

2017 Annual Groundwater Monitoring and Corrective Action Report

**Coffeen GMF Gypsum Stack Pond – CCR Unit ID 103
Coffeen Power Station
134 Cips Lane
Coffeen, Illinois 62017**

Illinois Power Generating Company

January 31, 2018



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2017 Annual Groundwater Monitoring and Corrective Action Report

Coffeen GMF Gypsum Stack Pond – CCR Unit ID 103
Coffeen Power Station
Coffeen, Illinois

Prepared for:
Illinois Power Generating Company



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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 Generating Company by O'Brien & Gere Engineers, Inc. (OBG), to provide the information required by 40 CFR 257.90(e) for the Coffeen GMF Gypsum Stack Pond located at Coffeen Power Station near Coffeen, 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 Coffeen GMF Gypsum Stack 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 October 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 October 28-31, 2017, for which analytical data was received on November 13, 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 October 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 Coffeen GMF Gypsum Stack 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 Coffeen GMF Gypsum Stack 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 February 10-18, May 18-22, July 13-17, and October 28-31. Sample collection dates for previously collected five independent samples are identified in Tables 1 and 2.

Generally, one ground water sample was collected from each background and downgradient well during each sampling event. The dedicated sampling pump in downgradient monitoring well G206 malfunctioned during the May 2016 sampling event rendering sample collection impossible, so that well was sampled on June 27, 2016 following replacement of the sampling pump. Samples collected from downgradient monitoring wells G206, G212, G215, and G218 during the November 2016 sampling event, and sent by the analytical laboratory to its subcontract laboratory for analysis of Radium isotopes 226 and 228, were lost in shipment, so additional samples were collected from those wells on December 7, 2016 for analysis of these parameters.

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 October 28-31, 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 11, 2018), respectively. Statistical evaluation of analytical data is being performed in accordance with the Statistical Analysis Plan, Coffeen Power Station, Illinois Power Generating Company (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, Coffeen GMF Gypsum Stack Pond, Coffeen Power Station, Coffeen, Illinois, Project No. 2285, Revision 0, October 17, 2017.

Natural Resource Technology, an OBG Company, 2017b, Statistical Analysis Plan, Coffeen Power Station, Newton Power Station, Illinois Power Generating Company, October 17, 2017.



Tables

Coffeen

January 12, 2018

Table 1. Coffeen GMF Gypsum Stack Pond: Appendix III Analytical Results

11:46:22 AM

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
G200	11/23/2015	0.3900	100.0	75.00	0.3370	7.210	94.00
	2/12/2016	0.01400	150.0	93.00	0.4150	7.240	97.00
	5/10/2016	<0.01000	100.0	96.00	0.3890	7.140	100.0
	7/30/2016	<0.01000	88.00	82.00	0.3840	7.110	100.0
	11/18/2016	0.01000	88.00	75.00	0.4310	7.150	110.0
	2/10/2017	<0.01000	85.00	82.00	0.3050	7.100	100.0
	5/18/2017	0.01000	84.00	96.00	0.3000	6.960	90.00
	7/13/2017	<0.01000	87.00	88.00	0.2990	7.140	110.0
	10/28/2017	0.3400	81.00	65.00	0.3280	7.160	100.0
G206	11/18/2015	<0.01000	79.00	32.00	0.4330	7.090	95.00
	2/24/2016	0.03300	78.00	26.00	0.5070	6.690	150.0
	6/27/2016	<0.01000	94.00	25.00	0.4690	6.210	130.0
	8/6/2016	<0.01000	90.00	27.00	0.4490	7.100	130.0
	11/22/2016	0.1100	63.00	30.00	0.4630	7.130	130.0
	2/11/2017	<0.01000	70.00	29.00	0.5470	7.190	150.0
	5/18/2017	<0.01000	66.00	29.00	<0.2500	7.040	120.0
	7/15/2017	<0.01000	61.00	31.00	0.4530	7.120	100.0
	10/30/2017	<0.01000	90.00	30.00	0.4720	7.220	120.0

Table 1. Coffeen GMF Gypsum Stack Pond: Appendix III Analytical Results

11:46:22 AM

Location ID	Sample Date	TDS, mg/L
G200	11/23/2015	520.0
	2/12/2016	540.0
	5/10/2016	480.0
	7/30/2016	520.0
	11/18/2016	520.0
	2/10/2017	700.0
	5/18/2017	620.0
	7/13/2017	540.0
	10/28/2017	520.0
G206	11/18/2015	460.0
	2/24/2016	500.0
	6/27/2016	420.0
	8/6/2016	420.0
	11/22/2016	480.0
	2/11/2017	680.0
	5/18/2017	460.0
	7/15/2017	480.0
	10/30/2017	460.0

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Table 1. Coffeen GMF Gypsum Stack Pond: Appendix III Analytical Results

11:46:22 AM

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
G209	11/18/2015	<0.01000	160.0	67.00	0.3980	6.960	280.0
	2/23/2016	<0.01000	150.0	70.00	0.4750	6.990	280.0
	5/11/2016	<0.01000	160.0	59.00	0.4610	7.050	280.0
	8/6/2016	0.01400	160.0	67.00	0.4680	7.150	270.0
	11/22/2016	0.01500	100.0	70.00	0.4200	7.060	270.0
	2/11/2017	<0.01000	120.0	60.00	0.3580	7.030	260.0
	5/18/2017	<0.01000	130.0	63.00	0.2630	7.240	240.0
	7/15/2017	0.01200	120.0	72.00	0.4370	7.250	120.0
	10/31/2017	0.01200	150.0	63.00	0.5190	7.110	95.00
G212	11/18/2015	<0.01000	55.00	38.00	0.3400	7.210	54.00
	2/19/2016	<0.01000	58.00	41.00	0.3390	7.290	59.00
	5/11/2016	<0.01000	58.00	37.00	0.4210	7.310	59.00
	8/6/2016	0.01600	59.00	37.00	0.3690	7.300	55.00
	11/23/2016	<0.01000	51.00	42.00	0.3990	7.090	54.00
	2/15/2017	<0.01000	53.00	37.00	0.3690	7.110	55.00
	5/22/2017	<0.01000	46.00	39.00	0.3720	7.010	57.00
	7/15/2017	<0.01000	46.00	44.00	0.3770	7.610	53.00
	10/31/2017	<0.01000	50.00	42.00	0.3260	7.310	55.00

Table 1. Coffeen GMF Gypsum Stack Pond: Appendix III Analytical Results

11:46:22 AM

Location ID	Sample Date	TDS, mg/L
G209	11/18/2015	810.0
	2/23/2016	760.0
	5/11/2016	800.0
	8/6/2016	760.0
	11/22/2016	750.0
	2/11/2017	960.0
	5/18/2017	820.0
	7/15/2017	780.0
	10/31/2017	730.0
G212	11/18/2015	380.0
	2/19/2016	380.0
	5/11/2016	400.0
	8/6/2016	330.0
	11/23/2016	340.0
	2/15/2017	420.0
	5/22/2017	360.0
	7/15/2017	430.0
	10/31/2017	340.0

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Table 1. Coffeen GMF Gypsum Stack Pond: Appendix III Analytical Results

11:46:22 AM

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
G215	11/24/2015	0.03700	110.0	47.00	0.3400	7.230	110.0
	2/18/2016	0.02700	100.0	52.00	0.3590	7.180	130.0
	5/11/2016	0.02600	89.00	43.00	0.4630	6.920	110.0
	7/30/2016	0.01500	89.00	47.00	0.4320	6.920	110.0
	11/23/2016	0.02300	68.00	48.00	0.4290	6.850	100.0
	2/18/2017	0.02100	86.00	46.00	0.3690	7.260	110.0
	5/22/2017	0.02400	82.00	42.00	<0.2500	7.350	100.0
	7/15/2017	0.02700	79.00	55.00	0.4230	6.950	110.0
	10/31/2017	0.02500	90.00	48.00	0.4200	7.240	110.0
G218	11/24/2015	<0.01000	120.0	99.00	0.3000	7.090	94.00
	2/19/2016	<0.01000	120.0	100.0	0.3110	7.020	110.0
	5/10/2016	0.01100	110.0	97.00	0.4390	6.980	140.0
	7/30/2016	<0.01000	130.0	100.0	0.3820	6.990	120.0
	11/23/2016	<0.01000	92.00	97.00	0.3730	7.090	130.0
	2/18/2017	<0.01000	110.0	88.00	0.3080	7.150	130.0
	5/22/2017	<0.01000	100.0	84.00	<0.2500	7.100	140.0
	7/17/2017	<0.01000	120.0	81.00	0.3570	7.120	140.0
	10/31/2017	<0.01000	110.0	91.00	0.4370	6.890	140.0

Table 1. Coffeen GMF Gypsum Stack Pond: Appendix III Analytical Results

11:46:22 AM

Location ID	Sample Date	TDS, mg/L
G215	11/24/2015	500.0
	2/18/2016	520.0
	5/11/2016	460.0
	7/30/2016	480.0
	11/23/2016	500.0
	2/18/2017	510.0
	5/22/2017	470.0
	7/15/2017	550.0
	10/31/2017	470.0
G218	11/24/2015	620.0
	2/19/2016	560.0
	5/10/2016	600.0
	7/30/2016	620.0
	11/23/2016	620.0
	2/18/2017	630.0
	5/22/2017	600.0
	7/17/2017	720.0
	10/31/2017	660.0

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Table 1. Coffeen GMF Gypsum Stack Pond: Appendix III Analytical Results

11:46:22 AM

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
R201	11/23/2015	<0.01000	85.00	37.00	0.3770	7.270	150.0
	2/12/2016	0.01400	120.0	75.00	0.3980	7.040	240.0
	5/10/2016	<0.01000	120.0	85.00	0.4470	6.970	260.0
	7/30/2016	<0.01000	120.0	85.00	0.3680	7.060	260.0
	11/18/2016	<0.01000	81.00	39.00	0.4940	7.190	160.0
	2/11/2017	<0.01000	100.0	79.00	0.2850	7.140	230.0
	5/18/2017	0.01100	120.0	74.00	0.3540	7.200	300.0
	7/13/2017	0.01000	120.0	81.00	0.2840	7.010	250.0
	10/28/2017	0.01700	93.00	30.00	0.3800	7.140	89.00

Table 1. Coffeen GMF Gypsum Stack Pond: Appendix III Analytical Results

11:46:22 AM

Location ID	Sample Date	TDS, mg/L
R201	11/23/2015	560.0
	2/12/2016	740.0
	5/10/2016	840.0
	7/30/2016	750.0
	11/18/2016	580.0
	2/11/2017	900.0
	5/18/2017	820.0
	7/13/2017	780.0
	10/28/2017	660.0

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Table 2. Coffeen GMF Gypsum Stack Pond: Appendix IV Analytical Results

11:46:30 AM

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
G200	11/23/2015	0.007000	0.1700	<0.001000	<0.001000	0.006800	0.01200
	2/12/2016	0.008200	0.2400	0.001300	<0.001000	0.007400	0.01300
	5/10/2016	0.002500	0.1300	<0.001000	<0.001000	<0.002000	0.004100
	7/30/2016	<0.001000	0.05900	<0.001000	<0.001000	<0.002000	0.004900
	11/18/2016	<0.001000	0.05300	<0.001000	<0.001000	<0.002000	<0.004000
	2/10/2017	<0.001000	0.07400	<0.001000	<0.001000	<0.002000	0.005200
	5/18/2017	<0.001000	0.06300	<0.001000	<0.001000	<0.002000	<0.004000
	7/13/2017	<0.001000	0.05700	<0.001000	<0.001000	<0.002000	<0.004000
G206	11/18/2015	0.003900	0.06200	<0.001000	<0.001000	<0.002000	0.004100
	2/24/2016	<0.001000	0.05600	<0.001000	<0.001000	<0.002000	<0.004000
	6/27/2016	0.001200	0.06200	<0.001000	<0.001000	<0.002000	<0.004000
	8/6/2016	0.002000	0.06400	<0.001000	<0.001000	<0.002000	0.004200
	11/22/2016	<0.001000	0.04800	<0.001000	<0.001000	<0.002000	<0.004000
	12/7/2016						
	2/11/2017	<0.001000	0.05200	<0.001000	<0.001000	<0.002000	<0.004000
	5/18/2017	<0.001000	0.04300	<0.001000	<0.001000	<0.002000	<0.004000
	7/15/2017	0.001900	0.05500	<0.001000	<0.001000	<0.002000	<0.004000
G209	11/18/2015	0.002100	0.07200	<0.001000	<0.001000	<0.002000	<0.004000

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Table 2. Coffeen GMF Gypsum Stack Pond: Appendix IV Analytical Results

11:46:30 AM

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
G200	11/23/2015	0.3370	<0.0002000	0.01900	0.001700	0.01000	1.650
	2/12/2016	0.4150	<0.0002000	0.02100	<0.001000	0.01800	3.840
	5/10/2016	0.3890	<0.0002000	<0.01000	<0.001000	0.005800	0.8490
	7/30/2016	0.3840	<0.0002000	<0.01000	<0.001000	0.001200	0.6620
	11/18/2016	0.4310	<0.0002000	<0.01000	<0.001000	<0.001000	0.2900
	2/10/2017	0.3050	<0.0002000	<0.01000	<0.001000	0.001300	0.5340
	5/18/2017	0.3000	<0.0002000	<0.01000	<0.001000	<0.001000	1.010
	7/13/2017	0.2990	<0.0002000	<0.01000	<0.001000	<0.001000	0.9060
G206	11/18/2015	0.4330	<0.0002000	<0.01000	<0.001000	<0.001000	0.3170
	2/24/2016	0.5070	<0.0002000	<0.01000	0.001400	<0.001000	0.2920
	6/27/2016	0.4690	<0.0002000	<0.01000	0.002500	<0.001000	0.6470
	8/6/2016	0.4490	<0.0002000	<0.01000	0.002400	0.002200	0.8570
	11/22/2016	0.4630	<0.0002000	<0.01000	0.001500	<0.001000	
	12/7/2016						1.620
	2/11/2017	0.5470	<0.0002000	<0.01000	0.001300	<0.001000	1.200
	5/18/2017	<0.2500	<0.0002000	<0.01000	0.001100	<0.001000	0.5550
	7/15/2017	0.4530	<0.0002000	<0.01000	<0.001000	<0.001000	1.330
G209	11/18/2015	0.3980	<0.0002000	<0.01000	0.002300	<0.001000	0.4690

Table 2. Coffeen GMF Gypsum Stack Pond: Appendix IV Analytical Results

11:46:30 AM

Location ID	Sample Date			
		Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
G200	11/23/2015	<0.003000	0.004100	<0.001000
	2/12/2016	<0.003000	0.009700	<0.001000
	5/10/2016	<0.003000	0.007100	<0.001000
	7/30/2016	<0.003000	0.003200	<0.001000
	11/18/2016	<0.003000	0.003200	<0.001000
	2/10/2017	<0.003000	0.006700	<0.001000
	5/18/2017	<0.003000	0.006200	<0.001000
	7/13/2017	<0.003000	0.003400	<0.001000
G206	11/18/2015	<0.003000	<0.001000	<0.001000
	2/24/2016	<0.003000	<0.001000	<0.001000
	6/27/2016	<0.003000	<0.001000	<0.001000
	8/6/2016	<0.003000	<0.001000	<0.001000
	11/22/2016	<0.003000	<0.001000	<0.001000
	12/7/2016			
	2/11/2017	<0.003000	<0.001000	<0.001000
	5/18/2017	<0.003000	<0.001000	<0.001000
	7/15/2017	<0.003000	<0.001000	<0.001000
G209	11/18/2015	<0.003000	0.003600	<0.001000

Table 2. Coffeen GMF Gypsum Stack Pond: Appendix IV Analytical Results

11:46:30 AM

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
G209	2/23/2016	<0.001000	0.06600	<0.001000	<0.001000	<0.002000	<0.004000
	5/11/2016	<0.001000	0.06100	<0.001000	<0.001000	<0.002000	<0.004000
	8/6/2016	0.001700	0.06500	<0.001000	<0.001000	<0.002000	<0.004000
	11/22/2016	0.002200	0.04500	<0.001000	<0.001000	<0.002000	<0.004000
	2/11/2017	<0.001000	0.07000	<0.001000	<0.001000	<0.002000	<0.004000
	5/18/2017	0.002900	0.07700	<0.001000	<0.001000	<0.002000	<0.004000
	7/15/2017	0.005700	0.06300	<0.001000	<0.001000	<0.002000	<0.004000
G212	11/18/2015	<0.001000	0.05200	<0.001000	<0.001000	<0.002000	<0.004000
	2/19/2016	<0.001000	0.05000	<0.001000	<0.001000	<0.002000	<0.004000
	5/11/2016	<0.001000	0.05000	<0.001000	<0.001000	<0.002000	<0.004000
	8/6/2016	<0.001000	0.05900	<0.001000	<0.001000	<0.002000	0.004000
	11/23/2016	<0.001000	0.04900	<0.001000	<0.001000	<0.002000	<0.004000
	12/7/2016						
	2/15/2017	0.001000	0.05800	<0.001000	<0.001000	<0.002000	<0.004000
	5/22/2017	<0.001000	0.06100	<0.001000	<0.001000	<0.002000	<0.004000
	7/15/2017	<0.001000	0.05200	<0.001000	<0.001000	<0.002000	<0.004000
G215	11/24/2015	0.1100	0.2300	<0.001000	<0.001000	0.002800	<0.004000
	2/18/2016	0.003400	0.09500	<0.001000	<0.001000	<0.002000	<0.004000

Coffeen

January 12, 2018

Table 2. Coffeen GMF Gypsum Stack Pond: Appendix IV Analytical Results

11:46:30 AM

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
G209	2/23/2016	0.4750	<0.0002000	<0.01000	0.001500	<0.001000	0.9030
	5/11/2016	0.4610	<0.0002000	<0.01000	0.001500	<0.001000	1.480
	8/6/2016	0.4680	<0.0002000	<0.01000	0.001800	<0.001000	0.6730
	11/22/2016	0.4200	<0.0002000	<0.01000	<0.001000	<0.001000	0.8320
	2/11/2017	0.3580	<0.0002000	<0.01000	0.002700	<0.001000	0.1030
	5/18/2017	0.2630	<0.0002000	<0.01000	0.001900	0.001200	1.310
	7/15/2017	0.4370	<0.0002000	<0.01000	<0.001000	<0.001000	0.6020
G212	11/18/2015	0.3400	<0.0002000	<0.01000	0.001500	<0.001000	0.1320
	2/19/2016	0.3390	<0.0002000	<0.01000	<0.001000	<0.001000	0.5820
	5/11/2016	0.4210	<0.0002000	<0.01000	<0.001000	<0.001000	0.7590
	8/6/2016	0.3690	<0.0002000	<0.01000	0.001200	0.001600	0.9920
	11/23/2016	0.3990	<0.0002000	<0.01000	<0.001000	<0.001000	
	12/7/2016						1.640
	2/15/2017	0.3690	<0.0002000	<0.01000	<0.001000	0.001000	0.4880
	5/22/2017	0.3720	<0.0002000	<0.01000	0.001100	<0.001000	0.7290
	7/15/2017	0.3770	<0.0002000	<0.01000	<0.001000	<0.001000	0.6540
G215	11/24/2015	0.3400	<0.0002000	<0.01000	0.001100	0.003900	2.420
	2/18/2016	0.3590	<0.0002000	<0.01000	<0.001000	<0.001000	0.8520

Table 2. Coffeen GMF Gypsum Stack Pond: Appendix IV Analytical Results

11:46:30 AM

Location ID	Sample Date			
		Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
G209	2/23/2016	<0.003000	<0.001000	<0.001000
	5/11/2016	<0.003000	<0.001000	<0.001000
	8/6/2016	<0.003000	<0.001000	<0.001000
	11/22/2016	<0.003000	<0.001000	<0.001000
	2/11/2017	<0.003000	<0.001000	<0.001000
	5/18/2017	<0.003000	<0.001000	0.001000
	7/15/2017	<0.003000	<0.001000	<0.001000
G212	11/18/2015	<0.003000	0.003700	<0.001000
	2/19/2016	<0.003000	0.004800	<0.001000
	5/11/2016	<0.003000	0.004100	<0.001000
	8/6/2016	<0.003000	0.004000	<0.001000
	11/23/2016	<0.003000	0.004300	<0.001000
	12/7/2016			
	2/15/2017	<0.003000	0.004100	<0.001000
	5/22/2017	<0.003000	0.003900	<0.001000
	7/15/2017	<0.003000	0.004600	<0.001000
G215	11/24/2015	<0.003000	<0.001000	<0.001000
	2/18/2016	<0.003000	<0.001000	<0.001000

Table 2. Coffeen GMF Gypsum Stack Pond: Appendix IV Analytical Results

11:46:30 AM

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
G215	5/11/2016	0.006800	0.08800	<0.001000	<0.001000	<0.002000	<0.004000
	7/30/2016	0.01300	0.09600	<0.001000	<0.001000	<0.002000	<0.004000
	11/23/2016	0.008600	0.08200	<0.001000	<0.001000	<0.002000	<0.004000
	12/7/2016						
	2/18/2017	0.01200	0.09500	<0.001000	<0.001000	<0.002000	<0.004000
	5/22/2017	0.03600	0.1500	<0.001000	<0.001000	<0.002000	<0.004000
	7/15/2017	0.04400	0.1300	<0.001000	<0.001000	<0.002000	<0.004000
G218	11/24/2015	0.008400	0.1700	<0.001000	<0.001000	<0.002000	0.01000
	2/19/2016	0.001800	0.1500	<0.001000	<0.001000	<0.002000	<0.004000
	5/10/2016	0.001500	0.1400	<0.001000	<0.001000	<0.002000	<0.004000
	7/30/2016	0.001100	0.1500	<0.001000	<0.001000	<0.002000	<0.004000
	11/23/2016	0.001400	0.1300	<0.001000	<0.001000	<0.002000	<0.004000
	12/7/2016						
	2/18/2017	0.001100	0.1300	<0.001000	<0.001000	<0.002000	<0.004000
	5/22/2017	<0.001000	0.1500	<0.001000	<0.001000	<0.002000	<0.004000
	7/17/2017	<0.001000	0.1400	<0.001000	<0.001000	<0.002000	<0.004000
R201	11/23/2015	<0.001000	0.07800	<0.001000	0.001200	<0.002000	<0.004000
	2/12/2016	0.01000	0.08400	0.006700	<0.001000	<0.002000	<0.004000

Coffeen

January 12, 2018

Table 2. Coffeen GMF Gypsum Stack Pond: Appendix IV Analytical Results

11:46:30 AM

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
G215	5/11/2016	0.4630	<0.0002000	<0.01000	<0.001000	<0.001000	0.4680
	7/30/2016	0.4320	<0.0002000	<0.01000	<0.001000	<0.001000	0.02160
	11/23/2016	0.4290	<0.0002000	<0.01000	<0.001000	<0.001000	
	12/7/2016						1.580
	2/18/2017	0.3690	<0.0002000	<0.01000	<0.001000	<0.001000	0.3440
	5/22/2017	<0.2500	<0.0002000	<0.01000	<0.001000	<0.001000	1.240
	7/15/2017	0.4230	<0.0002000	<0.01000	<0.001000	<0.001000	1.010
G218	11/24/2015	0.3000	<0.0002000	<0.01000	0.001500	<0.001000	1.230
	2/19/2016	0.3110	<0.0002000	<0.01000	<0.001000	<0.001000	1.280
	5/10/2016	0.4390	<0.0002000	<0.01000	<0.001000	<0.001000	0.6010
	7/30/2016	0.3820	<0.0002000	<0.01000	<0.001000	<0.001000	0.5430
	11/23/2016	0.3730	<0.0002000	<0.01000	<0.001000	<0.001000	
	12/7/2016						0.8500
	2/18/2017	0.3080	<0.0002000	<0.01000	<0.001000	<0.001000	0.7790
	5/22/2017	<0.2500	<0.0002000	<0.01000	<0.001000	<0.001000	0.9750
R201	7/17/2017	0.3570	<0.0002000	<0.01000	<0.001000	<0.001000	0.7040
R201	11/23/2015	0.3770	<0.0002000	<0.01000	0.006900	<0.001000	0.2020
	2/12/2016	0.3980	<0.0002000	<0.01000	0.001000	<0.001000	0.5430

Table 2. Coffeen GMF Gypsum Stack Pond: Appendix IV Analytical Results

11:46:30 AM

Location ID	Sample Date			
		Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
G215	5/11/2016	0.004500	0.002400	<0.001000
	7/30/2016	<0.003000	<0.001000	<0.001000
	11/23/2016	<0.003000	<0.001000	<0.001000
	12/7/2016			
	2/18/2017	<0.003000	<0.001000	<0.001000
	5/22/2017	<0.003000	<0.001000	<0.001000
	7/15/2017	<0.003000	<0.001000	<0.001000
G218	11/24/2015	<0.003000	<0.001000	<0.001000
	2/19/2016	<0.003000	<0.001000	<0.001000
	5/10/2016	<0.003000	<0.001000	<0.001000
	7/30/2016	<0.003000	<0.001000	<0.001000
	11/23/2016	<0.003000	<0.001000	<0.001000
	12/7/2016			
	2/18/2017	<0.003000	<0.001000	<0.001000
	5/22/2017	<0.003000	<0.001000	<0.001000
	7/17/2017	<0.003000	<0.001000	<0.001000
R201	11/23/2015	<0.003000	<0.001000	<0.001000
	2/12/2016	<0.003000	0.009100	<0.001000

Table 2. Coffeen GMF Gypsum Stack Pond: Appendix IV Analytical Results

11:46:30 AM

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
R201	5/10/2016	<0.001000	0.08400	<0.001000	<0.001000	<0.002000	<0.004000
	7/30/2016	0.003100	0.09200	<0.001000	<0.001000	<0.002000	<0.004000
	11/18/2016	0.001300	0.05800	<0.001000	<0.001000	<0.002000	<0.004000
	2/11/2017	0.002800	0.08600	<0.001000	<0.001000	<0.002000	<0.004000
	5/18/2017	0.002300	0.08700	<0.001000	<0.001000	<0.002000	<0.004000
	7/13/2017	0.003700	0.1700	<0.001000	<0.001000	<0.002000	<0.004000

Table 2. Coffeen GMF Gypsum Stack Pond: Appendix IV Analytical Results

11:46:30 AM

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
R201	5/10/2016	0.4470	<0.0002000	<0.01000	<0.001000	<0.001000	1.120
	7/30/2016	0.3680	<0.0002000	<0.01000	<0.001000	<0.001000	0.6970
	11/18/2016	0.4940	<0.0002000	<0.01000	<0.001000	<0.001000	0.05500
	2/11/2017	0.2850	<0.0002000	<0.01000	<0.001000	<0.001000	1.020
	5/18/2017	0.3540	<0.0002000	<0.01000	<0.001000	<0.001000	1.510
	7/13/2017	0.2840	<0.0002000	<0.01000	<0.001000	<0.001000	2.750

Table 2. Coffeen GMF Gypsum Stack Pond: Appendix IV Analytical Results

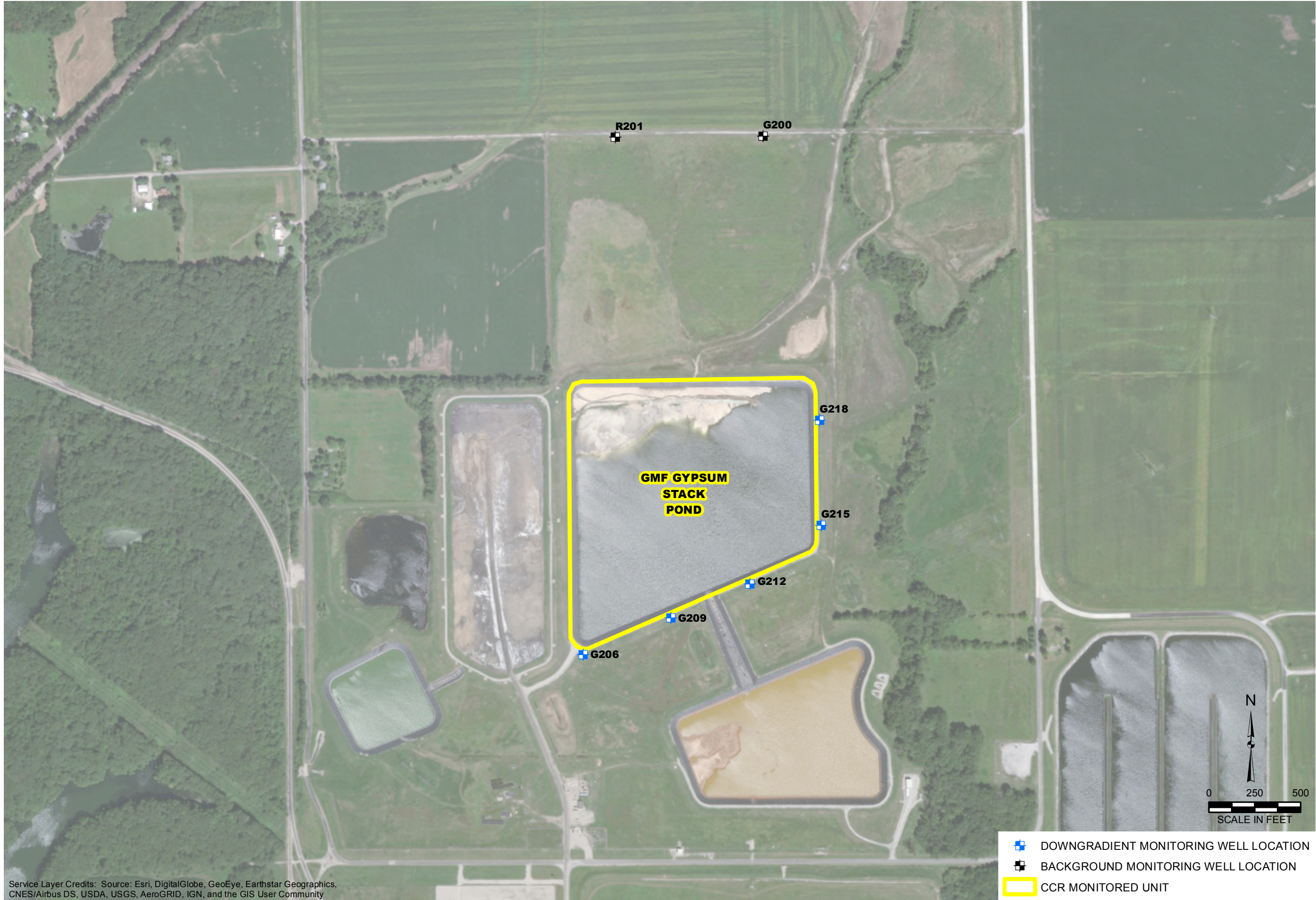
11:46:30 AM

Location ID	Sample Date			
		Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
R201	5/10/2016	<0.003000	<0.001000	<0.001000
	7/30/2016	<0.003000	<0.001000	<0.001000
	11/18/2016	<0.003000	<0.001000	<0.001000
	2/11/2017	<0.003000	<0.001000	<0.001000
	5/18/2017	<0.003000	<0.001000	<0.001000
	7/13/2017	<0.003000	<0.001000	<0.001000



Figures

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DRAWN BY/DATE:
SDS 12/11/17
REVIEWED BY/DATE:
KLT 12/11/17
APPROVED BY/DATE:
SJC 1/25/18

GROUNDWATER SAMPLING WELL LOCATION MAP
COFFEEN GMF GYPSUM STACK POND
UNIT ID: 103
2017 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
DYNEGY CCR RULE GROUNDWATER MONITORING
COFFEEN POWER STATION
COFFEEN, ILLINOIS

PROJECT NO: 67719

FIGURE NO: 1



OBG

THERE'S A WAY

