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**2020 ANNUAL GROUNDWATER
MONITORING AND CORRECTIVE
ACTION REPORT**
PRESQUE ISLE POWER PLANT
ASH LANDFILL NO. 3

**2020 ANNUAL GROUNDWATER MONITORING AND
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PRESQUE ISLE POWER PLANT ASH LANDFILL NO. 3**

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ACRONYMS AND ABBREVIATIONS

ASD	Alternate Source Demonstration
Ca	Calcium
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
mg/L	milligrams per liter
NRT	Natural Resource Technology, an OBG Company
OBG	O'Brien & Gere Engineers, Inc.
PIPP	Presque Isle Power Plant
Ramboll	Ramboll Americas Engineering Solutions, Inc
SO ₄	Sulfate
SSI	Statistically Significant Increase
TBD	To be Determined
TDS	Total Dissolved Solids

2020 MONITORING PROGRAM SUMMARY

Presque Isle Power Plant (PIPP) Ash Landfill No. 3 operated in the Detection Monitoring Program in accordance with Title 40 of the Code of Federal Regulations (40 CFR) 257.94 for the calendar year 2020. In 2020, groundwater analytical data was evaluated for statistically significant increases (SSIs) over background concentrations for Appendix III constituents in groundwater monitoring wells at PIPP Ash Landfill No. 3. The following constituents and wells had SSIs detected in 2020:

- Calcium – MW70, MW80PR
- Sulfate – MW79
- Total Dissolved Solids (TDS) – MW80PR

An Alternate Source Demonstration (ASD) prepared on April 15, 2018 provided justification that the SSIs observed during the Detection Monitoring Program were not due to a release from the CCR unit but were either from an error in sampling or analysis or from naturally occurring conditions (e.g. natural variation in groundwater quality)

PIPP Ash Landfill No. 3 remains in the Detection Monitoring Program in accordance with 40 CFR 257.94.

1. INTRODUCTION

This report has been prepared on behalf of We Energies by Ramboll Americas Engineering Solutions, Inc. (Ramboll) to provide the information required by Title 40 of the Code of Federal Regulations (40 CFR) 257.90(e) for the Presque Isle Power Plant (PIPP) Ash 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.

This report provides the required information for the PIPP Ash Landfill No. 3 for calendar year 2020.

2. MONITORING AND CORRECTIVE ACTION PROGRAM STATUS

PIPP Ash Landfill No. 3 remained in Detection Monitoring (40 CFR 257.94) during 2020. Detection Monitoring Program sampling dates and parameters collected are provided in Table 1. Analytical results from the two sampling rounds collected and those statistically analyzed in 2020 (i.e. Detection Monitoring Round 5) are included in Table 2.

In accordance with 40 CFR 257.93(h)(2), the *Statistical Analysis Plan, Presque Isle Power Plant Ash Landfill No. 3* (Natural Resource Technology, an OBG Company, 2017), and within 90 days of completing sampling and analysis (receipt of data); analytical data was evaluated for statistically significant increases (SSIs) over background concentrations for Appendix III constituents in groundwater monitoring wells at PIPP Ash Landfill No. 3. SSIs and the SSI determination dates are provided in Table 1.

40 CFR 257.94(e)(2) allows 90 days to demonstrate that a SSI was caused by a source other than the CCR unit or resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality (i.e., an alternate source demonstration). An alternate source demonstration (ASD) was completed for PIPP Ash Landfill No. 3 on the date provided in Table 1. The April 15, 2018 ASD was included in the 2018 Annual Groundwater Monitoring and Corrective Action Report.

Table 1. Detection Monitoring Program Summary

Detection Round	Sampling Date	Parameters Collected	Data Received	SSI Determination Date	SSI Parameters	Resample Date	ASD Date
5	11/19/19-11/20/19	Appendix III	12/12/19	3/11/20	Ca, TDS	NA	4/15/18 ¹
6	5/20/20	Appendix III	6/9/20	9/7/20	Ca, SO ₄ , TDS	NA	4/15/18 ¹
7	11/4/20	Appendix III	12/9/20	TBD Before 3/9/21	TBD	TBD	TBD

Ca – Calcium

NA – Not applicable

SO₄ - Sulfate

TBD – To Be Determined

TDS – Total Dissolved Solids

- The April 15, 2018 ASD for Presque Isle Power Plant Ash Landfill No. 3 provided a description, data, and pertinent information supporting an alternate source for the wells and parameters with SSIs in Detection Monitoring Rounds 5-6. Data resulting in SSIs above background are consistent with analytical results observed in previous detection monitoring rounds.

PIPP Ash Landfill No. 3 remains in the Detection Monitoring Program in accordance with 40 CFR 257.94.

3. KEY ACTIONS COMPLETED IN 2020

Two groundwater sampling events were completed in 2020 as part of the Detection Monitoring Program, Rounds 6 and 7. One groundwater sample was collected from each background and downgradient well in the monitoring system during each event. Sampling dates are summarized in Table 1. All samples were collected and analyzed in accordance with the *Sampling and Analysis Plan* (Natural Resource Technology, Inc., 2015) prepared for PIPP Ash Landfill No. 3. All monitoring data obtained under 40 CFR 257.90 through 257.98 (as applicable) in 2020 are presented in Table 2.

A map showing the groundwater monitoring system, including the CCR unit and all background (upgradient) and downgradient monitoring wells with well identification numbers, for PIPP Ash Landfill No. 3 is presented on Figure 1. There were no changes to the monitoring system in 2020.

Statistical evaluation, including SSI determinations, of analytical data from the Detection Monitoring Program for November 19-20, 2019 (Detection Monitoring Round 5) and May 20, 2020 (Detection Monitoring Round 6) were completed in 2020 and within 90 days of receipt of the analytical data. Statistical evaluation of analytical data was performed in accordance with the *Statistical Analysis Plan, Presque Isle Power Plant Ash Landfill No. 3* (Natural Resource Technology, an OBG Company, 2017).

The ASD, dated April 15, 2018, prepared for PIPP Ash Landfill No. 3 was prepared in accordance with 40 CFR 257.94(e)(2) and provides a description, data, and pertinent information to support an alternate source for wells and parameters with SSIs at PIPP Ash Landfill No. 3. The ASD provides justification that the SSIs observed during the Detection Monitoring Program were not due to a release from the CCR unit but were either from an error in sampling or analysis or from naturally occurring conditions (e.g. natural variation in groundwater quality).

4. PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE PROBLEMS

No problems were encountered during implementation of the Detection Monitoring Program during 2020. Groundwater samples were collected and analyzed in accordance with the *Sampling and Analysis Plan* (Natural Resource Technology, Inc., 2015) prepared for PIPP Ash Landfill No. 3, and all data was accepted.

5. KEY ACTIVITIES FOR 2021

The following key activities are planned for 2021:

- Continuation of the Detection Monitoring Program with semi-annual sampling scheduled for the 2nd and 4th quarters of 2021.
- Complete statistical evaluation of analytical data from the downgradient wells, using background data to determine whether a SSI over background concentrations has occurred for Appendix III parameters.
- 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 the SSI determination and will be included in the annual groundwater monitoring and corrective action report for 2021.
 - 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 2021, including associated recordkeeping/notifications required by 40 CFR 257.105 through 257.108.

6. 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-CCR
Table 2. Presque Isle Power Plant Ash Landfill No. 3: Appendix III Analytical Results

Date Range: 11/01/2019 to 12/31/2020

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	11/20/2019	AE42118	0.0130	39.0000	0.35	0.04	7.70	4.6
	5/20/2020	AE45925	0.0104	41.2000	0.31	0.02	7.20	3.4
	11/4/2020	AE49560	0.0186	35.5000	0.31	0.05	7.51	3.8
MW79	11/19/2019	AE42115	0.0380	9.0000	0.27	0.04	5.50	7.4
	5/20/2020	AE45922	0.0318	10.4000	0.49	0.01	5.74	13.0
	11/4/2020	AE49558	0.0365	13.6000	0.38	0.04	5.58	9.8
MW80PR	11/19/2019	AE42114	0.0160	48.0000	5.70	0.04	7.80	5.8
	5/20/2020	AE45923	0.0100	50.8000	4.40	<0.01	7.83	5.4
	11/4/2020	AE49559	0.0178	50.3000	3.20	0.03	7.73	7.6
MW85	11/20/2019	AE42112	0.0180	10.0000	0.27	<0.01	6.20	3.7
	5/20/2020	AE45926	0.0163	11.3000	0.25	0.02	7.17	2.2
	11/4/2020	AE49562	0.0184	12.4000	0.18	0.03	6.70	2.6
MW86	11/20/2019	AE42113	0.0200	3.1000	0.73	0.07	5.80	0.1
	5/20/2020	AE45927	0.0085	2.2200	0.67	<0.01	5.89	<0.1
	11/4/2020	AE49563	<0.0173	3.1500	0.67	0.07	6.10	0.3
MW87	11/20/2019	AE42117	0.0510	10.0000	0.46	0.07	6.80	5.1
	5/20/2020	AE45928	0.0123	3.1400	0.30	<0.01	5.73	3.4
	11/4/2020	AE49564	0.0174	2.7400	0.37	0.03	5.97	4.2
MW95	11/19/2019	AE42116	0.0790	7.5000	0.25	0.05	5.40	6.3
	5/20/2020	AE45921	0.0290	5.9600	0.22	<0.01	5.91	5.0
	11/4/2020	AE49557	0.0420	6.0100	0.19	0.03	5.60	4.7

Presque Isle-CCR
Table 2. Presque Isle Power Plant Ash Landfill No. 3: Appendix III Analytical Results




Date Range: 11/01/2019 to 12/31/2020

Well Id	Date Sampled	Lab Id	TDS, mg/L
MW70	11/20/2019	AE42118	130.0
	5/20/2020	AE45925	130.0
	11/4/2020	AE49560	74.0
MW79	11/19/2019	AE42115	60.0
	5/20/2020	AE45922	82.0
	11/4/2020	AE49558	40.0
MW80PR	11/19/2019	AE42114	170.0
	5/20/2020	AE45923	180.0
	11/4/2020	AE49559	140.0
MW85	11/20/2019	AE42112	46.0
	5/20/2020	AE45926	88.0
	11/4/2020	AE49562	26.0
MW86	11/20/2019	AE42113	130.0
	5/20/2020	AE45927	98.0
	11/4/2020	AE49563	92.0
MW87	11/20/2019	AE42117	54.0
	5/20/2020	AE45928	20.0
	11/4/2020	AE49564	<20.0
MW95	11/19/2019	AE42116	46.0
	5/20/2020	AE45921	64.0
	11/4/2020	AE49557	<20.0

FIGURES



Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

-  DOWNGRAIDENT MONITORING WELL LOCATION
-  UPGRADIENT MONITORING WELL LOCATION
-  LANDFILL NO. 3



GROUNDWATER SAMPLING WELL LOCATION MAP

2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT PRESQUE ISLE POWER PLANT ASH LANDFILL NO. 3 MARQUETTE COUNTY, MICHIGAN

FIGURE 1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY



APPENDIX A
ALTERNATE SOURCE DEMONSTRATIONS (ASD): THE APRIL 15, 2018 ASD
WAS INCLUDED IN THE *2018 ANNUAL GROUNDWATER MONITORING AND*
CORRECTIVE ACTION REPORT