AECOM

Submitted to
Southern Indiana
Gas & Electric Company
(SIGECO)
Dba CenterPoint Energy
Indiana South (CEIS)
211 Northwest Riverside
Drive, Evansville, IN 47708

Submitted by
AECOM
13640 Briarwick Dr.
Austin, Texas 78729

August 11, 2023

CCR Certification: Written Closure Plan §257.102 (b) & (d)

for the

Lined CCR Pond

at the

A.B. Brown Generating Station

Revision 0

Table of Contents

Tables

Appendices

Executive Summary

This Coal Combustion Residuals (CCR) Written Closure Plan (Closure Plan) for the Lined CCR Pond at the Southern Indiana Gas & Electric Company dba CenterPoint Energy Indiana South (CEIS), 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 §257.102. These regulations require that the specified documentation, assessments and plans for a new CCR surface impoundment be prepared no later than the date of the initial receipt of CCR, which is scheduled for no later than September 1, 2023. This Initial Closure Plan proposes a Closure-by-Removal (CbR) methodology and was prepared in accordance with these requirements.

This Closure Plan meets the regulatory requirements as summarized in **Table ES-1.**

Table ES-1 – Certification Summary

Report Section	CCR Rule Reference	Requirement Summary	Requirement Met?	Comments
Closure Plan				
2.1	§257.102 (b)	*A written closure plan must be prepared that describes the steps necessary to close the unit*	Yes	This Closure Plan has been prepared based on a closure design. All steps necessary to close the unit and information as required concerning the unit are included in the Closure Plan.
2.2	§257.102 (c)	*Closure by Removal*	Yes	This Closure Plan has been prepared based on a closure by removal design. All steps necessary to close the unit and information as required concerning the unit are included in the Closure Plan.

The Lined CCR Pond at A.B. Brown Generating Station will be an active surface impoundment upon its first receipt of waste, scheduled for no later than September 1, 2023. Upon decision and changes in operation that warrant closure of this surface impoundment, a Notification of Intent to Initiate Closure will be placed in the Operating Record, closure operations will commence, and the surface impoundment will be closed within the time frame as allowed in the CCR Rule.

1 Introduction

1.1 Purpose of this Report

The purpose of the Closure Plan is to document that the requirements specified in 40 Code of Federal Regulations (CFR) §257.102 have been met to support the certification required under each of the applicable regulatory provisions for the Lined CCR Pond at A.B. Brown Generating Station. The Lined CCR Pond is a new coal combustion residuals (CCR) surface impoundment as defined by 40 CFR §257.53. The CCR Rule requires that the Initial Written Closure Plan for a new CCR surface impoundment be prepared no later than its initial receipt of waste. This Initial Closure Plan proposes a Closure-by-Removal (CbR) methodology in accordance with the requirements of the CCR Rule (40 CFR §257.102(c)).

The Lined CCR Pond is an interconnected new CCR surface impoundment which consists of a north pool and a south pool. The following table summarizes the documentation required within the CCR Rule and the sections that specifically respond to those requirements of this plan.

Table 1-1 – CCR Rule Cross Reference Table

Report Section	Title	CCR Rule Reference
2.1	Content of the Plan	§257.102 (b)(1)
2.2	Achievement of Performance Standards	§257.102 (d)(1)

1.2 Brief Description of Impoundment

The A.B. Brown station is a coal-fired[1] power plant located approximately 10 miles east of Mount Vernon in Posey County, Indiana and is owned and operated by Southern Indiana Gas & Electric Company, dba CenterPoint Energy Indiana South (CEIS) (hereinafter SIGECO). The A.B. Brown station is situated just west of the Vanderburgh-Posey County line and north of the Ohio River, with the Lined CCR Pond positioned south of the station, west of the coal pile.

The Lined CCR Pond is scheduled to be commissioned no later than September 2023. The south pool of the impoundment was constructed partially over the former South Side Runoff Pond (SSRP), which was initially constructed along with the plant in 1978. The north pool of the impoundment is incised and was constructed by excavation into the existing topography north of the SSRP. The Lined CCR Pond utilizes the existing earthen dike of the former SSRP on its south and west sides. Currently, the north pool and the south pool act as one CCR unit referred to as the Lined CCR Pond, which has a surface area of approximately 2.8 acres (within the liner anchor

[1] Coal-fired operations are planned for retirement no later than October 15, 2023.

trench) and a water surface area of 1.9 acres. The liner system for the Lined CCR Pond consists of the following components (bottom to top):

- Compacted Soil Liner (CSL) – A 1-foot-thick compacted cohesive soil layer with a maximum hydraulic conductivity of 1.0 x 10-5 cm/sec.

- Geomembrane – A textured 60-mil thick High-Density Polyethylene (HDPE) geomembrane installed over the CSL over the entire base and sideslopes that serves as an initial barrier layer.

- Geosynthetic Clay Liner (GCL) – Granular sodium bentonite bound by geotextile fabric and reinforced stitching. The GCL is installed in direct contact with the CSL across the entire base and sideslopes of the new CCR Pond.

- Geomembrane – An additional textured 60-mil thick High-Density Polyethylene (HDPE) geomembrane installed over the GCL over the entire base and sideslopes serves as the primary barrier layer.

- Cushion Layer – A geotextile cushion layer placed between the geomembrane and the overlying armoring layer to provide protection for the liner system over the entire base and sideslopes. The cushion layer consists of a 16 oz/yd^2 non-woven geotextile.

- Grout-filled Fabric – A grout-filled fabric installed as an armoring layer (placed directly over the cushion layer) over the entire base and sideslopes of the pond. The armoring layer protects the underlying geosynthetics and enables equipment to access the bottom of the pond for maintenance. This grout-filled fabric allows for the bottom and sides of the pond to be thoroughly cleaned of any residual CCR materials during closure and will also allow for inspection upon completion of cleaning.

The Lined CCR Pond earthen dike is approximately 630 feet long, 9.5 feet high, and has exterior side slopes varying from 2:1 to 2.5:1 (horizontal to vertical) covered with grassy vegetation. The dike crest elevation is 391.5 feet[2] and has a crest width of 15 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.

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

2 Written Closure Plan

Regulatory Citation: 40 CFR §257.102 (b); Written closure plan—

- *(1) Content of the plan. The owner or operator of a CCR unit must prepare a written closure plan that describes the steps necessary to close the CCR unit at any point during the active life of the CCR unit consistent with recognized and generally accepted good engineering practices. The written closure plan must include, at a minimum, the information specified in paragraphs (b)(1)(i) through (vi) of this section.*

The Written Closure Plan for the Lined CCR Pond is described in this section. Information about operational and maintenance procedures was provided by A.B. Brown plant personnel. The A.B. Brown station follows an established maintenance program that quickly identifies and resolves issues of concern.

2.1 Content of the Plan

2.1.1 Closure Plan Description

Regulatory Citation: 40 CFR §257.102 (b)(1);

- *(i) Narrative description of how the CCR unit will be closed in accordance with this section.*

The Lined CCR Pond will be dewatered to facilitate CCR excavation. After dewatering, CCR within the unit will be removed by excavation, and the liner protection system will be cleaned to remove any residual material. As previously noted, the pond's liner protection system consists of a grout-filled fabric armoring layer overtop the underlying composite liner system. Assuming that there are no groundwater exceedances, it is envisioned that once all CCR and associated residual materials have been removed and the pond's liner protection system has been thoroughly cleaned, the pond will be certified as closed. The pond will then be repurposed for future management of non-CCR flows. In summary, closure operations will involve:

1) Removal of free water within the impoundment.

2) Excavation and removal of all CCR materials; and

3) Cleaning of the liner protection system.

In accordance with §257.102(b)(3), this Closure Plan will be amended as needed to provide additional details after the final engineering design is completed. This Closure Plan reflects the information available to date.

Regulatory Citation: 40 CFR §257.102 (b)(1);

- *(ii) If closure of the CCR unit will be accomplished through removal of CCR from the CCR unit, a description of the procedures to remove the CCR and decontaminate the CCR unit in accordance with paragraph (c) of this section.*

Excavation in the Lined CCR Pond will advance until all CCR has been removed from within the CCR unit. Upon exposure of the pond's liner protection system, a visual inspection will be conducted to identify any residual CCR materials. The liner protection system will be cleaned (e.g. pressure-washed) to remove any residual CCR materials identified by this inspection. The pond will then be certified as closed and repurposed for future

management of non-CCR flows. Following completion of this process and consistent with current regulatory provisions, groundwater monitoring will be conducted until it can be confirmed that concentrations do not exceed groundwater baseline conditions determined prior to placement of waste in the Lined CCR Pond, as referenced in the Groundwater Sampling and Analysis Plan prepared in accordance with 40 CFR §257.93.

Regulatory Citation: 40 CFR §257.102 (b)(1);

- *(iii) If closure of the CCR Unit will be accomplished by leaving CCR in place, a description of the final cover system and methods and procedures used to install the final cover.*

Not applicable.

2.1.2 Inventory and Area Estimates

Regulatory Citation: 40 CFR §257.102 (b);

- *(iv) An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit.*

An estimate of the maximum inventory of CCR ever on-site over the active life is not available, as the unit has not yet received CCR.

Regulatory Citation: 40 CFR §257.102 (b);

- *(v) An estimate of the largest area of the CCR unit ever requiring a final cover as required by paragraph (d) of this section at any time during the CCR unit's active life.*

Not applicable.

2.1.3 Closure Schedule

Regulatory Citation: 40 CFR §257.102 (b)(1);

- *(vi) Schedule for completing all activities necessary to satisfy the closure criteria in this section, including an estimate of the year in which all closure activities for the CCR unit will be completed.*

The milestones and the associated timeframes are initial estimates. Some of the activities associated with the milestones will overlap. Amendments to the milestones and timeframes will be made as more information becomes available.

Table 2-1 – Closure Schedule[3]

Milestone	Schedule
Initial Written Closure Plan (Rev. 0)	August, 2023
Notification of Intent to Close Placed in Operating Record	No later than the date closure of the CCR unit is initiated. Closure to commence in accordance with the applicable timeframes in 40 CFR 257.102(e).
Agency coordination and permit acquisition	

[3] Other than the Initial Written Closure Plan Milestone, other milestone dates are subject to change dependent on completion of certain decommissioning activities related to the coal unit decommissioning activities.

Table 2-1 **– Closure Schedule**[3]	
Milestone	Schedule
– Coordinating with state agencies for compliance. – Acquiring state permits.	December 1, 2023 December 1, 2023
Mobilization	December 1, 2023
Closure Construction Activities CCR – Complete dewatering, as necessary – Complete excavation of CCR – Liner cleaning	 January 1, 2024 March 1, 2024 May 1, 2024
Estimate of date in which all closure activities will be completed.	June 1, 2024

2.2 Achievement of Closure by Removal

Regulatory Citation: 40 CFR §257.102 (c); Closure by removal of CCR

An owner or operator may elect to close a CCR unit by removing and decontaminating all areas affected by releases from the CCR unit. CCR removal and decontamination of the CCR unit are complete when constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring concentrations do not exceed the groundwater protection standard established pursuant to §257.95(h) for constituents listed in appendix IV to this part.

As discussed previously, excavation in the Lined CCR footprint will advance until the pond's liner protection system is exposed, which consists of a grout-filled fabric armoring layer. Upon removal of CCR and exposure of the liner protection system, a visual inspection will be conducted to identify any remnant CCR materials. Remnant CCR materials identified by this inspection will subsequently be removed by additional excavation and cleaning (e.g. pressure washing). Following completion of this process and consistent with current regulatory provisions, groundwater monitoring will be conducted until it can be confirmed that concentrations do not exceed groundwater baseline conditions determined prior to placement of waste in the Lined CCR Pond, as referenced in the Groundwater Sampling and Analysis Plan prepared in accordance with 40 CFR §257.93.

2.3 Amendment to Initial or any Subsequent Written Closure Plan

This initial written closure plan will be amended as required by §257.102 (b)(3).

3 Certification

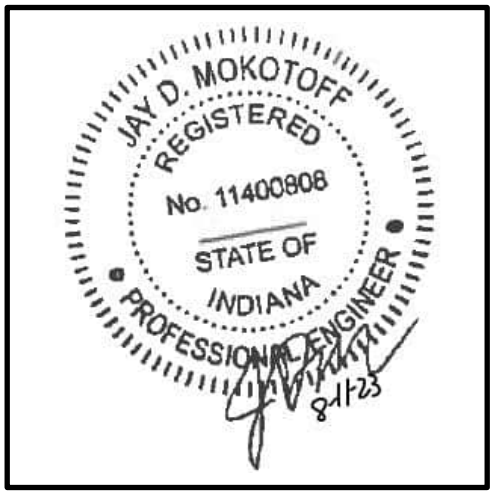
This Certification Statement documents that the Lined CCR Pond at the A.B. Brown Generating Station meets the Written Closure Plan requirements specified in 40 CFR §257.102 (b) and the closure by removal requirements as specified in 40 CFR §257.102 (c). The Lined CCR Pond is a new CCR surface impoundment as defined by 40 CFR §257.53. The CCR Rule requires that the Initial Written Closure Plan for a new CCR surface impoundment be prepared no later than its initial receipt of waste.

CCR Unit: Southern Indiana Gas & Electric Company; A.B. Brown Generating Station; Lined CCR 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 Initial Written Closure Plan dated August 11, 2023 meets the requirements of 40 CFR § 257.102.

Jay D. Mokotoff
Printed Name

August 11, 2023
Date



4 Limitations

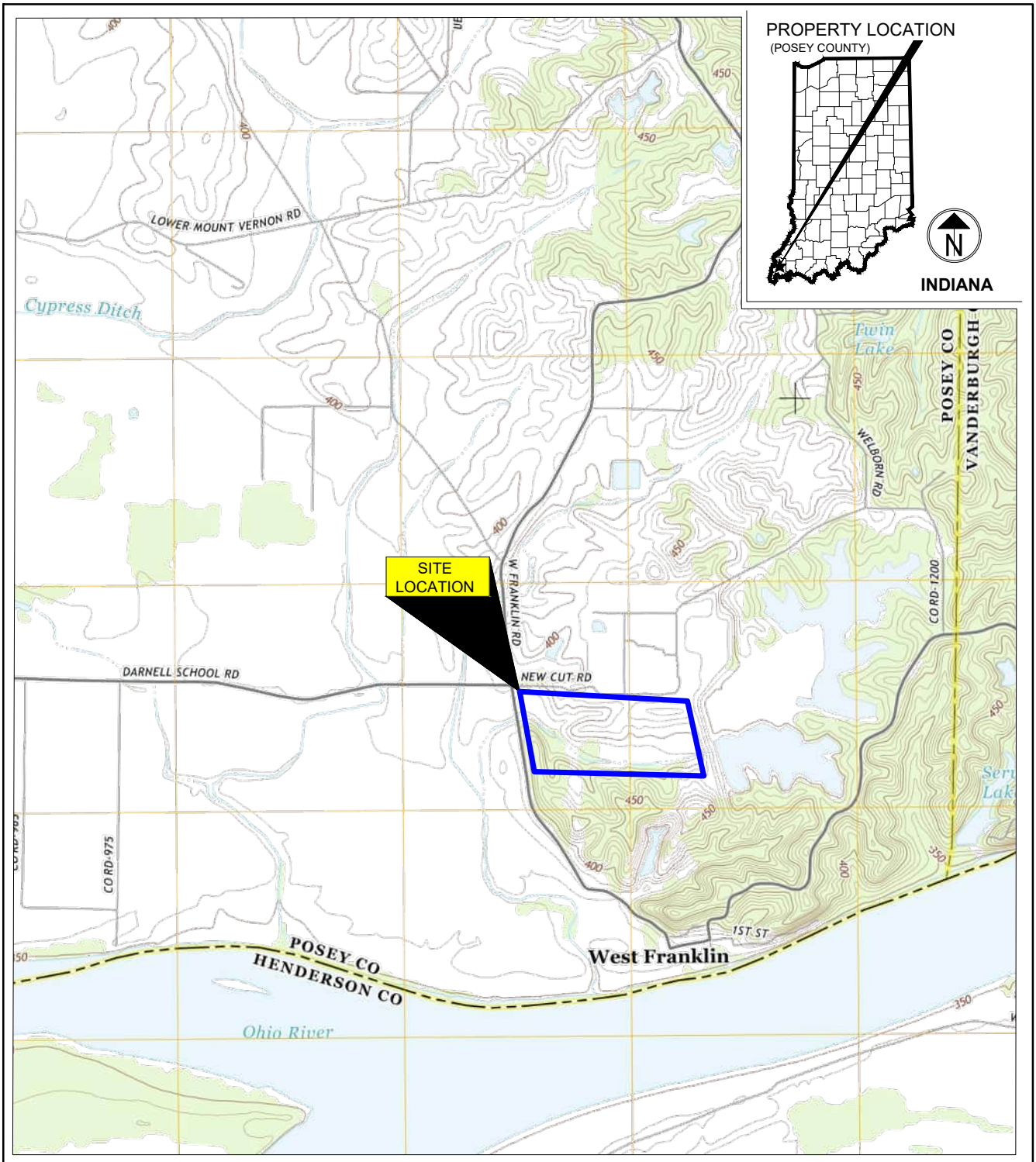
Background information, design basis, and other data which AECOM has used in preparing this report have been furnished to AECOM by SIGECO. AECOM has relied on this information as furnished and is not responsible for the accuracy of this information. Our recommendations are based on available information 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 provisions and 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 Closure Plan 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



Z:\Cleveland-USCLV01\DCS\Projects\V\Vectren Corporation\60442676_ABBClosure\400-Technical\454_Lined Pond\CCR Certification Letters\Closure Plan - IDEM\Figures\Figure 1 - Site Location Map_CLOSURE -12-21-18.

AECOM

AB BROWN GENERATING STATION

POSEY COUNTY, IN

FIGURE 1 - LOCATION MAP

DRAWN BY:	CHECKED BY:	PROJECT No:	DATE:	FIGURE No:
JET	DMB	60442676	5/16/23	1

LEGEND

LINED CCR POND BOUNDARY

N

0 100 200 300

GRAPHIC SCALE (IN FEET)

Project Management Initials: Designer:___ Checked:___ Approved:___ ARCH D 24" x 36"

Last saved by: DREW BROWNING(2023-08-09) Last Plotted: 2023-08-09
Filename: C:\USERS\DREW.BROWNING\ONEDRIVE - AECOM\DESKTOP\FIGURE 2\FIGURE 2_ABB_SITE MAP.DWG

Printed on ___% Post-Consumer Recycled Content Paper

AECOM

PROJECT

Lined CCR Pond
Closure Plan

A.B. BROWN GENERATING STATION
8511 Welborn Rd
Mount Vernon, IN 47620

CenterPoint Energy

CLIENT

SIGECO DBA CENTERPOINT ENERGY INDIANA SOUTH
P.O. Box 209
Evansville, IN 47702
800.227.1376 tel
http://www.centerpointenergy.com

CONSULTANT

AECOM Process Technologies
9400 Amberglen Boulevard
Austin, Tx 78729
512.454.4797 tel 512.419.6004 fax
www.aecom.com

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60583533

SHEET TITLE

FIGURE 2 - SITE MAP

SHEET NUMBER

2

About AECOM

AECOM (NYSE: ACM) is a global provider of professional technical and management support services to a broad range of markets, including transportation, facilities, environmental, energy, water and government. With nearly 51,000 employees around the world, AECOM is a leader in all of the key markets that it serves. AECOM provides a blend of global reach, local knowledge, innovation, and collaborative technical excellence in delivering solutions that enhance and sustain the world's built, natural, and social environments. A Fortune 500 company, AECOM serves clients in more than 100 countries and has annual revenue in excess of $13 billion.

More information on AECOM and its services can be found at www.aecom.com.

AECOM
13640 Briarwick Dr.
Austin, Texas 78729
1-512-454-4797