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October 2016

CCR Rule Report:  
Initial Inflow Design Flood Control  
System Plan  
  
For  
  
D Basin  
  
At Zimmer Power Station

# 1 Introduction

This Coal Combustion Residual (CCR) Rule Report documents that the initial inflow design flood control system plan for the D Basin at the Zimmer Power Station meets the requirements specified in 40 Code of Federal Regulations (CFR) §257.82. The D Basin is located near Moscow, Ohio in Clermont County, approximately 0.5 miles north of the Zimmer Power Station. The D Basin serves as a dewatering basin for CCR produced by the Zimmer Power Station.

The D Basin is an existing CCR surface impoundment as defined by 40 CFR §257.53. The CCR Rule requires that the initial inflow design flood control system plan for an existing CCR surface impoundment be prepared by October 17, 2016. The plan must document how the inflow design flood control system has been designed and constructed to meet the requirements of 40 CFR §257.82 and be supported by appropriate engineering calculations.

The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the inflow design flood control system meets the requirements of 40 CFR §257.82. The owner or operator must prepare an inflow design flood control system plan every five years.

## 2 Initial Inflow Design Flood Control System Plan

### 40 CFR §257.82

(a) *The owner or operator of an existing ... CCR surface impoundment ... must design, construct, operate, and maintain an inflow design flood control system as specified in paragraphs (a)(1) and (2) of this section.*

(1) *The inflow design flood control system must adequately manage flow into the CCR unit during and following the peak discharge of the inflow design flood specified in paragraph (a)(3) of this section.*

(2) *The inflow design flood control system must adequately manage flow from the CCR unit to collect and control the peak discharge resulting from the inflow design flood specified in paragraph (a)(3) of this section.*

(3) *The inflow design flood is:*

(i) *For a high hazard potential CCR surface impoundment, ..., the probable maximum flood;*

(ii) *For a significant hazard potential CCR surface impoundment, ..., the 1,000-year flood;*

(iii) *For a low hazard potential CCR surface impoundment, ..., the 100-year flood; or*

(iv) *For an incised CCR surface impoundment, the 25-year flood.*

(b) *Discharge from the CCR unit must be handled in accordance with the surface water requirements under §257.3-3.*

Analyses completed for the initial inflow design flood control system plan of the D Basin are described in the following subsections. Data and analysis results in the following subsections are based on spillway design information shown on design drawings, construction information, topographic surveys, information about operations and maintenance provided by Zimmer Power Station, and field measurements collected by AECOM. The analysis approach and results of the hydrologic and hydraulic analyses are presented in the following subsections. The D Basin is part of the Wastewater Pond Complex at the Zimmer Power Station, which includes two CCR Units (the D Basin and the Coal Pile Runoff Pond) and several non-CCR stormwater ponds. The Wastewater Pond Complex is surrounded by a continuous perimeter embankment with a uniform crest elevation, which separates the Wastewater Pond Complex from the surrounding area.

The D Basin has a significant hazard potential based on the initial hazard potential classification assessment performed by Stantec in 2016 in accordance with §257.73(a)(2).

### 2.1 Initial Inflow Design Flood Control Systems (§257.82(a))

An initial inflow design flood control system plan, supported by a hydraulic and hydrologic analysis, was developed for the D Basin by evaluating the effects of a 24-hour duration design storm for the 1,000-year Inflow Design Flood (IDF) using a hydrologic HydroCAD (Version 10) computer model and a starting water surface elevation of 506.0 feet. The computer model evaluated the D Basin's ability to collect and control the 1,000-year IDF under existing operational and maintenance practices. Rainfall data for the 1,000-year IDF was obtained from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14. The NOAA Atlas 14 rainfall depth is 9.13 inches.

The HydroCAD model results for the D Basin indicate that the CCR unit has sufficient storage capacity and spillway structures to adequately manage (1) flow into the CCR unit during and following the peak discharge of the 1,000-year IDF and (2) flow from the CCR unit to collect and control the peak discharge resulting from the 1,000-year IDF. The peak water surcharge elevation is 506.8 feet during the IDF, and the minimum crest elevation of the perimeter dike surrounding the Wastewater Pond Complex is 509.0 feet. Therefore, overtopping is not expected.

Based on this evaluation, the D Basin meets the requirements in §257.82(a).

## 2.2 Discharge from the CCR Unit (§257.82(b))

40 CFR §257.82(b) provides that the discharge from the CCR unit must be handled in accordance with the surface water requirements under 40 CFR §257.3-3, which states the following:

*(a) For purposes of section 4004(a) of the Act, a facility shall not cause a discharge of pollutants into waters of the United States that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES) under section 402 of the Clean Water Act, as amended.*

*(b) For purposes of section 4004(a) of the Act, a facility shall not cause a discharge of dredged material or fill material to waters of the United States that is in violation of the requirements under section 404 of the Clean Water Act, as amended.*

*(c) A facility or practice shall not cause non-point source pollution of waters of the United States that violates applicable legal requirements implementing an areawide or Statewide water quality management plan that has been approved by the Administrator under section 208 of the Clean Water Act, as amended.*

*(d) Definitions of the terms Discharge of dredged material, Point source, Pollutant, Waters of the United States, and Wetlands can be found in the Clean Water Act, as amended, 33 U.S.C. 1251 et seq., and implementing regulations, specifically 33 CFR part 323 (42 FR 37122, July 19, 1977).*

The handling of discharge was evaluated by reviewing design drawings, operational and maintenance procedures, conditions observed in the field by AECOM, and the inflow design flood control system plan developed per §257.82(a).

Based on this evaluation, the D Basin does not discharge into waters of the United States during normal operating conditions. Outflow is transmitted to the Coal Pile Runoff Pond through the sump structure. During normal conditions, outflow from the D Basin is ultimately routed to the NPDES-permitted outfalls into the Ohio River from the Clearwater Pond. During high-water conditions, additional water is routed to the Ohio River via NPDES-permitted outfalls from the adjacent A, B, and C Basins. Hydraulic and hydrologic analyses performed as part of the initial inflow design flood control system plan found the D Basin adequately manages outflow during the 1,000-year IDF, as overtopping of the perimeter dike surrounding the Wastewater Pond Complex is not expected.

Therefore, discharge into waters of the United States in violation of the site's NPDES permit are not expected during normal or 1,000-year IDF conditions, and the D Basin meets the requirements in §257.82(b).

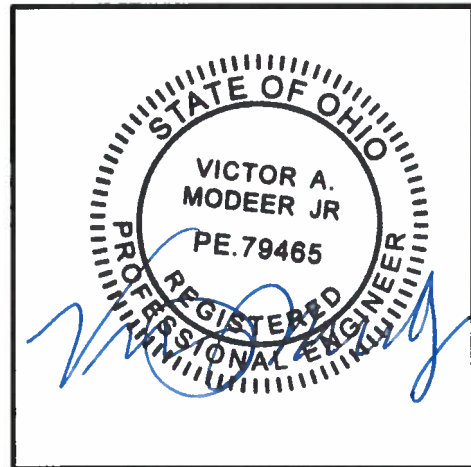
### 3 Certification Statement

**CCR Unit:** Zimmer Power Station; D Basin

I, Victor A. Modeer, being a Registered Professional Engineer in good standing in the State of Ohio, do hereby certify, to the best of my knowledge, information, and belief that the information contained in this CCR Rule Report, and the underlying data in the operating record, has been prepared in accordance with the accepted practice of engineering. I certify, for the above-referenced CCR Unit, that the initial inflow design flood control system plan dated October 13, 2016 meets the requirements of 40 CFR §257.82.

VICTOR A. MODEER JR.  
Printed Name

10/13/16  
Date



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