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CCR Rule Report:  
Initial Inflow Design Flood Control  
System Plan  
  
For  
  
Ash Pond  
  
At Edwards Power Station

# 1 Introduction

This Coal Combustion Residual (CCR) Rule Report documents that the initial inflow design flood control system plan for Ash Pond at the Illinois Power Resources Generating, LLC Edwards Power Station meets the requirements specified in 40 Code of Federal Regulations (CFR) §257.82. The Ash Pond is located near Bartonville, Illinois in Peoria County, approximately 0.1 miles west of the Edwards Power Station. The Ash Pond serves as the wet impoundment basin for CCR materials produced by the Edwards Power Station.

The Ash Pond 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 Ash Pond 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 operational and maintenance procedures provided by Illinois Power Resources Generating, LLC, and field measurements collected by AECOM. The analysis approach and results of the hydrologic and hydraulic analyses are presented in the following subsections.

The Ash Pond is comprised of three interior sub-basins (referred to as the Process Water Pond, the Fly Ash Pond, and the Clarification Pond) surrounded by a perimeter earthen dike.

The Ash Pond has a high 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 Ash Pond by evaluating the effects of a 24-hour duration design storm for the Probable Maximum Flood (PMF) Inflow Design Flood (IDF) using a hydrologic HydroCAD (Version 10.0) computer model and a starting water surface elevation of 449.5 feet for the Process Water Pond and 447.2 feet for the Fly Ash Pond and Clarification Pond. The computer model evaluated the Ash Pond's ability to collect and control the PMF IDF under existing operational and maintenance procedures. Rainfall data for the PMF IDF was obtained from the National Weather Service Hydrometeorological Report No. 51 for the 10-square mile all-season Probable Maximum Precipitation. The PMF rainfall depth is 32.8 inches.

The HydroCAD model results for the Ash Pond 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 PMF IDF and (2) flow from the CCR unit to collect and control the peak discharge resulting from the PMF IDF. The peak water surcharge elevation is 457.8 feet in the Process Water Pond and 457.4 feet in the Fly Ash Pond and Clarification Pond during the IDF, and the minimum crest elevation of the Ash Pond dike is 458.8 feet in the Process Water Pond and 459.6 feet in the Fly Ash Pond and Clarification Pond. Therefore, overtopping is not expected.

Based on this evaluation, the Ash Pond 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, outflow from the Ash Pond is ultimately routed through a NPDES-permitted discharge into the Illinois River. Hydraulic and hydrologic analyses performed as part of the initial inflow design flood control system plan found that the Ash Pond adequately manages outflow during the PMF, as overtopping of the Ash Pond embankments is not expected.

Therefore, discharge of pollutants in violation of the NPDES permit is not expected as all discharge is routed and controlled through the existing spillway system and NPDES-permitted outfall during both normal and IDF conditions. Based on this evaluation, the Ash Pond meets the requirements in §257.82(b).

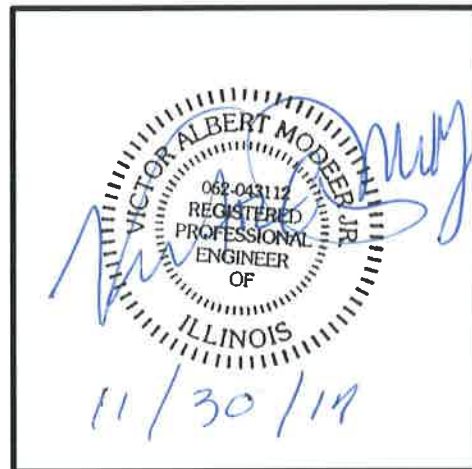
### 3 Certification Statement

**CCR Unit:** Illinois Power Resources Generating, LLC; Edwards Power Station; Ash Pond

I, Victor A. Modeer, being a Registered Professional Engineer in good standing in the State of Illinois, 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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