



Dynegy Midwest Generation, LLC
1500 Eastport Plaza Dr.
Collinsville, IL 62234

January 28, 2022

Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Re: Baldwin Power Plant Fly Ash Pond System (IEPA ID W1578510001-01,02,03) Annual Consolidated Report

Dear Mr. LeCrone:

In accordance with 35 IAC § 845.550, Dynegy Midwest Generation, LLC (DMG) is submitting the annual consolidated report for the Baldwin Power Plant Fly Ash Pond System (IEPA ID W1578510001-01,02,03), as enclosed.

Sincerely,

A handwritten signature in blue ink, appearing to read "Phil Morris".

Phil Morris
Senior Environmental Director

Enclosures

Annual Consolidated Report
Dynergy Midwest Generation, LLC
Baldwin Power Plant
Fly Ash Pond System; IEPA ID W1578510001-01,02,03

In accordance with 35 IAC § 845.550, Dynergy Midwest Generation, LLC (DMG) has prepared the annual consolidated report. The report is provided in two sections as follows:

Section 1

1) Annual inspection report (Section 845.540(b))

Section 2

2) Annual Groundwater Monitoring and Corrective Action Report (Section 845.610(e))

Section 1

Annual Inspection Report

ANNUAL INSPECTION BY A QUALIFIED PROFESSIONAL ENGINEER

35 IAC § 845.540

(b)(1) The CCR surface impoundment must be inspected on an annual basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR surface impoundment is consistent with recognized and generally accepted engineering standards. The inspection must, at a minimum, include:

- A) A review of available information regarding the status and condition of the CCR surface impoundment, including files available in the operating record (e.g., CCR surface impoundment design and construction information required by Sections 845.220(a)(1) and 845.230(d)(2)(A), previous structural stability assessments required under Section 845.450, the results of inspections by a qualified person, and results of previous annual inspections);
- B) A visual inspection of the CCR surface impoundment to identify signs of distress or malfunction of the CCR surface impoundment and appurtenant structures;
- C) A visual inspection of any hydraulic structures underlying the base of the CCR surface impoundment or passing through the dike of the CCR surface impoundment for structural integrity and continued safe and reliable operation;
- D) The annual hazard potential classification certification, if applicable (see Section 845.440);
- E) The annual structural stability assessment certification, if applicable (see Section 845.450);
- F) The annual safety factor assessment certification, if applicable (see Section 845.460); and
- G) The inflow design flood control system plan certification (see Section 845.510(c)).

SITE INFORMATION

Site Name / Address / Date of Inspection	Baldwin Energy Complex Randolph County, Illinois 62217 11/3/2021
Operator Name / Address	Luminant Generation Company LLC 6555 Sierra Drive, Irving, TX 75039
CCR unit	West Fly Ash Pond

INSPECTION REPORT 35 IAC § 845.540

Date of Inspection 11/3/2021

(b)(1)(D) The annual hazard potential classification certification, if applicable (see Section 845.440).	Based on a review of the CCR unit's annual hazard potential classification, the unit is classified as a Class II CCR surface impoundment.
(b)(2)(A) Any changes in geometry of the structure since the previous annual inspection.	Cap and Closure completed 2020.
(b)(2)(B) The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection	See the attached.
b)(2)(C) The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection;	See the attached.
b)(2)(D) The storage capacity of the impounding structure at the time of the inspection	Cap and Closure completed 2020. West Fly Ash Pond no longer able to impound.
(b)(2)(E) The approximate volume of the impounded water and CCR contained in the unit at the time of the inspection.	Approximately 1000 acre-feet
(b)(2)(F) Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit	Based on a review of the CCR unit's records and visual observation during the on-site inspection, there was no appearance of an actual or potential structural weakness of the CCR unit, nor an existing condition that is disrupting or would disrupt the operation and safety of the unit.

INSPECTION REPORT 35 IAC § 845.540

Date of Inspection 11/3/2021

(b)(2)(G) Any other changes that may have affected the stability or operation of the impounding structure since the previous annual inspection.	Based on a review of the CCR unit's records and visual observation during the on-site inspection, no other changes which may have affected the stability or operation of the CCR unit have taken place since the previous annual inspection.
(b)(1)(G) The inflow design flood control system plan certification (see Section 845.510(c))	Cap and Closure completed 2020. West Fly Ash Pond no longer able to impound.

35 IAC § 845.540 - Annual inspection by a qualified professional engineer.

I, James Knutelski, P.E., certify under penalty of law that the information submitted in this report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Illinois. The information submitted, is to the best of my knowledge and belief, true, accurate and complete. Based on the annual inspection, the design, construction, operation, and maintenance of the CCR Unit is consistent with recognized and generally accepted good engineering standards. Based on a review of the records for the CCR unit, the hazard potential classification was conducted in accordance with the requirements of Section 845.440 and the Safety Factor Assessment was conducted in accordance with the requirements of Section 845.460.



James Knutelski, PE
Illinois PE No. 062-054206, Expires: 11/30/2023
Date: 01/05/2022

Site Name: Baldwin Energy Complex

CCR Unit: West Fly Ash Pond

35 IAC § 845.540 (b)(2)(B)		
Instrument ID #	Type	Maximum recorded reading since previous annual inspection (ft)
P004	Piezometer	abandoned

35 IAC § 845.540 (b)(2)(C)						
Since previous inspection:	Approximate Depth / Elevation					
	Elevation (ft)			Depth (ft)		
	Minimum	Present	Maximum	Minimum	Present	Maximum
Impounded Water		0			0	
CCR	418		446	33		61

ANNUAL INSPECTION BY A QUALIFIED PROFESSIONAL ENGINEER

35 IAC § 845.540

(b)(1) The CCR surface impoundment must be inspected on an annual basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR surface impoundment is consistent with recognized and generally accepted engineering standards. The inspection must, at a minimum, include:

- A) A review of available information regarding the status and condition of the CCR surface impoundment, including files available in the operating record (e.g., CCR surface impoundment design and construction information required by Sections 845.220(a)(1) and 845.230(d)(2)(A), previous structural stability assessments required under Section 845.450, the results of inspections by a qualified person, and results of previous annual inspections);
- B) A visual inspection of the CCR surface impoundment to identify signs of distress or malfunction of the CCR surface impoundment and appurtenant structures;
- C) A visual inspection of any hydraulic structures underlying the base of the CCR surface impoundment or passing through the dike of the CCR surface impoundment for structural integrity and continued safe and reliable operation;
- D) The annual hazard potential classification certification, if applicable (see Section 845.440);
- E) The annual structural stability assessment certification, if applicable (see Section 845.450);
- F) The annual safety factor assessment certification, if applicable (see Section 845.460); and
- G) The inflow design flood control system plan certification (see Section 845.510(c)).

SITE INFORMATION

Site Name / Address / Date of Inspection	Baldwin Energy Complex Randolph County, Illinois 62217 11/3/2021
Operator Name / Address	Luminant Generation Company LLC 6555 Sierra Drive, Irving, TX 75039
CCR unit	Old East Fly Ash Pond

INSPECTION REPORT 35 IAC § 845.540

Date of Inspection 11/3/2021

(b)(1)(D) The annual hazard potential classification certification, if applicable (see Section 845.440).	Based on a review of the CCR unit's annual hazard potential classification, the unit is classified as a Class II CCR surface impoundment.
(b)(2)(A) Any changes in geometry of the structure since the previous annual inspection.	Cap and closure completed in 2020.
(b)(2)(B) The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection	See the attached.
b)(2)(C) The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection;	See the attached.
b)(2)(D) The storage capacity of the impounding structure at the time of the inspection	Cap and closure completed in 2020. No further impounding capacity.
(b)(2)(E) The approximate volume of the impounded water and CCR contained in the unit at the time of the inspection.	Approximately 3000 acre-feet of CCR and cover material.
(b)(2)(F) Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit	Based on a review of the CCR unit's records and visual observation during the on-site inspection, there was no appearance of an actual or potential structural weakness of the CCR unit, nor an existing condition that is disrupting or would disrupt the operation and safety of the unit.

INSPECTION REPORT 35 IAC § 845.540

Date of Inspection 11/3/2021

(b)(2)(G) Any other changes that may have affected the stability or operation of the impounding structure since the previous annual inspection.	Based on a review of the CCR unit's records and visual observation during the on-site inspection, no other changes which may have affected the stability or operation of the CCR unit have taken place since the previous annual inspection.
(b)(1)(G) The inflow design flood control system plan certification (see Section 845.510(c))	Cap and closure completed in 2020. No further impounding capacity.

35 IAC § 845.540 - Annual inspection by a qualified professional engineer.

I, James Knutelski, P.E., certify under penalty of law that the information submitted in this report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Illinois. The information submitted, is to the best of my knowledge and belief, true, accurate and complete. Based on the annual inspection, the design, construction, operation, and maintenance of the CCR Unit is consistent with recognized and generally accepted good engineering standards. Based on a review of the records for the CCR unit, the hazard potential classification was conducted in accordance with the requirements of Section 845.440 and the Safety Factor Assessment was conducted in accordance with the requirements of Section 845.460.



James Knutelski, PE
Illinois PE No. 062-054206, Expires: 11/30/2023
Date: 01/05/2022

Site Name: Baldwin Energy Complex

CCR Unit: Old East Fly Ash Pond

35 IAC § 845.540 (b)(2)(B)		
Instrument ID #	Type	Maximum recorded reading since previous annual inspection (ft)
P006	Piezometer	abandoned
P007	Piezometer	434.8'
P008	Piezometer	abandoned
P009	Piezometer	abandoned
P010	Piezometer	abandoned
P011	Piezometer	abandoned
P012	Piezometer	abandoned

35 IAC § 845.540 (b)(2)(C)						
Since previous inspection:	Approximate Depth / Elevation					
	Elevation (ft)			Depth (ft)		
	Minimum	Present	Maximum	Minimum	Present	Maximum
Impounded Water		0			0	
CCR	447		458	26.5		37.5

Section 2

Annual Groundwater and Corrective Action Report

Prepared for
Dynegy Midwest Generation, LLC

Date
January 31, 2022

Project No.
1940100711-002

**2021 ANNUAL GROUNDWATER
MONITORING AND CORRECTIVE
ACTION REPORT
FLY ASH POND SYSTEM
BALDWIN POWER PLANT
BALDWIN, ILLINOIS**

**2021 ANNUAL GROUNDWATER MONITORING AND
CORRECTIVE ACTION REPORT
BALDWIN POWER PLANT FLY ASH POND SYSTEM**

Project name **Baldwin Power Plant Fly Ash Pond System**
Project no. **1940100711-002**
Recipient **Dynegy Midwest Generation, LLC**
Document type **Annual Groundwater Monitoring and Corrective Action Report**
Version **FINAL**
Date **January 31, 2022**
Prepared by **Eric D. Plante**
Checked by **Lauren Cook**
Approved by **Brian Hennings**
Description **Annual Report in Support of Part 845**

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APPENDICES

Appendix A	<i>Table 3-1. Background Groundwater Quality and Standards, Groundwater Monitoring Plan, Baldwin, Fly Ash Pond System, Baldwin, Illinois.</i>
Appendix B	<i>History of Potential Exceedances, Baldwin, Fly Ash Pond System, Baldwin, Illinois.</i>

ACRONYMS AND ABBREVIATIONS

§	Section
35 I.A.C.	Title 35 of the Illinois Administrative Code
40 C.F.R.	Title 40 of the Code of Federal Regulations
bgs	below ground surface
BPP	Baldwin Power Plant
CCR	coal combustion residuals
DMG	Dynegy Midwest Generation, LLC
FAPS	Fly Ash Pond System
GMP	Addendum to the Groundwater Monitoring Plan
GWPS	groundwater protection standard
ID	identification
IEPA	Illinois Environmental Protection Agency
NID	National Inventory of Dams
No.	number
Part 845	35 I.A.C. § 845: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments
PMP	potential migration pathway
Ramboll	Ramboll Americas Engineering Solutions, Inc.
SI	surface impoundment
SSI	statistically significant increase
TDS	total dissolved solids
UA	uppermost aquifer

EXECUTIVE SUMMARY

This report has been prepared to provide the information required by Title 35 of the Illinois Administrative Code (35 I.A.C.) Section (§) 845.610(e) (*Annual Groundwater Monitoring and Corrective Action Report*) for the Fly Ash Pond System (FAPS) located at Baldwin Power Plant (BPP) near Baldwin, Illinois.

An operating permit application for the FAPS was submitted by Dynegy Midwest Generation, LLC (DMG) to the Illinois Environmental Protection Agency (IEPA) by October 31, 2021 in accordance with the requirements specified in 35 I.A.C. § 845.230(d), and is pending approval. The FAPS consists of three coal combustion residuals (CCR) surface impoundments (SIs) including the Old East Fly Ash Pond, the East Fly Ash Pond, and the West Fly Ash Pond. The FAPS is recognized by Vistra identification (ID) number (No.) 605 and National Inventory of Dams (NID) No. IL50721. The FAPS is comprised of the following three CCR units identified by IEPA:

- Old East Fly Ash Pond, IEPA ID No. W1578510001-01
- East Fly Ash Pond, IEPA ID No. W1578510001-02
- West Fly Ash Pond, IEPA ID No. W1578510001-03

An Addendum to the Groundwater Monitoring Plan (GMP; Ramboll Americas Engineering Solutions, Inc. [Ramboll], 2021a), which included a Statistical Analysis Plan, was developed and submitted as part of the operating permit application to propose a monitoring well network and monitoring program specific to the FAPS that will comply with 35 I.A.C. § 845: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments (Part 845; IEPA, 2021). The proposed groundwater protection standards (GWPS), as presented in the GMP, are shown in **Appendix A**.

Groundwater concentrations observed from 2015 to 2021 were evaluated in the presentation of the History of Potential Exceedances (Ramboll, 2021b) included in the operating permit application, as required by 35 I.A.C. § 845.230(d). Groundwater concentrations from 2015 to 2021 that exceeded the GWPS set forth in 35 I.A.C. § 845.600(a) are considered potential exceedances because the methodology used to determine them is proposed in the Statistical Analysis Plan, which is pending IEPA approval. The determination of potential historical exceedances of 35 I.A.C. § 845.600(a) and a summary of potential historical exceedances of proposed GWPS are shown in **Appendix B**.

Evaluation of background groundwater quality was presented in the GMP (Ramboll, 2021a), and compliance with Part 845 will be determined after the first round of groundwater sampling following IEPA's issuance of an operating permit.

This report summarizes only the information presented in the operating permit application for the FAPS, submitted to IEPA by October 31, 2021, which is pending IEPA approval.

1. INTRODUCTION

This report has been prepared by Ramboll on behalf of DMG, to provide the information required by 35 I.A.C. § 845.610(e) for the FAPS located at BPP near Baldwin, Illinois. The owner or operator of a CCR SI must prepare and submit to IEPA by January 31st of each year an Annual Groundwater Monitoring and Corrective Action Report for the preceding calendar year as part of the Annual Consolidated Report required by 35 I.A.C. § 845.550. The Annual Groundwater Monitoring and Corrective Action Report shall document the status of the groundwater monitoring and corrective action plan for the CCR SI, summarize key actions completed, including the status of permit applications and Agency approvals, describe any problems encountered and 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 SI and all background (or upgradient) and downgradient monitoring wells, including the well ID Nos., that are part of the groundwater monitoring program for the CCR SI, and a visual delineation of any exceedances of the GWPS.
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. A potentiometric surface map for each groundwater elevation sampling event required by 35 I.A.C. § 845.650(b)(2).
4. In addition to all the monitoring data obtained under 35 I.A.C. §§ 845.600-680, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, and the dates the samples were collected.
5. A narrative discussion of any statistically significant increases (SSIs) over background levels for the constituents listed in 35 I.A.C. § 845.600.
6. Other information required to be included in the annual report as specified in 35 I.A.C. §§ 845.600-680.
7. A section at the beginning of the annual report that provides an overview of the current status of the groundwater monitoring program and corrective action plan for the CCR SI. At a minimum, the summary must:
 - i. Specify whether groundwater monitoring data shows a SSI over background concentrations for one or more constituents listed in 35 I.A.C. § 845.600.
 - ii. Identify those constituents having a SSI over background concentrations and the names of the monitoring wells associated with the SSI(s).
 - iii. Specify whether there have been any exceedances of the GWPS for one or more constituents listed in 35 I.A.C. § 845.600.
 - iv. Identify those constituents with exceedances of the GWPS in 35 I.A.C. § 845.600 and the names of the monitoring wells associated with the exceedance.
 - v. Provide the date when the assessment of corrective measures was initiated for the CCR SI.

- vi. Provide the date when the assessment of corrective measures was completed for the CCR SI.
- vii. Specify whether a remedy was selected under 35 I.A.C. § 845.670 during the current annual reporting period, and if so, the date of remedy selection.
- viii. Specify whether remedial activities were initiated or are ongoing under 35 I.A.C. § 845.780 during the current annual reporting period.

An operating permit application for the FAPS was submitted by DMG to IEPA by October 31, 2021 in accordance with the requirements specified in 35 I.A.C. § 845.230(d), and is pending approval. Therefore, the Part 845 groundwater monitoring program has not yet been initiated. This report summarizes the data collected for the FAPS as it was presented in the operating permit application, and includes the following:

- A map showing the CCR SI and all proposed background (or upgradient) and downgradient monitoring wells, including their identification numbers, that are part of the proposed groundwater monitoring program for the CCR SI presented in the GMP included in the operating permit application (Ramboll, 2021a).
- Identification of monitoring wells that were installed during 2021 to fulfill the requirements of 35 I.A.C. § 845.620(b).
- Representative potentiometric surface maps from the independent sampling events conducted in 2021 to meet the requirements of 35 I.A.C. § 845.650(b)(1)(A), as presented in the GMP included in the operating permit application (Ramboll, 2021a).
- A summary from the independent sampling events completed in 2021, including the number of groundwater samples that were collected for analysis for each proposed background and downgradient well and the dates the samples were collected.
- The proposed GWPS as presented in the GMP.
- A summary of the History of Potential Exceedances included in the operating permit application (Ramboll, 2021b), as required by 35 I.A.C. § 845.230(d), summarizing groundwater concentrations from 2015-2021 that exceeded the proposed GWPS.
 - These are considered potential exceedances because the methodology used to determine them is proposed in the Statistical Analysis Plan (Appendix A of the GMP), which is pending IEPA approval.

2. MONITORING AND CORRECTIVE ACTION PROGRAM STATUS

The Part 845 groundwater monitoring program will commence the quarter following IEPA approval and issuance of the operating permit for the FAPS.

3. KEY ACTIONS COMPLETED IN 2021

The proposed Part 845 monitoring well network is presented in **Figure 1** and summarized below in **Table A**. The proposed Part 845 monitoring well network includes wells previously installed for other programs.

Table A. Proposed Part 845 Monitoring Well Network

Well ID	Monitored Unit	Well Screen Interval (feet bgs)	Well Type ¹
MW-150	PMP	15 - 24.7	Compliance
MW-151	PMP	6.1 - 15.8	Compliance
MW-152	PMP	7.5 - 16.7	Compliance
MW-153	PMP	10.4 - 20	Compliance
MW-252	PMP	44.4 - 49	Compliance
MW-253	PMP	29.9 - 34.5	Compliance
MW-304	UA	45 - 55	Background
MW-306	UA	72.7 - 87.7	Background
MW-350	UA	41.6 - 46.2	Compliance
MW-352	UA	67.9 - 72.5	Compliance
MW-366	UA	42 - 52	Compliance
MW-375	UA	57 - 67	Compliance
MW-377	UA	46 - 56	Compliance
MW-383	UA	58 - 68	Compliance
MW-384	UA	60.5 - 70.5	Compliance
MW-390	UA	50 - 65	Compliance
MW-391	UA	55 - 70	Compliance

¹ Well type refers to the role of the well in the monitoring network.

bgs = below ground surface

PMP = potential migration pathway

UA = uppermost aquifer

Select proposed Part 845 monitoring wells are monitored as part of the monitoring system for the requirements of Title 40 of the Code of Federal Regulations (40 C.F.R.) § 257 and to assess natural attenuation. A summary of the samples collected from background and compliance monitoring wells during 2021 is included in **Table B** below. All analytical results obtained in 2021 are presented in the presentation of the History of Potential Exceedances (Ramboll, 2021b).

Table B. Summary of Groundwater Samples Collected

Sampling Dates	Parameters Collected	Monitoring Wells Sampled ¹
March 9 - 12, 2021	Appendix III ² , Appendix IV ³ , field parameters ⁴	MW-304, MW-306, MW-350, MW-366, MW-375, MW-377, MW-383, MW-384, MW-390, and MW-391
June 22, 2021	Lithium; pH; thallium	MW-391
June 21 - 22, 2021	pH, total dissolved solids (TDS)	MW-304 and MW-306
July 19, 2021	pH, TDS	MW-350

¹ In general, one sample was collected per monitoring well per event.

² Appendix III parameters include boron, calcium, chloride, fluoride, pH, sulfate, and TDS.

³ Appendix IV parameters include antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, radium 226 and 228 combined, selenium, thallium.

⁴ Field parameters include pH, dissolved oxygen, temperature, oxidation/reduction potential, specific conductance, and turbidity.

Evaluation of background groundwater quality is presented in the GMP and the proposed GWPSs are included in **Appendix A**. Compliance with Part 845 will be determined after the first round of groundwater sampling following IEPA's issuance of the operating permit for the FAPS.

Groundwater concentrations from 2015 to 2021 were evaluated in the presentation of the History of Potential Exceedances included in the operating permit application. Groundwater concentrations that exceeded the proposed GWPS are considered potential exceedances because the methodology used to determine them is proposed in the Statistical Analysis Plan, which is pending IEPA approval. Tables summarizing how potential historical exceedances were determined and the potential exceedances themselves are provided in **Appendix B**.

4. PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE THE PROBLEMS

The first round of groundwater sampling for compliance with the Part 845 groundwater monitoring program will commence the quarter following IEPA approval and issuance of the operating permit for the FAPS, and in accordance with the GMP.

5. KEY ACTIVITIES PLANNED FOR 2022

The following key activities are planned for 2022:

- Groundwater sampling and reporting for compliance will be initiated the quarter following issuance of the operating permit at all monitoring wells in the approved monitoring well network as presented in the GMP and required by 35 I.A.C. § 845.610(b)(3), including:
 - Monthly groundwater elevations.
 - Quarterly groundwater sampling.

6. REFERENCES

Illinois Environmental Protection Agency (IEPA), 2021. *In the Matter of: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments: Title 35 Illinois Administration Code 845, Addendum*. April 15, 2021.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2021a. *Addendum to the Groundwater Monitoring Plan. Baldwin Power Plant, Fly Ash Pond System, Baldwin, Illinois*. Dynegy Midwest Generation, LLC. October 25, 2021.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2021b. *History of Potential Exceedances. Baldwin Power Plant, Fly Ash Pond System, Baldwin, Illinois*. Dynegy Midwest Generation, LLC. October 25, 2021.

FIGURES

Y:\Mapping\Projects\222286Baldwin\MXD\GMP_Addendum\FAPS\Figure 2-2_Proposed Part 845 GM Well Network.mxd

PROJECT: 169000XXXX | DATED: 10/22/2021 | DESIGNER: STOLZSD



BACKGROUND WELL
 COMPLIANCE WELL
 PART 845 REGULATED UNIT (SUBJECT UNIT)
 FLY ASH POND SYSTEM (CLOSED)

SITE FEATURE
 LIMITS OF FINAL COVER
 PROPERTY BOUNDARY

0 400 800 Feet

PROPOSED PART 845 GROUNDWATER MONITORING WELL NETWORK

2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
 FLY ASH POND SYSTEM
 BALDWIN POWER PLANT
 BALDWIN, ILLINOIS

FIGURE 1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.



APPENDICES

APPENDIX A
TABLE 3-1. BACKGROUND GROUNDWATER QUALITY AND
STANDARDS

TABLE 3-1. BACKGROUND GROUNDWATER QUALITY AND STANDARDS

GROUNDWATER MONITORING PLAN
 BALDWIN POWER PLANT
 FLY ASH POND SYSTEM
 BALDWIN, ILLINOIS

Parameter	Background Concentration	845 Limit	Groundwater Protection Standard	Unit
Antimony, total	0.001	0.006	0.006	mg/L
Arsenic, total	0.015	0.010	0.015	mg/L
Barium, total	0.027	2.0	2.0	mg/L
Beryllium, total	0.001	0.004	0.004	mg/L
Boron, total	1.95	2	2	mg/L
Cadmium, total	0.001	0.005	0.005	mg/L
Chloride, total	160	200	200	mg/L
Chromium, total	0.0015	0.1	0.1	mg/L
Cobalt, total	0.001	0.006	0.006	mg/L
Fluoride, total	2	4.0	4.0	mg/L
Lead, total	0.001	0.0075	0.0075	mg/L
Lithium, total	0.096	0.04	0.096	mg/L
Mercury, total	0.0002	0.002	0.002	mg/L
Molybdenum, total	0.092	0.1	0.1	mg/L
pH (field)	11.5 / 7.4	9.0 / 6.5	11.5 / 6.5	SU
Radium 226 and 228 combined	1.5	5	5	pCi/L
Selenium, total	0.001	0.05	0.05	mg/L
Sulfate, total	208	400	400	mg/L
Thallium, total	0.002	0.002	0.002	mg/L
Total Dissolved Solids	1420	1200	1420	mg/L

Notes:

For pH, the values presented are the upper / lower limits

Groundwater protection standards for calcium and turbidity do not apply per 35 I.A.C. § 845.600(b)

mg/L = milligrams per liter

SU = standard units

pCi/L = picocuries per liter

generated 10/22/2021, 1:24:14 PM CDT

APPENDIX B
HISTORY OF POTENTIAL EXCEEDANCES

HISTORY OF POTENTIAL EXCEEDANCES

This presentation of the History of Potential Exceedances, and any corrective action taken to remediate groundwater, is provided to meet the requirements of Title 35 of the Illinois Administrative Code (35 I.A.C.) § 845.230(d)(3)(G) for the Baldwin Power Plant Fly Ash Pond System, Illinois Environmental Protection Agency (IEPA) ID No. W1578510001-01/-02/-03.

Note

Groundwater concentrations observed from 2015 to 2021 in monitoring wells included in an existing groundwater monitoring program have been evaluated and summarized in the following tables. These concentrations are considered potential exceedances because the methodology used to determine them is proposed in the Statistical Analysis Plan (Appendix A to Groundwater Monitoring Plan [GMP]), which has not been reviewed or approved by the IEPA at the time of submittal of the 35 I.A.C. § 845 Operating Permit application.

Alternate sources for potential exceedances as allowed by 35 I.A.C. § 845.650(e) have not yet been evaluated. These will be evaluated and presented in future submittals to IEPA as appropriate.

Table 1 summarizes how the potential exceedances were determined. Table 2 is a summary of all potential exceedances.

Background Concentrations

Background monitoring wells identified in the GMP include MW-304 and MW-306.

Background concentrations calculated from sampling events in 2015-2017 were compared to the standards identified in 35 I.A.C. § 845.600(a)(1). For constituents with calculated background concentrations in 2015-2017 greater than the standards in 35 I.A.C. § 845.600(a)(1), those calculated background concentrations were used as Groundwater Protection Standards (GWPSs) for comparing to statistical calculation results for each compliance well to determine potential exceedances. Compliance well statistical calculations consider concentrations from all sampling events in 2015-2021.

Corrective Action

A Corrective Measures Assessment (CMA) was completed to address statistically significant levels of total lithium, as required by 40 C.F.R. § 257.96. The CMA indicated the source control measure consists of closure in place with a final cover system of earthen material in accordance with the Closure and Post Closure Care Plan submitted to the IEPA in March 2016 and approved on August 16, 2016. Closure construction began in 2018 and was completed in November 2020.

Activities completed associated with the selection of a groundwater remedy include review of existing groundwater and source water data, identification and collection of additional groundwater and source water samples to support analysis of natural attenuation mechanisms, rates, and aquifer capacity. Preliminary results indicate that site-specific conditions are favorable for implementation of monitored natural attenuation (MNA) in combination with the recently completed closure referenced above.

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES

HISTORY OF POTENTIAL EXCEEDANCES
BALDWIN POWER PLANT
FLY ASH POND SYSTEM
BALDWIN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
MW-150	PMP	pH (field)	SU	03/25/2015 - 06/21/2021	Future median	7.0	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-150	PMP	Total Dissolved Solids	mg/L	03/25/2015 - 06/21/2021	CB around linear reg	1610	1420	1420	1200	Background
MW-151	PMP	pH (field)	SU	03/16/2017 - 06/21/2021	Future median	6.9	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-151	PMP	Total Dissolved Solids	mg/L	03/16/2017 - 06/21/2021	Future median	552	1420	1420	1200	Background
MW-152	PMP	pH (field)	SU	03/25/2015 - 07/19/2021	Future median	6.9	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-152	PMP	Total Dissolved Solids	mg/L	03/25/2015 - 07/19/2021	CB around linear reg	821	1420	1420	1200	Background
MW-153	PMP	pH (field)	SU	03/25/2015 - 06/22/2021	Future median	7.1	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-153	PMP	Total Dissolved Solids	mg/L	03/25/2015 - 06/22/2021	Future median	368	1420	1420	1200	Background
MW-252	PMP	pH (field)	SU	03/25/2015 - 07/19/2021	Future median	6.8	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-252	PMP	Total Dissolved Solids	mg/L	03/25/2015 - 07/19/2021	CB around linear reg	1170	1420	1420	1200	Background
MW-253	PMP	pH (field)	SU	03/25/2015 - 06/22/2021	Future median	11.8	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-253	PMP	Total Dissolved Solids	mg/L	03/25/2015 - 06/22/2021	Future median	530	1420	1420	1200	Background
MW-350	UA	Antimony, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	0.0043	0.006	0.001	0.006	Standard
MW-350	UA	Arsenic, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	0.001	0.010	0.0036	0.01	Standard
MW-350	UA	Barium, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	0.17	2.0	0.028	2	Standard
MW-350	UA	Beryllium, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	0.001	0.004	0.001	0.004	Standard
MW-350	UA	Boron, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	0.68	2.0	1.8	2	Standard
MW-350	UA	Cadmium, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	0.001	0.005	0.001	0.005	Standard
MW-350	UA	Chloride, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	43	200	153	200	Standard
MW-350	UA	Chromium, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	0.0015	0.10	0.0015	0.1	Standard
MW-350	UA	Cobalt, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	0.001	0.006	0.001	0.006	Standard
MW-350	UA	Fluoride, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	0.17	4.0	1.9	4	Standard
MW-350	UA	Lead, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	0.0011	0.0075	0.001	0.0075	Standard
MW-350	UA	Lithium, total	mg/L	06/25/2019 - 03/10/2021	Future median	0.086	0.096	0.096	0.04	Background
MW-350	UA	Mercury, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	0.0002	0.002	0.0002	0.002	Standard
MW-350	UA	Molybdenum, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	0.0068	0.10	0.030	0.1	Standard

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES
HISTORY OF POTENTIAL EXCEEDANCES
BALDWIN POWER PLANT
FLY ASH POND SYSTEM
BALDWIN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
MW-350	UA	pH (field)	SU	03/25/2015 - 07/19/2021	CB around T-S line	10.1	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-350	UA	Radium-226 + Radium 228, tot	pCi/L	03/26/2020 - 03/10/2021	Most recent sample	0.89	5.0	1.6	5	Standard
MW-350	UA	Selenium, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	0.001	0.050	0.001	0.05	Standard
MW-350	UA	Sulfate, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	52	400	208	400	Standard
MW-350	UA	Thallium, total	mg/L	03/26/2020 - 03/10/2021	Most recent sample	0.002	0.002	0.002	0.002	Standard
MW-350	UA	Total Dissolved Solids	mg/L	03/25/2015 - 07/19/2021	CB around linear reg	-88.1	1420	1420	1200	Background
MW-352	UA	pH (field)	SU	03/25/2015 - 07/19/2021	CB around T-S line	6.9	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-352	UA	Total Dissolved Solids	mg/L	03/25/2015 - 07/19/2021	CB around linear reg	1140	1420	1420	1200	Background
MW-366	UA	Antimony, total	mg/L	01/20/2016 - 03/12/2021	All ND - Last	0.001	0.006	0.001	0.006	Standard
MW-366	UA	Arsenic, total	mg/L	01/20/2016 - 03/12/2021	CI around median	0.001	0.010	0.0036	0.01	Standard
MW-366	UA	Barium, total	mg/L	01/20/2016 - 03/12/2021	CB around linear reg	0.011	2.0	0.028	2	Standard
MW-366	UA	Beryllium, total	mg/L	01/20/2016 - 03/12/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
MW-366	UA	Boron, total	mg/L	01/20/2016 - 03/12/2021	CI around mean	1.4	2.0	1.8	2	Standard
MW-366	UA	Cadmium, total	mg/L	01/20/2016 - 03/12/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard
MW-366	UA	Chloride, total	mg/L	01/20/2016 - 03/12/2021	CB around linear reg	43	200	153	200	Standard
MW-366	UA	Chromium, total	mg/L	01/20/2016 - 03/12/2021	All ND - Last	0.0015	0.10	0.0015	0.1	Standard
MW-366	UA	Cobalt, total	mg/L	01/20/2016 - 03/12/2021	CI around median	0.001	0.006	0.001	0.006	Standard
MW-366	UA	Fluoride, total	mg/L	01/20/2016 - 03/12/2021	CB around linear reg	0.12	4.0	1.9	4	Standard
MW-366	UA	Lead, total	mg/L	01/20/2016 - 03/12/2021	All ND - Last	0.001	0.0075	0.001	0.0075	Standard
MW-366	UA	Lithium, total	mg/L	01/20/2016 - 03/12/2021	CB around linear reg	-0.00135	0.096	0.096	0.04	Background
MW-366	UA	Mercury, total	mg/L	01/20/2016 - 03/12/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
MW-366	UA	Molybdenum, total	mg/L	01/20/2016 - 03/12/2021	CI around mean	0.0023	0.10	0.030	0.1	Standard
MW-366	UA	pH (field)	SU	01/20/2016 - 03/12/2021	Future median	7.0	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-366	UA	Radium-226 + Radium 228, tot	pCi/L	01/20/2016 - 03/12/2021	CI around geomean	0.42	5.0	1.6	5	Standard
MW-366	UA	Selenium, total	mg/L	01/20/2016 - 03/12/2021	CI around median	0.001	0.050	0.001	0.05	Standard
MW-366	UA	Sulfate, total	mg/L	01/20/2016 - 03/12/2021	CB around linear reg	393	400	208	400	Standard

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BALDWIN POWER PLANT
FLY ASH POND SYSTEM
BALDWIN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
MW-366	UA	Thallium, total	mg/L	01/20/2016 - 03/12/2021	All ND - Last	0.002	0.002	0.002	0.002	Standard
MW-366	UA	Total Dissolved Solids	mg/L	01/20/2016 - 03/12/2021	CB around linear reg	951	1420	1420	1200	Background
MW-375	UA	Antimony, total	mg/L	01/20/2016 - 03/12/2021	CI around geomean	0.00106	0.006	0.001	0.006	Standard
MW-375	UA	Arsenic, total	mg/L	01/20/2016 - 03/12/2021	CI around mean	0.00153	0.010	0.0036	0.01	Standard
MW-375	UA	Barium, total	mg/L	01/20/2016 - 03/12/2021	CI around median	0.024	2.0	0.028	2	Standard
MW-375	UA	Beryllium, total	mg/L	01/20/2016 - 03/12/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
MW-375	UA	Boron, total	mg/L	01/20/2016 - 03/12/2021	CB around T-S line	1.4	2.0	1.8	2	Standard
MW-375	UA	Cadmium, total	mg/L	01/20/2016 - 03/12/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard
MW-375	UA	Chloride, total	mg/L	01/20/2016 - 03/12/2021	CB around linear reg	99	200	153	200	Standard
MW-375	UA	Chromium, total	mg/L	01/20/2016 - 03/12/2021	All ND - Last	0.0015	0.10	0.0015	0.1	Standard
MW-375	UA	Cobalt, total	mg/L	01/20/2016 - 03/12/2021	All ND - Last	0.001	0.006	0.001	0.006	Standard
MW-375	UA	Fluoride, total	mg/L	01/20/2016 - 03/12/2021	CB around linear reg	2.2	4.0	1.9	4	Standard
MW-375	UA	Lead, total	mg/L	01/20/2016 - 03/12/2021	All ND - Last	0.001	0.0075	0.001	0.0075	Standard
MW-375	UA	Lithium, total	mg/L	01/20/2016 - 03/12/2021	CB around linear reg	0.080	0.096	0.096	0.04	Background
MW-375	UA	Mercury, total	mg/L	01/20/2016 - 03/12/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
MW-375	UA	Molybdenum, total	mg/L	01/20/2016 - 03/12/2021	CI around mean	0.023	0.10	0.030	0.1	Standard
MW-375	UA	pH (field)	SU	01/20/2016 - 03/12/2021	Future median	7.8	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-375	UA	Radium-226 + Radium 228, tot	pCi/L	01/20/2016 - 03/12/2021	CI around mean	0.22	5.0	1.6	5	Standard
MW-375	UA	Selenium, total	mg/L	01/20/2016 - 03/12/2021	CI around median	0.001	0.050	0.001	0.05	Standard
MW-375	UA	Sulfate, total	mg/L	01/20/2016 - 03/12/2021	CI around mean	110	400	208	400	Standard
MW-375	UA	Thallium, total	mg/L	01/20/2016 - 03/12/2021	All ND - Last	0.002	0.002	0.002	0.002	Standard
MW-375	UA	Total Dissolved Solids	mg/L	01/20/2016 - 03/12/2021	CB around T-S line	979	1420	1420	1200	Background
MW-377	UA	Antimony, total	mg/L	01/19/2016 - 03/12/2021	All ND - Last	0.001	0.006	0.001	0.006	Standard
MW-377	UA	Arsenic, total	mg/L	01/19/2016 - 03/12/2021	CI around median	0.001	0.010	0.0036	0.01	Standard
MW-377	UA	Barium, total	mg/L	01/19/2016 - 03/12/2021	CI around mean	0.061	2.0	0.028	2	Standard
MW-377	UA	Beryllium, total	mg/L	01/19/2016 - 03/12/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES

HISTORY OF POTENTIAL EXCEEDANCES
BALDWIN POWER PLANT
FLY ASH POND SYSTEM
BALDWIN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
MW-377	UA	Boron, total	mg/L	01/19/2016 - 03/12/2021	CI around mean	1.7	2.0	1.8	2	Standard
MW-377	UA	Cadmium, total	mg/L	01/19/2016 - 03/12/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard
MW-377	UA	Chloride, total	mg/L	01/19/2016 - 03/12/2021	CI around mean	88	200	153	200	Standard
MW-377	UA	Chromium, total	mg/L	01/19/2016 - 03/12/2021	CB around T-S line	0.001	0.10	0.0015	0.1	Standard
MW-377	UA	Cobalt, total	mg/L	01/19/2016 - 03/12/2021	All ND - Last	0.001	0.006	0.001	0.006	Standard
MW-377	UA	Fluoride, total	mg/L	01/19/2016 - 03/12/2021	CB around linear reg	1.2	4.0	1.9	4	Standard
MW-377	UA	Lead, total	mg/L	01/19/2016 - 03/12/2021	All ND - Last	0.001	0.0075	0.001	0.0075	Standard
MW-377	UA	Lithium, total	mg/L	01/19/2016 - 03/12/2021	CB around linear reg	0.059	0.096	0.096	0.04	Background
MW-377	UA	Mercury, total	mg/L	01/19/2016 - 03/12/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
MW-377	UA	Molybdenum, total	mg/L	01/19/2016 - 03/12/2021	CB around linear reg	0.00054	0.10	0.030	0.1	Standard
MW-377	UA	pH (field)	SU	01/19/2016 - 03/12/2021	Future median	7.2	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-377	UA	Radium-226 + Radium 228, tot	pCi/L	01/19/2016 - 03/12/2021	CI around mean	0.25	5.0	1.6	5	Standard
MW-377	UA	Selenium, total	mg/L	01/19/2016 - 03/12/2021	All ND - Last	0.001	0.050	0.001	0.05	Standard
MW-377	UA	Sulfate, total	mg/L	01/19/2016 - 03/12/2021	CB around linear reg	34	400	208	400	Standard
MW-377	UA	Thallium, total	mg/L	01/19/2016 - 03/12/2021	All ND - Last	0.002	0.002	0.002	0.002	Standard
MW-377	UA	Total Dissolved Solids	mg/L	01/19/2016 - 03/12/2021	Future median	580	1420	1420	1200	Background
MW-383	UA	Antimony, total	mg/L	01/21/2016 - 03/12/2021	CB around linear reg	0.00072	0.006	0.001	0.006	Standard
MW-383	UA	Arsenic, total	mg/L	01/21/2016 - 03/12/2021	CI around median	0.001	0.010	0.0036	0.01	Standard
MW-383	UA	Barium, total	mg/L	01/21/2016 - 03/12/2021	CB around linear reg	0.040	2.0	0.028	2	Standard
MW-383	UA	Beryllium, total	mg/L	01/21/2016 - 03/12/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
MW-383	UA	Boron, total	mg/L	01/21/2016 - 03/12/2021	CI around median	1.3	2.0	1.8	2	Standard
MW-383	UA	Cadmium, total	mg/L	01/21/2016 - 03/12/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard
MW-383	UA	Chloride, total	mg/L	01/21/2016 - 03/12/2021	CI around median	39	200	153	200	Standard
MW-383	UA	Chromium, total	mg/L	01/21/2016 - 03/12/2021	CB around T-S line	0.001	0.10	0.0015	0.1	Standard
MW-383	UA	Cobalt, total	mg/L	01/21/2016 - 03/12/2021	All ND - Last	0.001	0.006	0.001	0.006	Standard
MW-383	UA	Fluoride, total	mg/L	01/21/2016 - 03/12/2021	CB around linear reg	0.66	4.0	1.9	4	Standard

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES

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BALDWIN POWER PLANT
FLY ASH POND SYSTEM
BALDWIN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
MW-383	UA	Lead, total	mg/L	01/21/2016 - 03/12/2021	All ND - Last	0.001	0.0075	0.001	0.0075	Standard
MW-383	UA	Lithium, total	mg/L	01/21/2016 - 03/12/2021	Future median	0.037	0.096	0.096	0.04	Background
MW-383	UA	Mercury, total	mg/L	01/21/2016 - 03/12/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
MW-383	UA	Molybdenum, total	mg/L	01/21/2016 - 03/12/2021	CB around T-S line	0.00405	0.10	0.030	0.1	Standard
MW-383	UA	pH (field)	SU	01/21/2016 - 03/12/2021	Future median	7.6	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-383	UA	Radium-226 + Radium 228, tot	pCi/L	01/21/2016 - 03/12/2021	CI around mean	0.28	5.0	1.6	5	Standard
MW-383	UA	Selenium, total	mg/L	01/21/2016 - 03/12/2021	CI around median	0.001	0.050	0.001	0.05	Standard
MW-383	UA	Sulfate, total	mg/L	01/21/2016 - 03/12/2021	CI around mean	175	400	208	400	Standard
MW-383	UA	Thallium, total	mg/L	01/21/2016 - 03/12/2021	All ND - Last	0.002	0.002	0.002	0.002	Standard
MW-383	UA	Total Dissolved Solids	mg/L	01/21/2016 - 03/12/2021	Future median	884	1420	1420	1200	Background
MW-384	UA	Antimony, total	mg/L	01/21/2016 - 03/11/2021	All ND - Last	0.001	0.006	0.001	0.006	Standard
MW-384	UA	Arsenic, total	mg/L	01/21/2016 - 03/11/2021	All ND - Last	0.001	0.010	0.0036	0.01	Standard
MW-384	UA	Barium, total	mg/L	01/21/2016 - 03/11/2021	CB around linear reg	0.035	2.0	0.028	2	Standard
MW-384	UA	Beryllium, total	mg/L	01/21/2016 - 03/11/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
MW-384	UA	Boron, total	mg/L	01/21/2016 - 03/11/2021	CI around mean	1.4	2.0	1.8	2	Standard
MW-384	UA	Cadmium, total	mg/L	01/21/2016 - 03/11/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard
MW-384	UA	Chloride, total	mg/L	01/21/2016 - 03/11/2021	CB around linear reg	291	200	153	200	Standard
MW-384	UA	Chromium, total	mg/L	01/21/2016 - 03/11/2021	All ND - Last	0.0015	0.10	0.0015	0.1	Standard
MW-384	UA	Cobalt, total	mg/L	01/21/2016 - 03/11/2021	All ND - Last	0.001	0.006	0.001	0.006	Standard
MW-384	UA	Fluoride, total	mg/L	01/21/2016 - 03/11/2021	CB around linear reg	2.2	4.0	1.9	4	Standard
MW-384	UA	Lead, total	mg/L	01/21/2016 - 03/11/2021	All ND - Last	0.001	0.0075	0.001	0.0075	Standard
MW-384	UA	Lithium, total	mg/L	01/21/2016 - 03/11/2021	CB around linear reg	0.042	0.096	0.096	0.04	Background
MW-384	UA	Mercury, total	mg/L	01/21/2016 - 03/11/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
MW-384	UA	Molybdenum, total	mg/L	01/21/2016 - 03/11/2021	CB around linear reg	0.028	0.10	0.030	0.1	Standard
MW-384	UA	pH (field)	SU	01/21/2016 - 03/11/2021	Future median	8.1	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-384	UA	Radium-226 + Radium 228, tot	pCi/L	01/21/2016 - 03/11/2021	CI around geomean	0.32	5.0	1.6	5	Standard

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HISTORY OF POTENTIAL EXCEEDANCES
 BALDWIN POWER PLANT
 FLY ASH POND SYSTEM
 BALDWIN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
MW-384	UA	Selenium, total	mg/L	01/21/2016 - 03/11/2021	All ND - Last	0.001	0.050	0.001	0.05	Standard
MW-384	UA	Sulfate, total	mg/L	01/21/2016 - 03/11/2021	CB around linear reg	25	400	208	400	Standard
MW-384	UA	Thallium, total	mg/L	01/21/2016 - 03/11/2021	All ND - Last	0.002	0.002	0.002	0.002	Standard
MW-384	UA	Total Dissolved Solids	mg/L	01/21/2016 - 03/11/2021	CB around linear reg	1220	1420	1420	1200	Background
MW-390	UA	Antimony, total	mg/L	03/22/2016 - 03/12/2021	CI around median	0.001	0.006	0.001	0.006	Standard
MW-390	UA	Arsenic, total	mg/L	03/22/2016 - 03/12/2021	CI around mean	0.00128	0.010	0.0036	0.01	Standard
MW-390	UA	Barium, total	mg/L	03/22/2016 - 03/12/2021	CB around linear reg	0.076	2.0	0.028	2	Standard
MW-390	UA	Beryllium, total	mg/L	03/22/2016 - 03/12/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
MW-390	UA	Boron, total	mg/L	03/22/2016 - 03/12/2021	CB around linear reg	-1.06	2.0	1.8	2	Standard
MW-390	UA	Cadmium, total	mg/L	03/22/2016 - 03/12/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard
MW-390	UA	Chloride, total	mg/L	03/22/2016 - 03/12/2021	CI around mean	63	200	153	200	Standard
MW-390	UA	Chromium, total	mg/L	03/22/2016 - 03/12/2021	All ND - Last	0.0015	0.10	0.0015	0.1	Standard
MW-390	UA	Cobalt, total	mg/L	03/22/2016 - 03/12/2021	CB around linear reg	0.000145	0.006	0.001	0.006	Standard
MW-390	UA	Fluoride, total	mg/L	03/22/2016 - 03/12/2021	CI around mean	0.75	4.0	1.9	4	Standard
MW-390	UA	Lead, total	mg/L	03/22/2016 - 03/12/2021	CI around median	0.001	0.0075	0.001	0.0075	Standard
MW-390	UA	Lithium, total	mg/L	03/22/2016 - 03/12/2021	Future median	0.017	0.096	0.096	0.04	Background
MW-390	UA	Mercury, total	mg/L	03/22/2016 - 03/12/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
MW-390	UA	Molybdenum, total	mg/L	03/22/2016 - 03/12/2021	CI around geomean	0.00286	0.10	0.030	0.1	Standard
MW-390	UA	pH (field)	SU	03/22/2016 - 03/12/2021	Future median	7.2	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-390	UA	Radium-226 + Radium 228, tot	pCi/L	03/22/2016 - 03/12/2021	CI around mean	0.56	5.0	1.6	5	Standard
MW-390	UA	Selenium, total	mg/L	03/22/2016 - 03/12/2021	CI around median	0.001	0.050	0.001	0.05	Standard
MW-390	UA	Sulfate, total	mg/L	03/22/2016 - 03/12/2021	CI around mean	138	400	208	400	Standard
MW-390	UA	Thallium, total	mg/L	03/22/2016 - 03/12/2021	All ND - Last	0.002	0.002	0.002	0.002	Standard
MW-390	UA	Total Dissolved Solids	mg/L	03/22/2016 - 03/12/2021	Future median	654	1420	1420	1200	Background
MW-391	UA	Antimony, total	mg/L	12/22/2016 - 03/12/2021	CI around geomean	0.00141	0.006	0.001	0.006	Standard
MW-391	UA	Arsenic, total	mg/L	12/22/2016 - 03/12/2021	CI around geomean	0.00123	0.010	0.0036	0.01	Standard

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES
HISTORY OF POTENTIAL EXCEEDANCES
BALDWIN POWER PLANT
FLY ASH POND SYSTEM
BALDWIN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
MW-391	UA	Barium, total	mg/L	12/22/2016 - 03/12/2021	CI around mean	0.025	2.0	0.028	2	Standard
MW-391	UA	Beryllium, total	mg/L	12/22/2016 - 03/12/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
MW-391	UA	Boron, total	mg/L	12/22/2016 - 03/12/2021	CI around mean	2.2	2.0	1.8	2	Standard
MW-391	UA	Cadmium, total	mg/L	12/22/2016 - 03/12/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard
MW-391	UA	Chloride, total	mg/L	12/22/2016 - 03/12/2021	CI around mean	165	200	153	200	Standard
MW-391	UA	Chromium, total	mg/L	12/22/2016 - 03/12/2021	All ND - Last	0.0015	0.10	0.0015	0.1	Standard
MW-391	UA	Cobalt, total	mg/L	12/22/2016 - 03/12/2021	All ND - Last	0.001	0.006	0.001	0.006	Standard
MW-391	UA	Fluoride, total	mg/L	12/22/2016 - 03/12/2021	CI around median	1.9	4.0	1.9	4	Standard
MW-391	UA	Lead, total	mg/L	12/22/2016 - 03/12/2021	All ND - Last	0.001	0.0075	0.001	0.0075	Standard
MW-391	UA	Lithium, total	mg/L	12/22/2016 - 06/22/2021	Future median	0.073	0.096	0.096	0.04	Background
MW-391	UA	Mercury, total	mg/L	12/22/2016 - 03/12/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
MW-391	UA	Molybdenum, total	mg/L	12/22/2016 - 03/12/2021	CI around geomean	0.031	0.10	0.030	0.1	Standard
MW-391	UA	pH (field)	SU	12/22/2016 - 06/22/2021	Future median	7.7	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-391	UA	Radium-226 + Radium 228, tot	pCi/L	12/22/2016 - 03/12/2021	CI around mean	0.52	5.0	1.6	5	Standard
MW-391	UA	Selenium, total	mg/L	12/22/2016 - 03/12/2021	CB around linear reg	-0.00794	0.050	0.001	0.05	Standard
MW-391	UA	Sulfate, total	mg/L	12/22/2016 - 03/12/2021	CI around mean	831	400	208	400	Standard
MW-391	UA	Thallium, total	mg/L	12/22/2016 - 06/22/2021	CI around mean	0.00104	0.002	0.002	0.002	Standard
MW-391	UA	Total Dissolved Solids	mg/L	12/22/2016 - 03/12/2021	Future median	2630	1420	1420	1200	Background

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES

HISTORY OF POTENTIAL EXCEEDANCES
BALDWIN POWER PLANT
FLY ASH POND SYSTEM
BALDWIN, ILLINOIS

Notes:

Potential exceedance of GWPS

HSU = hydrostratigraphic unit:

PMP = potential migration pathway

UA = uppermost aquifer

mg/L = milligrams per liter

pCi/L = picocuries per liter

SU = standard units

Statistical Calculation = method used to calculate the statistical result:

All ND - Last = All results were below the reporting limit, and the last determined reporting limit is shown

CB around linear reg = Confidence band around linear regression

CB around T-S line = Confidence band around Thiel-Sen line

CI around geomean = Confidence interval around the geometric mean

CI around mean = Confidence interval around the mean

CI around median = Confidence interval around the median

Future median = Median of the three most recent samples

Most recent sample = Result for the most recently collected sample used due to insufficient data

Statistical Result = calculated in accordance with Statistical Analysis Plan using constituent concentrations observed at monitoring well during all sampling events within the specified date range

For pH, the values presented are the lower / upper limits

GWPS = Groundwater Protection Standard

GWPS Source:

Standard = standard specified in 35 I.A.C. § 845.600(a)(1)

Background = background concentration (see cover page for additional information)

TABLE 2. SUMMARY OF POTENTIAL EXCEEDANCES

HISTORY OF POTENTIAL EXCEEDANCES
 BALDWIN POWER PLANT
 FLY ASH POND SYSTEM
 BALDWIN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
MW-150	PMP	Total Dissolved Solids	mg/L	03/25/2015 - 06/21/2021	CB around linear reg	1610	1420	1420	1200	Background
MW-253	PMP	pH (field)	SU	03/25/2015 - 06/22/2021	Future median	11.8	6.5/12	7.4/11.5	6.5/9	Standard/Background
MW-384	UA	Chloride, total	mg/L	01/21/2016 - 03/11/2021	CB around linear reg	291	200	153	200	Standard
MW-391	UA	Boron, total	mg/L	12/22/2016 - 03/12/2021	CI around mean	2.2	2.0	1.8	2	Standard
MW-391	UA	Sulfate, total	mg/L	12/22/2016 - 03/12/2021	CI around mean	831	400	208	400	Standard
MW-391	UA	Total Dissolved Solids	mg/L	12/22/2016 - 03/12/2021	Future median	2630	1420	1420	1200	Background

Notes:

HSU = hydrostratigraphic unit:

PMP = potential migration pathway

UA = uppermost aquifer

mg/L = milligrams per liter

pCi/L = picocuries per liter

SU = standard units

Statistical Calculation = method used to calculate the statistical result:

CB around linear reg = Confidence band around linear regression

CI around mean = Confidence interval around the mean

Future median = Median of the three most recent samples

Statistical Result = calculated in accordance with Statistical Analysis Plan using constituent concentrations observed at monitoring well during all sampling events within the specified date range

For pH, the values presented are the lower / upper limits

GWPS = Groundwater Protection Standard

GWPS Source:

Standard = standard specified in 35 I.A.C. § 845.600(a)(1)

Background = background concentration (see cover page for additional information)