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D.B. Wilson CCR Landfill

Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule CCR Landfill 2017 Annual Inspection Report

January 11, 2018

Prepared By:



Project ID: 170138C

Big Rivers Electric Corporation
Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
CCR Landfill 2017 Annual Inspection Report

CCR Landfill Information

Name: D.B. Wilson CCR Landfill
Operator: D.B. Wilson Generating Station
Address: 5663 State Route 85 West
Centertown, KY 42328

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 third annual inspection report for the D.B. Wilson CCR Landfill pursuant to the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule which

became effective April 17, 2015. The inspection was conducted on December 21, 2017 by David Lamb P.E. and Scott McGarvie 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 at the southeast end of the landfill along the lower slope, toe and runoff control ditch. Soil material was observed to be rocky and vegetation sparse on the slope. The runoff ditch slopes were eroded and not vegetated. The inspection continued along the lower slope which transitioned into the first bench which was not vegetated. Graded/uncovered CCR material comprised the slope above the first bench at this location. The graded/uncovered second slope continued north approximately 600 feet and transitioned into a covered/ vegetated section of the slope. Areas of the slope were sparsely vegetated, and deep ruts from equipment that appeared to have been stuck in a wet area was observed on the bench. The inspection continued north on the first bench where the runoff ditch below the first slope was observed to be unvegetated and eroded. A storm water drain inlet on the first bench approximately 350 feet north of the equipment ruts was observed to need repair. Vegetation on the first bench and second slope was generally good with areas of sparse vegetation. Vegetation on the second slope was observed to improve as the inspection proceeded to the northwest corner of the landfill.

The inspection proceeded from the northwest corner to the lower north slope which has been reworked to repair erosion and to blend into the graded/uncovered slope on the west side of the north slope. The side slopes of the runoff control ditch on the north side of the landfill were observed to be steep, eroded and unvegetated. The inspection proceeded to the first slope of the northeast side of the landfill where a large area of the slope was eroded and unvegetated. The inspection continued south along the interface of the east toe of the first slope and the runoff control ditch; cover material continued to be eroded and unvegetated. Inspection of the first slope and runoff control ditch proceeded south and several areas of seepage were observed along an interval from approximately 600 feet to 1100 feet south of the northeast corner of the landfill. Proceeding south, the runoff control ditch continued to be unvegetated to sparsely vegetated, eroded and contained sediment. The first slope was sparsely vegetated and equipment/mower tracks were visible. Approximately 1600 feet north of the southeast corner of the landfill, the first slope transitioned into the previously inspected uncovered first bench and second slope. At this point the inspection proceeded to the second bench of the east side of the landfill where the active area transitioned into the recently covered third slope which had apparently been seeded in the fall; vegetation was sparse and poorly developed. The third slope transitioned into previously covered and vegetated area that supported good vegetation which continued to the northeast corner of the landfill.

The inspection proceeded along the vegetated north slope and transition to the active disposal area, and then south along the east containment berm. The berm out-slope was very sparsely

vegetated and rills and minor gullies were observed along the length of the berm. The inspection proceeded to the interior of the containment berm where a large area of CCR material had been placed but was not currently being worked. This area comprises most of the southeast quadrant of the landfill. The south and east out-slopes below this area were observed to be eroded and poorly vegetated. The interior of the active landfill was inspected and appeared in good operating condition. Portions of an approximate one acre area at the northeast corner of the landfill top had been regraded to control drainage; vegetation was poorly developed. The majority of ongoing CCR material placement was visible on the central and west side of the landfill.

Inspection Report Specifications

(i) CCR Landfill Geometry

The D.B. Wilson 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 529 feet above mean sea level. The original ground surface within the landfill footprint was irregular and the predominant features were the headwaters of Elk Creek and small stream valleys draining south. Other small tributaries drained west towards the Green River and north towards the Rough River.

Changes to the landfill geometry since the previous (2016) annual inspection include regrading along the toe of the north slope of the landfill to promote drainage; 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 D.B. Wilson CCR Landfill was estimated to be 2.5 million cubic yards. This volume was calculated from available baseline topography compared to October 2017 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 D.B. Wilson CCR Landfill since the previous (2016) annual inspection that may have the potential to affect the stability or operation of the CCR unit. Additional CCR material and soil cover have been placed since the 2016 CCR Rule Annual Landfill Inspection Report.



Flight Date: October 2017

BIG RIVERS ELECTRIC CORPORATION

D.B. Wilson CCR Landfill
2017 Annual Inspection Aerial Photo

Project Number:	17-0138C
Date:	12/12/2017
Scale:	1" = 600'
Drawn By:	A.E.I.



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BREC Final Rule CCR Landfill 2017 Annual Inspection Checklist

Operator: D.B. Wilson Generating Station				Weather: Clear	
CCR Landfill: D.B. Wilson				Temperature (Degrees F): 56 (high)	
Date: December 21, 2017				Inspector/Qualified Person: David Lamb P.E., Scott McGarvie (AEI)	
ITEM	STATUS			OBSERVATIONS	
	YES	NO	N/A		
1	CONDITION OF INACTIVE AREA				
	Access road deterioration (potholes, rutting, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Any erosion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Some surficial erosion/rills in cover material and perimeter ditch (north side)
	Longitudinal cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Transverse cracks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Visual depressions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Some low areas in bench flowlines and longitudinal tracking from tractor/mower tires
	Visual settlement	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Bulging or slumping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Any drainage features obstructed or damaged	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Basins and runoff ditches are eroded/contain sediment in areas
	Are drainage features flowing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Is seepage present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Some seepage present on east side toe and lower slope
	Is seepage or discharge carrying sediment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Adequate vegetative cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some bare areas and invasive species monocultures
	Are trees growing on the slope	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Are there any animal burrows	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Any stone deterioration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Adequate riprap/slope protection	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Debris or trash present	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Is there exposed CCR material	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2	CONDITION OF ACTIVE AREA				
	Access road deterioration (potholes, rutting, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Any erosion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Minor to moderate erosion on active disposal areas and haul roads
	Any cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Any slides	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Visual depressions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

		STATUS			OBSERVATIONS
		YES	NO	N/A	
	Visual settlement	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Bulging or slumping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Any drainage features obstructed or damaged	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Is seepage present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Along toe of east slope
	Is seepage or discharge carrying sediment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Debris or trash present	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3	LINER AND LEACHATE COLLECTION SYSTEM				
	Are liners intact and being installed correctly	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Is the leachate collection operating correctly	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Is the leachate collection pond/storage functioning correctly	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Is there any slope/bank erosion on pond	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Are there any animal burrows on pond	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Is the spillway functioning and discharging correctly	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4	RUN-ON/RUNOFF-CONTROLS				
	Are run-on/runoff controls in place	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Are run-on/runoff controls functioning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Are run-on/runoff controls effective	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Are run-on runoff controls being maintained	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Signs of seepage or wetness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Sediment transport or deposition	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
DEFICIENCIES AND MAINTENANCE ITEMS					
<p>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.</p>					

**Professional Engineer Certification [Per 40 CFR §257.84(b)]
D.B. Wilson 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: 1-11-18



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February 2, 2018

Re: *Corrective Actions at Big Rivers Electric Corporation's D.B. Wilson Station CCR Landfill Resulting from the "CCR Landfill Annual Inspection Report" for the year 2017*

Associated Engineers Inc. prepared a "CCR Landfill Annual Inspection Report" for Big Rivers Electric Corporation's D.B. Wilson Station landfill. The report is available for full review on Big Rivers Electric Corporation's CCR website.

In the report, Associated Engineers Inc. did not identify any deficiencies. However, they identified some items that need to be addressed. Therefore, Big Rivers Electric Corporation has prepared the below explanation to explain the corrective measures that are required and the timeframe in which they will be completed.

The nature of the previously existing mine reclamation soils that the runoff ditches and the landfill is constructed on is such that any excavation produces rocky soils that do not readily support vegetation as noted in the inspection report. To address this concern an agronomist has been consulted and a long range plan has been implemented to enhance the fertility of the soil to better support vegetative growth. The enhancement process takes time but has already begun to show incremental improvement.

Several areas noted as being graded and not covered are part of the active landfill and have not been completed; therefore, they have not received final cover but as the landfill volume increases these areas will be brought to final elevation and final cover placed. Prudent construction practice and storm water runoff control dictates that each terraced bench be completed before placement of final soil cover.

The frequency of maintenance mowing has been doubled and that coupled with an unusually wet year resulted in minor rutting from the increased activity. Any damage from said activities is repaired at the next available opportunity, when such repair activities shall not exacerbate the damage by their performance. All of the noted deficiencies from the spring maintenance activities were repaired during the summer. However, due to the difficulty of access and the destructive nature of the construction/repair equipment the areas requiring repair from fall maintenance could not be addressed during the remainder of the year. These areas will be

repaired as soon as practical pending weather and soil conditions. Repairing a small area such as the storm drains identified in the inspection will result in exceedingly more damage to the adjoining areas unless performed during the proper conditions.

Big Rivers Electric Corporation will continue to conduct the weekly required CCR inspections in the landfill and address items as needed.