

**Coal Combustion Residual
Landfill
Run-On and Run-off Control Plan**

**Basin Electric Power Cooperative
Leland Olds Station
Stanton, ND**

January 2023

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Revision History

Revision Number	Description of Revision	Reviser's Name	Revision Date
1	<ul style="list-style-type: none">Section entitled "CCR Landfill Lateral Expansion" was added to describe recent construction activities associated with CCR landfill.Updated "Run-On Control Description" and "Run-Off Control Description" section to include details of leachate collection system associated with landfill lateral expansion.	Maria Tomac	January 13, 2018
2	<ul style="list-style-type: none">Five-year periodic update.	Peter Moch	January 13, 2023

Purpose and Definitions

In accordance with 40 CFR § 257.81, the purpose of this Run-on and Run-off Control Plan is to fulfill the requirement for a written plan to document how the run-on and run-off control systems have been designed and constructed at the Basin Electric Power Cooperative (Basin Electric) Leland Olds Station (LOS) Landfill. CCRs generated at LOS (and thus regulated under 40 CFR § 257) include bottom ash, flue gas desulfurization (FGD) materials and fly ash.

Leland Olds Station consists of 2 coal fired units generating 669 megawatts (MW) combined. The power plant, owned and operated by Basin Electric Power Cooperative (BEPC), is approximately 4 miles southeast of Stanton, North Dakota. Unit 1 went online in 1966 and Unit 2 in 1975. CCRs from LOS are disposed at the Glenharold Mine Landfill, which is regulated as a special waste disposal landfill by the North Dakota Department of Environmental Quality (NDDEQ).

Landfill Description

The Glenharold Mine Landfill was first permitted for the disposal of CCRs in 1992, with disposal beginning at the facility in late 1992. The landfill is located in an upland area, approximately four miles south and west of the LOS plant site. The landfill was developed in spoils left by the surface mining of the Hagel Lignite Bed in the late 1960s and early 1970s. Partial sequential closure of the landfill has been conducted as areas of the landfill are filled and brought to final grade. To date, approximately 34.44 acres of the 68.09 acre CCR landfill footprint have been closed using an engineered cover system approved by the NDDEQ.

An additional 16.6 acres of the existing landfill were partially capped in 2022. A two-foot clay cap was placed over the area and approximately 50% of the 18 inch thick root zone layer was placed prior to winter weather halting construction. The remaining work to finish capping the area will be completed in Spring of 2023.

The LOS Landfill contains bottom ash, gypsum, and fly ash, which are byproducts of the coal burning process. On a daily average, approximately 1,400 tons of ash and gypsum are generated at LOS. Not all CCRs generated at LOS are managed in the landfill, significant

amounts are sold for beneficial use. The moisture-conditioned ash and gypsum are transported by haul truck to the landfill, where they are dumped, spread, and compacted.

CCR Landfill Lateral Expansion

A lateral expansion of the CCR landfill was approved by the NDDoH and 2 cells were constructed in 2017. The lateral expansion includes eight future disposal cells encompassing approximately 80.7 acres of lined landfill footprint. The design of the bottom liner, leachate collection system and final cover system for the lateral expansion meets the requirements set forth in 40 CFR Part 257 (CCR Rule). The expansion area is bounded by the existing landfill to the east and perimeter berms on the north, west and south sides. Ancillary features include perimeter ditches, stormwater ponds, leachate evaporation pond, soil stockpiles and access roads.

The initial phase of development for an expansion area (constructed in 2017) included Cell 1A & 1B and a leachate collection sump, which contains approximately 15 acres of composite landfill liner. A second phase of development for the expansion area, Cells 2A & 2B, which contains approximately 11 acres of composite landfill liner is anticipated to be constructed in 2023.

Run-On Control Description

No run-on flow onto the active portion of the CCR unit during the peak discharge from a 25-year, 24-hour storm will come in contact with CCRs. All open areas of the landfill are constructed above the surrounding area and non-contact water is diverted from the active areas. As sequential closure of the landfill is completed, the clean water flow is directed away from the landfill and down the slopes to the surrounding landscape.

Run-Off Control Description

The run-off flow from the lateral expansion area of the CCR landfill is captured by a leachate collection system. The leachate collection system consists of several components: A drainage collection sand, leachate collection pipes, sumps, pumps and force mains to convey leachate to the leachate evaporation pond. The pond capacity is approximately 32.9 acre-feet of leachate while still maintaining at least two feet of freeboard.

The existing landfill is being sequentially closed as cells are filled with waste materials from LOS. All run-off flow from the existing landfill cells is directed to the new lateral expansion area to be collected in the leachate collection system.

The current open area of LOS landfill is approximately 48.65 acres. The National Oceanic and Atmospheric Administration (NOAA) shows that a 25 year, 24-hour rainfall event is approximately 3.7 inches. This would create an approximate volume of 15 acre-feet of leachate that would need to be stored in the pond, which is less than the capacity of the pond and is therefore adequate.

Runoff is not discharged into Waters of the United States (WUS) and is thus in compliance with the provisions of § 257.81(b).

Certification Statement

I certify that this Run-on and Run-off Control Plan meets the requirements of 40 CFR § 257.81 specifying Run-on and Run-off Controls for CCR Landfills in the *Standards of Coal Combustion Residuals in Landfills and Impoundments*.



Peter Moch, ND PE-7878

January 13, 2023