

CCR Rule Report:

# **Run-on and Run-off Control System Plan**

Zimmer Power Station

CCR Landfill, Clermont County,  
Ohio

*Submitted to Dynegy Zimmer, LLC  
October 2016*

## Table of Contents

<b>1. Introduction.....</b>	<b>1</b>
1.1 Site Description .....	1
1.2 Design Criteria.....	1
<b>2. Run-on Control .....</b>	<b>2</b>
<b>3. Run-off Control .....</b>	<b>2</b>
<b>4. Surface Water Management Structures .....</b>	<b>2</b>
<b>5. Operation and Maintenance .....</b>	<b>3</b>
<b>6. NPDES Permitting .....</b>	<b>3</b>
<b>7. Conclusion .....</b>	<b>3</b>
<b>8. References .....</b>	<b>4</b>
<b>9. Certification Page .....</b>	<b>5</b>

## Appendices

Appendix A CCR Landfill Layout Figure

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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 Zimmer Power Station's CCR Landfill (CCR Landfill). The surface water controls are designed to collect and route runoff 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 at 2426 State Route 743, Moscow, Ohio 45153. The location is approximately 3.5 miles east of the Zimmer Power Station in Washington Township.

The constructed area of the CCR Landfill is approximately 208 acres with approximately 75 additional acres of undeveloped design capacity. Approximately 74 acres of the CCR Landfill are closed, and approximately 86 acres are inactive. The remaining 48 acres are active. 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;
- Run-on/run-off from temporary and intermediate CCR Landfill cover; and
- Surface water management structures.

The CCR Landfill is permitted as a Class 3 Residual Solid Waste Disposal Facility through the Ohio Environmental Protection Agency (OEPA).

#### ***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, constructed, operated and maintained 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 minimize disruption of a CCR landfills operation because of stormwater inflow.

Run-on is diverted away from the active areas of the CCR Landfill via diversion berms and clean water ditches.

## **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, dissipate stormwater run-off velocity and minimize erosion of CCR landfill slopes.

The active area of the CCR Landfill is continuously developed in a manner that minimizes surface water draining toward the active area. Contact water discharging from the CCR Landfill is captured in lined ditches and diverted to Landfill Sediment Pond No. 1.

Water within the Landfill Sediment Pond No. 1 is pumped to the Coal Pile Run-off Pond located at the Zimmer Power Station, which is part of the Zimmer Power Station wastewater pond network. Effluent from the Zimmer Power Station wastewater pond network is discharged via an outlet to the Ohio River. The outfall of the wastewater treatment system is monitored in accordance with the Station's National Pollutant Discharge Elimination System (NPDES) permit.

## **4. Surface Water Management Structures**

Run-off is collected using a series of culverts, pipes, perimeter ditches and diversion berms. The location and drainage pattern formed by these structures is shown in Appendix A of the "Run-on and Run-off Control System Documentation for Zimmer Power Station CCR Landfill" in the Zimmer 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. Stormwater calculations for the end of Sequence 4 (current condition) are found in Appendix B of the “Run-on and Run-off Control System Documentation for Zimmer Power Station CCR Landfill” in the Zimmer Power Station operating record.

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. Detailed operational information is found in Appendix C of the “Run-on and Run-off Control System Documentation for Zimmer Power Station CCR Landfill” in the Zimmer Power Station operating record.

## **6. NPDES Permitting**

Run-off from the active portions of the CCR Landfill is captured in the on-site Landfill Sediment Pond No. 1 from which the water is pumped to the Zimmer Power Station wastewater pond network located adjacent to the Ohio River. The outfall of the wastewater treatment system is regulated under National Pollutant Discharge Elimination System (NPDES) Permit No. 11B00011, thereby meeting the requirements of 40 CFR 257.3-3 as necessitated by 40 CFR 257.81(b).

## **7. Conclusion**

The CCR Landfill design, construction, operation and maintenance 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.
- Discharges to the Ohio River from the Zimmer Station wastewater pond network are permitted under NPDES Permit No. 11B00011, 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 Zimmer 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**

**ZIMMER POWER STATION CCR LANDFILL  
DYNEGY ZIMMER, LLC  
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.

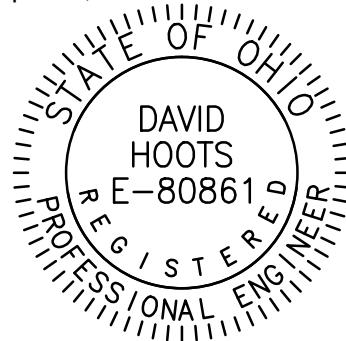
In addition, run-off from the active portion of the CCR unit must be handled in accordance with the surface water requirements under 40 CFR Part 257.3-3.

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 Zimmer Power Station's CCR Landfill Run-on and Run-off Control System Plan and supporting document, the Run-on Run-off Control System Documentation for the Zimmer 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 **Zimmer Power Station CCR Landfill** 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.  
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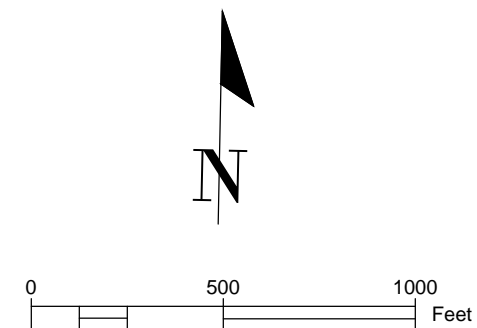
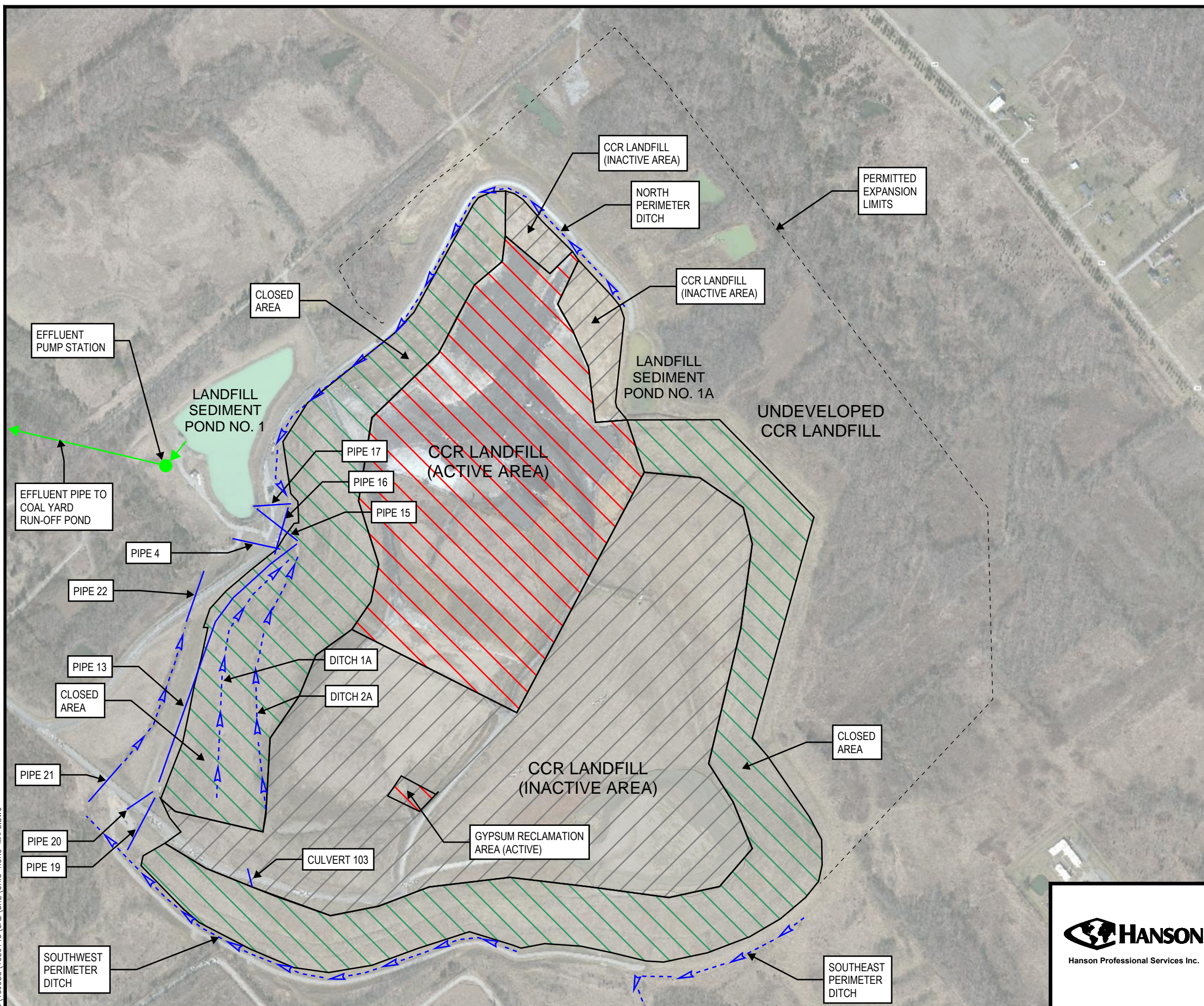
Signature: \_\_\_\_\_

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

Date: 10/13/2016, LICENSE EXPIRES 12/31/2017

**Appendix A**  
**CCR Landfill Layout Figure**

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## CCR LANDFILL LAYOUT FIGURE

ZIMMER CCR LANDFILL  
ZIMMER POWER STATION  
CLERMONT COUNTY, OHIO



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FIGURE NO. 1