

CCR Rule Report:

Run-on and Run-off Control System Plan

Newton Power Station

CCR Landfill 2, Jasper County,
Illinois

*Submitted to Illinois Power Generating Company
October 2016*

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Run-on and Run-off Control System Plan

1. Introduction

In accordance with 40 CFR 257.81(c), the owner or operator of a Coal Combustion Residuals (CCR) landfill must prepare an initial surface water run-on and run-off control system plan no later than October 17, 2016, and revise the plan every five years. This plan addresses the surface water management for the Newton Power Station's CCR Landfill 2 (CCR Landfill). The surface water controls are designed to collect and route run-off from the final landfill cover and from the CCR Landfill during operation in accordance with 40 CFR 257.81.

1.1 Site Description

The CCR Landfill is located within the Newton Power Station facility in Jasper County, approximately 6 miles southwest of Newton. More specifically, the CCR Landfill is located within Sections 26 and 27, Township 7 North, Range 3 West of the Third Principal Meridian.

The CCR Landfill design consists of approximately 40 acres. At the present time, only 19 acres of the CCR Landfill have been constructed. Active Cells 1 and 2 consist of 12 acres, and unused Cells 3 and 4 consist of 7 acres. The remaining 21 acres (Cells 5 through 7) have not yet been developed as a CCR landfill. Refer to Appendix A for a figure of the CCR Landfill layout.

Surface water management features for the CCR Landfill include:

- Run-on from undisturbed areas;
- Run-off from disturbed areas;
- Perimeter Berms and Perimeter Ditches;
- Interior and Secondary Ponding Areas;
- Run-on/run-off from temporary and intermediate CCR Landfill cover; and
- Outfall and culverts.

The CCR Landfill is permitted as a nonhazardous, special waste landfill with Illinois Environmental Protection Agency (IEPA), Bureau of Land, Division of Land Pollution Control. The facility is designed, constructed and operated in compliance with all applicable requirements of 35 Ill. Adm. Code 811, 812 and 815. The stormwater management design of the CCR Landfill was done in compliance 35 Ill. Adm. Code Section 811.103. These regulations are equal to or more stringent than the requirements set forth in 40 CFR 257.81. Design calculations were performed for both the interim and fully constructed and closed conditions, allowing for phased expansion as needed.

1.2 Design Criteria

The 40 CFR 257.81 requirements for run-on and run-off controls for CCR landfills follow.

The owner or operator of an existing or new CCR landfill or any lateral expansion of a 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 25-year, 24-hour 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 25-year, 24-hour storm.

In addition, run-off from the active portion of the CCR unit must be handled in accordance with U.S. Environmental Protection Agency (USEPA) rules governing the discharge of surface water (see 40 CFR, Part 257.3-3).

The CCR Landfill is designed and constructed using criteria either equivalent to or in exceedance of the requirements of 40 CFR 257.81.

2. Run-on Control

The CCR Rule defines run-on to mean any liquid that drains over land onto any part of a CCR landfill or any lateral expansion of a CCR landfill. In surface water hydrology, run-on is a quantity of surface run-off, or excess rain, snowmelt or other sources of water that flows from an upstream catchment area onto a specific downstream location. The CCR Rule requires that a CCR landfill be designed, constructed, operated and maintained to prevent flow onto the active portion of a CCR landfill during the peak discharge from a 25-year, 24-hour storm. The USEPA has adopted this requirement to minimize the amount of surface water entering a CCR landfill and to minimize disruption of a CCR landfills operation because of stormwater inflow.

Surface water run-on is prohibited from entering the active and unused areas of the CCR Landfill by perimeter berms, which allow flow to be directed around those areas.

3. Run-off Control

The CCR Rule defines run-off to mean any liquid that drains over land from any part of a CCR landfill. Effectively, run-off is the portion of rainwater, snowmelt or other liquid that does not infiltrate CCR material and travels overland. Typically, run-off is the product of the inability of water to infiltrate into soil because of the saturation or infiltration rate capacity being exceeded. The CCR Rule requires that a CCR landfill be designed, constructed, operated and maintained to collect and control at least the water volume resulting from a 25-year, 24-hour storm. The owner or operator must design, construct, operate and maintain a CCR landfill in such a way that the maximum run-off rate generated from a 25-year, 24-hour storm must be collected through hydraulic structures, such as drainage ditches, toe drains, swales or other means and controlled so as to not adversely affect the condition of the CCR landfill. The USEPA has promulgated these requirements to minimize the detention time of run-off on a CCR landfill and minimize infiltration into a CCR landfill, to dissipate stormwater run-off velocity and to minimize erosion of CCR landfill slopes.

During the construction and development of Cells 1 and 2 of the CCR Landfill, perimeter berms were constructed around the active areas. A Separation Berm was constructed on the CCR Landfill floor, along the south phase line, to form an Interior Ponding Area that intercepts clean stormwater run-off from areas of intermediate cover. The clean run-off collected in this Interior Ponding Area is pumped into the perimeter ditches. A Secondary Ponding Area was constructed outside of the CCR Landfill floor, along the south phase line, to form a ponding area that intercepts clean stormwater pumped from the perimeter ditches and from the adjacent undeveloped phase. Water that comes in contact with CCR materials in the CCR Landfill shall be managed as leachate and pumped to storage tanks for off-site disposal.

Clean stormwater from the Secondary Ponding Area flows toward Outfall 006, which discharges into Newton Lake. Cells 3 and 4 were constructed but are inactive. Cells 3 and 4 will be operated in a similar manner as Cells 1 and 2 including the management of run-off and surface water. At the current time, surface water is allowed to pond in Cells 3 and 4. This surface water will be removed prior to placement of CCR.

Once final cover has been installed on top of the CCR Landfill, the run-off will be collected by a series of diversion ditches that gravity flow to one of two outlets. Run-off from the south and east sides of the landfill will flow to the south and east perimeter ditches and then south toward NPDES Outfall 006. On the east side of the CCR Landfill, a Secondary Perimeter Ditch will be used for additional flow capacity. Culverts will be used to carry drainage beneath the east haul road from the east slope of Cells 1 and 2 to the Secondary Perimeter Ditch. Culvert design calculations are included in Appendix D of the "Run-on and Run-off Control System Documentation for Newton Power Station CCR Landfill" in the Newton Power Station operating record. Run-off from the north and west sides of the CCR Landfill will flow northward to a grassed waterway, then southwest toward NPDES Outfall 012.

Riprap-lined letdown structures will be placed to safely convey the run-off from the top of the CCR Landfill to the perimeter ditches. Riprap will be used at the area where the water discharges into a perimeter ditch to prevent scour.

4. Surface Water Management Structures

Calculations for perimeter ditches and culverts are discussed in greater detail in Appendices B through E of the "Run-on and Run-off Control System Documentation for Newton Power Station CCR Landfill" in the Newton Power Station operating record. These stormwater management structures are designed, constructed, operated and maintained to safely carry at least the maximum run-off rate from the 25-year, 24-hour design event.

Once future expansions are constructed, updated calculations will be appended to this report to reflect as-built conditions.

5. Operation and Maintenance

Routine maintenance activities, including repair of scoured areas, removal of debris and excess sediment buildup and restoration or revegetation of areas to prevent erosion, are performed on an as-needed basis.

Inspections by site personnel are performed to identify areas having surface water scouring or excessive erosion. Areas observed to have excessive erosion or scouring are assessed to identify the cause of the erosion or scouring. Remedial measures such as regrading, reseeding and placement of more effective erosion control methods are implemented as necessary. Prior to reaching final grades, some areas may require additional channels, berms, straw bales or silt fences to provide temporary drainage and sediment control.

6. NPDES Permitting

Non-leachate stormwater from the CCR Landfill discharges into the Newton Lake. Outfall 006 to Newton Lake is regulated under National Pollutant Discharge Elimination System (NPDES) Permit No. IL0049191, thereby meeting the requirements of 40 CFR 257.3-3 as necessitated by 40 CFR 257.81(b).

7. Conclusion

The CCR Landfill design and construction is in compliance with the requirements of 40 CFR 257.81 for the following reasons:

- The run-on control system is designed to prevent flow onto the active portion of the CCR Landfill during the 25-year, 24-hour storm event. This meets the 25-year, 24-hour storm requirements of 40 CFR 257.81.
- The run-off control system for the active portion of the CCR Landfill is designed to collect and control the water volume resulting from a 25-year, 24-hour storm event. This meets the 25-year, 24-hour storm requirements of 40 CFR 257.81.
- Non-leachate stormwater discharges from the CCR Landfill to Newton Lake are permitted under NPDES Permit No. IL0049191, thereby satisfying the requirement that run-off from the CCR Landfill is handled according to USEPA rules governing the discharge of surface water (see 40 CFR Part 257.3-3).

This document serves as the initial plan. The plan and revisions must be certified by a qualified Professional Engineer and entered into Newton Power Station's operating record.

8. References

Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule, 40 CFR 257 (April 17, 2015).

9. Certification Page

**NEWTON POWER STATION CCR LANDFILL 2
ILLINOIS POWER GENERATING COMPANY
INITIAL RUN-ON AND RUN-OFF CONTROL SYSTEM SUMMARY AND CERTIFICATION**

40 CFR 257.81 requires the owner or operator of an existing CCR landfill to design, construct, operate and maintain:

- A run-on control system to prevent flow onto the active portion of the CCR unit during the peak discharge from a 25-year, 24-hour storm; and
- 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 25-year, 24-hour storm.

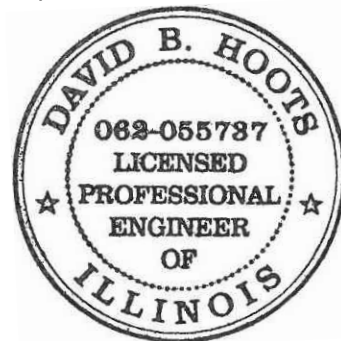
In addition, run-off from the active portion of the CCR unit must be handled in accordance with the surface water requirements under 40 CFR Part 257.3-3.

As a qualified Professional Engineer as defined by 40 CFR 257 Subpart D, I certify that I have personally examined and am familiar with the design information contained in the Newton Power Station's CCR Landfill 2 Run-on and Run-off Control System Plan and supporting document, the Run-on Run-off Control System Documentation for the Newton Power Station, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete.

I certify that the **Newton Power Station CCR Landfill 2** Run-on and Run-off Control System Plan meets or exceeds the requirements set forth by 40 CFR 257.81 as published on April 17, 2015.

David B. Hoots, P.E.
Hanson Professional Services Inc.
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Seal:



Signature: _____

A handwritten signature in cursive script that reads "David B. Hoots".

Date: 10/13/2016, LICENSE EXPIRES 11/30/2017

Appendix A
CCR Landfill Layout Figure

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