

2017 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

**Pleasant Prairie Power Plant Ash Landfill
Pleasant Prairie, WI**

We Energies

January 31, 2018



JANUARY 31, 2018 | PROJECT #67985

2017 Annual Groundwater Monitoring and Corrective Action Report

Pleasant Prairie Power Plant Ash Landfill

Pleasant Prairie, Wisconsin

Prepared for:

WEC Business Services, LLC
333 W. Everett Street
Milwaukee, WI



KRISTEN L. THEESFELD
Hydrogeologist



GLENN R. LUKE, PE
Managing Engineer

TABLE OF CONTENTS

TABLES	ii
FIGURES	ii
ACRONYMS AND ABBREVIATIONS	iii
1 INTRODUCTION	1
1.1 Overview	1
1.2 Monitoring and Corrective Action Program Status	1
2 KEY ACTIONS COMPLETED IN 2017	2
2.1 Summary.....	2
2.2 Problems Encountered and Actions to Resolve Problems	2
3 KEY ACTIVITIES PLANNED FOR 2018	3
3.1 Summary.....	3
REFERENCES	4



TABLES

Table 1	Pleasant Prairie Power Plant Ash Landfill: Appendix III Analytical Results
Table 2	Pleasant Prairie Power Plant Ash Landfill: Appendix IV Analytical Results

FIGURES

Figure 1	Groundwater Sampling Well Location Map
----------	--

ACRONYMS AND ABBREVIATIONS

CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
mg/L	milligrams per liter
OBG	O'Brien & Gere Engineers, Inc.
P4	Pleasant Prairie Power Plant
SSI	Statistically Significant Increase
STD	standard units

1 INTRODUCTION

1.1 OVERVIEW

This report has been prepared on behalf of We Energies by O'Brien & Gere Engineers, Inc. (OBG), to provide the information required by Title 40 of the Code of Federal Regulations (40 CFR) Part 257.90(e) for the Pleasant Prairie Power Plant (P4) Ash Landfill located in Pleasant Prairie, Wisconsin.

In accordance with 40 CFR 257.90(e), the owner or operator of an existing coal combustion residual (CCR) unit must prepare an annual groundwater monitoring and corrective action report (Annual Report) for the preceding calendar year. The Annual Report must document the status of the groundwater monitoring and corrective action program for the CCR unit and summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project 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 40 CFR 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); and
- (5) Other information required to be included in the annual report as specified in 40 CFR 257.90 through 257.98.¹

This report provides the required information for the P4 Ash 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 before October 17, 2017. The other five independent samples were collected and analyzed in 2015 and 2016.

The collection of eight independent background samples was completed by October 17, 2017. The first semi-annual monitoring sample for the Detection Monitoring Program for Appendix III parameters was collected on October 23-24, 2017 from each well; the analytical data was received on November 15, 2017. Determination of statistically significant increases (SSI) of Appendix III parameters over background concentrations will be completed within 90 days of completing the sample analysis, but not later than January 15, 2018.

¹ For calendar year 2017, corrective action and other information required to be included in the annual report as specified in 40CFR 257.90 through 257.98 is not applicable.

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 (upgradient) and downgradient monitoring wells with well identification numbers, for the P4 Ash 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 (Natural Resource Technology, Inc., 2015) prepared for the P4 Ash 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 January 11, April 11, August 31, and October 23. 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 23-24, 2017 was initiated and will be completed within 90 days of October 17, 2017 (January 15, 2018). Statistical evaluation of analytical data is being performed in accordance with the Statistical Analysis Plan, P4 Ash Landfill (Natural Resource Technology, an OBG Company, 2017).

2.2 PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE 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) will apply in 2018, including associated recordkeeping/notifications required by 40 CFR 257.105 through 257.108.

REFERENCES

Natural Resource Technology, Inc., 2015, Sampling and Analysis Plan Revision 1, Pleasant Prairie Power Plant Ash Landfill, Pleasant Prairie, Wisconsin, December 8, 2015.

Natural Resource Technology, an OBG Company, 2017, Statistical Analysis Plan, Pleasant Prairie Power Plant Ash Landfill, Pleasant Prairie, Wisconsin, October 17, 2017.



Tables

Pleasant Prairie
Table 1. Pleasant Prairie Power Plant Ash Landfill: Appendix III Analytical Results

Date Range: 12/02/2015 to 10/25/2017

Well Id	Date Sampled	Lab Id	B, tot, mg/L	Ca, tot, mg/L	Cl, tot, mg/L	F, tot, mg/L	pH (field), STD	SO4, tot, mg/L
W17BR	12/03/2015	40125664010	0.5900	13.500	11.400	1.400	8.200	30.700
	01/25/2016	40127593005	0.5850	13.600	11.400	1.400	8.040	28.100
	04/14/2016	40130923011	0.6680	15.200	11.100	1.400	7.900	28.100
	07/12/2016	40135262002	0.6260	13.900	11.600	1.300	7.900	28.900
	10/12/2016	40140105006	0.6210	13.200	11.100	1.400	8.600	26.500
	01/11/2017	40144447006	0.5560	12.000	10.800	1.400	8.420	25.300
	04/11/2017	40148263007	0.6300	12.000	10.700	1.500	8.540	25.300
	08/31/2017	40156109006	0.6500	12.700	11.000	1.500	8.020	25.100
	10/23/2017	40159525007	0.6530	12.000	11.500	1.500	8.290	25.000
W20B	12/02/2015	40125664002	0.2860	54.800	14.300	0.770	7.600	95.700
	01/25/2016	40127593002	0.2870	47.500	13.800	0.840	7.450	93.400
	04/13/2016	40130923006	0.3200	57.800	10.400	0.840	10.000	74.500
	07/13/2016	40135283003	0.3010	60.800	17.200	0.720	7.100	108.000
	10/12/2016	40140105002	0.3070	91.300	23.400	0.740	7.500	125.000
	01/10/2017	40144447002	0.2720	58.900	16.900	0.900	7.570	108.000
	04/10/2017	40148263002	0.3000	52.400	13.500	0.800	7.680	93.100
	08/31/2017	40156109002	0.3100	63.600	18.400	0.830	6.990	57.000
	10/23/2017	40159525002	0.3390	85.700	28.700	0.770	7.200	161.000
W20D	12/02/2015	40125664001	0.4040	36.200	20.700	0.880	7.800	198.000
	01/25/2016	40127593001	0.3910	32.700	18.700	0.990	7.660	195.000
	04/13/2016	40130923005	0.4500	36.800	16.600	0.990	9.600	188.000
	07/13/2016	40135283002	0.4190	33.400	17.100	0.940	7.400	188.000
	10/12/2016	40140105001	0.4250	34.000	14.200	1.000	7.900	174.000
	01/10/2017	40144447001	0.3880	29.000	14.700	1.100	7.800	175.000
	04/10/2017	40148263001	0.4200	29.400	12.700	1.000	7.750	183.000
	08/31/2017	40156109001	0.4400	27.900	11.300	1.100	7.400	72.200
	10/23/2017	40159525001	0.4470	26.500	11.800	1.100	7.650	184.000
W31B	12/03/2015	40125664006	0.0872	86.700	33.700	0.370	7.500	118.000
	01/26/2016	40127593007	0.0796	84.700	34.000	0.380	7.420	121.000
	04/14/2016	40130923010	0.0933	94.300	32.300	0.380	7.400	113.000
	07/12/2016	40135262006	0.0844	84.900	33.200	0.350	7.200	115.000
	10/12/2016	40140105004	0.0924	98.400	40.800	0.330	7.600	119.000
	01/11/2017	40144447009	0.0798	88.400	42.000	0.280	7.540	131.000
	04/10/2017	40148263004	0.0960	86.200	35.400	0.300	7.590	123.000
	08/31/2017	40156109003	0.0990	91.300	40.500	0.400	6.970	61.600
	10/24/2017	40159525009	0.0932	91.200	38.900	<0.500	7.070	127.000

Pleasant Prairie
Table 1. Pleasant Prairie Power Plant Ash Landfill: Appendix III Analytical Results

Date Range: 12/02/2015 to 10/25/2017

			B, tot, mg/L	Ca, tot, mg/L	Cl, tot, mg/L	F, tot, mg/L	pH (field), STD	SO4, tot, mg/L
W73	12/02/2015	40125664005	0.4180	27.300	10.400	0.990	8.200	123.000
	01/25/2016	40127593006	0.4220	46.000	10.700	1.100	7.970	128.000
	04/14/2016	40130923007	0.4640	29.800	11.000	1.100	8.300	120.000
	07/13/2016	40135283001	0.4370	18.800	10.400	1.000	8.100	117.000
	10/12/2016	40140105010	0.4470	35.300	10.900	0.990	8.500	124.000
	01/11/2017	40144447010	0.4010	20.000	10.600	1.000	7.970	134.000
	04/11/2017	40148263011	0.4300	25.600	10.400	1.000	8.500	128.000
	08/31/2017	40156109010	0.4600	26.000	10.900	1.100	8.190	116.000
	10/24/2017	40159525011	0.4630	25.800	11.200	0.950	8.360	127.000
	W74	12/03/2015	40125664007	0.3670	34.700	22.100	0.870	7.900
01/26/2016		40127593011	0.3700	33.600	21.100	0.950	7.270	145.000
04/13/2016		40130923004	0.4080	31.500	18.300	0.960	8.800	139.000
07/12/2016		40135262008	0.3820	26.000	15.900	0.950	7.200	141.000
10/12/2016		40140105009	0.3890	23.700	13.400	0.990	8.200	152.000
01/10/2017		40144447011	0.3590	22.500	13.000	1.100	8.110	163.000
04/11/2017		40148263010	0.3800	21.200	13.900	1.100	8.220	157.000
08/31/2017		40156109009	0.4000	20.300	12.700	1.100	7.550	136.000
10/23/2017		40159525003	0.4070	19.500	13.800	1.200	7.750	162.000
W75		12/03/2015	40125664008	0.4100	28.900	24.300	0.910	8.200
	01/26/2016	40127593010	0.4170	30.100	24.500	0.950	7.550	197.000
	04/13/2016	40130923003	0.4480	29.500	20.600	0.960	8.800	179.000
	07/12/2016	40135262005	0.4220	24.700	16.200	0.910	7.500	157.000
	10/12/2016	40140105008	0.4250	23.700	14.000	0.950	8.500	155.000
	01/10/2017	40144447003	0.3750	21.300	13.500	1.000	8.240	147.000
	04/11/2017	40148263009	0.4200	22.600	12.100	1.000	8.440	148.000
	08/31/2017	40156109008	0.4300	20.500	10.600	1.100	7.860	132.000
	10/23/2017	40159525004	0.4430	19.900	10.800	1.000	8.060	145.000
	W76	12/03/2015	40125664011	0.4240	20.000	18.300	1.000	8.200
01/26/2016		40127593008	0.4310	20.600	16.400	1.000	7.660	140.000
04/13/2016		40130923002	0.4630	20.900	14.100	1.000	9.500	130.000
07/12/2016		40135262003	0.4360	18.800	12.400	0.980	7.500	125.000
10/12/2016		40140105007	0.4430	19.500	12.600	0.940	8.700	135.000
01/11/2017		40144447007	0.3950	18.200	11.200	1.000	8.400	142.000
04/11/2017		40148263008	0.4200	18.000	10.900	1.000	8.580	135.000
08/31/2017		40156109007	0.4500	18.100	10.700	1.100	8.060	122.000
10/23/2017	40159525006	0.4460	17.600	10.800	1.100	7.760	135.000	

Pleasant Prairie
Table 1. Pleasant Prairie Power Plant Ash Landfill: Appendix III Analytical Results

Date Range: 12/02/2015 to 10/25/2017

			B, tot, mg/L	Ca, tot, mg/L	Cl, tot, mg/L	F, tot, mg/L	pH (field), STD	SO4, tot, mg/L
W77	12/03/2015	40125664009	0.3730	33.800	19.600	0.850	7.600	157.000
	01/25/2016	40127593003	0.3780	34.800	18.900	0.870	7.290	156.000
	04/13/2016	40130923001	0.4000	34.000	16.900	0.920	8.400	149.000
	07/12/2016	40135262001	0.4160	31.100	14.800	0.910	7.300	139.000
	10/12/2016	40140105005	0.4150	30.700	13.800	0.970	7.900	142.000
	01/11/2017	40144447005	0.3650	27.700	13.200	1.000	7.630	143.000
	04/10/2017	40148263005	0.4100	27.300	12.000	1.000	7.700	143.000
	08/31/2017	40156109004	0.4300	26.000	11.200	1.100	7.190	67.700
	10/24/2017	40159525010	0.4320	25.500	11.000	1.100	7.710	142.000

Pleasant Prairie
Table 1. Pleasant Prairie Power Plant Ash Landfill: Appendix III Analytical Results

Date Range: 12/02/2015 to 10/25/2017

Well Id	Date Sampled	Lab Id	TDS, mg/L
W17BR	12/03/2015	40125664010	168.000
	01/25/2016	40127593005	172.000
	04/14/2016	40130923011	208.000
	07/12/2016	40135262002	202.000
	10/12/2016	40140105006	178.000
	01/11/2017	40144447006	178.000
	04/11/2017	40148263007	184.000
	08/31/2017	40156109006	182.000
	10/23/2017	40159525007	172.000
W20B	12/02/2015	40125664002	410.000
	01/25/2016	40127593002	362.000
	04/13/2016	40130923006	362.000
	07/13/2016	40135283003	458.000
	10/12/2016	40140105002	502.000
	01/10/2017	40144447002	412.000
	04/10/2017	40148263002	382.000
	08/31/2017	40156109002	450.000
	10/23/2017	40159525002	510.000
W20D	12/02/2015	40125664001	452.000
	01/25/2016	40127593001	410.000
	04/13/2016	40130923005	428.000
	07/13/2016	40135283002	464.000
	10/12/2016	40140105001	424.000
	01/10/2017	40144447001	406.000
	04/10/2017	40148263001	398.000
	08/31/2017	40156109001	396.000
	10/23/2017	40159525001	382.000
W31B	12/03/2015	40125664006	530.000
	01/26/2016	40127593007	512.000
	04/14/2016	40130923010	546.000
	07/12/2016	40135262006	572.000
	10/12/2016	40140105004	528.000
	01/11/2017	40144447009	522.000
	04/10/2017	40148263004	530.000
	08/31/2017	40156109003	536.000
	10/24/2017	40159525009	530.000

Pleasant Prairie
Table 1. Pleasant Prairie Power Plant Ash Landfill: Appendix III Analytical Results

Date Range: 12/02/2015 to 10/25/2017

			TDS, mg/L
W73	12/02/2015	40125664005	310.000
	01/25/2016	40127593006	306.000
	04/14/2016	40130923007	318.000
	07/13/2016	40135283001	328.000
	10/12/2016	40140105010	324.000
	01/11/2017	40144447010	280.000
	04/11/2017	40148263011	336.000
	08/31/2017	40156109010	328.000
	10/24/2017	40159525011	308.000
W74	12/03/2015	40125664007	384.000
	01/26/2016	40127593011	360.000
	04/13/2016	40130923004	388.000
	07/12/2016	40135262008	376.000
	10/12/2016	40140105009	346.000
	01/10/2017	40144447011	340.000
	04/11/2017	40148263010	360.000
	08/31/2017	40156109009	372.000
	10/23/2017	40159525003	348.000
W75	12/03/2015	40125664008	438.000
	01/26/2016	40127593010	432.000
	04/13/2016	40130923003	430.000
	07/12/2016	40135262005	416.000
	10/12/2016	40140105008	362.000
	01/10/2017	40144447003	298.000
	04/11/2017	40148263009	358.000
	08/31/2017	40156109008	356.000
	10/23/2017	40159525004	330.000
W76	12/03/2015	40125664011	334.000
	01/26/2016	40127593008	330.000
	04/13/2016	40130923002	366.000
	07/12/2016	40135262003	360.000
	10/12/2016	40140105007	336.000
	01/11/2017	40144447007	306.000
	04/11/2017	40148263008	334.000
	08/31/2017	40156109007	336.000
	10/23/2017	40159525006	318.000

Pleasant Prairie
Table 1. Pleasant Prairie Power Plant Ash Landfill: Appendix III Analytical Results

Date Range: 12/02/2015 to 10/25/2017

			TDS, mg/L
W77	12/03/2015	40125664009	410.000
	01/25/2016	40127593003	396.000
	04/13/2016	40130923001	412.000
	07/12/2016	40135262001	428.000
	10/12/2016	40140105005	388.000
	01/11/2017	40144447005	386.000
	04/10/2017	40148263005	382.000
	08/31/2017	40156109004	384.000
	10/24/2017	40159525010	372.000

Pleasant Prairie
Table 2. Pleasant Prairie Power Plant Ash Landfill: Appendix IV Analytical Results

Date Range: 12/02/2015 to 10/17/2017

Well Id	Date Sampled	Lab Id	As, tot, mg/L	Ba, tot, mg/L	Be, tot, mg/L	Cd,tot, mg/L	Co, tot, mg/L	Cr, tot, mg/L
W17BR	12/03/2015	40125664010	0.000940	0.014800	<0.000680	<0.001000	<0.001300	<0.00150
	01/25/2016	40127593005	0.000930	0.014100	<0.000680	<0.001000	<0.001300	<0.00150
	04/14/2016	40130923011	0.000760	0.015400	<0.000680	<0.001000	<0.001300	<0.00150
	07/12/2016	40135262002	0.000840	0.012400	<0.000680	<0.001000	<0.001300	<0.00150
	10/12/2016	40140105006	0.000940	0.011800	<0.001200	<0.001300	<0.001400	<0.00250
	01/11/2017	40144447006	0.000970	0.010600	<0.001200	<0.001300	<0.001400	<0.00250
	04/11/2017	40148263007	0.000930	0.011400	<0.001200	<0.001300	<0.001400	<0.00250
	08/31/2017	40156109006	0.000830	0.012000	<0.001200	<0.001300	<0.001400	<0.00250
W20B	12/02/2015	40125664002	0.006500	0.073400	<0.000680	<0.001000	0.001400	0.00570
	01/25/2016	40127593002	0.005400	0.064200	<0.000680	<0.001000	<0.001300	<0.00150
	04/13/2016	40130923006	0.007700	0.080100	<0.000680	<0.001000	<0.001300	0.00630
	07/13/2016	40135283003	0.005100	0.068300	<0.000680	<0.001000	<0.001300	0.00240
	10/12/2016	40140105002	0.004200	0.075700	<0.001200	<0.001300	<0.001400	0.00460
	01/10/2017	40144447002	0.004700	0.058300	<0.001200	<0.001300	<0.001400	<0.00250
	04/10/2017	40148263002	0.006500	0.057600	<0.001200	<0.001300	<0.001400	0.00260
	08/31/2017	40156109002	0.003900	0.060900	<0.001200	<0.001300	<0.001400	<0.00250
W20D	12/02/2015	40125664001	0.000660	0.049000	<0.000680	<0.001000	<0.001300	0.00190
	01/25/2016	40127593001	0.000660	0.042100	<0.000680	<0.001000	<0.001300	<0.00150
	04/13/2016	40130923005	0.000480	0.046500	<0.000680	<0.001000	<0.001300	0.00180
	07/13/2016	40135283002	0.000500	0.041000	<0.000680	<0.001000	<0.001300	<0.00150
	10/12/2016	40140105001	0.001100	0.041900	<0.001200	<0.001300	<0.001400	<0.00250
	01/10/2017	40144447001	0.000790	0.035800	<0.001200	<0.001300	<0.001400	<0.00250
	04/10/2017	40148263001	0.000800	0.035800	<0.001200	<0.001300	<0.001400	<0.00250
	08/31/2017	40156109001	0.000430	0.035100	<0.001200	<0.001300	<0.001400	<0.00250
W31B	12/03/2015	40125664006	<0.000110	0.148000	<0.000680	<0.001000	<0.001300	<0.00150
	01/26/2016	40127593007	<0.000099	0.127000	<0.000680	<0.001000	<0.001300	<0.00150
	04/14/2016	40130923010	<0.000099	0.144000	<0.000680	<0.001000	<0.001300	<0.00150
	07/12/2016	40135262006	0.000110	0.122000	<0.000680	<0.001000	<0.001300	<0.00150
	10/12/2016	40140105004	0.000160	0.140000	<0.001200	<0.001300	<0.001400	<0.00250
	01/11/2017	40144447009	0.000280	0.127000	<0.001200	<0.001300	<0.001400	<0.00250
	04/10/2017	40148263004	<0.000099	0.136000	<0.001200	<0.001300	<0.001400	<0.00250
	08/31/2017	40156109003	<0.000280	0.141000	<0.001200	<0.001300	<0.001400	<0.00250
W73	12/02/2015	40125664005	0.000650	0.045600	<0.000680	<0.001000	0.001600	0.00690
	01/25/2016	40127593006	0.001700	0.057800	<0.000680	<0.001000	0.002100	0.00680
	04/14/2016	40130923007	0.000670	0.041000	<0.000680	<0.001000	<0.001300	0.00500
	07/13/2016	40135283001	0.000450	0.042000	<0.000680	<0.001000	<0.001300	<0.00150

Pleasant Prairie
Table 2. Pleasant Prairie Power Plant Ash Landfill: Appendix IV Analytical Results

Date Range: 12/02/2015 to 10/17/2017

			As, tot, mg/L	Ba, tot, mg/L	Be, tot, mg/L	Cd,tot, mg/L	Co, tot, mg/L	Cr, tot, mg/L
W73	10/12/2016	40140105010	0.001000	0.036600	<0.001200	<0.001300	<0.001400	0.00500
	01/11/2017	40144447010	0.000470	0.021200	<0.001200	<0.001300	<0.001400	<0.00250
	04/11/2017	40148263011	0.000690	0.034500	<0.001200	<0.001300	<0.001400	0.00310
	08/31/2017	40156109010	0.000670	0.032400	<0.001200	<0.001300	<0.001400	<0.00250
W74	12/03/2015	40125664007	0.001600	0.045700	<0.000680	<0.001000	<0.001300	0.00210
	01/26/2016	40127593011	0.002700	0.041100	<0.000680	<0.001000	<0.001300	<0.00150
	04/13/2016	40130923004	0.001900	0.034500	<0.000680	<0.001000	<0.001300	0.00190
	07/12/2016	40135262008	0.001300	0.028600	<0.000680	<0.001000	<0.001300	<0.00150
	10/12/2016	40140105009	0.001500	0.025300	<0.001200	<0.001300	<0.001400	<0.00250
	01/10/2017	40144447011	0.001400	0.023800	<0.001200	<0.001300	<0.001400	<0.00250
	04/11/2017	40148263010	0.001300	0.022400	<0.001200	<0.001300	<0.001400	<0.00250
	08/31/2017	40156109009	0.001200	0.022700	<0.001200	<0.001300	<0.001400	<0.00250
W75	12/03/2015	40125664008	0.001100	0.032700	<0.000680	<0.001000	<0.001300	<0.00150
	01/26/2016	40127593010	0.001200	0.032000	<0.000680	<0.001000	<0.001300	<0.00150
	04/13/2016	40130923003	0.000920	0.030700	<0.000680	<0.001000	<0.001300	0.00180
	07/12/2016	40135262005	0.000850	0.027700	<0.000680	<0.001000	<0.001300	<0.00150
	10/12/2016	40140105008	0.000810	0.027400	<0.001200	<0.001300	<0.001400	<0.00250
	01/10/2017	40144447003	0.000620	0.023600	<0.001200	<0.001300	<0.001400	<0.00250
	04/11/2017	40148263009	0.000850	0.025800	<0.001200	<0.001300	<0.001400	<0.00250
	08/31/2017	40156109008	0.000500	0.023700	<0.001200	<0.001300	<0.001400	<0.00250
W76	12/03/2015	40125664011	0.001300	0.034400	<0.000680	<0.001000	<0.001300	0.00190
	01/26/2016	40127593008	0.001300	0.030300	<0.000680	<0.001000	<0.001300	<0.00150
	04/13/2016	40130923002	0.000900	0.030300	<0.000680	<0.001000	<0.001300	<0.00150
	07/12/2016	40135262003	0.000900	0.026100	<0.000680	<0.001000	<0.001300	<0.00150
	10/12/2016	40140105007	0.000880	0.025800	<0.001200	<0.001300	<0.001400	<0.00250
	01/11/2017	40144447007	0.000680	0.023400	<0.001200	<0.001300	<0.001400	<0.00250
	04/11/2017	40148263008	0.000810	0.024200	<0.001200	<0.001300	<0.001400	<0.00250
	08/31/2017	40156109007	0.000670	0.025100	<0.001200	<0.001300	<0.001400	<0.00250
W77	12/03/2015	40125664009	0.000720	0.044900	<0.000680	<0.001000	<0.001300	<0.00150
	01/25/2016	40127593003	0.000770	0.042200	<0.000680	<0.001000	<0.001300	<0.00150
	04/13/2016	40130923001	0.000450	0.043000	<0.000680	<0.001000	<0.001300	0.00420
	07/12/2016	40135262001	0.000610	0.039800	<0.000680	<0.001000	<0.001300	<0.00150
	10/12/2016	40140105005	0.000630	0.037200	<0.001200	<0.001300	<0.001400	<0.00250
	01/11/2017	40144447005	0.000770	0.031000	<0.001200	<0.001300	<0.001400	<0.00250
	04/10/2017	40148263005	0.000690	0.032200	<0.001200	<0.001300	<0.001400	<0.00250
	08/31/2017	40156109004	0.000410	0.031500	<0.001200	<0.001300	<0.001400	<0.00250

Pleasant Prairie
Table 2. Pleasant Prairie Power Plant Ash Landfill: Appendix IV Analytical Results

Date Range: 12/02/2015 to 10/17/2017

Well Id	Date Sampled	Lab Id	F, tot, mg/L	Hg, tot, mg/L	Li, tot, mg/L	Mo, tot, mg/L	Pb, tot, mg/L	Sb, tot, mg/L
W17BR	12/03/2015	40125664010	1.400	<0.00010	0.00160	0.144000	0.000350	<0.000066
	01/25/2016	40127593005	1.400	<0.00010	0.00250	0.150000	0.000440	<0.000073
	04/14/2016	40130923011	1.400	<0.00018	0.00190	0.160000	0.000430	0.000073
	07/12/2016	40135262002	1.300	<0.00013	0.00180	0.152000	0.000290	0.000076
	10/12/2016	40140105006	1.400	<0.00013	0.00220	0.154000	0.000084	<0.000073
	01/11/2017	40144447006	1.400	<0.00013	0.00190	0.140000	0.000086	<0.000073
	04/11/2017	40148263007	1.500	<0.00013	0.00210	0.150000	0.000130	<0.000073
	08/31/2017	40156109006	1.500	<0.00013	0.00200	0.160000	<0.000200	<0.000150
W20B	12/02/2015	40125664002	0.770	<0.00010	0.01370	0.026500	0.000970	<0.000066
	01/25/2016	40127593002	0.840	<0.00010	0.01380	0.027800	0.000150	<0.000073
	04/13/2016	40130923006	0.840	<0.00018	0.01570	0.031500	0.002000	<0.000073
	07/13/2016	40135283003	0.720	<0.00013	0.01650	0.026300	0.000710	<0.000073
	10/12/2016	40140105002	0.740	<0.00013	0.02050	0.027200	0.001900	0.000160
	01/10/2017	40144447002	0.900	<0.00013	0.01520	0.024600	0.000640	<0.000073
	04/10/2017	40148263002	0.800	<0.00013	0.01640	0.028000	0.000650	<0.000073
	08/31/2017	40156109002	0.830	<0.00013	0.01710	0.026000	0.000270	<0.000150
W20D	12/02/2015	40125664001	0.880	<0.00010	0.00900	0.086200	0.000260	0.000700
	01/25/2016	40127593001	0.990	<0.00010	0.01090	0.088000	0.000240	0.000880
	04/13/2016	40130923005	0.990	<0.00018	0.01030	0.102000	0.000190	0.000540
	07/13/2016	40135283002	0.940	<0.00013	0.00910	0.089800	0.000067	0.000260
	10/12/2016	40140105001	1.000	<0.00013	0.00950	0.093200	0.000580	0.000830
	01/10/2017	40144447001	1.100	<0.00013	0.00980	0.086700	0.000460	0.000580
	04/10/2017	40148263001	1.000	<0.00013	0.00940	0.093000	0.000470	0.000610
	08/31/2017	40156109001	1.100	<0.00013	0.01320	0.089000	<0.000200	0.000350
W31B	12/03/2015	40125664006	0.370	<0.00010	0.01050	0.006600	<0.000033	<0.000066
	01/26/2016	40127593007	0.380	<0.00010	0.01120	0.006500	0.000092	<0.000073
	04/14/2016	40130923010	0.380	<0.00018	0.00990	0.006900	0.000240	<0.000073
	07/12/2016	40135262006	0.350	<0.00013	0.01090	0.006000	0.000055	<0.000073
	10/12/2016	40140105004	0.330	<0.00013	0.01140	0.006500	0.000170	0.000160
	01/11/2017	40144447009	0.280	<0.00013	0.01040	0.005800	<0.000040	<0.000073
	04/10/2017	40148263004	0.300	<0.00013	0.01240	0.008000	0.000100	<0.000073
	08/31/2017	40156109003	0.400	<0.00013	0.01190	0.006200	<0.000200	<0.000150
W73	12/02/2015	40125664005	0.990	<0.00010	0.01370	0.100000	0.000780	<0.000066
	01/25/2016	40127593006	1.100	<0.00010	0.01990	0.102000	0.002500	<0.000073
	04/14/2016	40130923007	1.100	<0.00018	0.01480	0.114000	0.000940	<0.000073
	07/13/2016	40135283001	1.000	<0.00013	0.01240	0.103000	0.000049	<0.000073

Pleasant Prairie
Table 2. Pleasant Prairie Power Plant Ash Landfill: Appendix IV Analytical Results

Date Range: 12/02/2015 to 10/17/2017

			F, tot, mg/L	Hg, tot, mg/L	Li, tot, mg/L	Mo, tot, mg/L	Pb, tot, mg/L	Sb, tot, mg/L
W73	10/12/2016	40140105010	0.990	<0.00013	0.01770	0.109000	0.001100	<0.000073
	01/11/2017	40144447010	1.000	<0.00013	0.01310	0.099200	0.000150	<0.000073
	04/11/2017	40148263011	1.000	<0.00013	0.01780	0.100000	0.000830	<0.000073
	08/31/2017	40156109010	1.100	<0.00013	0.01670	0.110000	0.000710	<0.000150
W74	12/03/2015	40125664007	0.870	<0.00010	0.00190	0.136000	0.000410	0.000740
	01/26/2016	40127593011	0.950	<0.00010	0.00220	0.102000	0.000450	0.003000
	04/13/2016	40130923004	0.960	<0.00018	0.00180	0.109000	0.000120	0.000790
	07/12/2016	40135262008	0.950	<0.00013	0.00320	0.105000	0.000047	0.000280
	10/12/2016	40140105009	0.990	<0.00013	0.00530	0.107000	0.000045	0.000130
	01/10/2017	40144447011	1.100	<0.00013	0.00510	0.104000	<0.000040	<0.000073
	04/11/2017	40148263010	1.100	<0.00013	0.00530	0.110000	<0.000040	0.000095
	08/31/2017	40156109009	1.100	<0.00013	0.00690	0.110000	0.000200	0.000210
W75	12/03/2015	40125664008	0.910	<0.00010	0.01240	0.092900	0.000140	0.000110
	01/26/2016	40127593010	0.950	<0.00010	0.01300	0.103000	0.000410	0.000980
	04/13/2016	40130923003	0.960	<0.00018	0.01170	0.107000	0.000110	0.000130
	07/12/2016	40135262005	0.910	<0.00013	0.01250	0.099100	0.000076	0.000160
	10/12/2016	40140105008	0.950	<0.00013	0.01340	0.104000	<0.000040	<0.000073
	01/10/2017	40144447003	1.000	<0.00013	0.01180	0.095000	<0.000040	<0.000073
	04/11/2017	40148263009	1.000	<0.00013	0.01380	0.100000	0.000098	<0.000073
	08/31/2017	40156109008	1.100	<0.00013	0.01370	0.100000	<0.000200	<0.000150
W76	12/03/2015	40125664011	1.000	<0.00010	0.01120	0.101000	0.000210	<0.000066
	01/26/2016	40127593008	1.000	<0.00010	0.01270	0.108000	0.000170	0.000420
	04/13/2016	40130923002	1.000	<0.00018	0.01130	0.114000	0.000100	0.000100
	07/12/2016	40135262003	0.980	<0.00013	0.01280	0.100000	0.000270	<0.000073
	10/12/2016	40140105007	0.940	<0.00013	0.01440	0.104000	<0.000040	<0.000073
	01/11/2017	40144447007	1.000	<0.00013	0.01250	0.095200	<0.000040	<0.000073
	04/11/2017	40148263008	1.000	<0.00013	0.01520	0.097000	<0.000040	<0.000073
	08/31/2017	40156109007	1.100	<0.00013	0.01450	0.100000	<0.000200	<0.000150
W77	12/03/2015	40125664009	0.850	<0.00010	0.00160	0.092200	0.000071	0.000190
	01/25/2016	40127593003	0.870	<0.00010	0.00150	0.095800	0.000140	0.000280
	04/13/2016	40130923001	0.920	<0.00018	0.00130	0.106000	0.000110	0.000340
	07/12/2016	40135262001	0.910	<0.00013	0.00120	0.103000	0.000360	0.000260
	10/12/2016	40140105005	0.970	<0.00013	0.00120	0.103000	<0.000040	0.000120
	01/11/2017	40144447005	1.000	<0.00013	0.00200	0.090000	0.000260	0.000330
	04/10/2017	40148263005	1.000	<0.00013	0.00170	0.094000	<0.000040	<0.000073
	08/31/2017	40156109004	1.100	<0.00013	0.00130	0.099000	<0.000200	<0.000150

Pleasant Prairie
Table 2. Pleasant Prairie Power Plant Ash Landfill: Appendix IV Analytical Results

Date Range: 12/02/2015 to 10/17/2017

Well Id	Date Sampled	Lab Id	Ra 226+228, PCi/L	Se, tot, mg/L	Tl, tot, mg/L
W17BR	12/03/2015	40125664010	0.3770	<0.00016	<0.000018
	01/25/2016	40127593005	1.0900	<0.00021	<0.000140
	04/14/2016	40130923011	0.0000	<0.00021	<0.000140
	07/12/2016	40135262002	0.2240	<0.00021	<0.000140
	10/12/2016	40140105006	0.3670	<0.00021	<0.000140
	01/11/2017	40144447006	0.2990	<0.00021	<0.000140
	04/11/2017	40148263007	0.0714	<0.00021	<0.000140
	08/31/2017	40156109006	1.1400	<0.00032	<0.000140
W20B	12/02/2015	40125664002	0.0673	<0.00016	0.000029
	01/25/2016	40127593002	0.8840	<0.00021	0.000150
	04/13/2016	40130923006	0.4710	<0.00021	<0.000140
	07/13/2016	40135283003	0.0000	<0.00021	<0.000140
	10/12/2016	40140105002	0.6420	0.00052	0.000180
	01/10/2017	40144447002	0.1280	<0.00021	<0.000140
	04/10/2017	40148263002	1.0500	<0.00021	0.000170
	08/31/2017	40156109002	1.4600	<0.00032	<0.000140
W20D	12/02/2015	40125664001	0.9710	<0.00016	<0.000018
	01/25/2016	40127593001	1.4700	<0.00021	0.000200
	04/13/2016	40130923005	0.3090	<0.00021	<0.000140
	07/13/2016	40135283002	0.3990	<0.00021	<0.000140
	10/12/2016	40140105001	0.8330	0.00057	0.000490
	01/10/2017	40144447001	0.9790	0.00040	0.000550
	04/10/2017	40148263001	0.6360	0.00049	0.000630
	08/31/2017	40156109001	1.0100	<0.00032	0.000240
W31B	12/03/2015	40125664006	0.7050	<0.00016	<0.000018
	01/26/2016	40127593007	1.4500	<0.00021	<0.000140
	04/14/2016	40130923010	0.8400	<0.00021	<0.000140
	07/12/2016	40135262006	1.1000	<0.00021	<0.000140
	10/12/2016	40140105004	0.6940	<0.00021	0.000230
	01/11/2017	40144447009	0.8490	<0.00021	<0.000140
	04/10/2017	40148263004	1.5300	<0.00021	<0.000140
	08/31/2017	40156109003	1.7800	<0.00032	<0.000140
W73	12/02/2015	40125664005	1.1200	<0.00016	<0.000018
	01/25/2016	40127593006	1.4200	0.00047	<0.000140
	04/14/2016	40130923007	0.5410	<0.00021	<0.000140
	07/13/2016	40135283001	0.1300	<0.00021	<0.000140

Pleasant Prairie
Table 2. Pleasant Prairie Power Plant Ash Landfill: Appendix IV Analytical Results

Date Range: 12/02/2015 to 10/17/2017

			Ra 226+228, PCi/L	Se, tot, mg/L	Tl, tot, mg/L
W73	10/12/2016	40140105010	0.0509	0.00023	<0.000140
	01/11/2017	40144447010	0.1270	<0.00021	<0.000140
	04/11/2017	40148263011	1.1600	<0.00021	<0.000140
	08/31/2017	40156109010	0.5780	<0.00032	<0.000140
W74	12/03/2015	40125664007	1.3700	<0.00016	<0.000018
	01/26/2016	40127593011	1.0600	0.00026	0.000350
	04/13/2016	40130923004	0.9500	<0.00021	<0.000140
	07/12/2016	40135262008	0.2630	<0.00021	<0.000140
	10/12/2016	40140105009	0.6010	<0.00021	<0.000140
	01/10/2017	40144447011	0.1140	<0.00021	<0.000140
	04/11/2017	40148263010	0.3380	<0.00021	<0.000140
	08/31/2017	40156109009	0.6940	<0.00032	0.000380
W75	12/03/2015	40125664008	0.7240	<0.00016	<0.000018
	01/26/2016	40127593010	0.4110	<0.00021	<0.000140
	04/13/2016	40130923003	0.8950	<0.00021	<0.000140
	07/12/2016	40135262005	0.3190	<0.00021	0.000260
	10/12/2016	40140105008	0.3690	<0.00021	<0.000140
	01/10/2017	40144447003	0.9500	<0.00021	<0.000140
	04/11/2017	40148263009	0.8950	<0.00021	<0.000140
	08/31/2017	40156109008	0.4350	<0.00032	<0.000140
W76	12/03/2015	40125664011	1.0600	<0.00016	<0.000018
	01/26/2016	40127593008	0.5270	<0.00021	<0.000140
	04/13/2016	40130923002	0.5300	<0.00021	<0.000140
	07/12/2016	40135262003	0.2950	<0.00021	<0.000140
	10/12/2016	40140105007	0.0686	<0.00021	<0.000140
	01/11/2017	40144447007	0.5640	<0.00021	<0.000140
	04/11/2017	40148263008	0.6440	<0.00021	<0.000140
	08/31/2017	40156109007	1.0400	<0.00032	<0.000140
W77	12/03/2015	40125664009	0.5790	0.00018	<0.000018
	01/25/2016	40127593003	0.8840	<0.00021	0.000150
	04/13/2016	40130923001	0.7600	<0.00021	0.000160
	07/12/2016	40135262001	0.3130	<0.00021	<0.000140
	10/12/2016	40140105005	0.5530	<0.00021	<0.000140
	01/11/2017	40144447005	0.4290	0.00034	0.000320
	04/10/2017	40148263005	0.8630	<0.00021	<0.000140
	08/31/2017	40156109004	0.7760	<0.00032	<0.000140



Figures

Y:\GIS\Projects\161660\MXD\2017\agw\mca\Figure 1_GW_Samp_Well_Loc_P4.mxd Author: stolzsd; Date/Time: 1/29/2018, 5:05:20 PM



DRAWN BY/DATE:
SDS 1/17/18
REVIEWED BY/DATE:
GRL 1/17/18
APPROVED BY DATE:
GRL 1/29/18

GROUNDWATER SAMPLING WELL LOCATION MAP

2017 ANNUAL GROUNDWATER MONITORING AND
CORRECTIVE ACTION REPORT
WE ENERGIES P4 ASH LANDFILL
PLEASANT PRAIRIE, WISCONSIN

PROJECT NO: 67985

FIGURE NO: 1



OBG

THERE'S A WAY

