Big Rivers
ELECTRIC CORPORATION

Green CCR Landfill

Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
CCR Landfill 2024 Annual Inspection Report

December 30, 2024

Prepared By:

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

Project ID: 24-0197

Big Rivers Electric Corporation
Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
CCR Landfill 2024 Annual Inspection Report

CCR Landfill Information

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

Qualified Professional Engineer

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

Regulatory Applicability

Per 40 CFR §257.84(b), annual inspections by a qualified professional engineer must ensure that the design, construction, operation, and maintenance of the CCR landfill is consistent with recognized and generally accepted good engineering standards.

Annual inspections of any CCR landfill must include, at a minimum: (1) 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., the results of inspections by a qualified person, and results of previous annual inspections); and (2) a visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.

Additionally, following each annual inspection, the qualified professional engineer must prepare an inspection report which documents the following: (1) any changes in geometry of the structure since the previous annual inspection, (2) the approximate volume of CCR at the time of the inspection, (3) 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 (4) any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection.

Inspection Description

This is the tenth annual inspection report for the Green CCR Landfill pursuant to the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule which became effective April 17, 2015. The 2024 inspection was concluded on December 16, 2024, by David A. Lamb P.E. of Associated Engineers, Inc. of Madisonville, Kentucky. Weekly (7-day) inspections conducted by Big Rivers Electric Corporation are kept in the facility operating record.

The inspection consisted of a visual assessment of the landfill and associated drainage control features; and began on the west side of the landfill adjacent to the vertical expansion combination wall (expansion wall). Evidence of minor seepage and slight ponding in a few isolated places along the toe of the wall approximately 1,450' north of the southwest end of the wall was observed. This condition was also observed in 2023. It appears this seepage was being managed by the subsurface drainage system along the toe of the wall. The subsurface drainage system includes a perforated subsurface pipe and trench filled with drainage medium to route the seepage underground to strategically placed pump stations surrounding the landfill. This subsurface drainage system is effectively managing seepage throughout the entire perimeter of the landfill except for a small section on the north end of the pile where the system was not required. In the areas where higher concentrations of moisture were previously present laterals and/or parallel subsurface draining structures were added to further reduce the presence and effects of seepage at the surface. At the time of the inspection virtually all the seepage from the landfill had been routed underground to the subsurface drainage system which flows to a series of pump stations. These pump stations are then pumped to the target manhole which is then pumped into the IW Pond where it is treated and discharged thru the former Green Ash Pond 009 discharge with the remainder of the contact water. There was a limited area on the southwest corner of the landfill which exhibited sparce vegetation and moderate surficial erosion. This area will be addressed as routine maintenance during spring seeding season. The drainage ditch adjacent to the west access road that parallels the expansion wall and reports to Pond 012 at the south end of the landfill has been regraded and repurposed to primarily convey non-contact surface run off. This ditch has areas of minor erosion and sparce vegetation in places due to prolonged periods of water in areas. It will be addressed as part of regular maintenance.

The inspection proceeded from the west side landfill to the inactive east side along the access road adjacent to the embankment toe. Proceeding north, the completion of the subsurface seepage collection system appears to have re-routed most if not all the seepage previously noted underground. The ditch along the east side of the landfill had recently been mowed and was functioning properly. There were two areas along the east toe which the subsurface drainage system was undergoing maintenance activity. These areas had open excavations and lacked vegetative cover due to the construction activities, but seeding and final grading of the

surface is scheduled for the spring per BREC. There were limited areas of sparce vegetation at the north end. This will be addressed as a part of routine maintenance now that it is visible. The inspection of the lower slope continued to the north side of the inactive portion of the landfill where there was one area of stressed vegetation along the northeast toe which appears to be caused by recent mowing and removal of phragmite along with construction activities associated with the adjacent road. This vegetation will be replaced as a part of ongoing construction activities.

After the inspection of the lower slope and toe the inspection proceeded to the first bench of the landfill on the west side which is comprised by the top of Poz-O-Tec fill placed against the expansion wall. There were over steepened eroded areas along the southwest corner of the active area. This was a temporary condition and was being worked on at the time of the inspection. The inspection then proceeded along the south, east, and north sides continuing bench by bench to the top of the landfill. The CCR fill material was firm and had been compacted in all permeant areas of placement. The landfill has been receiving CCR material from the closure of both the Green and Reid HMP&L ash ponds. Material from the Green Ash Pond is being placed and dried at various locations along the north end of landfill, primarily west of the roadway entering on the northeast corner of the facility. These activities are taking place form the top of the first bench to the top of the landfill. Temporary areas are being utilized to dry the material and it is then placed in compacted lifts in its final configuration. Along the west side of the landfill CCR material form the closure of the Reid HMP&L ash pond is being placed dried and then moved to its final location along the second and third benches of the west side of the landfill. At both locations there are temporary over steepened CCR piles that are being dried and manipulated. These piles pose no significant threat to the overall structural integrity of the landfill. As inspection activities proceeded upward areas of minor to erosion were noted. Particularly: The southeast and northeast corners of the seventh bench. Active CCR placement above these areas has resulted in CCR material being deposited on the previously established grass. This condition was also present during the 2023 inspection. This will be addressed as part of the closeout of the currently active areas as grading and shaping is concluded.

Inspection Report Specifications

(i) CCR Landfill Geometry

The Green CCR Landfill is used for the placement of coal combustion residual material, currently fly ash, bottom ash and related material. The landfill is raised above adjacent ground to a maximum elevation of approximately 610 feet above mean sea level. 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.

Changes to the landfill geometry since the previous (2023) annual inspection include

continued placement of CCR material behind the constructed vertical expansion wall on the west exterior slope; and the placement of additional CCR and cover material on the landfill.

(ii) CCR Landfill Volume

The total volume of CCR material contained in the Green CCR Landfill was estimated to be 24.69 million cubic yards. This volume was calculated from available baseline topography compared to November 4, 2024 flight derived topographic contours.

(iii) CCR Landfill Structural, Operational, and Safety Items

No deficiencies or disrupting conditions that would require immediate measures to remedy were identified in the inspection. The inspection findings consisted of maintenance items that were not observed to be signs or potential signs of significant structural weakness.

(iv) CCR Landfill Changes

There have been no changes to the Green CCR Landfill since the previous 2023 annual inspection that have the potential to affect the stability or operation of the landfill. Changes include placement of additional CCR material as well as general maintenance activities and mowing.

Flight Date: November 4, 2024

BIG RIVERS ELECTRIC CORPORATION

Green CCR Landfill
2024 Annual Inspection Aerial Photo

Job Number:	24-0197	Revisions:
Date:	01/03/2025	
Scale:	1" = 500'	
Drawn By:	A.E.I.	

ASSOCIATED ENGINEERS, INC.
ENGINEERS • GEOLOGISTS • SURVEYORS

2740 North Main St. • Madisonville, KY 42431
Phone: (270) 821-7732 • Fax: (270) 821-7789
www.associatedengineers.com

BREC Final Rule CCR Landfill 2024
Annual Inspection Checklist

Operator:	Sebree Generating Station			Weather:	Overcast
CCR Landfill:	Green			Temperature (Degrees F):	58 (high)
Date:	December 16, 2024			Inspector/Qualified Person:	David A. Lamb P.E.

	ITEM	STATUS YES	STATUS NO	STATUS N/A	OBSERVATIONS
1	**CONDITION OF INACTIVE AREA**				
	Access road deterioration (potholes, rutting, etc.)	☒	☐	☐	
	Any erosion	☒	☐	☐	Some surficial erosion/rills in cover material
	Longitudinal cracks	☐	☒	☐	
	Transverse cracks	☐	☒	☐	
	Visual depressions	☒	☐	☐	Some low areas in bench flowlines and longitudinal tracking from tractor/mower tires
	Visual settlement	☐	☒	☐	
	Bulging or slumping	☐	☒	☐	
	Any drainage features obstructed or damaged	☒	☐	☐	Some runoff ditches have erosion and contain sediment in areas
	Are drainage features flowing	☒	☐	☐	
	Is seepage present	☒	☐	☐	Seepage has primarily been routed and contained to the subsurface seepage collection system.
	Is seepage or discharge carrying sediment	☐	☒	☐	
	Adequate vegetative cover	☒	☐	☐	Isolated bare areas and invasive species monocultures
	Are trees growing on the slope	☐	☒	☐	
	Are there any animal burrows	☒	☐	☐	Sporadic animal burrows; primarily rodent
	Any stone deterioration	☐	☐	☒	
	Adequate riprap/slope protection	☐	☐	☒	
	Debris or trash present	☐	☒	☐	
	Is there exposed CCR material	☒	☐	☐	Isolated areas
2	**CONDITION OF ACTIVE AREA**				
	Access road deterioration (potholes, rutting, etc.)	☐	☒	☐	
	Any erosion	☒	☐	☐	Minor to moderate erosion on active disposal areas and haul roads
	Any cracks	☐	☒	☐	
	Any slides	☐	☒	☐	

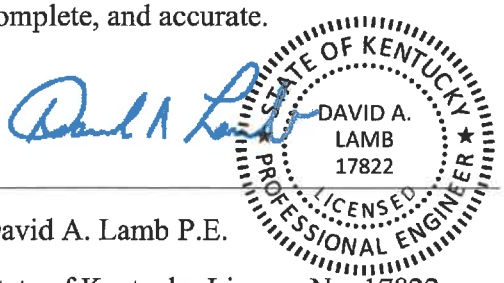
	Visual depressions	☐	☒	☐	
		STATUS			OBSERVATIONS
		YES	NO	N/A	
	Visual settlement	☐	☒	☐	
	Bulging or slumping	☐	☒	☐	
	Any drainage features obstructed or damaged	☐	☒	☐	
	Is seepage present	☒	☐	☐	Minor quantities along face of combination wall remainder is routed to the subsurface collection system.
	Is seepage or discharge carrying sediment	☐	☒	☐	
	Debris or trash present	☐	☒	☐	
3	**LINER AND LEACHATE COLLECTION SYSTEM**				
	Are liners intact and being installed correctly	☐	☐	☒	
	Is the leachate collection operating correctly	☐	☐	☒	
	Is the leachate collection pond/storage functioning correctly	☐	☐	☒	
	Is there any slope/bank erosion on pond	☐	☐	☒	
	Are there any animal burrows on pond	☐	☐	☒	
	Is the spillway functioning and discharging correctly	☐	☐	☒	
4	**RUN-ON/RUNOFF-CONTROLS**				
	Are run-on/runoff controls in place	☒	☐	☐	
	Are run-on/runoff controls functioning	☒	☐	☐	
	Are run-on/runoff controls effective	☒	☐	☐	
	Are run-on runoff controls being maintained	☒	☐	☐	
	Signs of seepage or wetness	☒	☐	☐	
	Sediment transport or deposition	☐	☒	☐	

DEFICIENCIES AND MAINTENANCE ITEMS

No deficiencies or disrupting conditions that would require immediate measures to remedy were identified in the inspection. The inspection findings consisted of maintenance items that were not observed to be signs or potential signs of significant structural weakness.

Professional Engineer Certification [Per 40 CFR §257.84(b)]
Green CCR Landfill
Annual Inspections by a Qualified Professional Engineer

I hereby certify that myself or an agent under my review has prepared this Annual Inspection Report (Report), 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 Report has been prepared in accordance with good engineering practices and meets the intent of 40 CFR Part 257.84(b). To the best of my knowledge and belief, the information contained in this Report is true, complete, and accurate.



David A. Lamb P.E.

State of Kentucky License No. 17822

Date: January 26, 2025