2017 Annual Groundwater Monitoring and Corrective Action Report

Coffeen Landfill – CCR Unit ID 105
Coffeen Power Station
134 Cips Lane
Coffeen, Illinois 62017

Illinois Power Generating Company

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OBG

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Coffeen Landfill – CCR Unit ID 105
Coffeen Power Station
Coffeen, Illinois

Prepared for:
Illinois Power Generating Company

KRISTEN L. THEESFELD
Hydrogeologist

ERIC J. TLACHAC, PE
Senior Engineer

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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 Landfill 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 Landfill 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 25-28, 2017, for which analytical data was received on November 10, 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 Landfill 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 Landfill.

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 9-17, May 18-23, July 9-14, and October 25-28. 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 October 25-28, 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 8, 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 October 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 Landfill, 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

Table 1. Coffeen Landfill: 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
G102	11/16/2015	<0.01000	78.00	88.00	0.2910	6.910	140.0
	2/17/2016	0.01400	59.00	19.00	0.3280	7.540	64.00
	5/16/2016	0.01000	42.00	3.800	0.5250	7.170	53.00
	8/2/2016	0.01400	69.00	42.00	0.3830	7.190	86.00
	11/19/2016	<0.01000	77.00	40.00	0.3890	7.140	95.00
	2/9/2017	0.01900	62.00	6.400	0.4190	7.140	55.00
	5/22/2017	<0.01000	40.00	4.000	0.4260	7.190	51.00
	7/9/2017	0.01700	83.00	45.00	0.2700	7.190	98.00
	10/25/2017	0.01400	56.00	54.00	0.3660	7.120	130.0
G106	11/17/2015	<0.01000	80.00	26.00	0.3940	7.070	56.00
	2/17/2016	<0.01000	82.00	30.00	0.3710	7.210	56.00
	5/16/2016	<0.01000	84.00	25.00	0.5280	7.110	58.00
	8/4/2016	<0.01000	80.00	27.00	0.5040	6.950	58.00
	11/19/2016	<0.01000	86.00	29.00	0.4650	7.040	43.00
	2/9/2017	0.01200	73.00	28.00	0.4620	6.950	63.00
	5/22/2017	<0.01000	68.00	30.00	0.4400	7.120	67.00
	7/9/2017	<0.01000	84.00	29.00	0.3660	7.000	60.00
	10/25/2017	<0.01000	72.00	48.00	0.4700	7.300	45.00

Table 1. Coffeen Landfill: Appendix III Analytical Results

Location ID	Sample Date	TDS, mg/L
G102	11/16/2015	600.0
	2/17/2016	400.0
	5/16/2016	310.0
	8/2/2016	400.0
	11/19/2016	490.0
	2/9/2017	370.0
	5/22/2017	300.0
	7/9/2017	440.0
	10/25/2017	540.0
G106	11/17/2015	380.0
	2/17/2016	440.0
	5/16/2016	380.0
	8/4/2016	420.0
	11/19/2016	440.0
	2/9/2017	420.0
	5/22/2017	380.0
	7/9/2017	380.0
	10/25/2017	410.0

Table 1. Coffeen Landfill: 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
G110	11/17/2015	<0.01000	89.00	43.00	0.4270	7.050	80.00
	2/17/2016	<0.01000	90.00	45.00	0.3350	7.070	76.00
	5/16/2016	<0.01000	90.00	40.00	0.5160	6.910	76.00
	8/4/2016	0.02500	100.0	43.00	0.4560	6.940	80.00
	11/19/2016	<0.01000	86.00	46.00	0.4720	6.740	84.00
	2/17/2017	<0.01000	86.00	42.00	0.3920	6.850	80.00
	5/23/2017	<0.01000	77.00	43.00	0.4230	7.140	83.00
	7/14/2017	<0.01000	90.00	48.00	0.4420	6.910	79.00
	10/26/2017	<0.01000	75.00	43.00	0.4970	6.810	82.00
G120	11/18/2015	<0.01000	84.00	100.0	0.3180	7.280	47.00
	2/18/2016	<0.01000	84.00	97.00	0.3040	7.270	44.00
	5/17/2016	<0.01000	87.00	93.00	0.4900	7.100	37.00
	8/4/2016	<0.01000	83.00	91.00	0.3770	7.120	44.00
	11/20/2016	<0.01000	88.00	110.0	0.4520	7.170	35.00
	2/17/2017	<0.01000	78.00	95.00	0.3340	7.170	37.00
	5/23/2017	<0.01000	73.00	95.00	0.3680	7.200	39.00
	7/9/2017	0.01000	82.00	98.00	0.3080	7.050	36.00
	10/26/2017	<0.01000	81.00	100.0	0.4310	7.120	34.00

Table 1. Coffeen Landfill: Appendix III Analytical Results

Location ID	Sample Date	TDS, mg/L
G110	11/17/2015	440.0
	2/17/2016	480.0
	5/16/2016	440.0
	8/4/2016	470.0
	11/19/2016	480.0
	2/17/2017	450.0
	5/23/2017	440.0
	7/14/2017	440.0
	10/26/2017	520.0
G120	11/18/2015	420.0
	2/18/2016	440.0
	5/17/2016	380.0
	8/4/2016	460.0
	11/20/2016	540.0
	2/17/2017	460.0
	5/23/2017	380.0
	7/9/2017	380.0
	10/26/2017	500.0

Table 1. Coffeen Landfill: 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
G125	11/17/2015	<0.01000	71.00	86.00	0.4110	7.080	67.00
	2/18/2016	<0.01000	74.00	88.00	0.3740	7.520	61.00
	5/17/2016	<0.01000	80.00	94.00	0.5160	7.100	69.00
	8/4/2016	<0.01000	64.00	90.00	0.4790	7.010	70.00
	11/20/2016	<0.01000	67.00	86.00	0.5370	7.090	73.00
	2/9/2017	<0.01000	63.00	92.00	0.4100	7.100	68.00
	5/23/2017	<0.01000	61.00	95.00	0.4380	6.870	71.00
	7/9/2017	<0.01000	60.00	86.00	0.3780	7.030	66.00
	10/26/2017	<0.01000	62.00	87.00	0.5020	6.940	67.00
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

Table 1. Coffeen Landfill: Appendix III Analytical Results

Location ID	Sample Date	TDS, mg/L
G125	11/17/2015	420.0
	2/18/2016	440.0
	5/17/2016	440.0
	8/4/2016	460.0
	11/20/2016	510.0
	2/9/2017	500.0
	5/23/2017	380.0
	7/9/2017	390.0
	10/26/2017	490.0
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

Table 1. Coffeen Landfill: 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
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
T127	11/18/2015	<0.01000	98.00	59.00	0.4460	7.080	110.0
	2/18/2016	<0.01000	85.00	53.00	0.4390	7.290	92.00
	5/17/2016	<0.01000	79.00	51.00	0.5900	7.130	95.00
	8/5/2016	0.01300	92.00	54.00	0.4660	7.060	95.00
	11/20/2016	<0.01000	85.00	56.00	0.5910	7.190	97.00
	2/17/2017	<0.01000	74.00	53.00	0.4780	7.210	95.00
	5/23/2017	<0.01000	76.00	54.00	0.5040	6.910	100.0
	7/14/2017	<0.01000	72.00	63.00	0.4870	7.090	98.00
	10/26/2017	<0.01000	70.00	53.00	0.5570	7.070	93.00

Table 1. Coffeen Landfill: Appendix III Analytical Results

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
T127	11/18/2015	500.0
	2/18/2016	500.0
	5/17/2016	440.0
	8/5/2016	500.0
	11/20/2016	540.0
	2/17/2017	480.0
	5/23/2017	460.0
	7/14/2017	520.0
	10/26/2017	530.0

Table 2. Coffeen Landfill: 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
G102	11/16/2015	<0.001000	0.06900	<0.001000	<0.001000	<0.002000	0.01500
	2/17/2016	<0.001000	0.03800	<0.001000	<0.001000	<0.002000	<0.004000
	5/16/2016	<0.001000	0.02900	<0.001000	<0.001000	<0.002000	<0.004000
	8/2/2016	<0.001000	0.04400	<0.001000	<0.001000	<0.002000	<0.004000
	11/19/2016	<0.001000	0.05200	<0.001000	<0.001000	<0.002000	<0.004000
	2/9/2017	0.006300	0.09400	<0.001000	<0.001000	0.005700	0.03200
	5/22/2017	<0.001000	0.03600	<0.001000	<0.001000	<0.002000	<0.004000
	7/9/2017	0.006800	0.1100	<0.001000	<0.001000	0.005800	0.02900
G106	11/17/2015	<0.001000	0.06000	<0.001000	<0.001000	<0.002000	<0.004000
	2/17/2016	<0.001000	0.05400	<0.001000	<0.001000	<0.002000	<0.004000
	5/16/2016	<0.001000	0.05500	<0.001000	<0.001000	<0.002000	<0.004000
	8/4/2016	<0.001000	0.05600	<0.001000	<0.001000	<0.002000	<0.004000
	11/19/2016	0.001300	0.06700	<0.001000	<0.001000	<0.002000	<0.004000
	2/9/2017	0.001100	0.05700	<0.001000	<0.001000	<0.002000	<0.004000
	5/22/2017	0.001500	0.07800	<0.001000	<0.001000	0.003800	<0.004000
	7/9/2017	0.001200	0.05200	<0.001000	<0.001000	<0.002000	<0.004000
G110	11/17/2015	<0.001000	0.06800	<0.001000	<0.001000	<0.002000	<0.004000
	2/17/2016	<0.001000	0.05600	<0.001000	<0.001000	<0.002000	<0.004000

Table 2. Coffeen Landfill: 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
G102	11/16/2015	0.2910	<0.0002000	<0.01000	<0.001000	<0.001000	1.110
	2/17/2016	0.3280	<0.0002000	<0.01000	<0.001000	<0.001000	1.760
	5/16/2016	0.5250	<0.0002000	<0.01000	0.001200	<0.001000	0.06160
	8/2/2016	0.3830	<0.0002000	<0.01000	<0.001000	<0.001000	2.030
	11/19/2016	0.3890	<0.0002000	<0.01000	<0.001000	<0.001000	0.8600
	2/9/2017	0.4190	<0.0002000	0.01600	0.001700	0.007900	1.160
	5/22/2017	0.4260	<0.0002000	<0.01000	<0.001000	<0.001000	0.7730
	7/9/2017	0.2700	<0.0002000	0.01600	0.001300	0.009700	0.7800
G106	11/17/2015	0.3940	<0.0002000	<0.01000	0.001800	<0.001000	0.8150
	2/17/2016	0.3710	<0.0002000	<0.01000	0.002100	<0.001000	0.7010
	5/16/2016	0.5280	<0.0002000	<0.01000	0.001900	<0.001000	0.2440
	8/4/2016	0.5040	<0.0002000	<0.01000	0.002500	<0.001000	0.4000
	11/19/2016	0.4650	<0.0002000	<0.01000	<0.001000	<0.001000	0.9230
	2/9/2017	0.4620	<0.0002000	<0.01000	0.002400	<0.001000	1.200
	5/22/2017	0.4400	<0.0002000	<0.01000	0.002800	<0.001000	0.5330
	7/9/2017	0.3660	<0.0002000	<0.01000	0.001800	<0.001000	1.930
G110	11/17/2015	0.4270	<0.0002000	<0.01000	<0.001000	0.001300	1.190
	2/17/2016	0.3350	<0.0002000	<0.01000	<0.001000	<0.001000	0.5850

Table 2. Coffeen Landfill: Appendix IV Analytical Results

Location ID	Sample Date	Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
G102	11/16/2015	<0.003000	0.002500	<0.001000
	2/17/2016	<0.003000	0.001200	<0.001000
	5/16/2016	<0.003000	0.001200	<0.001000
	8/2/2016	<0.003000	0.003200	<0.001000
	11/19/2016	<0.003000	0.002800	<0.001000
	2/9/2017	<0.003000	0.001300	<0.001000
	5/22/2017	<0.003000	<0.001000	<0.001000
	7/9/2017	<0.003000	0.003000	<0.001000
G106	11/17/2015	<0.003000	0.002000	<0.001000
	2/17/2016	<0.003000	0.001900	<0.001000
	5/16/2016	<0.003000	0.001900	<0.001000
	8/4/2016	<0.003000	0.001900	<0.001000
	11/19/2016	<0.003000	<0.001000	<0.001000
	2/9/2017	<0.003000	<0.001000	<0.001000
	5/22/2017	<0.003000	<0.001000	<0.001000
	7/9/2017	<0.003000	<0.001000	<0.001000
G110	11/17/2015	<0.003000	<0.001000	<0.001000
	2/17/2016	<0.003000	<0.001000	<0.001000

Table 2. Coffeen Landfill: 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
G110	5/16/2016	<0.001000	0.05800	<0.001000	<0.001000	<0.002000	<0.004000
	8/4/2016	0.005900	0.1300	<0.001000	<0.001000	0.006200	0.02000
	11/19/2016	<0.001000	0.06000	<0.001000	<0.001000	<0.002000	<0.004000
	2/17/2017	0.001700	0.07200	<0.001000	<0.001000	<0.002000	0.007700
	5/23/2017	0.001100	0.07000	<0.001000	<0.001000	<0.002000	<0.004000
	7/14/2017	0.005500	0.1100	<0.001000	<0.001000	0.005400	0.01600
G120	11/18/2015	<0.001000	0.03200	<0.001000	<0.001000	<0.002000	<0.004000
	2/18/2016	<0.001000	0.03000	<0.001000	<0.001000	<0.002000	<0.004000
	5/17/2016	<0.001000	0.04200	<0.001000	<0.001000	<0.002000	<0.004000
	8/4/2016	<0.001000	0.03800	<0.001000	<0.001000	<0.002000	<0.004000
	11/20/2016	<0.001000	0.06600	<0.001000	<0.001000	<0.002000	<0.004000
	2/17/2017	<0.001000	0.05400	<0.001000	<0.001000	<0.002000	<0.004000
	5/23/2017	<0.001000	0.06200	<0.001000	<0.001000	<0.002000	<0.004000
	7/9/2017	<0.001000	0.06200	<0.001000	<0.001000	<0.002000	0.004700
G125	11/17/2015	<0.001000	0.06200	<0.001000	<0.001000	<0.002000	0.005000
	2/18/2016	<0.001000	0.05900	<0.001000	<0.001000	<0.002000	<0.004000
	5/17/2016	<0.001000	0.06100	<0.001000	<0.001000	<0.002000	<0.004000
	8/4/2016	<0.001000	0.06500	<0.001000	<0.001000	<0.002000	<0.004000

Table 2. Coffeen Landfill: 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
G110	5/16/2016	0.5160	<0.0002000	<0.01000	<0.001000	<0.001000	0.3730
	8/4/2016	0.4560	<0.0002000	0.01700	0.001000	0.008900	1.140
	11/19/2016	0.4720	<0.0002000	<0.01000	<0.001000	<0.001000	0.5780
	2/17/2017	0.3920	<0.0002000	0.01100	<0.001000	0.002100	1.640
	5/23/2017	0.4230	<0.0002000	<0.01000	<0.001000	0.001000	0.6870
	7/14/2017	0.4420	<0.0002000	0.01300	<0.001000	0.009300	0.5790
G120	11/18/2015	0.3180	<0.0002000	<0.01000	<0.001000	0.001100	0.1290
	2/18/2016	0.3040	<0.0002000	<0.01000	<0.001000	<0.001000	0.06150
	5/17/2016	0.4900	<0.0002000	<0.01000	0.001000	<0.001000	0.4800
	8/4/2016	0.3770	<0.0002000	<0.01000	<0.001000	<0.001000	0.5330
	11/20/2016	0.4520	<0.0002000	<0.01000	0.001500	<0.001000	0.3080
	2/17/2017	0.3340	<0.0002000	<0.01000	0.001100	<0.001000	0.2610
	5/23/2017	0.3680	<0.0002000	<0.01000	<0.001000	<0.001000	1.010
	7/9/2017	0.3080	<0.0002000	<0.01000	0.001200	0.001300	0.6040
G125	11/17/2015	0.4110	<0.0002000	<0.01000	0.001100	<0.001000	0.2600
	2/18/2016	0.3740	<0.0002000	<0.01000	<0.001000	<0.001000	0.4840
	5/17/2016	0.5160	<0.0002000	<0.01000	<0.001000	<0.001000	0.3870
	8/4/2016	0.4790	<0.0002000	<0.01000	0.001200	<0.001000	1.720

Table 2. Coffeen Landfill: Appendix IV Analytical Results

Location ID	Sample Date	Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
G110	5/16/2016	<0.003000	<0.001000	<0.001000
	8/4/2016	<0.003000	<0.001000	<0.001000
	11/19/2016	<0.003000	<0.001000	<0.001000
	2/17/2017	<0.003000	<0.001000	<0.001000
	5/23/2017	<0.003000	<0.001000	<0.001000
	7/14/2017	<0.003000	<0.001000	<0.001000
G120	11/18/2015	<0.003000	<0.001000	<0.001000
	2/18/2016	<0.003000	<0.001000	<0.001000
	5/17/2016	<0.003000	<0.001000	<0.001000
	8/4/2016	<0.003000	<0.001000	<0.001000
	11/20/2016	<0.003000	<0.001000	<0.001000
	2/17/2017	<0.003000	<0.001000	<0.001000
	5/23/2017	<0.003000	<0.001000	<0.001000
	7/9/2017	<0.003000	<0.001000	<0.001000
G125	11/17/2015	<0.003000	0.002000	<0.001000
	2/18/2016	<0.003000	0.002200	<0.001000
	5/17/2016	<0.003000	0.002200	<0.001000
	8/4/2016	<0.003000	0.001800	<0.001000

Table 2. Coffeen Landfill: 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
G125	11/20/2016	<0.001000	0.07400	<0.001000	<0.001000	<0.002000	<0.004000
	2/9/2017	<0.001000	0.07000	<0.001000	<0.001000	<0.002000	<0.004000
	5/23/2017	<0.001000	0.07400	<0.001000	<0.001000	<0.002000	<0.004000
	7/9/2017	<0.001000	0.06700	<0.001000	<0.001000	<0.002000	<0.004000
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
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
	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

Table 2. Coffeen Landfill: 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
G125	11/20/2016	0.5370	<0.0002000	<0.01000	0.001200	<0.001000	1.140
	2/9/2017	0.4100	<0.0002000	<0.01000	0.001100	<0.001000	0.2430
	5/23/2017	0.4380	<0.0002000	<0.01000	<0.001000	<0.001000	0.2910
	7/9/2017	0.3780	<0.0002000	<0.01000	<0.001000	<0.001000	0.8840
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
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
	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

Table 2. Coffeen Landfill: Appendix IV Analytical Results

Location ID	Sample Date	Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
G125	11/20/2016	<0.003000	0.001600	<0.001000
	2/9/2017	<0.003000	0.001400	<0.001000
	5/23/2017	<0.003000	0.001500	<0.001000
	7/9/2017	<0.003000	0.001300	<0.001000
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
R201	11/23/2015	<0.003000	<0.001000	<0.001000
	2/12/2016	<0.003000	0.009100	<0.001000
	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

Table 2. Coffeen Landfill: 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
R201	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
T127	11/18/2015	0.002000	0.07900	<0.001000	<0.001000	0.002300	0.006600
	2/18/2016	<0.001000	0.06100	<0.001000	<0.001000	<0.002000	<0.004000
	5/17/2016	<0.001000	0.05200	<0.001000	<0.001000	<0.002000	<0.004000
	8/5/2016	0.003500	0.09100	<0.001000	<0.001000	0.003400	0.009900
	11/20/2016	<0.001000	0.06200	<0.001000	<0.001000	<0.002000	<0.004000
	2/17/2017	<0.001000	0.05500	<0.001000	<0.001000	<0.002000	<0.004000
	5/23/2017	<0.001000	0.06800	<0.001000	<0.001000	<0.002000	<0.004000
	7/14/2017	<0.001000	0.06600	<0.001000	<0.001000	<0.002000	<0.004000

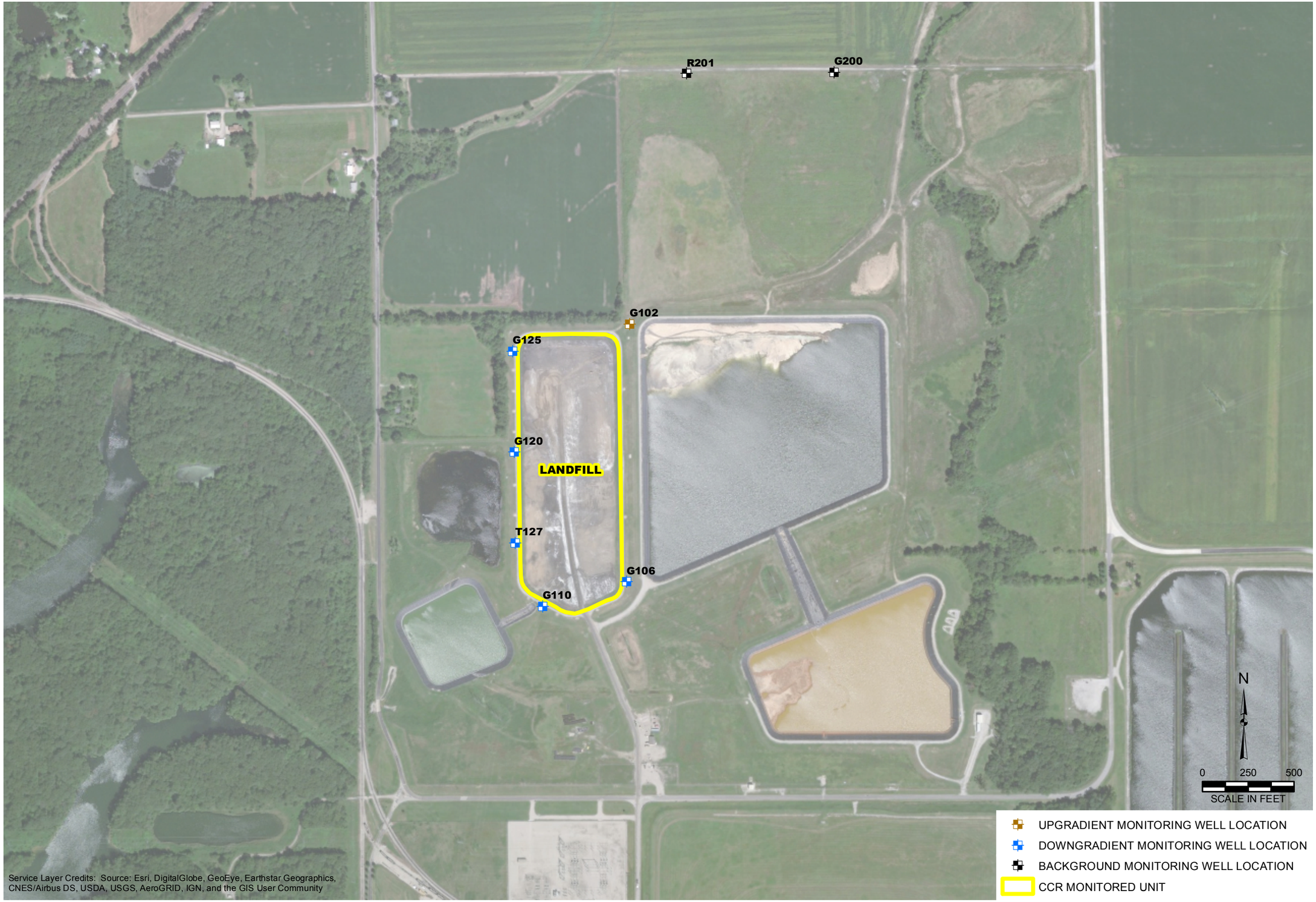
Table 2. Coffeen Landfill: Appendix IV Analytical Results

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
R201	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
T127	11/18/2015	0.4460	<0.0002000	0.01300	0.002200	0.002900	0.2460
	2/18/2016	0.4390	<0.0002000	<0.01000	<0.001000	<0.001000	0.2090
	5/17/2016	0.5900	<0.0002000	<0.01000	<0.001000	<0.001000	0.0
	8/5/2016	0.4660	<0.0002000	<0.01000	0.001000	0.005100	1.210
	11/20/2016	0.5910	<0.0002000	<0.01000	<0.001000	<0.001000	1.070
	2/17/2017	0.4780	<0.0002000	<0.01000	<0.001000	<0.001000	0.2510
	5/23/2017	0.5040	<0.0002000	<0.01000	0.001700	<0.001000	0.5000
	7/14/2017	0.4870	<0.0002000	<0.01000	0.001300	<0.001000	0.7610

Table 2. Coffeen Landfill: Appendix IV Analytical Results

Location ID	Sample Date	Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
R201	5/18/2017	<0.003000	<0.001000	<0.001000
	7/13/2017	<0.003000	<0.001000	<0.001000
T127	11/18/2015	<0.003000	<0.001000	<0.001000
	2/18/2016	<0.003000	<0.001000	<0.001000
	5/17/2016	<0.003000	<0.001000	<0.001000
	8/5/2016	<0.003000	<0.001000	<0.001000
	11/20/2016	<0.003000	<0.001000	<0.001000
	2/17/2017	<0.003000	<0.001000	<0.001000
	5/23/2017	<0.003000	<0.001000	<0.001000
	7/14/2017	<0.003000	<0.001000	<0.001000

Figures



GROUNDWATER SAMPLING WELL LOCATION MAP
COFFEEN LANDFILL
UNIT ID: 105

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

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

PROJECT NO: 67719

FIGURE NO: 1

OBG

THERE'S A WAY