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January 31, 2019

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

Re: 2018 CCR Annual Groundwater Monitoring and Corrective Action Report Indianapolis Power & Light Company Harding Street Generating Station Indianapolis, Indiana ATC Project No. 170LF00522

Dear Mr. Heger:

ATC Group Services LLC (ATC) has prepared this 2018 CCR Annual Groundwater Monitoring and Corrective Action Report for the ash pond system at Indianapolis Power & Light Company's (IPL) Harding Street Generating Station in Indianapolis, Marion 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, 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).

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

- Appendix III groundwater monitoring data was evaluated for statistically significant exceedances (SSIs) pursuant to § 257.93(h) and 257.94(e).
- A Notice of Establishment of an Assessment Monitoring Program was completed as required by § 257.94(e)(3), effective July 16, 2018.
- Assessment monitoring sampling events were conducted in May and September 2018 as required by § 257.95. Appendix III constituents were included as part of the May 2018 sampling event during the transition period from detection monitoring to assessment monitoring.
- Groundwater Protection Standards were established in accordance with 40 CFR 257.95(d)(2) and 257.95(h) (Table 4).
- Three additional upgradient (background) monitoring wells; MW-15D, MW-15I, and MW-15S; were installed. This work was summarized in the *Monitoring Well MW-15D, MW-15I, and MW-15S Installation Report,* dated November 7, 2018, that was submitted to the Indiana Department of Environmental Management (IDEM).

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 Harding Street Station located in Indianapolis, Indiana. It is located at 3700 South Harding Street. A Site Location Map is provided as Figure 1. A map showing the location of each CCR management unit and associated upgradient and downgradient monitoring wells is provided as Figure 2. This information was previously presented in the Indianapolis Power & Light Company Harding Street Generating Station Ash Pond System Closure & Post-Closure Plan, Rev. A, dated July 28, 2016.

## *§ 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;*

Three new monitoring wells were installed during this reporting period, as discussed below. The original CCR ash pond groundwater monitoring system at the Harding Street Station consisted of twenty-four (24) monitoring wells: MW-1S, MW-1D, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S, MW-5S, MW-6S, MW-7S, MW-7D, MW-8S, MW-9S, MW-9I, MW-9D, MW-10S, MW-10D, MW-11S, MW-11D, MW-12S, MW-12D, MW-13S, MW-13D, and MW-14(D). Monitoring wells MW-1S, MW-1D, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S, and MW-8S represented upgradient/background wells, while the remaining represented downgradient wells. The wells were installed in accordance with the requirements of Federal CCR Rule § 257.91 between September 25, 2015 and February 24, 2016. The location of the CCR monitoring well network is depicted on Figure 2.

Documentation of the design and construction of the monitoring well network for the CCR management units at the Harding Street Station is included in the *Indianapolis Power & Light Company Harding Street Generating Station Ash Pond System Closure & Post-Closure Plan, Rev. A*, dated July 28, 2016.

In a May 16, 2018 meeting between IDEM, IPL, and ATC personnel, concerns regarding the configuration of the originally established upgradient well locations were discussed. IDEM raised a concern that the upgradient wells were not suitable locations for determining background water quality unaffected by the ash pond system. IDEM recommended that the facility investigate potential areas for a new upgradient well or wells. Subsequently, monitoring wells MW-15S, MW-15I, and MW-15D were installed in August 2018 to serve as the new upgradient/background wells for the monitoring network, replacing MW-1S, MW-1D, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S, and MW-8S. The installation of the MW-15 nest was summarized in the *Upgradient Monitoring Wells MW-15D, MW-15I, and MW-15I, and MW-15S Installation Report* dated November 7, 2018 (VFC # 82647473).

The *Closure & Post-Closure Plan* and *Upgradient Monitoring Wells MW-15D, MW-15I, and MW-15S Installation Report* are currently under review by the state regulatory agency. After agency approval is obtained, the groundwater monitoring system well certification will be updated to reflect the re-classification of monitoring wells MW-1S, MW-1D, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S, and MW-8S from an upgradient well designation to a downgradient well designation, and classification of MW-15D, MW-15I, and MW-15S as upgradient wells.

# § 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 well, sampling dates, and designation of whether samples were required by the detection or assessment monitoring program. Groundwater analytical results for samples collected during the 2018 sampling events are summarized in Table 2 and Table 3.

§ 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);

Consistent with § 257.90(e), this annual report documents activities conducted during the 2018 calendar year at the CCR management units subject to the Rule.

Pursuant to § 257.93(h) and 257.94(e), the statistical analysis of the initial minimum eight rounds of Appendix III groundwater sampling data was completed in January 2018. Based on the analysis, SSIs over background were detected as follows:

- Boron, total
- Calcium, total
- Chloride
- Fluoride
- pH

Pursuant to 40 CFR 257.94(e)(2), an Alternative Source Demonstration was initiated to evaluate whether a source other than the facility was causing the SSIs; however, a successful demonstration was not completed.

Pursuant to 40 CFR 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.

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

In accordance with § 257.95(b), Appendix IV assessment monitoring was completed in May 2018. In accordance with § 257.95(d), a resampling assessment monitoring event was completed in September 2018. Analytical results are summarized in Tables 2 and 3. Table 4 summarizes the groundwater protection standards established in accordance with § 257.95(d)(2) and § 257.95(h). Background analytical data was previously provided in the CCR Annual Groundwater Monitoring and Corrective Action Report dated January 31, 2018.

Projected key activities for the upcoming year include the following:

- Completion of statistical evaluation to determine whether there is a statistically significant exceedance of groundwater protection standards for Appendix IV constituents in accordance with § 257.95(g) and 257.93(h).
- Annual and semi-annual assessment monitoring sampling events in accordance with § 257.95.
- Background monitoring sampling events from the new upgradient well nest (MW-15) in accordance with § 257.93(d).

We appreciate the opportunity to assist with IPL's CCR Rule groundwater monitoring program at Harding Street 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 Recingo

Kendra Reininga Staff Geologist

Mark E. Breting, L.P.G.

Senior Project Geologist

John R. Noel, L.P.G. **Principal Geologist** 

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

## TABLES

Table 1:	Well Sampling Summary
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- Table 2:
- Summary of Monitoring Results May 2018 Summary of Monitoring Results September 2018 Groundwater Protection Standards Summary Table 3:
- Table 4:

#### Well Sampling Summary Multiunit Ash Pond System Indianapolis Power and Light Company Harding Street Generating Station Indianapolis, Indiana ATC Project No. 170LF00522

Identification	Date Installed	Upgradient/Background or Downgradient	Number of Samples	Sample Date	Detection or Assessment Monitoring		
MW_19	0/25/2015	Downgradient	2	5/29/2018	Assessment		
10100-10	9/20/2013	Downgradient	2	9/17/2018	Assessment		
MW_1D	9/25/2015	Downgradient	2	5/29/2018	Assessment		
	5/25/2015	Downgradient	2	9/17/2018	Assessment		
MW-2S	9/29/2015	Downgradient	2	5/29/2018	Assessment		
	0/20/2010	g. a a.o	-	9/17/2018	/		
MW-2D	2/9/2016	Downgradient	2	5/29/2018	Assessment		
				9/17/2018			
MW-3S	9/28/2015	Downgradient	2	5/29/2018	Assessment		
				5/20/2018			
MW-3D	2/10/2016	Downgradient	2	0/17/2018	Assessment		
				5/29/2018			
MW-4S	9/28/2015	Downgradient	2	9/14/2018	Assessment		
				5/30/2018			
MW-5S	10/1/2015	Downgradient	2	9/18/2018	Assessment		
				5/30/2018			
MW-6S	9/28/2015	Downgradient	2	9/18/2018	Assessment		
N#4/ 70	0/00/0045			5/30/2018			
MW-7S	9/30/2015	Downgradient	2	9/18/2018	Assessment		
	0/47/0040	Davidant	0	5/30/2018	Assessment		
IVIVV-7D	2/17/2016	Downgradient	2	9/18/2018	Assessment		
	10/1/2015	Downgradiant	2	5/29/2018	Accoment		
10100-03	10/1/2015	Downgradient	2	9/17/2018	Assessment		
MW-9S	2/11/2016	Downgradient	2	5/30/2018	Assessment		
10100-00	2/11/2010	Downgradient	2	9/17/2018	Assessment		
MW-9I	2/24/2016	Downgradient	2	5/30/2018	Assessment		
			_	9/17/2018			
MW-9D	2/11/2016	Downgradient	2	5/30/2018	Assessment		
				9/17/2018			
MW-10S	2/16/2016	Downgradient	2	5/30/2018	Assessment		
				9/16/2018			
MW-10D	2/16/2016	Downgradient	2	0/18/2018	Assessment		
				5/29/2018			
MW-11S	2/17/2016	Downgradient	2	9/14/2018	Assessment		
			_	5/29/2018			
MW-11D	2/18/2016	Downgradient	2	9/14/2018	Assessment		
N/14/ 400	0/40/0040	Description		5/30/2018	A		
10100-125	2/19/2016	Downgradient	2	9/17/2018	Assessment		
	2/19/2016	Downgradiant	2	5/30/2018	Accoment		
10100-120	2/16/2010	Downgradient	2	9/17/2018	Assessment		
MW-13S	2/15/2016	Downgradient	2	5/30/2018	Assessment		
	2/10/2010	Downgradient	2	9/18/2018	7.00000111011		
MW-13D	2/12/2016	Downgradient	2	5/30/2018	Assessment		
				9/18/2018			
MW-14D	MW-14D 2/23/2016 Downgradient		2	5/30/2018	Assessment		
				9/17/2018			
MW-15S	8/17/2018	Upgradient/Background	2	9/18/2018	Detection		
				0/18/2010			
MW-15I	8/17/2018	Upgradient/Background	2	11/20/2010	Detection		
				9/18/2010			
MW-15D	8/17/2018	Upgradient/Background	2	11/29/2018	Detection		

Summary of Monitoring Results - May 2018 Multiunit Ash Pond System Indianapolis Power and Light Company Harding Street Generating Station Indianapolis, Indiana ATC Project No. 170LF00522

Well ID		MW-1D	MW-1S	MW-2D	MW-2S	MW-3D	MW-3S	MW-4S	MW-5S	MW-6S	MW-7D	MW-7S	MW-8S	MW-9D
Pace Lab ID		50197968002	50197968001	50197968004	50197968003	50197968006	50197968005	50197968007	50197968008	50197968009	50197968011	50197968010	50197968012	50197968015
Sample Date		5/29/2018	5/29/2018	5/29/2018	5/29/2018	5/29/2018	5/29/2018	5/29/2018	5/30/2018	5/30/2018	5/30/2018	5/30/2018	5/29/2018	5/30/2018
Static Water Elevation (ft MSL)		662.25	662.21	665.71	665.70	663.87	664.01	DRY	659.00	DRY	656.98	657.04	658.18	656.55
Field Parameters														
Temperature	°C	16.86	16.43	14.38	13.25	14.86	12.08	14.53	18.18	18.84	16.98	17.11	13.19	16.08
Dissolved Oxygen, Field	mg/L	0.10	0.03	0.05	0.13	0.13	6.66	9.27	0.21	0.08	0.11	0.14	0.05	0.21
Conductivity, Field	uS/cm	1302.09	1066.91	1829.82	1793.35	983.72	595.08	581.53	2510.71	2578.51	2848.96	2797.58	2498.20	1232.08
ORP, Field	mV	-103.06	-114.94	-110.64	-154.11	-109.56	101.24	94.86	11.37	-87.57	-153.22	-131.95	103.47	-111.28
pH, Field	Std. Units	7.03	7.32	7.55	7.40	7.32	7.40	7.33	7.45	7.00	7.54	7.46	7.06	7.28
Analytical Data														
Antimony, Total	ug/L	<6	<6	<6	<6	<6	8.9	<6	<6	<6	<6	<6	<6	<6
Arsenic, Total	ug/L	<10	168	<10	18.4	<10	<10	<10	<10	13.6	491	383	<10	<10
Barium, Total	ug/L	49.8	279	58.2	90.3	70.5	28.5	49.4	32.3	116	53.8	44.1	36.0	46.3
Beryllium, Total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Boron, Total	ug/L	2430	602	2070	2400	312	176	3940	3970	8330	19400	17500	16000	1450
Cadmium, Total	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Calcium, Total	ug/L	125000	93800	115000	156000	81100	82300	83600	198000	305000	303000	278000	245000	104000
Chloride	mg/L	148	164	388	259	149	30	25.5	373	218	353	357	293	161
Chromium, Total	ug/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cobalt, Total	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Fluoride	mg/L	0.37	0.62	2.6	1.1	0.29	0.52	0.11	2.6	1.0	0.29	0.42	0.14	0.45
Lead, Total	ug/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Lithium, Total	ug/L	38.5	<20	36.7	25.7	<20	<20	<20	57.5	75.8	120	103	132	48.2
Mercury	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Molybdenum, Total	ug/L	63.5	57.9	250	78.3	22.4	78.8	<10	265	150	544	528	419	109
Selenium, Total	ug/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Sulfate	mg/L	198	85.7	243	308	60	55.7	27.4	625	684	667	764	663	169
Thallium, Total	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Dissolved Solids	mg/L	776	565	1040	1080	537	333	308	1660	1620	1950	1870	1750	706
Total Radium	pCi/L	2.30	4.84	0.80	1.38	0.990	0.835	0.434	1.37	1.09	1.22	1.16	1.16	1.17
pH at 25 Degrees C	Std. Units	7.4	7.6	7.6	7.4	7.5	7.6	7.5	7.4	7.1	7.6	7.4	7.4	7.5

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.

Summary of Monitoring Results - May 2018 Multiunit Ash Pond System Indianapolis Power and Light Company Harding Street Generating Station Indianapolis, Indiana ATC Project No. 170LF00522

M-ILID		N 414/ 01	N414/06	100	NA) A/ 105	1014/110	NANA/ 115	101/ 120	NAVA ( 126	101/ 120	NANA/ 126	
Well ID		IVIVV-91	10107060012	MW-10D	IVIV-105	MW-11D	IVIW-115	IVIVV-12D	IVIVV-125	MW-13D	IVIVV-135	IVIW-14D
Pace Lab ID		50197968014	50197968013	50197968017	50197968016	50197968019	50197968018	50197968021	50197968020	50197968023	50197968022	50197968024
Sample Date		5/30/2018	5/30/2018	5/30/2018	5/30/2018	5/29/2018	5/29/2018	5/30/2018	5/30/2018	5/30/2018	5/30/2018	5/30/2018
Static Water Elevation (ft MSL)		656.56	DRY	663.83	663.89	655.61	653.40	655.01	DRY	658.94	658.94	656.00
Field Parameters												
Temperature	°C	15.66	15.56	17.87	17.63	15.50	15.81	18.44	18.37	18.06	17.88	15.24
Dissolved Oxygen, Field	mg/L	0.19	0.99	0.09	0.14	0.23	0.61	0.12	0.69	0.25	0.14	0.12
Conductivity, Field	uS/cm	994.25	1308.32	2470.11	2791.59	1539.96	640.17	2640.45	2335.50	3130.98	2740.57	3719.75
ORP, Field	mV	-79.27	61.63	-135.94	-126.22	-121.62	-6.69	-138.17	22.57	-153.47	-116.64	-158.65
pH, Field	Std. Units	7.15	7.08	7.78	7.49	7.09	7.24	7.60	7.65	7.52	7.40	7.67
Analytical Data												
Antimony, Total	ug/L	<6	11.5	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic, Total	ug/L	<10	<10	396	444	18.2	<10	223	43.5	253	375	147
Barium, Total	ug/L	57.7	49.5	28.1	43.0	33.2	168	26.2	28.1	26.0	28.0	54.2
Beryllium, Total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Boron, Total	ug/L	1820	6760	2920	3860	8580	394	11300	12000	20600	16200	43200
Cadmium, Total	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Calcium, Total	ug/L	114000	163000	172000	269000	197000	94900	250000	222000	301000	239000	415000
Chloride	mg/L	90.9	53.8	403	406	91.2	22.5	398	294	465	387	244
Chromium, Total	ug/L	<10	<10	<10	<10	<10	12.4	<10	<10	<10	<10	<10
Cobalt, Total	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Fluoride	mg/L	0.53	<0.1	2.6	2.2	0.45	1.5	1.1	1.8	0.45	0.86	0.32
Lead, Total	ug/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Lithium, Total	ug/L	35.4	93.3	63.3	57.0	122	<20	118	106	112	91.4	664
Mercury	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Molybdenum, Total	ug/L	125	116	168	138	<10	73.3	232	287	922	720	185
Selenium, Total	ug/L	<10	146	<10	<10	<10	<10	<10	<10	<10	<10	<10
Sulfate	mg/L	129	380	764	701	566	107	711	718	667	652	960
Thallium, Total	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Dissolved Solids	mg/L	594	868	1580	1930	1080	406	1800	1650	2220	1850	3260
Total Radium	pCi/L	2.04	0.187	1.32	1.17	0.424	2.25	1.10	1.55	1.32	0.643	2.42
pH at 25 Degrees C	Std. Units	7.4	7.4	7.6	7.6	7.4	7.8	7.6	7.6	7.5	7.4	7.5
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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.

#### Summary of Monitoring Results - September 2018 Multiunit Ash Pond System Indianapolis Power and Light Company Harding Street Generating Station Indianapolis, Indiana ATC Project No. 170LF00522

Well ID		MW-1D	MW-1S	MW-2D	MW-2S	MW-3D	MW-3S	MW-4S	MW-5S	MW-6S	MW-7D	MW-7S	MW-8S	MW-9D	MW-9I	MW-9S
Pace Lab ID		50205979002	50205979001	50205979004	50205979003	50205979006	50205979005	50205979033	50205979007	50205979008	50205979010	50205979009	50205979011	50205979014	50205979013	50205979012
Sample Date		9/17/2018	9/17/2018	9/17/2018	9/17/2018	9/17/2018	9/17/2018	9/14/2018	9/18/2018	9/18/2018	9/18/2018	9/18/2018	9/17/2018	9/17/2018	9/17/2018	9/17/2018
·																
Static Water Elevation (ft MSL)		664.75	664.68	667.37	667.35	665.51	665.62	660.18	660.49	662.98	658.87	658.93	660.43	657.69	657.62	657.66
Field Parameters																
Temperature	°C	14.96	15.03	16.67	18.17	14.89	15.23	16.06	17.70	19.26	17.93	17.23	16.46	17.35	16.85	16.90
Dissolved Oxygen, Field	mg/L	1.06	0.03	0.96	0.03	0.06	0.42	8.07	0.02	0.00	0.09	0.05	0.27	0.10	0.12	1.51
Conductivity, Field	uS/cm	1152.35	1025.65	1604.99	1439.72	1003.22	961.52	722.14	2669.90	2727.60	2710.30	2699.70	2380.71	1221.10	1063.10	1385.60
ORP, Field	mV	-100.82	-135.08	-114.34	-168.79	-131.59	242.36	131.52	161.90	218.0	33.40	-128.70	89.88	-76.50	-34.50	291.60
pH, Field	Std. Units	7.17	7.38	7.53	7.53	7.35	7.11	7.31	7.36	6.91	7.49	7.47	6.98	7.24	7.15	6.92
Analytical Data																
Antimony, Total	ug/L	<1	1.3	<1	<1	<1	9.1	<1	<1	<1	<1	<1	<1	<1	<1	11.5
Arsenic, Total	ug/L	4.2	33.6	1.8	14.6	2.7	2.0	<1	<1	15.5	433	317	<1	2.8	5.0	<1
Barium, Total	ug/L	51.7	95.8	63.2	86.0	75.3	55.1	93.0	30.8	132	49.2	38.0	38.2	46.0	53.7	51.3
Beryllium, Total	ug/L	NA														
Boron, Total	ug/L	1730	583	1390	752	407	373	2920	2420	6860	19400	18600	16200	1420	2250	6010
Cadmium, Total	ug/L	NA														
Calcium, Total	ug/L	114000	85000	100000	86300	87500	121000	99600	179000	248000	276000	257000	254000	103000	111000	170000
Chloride	mg/L	124	133	300	209	122	86.8	27.6	501	365	274	312	192	133	90.0	56.8
Chromium, Total	ug/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cobalt, Total	ug/L	NA														
Fluoride	mg/L	0.37	0.62	2.8	1.8	0.28	0.35	0.12	3.0	1.2	0.30	0.45	<0.10	0.43	0.58	<0.10
Lead, Total	ug/L	NA														
Lithium, Total	ug/L	31.2	<20	32.1	25.1	<20	<20	<20	52.8	58.4	110	94.3	147	43.5	37.0	89.4
Mercury	ug/L	NA														
Molybdenum, Total	ug/L	51.2	51.8	194	85.2	17.9	52.2	<10	254	157	574	518	311	85.5	110	98.4
Selenium, Total	ug/L	<1	<1	<1	<1	<1	3.4	33.8	<1	2.0	<1	<1	<1	<1	<1	66.0
Sulfate	mg/L	125	78.2	189	189	83.0	52.5	109	518	632	942	842	888	122	121	330
Thallium, Total	ug/L	NA														
Total Dissolved Solids	mg/L	703	574	956	918	580	554	438	1670	1860	2030	1930	1890	735	673	960
Total Radium	pCi/L	1.44	2.27	1.88	1.14	1.56	0.615	0.805	1.67	1.80	1.77	1.98	0.728	0.805	2.66	1.91
pH at 25 Degrees C	Std. Units	7.2	7.6	7.7	7.7	7.9	7.4	7.5	7.4	7.2	7.5	7.4	7.2	7.5	7.6	7.2

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

NA = Not Analyzed. In accordance with 40 CFR § 257.95 (d)(1), this constituent was not tested. Static water elevation listed for a well may have been collected on a date different than date of well sampling.

#### Summary of Monitoring Results - September 2018 Multiunit Ash Pond System Indianapolis Power and Light Company Harding Street Generating Station Indianapolis, Indiana ATC Project No. 170LF00522

Well ID		MW-10D	MW-10S	MW-11D	MW-11S	MW-12D	MW-12S	MW-13D	MW-13S	MW-14D	MW-15D	MW-15I	MW-15S
Pace Lab ID		а	50205979015	50205979035	50205979034	50205979018	50205979017	5020597902	50205979019	50205979021	50205979024	50205979023	50205979022
Sample Date		9/18/2018	9/18/2018	9/14/2018	9/14/2018	9/17/2018	9/17/2018	9/18/2018	9/18/2018	9/17/2018	9/18/2018	9/18/2018	9/18/2018
Static Water Elevation (ft MSL)		665.58	665.63	659.79	658.07	656.33	656.35	660.28	660.28	659.16	669.87	669.81	669.77
Field Parameters													
Temperature	°C	18.17	17.89	15.18	14.83	19.27	19.49	18.51	18.87	15.60	15.43	15.43	21.64
Dissolved Oxygen, Field	mg/L	0.02	0.25	0.04	2.36	0.11	0.04	0.04	0.00	0.10	0.03	0.36	8.93
Conductivity, Field	uS/cm	2564.10	3246.09	1630.10	634.60	2683.40	2508.70	2688.80	2562.70	3774.30	808.29	721.76	907.08
ORP, Field	mV	-146.55	-132.95	-92.10	534.50	-146.80	60.60	259.80	586.20	-116.60	-80.31	32.79	98.39
pH, Field	Std. Units	7.55	7.50	6.99	7.60	7.56	7.59	7.61	7.47	7.55	7.19	7.22	7.19
Analytical Data													
Antimony, Total	ug/L	<1	<1	<1	<1	<1	3.7	<1	<1	<1	<1	<1	<1
Arsenic, Total	ug/L	323	343	14.6	2.9	214	38.2	214	320	116	1.3	<1	6.4
Barium, Total	ug/L	28.2	54.2	32.6	90.6	24.8	31.6	19.6	25.7	49.5	71.4	62.1	62.9
Beryllium, Total	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.20	<0.20	<0.20
Boron, Total	ug/L	1800	2450	8980	419	10800	10400	19900	16200	45500	128	114	145
Cadmium, Total	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	<2	<2
Calcium, Total	ug/L	182000	326000	209000	53000	251000	233000	229000	215000	410000	109000	102000	126000
Chloride	mg/L	486	549	95.4	19.5	349	370	349	362	267	32.8	17.2	58.9
Chromium, Total	ug/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cobalt, Total	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	2.3
Fluoride	mg/L	2.6	2.7	0.31	1.4	0.95	1.7	0.47	0.88	0.23	<0.10	0.11	<0.10
Lead, Total	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	<10	<10
Lithium, Total	ug/L	61.6	59.2	126	<20	122	116	101	84.6	610	<20	<20	<20
Mercury	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	<2	<2
Molybdenum, Total	ug/L	141	117	<10	74.4	239	294	857	770	185	<10	<10	<10
Selenium, Total	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.9	1.3
Sulfate	mg/L	520	870	532	97.9	871	754	780	717	1840	84.9	39.7	48.0
Thallium, Total	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1
Total Dissolved Solids	mg/L	1720	2400	1190	380	1900	1750	1870	1730	3300	493	412	524
Total Radium	pCi/L	2.25	1.76	0.863	1.84	1.08	0.931	1.68	1.16	1.46	1.17	0.71	1.32
pH at 25 Degrees C	Std. Units	7.7	7.7	7.2	7.8	7.6	7.7	7.6	7.6	7.6	7.4	7.6	7.8

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

NA = Not Analyzed. In accordance with 40 CFR § 257.95 (d)(1), this constituent was not tested. Static water elevation listed for a well may have been collected on a date different than date of well sampling.

#### Groundwater Protection Standards Multiunit Ash Pond System Indianapolis Power and Light Company Harding Street Generating Station Indianapolis, Indiana ATC Project No. 170LF00522

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	40	2	100	50	2	5
Deep Zone GWPS	6	10	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: Figure 2:
- Site Location Map CCR Groundwater Monitoring System



