

2017 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

**Presque Isle Power Plant Ash Landfill No. 3
Marquette, MI**

We Energies

January 31, 2018



JANUARY 31, 2018 | PROJECT #67985

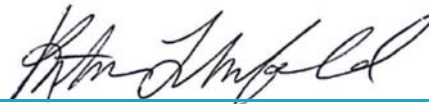
2017 Annual Groundwater Monitoring and Corrective Action Report

Presque Isle Power Plant Ash Landfill No. 3

Marquette, Michigan

Prepared for:

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



KRISTEN L. THEESFELD
Hydrogeologist



ERIC J. TLACHAC, PE
Senior 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	Presque Isle Power Plant Ash Landfill No. 3: Appendix III Analytical Results
Table 2	Presque Isle Power Plant Ash Landfill No. 3: 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.
PIPP	Presque Isle 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 Presque Isle Power Plant (PIPP) Landfill No. 3 located near Marquette, Michigan.

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 PIPP Ash Landfill No. 3 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 November 8, 2017 from each well; the analytical data was received on December 4, 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 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 (upgradient) and downgradient monitoring wells with well identification numbers, for the PIPP Ash Landfill No. 3 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 PIPP Ash Landfill No. 3.

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 14, May 4, August 8, and November 8. 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.

During the November 2, 2016 sampling event at upgradient monitoring well MW87, sample bottles for the analysis of total Chloride, Fluoride, and Sulfate were misplaced during transport to the analytical laboratory. MW87 was sampled again on November 10, 2016 to obtain samples for total Chloride, Fluoride, and Sulfate analyses. MW87 did not have a sufficient quantity of groundwater to facilitate sampling and analysis of all the required Appendix III and Appendix IV parameters during the February 14, 2017 sampling event. A sample and analysis result for Radium 226 and 228 was not obtained.

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 8, 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, PIPP Landfill No. 3 (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 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) 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, Presque Isle Power Plant Ash Landfill No. 3, Marquette, Michigan, December 8, 2015.

Natural Resource Technology, an OBG Company, 2017, Statistical Analysis Plan, Presque Isle Power Plant Ash Landfill No. 3, Marquette, Michigan, October 17, 2017.



Tables

Presque Isle
Table 1. Presque Isle Power Plant Ash Landfill No. 3: Appendix III Analytical Results

Date Range: 11/01/2015 to 11/08/2017

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
MW70	11/04/2015	40124163003	0.0183	33.700	2.400	<0.200	7.600	6.200
	02/02/2016	40127847001	0.0137	24.700	3.000	<0.200	7.900	7.200
	05/05/2016	40131961001	0.0273	49.200	2.600	<0.200	7.200	5.800
	08/04/2016	40136329001	0.0151	38.400	<2.000	<0.200	7.190	5.500
	11/02/2016	40141308001	0.0116	43.600	0.970	<0.100	7.900	5.700
	02/14/2017	40145701001	0.0130	30.900	1.500	<0.100	7.100	7.000
	05/04/2017	40149461001	0.0160	45.200	0.860	<0.100	6.700	4.700
	08/08/2017	40154700001	0.0130	37.400	1.200	<0.100	6.780	5.500
	11/08/2017	40160512001	0.0166	21.700	0.930	<0.100	6.410	6.600
MW79	11/04/2015	40124163008	0.0394	10.600	2.500	<0.200	5.200	14.700
	02/02/2016	40127847007	0.0355	16.200	3.500	<0.200	6.000	17.200
	05/05/2016	40131961002	0.0511	20.900	3.000	<0.200	5.400	50.600
	08/04/2016	40136329007	0.0435	15.400	2.400	<0.200	5.780	35.700
	11/02/2016	40141308007	0.0384	12.700	1.100	<0.100	5.900	22.700
	02/14/2017	40145703001	0.0310	18.000	2.200	<0.100	5.850	40.100
	05/04/2017	40149461002	0.0360	28.300	1.700	<0.100	5.550	75.800
	08/08/2017	40154700008	0.0390	15.200	1.300	<0.100	5.090	36.300
	11/08/2017	40160512007	0.0420	14.900	0.850	<0.100	5.540	35.900
MW80PR	11/04/2015	40124163001	0.0206	48.700	4.800	<0.200	7.900	5.900
	02/02/2016	40127847003	0.0125	50.200	5.800	<0.200	8.100	6.300
	05/05/2016	40131961003	0.0193	52.100	4.800	<0.200	7.800	6.300
	08/04/2016	40136329006	0.0134	49.600	4.200	<0.200	8.030	5.800
	11/02/2016	40141308006	0.0106	50.000	3.800	<0.100	8.300	5.600
	02/14/2017	40145701005	0.0099	48.400	4.400	<0.100	8.070	6.100
	05/04/2017	40149461003	0.0120	51.900	4.600	<0.100	7.370	6.000
	08/08/2017	40154700009	0.0120	50.100	4.600	<0.100	7.580	5.700
	11/08/2017	40160512008	0.0140	49.900	4.800	<0.100	7.870	5.500
MW85	11/04/2015	40124163007	0.0216	7.080	2.300	<0.200	6.200	4.700
	02/02/2016	40127847006	0.0205	5.550	2.900	<0.200	6.700	5.000
	05/05/2016	40131961004	0.0293	9.380	2.500	<0.200	6.400	4.600
	08/04/2016	40136329005	0.0208	13.200	<2.000	<0.200	6.860	4.700
	11/02/2016	40141308005	0.0196	6.950	0.770	<0.100	6.900	4.100
	02/14/2017	40145701004	0.0220	5.000	1.200	<0.100	6.700	4.200
	05/04/2017	40149461004	0.0220	9.000	0.800	<0.100	6.550	4.300
	08/08/2017	40154700005	0.0190	12.500	1.300	<0.100	6.330	4.200
	11/08/2017	40160512004	0.0249	6.520	0.550	<0.100	6.410	3.900

Presque Isle
Table 1. Presque Isle Power Plant Ash Landfill No. 3: Appendix III Analytical Results

Date Range: 11/01/2015 to 11/08/2017

			B, tot, mg/L	Ca, tot, mg/L	Cl, tot, mg/L	F, tot, mg/L	pH (field), STD	SO4, tot, mg/L
MW86	11/04/2015	40124163006	0.0178	7.190	11.400	<1.000	5.500	<10.000
	02/02/2016	40127847005	0.0152	4.670	3.400	<0.200	5.900	6.300
	05/05/2016	40131961006	0.0186	1.280	3.200	<0.200	5.100	3.900
	08/04/2016	40136329003	0.0201	4.000	<10.000	<1.000	5.870	<10.000
	11/02/2016	40141308003	0.0181	4.450	3.300	<0.500	5.900	<5.000
	02/14/2017	40145701002	0.0130	5.000	5.700	<0.500	6.450	5.400
	05/04/2017	40149461007	0.0120	2.100	3.200	<0.500	5.650	<5.000
	08/08/2017	40154700003	0.0170	3.600	4.700	<0.500	5.830	<5.000
	11/08/2017	40160512003	0.0147	4.160	2.500	<0.500	5.840	<5.000
	MW87	11/04/2015	40124163004	0.1070	12.400	2.500	<0.200	7.200
02/02/2016		40127847004	0.1910	15.400	3.100	<0.200	7.300	9.600
05/05/2016		40131961007	0.0252	4.080	2.800	<0.200	7.000	10.500
08/04/2016		40136329002	0.1040	11.800	2.100	<0.200	6.820	9.600
11/02/2016		40141308002	0.1030	12.900			7.400	
11/10/2016		40141831001			1.100	0.120		7.900
02/14/2017		40145703003	0.2800	18.600	5.600	<0.500	7.670	16.100
05/04/2017		40149461008	0.0210	5.400	1.500	<0.100	6.550	7.300
08/08/2017		40154700002	0.0360	12.300	1.200	<0.100	6.600	6.600
11/08/2017		40160512002	0.0474	15.100	0.960	<0.100	6.200	8.600
MW95	11/04/2015	40124163009	0.0272	27.400	2.400	<0.200	6.900	6.600
	02/02/2016	40127847008	0.0272	32.400	2.900	<0.200	7.600	7.000
	05/05/2016	40131961008	0.0357	8.550	2.500	<0.200	5.700	8.000
	08/04/2016	40136329008	0.0336	6.560	<2.000	<0.200	5.870	7.200
	11/02/2016	40141308008	0.0268	17.700	0.820	<0.100	7.100	7.700
	02/14/2017	40145703002	0.0270	30.400	1.300	0.100	7.370	8.700
	05/04/2017	40149461009	0.0280	24.700	0.890	<0.100	6.890	9.500
	08/08/2017	40154700006	0.0300	6.200	1.100	<0.100	5.800	8.100
	11/08/2017	40160512006	0.0332	21.300	0.660	<0.100	6.760	7.900

Presque Isle
Table 1. Presque Isle Power Plant Ash Landfill No. 3: Appendix III Analytical Results

Date Range: 11/01/2015 to 11/08/2017

Well Id	Date Sampled	Lab Id	TDS, mg/L
MW70	11/04/2015	40124163003	120.000
	02/02/2016	40127847001	96.000
	05/05/2016	40131961001	144.000
	08/04/2016	40136329001	122.000
	11/02/2016	40141308001	152.000
	02/14/2017	40145701001	110.000
	05/04/2017	40149461001	134.000
	08/08/2017	40154700001	122.000
	11/08/2017	40160512001	108.000
MW79	11/04/2015	40124163008	74.000
	02/02/2016	40127847007	78.000
	05/05/2016	40131961002	122.000
	08/04/2016	40136329007	90.000
	11/02/2016	40141308007	90.000
	02/14/2017	40145703001	108.000
	05/04/2017	40149461002	156.000
	08/08/2017	40154700008	88.000
	11/08/2017	40160512007	74.000
MW80PR	11/04/2015	40124163001	164.000
	02/02/2016	40127847003	156.000
	05/05/2016	40131961003	170.000
	08/04/2016	40136329006	166.000
	11/02/2016	40141308006	176.000
	02/14/2017	40145701005	164.000
	05/04/2017	40149461003	170.000
	08/08/2017	40154700009	166.000
	11/08/2017	40160512008	148.000
MW85	11/04/2015	40124163007	42.000
	02/02/2016	40127847006	38.000
	05/05/2016	40131961004	44.000
	08/04/2016	40136329005	50.000
	11/02/2016	40141308005	50.000
	02/14/2017	40145701004	20.000
	05/04/2017	40149461004	38.000
	08/08/2017	40154700005	50.000
	11/08/2017	40160512004	58.000

Presque Isle
Table 1. Presque Isle Power Plant Ash Landfill No. 3: Appendix III Analytical Results

Date Range: 11/01/2015 to 11/08/2017

			TDS, mg/L
MW86	11/04/2015	40124163006	110.000
	02/02/2016	40127847005	52.000
	05/05/2016	40131961006	44.000
	08/04/2016	40136329003	114.000
	11/02/2016	40141308003	114.000
	02/14/2017	40145701002	94.000
	05/04/2017	40149461007	72.000
	08/08/2017	40154700003	148.000
	11/08/2017	40160512003	154.000
	MW87	11/04/2015	40124163004
02/02/2016		40127847004	112.000
05/05/2016		40131961007	82.000
08/04/2016		40136329002	82.000
11/10/2016		40141831001	106.000
02/14/2017		40145703003	156.000
05/04/2017		40149461008	58.000
08/08/2017		40154700002	82.000
11/08/2017		40160512002	106.000
MW95		11/04/2015	40124163009
	02/02/2016	40127847008	124.000
	05/05/2016	40131961008	46.000
	08/04/2016	40136329008	38.000
	11/02/2016	40141308008	82.000
	02/14/2017	40145703002	110.000
	05/04/2017	40149461009	92.000
	08/08/2017	40154700006	40.000
11/08/2017	40160512006	122.000	

Presque Isle
Table 2. Presque Isle Power Plant Ash Landfill No. 3: Appendix IV Analytical Results

Date Range: 11/01/2015 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
MW70	11/04/2015	40124163003	0.000200	0.011600	<0.000680	<0.001000	<0.001300	<0.00150
	02/02/2016	40127847001	0.000130	0.007900	<0.000680	<0.001000	<0.001300	<0.00150
	05/05/2016	40131961001	0.000140	0.016900	<0.000680	<0.001000	<0.001300	<0.00150
	08/04/2016	40136329001	<0.000099	0.012000	<0.000680	<0.001000	<0.001300	<0.00150
	11/02/2016	40141308001	0.000410	0.012500	<0.001200	<0.001300	<0.001400	<0.00250
	02/14/2017	40145701001	<0.000099	0.009800	<0.001200	<0.001300	<0.001400	<0.00250
	05/04/2017	40149461001	<0.000099	0.017900	<0.001200	<0.001300	<0.001400	<0.00250
	08/08/2017	40154700001	<0.000280	0.014100	<0.001200	<0.001300	<0.001400	<0.00250
MW79	11/04/2015	40124163008	0.000150	0.010600	<0.000680	<0.001000	<0.001300	<0.00150
	02/02/2016	40127847007	0.000230	0.016100	<0.000680	<0.001000	<0.001300	<0.00150
	05/05/2016	40131961002	0.000500	0.020700	<0.000680	<0.001000	<0.001300	<0.00150
	08/04/2016	40136329007	0.000310	0.015200	<0.000680	<0.001000	<0.001300	<0.00150
	11/02/2016	40141308007	0.000170	0.013000	<0.001200	<0.001300	<0.001400	<0.00250
	02/14/2017	40145703001	0.000590	0.020100	<0.001200	<0.001300	<0.001400	<0.00250
	05/04/2017	40149461002	0.000540	0.034400	<0.001200	<0.001300	<0.001400	<0.00250
	08/08/2017	40154700008	0.000540	0.017500	<0.001200	<0.001300	<0.001400	<0.00250
MW80PR	11/04/2015	40124163001	0.000270	0.034200	<0.000680	<0.001000	<0.001300	0.00450
	02/02/2016	40127847003	0.000220	0.033300	<0.000680	<0.001000	<0.001300	<0.00150
	05/05/2016	40131961003	0.000270	0.035000	<0.000680	<0.001000	<0.001300	<0.00150
	08/04/2016	40136329006	0.000220	0.033000	<0.000680	<0.001000	<0.001300	<0.00150
	11/02/2016	40141308006	0.000110	0.033200	<0.001200	<0.001300	<0.001400	<0.00250
	02/14/2017	40145701005	<0.000099	0.031900	<0.001200	<0.001300	<0.001400	<0.00250
	05/04/2017	40149461003	0.000250	0.035400	<0.001200	<0.001300	<0.001400	<0.00250
	08/08/2017	40154700009	<0.000280	0.034200	<0.001200	<0.001300	<0.001400	<0.00250
MW85	11/04/2015	40124163007	0.000200	0.012400	<0.000680	<0.001000	<0.001300	<0.00150
	02/02/2016	40127847006	<0.000099	0.011700	<0.000680	<0.001000	<0.001300	<0.00150
	05/05/2016	40131961004	0.000230	0.011600	<0.000680	<0.001000	<0.001300	<0.00150
	08/04/2016	40136329005	<0.000099	0.013100	<0.000680	<0.001000	<0.001300	<0.00150
	11/02/2016	40141308005	<0.000099	0.011200	<0.001200	<0.001300	<0.001400	<0.00250
	02/14/2017	40145701004	<0.000099	0.011500	<0.001200	<0.001300	<0.001400	<0.00250
	05/04/2017	40149461004	0.000100	0.013200	<0.001200	<0.001300	<0.001400	<0.00250
	08/08/2017	40154700005	<0.001400	0.012200	<0.001200	<0.001300	<0.001400	<0.00250
MW86	11/04/2015	40124163006	0.001600	0.056500	<0.000680	<0.001000	0.002000	0.00220
	02/02/2016	40127847005	0.001500	0.063600	<0.000680	<0.001000	0.001500	0.00210
	05/05/2016	40131961006	0.000320	0.060200	<0.000680	<0.001000	0.001500	<0.00150
	08/04/2016	40136329003	0.001900	0.068400	<0.000680	<0.001000	0.002600	0.00210

Presque Isle
Table 2. Presque Isle Power Plant Ash Landfill No. 3: Appendix IV Analytical Results

Date Range: 11/01/2015 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
MW86	11/02/2016	40141308003	0.001800	0.058600	<0.001200	<0.001300	0.003200	0.00390
	02/14/2017	40145701002	0.001400	0.048600	<0.001200	<0.001300	0.002500	0.00270
	05/04/2017	40149461007	0.000960	0.033200	<0.001200	<0.001300	0.002100	<0.00250
	08/08/2017	40154700003	0.002500	0.064700	<0.001200	<0.001300	0.003400	0.00290
MW87	11/04/2015	40124163004	0.000480	0.024000	<0.000680	<0.001000	<0.001300	0.00170
	02/02/2016	40127847004	0.000430	0.030700	<0.000680	<0.001000	<0.001300	<0.00150
	05/05/2016	40131961007	0.000120	0.018700	<0.000680	<0.001000	<0.001300	<0.00150
	08/04/2016	40136329002	0.000230	0.023100	<0.000680	<0.001000	<0.001300	<0.00150
	11/02/2016	40141308002	0.000660	0.024200	<0.001200	<0.001300	<0.001400	<0.00250
	02/14/2017	40145703003	0.004300	0.106000	<0.001200	<0.001300	0.005600	0.01400
	05/04/2017	40149461008	<0.000099	0.019600	<0.001200	<0.001300	<0.001400	<0.00250
	08/08/2017	40154700002	0.000470	0.025200	<0.001200	<0.001300	<0.001400	<0.00250
MW95	11/04/2015	40124163009	0.000160	0.004700	<0.000680	<0.001000	<0.001300	<0.00150
	02/02/2016	40127847008	<0.000099	0.005200	<0.000680	<0.001000	<0.001300	<0.00150
	05/05/2016	40131961008	0.000130	0.004000	<0.000680	<0.001000	<0.001300	<0.00150
	08/04/2016	40136329008	<0.000099	0.003000	<0.000680	<0.001000	<0.001300	<0.00150
	11/02/2016	40141308008	<0.000099	0.004200	<0.001200	<0.001300	<0.001400	<0.00250
	02/14/2017	40145703002	<0.000099	0.004300	<0.001200	<0.001300	<0.001400	<0.00250
	05/04/2017	40149461009	<0.000099	0.005100	<0.001200	<0.001300	<0.001400	<0.00250
	08/08/2017	40154700006	0.000350	0.003300	<0.001200	<0.001300	<0.001400	<0.00250

Presque Isle
Table 2. Presque Isle Power Plant Ash Landfill No. 3: Appendix IV Analytical Results

Date Range: 11/01/2015 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
MW70	11/04/2015	40124163003	<0.200	<0.00010	0.00055	<0.002500	0.000095	<0.000066
	02/02/2016	40127847001	<0.200	<0.00010	0.00032	<0.002500	0.000120	0.000080
	05/05/2016	40131961001	<0.200	<0.00013	0.00056	<0.002500	<0.000040	<0.000073
	08/04/2016	40136329001	<0.200	<0.00013	0.00051	<0.002500	<0.000040	<0.000073
	11/02/2016	40141308001	<0.100	<0.00013	0.00058	<0.001400	0.000270	0.000310
	02/14/2017	40145701001	<0.100	<0.00013	0.00054	<0.001400	0.000056	<0.000073
	05/04/2017	40149461001	<0.100	<0.00013	0.00052	<0.001400	<0.000040	0.000150
	08/08/2017	40154700001	<0.100	<0.00013	0.00058	<0.001400	0.000210	0.000180
MW79	11/04/2015	40124163008	<0.200	<0.00010	0.00023	<0.002500	0.000066	<0.000066
	02/02/2016	40127847007	<0.200	<0.00010	0.00014	<0.002500	<0.000040	<0.000073
	05/05/2016	40131961002	<0.200	<0.00013	0.00032	<0.002500	0.000082	0.000075
	08/04/2016	40136329007	<0.200	<0.00013	0.00031	<0.002500	0.000065	0.000091
	11/02/2016	40141308007	<0.100	<0.00013	0.00012	<0.001400	<0.000040	<0.000073
	02/14/2017	40145703001	<0.100	<0.00013	0.00013	<0.001400	<0.000040	<0.000073
	05/04/2017	40149461002	<0.100	<0.00013	0.00029	<0.001400	0.000140	0.000300
	08/08/2017	40154700008	<0.100	<0.00013	0.00016	<0.001400	<0.000200	<0.000150
MW80PR	11/04/2015	40124163001	<0.200	<0.00010	0.00120	<0.002500	0.000170	0.000100
	02/02/2016	40127847003	<0.200	<0.00010	0.00080	<0.002500	0.000200	<0.000073
	05/05/2016	40131961003	<0.200	<0.00013	0.00074	<0.002500	0.000059	<0.000073
	08/04/2016	40136329006	<0.200	<0.00013	0.00096	<0.002500	0.000070	0.000130
	11/02/2016	40141308006	<0.100	<0.00013	0.00080	<0.001400	<0.000040	<0.000073
	02/14/2017	40145701005	<0.100	<0.00013	0.00083	<0.001400	<0.000040	<0.000073
	05/04/2017	40149461003	<0.100	<0.00013	0.00084	<0.001400	0.000084	0.000270
	08/08/2017	40154700009	<0.100	<0.00013	0.00062	<0.001400	<0.000200	<0.000150
MW85	11/04/2015	40124163007	<0.200	<0.00010	0.00017	<0.002500	0.000160	0.000099
	02/02/2016	40127847006	<0.200	<0.00010	<0.00011	<0.002500	0.000130	<0.000073
	05/05/2016	40131961004	<0.200	<0.00013	<0.00011	<0.002500	0.000076	0.000093
	08/04/2016	40136329005	<0.200	<0.00013	0.00012	<0.002500	0.000100	0.000094
	11/02/2016	40141308005	<0.100	<0.00013	<0.00011	<0.001400	<0.000040	<0.000073
	02/14/2017	40145701004	<0.100	<0.00013	<0.00011	<0.001400	0.000063	<0.000073
	05/04/2017	40149461004	<0.100	<0.00013	<0.00011	<0.001400	<0.000040	0.000230
	08/08/2017	40154700005	<0.100	<0.00013	<0.00068	<0.001400	<0.000980	<0.000750
MW86	11/04/2015	40124163006	<1.000	<0.00010	0.00020	<0.002500	0.000120	<0.000066
	02/02/2016	40127847005	<0.200	<0.00010	0.00024	<0.002500	0.000260	0.000080
	05/05/2016	40131961006	<0.200	<0.00013	0.00026	<0.002500	0.000100	<0.000073
	08/04/2016	40136329003	<1.000	<0.00013	0.00032	<0.002500	0.000140	0.000081

Presque Isle
Table 2. Presque Isle Power Plant Ash Landfill No. 3: Appendix IV Analytical Results

Date Range: 11/01/2015 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
MW86	11/02/2016	40141308003	<0.500	<0.00013	0.00018	<0.001400	0.000150	0.000095
	02/14/2017	40145701002	<0.500	<0.00013	0.00016	<0.001400	0.000310	0.000099
	05/04/2017	40149461007	<0.500	<0.00013	0.00012	<0.001400	0.000150	0.000130
	08/08/2017	40154700003	<0.500	<0.00013	0.00014	<0.001400	<0.000200	<0.000150
MW87	11/04/2015	40124163004	<0.200	<0.00010	0.00041	0.003300	0.001500	0.000160
	02/02/2016	40127847004	<0.200	<0.00010	0.00070	0.003800	0.003200	0.000240
	05/05/2016	40131961007	<0.200	<0.00013	<0.00011	<0.002500	0.000260	<0.000073
	08/04/2016	40136329002	<0.200	<0.00013	0.00042	0.002600	0.000310	0.000120
	11/02/2016	40141308002		<0.00013	0.00056	0.004200	0.001300	0.000510
	11/10/2016	40141831001	0.120					
	02/14/2017	40145703003	<0.500	<0.00013	0.00480	0.004600	0.608000	0.003600
	05/04/2017	40149461008	<0.100	<0.00013	<0.00011	<0.001400	0.000310	0.000095
	08/08/2017	40154700002	<0.100	<0.00013	0.00034	0.001500	0.000350	<0.000150
	11/04/2015	40124163009	<0.200	<0.00010	0.00022	<0.002500	0.000045	<0.000066
MW95	02/02/2016	40127847008	<0.200	<0.00010	0.00049	<0.002500	0.000075	<0.000073
	05/05/2016	40131961008	<0.200	<0.00013	0.00015	<0.002500	0.000043	<0.000073
	08/04/2016	40136329008	<0.200	<0.00013	0.00031	<0.002500	0.000052	<0.000073
	11/02/2016	40141308008	<0.100	<0.00013	0.00051	<0.001400	<0.000040	<0.000073
	02/14/2017	40145703002	0.100	<0.00013	0.00042	<0.001400	<0.000040	<0.000073
	05/04/2017	40149461009	<0.100	<0.00013	0.00036	<0.001400	<0.000040	<0.000073
	08/08/2017	40154700006	<0.100	<0.00013	0.00020	<0.001400	0.000250	<0.000150

Presque Isle
Table 2. Presque Isle Power Plant Ash Landfill No. 3: Appendix IV Analytical Results

Date Range: 11/01/2015 to 10/17/2017

Well Id	Date Sampled	Lab Id	Ra 226+228, PCi/L	Se, tot, mg/L	Tl, tot, mg/L
MW70	11/04/2015	40124163003	0.7930	<0.00016	<0.000018
	02/02/2016	40127847001	0.7170	<0.00021	<0.000140
	05/05/2016	40131961001	0.4320	<0.00021	0.000240
	08/04/2016	40136329001	0.3630	<0.00021	<0.000140
	11/02/2016	40141308001	0.8280	0.00032	0.000370
	02/14/2017	40145701001	0.1530	<0.00021	<0.000140
	05/04/2017	40149461001	0.3080	<0.00021	<0.000140
	08/08/2017	40154700001	1.2800	0.00033	0.000210
MW79	11/04/2015	40124163008	0.4870	<0.00016	<0.000018
	02/02/2016	40127847007	0.4340	0.00050	<0.000140
	05/05/2016	40131961002	0.8550	0.00057	<0.000140
	08/04/2016	40136329007	0.0000	0.00054	<0.000140
	11/02/2016	40141308007	0.1470	0.00048	<0.000140
	02/14/2017	40145703001	0.9210	0.00100	<0.000140
	05/04/2017	40149461002	0.6420	0.00120	0.000180
	08/08/2017	40154700008	0.6460	0.00045	<0.000140
MW80PR	11/04/2015	40124163001	1.0400	<0.00016	0.000020
	02/02/2016	40127847003	0.0280	<0.00021	<0.000140
	05/05/2016	40131961003	0.8200	<0.00021	<0.000140
	08/04/2016	40136329006	0.4480	<0.00021	0.000180
	11/02/2016	40141308006	1.2400	<0.00021	<0.000140
	02/14/2017	40145701005	0.0000	<0.00021	<0.000140
	05/04/2017	40149461003	0.5100	<0.00021	<0.000140
	08/08/2017	40154700009	1.4400	<0.00032	<0.000140
MW85	11/04/2015	40124163007	0.2720	<0.00016	<0.000018
	02/02/2016	40127847006	0.9950	<0.00021	<0.000140
	05/05/2016	40131961004	1.2200	<0.00021	<0.000140
	08/04/2016	40136329005	0.2240	<0.00021	0.000250
	11/02/2016	40141308005	0.5550	<0.00021	<0.000140
	02/14/2017	40145701004	0.5880	<0.00021	<0.000140
	05/04/2017	40149461004	0.6180	<0.00021	<0.000140
	08/08/2017	40154700005	0.9710	<0.00160	<0.000700
MW86	11/04/2015	40124163006	0.5710	0.00024	<0.000018
	02/02/2016	40127847005	1.1300	<0.00021	<0.000140
	05/05/2016	40131961006	1.0600	<0.00021	<0.000140
	08/04/2016	40136329003	1.0500	0.00089	<0.000140

Presque Isle
Table 2. Presque Isle Power Plant Ash Landfill No. 3: Appendix IV Analytical Results

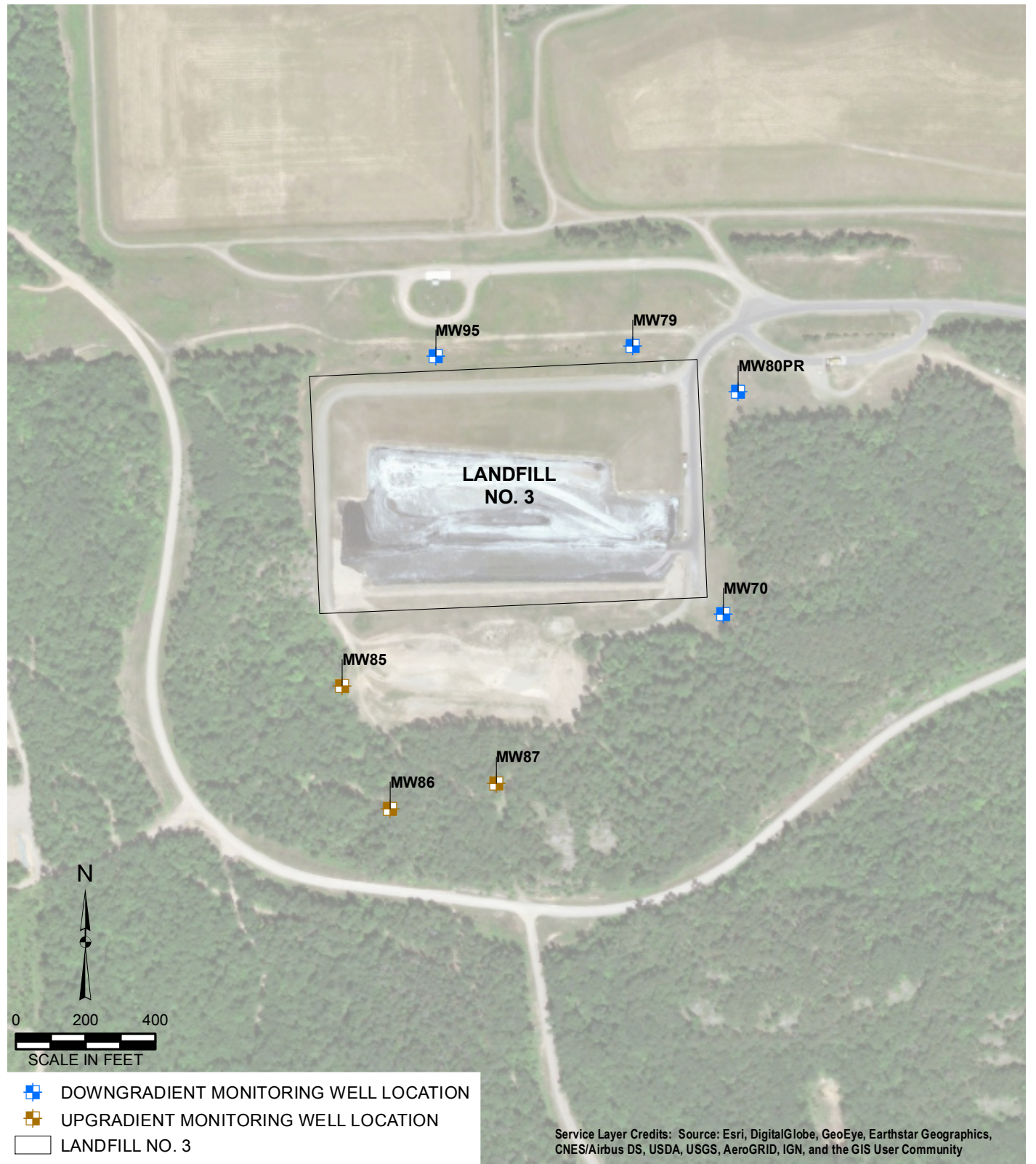
Date Range: 11/01/2015 to 10/17/2017

			Ra 226+228, PCi/L	Se, tot, mg/L	Tl, tot, mg/L
MW86	11/02/2016	40141308003	1.0500	0.00049	<0.000140
	02/14/2017	40145701002	0.7320	0.00070	<0.000140
	05/04/2017	40149461007	0.8780	<0.00021	<0.000140
	08/08/2017	40154700003	1.1700	0.00120	<0.000140
MW87	11/04/2015	40124163004	1.2600	<0.00016	<0.000018
	02/02/2016	40127847004	1.0600	0.00054	<0.000140
	05/05/2016	40131961007	1.6600	<0.00021	<0.000140
	08/04/2016	40136329002	0.4450	0.00025	<0.000140
	11/02/2016	40141308002	0.5040	0.00060	0.000410
	02/14/2017	40145703003		0.00200	<0.000710
	05/04/2017	40149461008	0.2090	<0.00021	<0.000140
	08/08/2017	40154700002	1.0400	<0.00032	<0.000140
MW95	11/04/2015	40124163009	0.4360	<0.00016	<0.000018
	02/02/2016	40127847008	0.9130	<0.00021	<0.000140
	05/05/2016	40131961008	2.1500	<0.00021	<0.000140
	08/04/2016	40136329008	0.4390	<0.00021	<0.000140
	11/02/2016	40141308008	0.0098	<0.00021	<0.000140
	02/14/2017	40145703002	0.1590	<0.00021	<0.000140
	05/04/2017	40149461009	0.2400	<0.00021	<0.000140
	08/08/2017	40154700006	1.3700	<0.00032	<0.000140



Figures

Y:\GIS\Projects\161660\MXD\2017\agw\mca\Figure 1_GW_Samp.Well Loc_P1PP_LF3.mxd -Author: sl0zsd; Date/Time: 1/29/2018, 5:04:22 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
 PRESQUE ISLE POWER PLANT LANDFILL NO. 3
 MARQUETTE COUNTY, MICHIGAN

PROJECT NO: 67985

FIGURE NO: 1



OBG

THERE'S A WAY

