

CCR Rule Report: Initial Inflow Design Flood Control System Plan

Pond 3
Basin Electric Power Cooperative
Leland Olds Station
Stanton, North Dakota

AECOM Project No. 60565307
April 13, 2018

Table of Contents

1.	Introduction	1
2.	Hydrologic and Hydraulic Analyses.....	2
2.1	Inflow Design Flood Control Systems (§257.82(a))	2
2.2	Discharge from the CCR Unit (§257.82(b))	3
3.	Certification Statement.....	4

1. Introduction

This Coal Combustion Residual (CCR) Rule Report documents that the initial inflow design flood control system plan for Pond 3 at the Basin Electric Power Cooperative Leland Olds Station meets the requirements specified in 40 Code of Federal Regulations (CFR) §257.82 under the HAZARDOUS AND SOLID WASTE MANAGEMENT SYSTEM; DISPOSAL OF COAL COMBUSTION RESIDUALS FROM ELECTRIC UTILITIES [RIN-2050-AE81; FRL-9149-4] (EPA Final CCR Rule).

Pond 3 is an existing CCR surface impoundment as defined by 40 CFR §257.53. In October 2015, BEPC determined that the impoundment met the criteria for an inactive surface impoundment as defined in §257.100 of the EPA Final CCR Rule, and the 'Notification of Intent to Initiate Closure of CCR Surface Impoundment' for Pond 3 was completed on December 15, 2015, in accordance with §257.100 of the EPA Final CCR Rule.

Since that time, §257.100 of the CCR Rule has been vacated, and the compliance deadlines for inactive impoundments have been extended. Specifically, CCR impoundments that were initially classified with the 'Inactive' status and seeking closure under §257.100 now must have the inflow design flood control plan completed by April 17, 2018. 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. 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. Hydrologic and Hydraulic Analyses

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 hydrologic and hydraulic assessments of Pond 3 are described in the following subsections. Data and analysis results in the following subsections are based on information shown on design drawings, construction information, topographic surveys, and information about operational and maintenance procedures provided by Basin Electric Power Cooperative. The analysis approach and results of the hydrologic and hydraulic analyses are presented in the following subsections.

At this time, as determined under 40 CFR §257.73(a)(2), Pond 3 is considered to have a significant hazard potential classification.

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

In accordance with the requirements of 40 CFR §257.82(a)(3), an Initial Inflow Design Flood Control System Plan was developed for Pond 3. This was accomplished by evaluating the effects of a 24-hour duration design storm for the 1,000-year Inflow Design Flood (IDF) using the HydroCAD Version 10.00 computer program. The computer model evaluated the ability of Pond 3 to collect and control the 1,000-year IDF under existing operational and maintenance procedures. Rainfall data for the 1,000-year IDF was obtained from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Point Precipitation Frequency Estimates near LOS. The 1,000-year rainfall depth given by NOAA is 7.22 inches.

The HydroCAD model results for Pond 3 indicate that the CCR unit has sufficient storage capacity to adequately manage inflows during peak discharge conditions created by the 1,000-year IDF. The peak water surcharge elevation is 1,686.4 feet during the IDF, and the minimum crest elevation of Pond 3 dike is 1,693 feet; therefore, overtopping is not expected.

Based on this evaluation, Pond 3 meets the requirements in §257.82(a).

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

Note that §257.82(b) references 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 evaluation of discharge was based on review of 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).

Hydraulic and hydrologic analyses performed as part of the initial inflow design flood control system plan found that Pond 3 adequately manages outflow during the 1000-year IDF, as overtopping of Pond 3 embankments is not expected. Two pumps in Pond 3 are used to recirculate water back to the LOS facility where it is mixed with once-through cooling water and discharged in accordance with NDPDES Permit ND-0025232.

Discharge into waters of the United States is in compliance with the permit conditions of NDPDES Permit ND-0025232 and therefore meets the requirements in §257.82(b).

3. Certification Statement

CCR Unit: Basin Electric Power Cooperative; Leland Olds Station; Pond 3

I, Clifford Shierk, being a Registered Professional Engineer in good standing in the State of North Dakota, do hereby certify, to the best of my knowledge, information, and belief that the information contained in this CCR Rule Report 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 plan dated April 2018 meets the requirements of 40 CFR § 257.82.

Clifford Shierk
Printed Name

April 13, 2018
Date



