



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: Hennepin Ash Pond No. 2 and No. 4 (IEPA ID: W1550100002-04, 07) 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 Hennepin Ash Pond No. 2 and No. 4 (IEPA ID: W1550100002-04, 07), as enclosed.

Sincerely,

A handwritten signature in blue ink that reads "Dianna Tickner".

Dianna Tickner  
Director Decommissioning & Demolition

Enclosures

Annual Consolidated Report  
Dynergy Midwest Generation, LLC  
Hennepin Power Plant  
Ash Pond No. 2 and No. 4; IEPA ID **W1550100002-04, 07**

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	Hennepin Power Station Putnam County, Illinois 62327 10/21/2021
Operator Name / Address	Luminant Generation Company LLC 6555 Sierra Drive, Irving, TX 75039
CCR unit	Ash Pond 2

**INSPECTION REPORT 35 IAC § 845.540**

Date of Inspection 10/21/2021

(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.	As part of the capping and closure of the West Ash Pond and West Polishing Pond, Ash Pond 2 was regraded to promote positive stormwater drainage. As a result of this regrading Ash Pond 2 will not impound water.
(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	Due to regrading, the impoundment will no longer impound any additional water or material.
(b)(2)(E) The approximate volume of the impounded water and CCR contained in the unit at the time of the inspection.	Approximately 435 acre-feet of capped CCR.
(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 10/21/2021

(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))	As part of the capping and closure of the West Ash Pond and West Polishing Pond, Ash Pond 2 was regraded to promote positive stormwater drainage. As a result of this regrading Ash Pond 2 will not impound water.

**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: Hennepin Power Station

CCR Unit: Ash Pond 2

35 IAC § 845.540 (b)(2)(B)		
Instrument ID #	Type	Maximum recorded reading since previous annual inspection (ft)
P004	Piezometer	446.60'
P005	Piezometer	446.35'

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	
CCR	494		497	43		46

Section 2

Annual Groundwater and Corrective Action Report

Prepared for  
**Dynegy Midwest Generation, LLC**

Date  
**January 31, 2022**

Project No.  
**1940100711-008**

**2021 ANNUAL GROUNDWATER  
MONITORING AND CORRECTIVE  
ACTION REPORT**  
**ASH POND NO. 2 AND ASH POND NO. 4**  
**HENNEPIN**  
**HENNEPIN, ILLINOIS**

**2021 ANNUAL GROUNDWATER MONITORING AND  
CORRECTIVE ACTION REPORT  
HENNEPIN ASH POND NO. 2 AND ASH POND NO. 4**

Project name **Hennepin Ash Pond No. 2 and Ash Pond No. 4**  
Project no. **1940100711-008**  
Recipient **Dynegy Midwest Generation, LLC**  
Document type **Annual Groundwater Monitoring and Corrective Action Report**  
Version **FINAL**  
Date **January 31, 2022**  
Prepared by **Chase J. Christenson, PG**  
Checked by **Lauren Cook**  
Approved by **Brian Hennings**  
Description **Annual Report in Support of Part 845**

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Appendix B	<i>History of Potential Exceedances, Hennepin, Ash Pond No. 2 and Ash Pond No. 4, Hennepin, Illinois.</i>

## ACRONYMS AND ABBREVIATIONS

§	Section
35 I.A.C.	Title 35 of the Illinois Administrative Code
AP2	Ash Pond No. 2
AP4	Ash Pond No. 4
bgs	below ground surface
CCR	coal combustion residuals
DMG	Dynegy Midwest Generation, LLC
GMP	Addendum to the Groundwater Monitoring Plan
GWPS	groundwater protection standard
HPP	Hennepin Power Plant
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
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 Ash Pond Number (No.) 2 (AP2) and Ash Pond No. 4 (AP4) located at Hennepin Power Plant (HPP) near Hennepin, Illinois.

An operating permit application for AP2 and AP4 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. AP2 is recognized by Vistra identification (ID) No. 802, IEPA ID No. W1550100002-04, and National Inventory of Dams (NID) No. IL50663. AP4 is recognized by Vistra ID No. 805 and IEPA ID No. W1550100002-07.

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 and AP4 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 and AP4, 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 AP2 and AP4 located at HPP near Hennepin, Illinois. The owner or operator of a coal combustion residuals (CCR) surface impoundment (SI) must prepare and submit to IEPA by January 31<sup>st</sup> 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 and AP4 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 AP2 and AP4 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 and AP4.

### 3. KEY ACTIONS COMPLETED IN 2021

The proposed Part 845 monitoring well network is presented in **Figure 1** and summarized below in **Table A**.

**Table A. Proposed Part 845 Monitoring Well Network**

Well ID	Monitored Unit	Well Screen Interval (feet bgs)	Well Type <sup>1</sup>
03R	UA	42 - 52	Compliance
07	UA	67.5 - 77.5	Background
08	UA	51.5 - 61.5	Background
08D	UA	83 - 88	Background
18S	UA	40 - 50	Compliance
18D	UA	71 - 76	Compliance
45S	UA	35 - 45	Compliance

<sup>1</sup> Well type refers to the role of the well in the monitoring network.  
 bgs = below ground surface  
 UA = uppermost aquifer

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).

**Table B. Summary of Groundwater Samples Collected**

Sampling Dates	Parameters Collected	Monitoring Wells Sampled <sup>1</sup>
March 4 - 30, 2021	Boron, calcium, chloride, lithium, molybdenum, sulfate, total dissolved solids (TDS)	03R, 18S, and 18D
March 18, 2021	Appendix III <sup>2</sup> , Appendix IV <sup>3</sup> , field parameters <sup>4</sup>	03R, 18S, 18D, and 45S
June 24 - 25, 2021	Metals <sup>5</sup> , mercury, inorganic parameters <sup>6</sup> , radium 226 and 228, field parameters <sup>4</sup>	03R, 18S, 18D, and 45S

<sup>1</sup> In general, one sample was collected per monitoring well per event.  
<sup>2</sup> Appendix III parameters include boron, calcium, chloride, fluoride, pH, sulfate, TDS.  
<sup>3</sup> Appendix IV parameters include antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, radium 226 and 228 combined, selenium, thallium.  
<sup>4</sup> Field parameters include pH, dissolved oxygen, temperature, oxidation/reduction potential, specific conductance, and turbidity.  
<sup>5</sup> Metals include antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, lead, lithium, molybdenum, selenium, and thallium.  
<sup>6</sup> Inorganic parameters include chloride, cyanide, fluoride, nitrate-N, sulfate, TDS.

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 and AP4.

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 AP4, 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. Hennepin Power Plant, Ash Pond No. 2 and Ash Pond No. 4, Hennepin, Illinois*. Dynegy Midwest Generation, LLC. October 25, 2021.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2021b. *History of Potential Exceedances. Hennepin Power Plant, Ash Pond No. 2 and Ash Pond No. 4, Hennepin, Illinois*. Dynegy Midwest Generation, LLC. October 25, 2021.

## FIGURES



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



**PROPOSED PART 845  
GROUNDWATER MONITORING  
WELL NETWORK**

**2021 ANNUAL GROUNDWATER MONITORING  
AND CORRECTIVE ACTION REPORT  
ASH POND NO.2 AND ASH POND NO.4  
HENNEPIN POWER PLANT  
HENNEPIN, 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**

ADDENDUM TO THE GROUNDWATER MONITORING PLAN

HENNEPIN POWER PLANT

ASH POND NO. 2 AND ASH POND NO. 4

HENNEPIN, ILLINOIS

Parameter	Background Concentration	845 Limit	Groundwater Protection Standard	Unit
Antimony, total	0.001	0.006	0.006	mg/L
Arsenic, total	0.001	0.010	0.010	mg/L
Barium, total	0.212	2.0	2.0	mg/L
Beryllium, total	0.001	0.004	0.004	mg/L
Boron, total	0.163	2	2	mg/L
Cadmium, total	0.0023	0.005	0.005	mg/L
Chloride, total	435	200	435	mg/L
Chromium, total	0.001	0.1	0.1	mg/L
Cobalt, total	0.038	0.006	0.038	mg/L
Fluoride, total	0.12	4.0	4.0	mg/L
Lead, total	0.0015	0.0075	0.0075	mg/L
Lithium, total	0.019	0.04	0.04	mg/L
Mercury, total	0.0002	0.002	0.002	mg/L
Molybdenum, total	0.0017	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	1.5	5	5	pCi/L
Selenium, total	0.0014	0.05	0.05	mg/L
Sulfate, total	215	400	400	mg/L
Thallium, total	0.001	0.002	0.002	mg/L
Total Dissolved Solids	1620	1200	1620	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

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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)(3)(G) for the Hennepin Power Plant Ash Pond No. 2 and Ash Pond No. 4, Illinois Environmental Protection Agency (IEPA) ID Nos. W1550100002-04 and W1550100002-07.

### **Note**

*Groundwater concentrations observed from 2015 to 2021 in monitoring wells included in an existing groundwater monitoring program for this specific CCR multi-unit 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.*

### Background Concentrations

*Background monitoring wells identified in the GMP include 07, 08, and 08D.*

*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 and total molybdenum, 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 February 2018 with final revisions submitted in January 2020. IEPA approved the Closure and Post Closure Care Plan on February 26, 2020. Closure construction began in May 2020 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, and collection of additional 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  
 HENNEPIN POWER PLANT  
 ASH POND NO. 2 AND ASH POND NO. 4  
 HENNEPIN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
03R	UA	Antimony, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.006	0.001	0.006	Standard
03R	UA	Arsenic, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.010	0.001	0.01	Standard
03R	UA	Barium, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	0.061	2.0	0.21	2	Standard
03R	UA	Beryllium, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
03R	UA	Boron, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	1.1	2.0	0.15	2	Standard
03R	UA	Cadmium, total	mg/L	12/09/2015 - 06/25/2021	CI around median	0.001	0.005	0.0023	0.005	Standard
03R	UA	Chloride, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	68	396	396	200	Background
03R	UA	Chromium, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.00132	0.10	0.001	0.1	Standard
03R	UA	Cobalt, total	mg/L	12/09/2015 - 06/25/2021	Future median	0.001	0.038	0.038	0.006	Background
03R	UA	Fluoride, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.28	4.0	0.12	4	Standard
03R	UA	Lead, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.0075	0.0015	0.0075	Standard
03R	UA	Lithium, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	0.026	0.040	0.019	0.04	Standard
03R	UA	Mercury, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
03R	UA	Molybdenum, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	0.17	0.10	0.0017	0.1	Standard
03R	UA	pH (field)	SU	03/18/2015 - 06/25/2021	CI around mean	7.2	6.5/9.0	6.6/7.5	6.5/9	Standard/Standard
03R	UA	Radium-226 + Radium 228, tot	pCi/L	12/09/2015 - 03/18/2021	CI around geomean	0.30	5.0	1.5	5	Standard
03R	UA	Selenium, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	0.00514	0.050	0.0014	0.05	Standard
03R	UA	Sulfate, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	91	400	200	400	Standard
03R	UA	Thallium, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.002	0.002	0.001	0.002	Standard
03R	UA	Total Dissolved Solids	mg/L	12/09/2015 - 06/25/2021	CI around mean	504	1520	1520	1200	Background
18S	UA	Antimony, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.006	0.001	0.006	Standard
18S	UA	Arsenic, total	mg/L	12/09/2015 - 06/25/2021	CI around median	0.001	0.010	0.001	0.01	Standard
18S	UA	Barium, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	0.063	2.0	0.21	2	Standard
18S	UA	Beryllium, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
18S	UA	Boron, total	mg/L	12/09/2015 - 06/25/2021	CI around geomean	3.5	2.0	0.15	2	Standard
18S	UA	Cadmium, total	mg/L	12/09/2015 - 06/25/2021	CB around T-S line	0.000301	0.005	0.0023	0.005	Standard

**TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES**

HISTORY OF POTENTIAL EXCEEDANCES  
 HENNEPIN POWER PLANT  
 ASH POND NO. 2 AND ASH POND NO. 4  
 HENNEPIN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
18S	UA	Chloride, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	61	396	396	200	Background
18S	UA	Chromium, total	mg/L	12/09/2015 - 06/25/2021	CI around median	0.0015	0.10	0.001	0.1	Standard
18S	UA	Cobalt, total	mg/L	12/09/2015 - 06/25/2021	Future median	0.001	0.038	0.038	0.006	Background
18S	UA	Fluoride, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.15	4.0	0.12	4	Standard
18S	UA	Lead, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.0075	0.0015	0.0075	Standard
18S	UA	Lithium, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.046	0.040	0.019	0.04	Standard
18S	UA	Mercury, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
18S	UA	Molybdenum, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.13	0.10	0.0017	0.1	Standard
18S	UA	pH (field)	SU	03/18/2015 - 06/25/2021	CI around median	7.3	6.5/9.0	6.6/7.5	6.5/9	Standard/Standard
18S	UA	Radium-226 + Radium 228, tot	pCi/L	12/09/2015 - 03/18/2021	CI around mean	0.20	5.0	1.5	5	Standard
18S	UA	Selenium, total	mg/L	12/09/2015 - 06/25/2021	CI around geomean	0.031	0.050	0.0014	0.05	Standard
18S	UA	Sulfate, total	mg/L	12/09/2015 - 06/25/2021	CI around geomean	142	400	200	400	Standard
18S	UA	Thallium, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.002	0.002	0.001	0.002	Standard
18S	UA	Total Dissolved Solids	mg/L	12/09/2015 - 06/25/2021	CI around mean	575	1520	1520	1200	Background
18D	UA	Antimony, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.006	0.001	0.006	Standard
18D	UA	Arsenic, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.010	0.001	0.01	Standard
18D	UA	Barium, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.068	2.0	0.21	2	Standard
18D	UA	Beryllium, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
18D	UA	Boron, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	1.5	2.0	0.15	2	Standard
18D	UA	Cadmium, total	mg/L	12/09/2015 - 06/25/2021	CI around median	0.001	0.005	0.0023	0.005	Standard
18D	UA	Chloride, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	74	396	396	200	Background
18D	UA	Chromium, total	mg/L	12/09/2015 - 06/25/2021	CB around T-S line	0.001	0.10	0.001	0.1	Standard
18D	UA	Cobalt, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.00132	0.038	0.038	0.006	Background
18D	UA	Fluoride, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.16	4.0	0.12	4	Standard
18D	UA	Lead, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.0075	0.0015	0.0075	Standard
18D	UA	Lithium, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.025	0.040	0.019	0.04	Standard

**TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES**

HISTORY OF POTENTIAL EXCEEDANCES  
 HENNEPIN POWER PLANT  
 ASH POND NO. 2 AND ASH POND NO. 4  
 HENNEPIN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
18D	UA	Mercury, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
18D	UA	Molybdenum, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	0.031	0.10	0.0017	0.1	Standard
18D	UA	pH (field)	SU	03/18/2015 - 06/25/2021	CI around median	7.2	6.5/9.0	6.6/7.5	6.5/9	Standard/Standard
18D	UA	Radium-226 + Radium 228, tot	pCi/L	12/09/2015 - 03/18/2021	CI around geomean	0.28	5.0	1.5	5	Standard
18D	UA	Selenium, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.050	0.0014	0.05	Standard
18D	UA	Sulfate, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	90	400	200	400	Standard
18D	UA	Thallium, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.002	0.002	0.001	0.002	Standard
18D	UA	Total Dissolved Solids	mg/L	12/09/2015 - 06/25/2021	CB around T-S line	465	1520	1520	1200	Background
45S	UA	Antimony, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.006	0.001	0.006	Standard
45S	UA	Arsenic, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.010	0.001	0.01	Standard
45S	UA	Barium, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.074	2.0	0.21	2	Standard
45S	UA	Beryllium, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.004	0.001	0.004	Standard
45S	UA	Boron, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.23	2.0	0.15	2	Standard
45S	UA	Cadmium, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.000295	0.005	0.0023	0.005	Standard
45S	UA	Chloride, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	72	396	396	200	Background
45S	UA	Chromium, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.00138	0.10	0.001	0.1	Standard
45S	UA	Cobalt, total	mg/L	12/09/2015 - 06/25/2021	Future median	0.002	0.038	0.038	0.006	Background
45S	UA	Fluoride, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	0.31	4.0	0.12	4	Standard
45S	UA	Lead, total	mg/L	12/09/2015 - 06/25/2021	Most recent sample	0.001	0.0075	0.0015	0.0075	Standard
45S	UA	Lithium, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	0.015	0.040	0.019	0.04	Standard
45S	UA	Mercury, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.0002	0.002	0.0002	0.002	Standard
45S	UA	Molybdenum, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.048	0.10	0.0017	0.1	Standard
45S	UA	pH (field)	SU	12/09/2015 - 06/25/2021	CI around mean	7.1	6.5/9.0	6.6/7.5	6.5/9	Standard/Standard
45S	UA	Radium-226 + Radium 228, tot	pCi/L	12/09/2015 - 03/18/2021	CI around mean	0.44	5.0	1.5	5	Standard
45S	UA	Selenium, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.001	0.050	0.0014	0.05	Standard
45S	UA	Sulfate, total	mg/L	12/09/2015 - 06/25/2021	CI around median	69	400	200	400	Standard

**TABLE 1. DETERMINATION OF POTENTIAL EXCEEDANCES**

HISTORY OF POTENTIAL EXCEEDANCES  
 HENNEPIN POWER PLANT  
 ASH POND NO. 2 AND ASH POND NO. 4  
 HENNEPIN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
45S	UA	Thallium, total	mg/L	12/09/2015 - 06/25/2021	All ND - Last	0.002	0.002	0.001	0.002	Standard
45S	UA	Total Dissolved Solids	mg/L	12/09/2015 - 06/25/2021	CI around mean	515	1520	1520	1200	Background

**Notes:**

**Potential exceedance of GWPS**

HSU = hydrostratigraphic unit:

UA = Uppermost Aquifer

mg/L = milligrams per liter

pCi/L = picocuries per liter

SU = standard units

Sample Count = number of samples from Sampled Date Range used to calculate the Statistical Result

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  
 HENNEPIN POWER PLANT  
 ASH POND NO. 2 AND ASH POND NO. 4  
 HENNEPIN, ILLINOIS

Sample Location	HSU	Constituent	Result Unit	Sample Date Range	Statistical Calculation	Statistical Result	GWPS	Background	Part 845 Standard	GWPS Source
03R	UA	Molybdenum, total	mg/L	12/09/2015 - 06/25/2021	CI around mean	0.17	0.10	0.0017	0.1	Standard
18S	UA	Boron, total	mg/L	12/09/2015 - 06/25/2021	CI around geomean	3.5	2.0	0.15	2	Standard
18S	UA	Lithium, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.046	0.040	0.019	0.04	Standard
18S	UA	Molybdenum, total	mg/L	12/09/2015 - 06/25/2021	CB around linear reg	0.13	0.10	0.0017	0.1	Standard

**Notes:**

HSU = hydrostratigraphic unit:

UA = Uppermost Aquifer

mg/L = milligrams per liter

pCi/L = picocuries per liter

SU = standard units

Sample Count = number of samples from Sampled Date Range used to calculate the Statistical Result

Statistical Calculation = method used to calculate the statistical result:

CB around linear reg = Confidence band around linear regression

CI around geomean = Confidence interval around the geometric mean

CI around mean = Confidence interval around the mean

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)