<0.0050	<0.0010	1.5	<0.010	0.045
			MW-40-031919	3/19/2019	Round 8	13.25	818.11	16.01	3678	0.68	6.85	5.8	468	329	1.2	7.2	1730	3060	<0.0010	0.015	0.100	<0.0010	<0.00050	<0.0050	<0.0010	1.2	<0.010	0.049
MW-K	842.600	MW-K-050918	5/10/2018	Round 1	26.35	816.25	17.43	4230	5.74	7.10	3.6	504	481	3.4	7.2	1570	3580	<0.0010	0.075	0.052	<0.0010	<0.00050	<0.0050	0.0028	3.4	<0.010	0.051	
		MW-K-070218	7/2/2018	Round 2	26.77	815.83	19.05	4100	2.58	7.04	3.1	473	593	3.5	7.7	2020	3350	<0.0010	0.070	0.042	<0.0010	<0.00050	<0.0050	0.0015	3.5	<0.010	0.067	
		MW-K-081418	8/14/2018	Round 3	27.18	815.42	18.69	4070	5.43	7.17	2.9	482	516	0.76	7.3	1650	3740	<0.0010	0.073	0.041	<0.0010	<0.00050	<0.0050	0.0016	0.76	<0.010	0.063	
		MW-K-100318	10/3/2018	Round 4	27.00	815.60	19.12	4370	1.68	7.06	2.9	513	708	3.5	7.1	1940	4000	<0.0010	0.072	0.045	<0.0010	<0.00050	<0.0050	0.0014	3.5	<0.010	0.07	
		MW-K-111918	11/19/2018	Round 5	24.68	817.92	14.96	4570	1.64	6.91	2.2	554	638	3.2	7.2	1960	3840	<0.0010	0.069	0.044	<0.0010	<0.00050	<0.0050	0.0011	3.2	<0.010	0.066	
		MW-K-121218	12/12/2018	Round 6	23.21	819.39	14.80	4340	1.19	7.01	2.6	541	587	3.1	7.2	1920	4010	<0.0010	0.069	0.042	<0.0010	<0.00050	<0.0050	0.0015	3.1	<0.010	0.076	
		MW-K-011119	1/11/2019	Round 7	24.32	818.28	13.77	4640	1.55	7.23	2.1	533	653	3.0	7.4	2000	4090	<0.0010	0									

TABLE I
SUMMARY OF ANALYTICAL RESULTS
 WESTAR LAWRENCE ENERGY CENTER
 AREA 2 POND, AREA 3 POND AND AREA 4 POND
 LAWRENCE, KANSAS

Location	Measure Point Elevation (TOC)	Sample Name	Sample Date	Event	Depth to Water (btoc)	Groundwater Elevation (ft AMSL)	Assessment Monitoring - USEPA Appendix IV Constituents (mg/L)				Assessment Monitoring - USEPA Appendix IV Constituents (pCi/L)	
							Mercury, Total	Molybdenum, Total	Selenium, Total	Thallium, Total	Radium-226 & 228 Combined	
Up Gradient	MW-37	833.29	MW-37-030718	3/7/2018	Round 1	10.04	823.25	<0.00020	0.13	<0.0010	<0.0010	0.641
			MW-37-050918	5/9/2018	Round 2	11.10	822.19	<0.00020	0.14	<0.0010	<0.0010	0.794
			MW-37-070218	7/2/2018	Round 3	12.32	820.97	<0.00020	0.14	<0.0010	<0.0010	1.12
			MW-37-081418	8/14/2018	Round 4	14.38	818.91	<0.00020	0.13	<0.0010	<0.0010	1.45
			MW-37-100318	10/3/2018	Round 5	14.54	818.75	<0.00020	0.13	<0.0010	<0.0010	0.561
			MW-37-111918	11/19/2018	Round 6	11.39	821.90	<0.00020	0.13	<0.0010	<0.0010	0.449
			MW-37-011119	1/11/2019	Round 7	8.51	824.78	<0.00020	0.14	<0.0010	<0.0010	1.10
			MW-37-031819	3/18/2019	Round 8	7.33	825.96	<0.00020	0.13	<0.0010	<0.0010	1.15
Down Gradient	MW-38	832.626	MW-38-030718	3/7/2018	Round 1	16.11	816.52	<0.00020	0.10	<0.0010	<0.0010	1.56
			MW-38-050918	5/9/2018	Round 2	15.98	816.65	<0.00020	0.093	<0.0010	<0.0010	0.862
			MW-38-070218	7/2/2018	Round 3	16.43	816.20	<0.00020	0.099	<0.0010	<0.0010	1.88
			MW-38-081418	8/14/2018	Round 4	16.84	815.79	<0.00020	0.087	<0.0010	<0.0010	0.377
			MW-38-100318	10/3/2018	Round 5	16.69	815.94	<0.00020	0.089	<0.0010	<0.0010	0.136
			MW-38-111918	11/19/2018	Round 6	14.56	818.07	<0.00020	0.087	<0.0010	<0.0010	0.951
			MW-38-011119	1/11/2019	Round 7	14.14	818.49	<0.00020	0.088	<0.0010	<0.0010	0.862
			MW-38-031919	3/19/2019	Round 8	14.29	818.34	<0.00020	0.094	<0.0050	<0.0010	1.78
	MW-39	830.615	MW-39-030818	3/8/2018	Round 1	15.60	815.02	<0.00020	0.11	<0.0010	<0.0010	0.966
			MW-39-050918	5/9/2018	Round 2	14.97	815.65	<0.00020	0.11	<0.0010	<0.0010	0.795
			MW-39-070218	7/2/2018	Round 3	15.4	815.22	<0.00020	0.11	<0.0010	<0.0010	1.47
			MW-39-081418	8/14/2018	Round 4	15.69	814.93	<0.00020	0.093	<0.0010	<0.0010	1.05
			MW-39-100318	10/3/2018	Round 5	15.41	815.21	<0.00020	0.089	<0.0010	<0.0010	0.582
			MW-39-111918	11/19/2018	Round 6	12.74	817.88	<0.00020	0.14	<0.0010	<0.0010	1.23
			MW-39-011119	1/11/2019	Round 7	12.21	818.41	<0.00020	0.11	<0.0010	<0.0010	0.782
			MW-39-031919	3/19/2019	Round 8	12.65	817.97	<0.00020	0.15	<0.0050	<0.0010	1.62
	MW-40	831.358	MW-40-030818	3/8/2018	Round 1	16.17	815.19	<0.00020	0.140	<0.0010	<0.0010	1.00
			MW-40-050918	5/9/2018	Round 2	15.60	815.76	<0.00020	0.15	<0.0010	<0.0010	0.277
			MW-40-070218	7/2/2018	Round 3	16.01	815.35	<0.00020	0.19	<0.0010	<0.0010	0.633
			MW-40-081418	8/14/2018	Round 4	16.25	815.11	<0.00020	0.16	<0.0010	<0.0010	0.900
			MW-40-100318	10/3/2018	Round 5	16.01	815.35	<0.00020	0.16	<0.0010	<0.0010	0.184
			MW-40-111918	11/19/2018	Round 6	13.43	817.93	<0.00020	0.062	<0.0010	<0.0010	0.810
			MW-40-011119	1/11/2019	Round 7	12.72	818.64	<0.00020	0.15	<0.0010	<0.0010	0.481
			MW-40-031919	3/19/2019	Round 8	13.25	818.11	<0.00020	0.15	<0.0050	<0.0010	1.26
	MW-K	842.600	MW-K-050918	5/10/2018	Round 1	26.35	816.25	<0.00020	0.040	<0.0010	<0.0010	0.866
			MW-K-070218	7/2/2018	Round 2	26.77	815.83	<0.00020	0.032	<0.0010	<0.0010	1.60
			MW-K-081418	8/14/2018	Round 3	27.18	815.42	<0.00020	0.027	<0.0010	<0.0010	2.73
			MW-K-100318	10/3/2018	Round 4	27.00	815.60	<0.00020	0.027	<0.0010	<0.0010	0.253
			MW-K-111918	11/19/2018	Round 5	24.68	817.92	<0.00020	0.018	<0.0010	<0.0010	0.864
			MW-K-121218	12/12/2018	Round 6	23.21	819.39	<0.00020	0.022	<0.0010	<0.0010	1.16
			MW-K-011119	1/11/2019	Round 7	24.32	818.28	<0.00020	0.014	<0.0010	<0.0010	0.800
			MW-K-031919	3/19/2019	Round 8	24.55	818.05	<0.00020	0.014	<0.0010	<0.0010	0.951
	MW-L	843.050	MW-L-050918	5/10/2018	Round 1	27.24	804.12	<0.00020	0.038	<0.0010	<0.0010	1.01
			MW-L-070218	7/2/2018	Round 2	27.63	815.42	<0.00020	0.043	<0.0010	<0.0010	1.23
			MW-L-081418	8/14/2018	Round 3	27.96	815.09	<0.00020	0.039	<0.0010	<0.0010	1.01
			MW-L-100318	10/3/2018	Round 4	27.73	815.32	<0.00020	0.038	<0.0010	<0.0010	0.597
			MW-L-111918	11/19/2018	Round 5	25.17	817.88	<0.00020	0.041	<0.0010	<0.0010	2.08
			MW-L-121218	12/12/2018	Round 6	23.64	819.41	<0.00020	0.047	<0.0010	<0.0010	1.16
			MW-L-011119	1/11/2019	Round 7	24.68	818.37	<0.00020	0.047	<0.0010	<0.0010	1.26
			MW-L-031919	3/19/2019	Round 8	25.08	817.97	<0.00020	0.051	<0.0050	<0.0010	0.483






ABBREVIATIONS AND NOTES:
Bold value: Detection above laboratory reporting limit
 µS/cm: microSiemen per centimeter
 CCR: Coal Combustion Residuals
 J = estimated value
 J- = estimate value, with low bias
 MCL: Maximum Contaminant Level
 mg/L: milligram per liter
 NA: Not Applicable
 NTU: Nephelometric Turbidity Units
 pCi/L: picoCurie per liter
 su: standard units
 USEPA: United States Environmental Protection Agency

FIGURE

GIS FILE PATH: G:\Projects\Westar\Lawrence Energy Center (LEC)\GIS\MXDs\2019_03\Pond Complex Well Locations_072419.mxd — USER: rabrown — LAST SAVED: 7/24/2019 1:44:40 PM

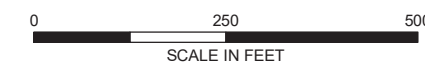


LEGEND

-  MONITORING WELL
-  AREA 2 POND (INACTIVE)
-  AREA 3 POND (INACTIVE)
-  AREA 4 POND (INACTIVE)
-  ASH PONDS BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX.



HALEY ALDRICH WESTAR ENERGY
LAWRENCE ENERGY CENTER
LAWRENCE, KANSAS

**LAWRENCE ENERGY CENTER
ASH PONDS
MONITORING WELL MAP**

JULY 2019

FIGURE 1