

CCR Rule Report:

Initial Run-on and Run-off Control System Plan

Miami Fort Power Station
CCR Landfill, Hamilton County,
Ohio

*Submitted to Dynegy Miami Fort, LLC
October 2016*

Table of Contents

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

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 Miami Fort Power Station's Coal Combustion Residuals CCR Landfill (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 south of the intersection of Mount Nebo and Lawrenceburg roads, in Colerain Township of Hamilton County, Ohio. The CCR Landfill is about 4 miles from the Miami Fort Power Station.

The CCR Landfill consists of two disposal areas identified as Area 1 (14 acres) and Area 3 (25 acres), totaling approximately 39 acres. Area 1 is active and receives CCR material. Area 3 has been constructed to the north of Area 1, but is not active. A layer of CCR material has been placed over the surface of Area 3 to prevent erosion and provide protection to the bottom liner system. Area 2 of the CCR Landfill was designed and included in the original Ohio EPA Permit to Install (PTI), but there are no near-term plans to develop it. 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;
- A clean water Sedimentation Pond;
- Diversion channels;
- Diversion ditches;
- Perimeter berms;
- Leachate pump stations;
- A Leachate Treatment Pond; and
- Area 3 Outfall Structure.

The CCR Landfill is permitted by the Ohio Environmental Protection Agency (OEPA), Division of Surface Water.

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 to minimize disruption of a CCR landfills operation because of stormwater inflow.

Surface water run-on is prohibited from entering Area 1 (active) of the CCR Landfill by perimeter berms, which allow flow to be directed around the unit. Surface water from the eastern, western and southern faces of Area 1 flows to a concrete arch culvert, which carries the water beneath Lawrenceburg Road. The water ultimately discharges to the Great Miami River.

Surface water run-on is prohibited from entering Area 3 (inactive) by a diversion channel on the east perimeter of the unit. This diversion channel carries surface water to the north into a mitigated natural stream that discharges to the west, away from the Area 3 footprint. According to the stream mitigation plan, the mitigated stream was designed to pass the discharge for a 100-year, 24-hour event.

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.

Run-off from CCR material in Area 1 (active) sheet flows to chimney drains at the western end of Area 1. The run-off then drains into the leachate collection system piping, which drains to the Area 1 Leachate Pump Station, which discharges to the Leachate Treatment Building. The run-off is then

treated prior to being pumped from the Leachate Treatment Building to the Leachate Treatment Pond. Effluent from the Leachate Treatment Pond is released to the Great Miami River in accordance with National Pollutant Discharge Elimination System (NPDES) Permit No. 11N00125.

Portions of Area 1 have received final cover. This final cover system has construction run-off ditches to convey clean run-off to either a roadside ditch on the west side of Area 1 or to the Sedimentation Pond. As Area 1 is filled, additional diversion ditches will be installed to control run-off in a similar manner.

Run-off in Area 3 (inactive) sheet flows to chimney drains at the southern end of Area 3. The run-off then drains into the leachate collection system piping, which drains to the Area 3 Leachate Pump Station, which discharges to the Leachate Treatment Building. The run-off is then treated prior to being pumped from the leachate treatment building to the Leachate Treatment Pond. Effluent from the Leachate Treatment Pond is released to the Great Miami River in accordance with NPDES Permit No. 11N00125.

Once Area 3 reaches design capacity, a final cover system will be installed, allowing clean stormwater to discharge into the construction run-off ditches on the east, west and north perimeter of the CCR Landfill (including Area 1 and Area 3). The construction run-off ditches were constructed as a part of Area 3. The construction run-off ditches were designed to carry run-off from intermediate and final cover and carry it around the perimeter of Area 3 in a counterclockwise direction, beginning at the southeast corner of the unit. The construction run-off ditches discharge through the Area 3 Outlet Structure into the Sedimentation Pond. Discharge from the Sedimentation Pond is to a concrete arch culvert, which carries the water beneath Lawrenceburg Road for ultimate discharge to the Great Miami River via ditches in accordance with NPDES Permit No. 11N00125.

4. Surface Water Management Structures

Calculations for currently installed perimeter ditches, outlet structures and culverts are discussed in greater detail in Appendix B of the "Run-on and Run-off Control System Documentation for Miami Fort CCR Landfill" in the Miami Fort 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

The chimney drain systems are the primary means of discharging stormwater run-off from the Area 1 and Area 3 active areas. The chimney drains will be cleaned as necessary to prohibit clogging and potential ponding within the active area. The active area will be graded to drain toward the chimney drains as ash placement progresses to prevent permanent ponding.

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

Run-off from the active portions of Area 1 and the inactive portions of Area 3 is collected through the leachate collection systems and is treated at the Leachate Treatment Building prior to discharge to the Leachate Treatment Pond. Water within the Leachate Treatment Pond drains via a gravity pipeline to the Great Miami River. Discharges from the Leachate Treatment Pond are regulated under NPDES Permit No. 1IN00125, 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 25-year, 24-hour storm requirements of 40 CFR 257.81.
- The run-off from 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.
- Discharge from the Leachate Treatment Pond is permitted under NPDES Permit No. 1IN00125, 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 Miami Fort 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).

Isolated Stream Mitigation Plan; Lawrenceburg Road Site, Landfill Area 3; Prepared for Duke Energy Ohio, Inc., Cincinnati, Ohio; by BBC&M Engineering, Inc., August 31, 2011.

9. Certification Page

**MIAMI FORT POWER STATION CCR LANDFILL
DYNEGY MIAMI FORT, 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 24-hour, 25-year 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 24 hour, 25 year storm.

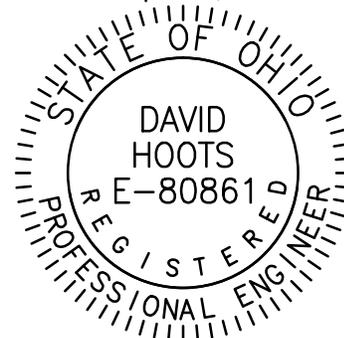
In addition, run-off from the active portion of the CCR unit must be handled in accordance with the surface water requirements under 40 CFR Part 257.3-3.

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 Miami Fort 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 Miami Fort 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 **Miami Fort 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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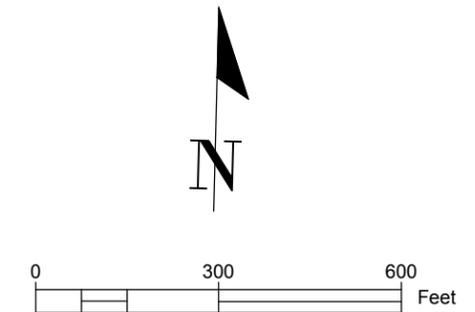
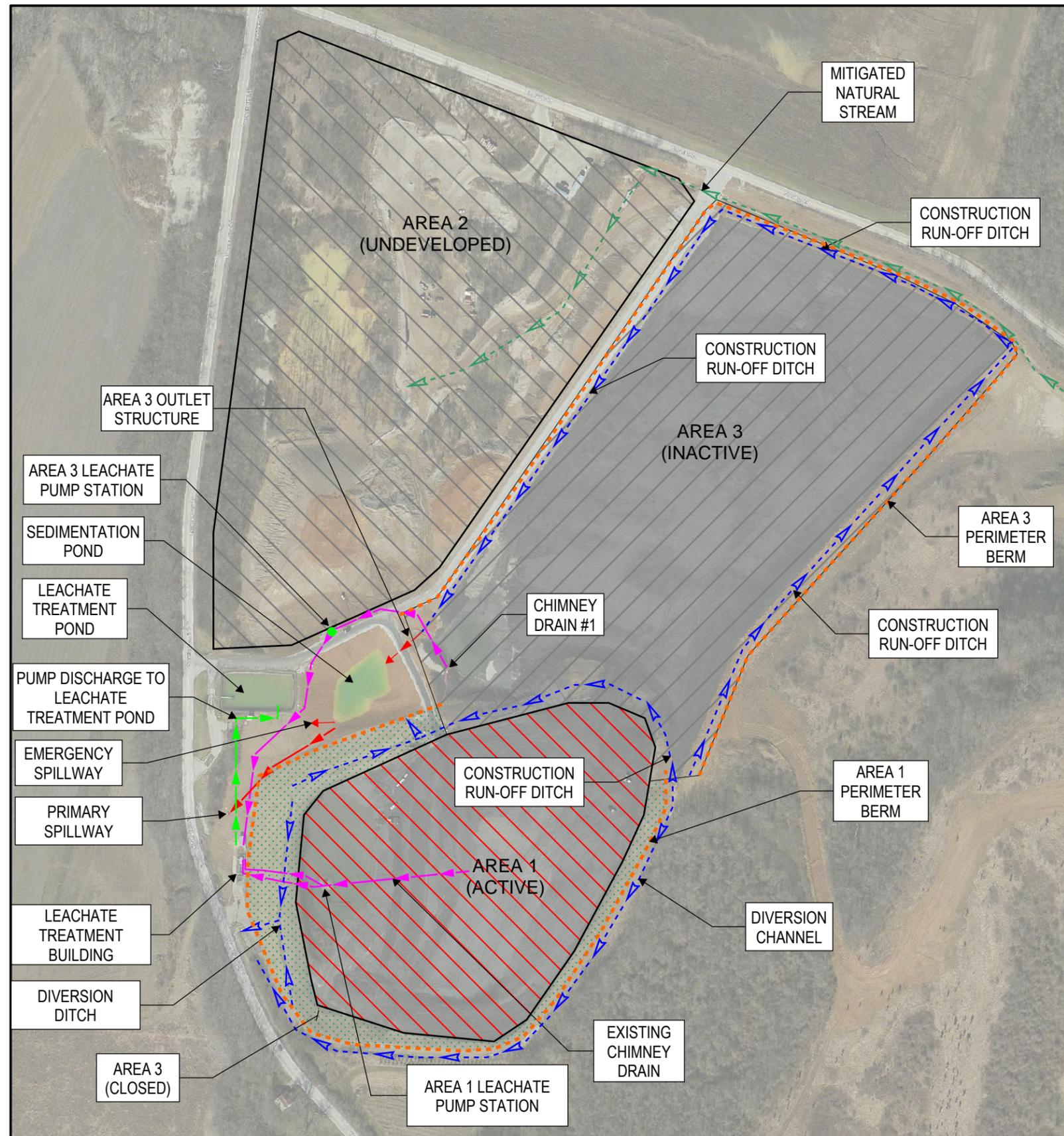


Signature: 

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

Appendix A
CCR Landfill Layout Figure

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CCR LANDFILL LAYOUT FIGURE

**MIAMI FORT CCR LANDFILL
MIAMI FORT POWER STATION
HAMILTON COUNTY, OHIO**

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FIGURE NO. 1