Big Rivers
ELECTRIC CORPORATION

Sebree Generating Station

Reid/HMP&L CCR Surface Impoundment Closure Plan

Revision 1

June 14, 2033

Issue Purpose: Use

Project No.: 14055-010

55 East Monroe Street
Chicago, IL 60603-5780 USA
312-269-2000
www.sargentlundy.com

Sargent & Lundy

CLOSURE PLAN REVISION HISTORY

Rev.	Purpose of Issue	Date	By Whom	Summary of Revisions
0	Initial Issue	10/11/2016	Associated Engineers, Inc.	N/A
1	Use	06/14//2023	Sargent & Lundy	Updated closure method to closure by removal.

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FIGURES

1.0 PURPOSE & SCOPE

Federal CCR Rule Reference: 40 CFR 257.102(b)
Kentucky Administrative Regulations Reference: 401 KAR 46:110 Section 9

Reid/HMP&L CCR Surface Impoundment at Big Rivers Electric Corporation's (BREC) Sebree Generating Station is an existing coal combustion residual (CCR) surface impoundment that is regulated by the U.S. Environmental Protection Agency's (EPA) "Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments." These regulations are codified in 40 CFR Part 257 Subpart D (Ref.1) and are also referred to herein as the "Federal CCR Rule." The Reid/HMP&L CCR Surface Impoundment is also regulated under Title 401, Chapter 46 of the Kentucky Administrative Regulations (KAR) (Ref. 2), which incorporates the Federal CCR Rule by reference.

Pursuant to 40 CFR 257.102(b) and 401 KAR 46:110 Section 9, this document provides the written closure plan for the Reid/HMP&L CCR Surface Impoundment at the Sebree Generating Station. BREC intends to close this CCR surface impoundment by removing CCR remaining in the pond pursuant to 40 CFR 257.102(c) and 401 KAR 46:110 Section 9. This plan describes the steps necessary to close the Reid/HMP&L CCR Surface Impoundment in this manner.

2.0 SITE BACKGROUND

2.1 SEBREE GENERATING STATION

BREC operates the Sebree Generating Station located on the Green River northeast of Sebree, Kentucky (see Figure 1) with Interstate 69 located to the west. Three former coal-fired power plants are co-located at the Sebree Generating Station: the Robert D. Green Station, the Robert A. Reid Station ("Reid"), and Henderson Municipal Power & Light (HMP&L) Station Two. Reid Unit 1 began commercial operation in 1966 and was retired on September 30, 2020. HMP&L Station Two Units 1 and 2 began commercial operation in 1973 and 1974, respectively; both units were retired as of February 1, 2019. Green Station Units 1 and 2 began commercial operation in 1979 and 1981, respectively, and were converted to natural gas fuel in 2022.

2.2 REID/HMP&L CCR SURFACE IMPOUNDMENT

2.2.1 LOCATION & DESCRIPTION

The location of the Reid/HMP&L CCR Surface Impoundment is shown on Figure 2. The surface impoundment has been in place for more than 40 years but is no longer used. Prior to being taken out of service in 2019, the Reid/HMP&L CCR Surface Impoundment was used to manage ash sluice water from the Reid Station and HMP&L Station Two. The Reid/HMP&L CCR Surface Impoundment's is a partially diked and partially incised impoundment with a total approximate storage area of 23.3 acres. The surface

impoundment is diked on the west, south, and east sides and is incised on the north side. The west dike has the greatest height, reaching approximately 35 feet.

2.2.2 INVENTORIES OF WATER & CCR

Federal CCR Rule Reference: 40 CFR 257.102(b)(1)(iv)
Kentucky Administrative Regulations Reference: 401 KAR 46:110 Section 9

Based on a survey performed in May 2022, the depth of water remaining in the Reid/HMP&L CCR Surface Impoundment is approximately 14 feet. Based on the May 2022 survey, the original construction records for the pond, and soil boring data, approximately 822,000 cubic yards of CCR are currently stored in the Reid/HMP&L CCR Surface Impoundment. This is considered to be the maximum inventory of CCR ever on-site over the active life of the surface impoundment.

3.0 CLOSURE PLAN NARRATIVE SUMMARY

Federal CCR Rule Reference: 40 CFR 257.102(b)(1)(i) & 257.102(c)
Kentucky Administrative Regulations Reference: 401 KAR 46:110 Section 9

BREC plans to close the Reid/HMP&L CCR Surface Impoundment by removing CCR from the pond pursuant to 40 CFR 257.102(c) and 401 KAR 46:110 Section 9. The Reid/HMP&L CCR Surface Impoundment closure will be executed according to the following sequential steps:

1. Removing influent pipes and pipe support structures within the pond limits.
2. Decontaminating and removing riprap from the pond's interior slopes.
3. Clearing, grubbing, and/or stripping vegetation within the pond limits.
4. Drawing down free surface water in the pond and dewatering the CCR stored therein.
5. Excavating CCR from the surface impoundment to native subsoils.
6. Hauling excavated CCR and CCR-impacted soils to the Green Station CCR Landfill for final disposal.

4.0 CCR REMOVAL & DECONTAMINATION PROCEDURES

Federal CCR Rule References: 40 CFR 257.102(b)(1)(ii) & 257.102(c)
Kentucky Administrative Regulations Reference: 401 KAR 46:110 Section 9

Prior to removing CCR from the pond, the free surface water remaining in the Reid/HMP&L CCR Surface Impoundment will be drawn down and the impounded CCR will be dewatered. Dewatering methods will be determined by the General Contractor awarded the contract for closing the impoundment. Potential dewatering methods include but are not limited to installing well-points, excavating trenches, *etc.* All water removed from the Reid/HMP&L CCR Surface Impoundment during closure will be discharged through the

surface impoundment's existing outlet structure (regulated Outfall 004) in accordance with the effluent limitations for Outfalls 001 and 004 in the Station's Kentucky Pollutant Discharge Elimination System (KPDES) permit.

As free surface water in the pond is drawn down, impounded CCR will be dewatered and subsequently excavated from the Reid/HMP&L CCR Surface Impoundment. CCR will be excavated down to the native subsoils under the pond. Upon reaching the pond floor, the Certifying Engineer, an independent, third-party professional engineer licensed in the Commonwealth of Kentucky, will visually inspect the native subsoils to verify all CCR constituents have been removed in accordance with 40 CFR 257.102(c) and 401 KAR 46:110 Section 9. Native subsoils determined to be impacted by CCR constituents ("CCR-impacted soils") during visual inspection will be removed from the Reid/HMP&L CCR Surface Impoundment. All excavated CCR and CCR-impacted soils will be loaded onto trucks and hauled to the Green Station CCR Landfill for final disposal.

5.0 CLOSURE SCHEDULE

Federal CCR Rule Reference: 40 CFR 257.102(b)(1)(vi)
Kentucky Administrative Regulations Reference: 401 KAR 46:110 Section 9

Closure activities for the Reid/HMP&L CCR Surface Impoundment are expected to be completed by March 31, 2024. Table 1 lists the major milestones necessary for closing the pond and the expected duration for completing each milestone.

Table 1 – Planning Level Schedule for Closing Reid/HMP&L CCR Surface Impoundment

Milestone	Start Date	End Date
General Contractor Mobilization	July 2023	July 2023
Removal of Influent Piping and Vegetation	July 2023	August 2023
Pond Dewatering	July 2023	March 2024
CCR Removal	August 2023	March 2024
Closure Completion	March 31, 2024	March 31, 2024

6.0 AMENDMENTS TO CLOSURE PLAN

Federal CCR Rule Reference: 40 CFR 257.102(b)(3)
Kentucky Administrative Regulations Reference: 401 KAR 46:110 Section 9

This closure plan will be amended in accordance with 40 CFR 257.102(b)(3) and 401 KAR 46:110 Section 9 if a change in the operation of the Reid/HMP&L CCR Surface Impoundment would substantially affect this closure plan or if an unanticipated event necessitates a revision to this closure plan. Any and all amendments to this closure plan will be certified by a qualified professional engineer registered in the Commonwealth of Kentucky in accordance with 40 CFR 257.102(b)(4) and 401 KAR 46:110 Section 9.

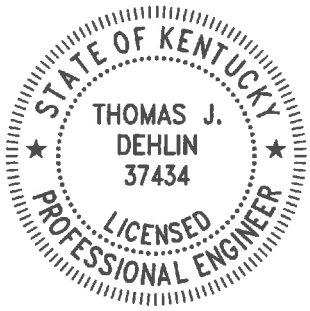
7.0 CERTIFICATION

I certify that this amendment to this closure plan for the Reid/HMP&L CCR Surface Impoundment meets the requirements for a written closure plan pursuant to 40 CFR 257.102(b).

I certify that this document was prepared by me or under my direct supervision and that I am a registered professional engineer under the laws of the Commonwealth of Kentucky.

Certified By: Thomas J. Dehlin, P.E. Date: June 14, 2023

Seal:



Thomas Dehlin
2023.06.14
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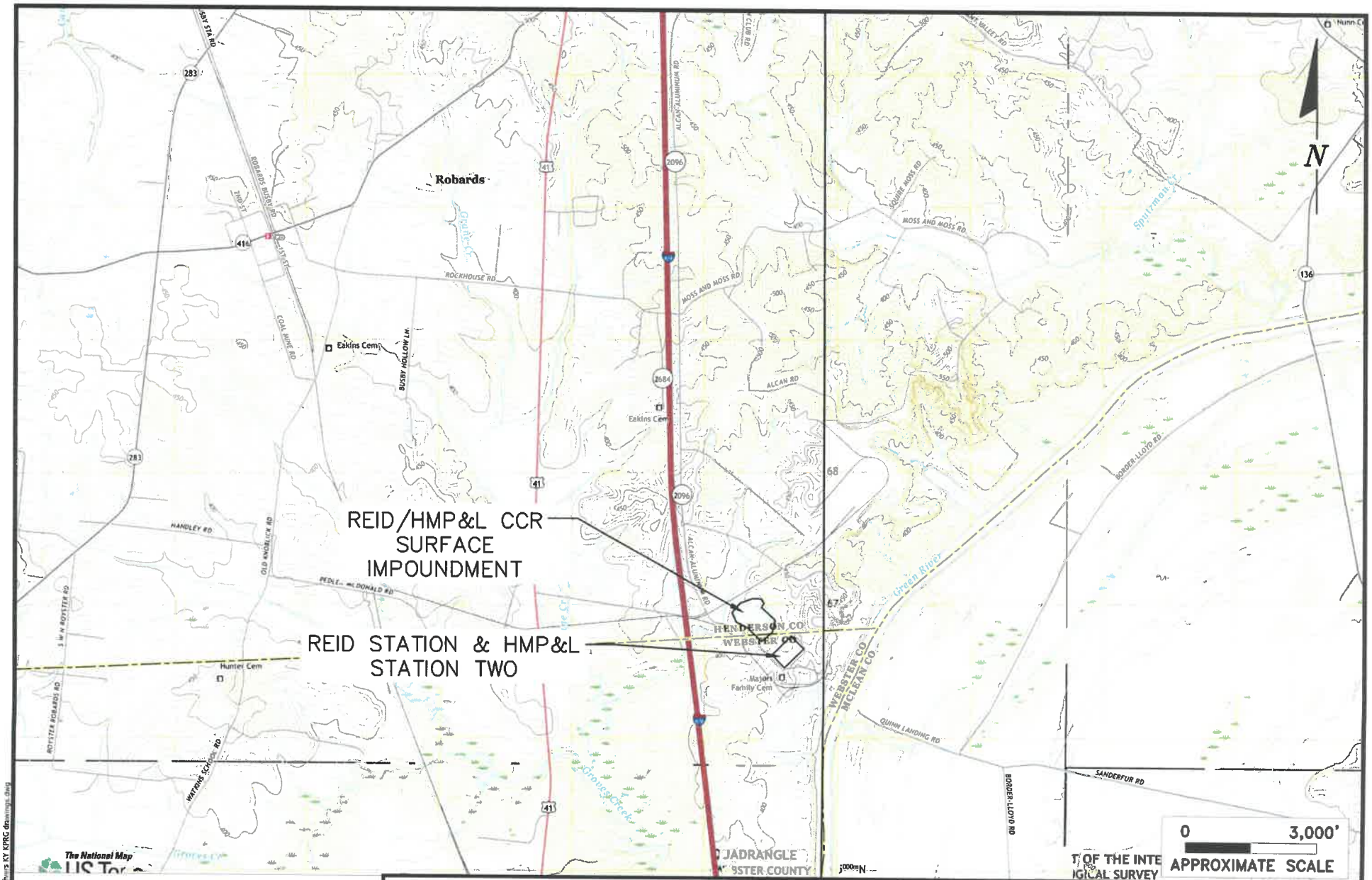
8.0 REFERENCES

1. U.S. Environmental Protection Agency. "Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface impoundments." 40 CFR 257 Subpart D. https://www.ecfr.gov/current/title-40/chapter-I/subchapter-I/part-257/subpart-D. Accessed June 14, 2023.

2. Kentucky Administrative Regulations. Title 401, Chapter 046, "Coal Combustion Residuals (CCR)." https://apps.legislature.ky.gov/law/kar/titles/401/046/110/. Accessed June 14, 2023.



ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG

KPRG and Associates, Inc.

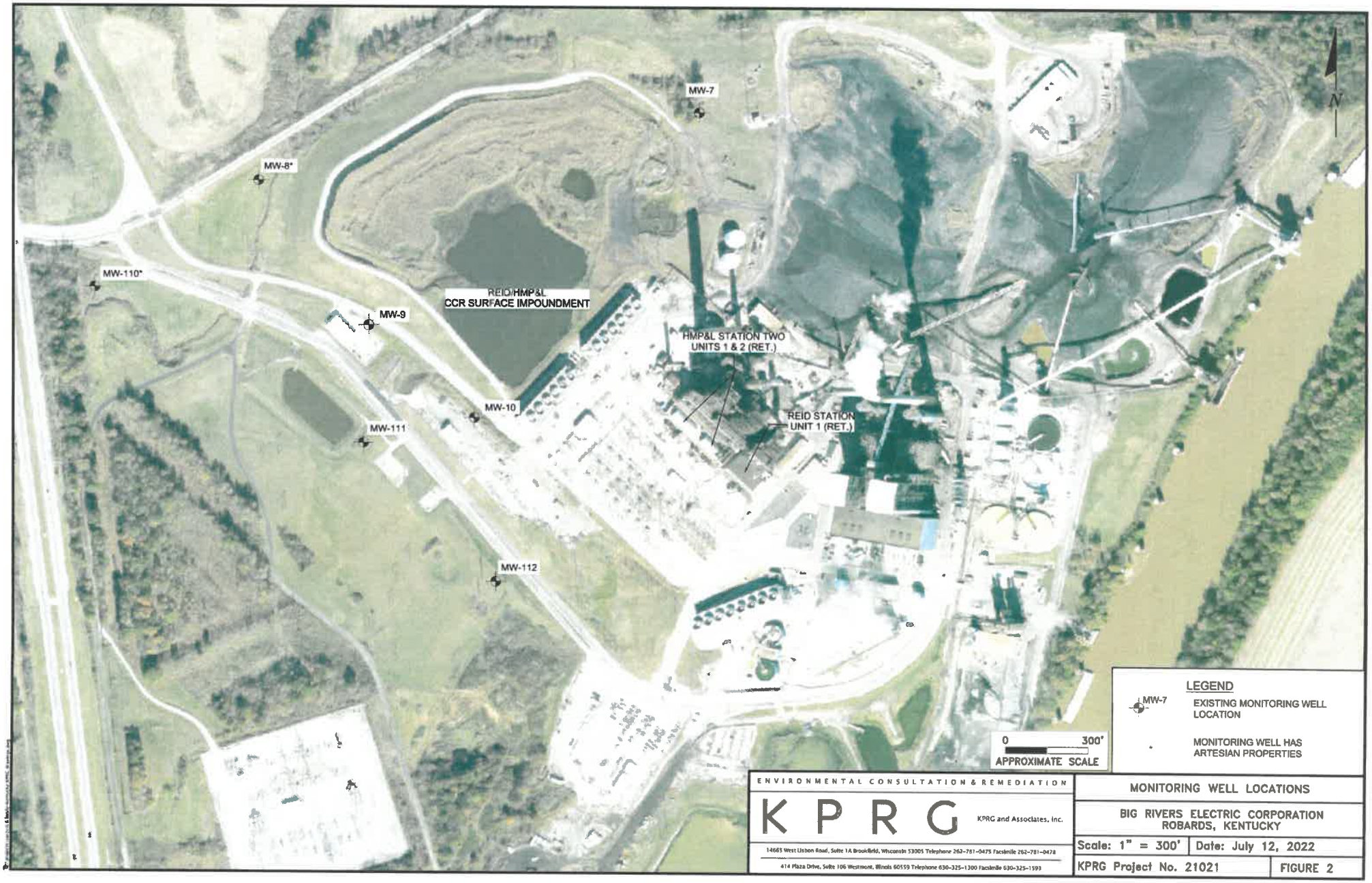
14665 West Lisbon Road, Suite 1A Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

414 Plaza Drive, Suite 106 Westmont, Illinois 60559 Telephone 630-325-1300 Facsimile 630-325-1593

GENERAL LOCATION MAP

BIG RIVERS ELECTRIC CORPORATION
ROBARDS, KENTUCKY

Scale: 1" = 3,000'	Date: August 8, 2022
KPRG Project No. 21021	FIGURE 1



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MONITORING WELL LOCATIONS

BIG RIVERS ELECTRIC CORPORATION
ROBARDS, KENTUCKY

Scale: 1" = 300' | Date: July 12, 2022

KPRG Project No. 21021 | FIGURE 2

BURNS McDONNELL

Closure Plan for the Green Station CCR Surface Impoundment

Big Rivers ELECTRIC CORPORATION

Your Touchstone Energy® Cooperative

Big Rivers Electric Corporation

Robert D. Green Generating Station

Coal Combustion Residual Rule Compliance

Closure Plan for the Green Station CCR Surface Impoundment

Prepared for

Big Rivers Electric Corporation
Robert D. Green Generating Station
Roberts, Kentucky

Revision 3
6/20/2022

Prepared by

Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri

INDEX AND CERTIFICATION

Big Rivers Electric Corporation
Closure Plan for the Green Station CCR Surface Impoundment

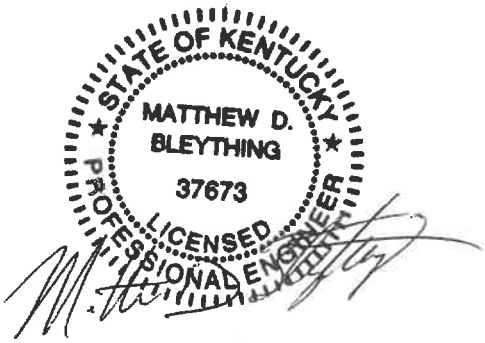
Report Index

Certification

I hereby certify, as a Professional Engineer in the State of Kentucky, that the information in this document was assembled under my direct supervisory control. This report is not intended or represented to be suitable for reuse by Big Rivers Electric Corporation or others without specific verification or adaptation by the Engineer.

Matthew D. Bleything, P.E. Kentucky License #37673

Date: 6/20/22



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LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
BREC	Big Rivers Electric Corporation
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
FGD	Flue Gas Desulfurization
KAR	Kentucky Administrative Regulations
KDWM	Kentucky Division of Waste Management
KPDES	Kentucky Pollution Discharge Elimination System
KDOW	Kentucky Department of Water
RCRA	Resource Conservation and Recovery Act
U.S.C.	United States Code

1.0 INTRODUCTION

On April 17, 2015, the Environmental Protection Agency (EPA) issued the final version of the federal Coal Combustion Residuals (CCR) Rule to regulate the disposal of coal combustion residual materials generated at coal-fired units. The rule is administered as part of the Resource Conservation and Recovery Act (RCRA, 42 United States Code [U.S.C.] §6901 et seq.), using the Subtitle D approach.

Big Rivers Electric Corporation (BREC) is subject to the CCR Rule and as such must develop a Closure Plan per 40 Code of Federal Regulations (CFR) §257.102. This document serves as BREC's Closure Plan for the Green Station (Green) CCR Surface Impoundment (Ash Pond).

According to §257.102(b)(1), the Closure Plan must contain the following:

- A description of how the CCR unit will be closed.
  - For in-place closure: A description of the final cover system, the methods for installing the final cover system, and the methods for achieving compliance with the standards outlined in §257.102(d).
  - For closure by removal: A description of the procedures to remove the CCR and decontaminate the CCR unit as outlined in §257.102(c).
- An estimate of the maximum amount of material ever stored in the CCR unit over its active life.
- An estimate of the largest area of the CCR unit ever requiring a final cover as required by §257.102(d) at any time during the CCR unit's active life.
- A schedule for completing closure activities, including the anticipated year of closure and major milestones for permitting and construction activities.

The seal on this report certifies that this document meets the requirements of 40 CFR §257.102(b). This closure plan is in addition to, not in place of, any other applicable site permits, environmental standards, or work safety practices.

The Ash Pond will not be subject to a Post-Closure Plan per §257.104(a)(2) as the impoundment will be closed through removal of the CCR pursuant to §257.102(c).

The closure completion date as presented in this Closure Plan matches the complete Green Station Closure Extension Demonstration (November 2020) that was prepared in response to 40 CFR §257.103(f)(2).

1.1 Impoundment Description

Green is an electric generating station near Robards, Kentucky. The plant consists of Unit 1 and Unit 2 which are respectively 250MW and 242MW (gross) units commercialized in 1979 and 1981 respectively. The plant ceased coal-fired operations of the boilers on April 4, 2022. The boilers have been converted for the combustion of natural gas for the production of power. The plant historically utilized the Ash Pond to manage the CCR and non-CCR wastestreams. The Ash Pond was constructed when the plant was built and has been in service for the life of the plant. The CCR wastestreams that were managed in the Ash Pond included sluiced bottom ash, economizer ash and Flue Gas Desulfurization (FGD) wastewater. All fly ash was handled dry. The various non-CCR wastewaters routed to the Ash Pond originate from the Unit 1 and 2 boiler sumps, metal cleaning wastes, clarifier blowdown, bottom ash hopper seal water, miscellaneous drains including roof drains, landfill leachate, and various stormwater sources. A site plan is included in Appendix A.

1.1.1 CCR Inventory and Extent

Depth of impounded water and CCR is 3 feet and 18 feet (at respective locations of maximum impounded water and CCR depths). Elevation of impounded water and CCR is 396 feet and 400 feet, respectively, above mean sea level. These approximate depths and respective elevations are based on the most recent (October 2018) flight derived topographic contours and bathymetric survey data.

The remaining storage capacity is approximately 230,000 cubic yards (if CCR can be placed to the elevation of the current water surface). This volume was calculated based on the maximum allowable storage volume and the current volume of CCR stored in the facility based on the most recent bathymetric survey.

The approximate volume of CCR currently stored in the Ash Pond is 1,000,000 cubic yards. The maximum storage capacity is 1,230,000 cubic yards. This volume was calculated based on the most recent bathymetric survey, and the best available as-built data for the construction prior to placement of CCR.

1.2 Closure Method

The Ash Pond will be closed through removal of CCR. CCR will be excavated from the Ash Pond to the bottom elevation shown on the original construction drawings. The CCR will be dewatered, removed, and hauled to the on-site CCR landfill for final placement. Construction of several wells or well-points may be required around the pond for water management prior to and during CCR removal. Once the CCR is removed from the Ash Pond, the existing pond will be repurposed as a non-CCR Wastewater Pond. No

additional modifications are expected, and the pond will continue to operate within current KPDES limits at the existing Outfall 009.

To facilitate the pond closure, the existing non-CCR wastestreams will need to be managed. The pond water level will be lowered as much as feasible after ceasing receipt of CCR, prior to the construction contractor coming on site. When the construction contractor begins construction, the remaining non-CCR wastestreams will be managed using a series of temporary berms, ditches, and pumps to divert non-CCR wastestreams to other locations. Additionally, wells, well points and other means of water management may be employed by the construction contractor. Dewatering operations will be in accordance with KDOW, KPDES Permit requirements. The sequencing of construction and means and methods for the water management will be determined by the construction contractor once a contract is finalized with BREC.

When the CCR removal is complete and the new Wastewater Pond is in service, all remaining stormwater and non-CCR wastestreams will continue to be managed in the new pond and will continue to discharge through the existing KPDES outlet. The contractor will then finalize construction by seeding and stabilizing the remaining disturbed areas.

Visual observations will be conducted by a qualified third party Professional Engineer and KDWM representatives to verify that the CCR material has been removed from the impoundment consistent with 401 KAR 46:110 Section 9 and 40 CFR 257.102(c). BREC does not plan to perform sampling or analysis to confirm CCR removal. A projected schedule will be provided to KDWM once a construction contractor is selected to allow for inspection of ongoing work by KDWM representatives. Additional waste to be removed includes utility waste such as incidental soil, rock, or other materials excavated as a part of the CCR removal. Incidental materials may remain commingled with the CCR during transportation and disposal in the onsite CCR Landfill(s).

Once all CCR material has been removed, groundwater monitoring will be conducted as indicated in Section 1.2.2 to confirm CCR removal and decontamination has been completed pursuant to §257.102(c) of the CCR Rule.

1.2.1 Closure Schedule

According to §257.101 of the CCR Rule, closure of the existing impoundment must commence no later than 6 months following the date on which a closure event is triggered, or no later than 30 days following the last known receipt of CCR or non-CCR wastewater by the impoundment. The plant ceased coal-fired operations of the boilers on April 4, 2022. However, the Ash Pond will continue to manage non-CCR

wastestreams. The closure project documents have been finalized and construction anticipated to begin in June 2022.

The estimated closure schedule is as follows:

Mobilization	July 2022
Pond Dewatering	July 2022 – August 2023
Removal of CCR	July 2022 – August 2023
Winter Shutdown	December 2022 – March 2023
Finished Surfacing and Demobilization	August 2023 – September 2023
Deadline to complete removal of CCR	October 17, 2023

1.2.2 Closure Completion

When BREC has removed the CCR from the impoundment, certified by a third-party Professional Engineer and inspected by KDWM, BREC will submit a construction progress report for acceptance under 401 KAR 46:110.

Groundwater monitoring will continue pursuant to 401 KAR 46:110 Section 8 and the CCR rule, 40 CFR 257.94, until such time that the CCR has been removed, as certified by a Professional Engineer and a CPR accepted by KDWM. It should be noted that the Green Ash Pond has remained in Detection Monitoring since the pond has been regulated under 40 CFR 257.

At the conclusion of closure by removal and cessation of the detection monitoring program, BREC will submit to the KDWM-Solid Waste Branch for review and approval, a groundwater monitoring well abandonment plan meeting the requirements of 401 KAR 6:350 for abandonment of the said Ash Pond groundwater monitoring well network. A subsequent CPR documenting the monitoring well abandonments will be submitted to KDWM for review. Once the well abandonment CPR is accepted, a permit revision will be issued reflecting the acceptance of the CPR by KDWM and the termination of the CCR Surface impoundment activity.

Within 30 days of completion of closure of the impoundment, BREC must prepare a notification of closure of the impoundment and place it in the facility's CCR Operating Record and on BREC's CCR public website. This notification shall include certification by a Professional Engineer in the State of Kentucky verifying that closure has been completed in accordance with this Closure Plan and the requirements of §257.102.

2.0 REVISIONS AND AMENDMENTS

The initial Closure Plan was placed in the CCR Operating Record on October 11, 2016. If the Closure Plan is revised, the written Closure Plan will be amended no later than 30 days following the triggering event. Additionally, the written Closure Plan will be amended at least 60 days prior to a planned change in the operation of the Impoundment, or no later than 60 days after an unanticipated event. The initial Closure Plan and any amendment will be certified by a qualified professional engineer in the State of Kentucky for meeting the requirements of §257.102 of the CCR Rule. All amendments and revisions must be placed on the CCR public website within a reasonable amount of time following placement in the facility's CCR Operating Record. A record of revisions made to this document is included in Section 3.0 of this document.

3.0 RECORD OF REVISIONS AND UPDATES

Date	Revisions Made	By Whom
10/11/2016	Initial Issue	Associated Engineers, Inc.
09/13/2017	Revision 1	Associated Engineers, Inc.
11/24/2020	Revision 2 – Updated schedule and added detail to closure method	Burns & McDonnell
06/17/2022	Revision 3 – Updated closure method to closure by removal	Burns & McDonnell

APPENDIX A – SITE PLAN

NORTH

0 200' 400'
SCALE IN FEET

FOR PERMITTING PURPOSES ONLY

no.	date	by	ckd	description
A	05/07/22	MDB	ETT	ISSUED FOR PERMITTING

no.	date	by	ckd	description

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400

designed M. BLEYTHING | drafted J. RIDDER

Big Rivers ELECTRIC CORPORATION
"Your Touchstone Energy® Cooperative"
ROBERT D. GREEN STATION
WEBSTER COUNTY, KENTUCKY

BREC GREEN STATION
CCR & ELG COMPLIANCE PROJECT
ASH POND CLOSURE SITE PLAN

project 132721 | contract

drawing SK-C001 | rev. A

sheet of sheets

file 126785SK-C001.DGN

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Kansas City, MO 64114
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F 816-333-3690
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Big Rivers
ELECTRIC CORPORATION

Your Touchstone Energy® Cooperative

Green Station CCR Landfill

Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule Closure and Post-closure Care Plan

October 11, 2016

Prepared By:

ASSOCIATED ENGINEERS, INC.
2740 North Main St. • Madisonville, KY 42431
Phone: (270) 821-7732 • Fax: (270) 821-7789

Project ID: 160029A

Big Rivers Electric Corporation
Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
Closure and Post-closure Care Plan

CCR Landfill Information

Name:	Green Station CCR Landfill
Operator:	Sebree Generating Station
Address:	9000 Highway 2096 Robards, Kentucky 42452

Qualified Professional Engineer

Name:	David A. Lamb
Company:	Associated Engineers, Inc.
Kentucky P.E. Number:	17822

Regulatory Applicability

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 and a written post-closure care plan consistent with recognized and generally accepted good engineering practices as specified below. The owner or operator of an existing CCR unit must prepare the written initial closure and post-closure care plans no later than October 17, 2016 as follows:

§ 257.102 Criteria for conducting the closure or retrofit of CCR units.

(a) Closure of a CCR unit or any lateral expansion of a CCR unit must be completed either by leaving the CCR in place and installing a final cover system or through removal of the CCR and decontamination of the CCR unit, as described in paragraphs (b) through (j) of this section. Retrofit of a CCR surface impoundment must be completed in accordance with the requirements in paragraph (k) of this section.

(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.

(i) A narrative description of how the CCR unit will be closed in accordance with this section.

(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.

(iii) If closure of the CCR unit will be accomplished by leaving CCR in place, a description of the final cover system, designed in accordance with paragraph (d) of this section, and the methods and procedures to be used to install the final cover. The closure plan must also discuss how the final cover system will achieve the performance standards specified in paragraph (d) of this section.

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

(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.

(vi) A 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 schedule should provide sufficient information to describe the sequential steps that will be taken to close the CCR unit, including identification of major milestones such as coordinating with and obtaining necessary approvals and permits from other agencies, the dewatering and stabilization phases of CCR surface impoundment closure, or installation of the final cover system, and the estimated timeframes to complete each step or phase of CCR unit closure. When preparing the written closure plan, if the owner or operator of a CCR surface impoundment estimates that the time required to complete closure will exceed the timeframes specified in paragraph (f)(1) of this section, the written closure plan must include the site-specific information, factors and considerations that would support any time extension sought under paragraph (f)(2) of this section.

(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.

(d) Closure performance standard when leaving CCR in place - (1) The owner or operator of a CCR unit must ensure that, at a minimum, the CCR unit is closed in a manner that will:

(i) Control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere;

(ii) Preclude the probability of future impoundment of water, sediment, or slurry;

(iii) Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period;

(iv) Minimize the need for further maintenance of the CCR unit; and

(v) Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.

§ 257.103 Alternative closure requirements.

The owner or operator of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit that is subject to closure pursuant to § 257.101(a)[detected at statistically significant levels above the groundwater protection standard], (b)(1) [not demonstrated compliance with any location standard], or (d)[not demonstrated compliance with the location restriction for unstable areas], may continue to receive CCR in the unit provided the owner or operator meets the requirements of either paragraph (a) or (b) of this section.

(a)(1) *No alternative CCR disposal capacity.* Notwithstanding the provisions of § 257.101(a), (b)(1), or (d), a CCR unit may continue to receive CCR if the owner or operator of the CCR unit certifies that the CCR must continue to be managed in that CCR unit due to the absence of alternative disposal capacity both on-site and off-site of the facility.

(b)(1) *Permanent cessation of a coal-fired boiler(s) by a date certain.* Notwithstanding the provisions of § 257.101(a), (b)(1), and (d), a CCR unit may continue to receive CCR if the owner or operator certifies that the facility will cease operation of the coal- fired boilers within the timeframes specified in paragraphs (b)(2) through (4) of this section, but in the interim period (prior to closure of the coal-fired boiler), the facility must continue to use the CCR unit due to the absence of alternative disposal capacity both on- site and off-site of the facility.

§ 257.104 Post-closure care requirements.

(a) *Applicability.*

(1) Except as provided by either item (2) or (3) of this section, post-closure requirements apply to the owners or operators of CCR landfills, CCR surface impoundments, and all lateral expansions of CCR units that are subject to the closure criteria under § 257.102.

(2) An owner or operator of a CCR unit that elects to close a CCR unit by removing CCR as provided by § 257.102(c) is not subject to the post- closure care criteria under this section.

(3) An owner or operator of an inactive CCR surface impoundment that elects to close a CCR unit pursuant to the requirements under § 257.100(b) [Inactive Surface Impoundments] is not subject to the post-closure care criteria under this

section.

(b) *Post-closure care maintenance requirements.* Following closure of the CCR unit, the owner or operator must conduct post-closure care for the CCR unit, which must consist of at least the following:

(1) Maintaining the integrity and effectiveness of the final cover system, including making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;

(c) *Post-closure care period.*

(1) Except as provided by paragraph (c)(2) of this section, the owner or operator of the CCR unit must conduct post-closure care for 30 years.

(2) If at the end of the post-closure care period the owner or operator of the CCR unit is operating under assessment monitoring in accordance with § 257.95 [Assessment Monitoring Program], the owner or operator must continue to conduct post-closure care until the owner or operator returns to detection monitoring in accordance with § 257.95.

(d) *Written post-closure plan*

(1) *Content of the plan.* The owner or operator of a CCR unit must prepare a written post-closure plan that includes, at a minimum, the information specified in paragraphs (d)(1)(i) through (iii) of this section.

(i) A description of the monitoring and maintenance activities required in paragraph (b) of this section for the CCR unit, and the frequency at which these activities will be performed;

(ii) The name, address, telephone number, and email address of the person or office to contact about the facility during the post-closure care period; and

(iii) A description of the planned uses of the property during the post-closure period. Post-closure use of the property shall not disturb the integrity of the final cover, liner(s), or any other component of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements in this subpart. Any other disturbance is allowed if the owner or operator of the CCR unit demonstrates that disturbance of the final cover, liner, or other component of the containment system, including any removal of CCR, will not increase the potential threat to human health or the environment. The demonstration must be certified by a qualified professional engineer, and notification shall be provided to the State Director that the demonstration has been placed in the operating record and on the owners or operator's publicly accessible Internet site.

(2) Deadline to prepare the initial written post-closure plan - Existing CCR landfills and

existing CCR surface impoundments. No later than October 17, 2016.

(3) Amendment of a written post-closure plan.

(i) The owner or operator may amend the initial or any subsequent written post-closure plan developed pursuant to paragraph (d)(1) of this section at any time.

(ii) The owner or operator must amend the written closure plan whenever:

(A) There is a change in the operation of the CCR unit that would substantially affect the written post-closure plan in effect; or

(B) After post-closure activities have commenced, unanticipated events necessitate a revision of the written post-closure plan.

(iii) The owner or operator must amend the written post-closure plan at least 60 days prior to a planned change in the operation of the facility or CCR unit, or no later than 60 days after an unanticipated event requires the need to revise an existing written post-closure plan. If a written post-closure plan is revised after post-closure activities have commenced for a CCR unit, the owner or operator must amend the written post-closure plan no later than 30 days following the triggering event.

(4) The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer that the initial and any amendment of the written post-closure plan meets the requirements of this section.

(e) *Notification of completion of post-closure care period.* No later than 60 days following the completion of the post-closure care period, the owner or operator of the CCR unit must prepare a notification verifying that post-closure care has been completed. The notification must include the certification by a qualified professional engineer verifying that post-closure care has been completed in accordance with the closure plan specified in paragraph (d) of this section and the requirements of this section. The owner or operator has completed the notification when it has been placed in the facility's operating record.

Description of Landfill

An aerial photo of the CCR unit is provided as Attachment A and an excerpt from U.S. Geological Survey (USGS) 7.5 minute Robards and Delaware topographic quadrangle maps showing the location of the CCR unit is provided as Attachment B.

The CCR unit is used for the placement of coal combustion residual material; currently fly ash, bottom ash and related material. The approximate total volume of CCR contained in the unit at the time of inspection is 20.3 million cubic yards. This volume was calculated from available flight derived baseline topography compared to December 2015 flight derived topographic contours. The Green CCR landfill is raised above adjacent ground to a maximum

elevation of approximately 600 feet AMSL. The original ground surface within the landfill footprint was irregular and the predominant features were small stream valleys draining towards the Green River which is located just east of the landfill; and towards Groves Creek which is located just south of the landfill.

Green CCR Landfill Closure Plan

The closure plan for the Green CCR landfill includes, at a minimum:

1. Narrative description of how the CCR unit will be closed in accordance with this section:

   At any time that closure may occur, the Green CCR landfill will be closed with existing CCR in place. Temporary cover will be placed on areas where placement of CCR has been completed until such time as the required final low permeability cover material is placed. A vertical expansion wall is currently being constructed which will enable placement of material on the already established landfill footprint and facilitate additional placement of CCR material on these areas. Engineering designs for the vertical expansion were developed by HDR Engineering, Inc. and are on file at the Big Rivers Electric Corporation corporate office in Henderson, Kentucky. The final cover system will be designed to minimize infiltration and erosion, and at a minimum, meet the requirements listed below or the requirements of an alternative final cover system.

   a. The permeability of the final cover system must be less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than $1x10^{-5}$ centimeters/second (cm/sec), whichever is less.

   b. The infiltration of liquids through the CCR unit must be minimized by the use of an infiltration layer that contains a minimum of 18 inches of earthen material.

   c. The erosion of the final cover system must be minimized by the use of an erosion layer that contains a minimum of 6 inches of earthen material that is capable of sustaining native plant growth.

   d. The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.

2. 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.

   It is not proposed that the closure of the Green CCR landfill will include removal of CCR material from the unit.

3. If closure of the CCR unit will be accomplished by leaving CCR in place, a description of the final cover system, designed in accordance with paragraph (d) of this section, and the methods and procedures to be used to install the final cover. The closure plan must also discuss how the final cover system will achieve the performance standards specified in paragraph (d) of this section.

   The Green CCR landfill will be closed and covered with the CCR material in place. CCR material will be covered by 24 inches of temporary cover material until the final low permeability soil cover is placed to facilitate closure. The 18-inch low permeability soil cover will be placed and compacted to meet the required permeability of not more than $1x10^{-5}$ centimeters/second (cm/sec). Appropriate soils testing will be conducted to document that the required thickness and permeability specifications have been met and may include laboratory and field testing procedures. The final cover will be vegetated with appropriate cover species and erosion of the final cover system must be minimized by the use of an erosion layer that contains a minimum of 6 inches of earthen material that is capable of sustaining native plant growth. The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.

4. An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit.

   The approximate total volume of CCR contained in the unit at the time of inspection is 20.3 million cubic yards. This volume was calculated from available flight derived baseline topography compared to December 2015 flight derived topographic contours. The Green CCR landfill is raised above adjacent ground to a maximum elevation of approximately 600 feet AMSL.

5. An estimate of the largest area of the CCR unit ever requiring a final cover at any time during the CCR unit's active life.

   The estimated largest area of the CCR unit ever requiring a final cover at any time during the CCR unit's active life is approximately 85 acres.

6. A 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 schedule should provide sufficient information to describe the sequential steps that will be taken to close the CCR unit, including identification of major milestones such as coordinating with and obtaining necessary approvals and permits from other agencies, the dewatering and stabilization phases of CCR surface impoundment closure, or installation of the final cover system, and the estimated timeframes to complete each step or phase of CCR unit closure. When preparing the written closure plan, if the owner or operator of a CCR surface impoundment estimates that the time required to complete closure will exceed the timeframes specified in paragraph (f)(1) of this section, the written closure plan must include the site-specific information, factors and considerations that would support any time extensions sought

under paragraph (f)(2) of this section.

The closure of the Green CCR landfill will be implemented within any required timeframes per applicable environmental rules and regulations and in consideration of any operational and financial constraints. The time required to complete closure is proposed not to exceed five years from commencing closure activities. Based on the current fill rate the landfill will not be closed until beyond the year 2032.

Green CCR Landfill Post-closure Plan

The post-closure plan for the Green CCR landfill includes, at a minimum:

1. The monitoring and maintenance activities will include maintaining the integrity and effectiveness of the final cover system, including making repairs to the final as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;

2. The name, address, telephone number, and email address of the person or office to contact about the facility during the post-closure care period follows:

   Thomas Shaw, Director Environmental
   Big Rivers Electric Corporation
   Address: 201 3rd Street Henderson, KY 42420
   Telephone Number: 270-844-6031
   Email Address: Thomas.Shaw@bigrivers.com

3. The planned uses of the property during the post-closure period will consist of maintaining the integrity of the power generating facility. Post-closure use of the property will not disturb the integrity of the final cover, liner(s), or any other component of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements in the rule or other environmental regulations or to facilitate operating considerations that are allowed if the owner or operator of the CCR unit demonstrates that disturbance of the final cover, liner, or other component of the containment system, including any removal of CCR, will not increase the potential threat to human health or the environment. The demonstration must be certified by a qualified professional engineer.

Sources of Information

Geotechnical and other information provided by Associated Engineers, Inc.

Engineering design drawings and other information provided by Big Rivers Electric Corporation

United States Geological Survey U.S. Geological Survey (USGS) 7.5 minute Robards and Delaware topographic quadrangle maps

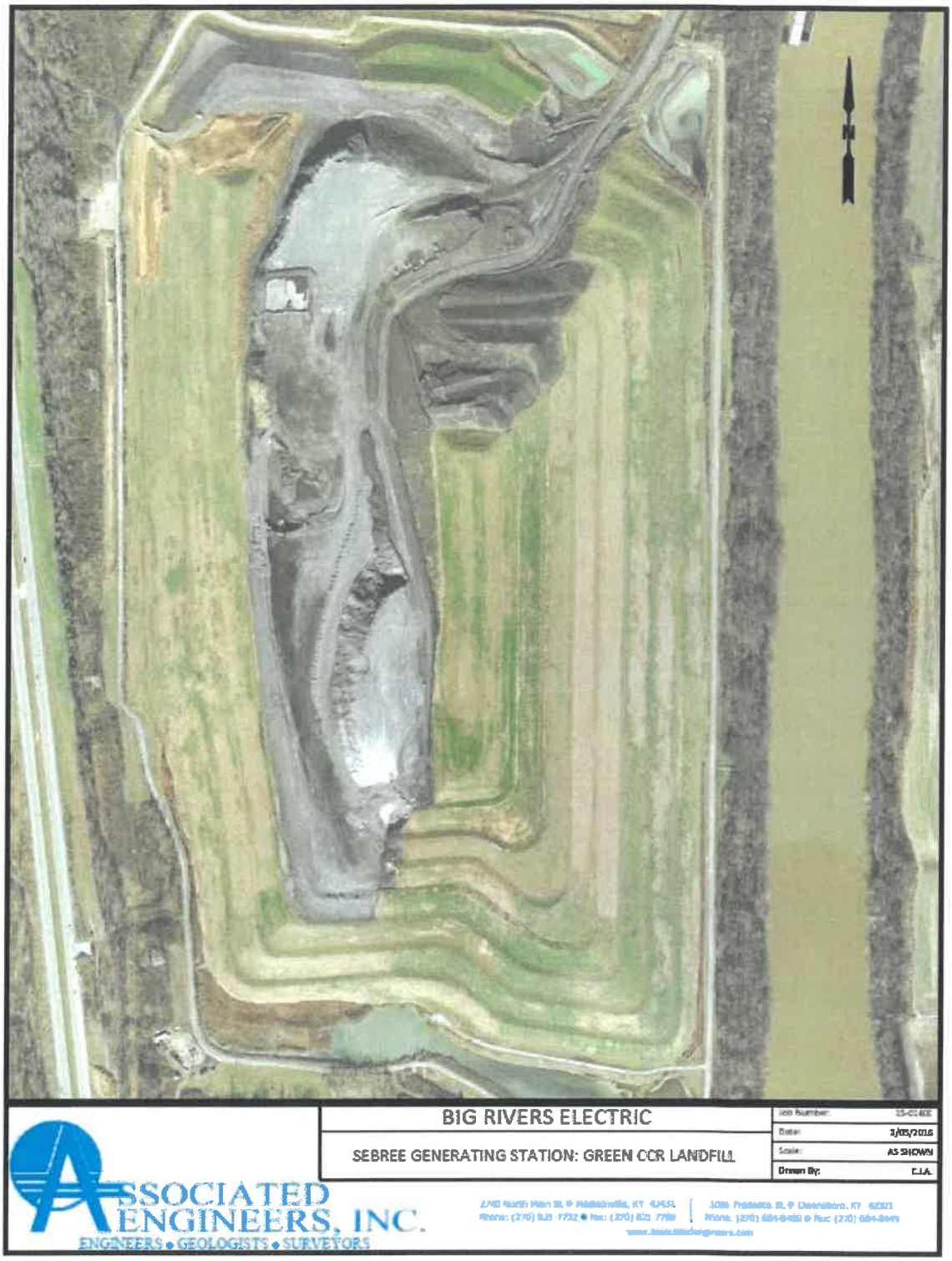
Professional Engineer Certification [Per 40 CFR § 257.102-104]
Green CCR Landfill Closure and Post-closure Care Plan

I hereby certify that myself or an agent under my review has prepared this Closure and Post-closure Care Plan (Plan), and being familiar with the provisions of the final rule to regulate the disposal of coal combustion residuals (CCR) as solid waste under subtitle D of the Resource Conservation and Recovery Act (RCRA), attest that this Plan has been prepared in accordance with good engineering practices and meets the intent of 40 CFR Part 257.102-104. To the best of my knowledge and belief, the information contained in this Plan is true, complete, and accurate.

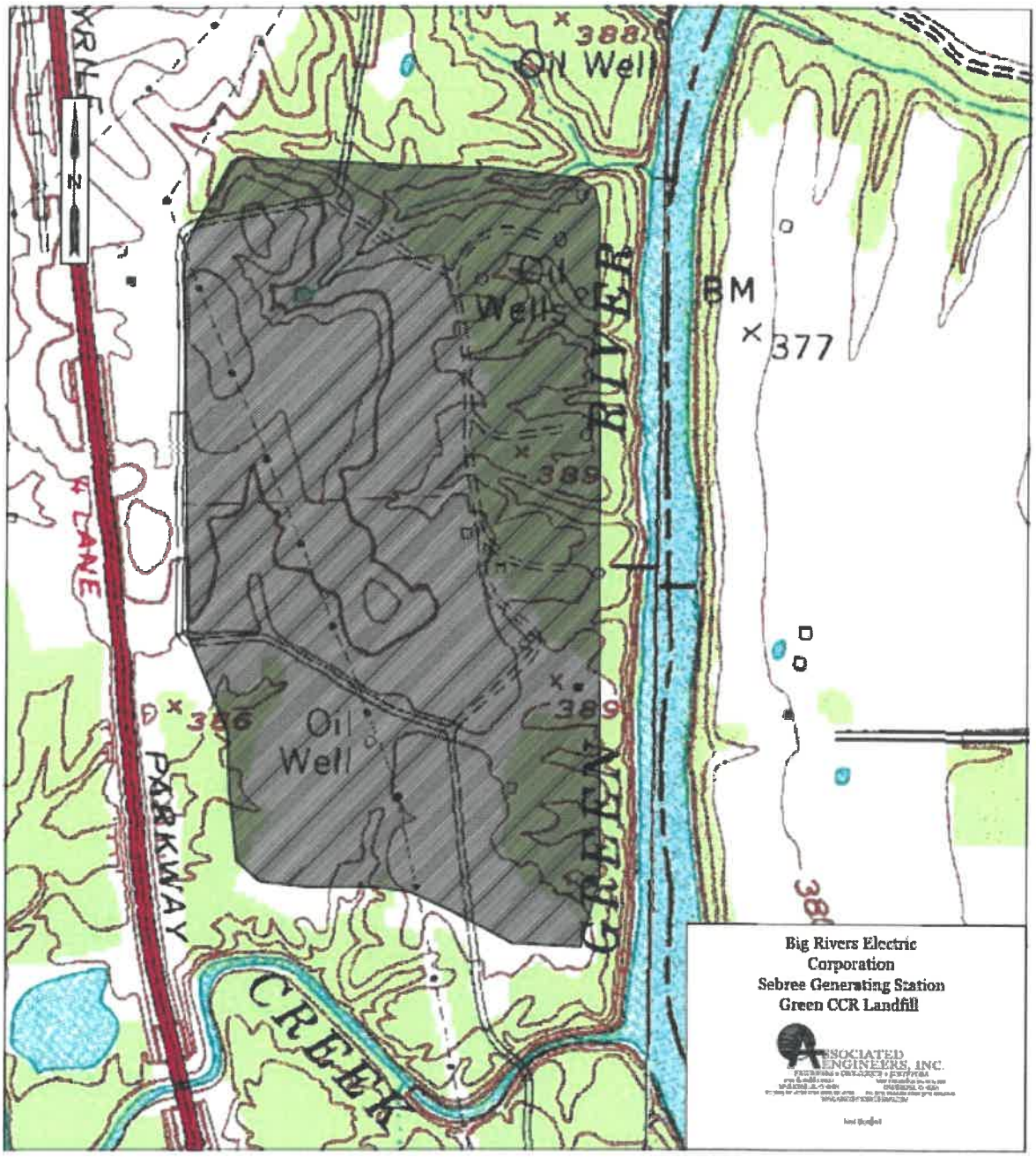
David A. Lamb P.E.
State of Kentucky License No. 17822

STATE OF KENTUCKY
DAVID A. LAMB 17822
LICENSED PROFESSIONAL ENGINEER

Date: 10/11/16



Attachment A. Aerial Photo of the Green CCR Landfill



Attachment B. Topographic Map showing the Green CCR Landfill