Illinois Power Generating Company
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: Coffeen Ash Pond No. 2 (IEPA ID: W1350150004-02) Annual Consolidated Report

Dear Mr. LeCrone:

In accordance with 35 IAC § 845.550, Illinois Power Generating Company (IPGC) is submitting the annual consolidated report for the Coffeen Ash Pond No. 2 (IEPA ID: W1350150004-02), as enclosed.

Sincerely,

Dianna Tickner

Dianna Tickner
Director Decommissioning & Demolition

Enclosures

Annual Consolidated Report
Illinois Power Generating Company
Coffeen Power Plant
Ash Pond No. 2; IEPA **ID: W1350150004-02**

In accordance with 35 IAC § 845.550, Illinois Power Generating Company (IPGC) 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	Coffeen Power Station Montgomery County, Illinois 62017 10/18/2021
Operator Name / Address	Luminant Generation Company LLC 6555 Sierra Drive, Irving, TX 75039
CCR unit	Ash Pond No. 2

INSPECTION REPORT 35 IAC § 845.540 Date of Inspection 10/18/2021	
(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.	Closure of this impoundment was 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	Impoundment has been capped and closed - there is zero (0) ac-ft of storage capacity.
(b)(2)(E) The approximate volume of the impounded water and CCR contained in the unit at the time of the inspection.	Impoundment has been dewatered, capped and closed, there is approximately 1300 ac-ft of CCR impounded.
(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 10/18/2021	
(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))	Based on a review of the CCR unit's records, the CCR unit is designed, operated, and maintained to adequately manage the flow from the CCR impoundment and control the peak discharge from the inflow design flood.

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: Coffeen Power Station

CCR Unit: Ash Pond No. 2

35 IAC § 845.540 (b)(2)(B)		
Instrument ID #	Type	Maximum recorded reading since previous annual inspection (ft)
P009	Piezometer	623.83'
P010	Piezometer	616.46'
P012	Piezometer	622.31'
P014	Piezometer	613.05'

35 IAC § 845.540 (b)(2)(C)						
	Approximate Depth / Elevation					
Since previous inspection:	Elevation (ft)			Depth (ft)		
	Minimum	Present	Maximum	Minimum	Present	Maximum
Impounded Water		0			0	
CCR	636		648	42		54

Section 2
Annual Groundwater and Corrective Action Report

Prepared for
Illinois Power Generating Company

Date
January 31, 2022

Project No.
194010711-004

2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

ASH POND NO. 2

COFFEEN POWER PLANT

COFFEEN, ILLINOIS

RAMBOLL Bright ideas. Sustainable change.

2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
COFFEEN POWER PLANT ASH POND NO. 2

Project name	**Coffeen Power Plant Ash Pond No. 2**
Project no.	**1940100711-004**
Recipient	**Illinois Power Generating Company**
Document type	**Annual Groundwater Monitoring and Corrective Action Report**
Version	**FINAL**
Date	**January 31, 2022**
Prepared by	**Kristen L. Theesfeld**
Checked by	**Lauren Cook**
Approved by	**Brian Hennings**
Description	**Annual Report in Support of Part 845**

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Brian Hennings, PG
Managing Hydrogeologist

CONTENTS

TABLES (IN TEXT)

FIGURES

APPENDICES

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
AP2	Ash Pond No. 2
bgs	below ground surface
CCR	coal combustion residuals
CPP	Coffeen Power Plant
GMP	Addendum to the Groundwater Monitoring Plan
GWPS	groundwater protection standard
ID	identification
IEPA	Illinois Environmental Protection Agency
IPGC	Illinois Power Generating Company
LCU	lower confining unit
NA	not applicable
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
Ramboll	Ramboll Americas Engineering Solutions, Inc.
SI	surface impoundment
SSI	statistically significant increase
TDS	total dissolved solids
UA	uppermost aquifer
WLO	water level only

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 Ash Pond Number (No.) 2 (AP2) located at Coffeen Power Plant (CPP) near Coffeen, Illinois.

An operating permit application for AP2 was submitted by Illinois Power Generating Company (IPGC) 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. AP2 is recognized by Vistra identification (ID) No. 102, IEPA ID No. W1350150004-02, and National Inventory of Dams (NID) No. IL50723.

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 AP2 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 AP2, submitted to IEPA by October 31, 2021, which is pending IEPA approval.

1. INTRODUCTION

This report has been prepared by Ramboll on behalf of IPGC, to provide the information required by 35 I.A.C. § 845.610(e) for AP2 located at CPP near Coffeen, Illinois. The owner or operator of a coal combustion residuals (CCR) surface impoundment (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 AP2 was submitted by IPGC 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 AP2 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 AP2.

3. KEY ACTIONS COMPLETED IN 2021

Work was completed in 2021 to meet the requirements of Part 845 and details were provided in the operating permit application submitted to IEPA. The boring logs and well construction forms are included in Appendix A of the GMP provided with the operating permit application (Ramboll, 2021a).

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]
G270	UA	13.1 - 17.9	Background
G280	UA	12.8 - 17.6	Background
G281	UA	15.5 - 20.2	Background
G401	UA	14.4 - 18.8	Compliance
G402	UA	10 - 20	Compliance
G403	UA	13.1 - 17.8	Compliance
G404	UA	6.4 - 11.2	Compliance
G405	UA	9.0 - 13.8	Compliance
G406	UA	13.6 - 18.4	Compliance
G407	UA	13.8 - 18.6	Compliance
G1001	LCU	6 - 11	Compliance
SG-02 [2, 3]	Surface Water	NA	WLO
SG-03 [2, 3]	Surface Water	NA	WLO
SG-04 [2, 3]	Surface Water	NA	WLO

[1] Well type refers to the role of the well in the monitoring network.
[2] Surface water level measuring point.
[3] Location is temporary pending implementation of impoundment closure per an approved Construction Permit Application.
bgs = below ground surface
LCU = lower confining unit
NA = not applicable
UA = uppermost aquifer
WLO = water level only

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 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). Groundwater elevation contour maps representative of the independent sampling events are presented in **Figure 2**.

Table B. Summary of Groundwater Samples Collected

Sampling Dates	Parameters Collected	Monitoring Wells Sampled [4]
January 21-29, 2021	Appendix III [1], Appendix IV [2], field parameters [3]	G401, G402, G403, G404, G405, G406, G407
April 21-27, 2021	Total metals [4], soluble metals [5], inorganic parameters [5], radium 226 and 228, field parameters [3]	G401, G402, G403, G404, G405, G406, G407
August 17-18, 2021	Appendix III [1], Appendix IV [2] (detected only), field parameters [3]	G401, G402, G403, G404, G405, G406, G407

[1] Appendix III parameters include boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids (TDS).
[2] Appendix IV parameters include antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, radium 226 and 228 combined, selenium, thallium.
[3] Field parameters include pH, dissolved oxygen, temperature, oxidation/reduction potential, specific conductance, and turbidity.
[4] Total metals include antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium.
[5] Soluble metals include aluminum, arsenic, boron, copper, iron, lead, manganese, nickel, silver, vanadium, zinc.
[6] Inorganic parameters include chloride, cyanide, fluoride, nitrate-N, sulfate and TDS.
[7] In general, one sample was collected per monitoring well per event.

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 AP2.

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 AP2, 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. Coffeen Power Plant, Ash Pond No. 2, Coffeen, Illinois*. Illinois Power Generating Company. October 25, 2021.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2021b. *History of Potential Exceedances. Coffeen Power Plant, Ash Pond No. 2, Coffeen, Illinois*. Illinois Power Generating Company. October 25, 2021.

FIGURES

COMPLIANCE WELL
BACKGROUND WELL
MONITORING WELL
STAFF GAGE
PART 845 REGULATED UNIT (SUBJECT UNIT)
SITE FEATURE
LIMITS OF FINAL COVER
PROPERTY BOUNDARY

0 200 400 Feet

PROPOSED PART 845 GROUNDWATER MONITORING WELL NETWORK

2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
ASH POND NO. 2
COFFEEN POWER PLANT
COFFEEN, ILLINOIS

FIGURE 1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

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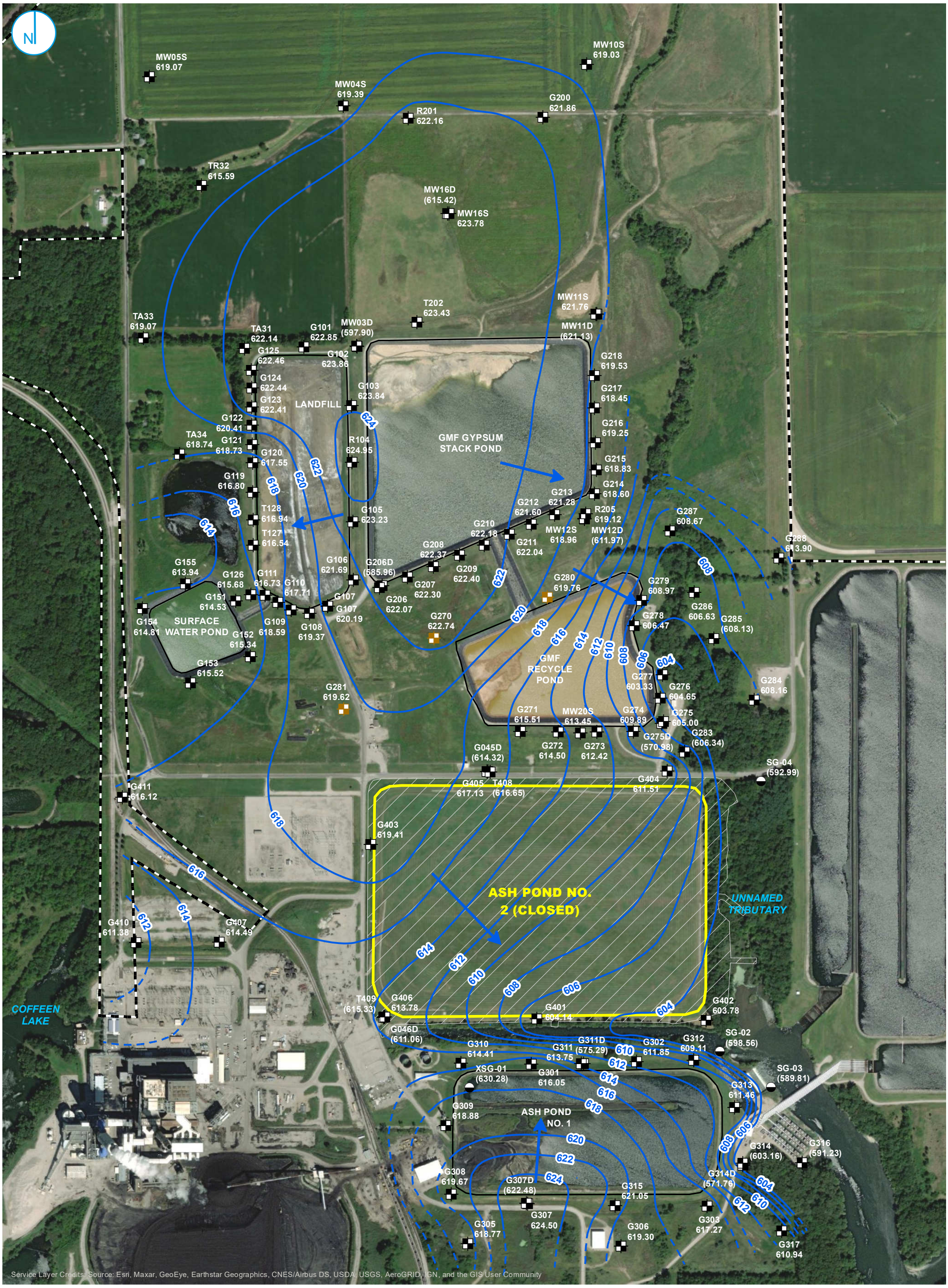
Y:\Mapping\Projects\22\2285\MXD\845_Operating_Permit\Coffeen\AP2_GMP\Figure 2-1_Proposed Monitoring Well Network.mxd
PROJECT: 1690000XXXX | DATED: 10/6/2021 | DESIGNER: STOLZSD



BACKGROUND WELL

MONITORING WELL; BACKGROUND WELL

GROUNDWATER ELEVATION CONTOUR (2-FT CONTOUR INTERVAL, NAVD88)

INFERRED GROUNDWATER ELEVATION CONTOUR

GROUNDWATER FLOW DIRECTION

PART 845 REGULATED UNIT (SUBJECT UNIT)

SITE FEATURE

LIMITS OF FINAL COVER

PROPERTY BOUNDARY

0 275 550 Feet

NOTE:
ELEVATIONS IN PARENTHESES WERE NOT USED FOR CONTOURING.
NM = NOT MEASURED

POTENTIOMETRIC SURFACE MAP APRIL 20, 2021

2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ASH POND NO. 2

COFFEEN POWER PLANT
COFFEEN, ILLINOIS

FIGURE 2

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.

RAMBOLL

APPENDICES

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

TABLE 3-1. BACKGROUND GROUNDWATER QUALITY AND STANDARDS
GROUNDWATER MONITORING PLAN
COFFEEN POWER PLANT
ASH POND NO. 2
COFFEEN, ILLINOIS

Parameter	Background Concentration	845 Limit	Groundwater Protection Standard	Unit
Antimony, total	0.003	0.006	0.006	mg/L
Arsenic, total	0.0066	0.010	0.010	mg/L
Barium, total	0.14	2.0	2.0	mg/L
Beryllium, total	0.001	0.004	0.004	mg/L
Boron, total	0.029	2	2	mg/L
Cadmium, total	0.001	0.005	0.005	mg/L
Chloride, total	75	200	200	mg/L
Chromium, total	0.019	0.1	0.1	mg/L
Cobalt, total	0.0059	0.006	0.006	mg/L
Fluoride, total	0.513	4.0	4.0	mg/L
Lead, total	0.012	0.0075	0.012	mg/L
Lithium, total	0.019	0.04	0.04	mg/L
Mercury, total	0.0002	0.002	0.002	mg/L
Molybdenum, total	0.0045	0.1	0.1	mg/L
pH (field)	7.5 / 6.6	9.0 / 6.5	9.0 / 6.5	SU
Radium 226 and 228 combined	1.89	5	5	pCi/L
Selenium, total	0.0048	0.05	0.05	mg/L
Sulfate, total	370	400	400	mg/L
Thallium, total	0.001	0.002	0.002	mg/L
Total Dissolved Solids	840	1200	1200	mg/L

Notes:
For pH, the values presented are the upper / lower limits
GWPS 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 10/06/2021, 4:21:50 PM CDT

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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)(2)(M) for the Coffeen Power Plant Ash Pond No. 2, Illinois Environmental Protection Agency (IEPA) ID No. W1350150004-02.

Note

Groundwater concentrations observed from 2015 to 2021 in monitoring wells included in an existing groundwater monitoring program or installed in 2021 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 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.

Results for G154, G279, G410, and G411 are provided in Tables 1 and 2 because they were included in the previously approved GMP. As discussed in the GMP Addendum, wells G154, G279, G410, and G411 have been removed from the monitoring program because these locations are not downgradient of Ash Pond No. 2.

Background Concentrations

Background monitoring wells identified in the GMP include G281, G270, and G280.

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 cobalt and 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 geomembrane cover system in accordance with the Closure and Post Closure Care Plan submitted to the IEPA in January 2017 and approved on January 30, 2018. Closure construction began in July of 2019 and was completed on November 17, 2020.

Activities completed associated with the selection of a groundwater remedy include review of existing groundwater and source water data, and collection of additional samples of groundwater, source water, surface water, and aquifer solids 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
COFFEEN POWER PLANT
ASH POND NO. 2
COFFEEN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
G154	UA	Antimony, total	mg/L	10/13/2020 - 08/18/2021	All ND - Last	0.003	0.006	0.003	0.006	Standard
G154	UA	Arsenic, total	mg/L	10/13/2020 - 08/18/2021	CI around median	0	0.010	0.0043	0.01	Standard
G154	UA	Barium, total	mg/L	10/13/2020 - 08/18/2021	CI around mean	0.036	2.0	0.18	2	Standard
G154	UA	Beryllium, total	mg/L	10/13/2020 - 08/18/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
G154	UA	Boron, total	mg/L	10/13/2020 - 08/18/2021	CI around mean	0.010	2.0	0.022	2	Standard
G154	UA	Cadmium,total	mg/L	10/13/2020 - 08/18/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard
G154	UA	Chloride, total	mg/L	10/13/2020 - 08/18/2021	CI around mean	8.3	200	75	200	Standard
G154	UA	Chromium, total	mg/L	10/13/2020 - 08/18/2021	All ND - Last	0.004	0.10	0.011	0.1	Standard
G154	UA	Cobalt, total	mg/L	10/13/2020 - 08/18/2021	All ND - Last	0.002	0.006	0.0056	0.006	Standard
G154	UA	Fluoride, total	mg/L	10/13/2020 - 08/18/2021	CI around mean	0.61	4.0	0.49	4	Standard
G154	UA	Lead, total	mg/L	10/13/2020 - 08/18/2021	CI around median	0	0.0075	0.0063	0.0075	Standard
G154	UA	Lithium, total	mg/L	10/13/2020 - 08/18/2021	All ND - Last	0.020	0.040	0.013	0.04	Standard
G154	UA	Mercury, total	mg/L	10/13/2020 - 08/18/2021	CI around median	0	0.002	0.0002	0.002	Standard
G154	UA	Molybdenum, total	mg/L	10/13/2020 - 08/18/2021	CI around mean	0.000919	0.10	0.0015	0.1	Standard
G154	UA	pH (field)	SU	01/21/2015 - 08/18/2021	CI around mean	6.9	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard
G154	UA	Radium-226 + Radium 228, tot	pCi/L	10/13/2020 - 08/18/2021	CI around mean	-0.901	5.0	2.0	5	Standard
G154	UA	Selenium, total	mg/L	10/13/2020 - 08/18/2021	CI around mean	0.00111	0.050	0.0012	0.05	Standard
G154	UA	Sulfate, total	mg/L	10/13/2020 - 08/18/2021	CI around mean	66	400	370	400	Standard
G154	UA	Thallium, total	mg/L	10/13/2020 - 08/18/2021	All ND - Last	0.001	0.002	0.001	0.002	Standard
G154	UA	Total Dissolved Solids	mg/L	01/21/2015 - 08/18/2021	CI around mean	422	1200	840	1200	Standard
G279	UA	Antimony, total	mg/L	04/13/2015 - 08/18/2021	All ND - Last	0.003	0.006	0.003	0.006	Standard
G279	UA	Arsenic, total	mg/L	01/21/2015 - 08/18/2021	CI around median	0.001	0.010	0.0043	0.01	Standard
G279	UA	Barium, total	mg/L	04/13/2015 - 08/18/2021	CB around linear reg	0.020	2.0	0.18	2	Standard
G279	UA	Beryllium, total	mg/L	04/13/2015 - 08/18/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
G279	UA	Boron, total	mg/L	01/21/2015 - 08/18/2021	CI around geomean	0.085	2.0	0.022	2	Standard
G279	UA	Cadmium,total	mg/L	01/21/2015 - 08/18/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES
HISTORY OF POTENTIAL EXCEEDANCES
COFFEEN POWER PLANT
ASH POND NO. 2
COFFEEN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
G279	UA	Chloride, total	mg/L	01/21/2015 - 08/18/2021	CI around median	57	200	75	200	Standard
G279	UA	Chromium, total	mg/L	04/13/2015 - 08/18/2021	CI around median	0.004	0.10	0.011	0.1	Standard
G279	UA	Cobalt, total	mg/L	04/13/2015 - 08/18/2021	CI around median	0.002	0.006	0.0056	0.006	Standard
G279	UA	Fluoride, total	mg/L	04/13/2015 - 08/18/2021	CI around mean	0.33	4.0	0.49	4	Standard
G279	UA	Lead, total	mg/L	01/21/2015 - 08/18/2021	CI around median	0.001	0.0075	0.0063	0.0075	Standard
G279	UA	Lithium, total	mg/L	11/24/2015 - 08/18/2021	CI around median	0.010	0.040	0.013	0.04	Standard
G279	UA	Mercury, total	mg/L	04/13/2015 - 08/18/2021	CI around median	0.0002	0.002	0.0002	0.002	Standard
G279	UA	Molybdenum, total	mg/L	07/23/2015 - 08/18/2021	CB around T-S line	0.000541	0.10	0.0015	0.1	Standard
G279	UA	pH (field)	SU	01/21/2015 - 08/18/2021	CI around mean	6.9	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard
G279	UA	Radium-226 + Radium 228, tot	pCi/L	11/24/2015 - 08/18/2021	CI around mean	0.65	5.0	2.0	5	Standard
G279	UA	Selenium, total	mg/L	04/13/2015 - 08/18/2021	CB around linear reg	-0.0027	0.050	0.0012	0.05	Standard
G279	UA	Sulfate, total	mg/L	01/21/2015 - 08/18/2021	CI around geomean	323	400	370	400	Standard
G279	UA	Thallium, total	mg/L	04/13/2015 - 08/18/2021	All ND - Last	0.001	0.002	0.001	0.002	Standard
G279	UA	Total Dissolved Solids	mg/L	01/21/2015 - 08/18/2021	CI around geomean	938	1200	840	1200	Standard
G401	UA	Antimony, total	mg/L	11/21/2015 - 08/17/2021	All ND - Last	0.003	0.006	0.003	0.006	Standard
G401	UA	Arsenic, total	mg/L	11/21/2015 - 08/17/2021	CI around geomean	0.00191	0.010	0.0043	0.01	Standard
G401	UA	Barium, total	mg/L	11/21/2015 - 08/17/2021	CI around geomean	0.019	2.0	0.18	2	Standard
G401	UA	Beryllium, total	mg/L	11/21/2015 - 08/17/2021	CI around median	0.001	0.004	0.001	0.004	Standard
G401	UA	Boron, total	mg/L	11/21/2015 - 08/17/2021	CI around median	3.5	2.0	0.022	2	Standard
G401	UA	Cadmium,total	mg/L	11/21/2015 - 08/17/2021	CI around median	0.001	0.005	0.001	0.005	Standard
G401	UA	Chloride, total	mg/L	11/21/2015 - 08/17/2021	CI around geomean	2.7	200	75	200	Standard
G401	UA	Chromium, total	mg/L	11/21/2015 - 08/17/2021	CI around median	0.004	0.10	0.011	0.1	Standard
G401	UA	Cobalt, total	mg/L	11/21/2015 - 08/17/2021	CI around mean	0.22	0.006	0.0056	0.006	Standard
G401	UA	Fluoride, total	mg/L	11/21/2015 - 08/17/2021	CI around median	0.25	4.0	0.49	4	Standard
G401	UA	Lead, total	mg/L	11/21/2015 - 08/17/2021	CI around median	0.001	0.0075	0.0063	0.0075	Standard
G401	UA	Lithium, total	mg/L	11/21/2015 - 08/17/2021	CI around geomean	0.039	0.040	0.013	0.04	Standard

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES
HISTORY OF POTENTIAL EXCEEDANCES
COFFEEN POWER PLANT
ASH POND NO. 2
COFFEEN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
G401	UA	Mercury, total	mg/L	11/21/2015 - 08/17/2021	CI around median	0.0002	0.002	0.0002	0.002	Standard
G401	UA	Molybdenum, total	mg/L	11/21/2015 - 08/17/2021	CI around median	0.001	0.10	0.0015	0.1	Standard
G401	UA	pH (field)	SU	11/21/2015 - 08/17/2021	CI around mean	6.0	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard
G401	UA	Radium-226 + Radium 228, tot	pCi/L	11/21/2015 - 08/17/2021	CI around geomean	0.74	5.0	2.0	5	Standard
G401	UA	Selenium, total	mg/L	11/21/2015 - 08/17/2021	CI around median	0.001	0.050	0.0012	0.05	Standard
G401	UA	Sulfate, total	mg/L	11/21/2015 - 08/17/2021	CI around median	2000	400	370	400	Standard
G401	UA	Thallium, total	mg/L	11/21/2015 - 08/17/2021	All ND - Last	0.001	0.002	0.001	0.002	Standard
G401	UA	Total Dissolved Solids	mg/L	11/21/2015 - 08/17/2021	CI around median	2800	1200	840	1200	Standard
G402	UA	Antimony, total	mg/L	11/21/2015 - 08/17/2021	All ND - Last	0.003	0.006	0.003	0.006	Standard
G402	UA	Arsenic, total	mg/L	11/21/2015 - 08/17/2021	CB around linear reg	-0.00803	0.010	0.0043	0.01	Standard
G402	UA	Barium, total	mg/L	11/21/2015 - 08/17/2021	CB around linear reg	-0.00763	2.0	0.18	2	Standard
G402	UA	Beryllium, total	mg/L	11/21/2015 - 08/17/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
G402	UA	Boron, total	mg/L	11/21/2015 - 08/17/2021	CI around mean	5.5	2.0	0.022	2	Standard
G402	UA	Cadmium,total	mg/L	11/21/2015 - 08/17/2021	Most recent sample	0.001	0.005	0.001	0.005	Standard
G402	UA	Chloride, total	mg/L	11/21/2015 - 08/17/2021	CI around mean	1.8	200	75	200	Standard
G402	UA	Chromium, total	mg/L	11/21/2015 - 08/17/2021	CB around linear reg	-0.00638	0.10	0.011	0.1	Standard
G402	UA	Cobalt, total	mg/L	11/21/2015 - 08/17/2021	CB around linear reg	-0.00375	0.006	0.0056	0.006	Standard
G402	UA	Fluoride, total	mg/L	11/21/2015 - 08/17/2021	CI around median	0.30	4.0	0.49	4	Standard
G402	UA	Lead, total	mg/L	11/21/2015 - 08/17/2021	CB around linear reg	-0.00606	0.0075	0.0063	0.0075	Standard
G402	UA	Lithium, total	mg/L	11/21/2015 - 08/17/2021	CB around linear reg	0.011	0.040	0.013	0.04	Standard
G402	UA	Mercury, total	mg/L	11/21/2015 - 08/17/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
G402	UA	Molybdenum, total	mg/L	11/21/2015 - 08/17/2021	CB around linear reg	0.000642	0.10	0.0015	0.1	Standard
G402	UA	pH (field)	SU	11/21/2015 - 08/17/2021	CB around linear reg	6.7	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard
G402	UA	Radium-226 + Radium 228, tot	pCi/L	11/21/2015 - 08/17/2021	CB around linear reg	-1.04	5.0	2.0	5	Standard
G402	UA	Selenium, total	mg/L	11/21/2015 - 08/17/2021	CB around T-S line	-0.00028	0.050	0.0012	0.05	Standard
G402	UA	Sulfate, total	mg/L	11/21/2015 - 08/17/2021	CB around T-S line	421	400	370	400	Standard

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES
HISTORY OF POTENTIAL EXCEEDANCES
COFFEEN POWER PLANT
ASH POND NO. 2
COFFEEN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
G402	UA	Thallium, total	mg/L	11/21/2015 - 08/17/2021	All ND - Last	0.001	0.002	0.001	0.002	Standard
G402	UA	Total Dissolved Solids	mg/L	11/21/2015 - 08/17/2021	CI around mean	1600	1200	840	1200	Standard
G403	UA	Antimony, total	mg/L	11/23/2015 - 08/17/2021	All ND - Last	0.003	0.006	0.003	0.006	Standard
G403	UA	Arsenic, total	mg/L	11/23/2015 - 08/17/2021	CI around median	0.001	0.010	0.0043	0.01	Standard
G403	UA	Barium, total	mg/L	11/23/2015 - 08/17/2021	CB around linear reg	0.079	2.0	0.18	2	Standard
G403	UA	Beryllium, total	mg/L	11/23/2015 - 08/17/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
G403	UA	Boron, total	mg/L	11/23/2015 - 08/17/2021	CI around mean	0.020	2.0	0.022	2	Standard
G403	UA	Cadmium,total	mg/L	11/23/2015 - 08/17/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard
G403	UA	Chloride, total	mg/L	11/23/2015 - 08/17/2021	CI around mean	3.7	200	75	200	Standard
G403	UA	Chromium, total	mg/L	11/23/2015 - 08/17/2021	CI around median	0.004	0.10	0.011	0.1	Standard
G403	UA	Cobalt, total	mg/L	11/23/2015 - 08/17/2021	CI around median	0.002	0.006	0.0056	0.006	Standard
G403	UA	Fluoride, total	mg/L	11/23/2015 - 08/17/2021	CI around mean	0.36	4.0	0.49	4	Standard
G403	UA	Lead, total	mg/L	11/23/2015 - 08/17/2021	CI around median	0.001	0.0075	0.0063	0.0075	Standard
G403	UA	Lithium, total	mg/L	11/23/2015 - 08/17/2021	All ND - Last	0.020	0.040	0.013	0.04	Standard
G403	UA	Mercury, total	mg/L	11/23/2015 - 08/17/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
G403	UA	Molybdenum, total	mg/L	11/23/2015 - 08/17/2021	CI around median	0.001	0.10	0.0015	0.1	Standard
G403	UA	pH (field)	SU	11/23/2015 - 08/17/2021	CI around mean	6.9	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard
G403	UA	Radium-226 + Radium 228, tot	pCi/L	11/23/2015 - 08/17/2021	CI around mean	0.49	5.0	2.0	5	Standard
G403	UA	Selenium, total	mg/L	11/23/2015 - 08/17/2021	CI around median	0.001	0.050	0.0012	0.05	Standard
G403	UA	Sulfate, total	mg/L	11/23/2015 - 08/17/2021	CB around linear reg	28	400	370	400	Standard
G403	UA	Thallium, total	mg/L	11/23/2015 - 08/17/2021	All ND - Last	0.001	0.002	0.001	0.002	Standard
G403	UA	Total Dissolved Solids	mg/L	11/23/2015 - 08/17/2021	CI around geomean	317	1200	840	1200	Standard
G404	UA	Antimony, total	mg/L	10/07/2015 - 08/17/2021	All ND - Last	0.003	0.006	0.003	0.006	Standard
G404	UA	Arsenic, total	mg/L	10/07/2015 - 08/17/2021	CI around median	0.001	0.010	0.0043	0.01	Standard
G404	UA	Barium, total	mg/L	10/07/2015 - 08/17/2021	CI around mean	0.040	2.0	0.18	2	Standard
G404	UA	Beryllium, total	mg/L	10/07/2015 - 08/17/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES
HISTORY OF POTENTIAL EXCEEDANCES
COFFEEN POWER PLANT
ASH POND NO. 2
COFFEEN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
G404	UA	Boron, total	mg/L	10/07/2015 - 08/17/2021	CI around mean	2.6	2.0	0.022	2	Standard
G404	UA	Cadmium,total	mg/L	10/07/2015 - 08/17/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard
G404	UA	Chloride, total	mg/L	10/07/2015 - 08/17/2021	CB around linear reg	164	200	75	200	Standard
G404	UA	Chromium, total	mg/L	10/07/2015 - 08/17/2021	All ND - Last	0.004	0.10	0.011	0.1	Standard
G404	UA	Cobalt, total	mg/L	10/07/2015 - 08/17/2021	CI around median	0.002	0.006	0.0056	0.006	Standard
G404	UA	Fluoride, total	mg/L	10/07/2015 - 08/17/2021	CI around median	0.25	4.0	0.49	4	Standard
G404	UA	Lead, total	mg/L	10/07/2015 - 08/17/2021	CI around median	0.001	0.0075	0.0063	0.0075	Standard
G404	UA	Lithium, total	mg/L	11/21/2015 - 08/17/2021	CB around linear reg	0.017	0.040	0.013	0.04	Standard
G404	UA	Mercury, total	mg/L	10/07/2015 - 08/17/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
G404	UA	Molybdenum, total	mg/L	10/07/2015 - 08/17/2021	All ND - Last	0.001	0.10	0.0015	0.1	Standard
G404	UA	pH (field)	SU	10/07/2015 - 08/17/2021	CI around mean	6.9	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard
G404	UA	Radium-226 + Radium 228, tot	pCi/L	11/21/2015 - 08/17/2021	CI around mean	0.57	5.0	2.0	5	Standard
G404	UA	Selenium, total	mg/L	10/07/2015 - 08/17/2021	All ND - Last	0.001	0.050	0.0012	0.05	Standard
G404	UA	Sulfate, total	mg/L	10/07/2015 - 08/17/2021	CI around mean	203	400	370	400	Standard
G404	UA	Thallium, total	mg/L	10/07/2015 - 08/17/2021	All ND - Last	0.001	0.002	0.001	0.002	Standard
G404	UA	Total Dissolved Solids	mg/L	10/07/2015 - 08/17/2021	CB around linear reg	837	1200	840	1200	Standard
G405	UA	Antimony, total	mg/L	10/07/2015 - 08/17/2021	All ND - Last	0.003	0.006	0.003	0.006	Standard
G405	UA	Arsenic, total	mg/L	10/07/2015 - 08/17/2021	CB around T-S line	-0.0105	0.010	0.0043	0.01	Standard
G405	UA	Barium, total	mg/L	10/07/2015 - 08/17/2021	CI around geomean	0.020	2.0	0.18	2	Standard
G405	UA	Beryllium, total	mg/L	10/07/2015 - 08/17/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
G405	UA	Boron, total	mg/L	10/07/2015 - 08/17/2021	CB around linear reg	3.2	2.0	0.022	2	Standard
G405	UA	Cadmium,total	mg/L	10/07/2015 - 08/17/2021	CI around median	0.001	0.005	0.001	0.005	Standard
G405	UA	Chloride, total	mg/L	10/07/2015 - 08/17/2021	CI around geomean	9.2	200	75	200	Standard
G405	UA	Chromium, total	mg/L	10/07/2015 - 08/17/2021	CI around median	0.004	0.10	0.011	0.1	Standard
G405	UA	Cobalt, total	mg/L	10/07/2015 - 08/17/2021	CI around median	0.002	0.006	0.0056	0.006	Standard
G405	UA	Fluoride, total	mg/L	10/07/2015 - 08/17/2021	CI around mean	0.42	4.0	0.49	4	Standard

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES
HISTORY OF POTENTIAL EXCEEDANCES
COFFEEN POWER PLANT
ASH POND NO. 2
COFFEEN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
G405	UA	Lead, total	mg/L	10/07/2015 - 08/17/2021	CB around T-S line	-0.00599	0.0075	0.0063	0.0075	Standard
G405	UA	Lithium, total	mg/L	11/21/2015 - 08/17/2021	CB around T-S line	0.010	0.040	0.013	0.04	Standard
G405	UA	Mercury, total	mg/L	10/07/2015 - 08/17/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
G405	UA	Molybdenum, total	mg/L	10/07/2015 - 08/17/2021	CI around median	0.001	0.10	0.0015	0.1	Standard
G405	UA	pH (field)	SU	10/07/2015 - 08/17/2021	CI around mean	6.8	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard
G405	UA	Radium-226 + Radium 228, tot	pCi/L	11/21/2015 - 08/17/2021	CI around geomean	0.57	5.0	2.0	5	Standard
G405	UA	Selenium, total	mg/L	10/07/2015 - 08/17/2021	CI around median	0.001	0.050	0.0012	0.05	Standard
G405	UA	Sulfate, total	mg/L	10/07/2015 - 08/17/2021	CB around linear reg	195	400	370	400	Standard
G405	UA	Thallium, total	mg/L	10/07/2015 - 08/17/2021	All ND - Last	0.001	0.002	0.001	0.002	Standard
G405	UA	Total Dissolved Solids	mg/L	10/07/2015 - 08/17/2021	CB around linear reg	720	1200	840	1200	Standard
G406	UA	Antimony, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.003	0.006	0.003	0.006	Standard
G406	UA	Arsenic, total	mg/L	10/14/2020 - 08/17/2021	CI around median	0	0.010	0.0043	0.01	Standard
G406	UA	Barium, total	mg/L	10/14/2020 - 08/17/2021	CI around median	0	2.0	0.18	2	Standard
G406	UA	Beryllium, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
G406	UA	Boron, total	mg/L	10/14/2020 - 08/17/2021	CI around median	0	2.0	0.022	2	Standard
G406	UA	Cadmium,total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard
G406	UA	Chloride, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	0.99	200	75	200	Standard
G406	UA	Chromium, total	mg/L	10/14/2020 - 08/17/2021	CI around median	0	0.10	0.011	0.1	Standard
G406	UA	Cobalt, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.002	0.006	0.0056	0.006	Standard
G406	UA	Fluoride, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	0.066	4.0	0.49	4	Standard
G406	UA	Lead, total	mg/L	10/14/2020 - 08/17/2021	CI around median	0	0.0075	0.0063	0.0075	Standard
G406	UA	Lithium, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.020	0.040	0.013	0.04	Standard
G406	UA	Mercury, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
G406	UA	Molybdenum, total	mg/L	10/14/2020 - 08/17/2021	CI around median	0	0.10	0.0015	0.1	Standard
G406	UA	pH (field)	SU	10/14/2020 - 08/17/2021	CI around mean	6.2	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard
G406	UA	Radium-226 + Radium 228, tot	pCi/L	10/14/2020 - 08/17/2021	CI around mean	-0.441	5.0	2.0	5	Standard

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES
HISTORY OF POTENTIAL EXCEEDANCES
COFFEEN POWER PLANT
ASH POND NO. 2
COFFEEN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
G406	UA	Selenium, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.050	0.0012	0.05	Standard
G406	UA	Sulfate, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	-191	400	370	400	Standard
G406	UA	Thallium, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.002	0.001	0.002	Standard
G406	UA	Total Dissolved Solids	mg/L	10/14/2020 - 08/17/2021	CI around median	0	1200	840	1200	Standard
G407	UA	Antimony, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.003	0.006	0.003	0.006	Standard
G407	UA	Arsenic, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.010	0.0043	0.01	Standard
G407	UA	Barium, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	0.011	2.0	0.18	2	Standard
G407	UA	Beryllium, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
G407	UA	Boron, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	0.038	2.0	0.022	2	Standard
G407	UA	Cadmium,total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard
G407	UA	Chloride, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	8.1	200	75	200	Standard
G407	UA	Chromium, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.004	0.10	0.011	0.1	Standard
G407	UA	Cobalt, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.002	0.006	0.0056	0.006	Standard
G407	UA	Fluoride, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	0.25	4.0	0.49	4	Standard
G407	UA	Lead, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.0075	0.0063	0.0075	Standard
G407	UA	Lithium, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	0.033	0.040	0.013	0.04	Standard
G407	UA	Mercury, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
G407	UA	Molybdenum, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	0.00122	0.10	0.0015	0.1	Standard
G407	UA	pH (field)	SU	10/14/2020 - 08/17/2021	CI around mean	6.4	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard
G407	UA	Radium-226 + Radium 228, tot	pCi/L	10/14/2020 - 08/17/2021	CI around mean	-0.476	5.0	2.0	5	Standard
G407	UA	Selenium, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.050	0.0012	0.05	Standard
G407	UA	Sulfate, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	177	400	370	400	Standard
G407	UA	Thallium, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.002	0.001	0.002	Standard
G407	UA	Total Dissolved Solids	mg/L	10/14/2020 - 08/17/2021	CI around mean	1520	1200	840	1200	Standard
G410	UA	Antimony, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.003	0.006	0.003	0.006	Standard
G410	UA	Arsenic, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	-0.000536	0.010	0.0043	0.01	Standard

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES
HISTORY OF POTENTIAL EXCEEDANCES
COFFEEN POWER PLANT
ASH POND NO. 2
COFFEEN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
G410	UA	Barium, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	0.12	2.0	0.18	2	Standard
G410	UA	Beryllium, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
G410	UA	Boron, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	0.077	2.0	0.022	2	Standard
G410	UA	Cadmium,total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard
G410	UA	Chloride, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	304	200	75	200	Standard
G410	UA	Chromium, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.004	0.10	0.011	0.1	Standard
G410	UA	Cobalt, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	0.00188	0.006	0.0056	0.006	Standard
G410	UA	Fluoride, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.25	4.0	0.49	4	Standard
G410	UA	Lead, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.0075	0.0063	0.0075	Standard
G410	UA	Lithium, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.020	0.040	0.013	0.04	Standard
G410	UA	Mercury, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
G410	UA	Molybdenum, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.10	0.0015	0.1	Standard
G410	UA	pH (field)	SU	10/14/2020 - 08/17/2021	CI around mean	6.2	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard
G410	UA	Radium-226 + Radium 228, tot	pCi/L	10/14/2020 - 08/17/2021	CI around mean	-0.742	5.0	2.0	5	Standard
G410	UA	Selenium, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.050	0.0012	0.05	Standard
G410	UA	Sulfate, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	30	400	370	400	Standard
G410	UA	Thallium, total	mg/L	10/14/2020 - 08/17/2021	All ND - Last	0.001	0.002	0.001	0.002	Standard
G410	UA	Total Dissolved Solids	mg/L	10/14/2020 - 08/17/2021	CI around mean	502	1200	840	1200	Standard
G411	UA	Antimony, total	mg/L	10/13/2020 - 08/17/2021	All ND - Last	0.003	0.006	0.003	0.006	Standard
G411	UA	Arsenic, total	mg/L	10/13/2020 - 08/17/2021	All ND - Last	0.001	0.010	0.0043	0.01	Standard
G411	UA	Barium, total	mg/L	10/13/2020 - 08/17/2021	CI around mean	0.022	2.0	0.18	2	Standard
G411	UA	Beryllium, total	mg/L	10/13/2020 - 08/17/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
G411	UA	Boron, total	mg/L	10/13/2020 - 08/17/2021	CI around mean	0.00782	2.0	0.022	2	Standard
G411	UA	Cadmium,total	mg/L	10/13/2020 - 08/17/2021	All ND - Last	0.001	0.005	0.001	0.005	Standard
G411	UA	Chloride, total	mg/L	10/13/2020 - 08/17/2021	CI around mean	2.4	200	75	200	Standard
G411	UA	Chromium, total	mg/L	10/13/2020 - 08/17/2021	All ND - Last	0.004	0.10	0.011	0.1	Standard

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES
HISTORY OF POTENTIAL EXCEEDANCES
COFFEEN POWER PLANT
ASH POND NO. 2
COFFEEN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
G411	UA	Cobalt, total	mg/L	10/13/2020 - 08/17/2021	All ND - Last	0.002	0.006	0.0056	0.006	Standard
G411	UA	Fluoride, total	mg/L	10/13/2020 - 08/17/2021	CI around mean	0.56	4.0	0.49	4	Standard
G411	UA	Lead, total	mg/L	10/13/2020 - 08/17/2021	All ND - Last	0.001	0.0075	0.0063	0.0075	Standard
G411	UA	Lithium, total	mg/L	10/13/2020 - 08/17/2021	All ND - Last	0.020	0.040	0.013	0.04	Standard
G411	UA	Mercury, total	mg/L	10/13/2020 - 08/17/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
G411	UA	Molybdenum, total	mg/L	10/13/2020 - 08/17/2021	All ND - Last	0.001	0.10	0.0015	0.1	Standard
G411	UA	pH (field)	SU	10/13/2020 - 08/17/2021	CI around mean	6.8	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard
G411	UA	Radium-226 + Radium 228, tot	pCi/L	10/13/2020 - 08/17/2021	CI around mean	-0.774	5.0	2.0	5	Standard
G411	UA	Selenium, total	mg/L	10/13/2020 - 08/17/2021	CI around median	0	0.050	0.0012	0.05	Standard
G411	UA	Sulfate, total	mg/L	10/13/2020 - 08/17/2021	CI around mean	141	400	370	400	Standard
G411	UA	Thallium, total	mg/L	10/13/2020 - 08/17/2021	All ND - Last	0.001	0.002	0.001	0.002	Standard
G411	UA	Total Dissolved Solids	mg/L	10/13/2020 - 08/17/2021	CI around mean	567	1200	840	1200	Standard

TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES
HISTORY OF POTENTIAL EXCEEDANCES
COFFEEN POWER PLANT
ASH POND NO. 2
COFFEEN, ILLINOIS

Notes:
Potential exceedance of GWPS
HSU = hydrostratigraphic unit:
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
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
COFFEEN POWER PLANT
ASH POND NO. 2
COFFEEN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
G401	UA	Boron, total	mg/L	11/21/2015 - 08/17/2021	CI around median	3.5	2.0	0.022	2	Standard
G401	UA	Cobalt, total	mg/L	11/21/2015 - 08/17/2021	CI around mean	0.22	0.006	0.0056	0.006	Standard
G401	UA	pH (field)	SU	11/21/2015 - 08/17/2021	CI around mean	6.0	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard
G401	UA	Sulfate, total	mg/L	11/21/2015 - 08/17/2021	CI around median	2000	400	370	400	Standard
G401	UA	Total Dissolved Solids	mg/L	11/21/2015 - 08/17/2021	CI around median	2800	1200	840	1200	Standard
G402	UA	Boron, total	mg/L	11/21/2015 - 08/17/2021	CI around mean	5.5	2.0	0.022	2	Standard
G402	UA	Sulfate, total	mg/L	11/21/2015 - 08/17/2021	CB around T-S line	421	400	370	400	Standard
G402	UA	Total Dissolved Solids	mg/L	11/21/2015 - 08/17/2021	CI around mean	1600	1200	840	1200	Standard
G404	UA	Boron, total	mg/L	10/07/2015 - 08/17/2021	CI around mean	2.6	2.0	0.022	2	Standard
G405	UA	Boron, total	mg/L	10/07/2015 - 08/17/2021	CB around linear reg	3.2	2.0	0.022	2	Standard
G406	UA	pH (field)	SU	10/14/2020 - 08/17/2021	CI around mean	6.2	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard
G407	UA	pH (field)	SU	10/14/2020 - 08/17/2021	CI around mean	6.4	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard
G407	UA	Total Dissolved Solids	mg/L	10/14/2020 - 08/17/2021	CI around mean	1520	1200	840	1200	Standard
G410	UA	Chloride, total	mg/L	10/14/2020 - 08/17/2021	CI around mean	304	200	75	200	Standard
G410	UA	pH (field)	SU	10/14/2020 - 08/17/2021	CI around mean	6.2	6.5/9.0	6.7/7.3	6.5/9	Standard/Standard

Notes:
HSU = hydrostratigraphic unit:
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
CB around T-S line = Confidence band around Thiel-Sen line
CI around mean = Confidence interval around the mean
CI around median = Confidence interval around the median
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)