Submitted to
Southern Indiana
Gas & Electric Company
(SIGECO)
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Submitted by
AECOM
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October 13, 2023

CCR Annual Inspection §257.83 (b)

for the

Ash Pond

at the

A.B. Brown Generating Station

Revision 0

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Executive Summary

This Coal Combustion Residuals (CCR) Annual Inspection for the Ash Pond at the Southern Indiana Gas & Electric Company, Inc., A.B. Brown Generating Station has been prepared in accordance with the requirements specified in the USEPA CCR Rule under 40 Code of Federal Regulations §257.83 (b). These regulations require that the specified documentation and assessments for an existing CCR surface impoundment be prepared within one year of the placement of the previous inspection report in the facility's operating record. The 2022 inspection report was placed in the facility's operating record on November 9, 2022. SIGECO is placing this year's report in the facility's Operating Record no later than October 13, 2023, which is within one year of the date of the previous year's inspection report being placed in the facility's Operating Record.

This Inspection for the Ash Pond meets the regulatory requirements as summarized in **Table ES-1**.

Table ES-1 –Summary

Report Section	CCR Rule Reference	Requirement Summary	Requirement Met?	Comments
2.1	§257.83 (b)(1)	*Annual Inspection*	Yes	The CCR Unit has met the annual inspection requirements
2.2	§257.83 (b)(2)	*Inspection Report*	Yes	The CCR Unit has met the inspection report requirements
2.3	§257.83 (b)(4)	*Frequency of Inspections*	Yes	The CCR Unit has met the required frequency of inspections
2.4	§257.83 (b)(5)	*Deficiency Identified*	Yes	Remedial actions and measures have been identified for all noted deficiencies

The Brown Ash Pond is currently an active surface impoundment. All inspection requirements were evaluated and the surface impoundment was found to meet all requirements as required within each individual assessment in §257.83 (b).

1 Introduction

1.1 Purpose of this Report

The purpose of the Annual Inspection presented in this report is to document that the requirements specified in 40 Code of Federal Regulations (CFR) §257.83 (b) have been met to support the requirement under each of the applicable regulatory provisions for the A.B. Brown Generating Station (Brown) Ash Pond. The Brown Ash Pond is an existing coal combustion residual (CCR) surface impoundment as defined by 40 CFR §257.53. The CCR Rule requires that the specified documentation and assessments for an existing CCR surface impoundment be prepared within one year of the placement of the previous inspection report in the facility's operating record. The 2022 inspection report was placed in the facility's operating record on November 9, 2022. SIGECO is placing this year's report in is the facility's Operating Record no later than October 13, 2023, which is within one year of the date of the previous year's inspection report being placed in the facility's Operating Record.

The Brown station has an interconnected existing CCR surface impoundment, the Ash Pond, which consists of a lower pool and an upper pool. The following table summarizes the documentation required within the CCR Rule and the sections that specifically respond to those requirements of this assessment.

Table 1-1 – CCR Rule Cross Reference Table

Report Section	Title	CCR Rule Reference
2.1	Annual Inspection	§257.83 (b)(1)
2.2	Inspection Report	§257.83 (b)(2)
2.3	Frequency of Inspections	§257.83 (b)(4)
2.4	Deficiency Identified	§257.83 (b)(5)

1.2 Brief Description of Impoundment

The Brown station is a power plant that operated coal-fired unit prior to its retirement on October 7, 2023, with natural gas fired units remaining operational, located approximately 10 miles east of Mount Vernon in Posey County, Indiana and is owned and operated by Southern Indiana Gas & Electric Company, Inc. (SIGECO). The Brown station is situated just west of the Vanderburgh-Posey County line and north of the Ohio River with the Ash Pond positioned on the east side of the generating station.

The Ash Pond was commissioned in 1978. An earthen dam was constructed across an existing valley to create the impoundment. In 2003, a second dam was constructed east of the original dam and further up the valley to increase the storage capacity. This temporarily created an upper pond and a lower pond. The upper and lower ponds were operated separately until 2016 when the upper dam was decommissioned. A 10-foot wide breach was installed in

the upper embankment and the normal pool elevation was lowered. Currently, the upper pool and the lower pool act as one CCR unit referred to as the Ash Pond, which has a surface area of approximately 164 acres.[1]

The lower pool dam embankment is approximately 1,540 feet long, 30 feet high, and has 3 to 1 (horizontal to vertical) side slopes covered with grassy vegetation. The embankment crest elevation is 450.9 feet [2] and has a crest width of 20 feet. An earthen buttress was constructed against the outboard slope of the dam. The buttress crest extends the length of the dam, is up to 200 feet wide and varies in elevation from 442 feet to 432 feet. A site Location Map showing the area surrounding the station is included as **Figure 1** of **Appendix A**. **Figure 2** in **Appendix A** presents the Brown Site Map.

[1] Identified as 159 acres in prior documents, but recently verified via aerial photogrammetry to be approximately 164-acres.

[2] Unless otherwise noted, all elevations in this report are in the NAVD88 datum.

2 Annual Inspection Description

Regulatory Citation: 40 CFR §257.83 Inspection requirements for CCR surface impoundments

The Annual Inspection for the Ash Pond is described in this section. Information about operational and maintenance procedures was provided by Brown plant personnel. The Brown station follows an established maintenance program that quickly identifies and resolves issues of concern.

2.1 Annual Inspection

Regulatory Citation: 40 CFR §257.83 (b) Annual inspections by a qualified professional engineer;

- *(1) If the existing or new CCR surface impoundment or any lateral expansion of the CCR surface impoundment is subject to the periodic structural stability assessment requirements under §257.73 (d) or §257.74 (d), the CCR unit must additionally be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards.*

The Ash Pond is subject to the periodic structural stability assessment requirements as mentioned. Thus, the following items were performed to comply with the CCR Rule.

2.1.1 Review of Available Information

Regulatory Citation: 40 CFR §257.83 (b)(1);

- *(i) A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., CCR unit design and construction information required by §257.73 (c)(1) and §257.74 (c)(1), previous periodic structural stability assessments required under §257.73 (d) and §257.74 (d), the results of inspections by a qualified person, and results of previous annual inspections).*

The available information was reviewed on September 25, 2023, for the Ash Pond, including the weekly inspections by plant personnel and the previous CCR Rule annual inspection performed by AECOM.

2.1.2 Visual Inspection

Regulatory Citation: 40 CFR §257.83 (b)(1);

- *(ii) A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit and appurtenant structures.*

The Ash Pond was visually inspected by AECOM on September 25, 2023. No major signs of distress or malfunction of the CCR unit and appurtenant structures were identified. A few minor maintenance issues are listed under Section 2.4.2.

Regulatory Citation: 40 CFR §257.83 (b)(1);

- *(iii) A visual inspection of any hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation.*

The exposed elements of the hydraulic structures underlying the base or passing through the dike of the CCR unit of the Ash Pond were visually inspected for structural integrity on September 25, 2023.

2.2 Content of the Inspection Report

Regulatory Citation: 40 CFR §257.83 (b)(2) Inspection report. The qualified professional engineer must prepare a report following each inspection that addresses the following:

- *(i) Any changes in geometry of the impounding structure since the previous annual inspection.*

The geometry of the impounding structure has not changed since the previous annual inspection.

- *(ii) The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection.*

Plant personnel obtain water surface elevation data for the Ash Pond using an ultrasonic level indicator. Maximum recorded readings are provided in Table 2-1 below.

- *(iii)The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection.*

The required information is presented in Table 2-1 below. Water is no longer impounded in the upper pool of the Ash Pond. The minimum and maximum water depths in the lower pool of the Ash Pond were calculated based on the yearly minimum and maximum water elevation readings provided by Brown plant personnel. The water depth was calculated by subtracting the elevation of the top of CCR (elevation 425.0 feet obtained from the most recent bathymetric survey in May 2023) from the water surface elevation (WSE).

Table 2-1 – Depth and Elevation of Impounded Water

	Minimum		Maximum		Present	
	Water Depth (ft)	WSE (ft)	Water Depth (ft)	WSE (ft)	Water Depth (ft)	WSE (ft)
Impounded Water	14.9	439.9	18.8	443.8	15.2	440.2

CCR depths range from 0 feet to approximately 62 feet. The minimum CCR depth occurs along the perimeter of the impoundment. The maximum CCR depth occurs at the center of the base of the impoundment embankment. The elevation at the top of CCR material at this location is approximately elevation 441.0 feet.

- *(iv) The storage capacity of the impounding structure at the time of the inspection.*

The storage capacity of the impounding structure is approximately 6,370,700 [3] CY. The storage capacity of the lower pool is 3,033,300 CY. The storage capacity of the upper pool is 3,337,400 CY.

- *(v) The approximate volume of the impounded water and CCR at the time of the inspection.*

The approximate volume of impounded water and CCR material for the Ash Pond are 66,700 CY and 6,010,000 CY, respectively.[4] This includes CCR material excavated from the pond for beneficial reuse from 2021-2023 up to September 25, 2023.

- *(vi) 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 and appurtenant structures.*

The visual inspection performed on September 25, 2023, did not reveal any actual or potential structural weaknesses. However, a few minor maintenance issues are listed under Section 2.4.2.

- *(vii) Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.*

There were no other changes which might have affected the stability or operation of the impounding structure since the previous annual inspection.

2.3 Frequency of Inspections

Regulatory Citation: 40 CFR §257.83 (b)(4);

- *(i) Except as provided for in paragraph (b)(4)(ii) of this section, the owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this section on an annual basis. The date of completing the initial inspection report is the basis for establishing the deadline to complete the first subsequent inspection. Any required inspection may be conducted prior to the required deadline provided the owner or operator places the completed inspection report into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. For purposes of this section, the owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record as required by §257.105 (g)(6).*

The 2022 inspection report was placed in the operating record on November 9, 2022, SIGECO is placing this inspection report in the facility’s operating record no later than October 13, 2023.

[3] Storage Capacity was calculated based on a comparison of top of dike elevations and enhanced pre-development 1973 historical grades. Prior documents estimated the storage capacity as 5,790,000 CY based on a former version of the pre-development 1973 historical grades that had a lower quality of topographical data.

[4] The volume of impounded water was calculated by comparing the current elevation of impounded water to the bathymetrical contours, surveyed in May 2023.

- *(ii) In any calendar year in which both the periodic inspection by a qualified professional engineer and the quinquennial (occurring every five years) structural stability assessment by a qualified professional engineer required by §257.73 (d) and §257.74 (d) are required to be completed, the annual inspection is not required, provided the structural stability assessment is completed during the calendar year. If the annual inspection is not conducted in a year as provided by this paragraph (b)(4)(ii), the deadline for completing the next annual inspection is one year from the date of completing the quinquennial structural stability assessment.*

The quinquennial structural stability assessment is not required for this year as it was completed in October 2021. Thus, an annual inspection report was submitted to SIGECO as stipulated in §257.83 (b)(4)(i).

2.4 Deficiency Identified

Regulatory Citation: 40 CFR §257.83 (b)(5);

- *If a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.*

Areas of concern from previous inspections were reviewed and described below in section 2.4.1. Areas of concern from this year's inspection are described in section 2.4.2.

2.4.1 Previous Inspection

One minor area of concern was noted during the prior annual inspection performed on October 26, 2022. Corrective measures have been completed to meet the requirements of §257.83 (b)(5) for each deficiency or observation identified as shown in the table below.

Table 2-2 – Areas of Concern (Inspected: October 26, 2022)

Deficiency/Observation	Completed Corrective Measure
Three erosion rivulets approximately 12" deep, 25' long, 10' - 15' apart, approximately 30' upslope from the northern toe of buttress slope were identified adjacent to each other.	Area was re-graded along with adding a drain to eliminate future issues, then seeded and strawed to re-establish vegetation.

2.4.2 Current Inspection

Four minor areas of concern were noted during the annual inspection performed on September 25, 2023. Corrective measures have been proposed to meet the requirements of §257.83 (b)(5) for each deficiency or observation identified as shown in the table below.

Table 2-3 – Areas of Concern (Inspected: September 25, 2023)

Deficiency/Observation	Proposed Corrective Measure
Three erosion rivulets approximately 12" deep, 25' long, 10' - 15' apart, approximately 30' upslope from the northern toe of buttress slope were identified adjacent to each other. See Figure 3.	Erosion rivulets to be filled, regraded and seeded/mulched.
One erosion rivulet approximately 12" deep, 15' long, approximately 30' upslope from the northern toe of buttress slope were identified adjacent to each other. See Figure 3.	Erosion rivulets to be filled, regraded and seeded/mulched.
One approximately 8” diameter animal burrow approximately mid-slope, adjacent to right abutment. See Figure 3.	Hole to be filled with soil then compacted and seeded/mulched.
One stormwater catch basin discharge pipe subsurface pipe joint separation. See Figure 3.	Separated pipe joint to be exposed and new coupling added to join pipes. Backfill/compact with soil in work area, and seed and mulch.

3 Certification

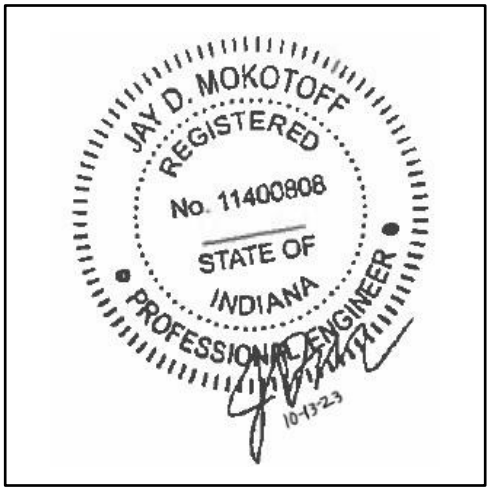
This Certification Statement documents that the annual inspection has been completed for the Ash Pond at the A.B. Brown Generating Station and this inspection report meets the requirements specified in 40 CFR §257.83 (b). The Ash Pond is an active CCR surface impoundment as defined by 40 CFR §257.53.

CCR Unit: Southern Indiana Gas & Electric Company; A.B. Brown Generating Station; Ash Pond

I, Jay Mokotoff, being a Registered Professional Engineer in good standing in the State of Indiana, do hereby certify, to the best of my knowledge, information, and belief that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above referenced CCR Unit, that the annual inspection dated October 13, 2023, meets the requirements of 40 CFR §257.83 (b).

Jay D. Mokotoff
Printed Name

10-13-2023
Date



4 Limitations

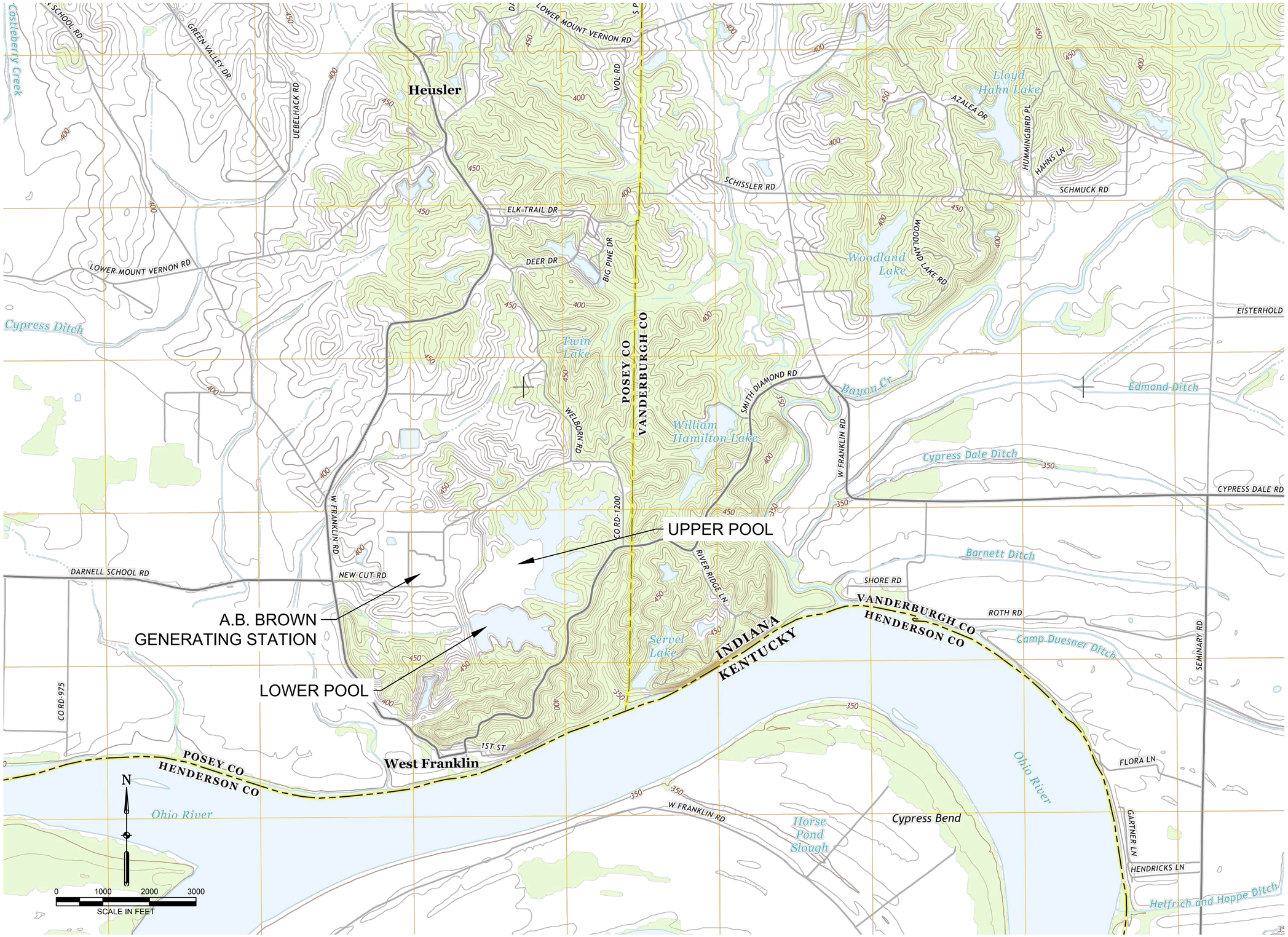
Background information, design basis, and other data which AECOM has used in preparation of this report have been furnished to AECOM by SIGECO. AECOM has relied on this information as furnished and is not responsible for the accuracy of this information. Our recommendations are based on available information from previous and current investigations. These recommendations may be updated as future investigations are performed.

The conclusions presented in this report are intended only for the purpose, site location, and project indicated. The recommendations presented in this report should not be used for other projects or purposes. Conclusions or recommendations made from these data by others are their responsibility. The conclusions and recommendations are based on AECOM's understanding of current plant operations, maintenance, stormwater handling, and ash handling procedures at the station, as provided by SIGECO. Changes in any of these operations or procedures may invalidate the findings in this report until AECOM has had the opportunity to review the findings and revise the report if necessary.

This development of the Annual Inspection was performed in accordance with the standard of care commonly used as state-of-practice in our profession. Specifically, our services have been performed in accordance with accepted principles and practices of the engineering profession. The conclusions presented in this report are professional opinions based on the indicated project criteria and data available at the time this report was prepared. Our services were provided in a manner consistent with the level of care and skill ordinarily exercised by other professional consultants under similar circumstances. No other representation is intended.

Appendix A
Figures

Figure 1 – Location Map
Figure 2 – Site Map
Figure 3 – Inspection Site Plan



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A.B. BROWN
GENERATING STATION
MT. VERNON, IN

CCR ANNUAL
INSPECTION
ASH POND

ISSUED FOR CERTIFICATION

ISSUED FOR BIDDING	DATE	BY
ISSUED FOR CONSTRUCTION	DATE	BY

REVISIONS

NO.	DESCRIPTION	DATE
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AECOM PROJECT NO:	60583533
DRAWN BY:	AG
DESIGNED BY:	AG
CHECKED BY:	JDM
DATE CREATED:	12/17/2020
PLOT DATE:	01/04/2021
SCALE:	1" = 1000'
ACAD VER:	2019

SHEET TITLE

LOCATION MAP

FIGURE 1

OHIO RIVER

AECOM
9400 Amberglen Boulevard
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512-454-4797 (phone)
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SOUTHERN INDIANA GAS AND ELECTRIC COMPANY

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A.B. BROWN GENERATING STATION
MT. VERNON, IN

CCR ANNUAL INSPECTION
ASH POND

ISSUED FOR CERTIFICATION

ISSUED FOR BIDDING ____ DATE ____ BY

ISSUED FOR CONSTRUCTION ____ DATE ____ BY

REVISIONS

NO.	DESCRIPTION	DATE
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AECOM PROJECT NO:	60442676
DRAWN BY:	AG
DESIGNED BY:	AG
CHECKED BY:	JDM
DATE CREATED:	12/08/2020
PLOT DATE:	01/04/2021
SCALE:	AS SHOWN
ACAD VER:	2019

SHEET TITLE

SITE MAP

FIGURE 2

AECOM
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MT. VERNON, IN

CCR ANNUAL INSPECTION
ASH POND

ISSUED FOR CERTIFICATION

	DATE	BY
ISSUED FOR BIDDING		
ISSUED FOR CONSTRUCTION		

REVISIONS

NO.	DESCRIPTION	DATE
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DRAWN BY:	DMB
DESIGNED BY:	DMB
CHECKED BY:	JDM
DATE CREATED:	9/27/2023
PLOT DATE:	9/27/2023
SCALE:	1" = 60'
ACAD VER:	2018

SHEET TITLE

INSPECTION SITE PLAN

FIGURE 3

AECOM DRAWING PATH: L:\DCS\Projects\V\Vectren Corporation\60586569_CulleyEast\400_Technical\470-Reports and Documents\Pond Inspections\Culley East & ABBrown Annual Pond Inspection_2023\ABB Pond Inspection\Figures\INSPECTION PLAN.dwg

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