January 15, 2016

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

CCR Surface Impoundment Information

Name:	Reid/HMPL Station CCR Surface Impoundment
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

Per 40 CFR §257.83(b), annual inspections by a qualified professional engineer must ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards.

Annual inspections of any CCR surface impoundment must include, at a minimum: (1) a review of all previously generated information regarding the status and condition of the CCR unit, including, but not limited to, all operating records and publicly accessible internet site entries, design and construction drawings and other documentation; (2) a thorough visual inspection to identify indications of distress, unusual or adverse behavior, or malfunction of the CCR unit and appurtenant structures; and (3) a thorough visual inspection of hydraulic structures underlying the base of the CCR unit and passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation.

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 impounding structure since the previous annual inspection; (2) the location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection; (3) the approximate maximum, minimum, and present depth and elevation of the impounded water and CCR since the previous annual inspection; (4) the storage capacity of the impounding structure at the time of inspection; (5) the approximate volume of the impounded water and CCR at the time of the inspection; (6) 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; and (7) any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.

Inspection Description

This is the first annual inspection report for the Reid/HMPL Station CCR surface impoundment pursuant to the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule which became effective April 17, 2015.

An inspection was conducted on December 1, 2015; commencing in the morning when the piezometers were measured and continuing intermittently throughout the day, first with a drive-by inspection and followed by an on-ground inspection. The inspection was conducted by Tim Brown P.E. and Matthew Lile of Associated Engineers, Inc. of Madisonville, Kentucky.

The inspection consisted of a visual assessment of the surface impoundment, embankments and discharge (refer to Aerial Photo of the surface impoundment and the Annual Inspection Checklist included with this report); and began on the downstream side of the south end of the west embankment. The inspection noted sporadic loose topsoil and animal burrowing. Thick grass thatch from mowing is choking vegetation and retaining moisture, and longitudinal ruts from tractor and mower wheels are retaining water. Some small depressions, wet areas and rills are present primarily from mid-slope to the embankment toe. As the inspection progressed to the north end of the west embankment it was noted that the toe became very wet with standing water along the embankment toe where it transitions to the north embankment at the west end of the impoundment. Lower areas of the embankment at this location were very wet with standing water supporting thick phragmites stands. The ground is very soft in this area as a result of seepage believed to be from the designed embankment blanket toe drain.

The inspection continued on the downstream side of the north embankment where the ground continued to be very wet downstream of the toe. As with the west embankment, lose topsoil and animal burrowing were evident, thick grass thatch from mowing is choking vegetation and retaining moisture, and longitudinal ruts from tractor and mower wheels are retaining water. Some small depressions, wet areas and rills are present primarily from mid-slope to the embankment toe. Standing water near the toe supports thick stands of phragmites. The wettest conditions occur on the northwest embankment and the toe is very poorly drained. Generally, the north embankment exhibits an irregular ground surface below the crest in several areas; soft/wet soil; heavy grass thatch; animal disturbance, trails and burrows; and loose soil material. The facility has retained a varmint control contractor to eradicate burrowing rodents and other small mammals.

The south embankment which parallels the cooling towers is the smallest embankment and was inspected next. The embankment is steep-sided and heavily vegetated except where erosion

and rip rap occur on the downstream side and where erosion and woody vegetation (phragmites and willows) occur on the upstream side of the embankment. The facility has sprayed invasive species to control and eradicate undesirable vegetation. Other areas of the embankment are poorly vegetated and dirt is exposed on steep slopes. The cooling tower blowdown pipe runs along the crest (south end) and exits at the discharge structure located in the southwest corner of the impoundment. The embankment crest supports a gravel access road around the southwest, west, north and northeast perimeter of the impoundment.

The inspection of the impoundment embankments was followed by an inspection of the impoundment discharge which consists of a rectangular concrete drop structure with a variable height steel debris skimmer. The pool elevation can be controlled by adding or removing stop logs. The discharge structure connects to a 24-inch diameter smooth walled metal pipe underground conveyance. The pipe conveyance was inspected by remote camera on January 8, 2016 and found to be in acceptable operating condition.

Associated Engineers, Inc. will be retained to assist in developing measures to address maintenance items (e.g. erosion, bare spots, drainage and seepage issues, invasive vegetation, animal burrows, etc.) identified in this inspection description.

Inspection Report Specifications

(i) CCR Surface Impoundment Geometry

This is the first annual inspection report for the Reid/HMPL Station CCR surface impoundment pursuant to the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule which became effective April 17, 2015 and will serve as the baseline for any geometric changes that may occur in the future.

(ii) CCR Surface Impoundment Instrumentation

This is the first annual inspection report for the Reid/HMPL Station CCR surface impoundment pursuant to the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule which became effective April 17, 2015 and will serve as the baseline for Instrumentation Measurement changes that may occur in the future.

(ii) a – Piezometers

There are five piezometers associated with this surface impoundment.

ID	Northing	Easting	Top of Casing Elevation	Depth to Static Water Level	Static Water Elevation*
P-1A	483464.43	1491086.43	428.95	12.95 feet	416.00
P-2A	483141.96	1491515.32	428.63	10.33 feet	418.30

ID	Northing	Easting	Top of Casing Elevation	Depth to Static Water Level	Static Water Elevation*
P-3A	483772.54	1491306.43	428.75	24.64 feet	404.11
P-4	483033.84	1491399.12	396.92	3.90 feet	393.02
P-5	483415.93	1490969.80	395.34	8.82 feet	386.52

*Value listed is the maximum recorded reading (water elevation) since commencement of the Final Rule requirement to monitor CCR surface impoundment instrumentation.

(iii) CCR Surface Impoundment Contents Elevations

This is the first annual inspection report for the Reid/HMPL Station CCR surface impoundment pursuant to the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule which became effective April 17, 2015 and will serve as the baseline for Instrumentation Measurement changes that may occur in the future. As such, Minimum and Maximum depths and elevations of impounded water and CCR are not available.

Minimum depth of impounded water and CCR = Not Available

Minimum elevation of impounded water and CCR = Not Available

Maximum depth of impounded water and CCR = Not Available

Maximum elevation of impounded water and CCR = Not Available

Present depth of impounded water and CCR = 16 feet and 39 feet (at respective locations of maximum impounded water and CCR depths)

Present elevation of impounded water and CCR = 426 feet and 440 feet, respectively, above mean sea level

These approximate depths and respective elevations are based on the most recent (December 2015) flight derived topographic contours and bathymetric survey data.

(iv) CCR Surface Impoundment Storage Capacity

The remaining storage capacity is approximately 85,000 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.

(v) CCR Surface Impoundment Contents Volumes

The approximate volume of impounded water and CCR is 767,000 cubic yards (approximate water volume = 85,000 cubic yards and approximate CCR volume = 682,000 cubic yards). This volume was calculated based on the maximum storage capacity, the current amount of CCR stored in the facility based on the most recent bathymetric survey, and the best available as-built data for the structure construction prior to placement of CCR.

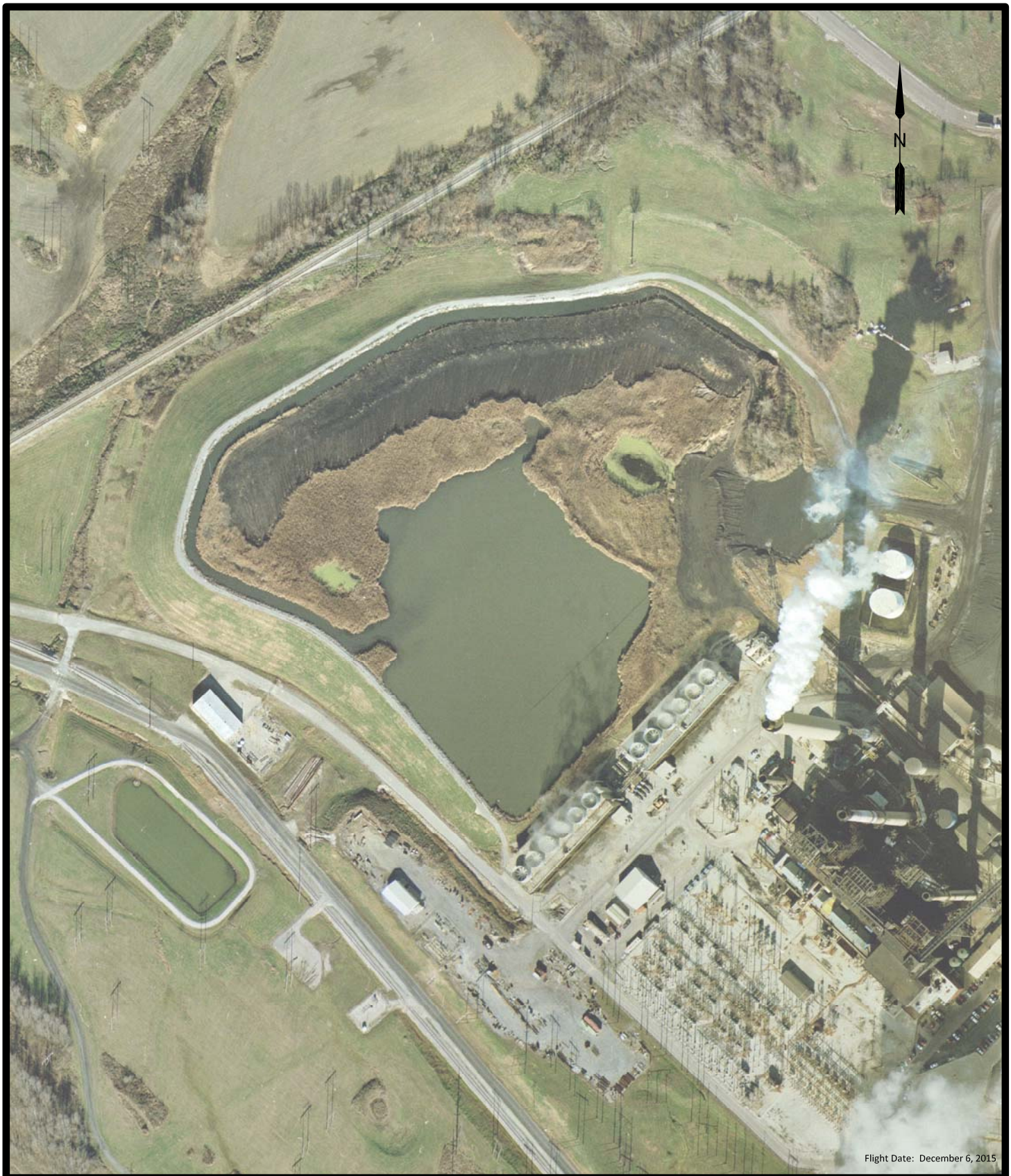
(vi) CCR Surface Impoundment Structural, Operational, and Safety Items

Noted Deficiencies

No deficiencies were observed during the annual inspection.

(vii) CCR Surface Impoundment Changes

This is the first annual inspection report for the Reid/HMPL Station CCR surface impoundment pursuant to the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule which became effective April 17, 2015 and will serve as the baseline for any future changes which may have affected the stability or operation of the CCR unit since the previous annual inspection.



BIG RIVERS ELECTRIC

SEBREE GENERATING STATION: REID/HMPL STATION
CCR SURFACE IMPOUNDMENT

Job Number:	14-0140B
Date:	1/15/2016
Scale:	NOT TO SCALE
Drawn By:	E.J.A.

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BREC Final Rule CCR Impoundment Annual Inspection Checklist

Generating Station:	Sebree	Weather:	Partly cloudy
Impoundment:	Reid/HMPL Station	Temperature (Degrees F):	40 (average)
Date:	December 1, 2015	Inspector/Qualified Person:	Tim Brown & Matthew Lile (AEI)

	ITEM	STATUS			OBSERVATIONS
		YES	NO	N/A	
1	**TOP OF DAM**				
	Visual settlement	☐	☒	☐	
	Misalignment	☐	☒	☐	
	Cracking	☐	☒	☐	
	Access road deterioration (potholes, rutting, etc.)	☒	☐	☐	Isolated potholes, animal burrows and ruts
2	**UPSTREAM SLOPE**				
	Any erosion	☒	☐	☐	
	Longitudinal cracks	☐	☒	☐	
	Transverse cracks	☐	☒	☐	
	Adequate vegetative cover	☐	☒	☐	Sporadic bare areas & invasive species monocultures where not rip-rapped
	Are trees growing on the slope	☒	☐	☐	Small willow trees (have been sprayed to eradicate) are growing on the upstream side of the south embankment (adjacent to the cooling towers)
	Adequate riprap/slope protection	☐	☒	☐	Adequate where rip-rapped; other areas exhibit bare areas
	Visual depressions	☐	☒	☐	
	Visual settlement	☐	☒	☐	
	Any stone deterioration	☐	☒	☐	
	Debris or trash present	☐	☒	☐	
3	**DOWNSTREAM SLOPE AND TOE**				
	Any erosion	☒	☐	☐	
	Longitudinal cracks	☐	☒	☐	
	Transverse cracks	☐	☒	☐	
	Adequate vegetative cover	☒	☐	☐	
	Are trees growing on the slope	☐	☒	☐	
	Visual depressions or bulges	☒	☐	☐	Tracking/rutting from tractor & mower tires
	Visual settlement	☐	☒	☐	
	Animal Burrows	☒	☐	☐	Sporadic animal borrows; primarily small rodent
	Are boils present at the toe or slopes	☐	☒	☐	
	Are drainage features obstructed or damaged	☒	☐	☐	Drainage ditch along toe has heavy vegetation impeding higher flows
	Are drainage features flowing	☐	☒	☐	

	ITEM	STATUS			OBSERVATIONS
		YES	NO	N/A	
	Is seepage present	☒	☐	☐	Seepage believed to be from the designed blanket toe drain
	Is seepage or discharge carrying sediment	☐	☒	☐	
	Soft or spongy zones present	☒	☐	☐	
4	**ABUTMENTS**				
	Any erosion	☒	☐	☐	Erosion occurring in northeast corner groin ditch
	Visual differential movement	☐	☒	☐	
	Any cracks	☐	☒	☐	
	Are drainage features flowing	☐	☒	☐	
	Is seepage present	☐	☒	☐	
	Is seepage or discharge carrying sediment	☐	☒	☐	
5	**PRINCIPAL SPILLWAY**				
	Any deterioration of the spillway structure	☐	☒	☐	
	Any deterioration of the spillway conduit	☐	☒	☐	
	Spillway clear from obstructions	☒	☐	☐	
	Is the spillway functioning and discharging correctly	☒	☐	☐	
	Trash racks or skimmer operational	☒	☐	☐	
	Any signs of leakage with the structure or conduit	☐	☒	☐	
	Abnormally high or low pool elevation	☐	☒	☐	
6	**EMERGENCY SPILLWAY**				
	Any deterioration of the spillway structure	☐	☐	☒	
	Spillway clear from obstructions	☐	☐	☒	
	Signs or erosion or slope sloughing	☐	☐	☒	
	Adequate vegetative cover	☐	☐	☒	
	Signs of or currently discharging water	☐	☐	☒	
7	**VALVES/GATES**				
	Are the valves/gates operational	☐	☐	☒	
	Are the valves/gates broken or bent	☐	☐	☒	
	Are the valves/gates corroded or rusted	☐	☐	☒	
	Have the valves/gates been maintained	☐	☐	☒	
8	**HYDRAULIC STRUCTURES UNDER/THROUGH DAM**				
	Hydraulic structures under/through embankment are in safe and reliable operating condition	☒	☐	☐	
	Abnormal flow	☐	☒	☐	
	Abnormally colored discharge	☐	☒	☐	
	Debris or sediment in discharge	☐	☒	☐	
9	**SEEPAGE**				
	Seepage from toe drain	☒	☐	☐	

ITEM		STATUS			OBSERVATIONS
		YES	NO	N/A	
	Seepage from abutment drain	☐	☐	☒	
	Seepage from blanket drain	☒	☐	☐	
	Seepage from slope areas	☐	☒	☐	

DEFICIENCIES AND MAINTENANCE ITEMS

No deficiencies were observed during the annual inspection.

Professional Engineer Certification [Per 40 CFR §257.83(b)
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 257.83(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: 1-15-2016