

2017 Annual Groundwater Monitoring and Corrective Action Report

Joppa East Ash Pond – CCR Unit ID 401
Joppa Power Station
2100 Portland Road
Joppa, Illinois 62953

Electric Energy, Inc.

January 31, 2018

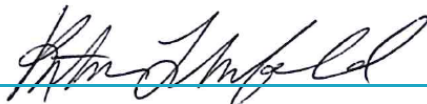


JANUARY 31, 2018 | PROJECT #67719

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Joppa East Ash Pond – CCR Unit ID 401
Joppa Power Station
Joppa, Illinois

Prepared for:
Electric Energy, Inc.



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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 Electric Energy, Inc. by O'Brien & Gere Engineers, Inc. (OBG), to provide the information required by 40 CFR 257.90(e) for the Joppa East Ash Pond located at Joppa Power Station near Joppa, 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 Joppa East Ash Pond for calendar year 2017.

1.2 MONITORING AND CORRECTIVE ACTION PROGRAM STATUS

The final three independent samples of the minimum eight required by 40 CFR 257.94(b) were collected and analyzed from each background and downgradient well in 2017 before October 17. The other five independent samples were collected and analyzed in 2015 and 2016.

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 30, 2017, for which analytical data was received on December 12, 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 Joppa East Ash Pond 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 Joppa East Ash Pond.

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 March 7-8, June 14-15, July 19-20, and November 30. Sample collection dates for previously collected five independent samples are identified in Tables 1 and 2. One ground water sample was collected from each background and downgradient well in each sampling event.

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 30, 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 (March 12, 2018), respectively. Statistical evaluation of analytical data is being performed in accordance with the Statistical Analysis Plan, Joppa Power Station, Electric Energy, Inc. (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, Joppa East Ash Pond, Joppa Power Station, Joppa, Illinois, Project No. 2285, Revision 0, October 17, 2017.

Natural Resource Technology, an OBG Company, 2017b, Statistical Analysis Plan, Joppa Power Station, Electric Energy, Inc., October 17, 2017.



Tables

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Table 1. Joppa East Ash Pond: Appendix III Analytical Results

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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
G01D	12/3/2015	<0.02500	37.90	13.00	0.2600	6.660	20.00
	3/15/2016	0.03600	45.50	20.00	0.2900	6.740	126.0
	6/15/2016	0.02960	43.90	21.00	0.2500	6.900	157.0
	9/14/2016	0.04160	40.80	21.00	0.2600	6.800	129.0
	12/14/2016	<0.02500	35.90	14.00	0.2400	6.760	53.00
	3/7/2017	<0.02500	34.90	16.00	0.2200	6.240	72.00
	6/15/2017	<0.02500	32.10	15.00	0.2300	6.680	56.00
	7/20/2017	<0.02500	29.50	12.00	0.2400	6.800	31.00
	11/30/2017	<0.02500	37.20	18.00	0.2200	6.750	117.0
G02D	12/3/2015	0.05360	39.90	24.00	0.2400	6.680	16.00
	3/15/2016	0.04940	39.80	24.00	0.2200	6.550	17.00
	6/15/2016	0.05080	38.60	21.00	0.2100	6.770	15.00
	9/14/2016	0.05340	34.70	24.00	0.2000	6.590	22.00
	12/14/2016	0.05520	40.40	24.00	0.1900	6.330	22.00
	3/8/2017	0.05460	40.00	24.00	0.1900	6.940	18.00
	6/14/2017	0.04670	33.20	25.00	0.1900	6.320	20.00
	7/20/2017	0.04400	37.50	22.00	0.2200	6.650	12.00
	11/30/2017	0.04960	40.10	23.00	0.2100	6.930	17.00

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Table 1. Joppa East Ash Pond: Appendix III Analytical Results

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Location ID	Sample Date	TDS, mg/L
G01D	12/3/2015	216.0
	3/15/2016	496.0
	6/15/2016	518.0
	9/14/2016	498.0
	12/14/2016	294.0
	3/7/2017	384.0
	6/15/2017	372.0
	7/20/2017	368.0
	11/30/2017	450.0
G02D	12/3/2015	244.0
	3/15/2016	256.0
	6/15/2016	248.0
	9/14/2016	276.0
	12/14/2016	266.0
	3/8/2017	270.0
	6/14/2017	198.0
	7/20/2017	264.0
	11/30/2017	246.0

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Table 1. Joppa East Ash Pond: Appendix III Analytical Results

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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
G51D	12/3/2015	0.1170	39.20	9.000	0.1300	6.180	117.0
	3/15/2016	0.1840	39.70	9.000	0.1000	5.900	145.0
	6/15/2016	0.2130	42.30	7.000	<0.1000	5.780	139.0
	9/14/2016	0.2630	29.60	9.000	<0.1000	5.590	136.0
	12/14/2016	0.1710	30.00	11.00	<0.1000	5.910	101.0
	3/8/2017	0.3090	32.60	8.000	<0.1000	6.180	146.0
	6/15/2017	0.5800	34.00	9.000	<0.1000	5.550	149.0
	7/20/2017	0.3320	31.80	8.000	<0.1000	5.860	140.0
	11/30/2017	0.3020	34.40	8.000	<0.1000	5.610	138.0
G52D	12/3/2015	<0.02500	46.60	22.00	0.2500	6.540	65.00
	3/15/2016	<0.02500	49.10	22.00	0.2600	6.300	99.00
	6/15/2016	<0.02500	69.20	21.00	0.2500	6.570	88.00
	9/14/2016	<0.02500	47.60	20.00	0.2600	6.410	84.00
	12/14/2016	<0.02500	53.40	20.00	0.2500	6.650	82.00
	3/7/2017	<0.02500	55.00	18.00	0.2400	5.900	115.0
	6/14/2017	<0.02500	51.00	17.00	0.2400	6.200	112.0
	7/19/2017	<0.02500	50.70	15.00	0.2700	6.440	108.0
	11/30/2017	<0.02500	54.70	15.00	0.2600	6.040	97.00

Table 1. Joppa East Ash Pond: Appendix III Analytical Results

Location ID	Sample Date	TDS, mg/L
G51D	12/3/2015	304.0
	3/15/2016	342.0
	6/15/2016	330.0
	9/14/2016	360.0
	12/14/2016	270.0
	3/8/2017	340.0
	6/15/2017	340.0
	7/20/2017	344.0
	11/30/2017	356.0
G52D	12/3/2015	332.0
	3/15/2016	310.0
	6/15/2016	360.0
	9/14/2016	376.0
	12/14/2016	356.0
	3/7/2017	410.0
	6/14/2017	372.0
	7/19/2017	412.0
	11/30/2017	392.0

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Table 1. Joppa East Ash Pond: Appendix III Analytical Results

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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
G53D	12/3/2015	0.3320	62.60	22.00	0.7900	6.820	103.0
	3/15/2016	0.3340	50.50	20.00	0.7200	6.650	107.0
	6/15/2016	0.3420	47.20	17.00	0.6800	6.610	107.0
	9/14/2016	0.3680	44.40	20.00	0.7000	6.460	104.0
	12/14/2016	0.3640	44.50	20.00	0.6900	6.750	106.0
	3/8/2017	0.1380	23.60	6.000	0.4900	7.230	35.00
	6/15/2017	0.3090	38.90	18.00	0.5900	6.590	79.00
	7/20/2017	0.3660	40.80	18.00	0.6900	6.780	94.00
	11/30/2017	0.4270	44.60	20.00	0.7400	6.580	98.00
G54D	12/3/2015	0.6630	103.0	33.00	0.3800	6.950	191.0
	3/15/2016	0.5130	75.20	32.00	0.3800	6.750	176.0
	6/15/2016	0.5080	72.80	28.00	0.3400	6.620	160.0
	9/14/2016	0.5570	70.40	28.00	0.3400	6.580	149.0
	12/14/2016	0.5640	74.30	26.00	0.3200	6.680	144.0
	3/8/2017	0.4990	74.10	26.00	0.3000	7.080	131.0
	6/15/2017	0.6850	80.50	24.00	0.3200	6.820	170.0
	7/20/2017	0.5800	75.70	24.00	0.3200	6.830	151.0
	11/30/2017	0.6460	76.20	26.00	0.3300	6.740	136.0

Table 1. Joppa East Ash Pond: Appendix III Analytical Results

Location ID	Sample Date	TDS, mg/L
G53D	12/3/2015	368.0
	3/15/2016	406.0
	6/15/2016	392.0
	9/14/2016	424.0
	12/14/2016	418.0
	3/8/2017	216.0
	6/15/2017	348.0
	7/20/2017	396.0
	11/30/2017	348.0
G54D	12/3/2015	556.0
	3/15/2016	554.0
	6/15/2016	476.0
	9/14/2016	502.0
	12/14/2016	456.0
	3/8/2017	482.0
	6/15/2017	506.0
	7/20/2017	512.0
	11/30/2017	472.0

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Table 2. Joppa East Ash Pond: Appendix IV Analytical Results

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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
G01D	12/3/2015	0.001500	0.2540	<0.001000	<0.001000	0.006000	0.004700
	3/15/2016	0.002600	0.2830	<0.001000	<0.001000	0.01360	0.003200
	6/15/2016	0.001800	0.2040	<0.001000	<0.001000	0.01280	0.001600
	9/14/2016	0.002100	0.1900	<0.001000	<0.001000	0.01130	0.003100
	12/14/2016	0.001200	0.1630	<0.001000	<0.001000	0.007700	0.003600
	3/7/2017	<0.001000	0.1550	<0.001000	<0.001000	0.006100	0.001400
	6/15/2017	<0.001000	0.1400	<0.001000	<0.001000	0.004700	0.003200
	7/20/2017	0.001000	0.1400	<0.001000	<0.001000	0.003500	0.004200
G02D	12/3/2015	<0.001000	0.2320	<0.001000	<0.001000	0.002400	<0.001000
	3/15/2016	<0.001000	0.2180	<0.001000	<0.001000	<0.001000	<0.001000
	6/15/2016	<0.001000	0.2030	<0.001000	<0.001000	<0.001000	<0.001000
	9/14/2016	<0.001000	0.2060	<0.001000	<0.001000	<0.001000	<0.001000
	12/14/2016	<0.001000	0.2240	<0.001000	<0.001000	0.001900	0.005700
	3/8/2017	<0.001000	0.2110	<0.001000	<0.001000	<0.001000	<0.001000
	6/14/2017	<0.001000	0.1920	<0.001000	<0.001000	<0.001000	<0.001000
	7/20/2017	<0.001000	0.2110	<0.001000	<0.001000	<0.001000	0.001600
G51D	12/3/2015	<0.001000	0.1290	<0.001000	<0.001000	0.01410	<0.001000
	3/15/2016	<0.001000	0.07020	<0.001000	<0.001000	0.02490	0.001400

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Table 2. Joppa East Ash Pond: Appendix IV Analytical Results

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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
G01D	12/3/2015	0.2600	<0.0002000	0.001800	0.001000	0.001800	0.07000
	3/15/2016	0.2900	<0.0002000	0.001700	0.001300	0.001200	0.9600
	6/15/2016	0.2500	<0.0002000	0.001500	0.001000	<0.001000	0.4400
	9/14/2016	0.2600	<0.0002000	0.002400	0.001000	0.001300	0.5800
	12/14/2016	0.2400	<0.0002000	0.002400	<0.001000	0.001200	0.4000
	3/7/2017	0.2200	<0.0002000	0.001300	<0.001000	<0.001000	0.2400
	6/15/2017	0.2300	<0.0002000	0.001800	<0.001000	0.001300	0.9300
	7/20/2017	0.2400	<0.0002000	0.001700	0.001800	0.001400	0.4100
G02D	12/3/2015	0.2400	<0.0002000	0.001100	<0.001000	<0.001000	1.100
	3/15/2016	0.2200	<0.0002000	<0.001000	<0.001000	<0.001000	0.4700
	6/15/2016	0.2100	<0.0002000	0.001200	<0.001000	<0.001000	0.6300
	9/14/2016	0.2000	<0.0002000	0.001300	<0.001000	<0.001000	0.3300
	12/14/2016	0.1900	<0.0002000	0.001900	<0.001000	<0.001000	0.4000
	3/8/2017	0.1900	<0.0002000	<0.001000	<0.001000	<0.001000	1.060
	6/14/2017	0.1900	<0.0002000	0.001300	<0.001000	<0.001000	0.6300
	7/20/2017	0.2200	<0.0002000	<0.001000	<0.001000	<0.001000	1.330
G51D	12/3/2015	0.1300	<0.0002000	0.003500	<0.001000	<0.001000	0.02000
	3/15/2016	0.1000	<0.0002000	0.004800	<0.001000	<0.001000	0.6900

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Table 2. Joppa East Ash Pond: Appendix IV Analytical Results

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Location ID	Sample Date	Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
G01D	12/3/2015	<0.001000	<0.001000	<0.001000
	3/15/2016	<0.001000	<0.001000	<0.001000
	6/15/2016	<0.001000	<0.001000	<0.001000
	9/14/2016	<0.001000	<0.001000	<0.001000
	12/14/2016	<0.001000	<0.001000	<0.001000
	3/7/2017	<0.001000	<0.001000	<0.001000
	6/15/2017	<0.001000	<0.001000	<0.001000
	7/20/2017	<0.001000	<0.001000	<0.001000
G02D	12/3/2015	<0.001000	0.001900	<0.001000
	3/15/2016	<0.001000	0.002200	<0.001000
	6/15/2016	<0.001000	0.002200	<0.001000
	9/14/2016	<0.001000	0.003300	<0.001000
	12/14/2016	<0.001000	0.003900	<0.001000
	3/8/2017	<0.001000	0.002400	<0.001000
	6/14/2017	<0.001000	0.002300	<0.001000
	7/20/2017	<0.001000	0.001600	<0.001000
G51D	12/3/2015	<0.001000	0.002400	<0.001000
	3/15/2016	<0.001000	0.001900	<0.001000

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Table 2. Joppa East Ash Pond: Appendix IV Analytical Results

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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
G51D	6/15/2016	<0.001000	0.06280	<0.001000	<0.001000	0.01980	<0.001000
	9/14/2016	<0.001000	0.05360	<0.001000	<0.001000	0.01100	<0.001000
	12/14/2016	<0.001000	0.04590	<0.001000	<0.001000	0.01190	<0.001000
	3/8/2017	<0.001000	0.04930	<0.001000	<0.001000	0.008200	<0.001000
	6/15/2017	<0.001000	0.04420	<0.001000	<0.001000	0.005200	<0.001000
	7/20/2017	<0.001000	0.04620	<0.001000	<0.001000	0.005500	<0.001000
G52D	12/3/2015	0.003200	0.3180	<0.001000	<0.001000	0.005600	<0.001000
	3/15/2016	0.005100	0.3450	<0.001000	<0.001000	0.006400	<0.001000
	6/15/2016	0.007200	0.5060	<0.001000	<0.001000	0.009300	<0.001000
	9/14/2016	0.004300	0.3620	<0.001000	<0.001000	0.006300	<0.001000
	12/14/2016	0.003000	0.3560	<0.001000	<0.001000	0.003000	<0.001000
	3/7/2017	0.006600	0.3580	<0.001000	<0.001000	0.007200	<0.001000
	6/14/2017	0.005400	0.2890	<0.001000	<0.001000	0.006200	<0.001000
	7/19/2017	0.001600	0.2930	<0.001000	<0.001000	0.001300	<0.001000
G53D	12/3/2015	<0.001000	0.3530	<0.001000	<0.001000	0.008700	0.001700
	3/15/2016	<0.001000	0.2790	<0.001000	<0.001000	0.008700	<0.001000
	6/15/2016	<0.001000	0.2070	<0.001000	<0.001000	0.005900	<0.001000
	9/14/2016	<0.001000	0.1910	<0.001000	<0.001000	0.002000	<0.001000

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January 16, 2018

Table 2. Joppa East Ash Pond: Appendix IV Analytical Results

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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
G51D	6/15/2016	<0.1000	<0.0002000	0.005900	<0.001000	<0.001000	0.4300
	9/14/2016	<0.1000	<0.0002000	0.005200	<0.001000	<0.001000	0.8000
	12/14/2016	<0.1000	<0.0002000	0.005000	<0.001000	<0.001000	0.2900
	3/8/2017	<0.1000	<0.0002000	0.004500	<0.001000	<0.001000	0.5200
	6/15/2017	<0.1000	<0.0002000	0.005800	<0.001000	<0.001000	0.5600
	7/20/2017	<0.1000	<0.0002000	0.004700	<0.001000	<0.001000	1.680
G52D	12/3/2015	0.2500	<0.0002000	0.002600	0.001700	<0.001000	0.3100
	3/15/2016	0.2600	<0.0002000	0.002300	<0.001000	<0.001000	1.160
	6/15/2016	0.2500	<0.0002000	0.004000	<0.001000	<0.001000	2.180
	9/14/2016	0.2600	<0.0002000	0.002700	0.001700	<0.001000	1.810
	12/14/2016	0.2500	<0.0002000	0.003600	0.002400	<0.001000	1.240
	3/7/2017	0.2400	<0.0002000	0.002400	<0.001000	<0.001000	0.8000
	6/14/2017	0.2400	<0.0002000	0.003000	<0.001000	<0.001000	1.280
	7/19/2017	0.2700	<0.0002000	0.002800	0.001100	<0.001000	0.8000
G53D	12/3/2015	0.7900	<0.0002000	0.002000	0.001300	<0.001000	0.2800
	3/15/2016	0.7200	<0.0002000	0.001500	0.001200	<0.001000	1.240
	6/15/2016	0.6800	<0.0002000	0.001700	<0.001000	<0.001000	1.110
	9/14/2016	0.7000	<0.0002000	0.001600	<0.001000	<0.001000	0.1000

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Table 2. Joppa East Ash Pond: Appendix IV Analytical Results

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Location ID	Sample Date	Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
G51D	6/15/2016	<0.001000	0.002800	<0.001000
	9/14/2016	<0.001000	0.003100	<0.001000
	12/14/2016	<0.001000	0.003100	<0.001000
	3/8/2017	<0.001000	0.003300	<0.001000
	6/15/2017	<0.001000	0.003900	<0.001000
	7/20/2017	<0.001000	0.003500	<0.001000
G52D	12/3/2015	<0.001000	<0.001000	<0.001000
	3/15/2016	<0.001000	<0.001000	<0.001000
	6/15/2016	<0.001000	<0.001000	<0.001000
	9/14/2016	<0.001000	<0.001000	<0.001000
	12/14/2016	<0.001000	<0.001000	<0.001000
	3/7/2017	<0.001000	<0.001000	<0.001000
	6/14/2017	<0.001000	<0.001000	<0.001000
	7/19/2017	<0.001000	<0.001000	<0.001000
G53D	12/3/2015	<0.001000	<0.001000	<0.001000
	3/15/2016	<0.001000	<0.001000	<0.001000
	6/15/2016	<0.001000	<0.001000	<0.001000
	9/14/2016	<0.001000	<0.001000	<0.001000

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Table 2. Joppa East Ash Pond: Appendix IV Analytical Results

5:17:38 PM

Location ID	Sample Date	As, tot, mg/L	Ba, tot, mg/L	Bc, tot, mg/L	Cd,tot, mg/L	Co, tot, mg/L	Cr, tot, mg/L
G53D	12/14/2016	<0.001000	0.1690	<0.001000	<0.001000	0.002900	<0.001000
	3/8/2017	<0.001000	0.1090	<0.001000	<0.001000	0.002700	0.001800
	6/15/2017	<0.001000	0.1720	<0.001000	<0.001000	<0.001000	<0.001000
	7/20/2017	<0.001000	0.1650	<0.001000	<0.001000	0.001100	<0.001000
G54D	12/3/2015	0.002000	0.1150	<0.001000	<0.001000	0.02680	0.001600
	3/15/2016	0.002500	0.1060	<0.001000	<0.001000	0.01830	0.003000
	6/15/2016	0.002000	0.1140	<0.001000	<0.001000	0.01580	<0.001000
	9/14/2016	0.002600	0.1340	<0.001000	<0.001000	0.01670	<0.001000
	12/14/2016	0.003300	0.1380	<0.001000	<0.001000	0.01780	<0.001000
	3/8/2017	0.002500	0.1320	<0.001000	<0.001000	0.01700	<0.001000
	6/15/2017	<0.001000	0.1050	<0.001000	<0.001000	0.01600	0.001800
	7/20/2017	0.001200	0.1270	<0.001000	<0.001000	0.01390	0.001700

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Table 2. Joppa East Ash Pond: Appendix IV Analytical Results

5:17:38 PM

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
G53D	12/14/2016	0.6900	<0.0002000	0.001800	<0.001000	<0.001000	0.3900
	3/8/2017	0.4900	<0.0002000	0.002100	<0.001000	<0.001000	0.08000
	6/15/2017	0.5900	<0.0002000	0.002200	<0.001000	<0.001000	0.1600
	7/20/2017	0.6900	<0.0002000	0.001500	<0.001000	<0.001000	1.250
G54D	12/3/2015	0.3800	<0.0002000	0.006900	<0.001000	<0.001000	0.2000
	3/15/2016	0.3800	<0.0002000	0.007800	0.001000	<0.001000	0.3540
	6/15/2016	0.3400	<0.0002000	0.006800	<0.001000	<0.001000	1.020
	9/14/2016	0.3400	<0.0002000	0.006200	<0.001000	<0.001000	0.3900
	12/14/2016	0.3200	<0.0002000	0.006100	<0.001000	<0.001000	1.050
	3/8/2017	0.3000	<0.0002000	0.004800	<0.001000	<0.001000	0.6800
	6/15/2017	0.3200	<0.0002000	0.004700	<0.001000	<0.001000	1.670
	7/20/2017	0.3200	<0.0002000	0.004400	<0.001000	<0.001000	0.3200

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January 16, 2018

Table 2. Joppa East Ash Pond: Appendix IV Analytical Results

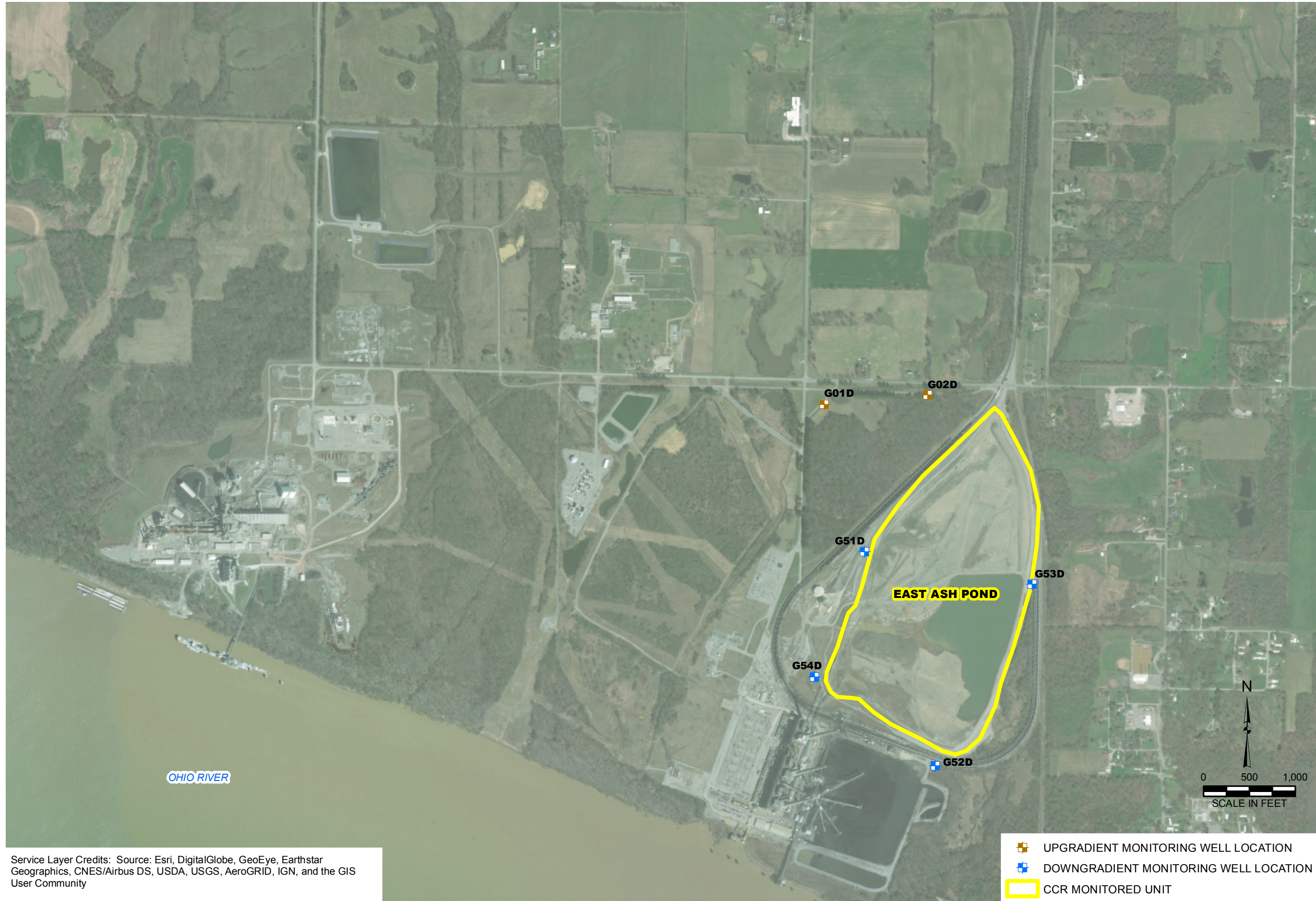
5:17:38 PM

Location ID	Sample Date	Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
G53D	12/14/2016	<0.001000	<0.001000	<0.001000
	3/8/2017	<0.001000	<0.001000	<0.001000
	6/15/2017	<0.001000	<0.001000	<0.001000
	7/20/2017	<0.001000	<0.001000	<0.001000
G54D	12/3/2015	<0.001000	<0.001000	<0.001000
	3/15/2016	<0.001000	<0.001000	<0.001000
	6/15/2016	<0.001000	<0.001000	<0.001000
	9/14/2016	<0.001000	<0.001000	<0.001000
	12/14/2016	<0.001000	<0.001000	<0.001000
	3/8/2017	<0.001000	<0.001000	<0.001000
	6/15/2017	<0.001000	<0.001000	<0.001000
	7/20/2017	<0.001000	<0.001000	<0.001000






Figures

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-  UPGRADIENT MONITORING WELL LOCATION
-  DOWNGRADIENT MONITORING WELL LOCATION
-  CCR MONITORED UNIT

GROUNDWATER SAMPLING WELL LOCATION MAP
 JOPPA EAST ASH POND
 UNIT ID: 401

2017 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
 DYNEGY CCR RULE GROUNDWATER MONITORING
 JOPPA POWER STATION
 JOPPA, ILLINOIS

DRAWN BY/DATE:
 SDS 1/8/18
 REVIEWED BY/DATE:
 KLT 1/8/18
 APPROVED BY/DATE:
 SJC 1/25/18

PROJECT NO: 67719

FIGURE NO: 1



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THERE'S A WAY

