




Your Touchstone Energy® Cooperative 

D. B. Wilson Station CCR Landfill

Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule Run-on and Run-off Control System Plan

October 11, 2016
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Prepared By:



Project ID: 160030, 170137A & 170137B

**Big Rivers Electric Corporation
Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
Run-on and Run-off Control System Plan**

CCR Landfill Information

Name: D.B. Wilson Station 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

As part of the § 257.81 for existing CCR landfill requirements, the owner or operator of an existing or new CCR landfill must design, construct, operate, and maintain a run-on and run-off control system plan as specified below. The owner or operator of the CCR unit must prepare the initial inflow design flood control system plan no later than October 17, 2016.

The owner or operator of an existing CCR landfill must design, construct, operate, and maintain:

- (1) A run-on control system to prevent flow onto the active portion of the CCR unit during the peak discharge from a 24-hour, 25-year storm; and
- (2) A run-off control system from the active portion of the CCR unit to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

Run-off from the active portion of the CCR unit must be handled in accordance with the surface water requirements under § 257.3-3 (Part 257 - Criteria for Classification of Solid Waste Disposal Facilities and Practices Subpart A - Classification of Solid Waste Disposal Facilities and Practices Section 257.3-3 - Surface water):

Run-on and run-off control system plan:

- (1) *Content of the plan.* The owner or operator must prepare initial and periodic run-on and run-off control system plans for the CCR unit. These plans must document how the run-

on and run-off control systems have been designed and constructed to meet the applicable requirements of this section. Each plan must be supported by appropriate engineering calculations. The owner or operator has completed the initial run-on and run-off control system plan when the plan has been placed in the facility's operating record.

- (2) *Amendment of the plan.* The owner or operator may amend the written run-on and run-off control system plan at any time provided the revised plan is placed in the facility's operating record. The owner or operator must amend the written run-on and run-off control system plan whenever there is a change in conditions that would substantially affect the written plan in effect.

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 Equality topographic quadrangle map 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 1.8 million cubic yards. This volume was calculated from available flight derived pre-disposal baseline topography compared to December 2015 flight derived topographic contours. The D.B. Wilson CCR landfill is raised above adjacent ground to a maximum elevation of approximately 520 feet AMSL. 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.

Run-on and Run-off Control System Plan

The initial run-on and run-off control system plan documents that the run-on control system will prevent flow onto the active portion of the CCR unit during the peak discharge from a 24-hour/25-year storm; and that the run-off control system from the active portion of the CCR unit will collect and control at least the water volume resulting from a 24-hour/25-year storm.

Run-on Control Analysis

An evaluation of the D.B. Wilson CCR landfill configuration and topography resulted in the determination that because of the elevated position of active portions of the landfill, no significant run-on can occur and the only drainage onto active areas is storm water generated from direct precipitation; thus the CCR unit run-on system will prevent flow onto the active portion of the CCR unit during the peak discharge from the design storm event.

Run-off Control Analysis

Analysis of the D.B. Wilson CCR landfill drainage and sedimentation basin configurations and designs via SEDCAD modeling demonstrates that the design flood control system

adequately manages flow out of the CCR unit during and following the specified 24-hour/25-year storm event. SEDCAD by Civil Software Design, LLC is a widely recognized comprehensive hydrology and sedimentology package, useful for runoff and sediment control design calculations. The SEDCAD modeling results for the D.B. Wilson CCR landfill are attached to this report.

Leachate Control Analysis

Per Part 257.53 of the CCR rule, the definitions for run-on and run-off both include leachate. Big Rivers Electric Corporation manages leachate through several options. In the event of leachate outbreaks, the leachate drainage would be routed to a sedimentation basin and permitted KPDES outfall; or in some instances, other processes such as chemical treatment would be utilized to manage the leachate. An alternative would be to mitigate the leachate drainage by removing the impacted area and replacing the cover material with compacted clay and then covering the clay with new cover material and seeding and mulching the area. Specifically, Big Rivers implements the Leachate Management Standard Operating Procedures set forth in Attachment C, which have been reviewed and approved by the Kentucky Department for Environmental Protection.

In all instances, run-on or run-off water containing leachate would meet applicable KPDES effluent limits for permitted outfalls prior to discharge. Therefore, any leachate drainage would comply with all applicable regulations prior to discharge.

The operating facility has verified that discharge from the D.B. Wilson CCR landfill is handled in accordance with the surface water requirements under § 257.3-3 (Part 257 - Criteria for Classification of Solid Waste Disposal Facilities and Practices Subpart A - Classification of Solid Waste Disposal Facilities and Practices Section 257.3-3 - Surface water).

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 Equality topographic quadrangle map

**Professional Engineer Certification [Per 40 CFR § 257.81]
D.B. Wilson CCR Landfill Run-on and Run-off Control System Plan**

I hereby certify that myself or an agent under my review has prepared this Run-on and Run-off Control System 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 257.81. To the best of my knowledge and belief, the information contained in this Plan is true, complete, and accurate.

David A. Lamb

David A. Lamb P.E.

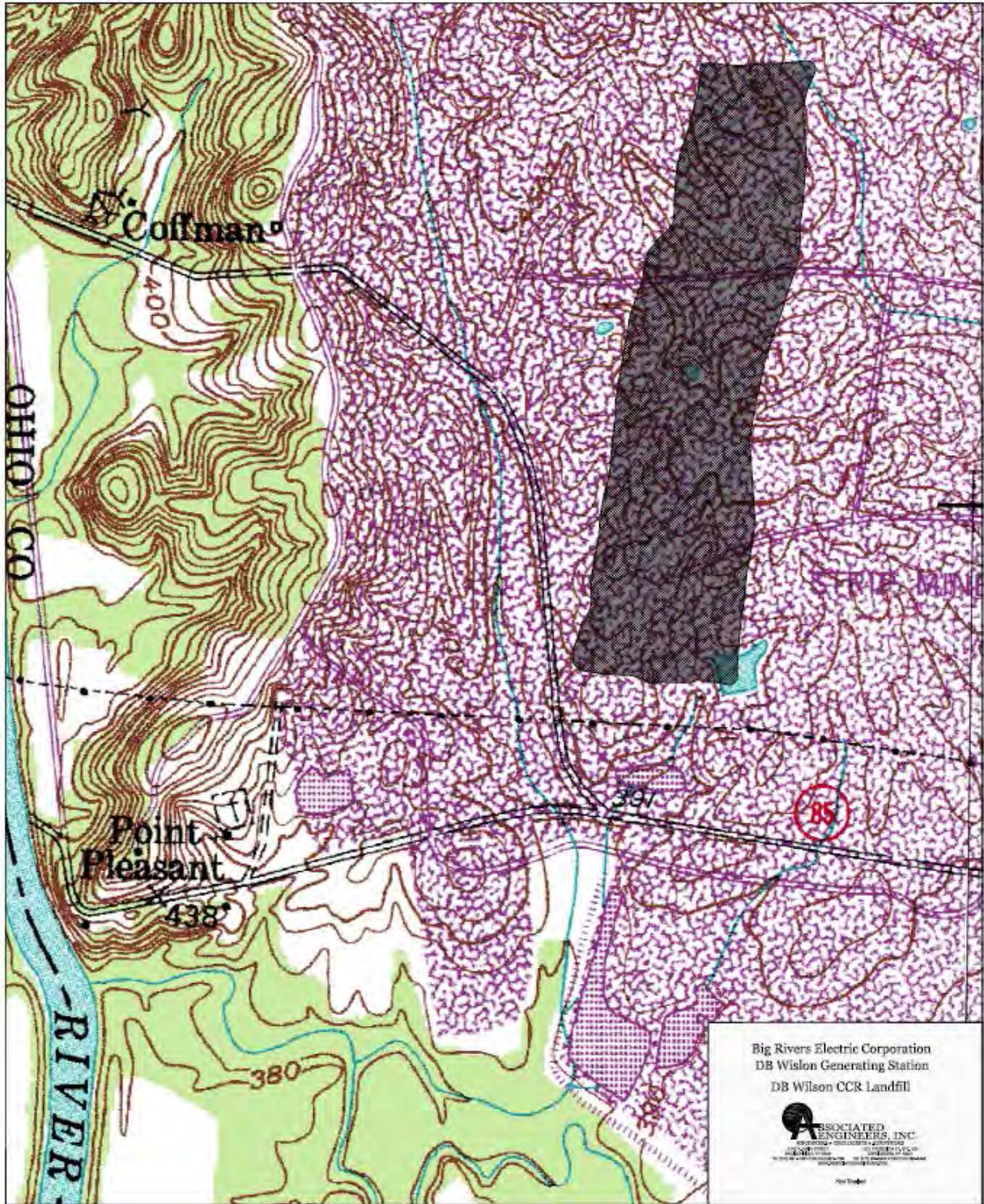
State of Kentucky License No. 17822



Date: 8/6/18



Attachment A - Aerial Photo of the D.B. Wilson CCR Landfill



Attachment B - Topographic Map showing the D.B. Wilson CCR Landfill

Attachment C - Leachate Management Standard Operating Procedures

Subject: Seep and Leachate outbreaks repair

To ensure compliance with 40 CFR 257 Subpart D and 401 KAR Chapters 45 and 46, the following procedure will be utilized for identification and repair and/or response to surface seeps and leachate outbreaks at the D.B. Wilson CCR Landfill.

- An inspection by a qualified person will be conducted once per week to identify any seeps and leachate outbreaks at the landfill.
- Identified seeps and leachate outbreaks must be located by Global Positioning Satellite (GPS) or written description of the location in the operating log.
- Identified seeps and leachate out breaks must be quantified as to the amount of standing or flowing water. Measurements or estimates of the impacted area must be included. Other information relevant to remediation of the outbreak or seep shall be included.
- Categorize the seep or leachate outbreak into one of three categories:
 - Category 1 - Leachate/seep flow is contained within a drainage ditch and pond system that flows to a KPDES permitted outfall and the outbreak or seep is readily repairable by removing the impacted area and replacing the cover dirt with compacted clay, seed and mulch.
 - Category 2 - Leachate/seep is contained within a drainage ditch and pond system that flows to a KPDES permitted outfall but requires more investigation and evaluation prior to any attempt at remediation.
 - Category 3 - Leachate/seep is not contained within the KPDES permitted ditch and pond system. Any areas identified must be either routed to the KPDES permitted ditch and pond system or actions must begin immediately to prevent a discharge to a water of the United States by remediating the outbreak or seep. Remediating or mitigating this category of outbreaks should receive top priority.
- Collect leachate wastewater samples near the source for metals, chlorides, and sulfate analysis. Metals to be analyzed include those in Appendix IV to 40 CFR Part 257 and boron.
- Place categorized information in the operation log.
- Corrective actions for repairable seeps and leachate out breaks must begin as soon as reasonably feasible.
- Remediation areas outside the KPDES permitted ditch and pond system must include the installation of sedimentation controls, such as a silt fence or a capture and treatment system, for impacted areas greater than one acre.

- Cover soil and/or scrubber waste removed during the remediation process must be placed in an active area of a CCR landfill or reused during the remediation of the unit if practicable. Materials reused during remediation may only be reused within the disposal area of the CCR unit.
- Replacement soil must be compacted, seeded and mulched.
- Environmental Affairs shall evaluate and determine remediation plans for a seep/leachate outbreak that is deemed not readily repairable based upon flow and landfill conditions. Until remediation occurs at the source, leachate/seep flow shall be monitored, conveyed to a KPDES permitted outfall, and treated as necessary to ensure compliance with KPDES discharge limits and applicable water quality standards in the receiving stream. The evaluation shall include a consideration of potential impacts of the conveyance of flow on soils, and sampling to monitor any such impacts. Environmental Affairs shall submit all plans developed under this section to the DWM Solid Waste Branch.
- Notice to DWM and DOW
 - Environmental Affairs shall notify the DWM Field Office within 1 business day of identifying a Category 3 seep or leachate outbreak.
 - Environmental Affairs shall notify the DWM Field Office, DOW Surface Water Permits Branch, and the DOW Field Office of planned corrective measures for any identified Category 2 seep or leachate outbreak as soon as feasible after discovery of such a leachate seep, but no later than ten (10) days after the discovery.
- Place appropriate documentation on the response in the operating log.