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January 30, 2020

Mr. David M. Heger
Senior Counsel
AES US Services, LLC
One Monument Circle, Suite 701A
Indianapolis, Indiana 46204-2901

Re: **2019 CCR Annual Groundwater Monitoring and
Corrective Action Report**
Indianapolis Power & Light Company
Eagle Valley Generating Station
Indianapolis, Indiana
ATC Project No. 170LF00710

Dear Mr. Heger:

ATC Group Services LLC (ATC) has prepared this 2019 CCR Annual Groundwater Monitoring and Corrective Action Report for the ash pond system at Indianapolis Power & Light Company's (IPL) Eagle Valley Generating Station located outside Martinsville, Morgan County, Indiana. This report has been prepared to comply with reporting requirements described in the United States Environmental Protection Agency's (USEPA) Coal Combustion Residuals (CCR) Rule § 257.90(e). This annual report documents the status of the groundwater monitoring and corrective action program for the ash pond system and summarizes information required by § 257.90(e)(1) through § 257.90(e)(5).

Federal CCR Rule § 257.90(e) specifies the following:

For existing CCR landfills and existing CCR surface impoundments, no later than January 31, 2019, 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).

The following key actions have been completed to comply with the CCR Rule:

- Statistically Significant Level (SSL) notification pursuant to § 257.95(g) was completed in January 2019.
- In accordance with § 257.96(a), an assessment of corrective measures was initiated in April 2019. A certified Demonstration for 60-Day Extension – Corrective Measures Assessment pursuant to § 257.96(a) was issued in July 2019 (Attachment A). A Corrective Measures Assessment (CMA) report was completed and placed in the facility's operating record in September 2019, with an amended version posted to the facility's publicly available website in October 2019.
- Nature and extent (N&E) characterization were initiated with installation of monitoring wells as required by § 257.95(g)(1).
- Semi-annual assessment monitoring sampling events were conducted in 2019 as required by § 257.95(b) and § 257.95(d)(1). Subsequent SSLs evaluation of 2019 data were performed within 90-days of completing each sampling event pursuant to § 257.93(h)(2).

To report on the activities conducted during the prior calendar year and document compliance with the CCR Rule, the specific requirements listed in § 257.90(e)(1) through § 257.90(e)(5) are provided below in bold/italic type followed by a short narrative addressing how that specific requirement has been met.

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

§ 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;

IPL operates the Eagle Valley Station located approximately four miles north of Martinsville, Indiana. It is located at 4040 Blue Bluff Road. A Site Location Map is provided as Figure 1. A map showing the location of each CCR management unit, associated upgradient and downgradient CCR monitoring wells, and N&E wells installed in 2019, is provided as Figure 2.

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

The CCR ash pond groundwater monitoring system at the Eagle Valley Station consists of twenty-four (24) monitoring wells: MW-1S, MW-1I, MW-1D, MW-2S, MW-2I, MW-2D, MW-3S, MW-3I, MW-4S, MW-4I, MW-4D, MW-6S, MW-6I, MW-6D, MW-7S, MW-8S, MW-9S, MW-9I, MW-9D, MW-10S, MW-11S, MW-11I, MW-11D, and MW-12S. Monitoring wells MW-4S, MW-4I, MW-4D, MW-8S,

MW-9S, MW-9I, and MW-9D represent upgradient/background wells, while the remaining represent downgradient wells. The wells were installed in accordance with the requirements of Federal CCR Rule § 257.91 between September 28, 2015 and March 17, 2016.

Monitoring well MW-10S was previously designated as an upgradient well. In response to regulatory agency inquiry, this well was redesignated as a downgradient well in the revised Groundwater Sampling and Analysis Plan (GW SAP) in 2019. Based on the hydraulic gradient position depicted on historic flow maps, the MW-10S position with regard to the impoundments varies from upgradient, side-gradient, or downgradient.

To characterize the N&E of the release and any relevant site condition that may affect the remedy ultimately selected, as required by § 257.95(g)(1), additional investigation activities were initiated. These investigation activities included the installation of additional downgradient monitoring wells to characterize the N&E of the release. Fourteen (14) N&E wells (MW-10I, MW-10D, MW-13S, MW-13I, MW-13D, MW-14S, MW-14I, MW-14D, MW-15S, MW-15I, MW-15D, MW-16S, MW-16I, and MW-16D) were installed between June 9 and July 23, 2019. These wells were installed to characterize the nature and extent of the contamination plume and to support the CMA. With the exception of MW-10I and MW-10D, all N&E wells serve as facility boundary wells pursuant to § 257.95(g)(1)(iii).

The location of the CCR monitoring well network and N&E wells are depicted on Figure 2. No monitoring wells were abandoned during this reporting period.

§ 257.90(e)(3) In addition to all the monitoring data obtained under § 257.90 through § 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;

Table 1 provides a summary of the number of samples collected at each CCR monitoring well and N&E well, sampling dates, and designation of whether samples were required by the detection or assessment monitoring program, or N&E. Groundwater elevation data is provided in Table 2. Assessment monitoring groundwater analytical results for the May 2019 semi-annual sampling event are summarized in Table 3. Assessment monitoring groundwater analytical results for the November 2019 semi-annual sampling event were not finalized in 2019 and therefore are not included with this submittal.

Groundwater analytical results for the August and September 2019 N&E sampling events are provided in Table 4 and Table 5, respectively.

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

Pursuant to § 257.94(e)(2), 257.94(e)(3) and 257.95(b), the facility established an Assessment Monitoring Program in accordance with the requirements of § 257.95 on July 16, 2018 as denoted in

the 2019 Annual Groundwater Monitoring and Corrective Action report. IPL Eagle Valley continues assessment monitoring in accordance with § 257.95.

A statistical evaluation of the 2018 analytical data in order to determine whether there was a SSL of an Appendix IV constituent detected above the relevant groundwater protection standards (GWPS) in accordance with § 257.95(g) and 257.93(h). This evaluation was completed in January 2019. GWPS were developed pursuant to § 257.95(d)(2) and (h) and exceedances of the established GWPS were identified. Appendix IV constituents that exceeded the GWPS include arsenic, lithium, and molybdenum. Completion of a notification identifying the Appendix IV constituents that exceeded GWPS in accordance with § 257.95(g) was completed in January 2019 and was placed in the facility's CCR operating record pursuant to § 257.95(g).

A statistical evaluation of the May 2019 analytical data was performed in order to determine whether there was a SSL of an Appendix IV constituent detected above the relevant GWPS in accordance with § 257.95(g) and 257.93(h). This evaluation was completed in September 2019. Based on this evaluation, it was determined that there were no new Appendix IV constituent SSLs; therefore, an additional notification was not triggered pursuant to 40 CFR 257.95(g) as no new SSLs were identified.

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


Table 6 summarizes the groundwater protection standards established in accordance with § 257.95(d)(2) and § 257.95(h).

Projected key activities for the upcoming year include the following:

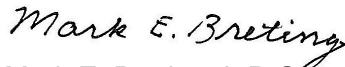
- Assessment monitoring sampling events in accordance with § 257.95.
- Finalize November 2019 analytical data. Completion of statistical evaluation of November 2019 analytical data to determine whether there is a SSL above GWPS for Appendix IV constituents in accordance with § 257.95(g) and 257.93(h). Perform SSL evaluations of final 2020 assessment monitoring analytical data.
- Continue N&E work pursuant to § 257.95(g).
- Conduct public meeting to discuss the results of the corrective measures assessment at least 30 days prior to the selection of remedy pursuant to § 257.96(e).
- Prepare semi-annual report(s) describing progress in selecting and designing the remedy pursuant to § 257.97(a).
- Following remedy selection, if feasible, prepare and certify final report describing the selected remedy and how it meets the standards specified in § 257.97(b).

We appreciate the opportunity to assist with IPL's CCR Rule groundwater monitoring program at Eagle Valley Station's ash pond system. Please contact any of the undersigned at 317.849.4990 if you have any questions regarding this report.

Sincerely,



Kendra Reininga
Staff Geologist



Mark E. Breting, L.P.G.
Senior Project Geologist



Robert T. Duncan, L.P.G.
Senior Project Geologist

Copies: Ms. Nysa Hogue
Mr. Thom O'Leary

TABLES

Table 1:	Well Sampling Summary
Table 2:	Groundwater Elevation Data
Table 3:	Summary of Monitoring Results – May 2019 (Semi-Annual CCR Wells)
Table 4:	Summary of Monitoring Results – August 2019 (N&E Well Event)
Table 5:	Summary of Monitoring Results – September 2019 (N&E Well Event)
Table 6:	Groundwater Protection Standards Summary

Table 1
Well Sampling Summary
Ash Pond System
Indianapolis Power and Light Company
Eagle Valley Generating Station
Martinsville, Indiana
ATC Project No. 170LF00710

Identification	Date Installed	Upgradient/Background, Downgradient, or Nature & Extent	Number of Samples	Sample Date	Detection or Assessment Monitoring Program
MW-1S	9/29/2015	Downgradient	2	5/8/2019	Assessment
				11/14/2019	
MW-1I	3/1/2016	Downgradient	2	5/8/2019	Assessment
				11/14/2019	
MW-1D	10/1/2015	Downgradient	2	5/8/2019	Assessment
				11/14/2019	
MW-2S	9/28/2015	Downgradient	2	5/9/2019	Assessment
				11/14/2019	
MW-2I	3/7/2016	Downgradient	2	5/9/2019	Assessment
				11/13/2019	
MW-2D	3/4/2016	Downgradient	2	5/9/2019	Assessment
				11/13/2019	
MW-3S	9/28/2015	Downgradient	2	5/9/2019	Assessment
				11/13/2019	
MW-3I	3/8/2016	Downgradient	2	5/9/2019	Assessment
				11/13/2019	
MW-4S	10/1/2015	Upgradient/Background	2	5/7/2019	Assessment
				11/13/2019	
MW-4I	3/11/2016	Upgradient/Background	2	5/7/2019	Assessment
				11/13/2019	
MW-4D	3/2/2016	Upgradient/Background	2	5/7/2019	Assessment
				11/13/2019	
MW-6S	10/2/2015	Downgradient	2	5/8/2019	Assessment
				11/14/2019	
MW-6I	3/17/2016	Downgradient	2	5/8/2019	Assessment
				11/14/2019	
MW-6D	3/8/2016	Downgradient	2	5/8/2019	Assessment
				11/14/2019	
MW-7S	10/2/2015	Downgradient	1	5/7/2019	Assessment
				NS	
MW-8S	9/29/2015	Upgradient/Background	2	5/7/2019	Assessment
				11/13/2019	
MW-9S	10/21/2015	Upgradient/Background	2	5/7/2019	Assessment
				11/13/2019	
MW-9I	3/10/2016	Upgradient/Background	2	5/7/2019	Assessment
				11/13/2019	
MW-9D	3/10/2016	Upgradient/Background	2	5/7/2019	Assessment
				11/13/2019	
MW-10S	10/3/2015	Downgradient	1	5/7/2019	Assessment
				NS	
MW-10I	7/11/2019	Nature & Extent	1	8/9/2019	Assessment
MW-10D	7/10/2019	Nature & Extent	1	8/9/2019	Assessment
MW-11S	3/16/2016	Downgradient	1	5/8/2019	Assessment
				NS	
MW-11I	3/16/2016	Downgradient	2	5/8/2019	Assessment
				11/14/2019	
MW-11D	3/16/2016	Downgradient	2	5/8/2019	Assessment
				11/14/2019	
MW-12S	3/17/2016	Downgradient	1	5/8/2019	Assessment
				NS	

Table 1
Well Sampling Summary
Ash Pond System
Indianapolis Power and Light Company
Eagle Valley Generating Station
Martinsville, Indiana
ATC Project No. 170LF00710

Identification	Date Installed	Upgradient/Background, Downgradient, or Nature & Extent	Number of Samples	Sample Date	Detection or Assessment Monitoring Program
MW-13S	7/2/2019	Nature & Extent	2	8/8/2019	Assessment
				9/25/2019	
MW-13I	7/1/2019	Nature & Extent	2	8/8/2019	Assessment
				9/24/2019	
MW-13D	7/1/2019	Nature & Extent	2	8/8/2019	Assessment
				9/25/2019	
MW-14S	7/12/2019	Nature & Extent	2	8/12/2019	Assessment
				9/25/2019	
MW-14I	7/9/2019	Nature & Extent	2	8/12/2019	Assessment
				9/25/2019	
MW-14D	7/3/2019	Nature & Extent	2	8/12/2019	Assessment
				9/25/2019	
MW-15S	7/17/2019	Nature & Extent	2	8/12/2019	Assessment
				9/25/2019	
MW-15I	7/17/2019	Nature & Extent	2	8/12/2019	Assessment
				9/25/2019	
MW-15D	7/16/2019	Nature & Extent	2	8/12/2019	Assessment
				9/25/2019	
MW-16S	7/23/2019	Nature & Extent	2	8/9/2019	Assessment
				9/25/2019	
MW-16I	7/22/2019	Nature & Extent	2	8/9/2019	Assessment
				9/25/2019	
MW-16D	7/22/2019	Nature & Extent	2	8/9/2019	Assessment
				9/25/2019	

NS = Not sampled due to insufficient water volume (dry)

Table 2
Groundwater Elevation Data
Ash Pond System
Indianapolis Power and Light Company
Eagle Valley Generating Station, Martinsville, Indiana
ATC Project No. 170LF00710

Monitoring Well Location	Gauging Date	TOC Elevation (ft-MSL)	Depth to Water (ft)	Water Elevation (ft-MSL)
MW-1S	5/6/2019	612.93	19.27	593.66
	9/18/2019		25.18	587.75
	9/24/2019		25.20	587.73
	11/11/2019		25.09	587.84
MW-1I	5/6/2019	612.31	18.64	594.29
	9/18/2019		24.57	587.74
	9/24/2019		24.59	587.72
	11/11/2019		24.54	587.77
MW-1D	5/6/2019	612.91	19.21	593.70
	9/18/2019		25.21	587.70
	9/24/2019		25.28	587.63
	11/11/2019		25.16	587.75
MW-2S	5/6/2019	608.45	14.44	594.01
	9/18/2019		19.66	588.79
	9/24/2019		19.65	588.80
	11/11/2019		19.62	588.83
MW-2I	5/6/2019	608.93	14.85	594.08
	9/18/2019		19.90	589.03
	9/24/2019		20.17	588.76
	11/11/2019		20.15	588.78
MW-2D	5/6/2019	608.72	14.76	593.96
	9/18/2019		20.15	588.57
	9/24/2019		19.95	588.77
	11/11/2019		19.91	588.81
MW-3S	5/6/2019	610.80	16.31	594.49
	9/18/2019		20.61	590.19
	9/24/2019		20.49	590.31
	11/11/2019		20.65	590.15

Table 2
Groundwater Elevation Data
Ash Pond System
Indianapolis Power and Light Company
Eagle Valley Generating Station, Martinsville, Indiana
ATC Project No. 170LF00710

Monitoring Well Location	Gauging Date	TOC Elevation (ft-MSL)	Depth to Water (ft)	Water Elevation (ft-MSL)
MW-3I	5/6/2019	610.76	17.40	593.36
	9/18/2019		21.17	589.59
	9/24/2019		21.13	589.63
	11/11/2019		21.19	589.57
MW-4S	5/6/2019	609.94	14.00	595.94
	9/18/2019		18.30	591.64
	9/24/2019		18.25	591.69
	11/11/2019		18.43	591.51
MW-4I	5/6/2019	614.66	18.79	595.87
	9/18/2019		23.19	591.47
	9/24/2019		23.14	591.52
	11/11/2019		23.22	591.44
MW-4D	5/6/2019	614.72	18.86	595.86
	9/18/2019		23.28	591.44
	9/24/2019		23.18	591.54
	11/11/2019		23.28	591.44
MW-6S	5/6/2019	605.99	10.42	595.57
	9/18/2019		18.99	587.00
	9/24/2019		19.19	586.80
	11/11/2019		19.01	586.98
MW-6I	5/6/2019	606.00	10.43	595.57
	9/18/2019		19.07	586.93
	9/24/2019		19.28	586.72
	11/11/2019		19.08	586.92
MW-6D	5/6/2019	604.85	9.30	595.55
	9/18/2019		17.83	587.02
	9/24/2019		18.02	586.83
	11/11/2019		17.87	586.98

Table 2
Groundwater Elevation Data
Ash Pond System
Indianapolis Power and Light Company
Eagle Valley Generating Station, Martinsville, Indiana
ATC Project No. 170LF00710

Monitoring Well Location	Gauging Date	TOC Elevation (ft-MSL)	Depth to Water (ft)	Water Elevation (ft-MSL)
MW-7S	5/6/2019	616.68	20.59	596.09
	9/18/2019		27.08	589.60
	9/24/2019		27.17	589.51
	11/11/2019		DRY	DRY
MW-8S	5/6/2019	616.67	20.26	596.41
	9/18/2019		24.79	591.88
	9/24/2019		24.72	669.17
	11/11/2019		24.79	591.88
MW-9S	5/6/2019	617.52	21.04	596.48
	9/18/2019		26.55	590.97
	9/24/2019		26.52	591.00
	11/11/2019		26.44	591.08
MW-9I	5/6/2019	617.06	20.55	596.51
	9/18/2019		26.17	590.89
	9/24/2019		26.01	591.05
	11/11/2019		26.02	591.04
MW-9D	5/6/2019	617.41	20.86	596.55
	9/18/2019		26.50	590.91
	9/24/2019		26.43	590.98
	11/11/2019		26.32	591.09
MW-10S	5/6/2019	614.03	18.00	596.03
	9/18/2019		27.79	586.24
	9/24/2019		27.87	586.16
	11/11/2019		27.42	586.61
MW-11S	5/6/2019	627.29	33.22	594.07
	9/18/2019		39.71	587.58
	9/24/2019		39.43	587.86
	11/11/2019		39.74	587.55

Table 2
Groundwater Elevation Data
Ash Pond System
Indianapolis Power and Light Company
Eagle Valley Generating Station, Martinsville, Indiana
ATC Project No. 170LF00710

Monitoring Well Location	Gauging Date	TOC Elevation (ft-MSL)	Depth to Water (ft)	Water Elevation (ft-MSL)
MW-11I	5/6/2019	627.52	33.46	594.06
	9/18/2019		39.94	587.58
	9/24/2019		40.02	587.50
	11/11/2019		39.94	587.58
MW-11D	5/6/2019	627.56	33.51	594.05
	9/18/2019		40.13	587.43
	9/24/2019		40.18	587.38
	11/11/2019		39.99	587.57
MW-12S	5/6/2019	607.26	10.11	597.15
	9/18/2019		19.91	587.35
	9/24/2019		20.10	587.16
	11/11/2019		DRY	DRY
MW-10I	8/8/2019	613.68	26.06	587.62
	9/18/2019		27.69	585.99
	9/24/2019		27.91	585.87
	11/11/2019		27.35	586.33
MW-10D	8/8/2019	613.54	25.91	587.63
	9/18/2019		27.54	586.00
	9/24/2019		27.61	585.93
	11/11/2019		27.18	586.36
MW-13S	8/8/2019	606.03	16.86	589.17
	9/18/2019		19.03	587.00
	9/24/2019		19.31	586.72
	11/11/2019		19.37	586.66
MW-13I	8/8/2019	606.21	16.99	589.22
	9/18/2019		19.18	587.03
	9/24/2019		19.47	586.74
	11/11/2019		19.53	586.68

Table 2
Groundwater Elevation Data
Ash Pond System
Indianapolis Power and Light Company
Eagle Valley Generating Station, Martinsville, Indiana
ATC Project No. 170LF00710

Monitoring Well Location	Gauging Date	TOC Elevation (ft-MSL)	Depth to Water (ft)	Water Elevation (ft-MSL)
MW-13D	8/8/2019	605.86	16.73	589.13
	9/18/2019		18.91	586.95
	9/24/2019		19.18	586.68
	11/11/2019		19.25	586.61
MW-14S	8/8/2019	607.39	19.31	588.08
	9/18/2019		21.24	586.15
	9/24/2019		21.49	585.90
	11/11/2019		21.36	586.03
MW-14I	8/8/2019	607.34	19.39	587.95
	9/18/2019		21.32	586.02
	9/24/2019		21.49	585.85
	11/11/2019		21.41	585.93
MW-14D	8/8/2019	607.33	19.33	588.00
	9/18/2019		21.25	586.08
	9/24/2019		21.52	585.81
	11/11/2019		21.37	585.96
MW-15S	8/8/2019	607.50	19.06	588.44
	9/18/2019		20.60	586.90
	9/24/2019		20.82	586.68
	11/11/2019		20.75	586.75
MW-15I	8/8/2019	607.61	19.04	588.57
	9/18/2019		20.57	587.04
	9/24/2019		20.80	586.81
	11/11/2019		20.73	586.88
MW-15D	8/8/2019	607.51	18.97	588.54
	9/18/2019		20.53	586.98
	9/24/2019		20.72	586.79
	11/11/2019		20.67	586.84

Table 2
Groundwater Elevation Data
Ash Pond System
Indianapolis Power and Light Company
Eagle Valley Generating Station, Martinsville, Indiana
ATC Project No. 170LF00710

Monitoring Well Location	Gauging Date	TOC Elevation (ft-MSL)	Depth to Water (ft)	Water Elevation (ft-MSL)
MW-16S	8/8/2020	609.54	20.38	589.16
	9/18/2019		21.06	588.48
	9/24/2019		20.99	588.55
	11/11/2019		20.98	588.56
MW-16I	8/8/2019	609.53	20.33	589.20
	9/18/2019		21.02	588.51
	9/24/2019		20.95	588.58
	11/11/2019		20.95	588.58
MW-16D	8/8/2019	609.60	20.41	589.19
	9/18/2019		21.09	588.51
	9/24/2019		21.03	588.57
	11/11/2019		21.00	588.60

Notes:

TOC = Top of Casing

ft-MSL = feet above Mean Sea Level

ft-bgs = feet below ground surface

Table 3
Summary of Monitoring Results - May 2019
(Semi-Annual CCR Wells)
Multiunit Ash Pond System
Indianapolis Power and Light Company
Eagle Valley Generating Station
Martinsville, Indiana
ATC Project No. 170LF00710

Well ID		MW-1D	MW-1I	MW-1S	MW-2D	MW-2I	MW-2S	MW-3I	MW-3S	MW-4D	MW-4I	MW-4S	MW-6D
Pace Lab ID		50224495003	50224495002	50224495001	50224495006	50224495004	50224495504	50224495008	50224495007	50224495011	50224495010	50224495009	50224495014
Sample Date		5/8/2019	5/8/2019	5/8/2019	5/9/2019	5/9/2019	5/9/2019	5/9/2019	5/9/2019	5/7/2019	5/7/2019	5/7/2019	5/8/2019
Static Water Elevation (ft MSL)		593.70	593.67	593.66	593.96	594.08	594.01	593.36	594.49	595.86	595.87	595.94	595.55
Field Parameters													
Temperature	°C	16.62	14.74	14.02	12.65	12.59	12.31	14.60	15.87	13.41	13.01	12.46	17.52
Dissolved Oxygen, Field	mg/L	2.71	0.42	4.21	0.08	0.03	0.10	0.10	1.46	0.09	0.11	0.03	0.25
Conductivity, Field	uS/cm	845.12	664.74	133.48	874.64	860.51	1470.5	877.52	1237.5	860.26	805.10	2010.8	1198.5
ORP, Field	mV	30.5	119.0	16.9	19.6	118.0	22.7	127.5	129.9	63.3	113.8	130.7	-9.4
pH, Field	Std. Units	7.69	7.70	6.96	7.72	7.52	7.10	7.71	7.12	7.64	7.41	7.33	7.58
Analytical Data													
Antimony, Total	ug/L	<1.0	<1.0	1.8	<1.0	<1.0	<1.0	<1.0	1.4	<1.0	<1.0	<1.0	<1.0
Arsenic, Total	ug/L	1.5	<1.0	3.0	3.2	<1.0	15.1	<1.0	<1.0	5.0	1.4	5.9	<1.0
Barium, Total	ug/L	71.3	59.4	53.5	48.6	61.8	218	58.2	97.0	56.8	68.3	126	59.6
Beryllium, Total	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron, Total	ug/L	2680	2230	4240	940	794	1380	229	973	164	181	2350	4330
Cadmium, Total	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium, Total	ug/L	809000	84500	246000	71800	70400	195000	70800	153000	75100	69700	214000	102000
Chloride	mg/L	116	123	39.7	92.2	85.5	59.7	97.6	79.4	93.3	82.6	195	156
Chromium, Total	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Cobalt, Total	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoride	mg/L	0.35	0.33	0.13	0.32	0.29	0.15	0.29	0.20	0.28	0.36	0.20	0.16
Lead, Total	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Lithium, Total	ug/L	99.7	116	83.4	86.5	86.5	102	29.0	29.8	<20.0	<20.0	67.5	113
Mercury	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Molybdenum, Total	ug/L	122	114	15.1	94.8	67.1	10.3	91.9	38.9	13.5	13.5	97.8	198
pH at 25 Degrees C	Std. Units	7.6	7.6	6.9	7.6	7.7	7.1	7.6	7.0	7.5	7.5	7.3	7.5
Selenium, Total	ug/L	<1.0	<1.0	21.0	<1.0	<1.0	21.9	<1.0	8.1	<1.0	<1.0	<1.0	<1.0
Sulfate	mg/L	144	174	360	89.2	78.9	381	76.9	192	75.9	69.1	535	222
Thallium, Total	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Dissolved Solids	mg/L	596	614	1040	491	490	1060	467	749	472	447	1390	795
Total Radium	pCi/L	1.35	1.75	1.08	1.36	2.48	0.948	1.69	0.992	0.964	1.77	0.207	1.60

Notes:
ft MSL: Elevation, feet mean sea level
°C: Degrees celcius
uS/cm: microsiemen per centimeter
umhos/cm: micromhos per centimeter
mV: millivolt
Std. Units: standard units
mg/L: milligram per liter
ug/L: microgram per liter
pCi/L: picoCurie per liter
Static water elevation listed for a well may have
been collected on a date different than date of well
sampling.

Table 3
Summary of Monitoring Results - May 2019
(Semi-Annual CCR Wells)
Multiunit Ash Pond System
Indianapolis Power and Light Company
Eagle Valley Generating Station
Martinsville, Indiana
ATC Project No. 170LF00710

Well ID		MW-6I	MW-6S	MW-7S	MW-8S	MW-9D	MW-9I	MW-9S	MW-10S	MW-11D	MW-11I	MW-11S	MW-12S
Pace Lab ID		50224495013	50224495012	50224495015	50224495016	50224495019	50224495018	50224495017	50224495020	50224495023	50224495022	50224495021	50224495024
Sample Date		5/8/2019	5/8/2019	5/7/2019	5/7/2019	5/7/2019	5/7/2019	5/7/2019	5/7/2019	5/8/2019	5/8/2019	5/8/2019	5/8/2019
Static Water Elevation (ft MSL)		595.57	595.57	596.09	596.41	596.55	596.51	596.48	596.03	594.05	594.06	594.07	597.15
Field Parameters													
Temperature	°C	15.86	14.13	14.64	13.47	18.52	20.04	16.51	16.55	15.56	15.79	15.61	14.77
Dissolved Oxygen, Field	mg/L	0.08	7.14	0.04	0.11	0.23	0.11	0.10	1.61	0.16	0.12	2.16	3.59
Conductivity, Field	uS/cm	1225.9	843.29	968.34	1708.7	816.11	674.58	2634.5	1305.0	1228.6	1254.1	1213	1185.7
ORP, Field	mV	69.7	42.5	97.7	119.9	35.2	50.1	86.5	131.8	4.4	90.5	36.2	55.7
pH, Field	Std. Units	724	7.09	6.76	7.28	7.33	7.64	7.20	7.09	7.64	7.58	7.38	7.37
Analytical Data													
Antimony, Total	ug/L	<1.0	<1.0	1.7	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	1.7	1.5
Arsenic, Total	ug/L	<1.0	<1.0	<1.0	1.5	<1.0	<1.0	<1.0	<1.0	5.1	<1.0	79.6	1.6
Barium, Total	ug/L	60.8	67.4	95.1	130	111	67.6	85.6	91.2	70.4	65.1	85.4	119
Beryllium, Total	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron, Total	ug/L	4700	1230	2750	1520	134	110	3370	4350	5390	7860	6650	7630
Cadmium, Total	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium, Total	ug/L	129000	116000	179000	181000	99200	61800	277000	175000	102000	107000	139000	123000
Chloride	mg/L	114	14.0	15.2	153	40.5	65.4	265	123	142	141	95.1	92.8
Chromium, Total	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Cobalt, Total	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoride	mg/L	0.25	0.17	<0.10	0.19	0.14	0.44	0.17	0.24	0.20	0.34	0.23	0.28
Lead, Total	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Lithium, Total	ug/L	112	21.5	30.7	44.1	<20.0	<20.0	81.2	98.8	93.0	104	111	97.3
Mercury	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Molybdenum, Total	ug/L	169	39.6	39.2	36.3	<10.0	14.1	77.6	86.2	175	169	147	42.4
pH at 25 Degrees C	Std. Units	7.3	7.2	6.8	7.2	7.4	7.6	7.2	7.2	7.6	7.5	7.3	7.4
Selenium, Total	ug/L	<1.0	6.5	6.0	<1.0	<1.0	<1.0	1.2	1.3	<1.0	<1.0	8.9	30.3
Sulfate	mg/L	176	92.8	55.6	407	39.6	49.6	826	341	235	259	244	207
Thallium, Total	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Dissolved Solids	mg/L	744	499	656	1160	434	369	1900	995	738	804	793	711
Total Radium	pCi/L	0.770	0.624	0.953	0.444	1.67	0.803	0.518	1.96	2.03	1.99	1.15	0.224

Notes:
ft MSL: Elevation, feet mean sea level
°C: Degrees celcius
uS/cm: microsiemen per centimeter
umhos/cm: micromhos per centimeter
mV: millivolt
Std. Units: standard units
mg/L: milligram per liter
ug/L: microgram per liter
pCi/L: picoCurie per liter
Static water elevation listed for a well may have
been collected on a date different than date of well
sampling.

Table 4
Summary of Monitoring Results - August 2019
(N and E Well Event)
Multiunit Ash Pond System
Indianapolis Power and Light Company
Eagle Valley Generating Station
Martinsville, Indiana
ATC Project No. 170LF00710

Well ID		MW-10I	MW-10D	MW-13S	MW-13I	MW-13D	MW-14S	MW-14I	MW-14D	MW-15S	MW-15I	MW-15D	MW-16S	MW-16I	MW-16D
Pace Lab ID		50232691004	50232691005	50232691001	50232691003	50232691002	50232784001	50232784002	50232784003	50232784004	50232784005	50232784006	50232691011	50232691009	50232691010
Sample Date		8/9/2019	8/9/2019	8/8/2019	8/8/2019	8/8/2019	8/12/2019	8/12/2019	8/12/2019	8/12/2019	8/12/2019	8/12/2019	8/9/2019	8/9/2019	8/9/2019
Static Water Elevation (ft MSL)		587.62	587.63	589.17	589.22	589.13	588.08	587.95	588.00	588.44	588.57	588.54	589.16	589.20	589.19
Field Parameters															
Temperature	°C	16.23	16.48	14.63	14.78	15.04	14.50	15.42	16.74	15.85	15.58	16.16	13.55	14.20	14.65
Dissolved Oxygen, Field	mg/L	0.01	0.18	6.54	2.55	0.31	8.60	0.17	0.23	8.55	0.09	0.12	0.12	0.15	0.17
Conductivity, Field	uS/cm	863.62	772.51	822.18	626.98	632.53	613.88	1032.4	1520.5	752.85	1104.3	1512.7	1015.6	859.65	850.80
ORP, Field	mV	108.0	105.7	103.1	90.9	88.1	157.6	152.9	125.5	164.7	119.5	144.1	21.6	110.2	-96.9
pH, Field	Std. Units	7.41	7.36	7.00	7.35	7.33	7.24	7.36	7.24	7.14	7.36	7.46	7.17	7.54	7.63
Analytical Data															
Antimony, Total	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic, Total	ug/L	1.3	2.1	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	1.7	<1.0	1.5	4.8	7.4	5.1
Barium, Total	ug/L	91.7	102	50.0	36.0	53.2	27.9	59.6	37.8	83.2	66.0	93.9	156	89.1	112
Boron, Total	ug/L	521	346	<100	<100	<100	257	1390	1280	1840	4090	4950	977	816	1140
Calcium, Total	ug/L	107000	92800	109000	83700	81500	90000	136000	194000	104000	105000	133000	137000	107000	89300
Chloride	mg/L	124	45.8	22.5	17.2	8.5	5.9	50.7	104	19.3	101	241	78.5	106	94.1
Cobalt, Total	ug/L	1.5	1.6	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	1.2	1.7	4.3	4.1	2.8
Fluoride	mg/L	0.24	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.23	0.21	0.14	0.12	0.23	0.29
Lithium, Total	ug/L	66.5	73.2	<20.0	<20.0	<20.0	<20.0	60.2	24.1	49.2	111	118	76.8	80.3	79.8
Molybdenum, Total	ug/L	181	149	<10.0	<10.0	<10.0	41.6	82.8	22.8	53.7	182	176	52.3	95.6	106
pH at 25 Degrees C	Std. Units	7.4	7.4	7.0	7.4	7.4	7.2	7.3	7.2	7.2	7.3	7.4	7.2	7.6	7.6
Selenium, Total	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	<1.0	<1.0	4.3	<1.0	<1.0
Sulfate	mg/L	198	46.5	18.3	35.4	75.3	32.5	188	463	40.6	147	227	108	95.7	94.6
Total Dissolved Solids	mg/L	658	450	442	352	353	353	663	1090	425	662	910	616	493	480
Total Radium	pCi/L	1.29	1.31	1.13	1.14	1.59	1.74	2.05	1.77	1.61	1.71	1.46	1.71	1.29	1.38

Notes:
ft MSL: Elevation, feet mean sea level
°C: Degrees celcius
uS/cm: microsiemen per centimeter
umhos/cm: micromhos per centimeter
mV: millivolt
Std. Units: standard units
mg/L: milligram per liter
ug/L: microgram per liter
pCi/L: picoCurie per liter
Static water elevation listed for a well may have been collected on a date different than date of well sampling.

Table 5
Summary of Monitoring Results - September 2019
(N and E Well Event)
Multiunit Ash Pond System
Indianapolis Power and Light Company
Eagle Valley Generating Station
Martinsville, Indiana
ATC Project No. 170LF00710

Well ID		MW-13S	MW-13I	MW-13D	MW-14S	MW-14I	MW-14D	MW-15S	MW-15I	MW-15D	MW-16S	MW-16I	MW-16D
Pace Lab ID		50236981001	50236981002	50236981003	50236981004	50236981005	50236981006	50236981007	50236981008	50236981009	50236981010	50236981011	50236981012
Sample Date		9/25/2019	9/24/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019
Static Water Elevation (ft MSL)		586.72	586.74	586.68	585.9	585.85	585.81	586.68	586.81	586.79	588.55	588.58	588.57
Field Parameters													
Temperature	°C	15.04	15.3	14.45	19.58	17.12	20.54	16.23	17.05	18.39	13.66	16.11	17.82
Dissolved Oxygen, Field	mg/L	6.78	1.99	0.52	6.59	0.15	0.29	8.52	0.57	0.15	0.14	0.33	0.86
Conductivity, Field	uS/cm	624.15	540.45	526.2	576.66	890.26	1476.12	580.9	890.8	1341	841.2	775.8	769.4
ORP, Field	mV	62.62	102.5	109.23	66.17	-73.96	-63.94	119	100	41	81	-115	-90
pH, Field	Std. Units	7.02	7.29	7.27	7.14	7.15	7.06	7.15	7.27	7.33	7.27	7.43	7.44
Analytical Data													
Antimony, Total	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic, Total	ug/L	5.8	<1.0	<1.0	<1.0	<1.0	2.9	1.8	<1.0	2.0	1.8	6.6	5.7
Barium, Total	ug/L	69.3	35.6	47.4	30.6	52.1	45.0	71.0	54.1	90.7	98.8	91.7	101
Boron, Total	ug/L	<100	<100	<100	260	1080	1210	1640	3670	4770	728	756	992
Calcium, Total	ug/L	106000	82000	83900	86300	121000	179000	85200	88200	130000	103000	84500	87500
Chloride	mg/L	6.9	14.6	11.1	6.2	44.9	98.8	11.5	90.2	218	93.1	95.5	98.5
Cobalt, Total	ug/L	5.8	<1.0	<1.0	<1.0	<1.0	2.0	<1.0	<1.0	2.0	1.6	3.5	2.3
Fluoride	mg/L	<0.10	<0.10	0.11	0.13	<0.10	<0.10	0.33	0.29	0.19	0.23	0.31	0.36
Lithium, Total	ug/L	<20.0	<20.0	<20.0	<20.0	51.6	24.4	44.7	93.2	102	79.5	78.6	79.4
Molybdenum, Total	ug/L	<10.0	<10.0	<10.0	47.0	83.1	31.1	64.5	180	162	46.5	95.5	107
pH at 25 Degrees C	Std. Units	7.2	7.4	7.4	7.3	7.3	7.2	7.3	7.4	7.4	7.3	7.6	7.6
Selenium, Total	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.9	<1.0	<1.0
Sulfate	mg/L	15.1	34.6	57.8	28.4	160	436	33.8	144	235	126	87.4	94.0
Total Dissolved Solids	mg/L	425	381	390	349	574	1050	370	621	898	605	489	458
Total Radium	pCi/L	1.77	1.37	0.922	1.40	1.39	1.32	1.25	1.30	2.08	1.26	1.35	1.65

Notes:
ft MSL: Elevation, feet mean sea level
°C: Degrees celcius
uS/cm: microsiemen per centimeter
umhos/cm: micromhos per centimeter
mV: millivolt
Std. Units: standard units
mg/L: milligram per liter
ug/L: microgram per liter
pCi/L: picoCurie per liter
Static water elevation listed for a well may have
been collected on a date different than date of well
sampling.

Table 6
Groundwater Protection Standards
Multiunit Ash Pond System
Indianapolis Power and Light Company
Eagle Valley Generating Station
Martinsville, Indiana
ATC Project No. 170LF00710

Parameter	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium	Radium 226/228 Combined
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L
Shallow Zone GWPS	6	10	2000	4	5	100	6	4	15	95.5	2	100	50	2	5
Intermediate Zone GWPS	6	10	2000	4	5	100	6	4	15	40	2	100	50	2	5
Deep Zone GWPS	6	12.6	2000	4	5	100	6	4	15	40	2	100	50	2	5

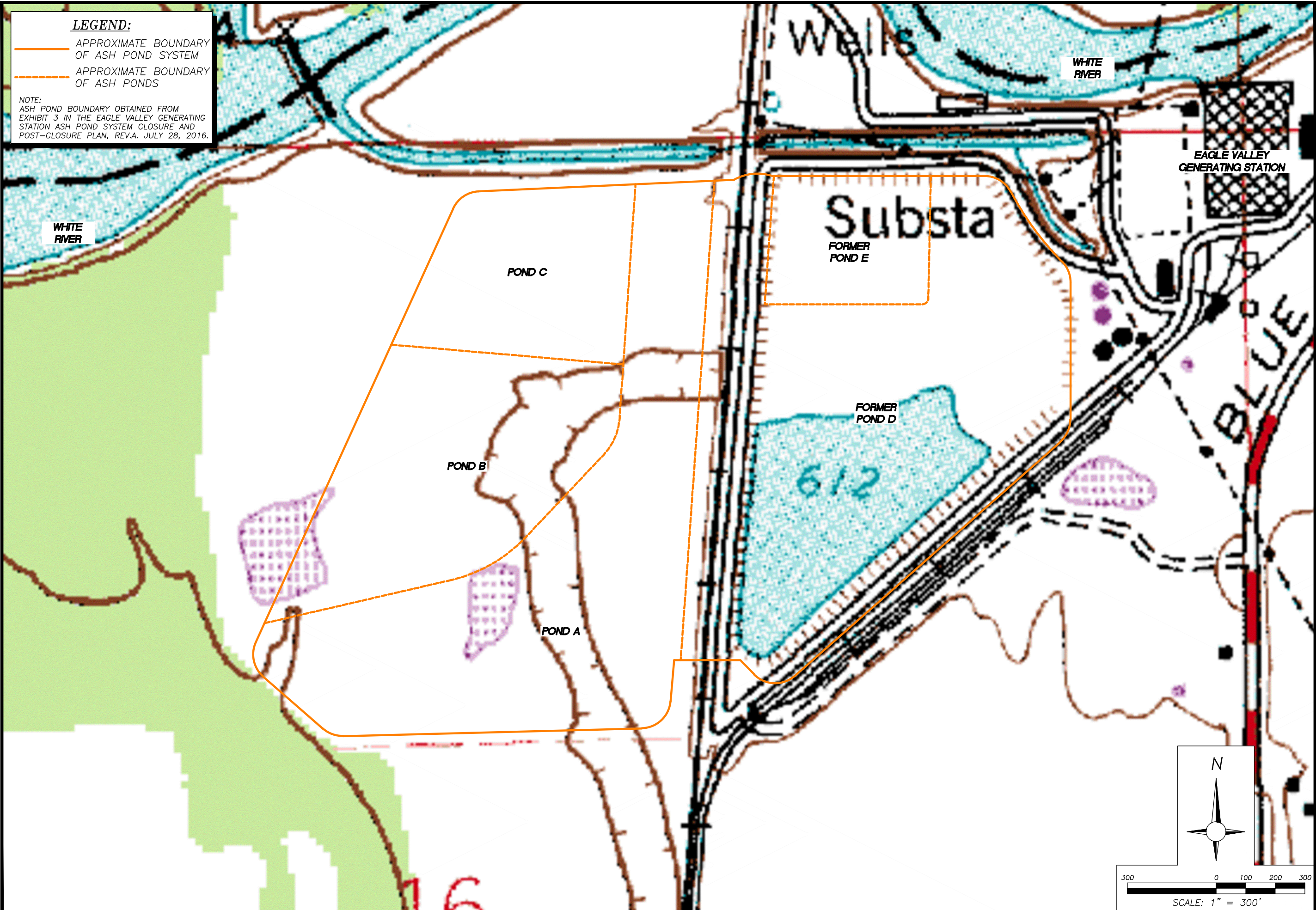
Notes:
ug/L = micrograms per liter (ppb)
mg/L = milligrams per liter (ppm)
pCi/L = picoCuries per liter
GWPS = Groundwater Protection Standard

FIGURES

Figure 1: Site Location Map

Figure 2: Groundwater Monitoring System – CCR Network Wells and N&E Wells

H:\2019\IPL\EAGLE VALLEY\170LF00710\170LF00710-MW SYSTEM-VIC.DWG, EAGLE



Project Number: 170LF00710		Drn. By: JG
Drawing File: SEE LOWER LEFT		Ckd. By: KR
ATC		App'd By:
		Ckd. Date:

SITE LOCATION MAP
IPL EAGLE VALLEY STATION
4040 BLUE BLUFF ROAD
MARTINSVILLE, INDIANA

Date:
12/19

Scale:
AS SHOWN

Figure:
1

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LEGEND:

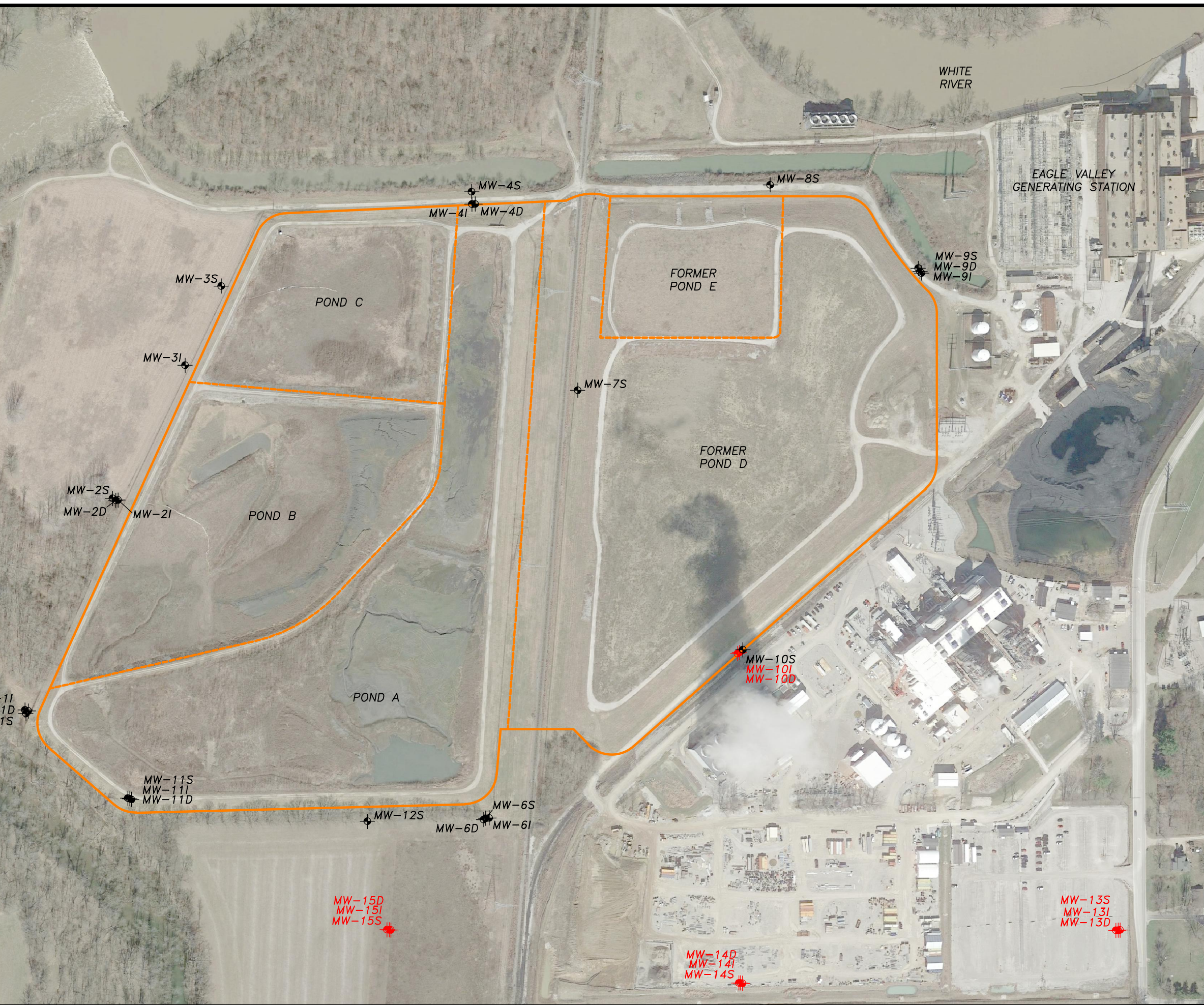
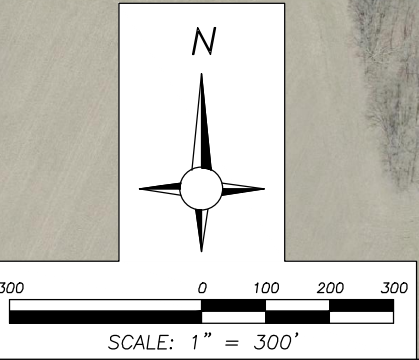
MW-1 CCR MONITORING WELL
Well Identification

MW-1 NATURE AND EXTENT MONITORING WELL
Well Identification

APPROXIMATE BOUNDARY OF ASH POND SYSTEM

APPROXIMATE BOUNDARY OF ASH PONDS

NOTE:
-MONITORING WELL LOCATIONS ARE BASED ON COORDINATES PROVIDED IN TABLE 1 OF THE OCTOBER 30, 2018 REVISED SAMPLING AND ANALYSIS PLAN.
-ASH POND BOUNDARY OBTAINED FROM EXHIBIT 3 IN THE EAGLE VALLEY GENERATING STATION ASH POND SYSTEM CLOSURE AND POST-CLOSURE PLAN, REV.A. JULY 28, 2016.
-GOOGLE EARTH AERIAL PHOTOGRAPHY DATED: 3/2/2018
-SURVEY COMPLETED BY IPL FOR NEW WELLS ON AUGUST 12, 2019



Project Number: 170LF00710		Drawing File: SEE LOWER LEFT			
Drn. By: BH	Ckd. By: KR	App'd By:	Ckd. Date:		

GROUNDWATER MONITORING SYSTEM
CCR NETWORK WELLS AND N AND E WELLS
IPL EAGLE VALLEY STATION
4040 BLUE BLUFF ROAD
MARTINSVILLE, INDIANA

Date:
1/20

Scale:
AS SHOWN

Figure:
2

ATTACHMENT A

Demonstration for 60-Day Extension – Corrective Measures Assessment



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

MEMORANDUM

July 2019
Project No. 133274-007

SUBJECT: Demonstration for 60-Day Extension – Corrective Measures Assessment (CMA)
Indianapolis Power & Light (IPL) – Eagle Valley Generating Station - Ponds A, B, and C
Martinsville, Morgan County, Indiana

Pursuant to CFR Title 40 Chapter 257 Subpart D §257.96(a) (CCR Rule), I certify that IPL has demonstrated the need for an additional 60 days beyond the regulatory time period of 90 days to complete the assessment of corrective measures for Ponds A, B and C due to site-specific conditions and the evaluation of remedial treatment alternatives in support of an informed CMA process.

In the case of the assessment for Ponds A, B, and C, the site has complex hydrogeology and nature and extent (N&E) investigations are ongoing in support of the CMA process. Nature and extent information is an important component of the CMA. IPL is also in the process of reviewing possible groundwater remedies and is evaluating potential closure strategies as well as implementation of critical steps in the groundwater treatment and remedy assessment process. Based on these site-specific conditions and related groundwater treatment alternatives evaluations in support of the CMA by IPL, a 60-day extension is needed to complete the CMA process.

This certification as submitted, is to the best of my knowledge, accurate and complete.

Signed: _____

Certifying Engineer

Print Name:

Steven F. Putrich, P.E.

Indiana License No.:

PE11200566

Title:

CCR Practice Lead, Senior Consulting Engineer

Company:

Haley & Aldrich, Inc.

Professional Engineer's Seal

