2017 Annual Groundwater Monitoring and Corrective Action Report

Duck Creek Bottom Ash Basin – CCR Unit ID 205
Duck Creek Power Station
17751 North Cilco Road
Canton, Illinois 61520

Illinois Power Resources Generating, LLC

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OBG

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Duck Creek Power Station
Canton, Illinois

Prepared for:
Illinois Power Resources Generating, LLC

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ACRONYMS AND ABBREVIATIONS

CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
mg/L	milligrams per liter
NRT/OBG	Natural Resource Technology, an OBG Company
OBG	O'Brien & Gere Engineers, Inc.
SSI	statistically significant increase
STD	standard units

1 INTRODUCTION

1.1 OVERVIEW

This report has been prepared on behalf of Illinois Power Resources Generating, LLC by O'Brien & Gere Engineers, Inc. (OBG), to provide the information required by 40 CFR 257.90(e) for the Duck Creek Bottom Ash Basin located at Duck Creek Power Station near Canton, Illinois.

In accordance with 40 CFR 257.90(e), the owner or operator of an existing CCR unit must prepare an annual groundwater monitoring and corrective action report, for the preceding calendar year, that documents the status of the groundwater monitoring and corrective action program for the CCR unit, summarizes key actions completed, describes any problems encountered, discusses actions to resolve the problems, and projects key activities for the upcoming year. At a minimum, the annual report must contain the following information, to the extent available:

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.
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.
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.
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).
5. Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.[1]

This report provides the required information for the Duck Creek Bottom Ash Basin for calendar year 2017.

1.2 MONITORING AND CORRECTIVE ACTION PROGRAM STATUS

The minimum eight independent samples required by 40 CFR 257.94(b) were collected and analyzed from each background and downgradient well from 2015-2017 before October 17.

The first semi-annual monitoring sample for the Detection Monitoring Program was collected in November 2017 from each well.

Using the last of the minimum eight samples required to be collected by October 17, 2017 to determine whether a statistically significant increase (SSI) of Appendix III parameters over background concentrations has occurred, evaluation of analytical data from the downgradient wells was initiated beginning no later than October 17, 2017 for the initial eight samples. SSI determinations will be completed within 90 days (January 15, 2018). In addition, SSI determinations will be completed within 90 days of completion of analysis for the first semi-annual detection monitoring sample collected on November 7-9, 2017, for which analytical data was received on November 30, 2017.

[1] For calendar year 2017, corrective action and other information required to be included in the annual report as specified in §§ 257.90 through 257.98 is inapplicable.

2 KEY ACTIONS COMPLETED IN 2017

2.1 SUMMARY

Three groundwater sampling events were completed in 2017 as part of an effort initiated in 2015 to collect eight independent samples from background and downgradient monitoring wells in accordance with 40 CFR 257.94(b).

Subsequent to collection of the eight independent samples, an additional sampling event was completed in November 2017 for parameters listed in Appendix III, 40 CFR Part 257, to supplement the background data set and as the first semi-annual monitoring sampling event for the Detection Monitoring Program.

A map showing the groundwater monitoring system, including the CCR unit and all background and downgradient monitoring wells with well identification numbers, for the Duck Creek Bottom Ash Basin is presented in Figure 1. No monitoring wells were installed or decommissioned from the monitoring system in 2017.

Samples were collected and analyzed in accordance with the Sampling and Analysis Plan (NRT/OBG, 2017a) prepared for the Duck Creek Bottom Ash Basin.

All monitoring data obtained under 40 CFR §§ 257.90 through 257.98 (as applicable) in 2017, as well as monitoring data for the previously collected five independent samples are presented in Tables 1 and 2. Sample collection dates in 2017 were January 25-28, May 3, June 26, and November 7-9. Sample collection dates for previously collected independent samples are identified in Tables 1 and 2. Generally, one ground water sample was collected from each background and downgradient well in each sampling event. Additional samples were collected from upgradient monitoring wells BA05 and BA06 on March 6 and June 9, 2017 to provide the minimum eight required by October 17, 2017. BA05 and BA06 were not installed until July-August 2016 following review of the first few rounds of groundwater data from the other monitoring wells and the determination that additional upgradient monitoring points were necessary.

Statistical evaluation of analytical data from the eight independent samples required to be collected by October 17, 2017 and the first semi-annual detection monitoring event on November 7-9, 2017 was initiated and will be completed within 90 days of October 17, 2017 (January 15, 2018) or 90 days from receipt of the data from the first semi-annual detection monitoring event (February 28, 2018), respectively. Statistical evaluation of analytical data is being performed in accordance with the Statistical Analysis Plan, Duck Creek Power Station, Illinois Power Resources Generating, LLC (NRT/OBG, 2017b).

2.2 PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE THE PROBLEMS

No problems were encountered with the groundwater monitoring program during 2017. Groundwater samples were collected and analyzed in accordance with the Sampling and Analysis Plan, and all data was accepted.

3 KEY ACTIVITIES PLANNED FOR 2018

3.1 SUMMARY

The following key activities are planned for 2018:

- Continuation of the Detection Monitoring Program with semi-annual sampling scheduled for the 2nd and 4th quarters of 2018.
- Complete evaluation of analytical data from the downgradient wells, using both the eight samples required to be collected by October 17, 2017 and the first semi-annual detection monitoring sample taken in November 2017 to determine whether a SSI of Appendix III parameters over background concentrations has occurred.
- If an SSI is identified, potential alternate sources (*i.e.*, a source other than the CCR unit caused the SSI or that that SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality) will be evaluated. If an alternate source is demonstrated to be the cause of the SSI, a written demonstration will be completed within 90 days of SSI detection and included in the annual groundwater monitoring and corrective action report for 2018.
  - If an alternate source(s) is not identified to be the cause of the SSI, the applicable requirements of 40 CFR §§ 257.94 through 257.98 (*e.g.*, assessment monitoring) as may apply in 2018 will be met, including associated recordkeeping/notifications required by 40 CFR §§ 257.105 through 257.108.

REFERENCES

Natural Resource Technology, an OBG Company, 2017a, Sampling and Analysis Plan, Duck Creek Bottom Ash Basin, Duck Creek Power Station, Canton, Illinois, Project No. 2285, Revision 0, October 17, 2017.

Natural Resource Technology, an OBG Company, 2017b, Statistical Analysis Plan, Duck Creek Power Station, Edwards Power Station, Illinois Power Resources Generating, LLC, October 17, 2017.

Tables

Table 1. Duck Creek Bottom Ash Basin: Appendix III Analytical Results

Location ID	Sample Date	B, tot, mg/L	Ca, tot, mg/L	Cl, tot, mg/L	F, tot, mg/L	pH (field), STD	SO4, tot, mg/L
BA01	2/5/2016	0.01700	120.0	11.00	<0.2500	6.200	120.0
	4/22/2016	0.01900	120.0	9.600	0.2720	6.750	120.0
	6/28/2016	0.01700	140.0	11.00	<0.2500	6.880	120.0
	8/11/2016	0.03000	130.0	11.00	0.2900	6.990	130.0
	10/29/2016	0.03300	98.00	11.00	0.2870	6.890	130.0
	1/25/2017	0.01900	100.0	9.600	<0.2500	6.930	120.0
	5/3/2017	0.1300	140.0	13.00	0.2660	6.840	130.0
	6/26/2017	0.02300	110.0	12.00	<0.2500	7.020	140.0
	11/7/2017	0.04400	120.0	11.00	0.3170	6.910	150.0
BA02	2/5/2016	0.04500	100.0	6.800	<0.2500	6.300	3.900
	4/22/2016	0.04000	100.0	6.200	0.2610	6.480	3.400
	6/28/2016	0.03300	130.0	7.400	<0.2500	6.600	4.200
	8/11/2016	0.03600	83.00	7.300	<0.2500	7.120	6.600
	10/29/2016	0.04500	100.0	8.000	0.2500	7.190	5.500
	1/25/2017	0.02700	80.00	8.500	<0.2500	7.070	6.900
	5/3/2017	0.04600	110.0	10.00	<0.2500	7.200	15.00
	6/26/2017	0.03700	91.00	9.600	<0.2500	7.300	10.00
	11/7/2017	0.04600	82.00	9.700	0.3080	7.120	10.00

Duck Creek

Table 1. Duck Creek Bottom Ash Basin: Appendix III Analytical Results

Location ID	Sample Date	TDS, mg/L
BA01	2/5/2016	560.0
	4/22/2016	360.0
	6/28/2016	600.0
	8/11/2016	540.0
	10/29/2016	590.0
	1/25/2017	600.0
	5/3/2017	560.0
	6/26/2017	500.0
	11/7/2017	580.0
BA02	2/5/2016	440.0
	4/22/2016	320.0
	6/28/2016	500.0
	8/11/2016	460.0
	10/29/2016	420.0
	1/25/2017	440.0
	5/3/2017	430.0
	6/26/2017	380.0
	11/7/2017	480.0

Table 1. Duck Creek Bottom Ash Basin: Appendix III Analytical Results

Location ID	Sample Date	B, tot, mg/L	Ca, tot, mg/L	Cl, tot, mg/L	F, tot, mg/L	pH (field), STD	SO4, tot, mg/L
BA03	2/5/2016	0.03000	99.00	9.300	0.2520	7.100	26.00
	4/22/2016	0.02800	100.0	6.800	0.2910	7.050	22.00
	6/28/2016	0.03100	120.0	5.800	<0.2500	7.230	21.00
	8/11/2016	0.03800	97.00	5.800	0.2870	7.300	21.00
	10/29/2016	0.05000	100.0	6.100	0.3030	7.280	21.00
	1/25/2017	0.02600	79.00	6.400	<0.2500	7.200	18.00
	5/3/2017	0.03300	110.0	7.300	0.2640	7.090	21.00
	6/26/2017	0.02700	86.00	6.300	<0.2500	7.320	19.00
	11/7/2017	0.03700	92.00	5.700	0.3350	7.280	16.00
BA04	2/5/2016	0.01800	100.0	23.00	0.2820	6.900	100.0
	4/22/2016	0.2100	120.0	27.00	0.3360	7.090	110.0
	6/28/2016	0.2000	140.0	26.00	0.2830	7.240	120.0
	8/11/2016	0.1500	130.0	22.00	0.3620	7.390	99.00
	10/29/2016	0.2000	100.0	22.00	0.3800	7.410	100.0
	1/25/2017	0.1600	97.00	25.00	0.2600	7.300	90.00
	5/3/2017	0.1800	130.0	45.00	0.3110	7.180	150.0
	6/26/2017	0.1000	110.0	55.00	0.2550	7.080	120.0
	11/7/2017	0.2800	110.0	33.00	0.3610	7.270	140.0

Table 1. Duck Creek Bottom Ash Basin: Appendix III Analytical Results

Location ID	Sample Date	TDS, mg/L
BA03	2/5/2016	420.0
	4/22/2016	290.0
	6/28/2016	460.0
	8/11/2016	400.0
	10/29/2016	430.0
	1/25/2017	380.0
	5/3/2017	440.0
	6/26/2017	380.0
	11/7/2017	440.0
BA04	2/5/2016	560.0
	4/22/2016	390.0
	6/28/2016	600.0
	8/11/2016	560.0
	10/29/2016	550.0
	1/25/2017	590.0
	5/3/2017	640.0
	6/26/2017	510.0
	11/7/2017	600.0

Table 1. Duck Creek Bottom Ash Basin: Appendix III Analytical Results

Location ID	Sample Date	B, tot, mg/L	Ca, tot, mg/L	Cl, tot, mg/L	F, tot, mg/L	pH (field), STD	SO4, tot, mg/L
BA05	9/12/2016	0.2800	72.00	72.00	0.6110	7.570	110.0
	11/1/2016	0.3800	120.0	42.00	0.3650	7.190	320.0
	12/14/2016	0.2600	110.0	28.00	0.4260	7.740	310.0
	1/28/2017	0.2800	110.0	30.00	0.3140	7.400	390.0
	3/6/2017	0.3900	110.0	81.00	0.4000	7.210	230.0
	5/3/2017	0.2600	180.0	28.00	0.3280	7.430	370.0
	6/9/2017	0.2000	170.0	16.00	<0.2500	7.380	420.0
	6/26/2017	0.3600	110.0	54.00	0.3040	7.270	260.0
	11/9/2017	0.1900	220.0	20.00	0.3490	7.300	380.0
BA06	9/12/2016	2.800	250.0	470.0	0.4610	7.100	370.0
	11/1/2016	3.400	290.0	650.0	0.2580	7.030	570.0
	12/14/2016	3.100	270.0	580.0	0.3220	7.230	430.0
	1/28/2017	2.800	360.0	610.0	0.2940	7.250	540.0
	3/6/2017	2.400	270.0	490.0	0.2540	7.300	390.0
	5/3/2017	3.900	370.0	620.0	0.2760	7.130	460.0
	6/9/2017	3.300	350.0	640.0	<0.2500	7.010	440.0
	6/26/2017	2.200	240.0	480.0	<0.2500	7.240	380.0
	11/9/2017	3.500	340.0	530.0	<0.2500	6.940	400.0

Table 1. Duck Creek Bottom Ash Basin: Appendix III Analytical Results

Location ID	Sample Date	TDS, mg/L
BA05	9/12/2016	380.0
	11/1/2016	750.0
	12/14/2016	940.0
	1/28/2017	900.0
	3/6/2017	680.0
	5/3/2017	890.0
	6/9/2017	880.0
	6/26/2017	610.0
	11/9/2017	920.0
BA06	9/12/2016	1600.
	11/1/2016	1800.
	12/14/2016	1900.
	1/28/2017	1700.
	3/6/2017	1600.
	5/3/2017	1700.
	6/9/2017	1500.
	6/26/2017	1400.
	11/9/2017	1500.

Table 2. Duck Creek Bottom Ash Basin: Appendix IV Analytical Results

Location ID	Sample Date	As, tot, mg/L	Ba, tot, mg/L	Be, tot, mg/L	Cd,tot, mg/L	Co, tot, mg/L	Cr, tot, mg/L
BA01	2/5/2016	0.002800	0.1800	<0.001000	<0.001000	<0.002000	<0.004000
	4/22/2016	0.001000	0.1700	<0.001000	<0.001000	<0.002000	<0.004000
	6/28/2016	<0.001000	0.1800	<0.001000	<0.001000	<0.002000	<0.004000
	8/11/2016	0.005500	0.1700	<0.001000	<0.001000	<0.002000	<0.004000
	10/29/2016	0.005500	0.1400	<0.001000	<0.001000	<0.002000	<0.004000
	1/25/2017	0.006000	0.1400	<0.001000	<0.001000	<0.002000	<0.004000
	5/3/2017	0.01300	0.2300	<0.001000	<0.001000	0.004700	0.008400
	6/26/2017	0.007900	0.1700	<0.001000	<0.001000	0.002200	<0.004000
BA02	2/5/2016	0.01900	0.2500	<0.001000	<0.001000	<0.002000	<0.004000
	4/22/2016	0.002100	0.2200	<0.001000	<0.001000	<0.002000	<0.004000
	6/28/2016	0.005200	0.2500	0.006800	<0.001000	<0.002000	<0.004000
	8/11/2016	<0.001000	0.1600	<0.001000	<0.001000	<0.002000	<0.004000
	10/29/2016	0.004300	0.1900	<0.001000	<0.001000	<0.002000	<0.004000
	1/25/2017	0.005600	0.1800	<0.001000	<0.001000	<0.002000	<0.004000
	5/3/2017	0.01000	0.2400	<0.001000	<0.001000	<0.002000	<0.004000
	6/26/2017	0.01200	0.2600	<0.001000	<0.001000	<0.002000	<0.004000
BA03	2/5/2016	<0.001000	0.1900	<0.001000	<0.001000	<0.002000	<0.004000
	4/22/2016	<0.001000	0.2100	<0.001000	<0.001000	<0.002000	<0.004000

Table 2. Duck Creek Bottom Ash Basin: Appendix IV Analytical Results

Location ID	Sample Date	F, tot, mg/L	Hg, tot, mg/L	Li, tot, mg/L	Mo, tot, mg/L	Pb, tot, mg/L	Ra-226,228, tot, pCi/L
BA01	2/5/2016	<0.2500	0.0002000	<0.01000	0.002200	0.005700	0.7580
	4/22/2016	0.2720	<0.0002000	<0.01000	0.001900	0.003200	0.8520
	6/28/2016	<0.2500	<0.0002000	<0.01000	0.002000	<0.001000	0.6200
	8/11/2016	0.2900	<0.0002000	<0.01000	0.001900	0.008300	1.080
	10/29/2016	0.2870	<0.0002000	<0.01000	0.002200	0.007700	0.9830
	1/25/2017	<0.2500	<0.0002000	<0.01000	0.002000	0.005100	0.4030
	5/3/2017	0.2660	<0.0002000	<0.01000	0.009000	0.02700	0.4220
	6/26/2017	<0.2500	<0.0002000	<0.01000	0.002800	0.008900	1.840
BA02	2/5/2016	<0.2500	<0.0002000	<0.01000	0.005600	<0.001000	0.8970
	4/22/2016	0.2610	<0.0002000	<0.01000	0.005000	<0.001000	0.9270
	6/28/2016	<0.2500	<0.0002000	<0.01000	0.004600	0.007100	0.7530
	8/11/2016	<0.2500	<0.0002000	<0.01000	0.003600	<0.001000	0.9300
	10/29/2016	0.2500	<0.0002000	<0.01000	0.003700	<0.001000	1.520
	1/25/2017	<0.2500	<0.0002000	<0.01000	0.003300	<0.001000	0.3460
	5/3/2017	<0.2500	<0.0002000	<0.01000	0.006600	0.001300	0.4430
	6/26/2017	<0.2500	<0.0002000	<0.01000	0.006800	0.001300	0.9830
BA03	2/5/2016	0.2520	<0.0002000	<0.01000	0.007000	<0.001000	1.250
	4/22/2016	0.2910	<0.0002000	<0.01000	0.004300	0.001800	1.300

Table 2. Duck Creek Bottom Ash Basin: Appendix IV Analytical Results

Location ID	Sample Date	Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
BA01	2/5/2016	<0.003000	<0.001000	<0.001000
	4/22/2016	<0.003000	<0.001000	<0.001000
	6/28/2016	<0.003000	<0.001000	<0.001000
	8/11/2016	<0.003000	<0.001000	<0.001000
	10/29/2016	<0.003000	<0.001000	<0.001000
	1/25/2017	<0.003000	<0.001000	<0.001000
	5/3/2017	<0.003000	0.002000	<0.001000
	6/26/2017	<0.003000	<0.001000	<0.001000
BA02	2/5/2016	<0.003000	0.01500	<0.001000
	4/22/2016	<0.003000	<0.001000	<0.001000
	6/28/2016	<0.003000	<0.001000	<0.001000
	8/11/2016	<0.003000	<0.001000	<0.001000
	10/29/2016	<0.003000	<0.001000	<0.001000
	1/25/2017	<0.003000	<0.001000	<0.001000
	5/3/2017	<0.003000	0.006200	<0.001000
	6/26/2017	<0.003000	<0.001000	0.001000
BA03	2/5/2016	<0.003000	0.003800	<0.001000
	4/22/2016	<0.003000	<0.001000	<0.001000

Table 2. Duck Creek Bottom Ash Basin: Appendix IV Analytical Results

Location ID	Sample Date	As, tot, mg/L	Ba, tot, mg/L	Be, tot, mg/L	Cd,tot, mg/L	Co, tot, mg/L	Cr, tot, mg/L
BA03	6/28/2016	0.001000	0.2600	<0.001000	<0.001000	<0.002000	0.004600
	8/11/2016	<0.001000	0.2300	<0.001000	<0.001000	<0.002000	<0.004000
	10/29/2016	<0.001000	0.2100	<0.001000	<0.001000	<0.002000	<0.004000
	1/25/2017	<0.001000	0.1700	<0.001000	<0.001000	<0.002000	<0.004000
	5/3/2017	0.002200	0.2000	<0.001000	<0.001000	<0.002000	0.005300
	6/26/2017	<0.001000	0.2100	<0.001000	<0.001000	<0.002000	<0.004000
BA04	2/5/2016	<0.001000	0.1900	<0.001000	<0.001000	<0.002000	<0.004000
	4/22/2016	<0.001000	0.1400	<0.001000	<0.001000	<0.002000	<0.004000
	6/28/2016	<0.001000	0.1300	<0.001000	<0.001000	<0.002000	<0.004000
	8/11/2016	<0.001000	0.1700	<0.001000	<0.001000	<0.002000	<0.004000
	10/29/2016	<0.001000	0.1000	<0.001000	<0.001000	<0.002000	<0.004000
	1/25/2017	<0.001000	0.09900	<0.001000	<0.001000	<0.002000	<0.004000
	5/3/2017	0.001800	0.1800	<0.001000	<0.001000	<0.002000	<0.004000
	6/26/2017	<0.001000	0.1300	<0.001000	<0.001000	<0.002000	<0.004000
BA05	9/12/2016	0.002300	0.05800	<0.001000	<0.001000	0.002000	<0.004000
	11/1/2016	0.003900	0.1300	<0.001000	<0.001000	0.004900	<0.004000
	12/14/2016	0.002300	0.1800	<0.001000	<0.001000	0.003700	<0.004000
	1/28/2017	0.001200	0.1300	<0.001000	<0.001000	<0.002000	<0.004000

Table 2. Duck Creek Bottom Ash Basin: Appendix IV Analytical Results

Location ID	Sample Date	F, tot, mg/L	Hg, tot, mg/L	Li, tot, mg/L	Mo, tot, mg/L	Pb, tot, mg/L	Ra-226,228, tot, pCi/L
BA03	6/28/2016	<0.2500	<0.0002000	<0.01000	0.005000	0.001800	0.2640
	8/11/2016	0.2870	<0.0002000	<0.01000	0.002500	<0.001000	0.8570
	10/29/2016	0.3030	<0.0002000	<0.01000	0.002500	<0.001000	0.2640
	1/25/2017	<0.2500	<0.0002000	<0.01000	0.002900	<0.001000	1.120
	5/3/2017	0.2640	0.001200	<0.01000	0.003300	0.002400	0.4890
	6/26/2017	<0.2500	<0.0002000	<0.01000	0.002400	<0.001000	1.410
BA04	2/5/2016	0.2820	<0.0002000	<0.01000	0.006900	<0.001000	0.8310
	4/22/2016	0.3360	<0.0002000	<0.01000	0.002300	<0.001000	1.120
	6/28/2016	0.2830	<0.0002000	<0.01000	0.003300	0.001100	1.200
	8/11/2016	0.3620	<0.0002000	<0.01000	0.001800	<0.001000	0.08400
	10/29/2016	0.3800	<0.0002000	<0.01000	0.002000	<0.001000	0.9150
	1/25/2017	0.2600	<0.0002000	<0.01000	0.002300	<0.001000	0.4200
	5/3/2017	0.3110	<0.0002000	<0.01000	0.002700	<0.001000	0.7440
	6/26/2017	0.2550	<0.0002000	<0.01000	0.001600	<0.001000	1.420
BA05	9/12/2016	0.6110	0.0002600	<0.01000	0.005800	<0.001000	1.930
	11/1/2016	0.3650	<0.0002000	0.01100	0.004600	0.002200	1.340
	12/14/2016	0.4260	<0.0002000	<0.01000	0.004100	<0.001000	3.480
	1/28/2017	0.3140	<0.0002000	<0.01000	0.004200	<0.001000	1.220

Table 2. Duck Creek Bottom Ash Basin: Appendix IV Analytical Results

Location ID	Sample Date	Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
BA03	6/28/2016	<0.003000	<0.001000	<0.001000
	8/11/2016	<0.003000	<0.001000	<0.001000
	10/29/2016	<0.003000	<0.001000	<0.001000
	1/25/2017	<0.003000	0.001100	<0.001000
	5/3/2017	<0.003000	0.008600	<0.001000
	6/26/2017	<0.003000	<0.001000	<0.001000
BA04	2/5/2016	<0.003000	0.003100	<0.001000
	4/22/2016	<0.003000	<0.001000	<0.001000
	6/28/2016	<0.003000	<0.001000	<0.001000
	8/11/2016	<0.003000	<0.001000	<0.001000
	10/29/2016	<0.003000	<0.001000	<0.001000
	1/25/2017	<0.003000	<0.001000	<0.001000
	5/3/2017	<0.003000	<0.001000	<0.001000
	6/26/2017	<0.003000	<0.001000	<0.001000
BA05	9/12/2016	<0.003000	<0.001000	<0.001000
	11/1/2016	<0.003000	<0.001000	<0.001000
	12/14/2016	<0.003000	<0.001000	<0.001000
	1/28/2017	<0.003000	<0.001000	<0.001000

Table 2. Duck Creek Bottom Ash Basin: Appendix IV Analytical Results

Location ID	Sample Date	As, tot, mg/L	Ba, tot, mg/L	Be, tot, mg/L	Cd,tot, mg/L	Co, tot, mg/L	Cr, tot, mg/L
BA05	3/6/2017	0.001900	0.08300	<0.001000	<0.001000	<0.002000	<0.004000
	5/3/2017	0.005000	0.1800	<0.001000	<0.001000	0.005400	0.005800
	6/9/2017	0.003400	0.1900	<0.001000	<0.001000	0.003000	<0.004000
	6/26/2017	0.002000	0.09700	<0.001000	<0.001000	<0.002000	<0.004000
BA06	9/12/2016	0.002400	0.2200	<0.001000	<0.001000	0.01200	0.004400
	11/1/2016	0.002900	0.2000	<0.001000	<0.001000	0.01100	<0.004000
	12/14/2016	0.02400	0.4500	0.002100	<0.001000	0.03700	0.07300
	1/28/2017	0.02300	0.4800	0.001800	<0.001000	0.03700	0.07300
	3/6/2017	0.001600	0.2000	<0.001000	<0.001000	0.006800	<0.004000
	5/3/2017	0.004200	0.2100	<0.001000	<0.001000	0.01200	0.009400
	6/9/2017	<0.001000	0.1900	<0.001000	<0.001000	0.01700	<0.004000
	6/26/2017	0.001700	0.1600	<0.001000	<0.001000	0.005700	<0.004000

Table 2. Duck Creek Bottom Ash Basin: Appendix IV Analytical Results

Location ID	Sample Date	F, tot, mg/L	Hg, tot, mg/L	Li, tot, mg/L	Mo, tot, mg/L	Pb, tot, mg/L	Ra-226,228, tot, pCi/L
BA05	3/6/2017	0.4000	<0.0002000	<0.01000	0.006300	0.001500	0.4980
	5/3/2017	0.3280	<0.0002000	<0.01000	0.004200	0.003800	1.270
	6/9/2017	<0.2500	<0.0002000	<0.01000	0.003000	<0.001000	1.570
	6/26/2017	0.3040	<0.0002000	<0.01000	0.004900	0.001400	0.4750
BA06	9/12/2016	0.4610	<0.0002000	0.01300	0.002700	0.002300	0.8420
	11/1/2016	0.2580	<0.0002000	0.01400	0.002000	0.001900	1.680
	12/14/2016	0.3220	<0.0002000	0.06800	0.005800	0.03700	9.640
	1/28/2017	0.2940	<0.0002000	0.06300	0.006600	0.04200	1.770
	3/6/2017	0.2540	<0.0002000	0.01800	0.002700	0.001200	0.06070
	5/3/2017	0.2760	<0.0002000	0.01300	0.002700	0.005000	0.8380
	6/9/2017	<0.2500	<0.0002000	<0.01000	0.001700	<0.001000	1.460
	6/26/2017	<0.2500	<0.0002000	0.01300	0.001600	0.001400	0.1350

Table 2. Duck Creek Bottom Ash Basin: Appendix IV Analytical Results

Location ID	Sample Date	Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
BA05	3/6/2017	<0.003000	<0.001000	<0.001000
	5/3/2017	<0.003000	<0.001000	<0.001000
	6/9/2017	<0.003000	<0.001000	<0.001000
	6/26/2017	<0.003000	<0.001000	<0.001000
BA06	9/12/2016	<0.003000	<0.001000	<0.001000
	11/1/2016	<0.003000	<0.001000	<0.001000
	12/14/2016	<0.003000	0.002300	<0.001000
	1/28/2017	<0.003000	0.001800	<0.001000
	3/6/2017	<0.003000	<0.001000	<0.001000
	5/3/2017	<0.003000	<0.001000	<0.001000
	6/9/2017	<0.003000	<0.001000	<0.001000
	6/26/2017	<0.003000	<0.001000	<0.001000

Figures

GROUNDWATER SAMPLING WELL LOCATION MAP
DUCK CREEK BOTTOM ASH BASIN
UNIT: 205

2017 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
DYNEGY CCR RULE GROUNDWATER MONITORING
DUCK CREEK POWER STATION
CANTON, ILLINOIS

DRAWN BY/DATE: SDS 1/3/18
REVIEWED BY/DATE: KLT 1/3/18
APPROVED BY/DATE: SJC 1/25/18

PROJECT NO: 67719

FIGURE NO: 1

OBG

THERE'S A WAY