Carlson McCain

ENVIRONMENTAL • ENGINEERING • LAND SURVEYING

Inflow Design Flood Control System Plan
Nelsen Pond
Otter Tail Power Company - Coyote Station

Introduction

This plan presents the Inflow Design Flood Control System Plan for the Nelsen Pond at Coyote Station located near Beulah, North Dakota. The Nelsen Pond is considered an existing coal combustion residual (CCR) impoundment. This document addresses the requirements of 40 CFR §257.82.

Inflow Design Flood Control System Plan *§ 257.82(c)*

The Nelsen Pond is considered a low hazard potential CCR surface impoundment and must comply with the prescribed 100-year flood event. Coyote Station is located in a region of type II rainfall distribution. According to the National Oceanic and Atmospheric and Administration, a 24-hour, 100-year storm event yields 4.81 inches of rainfall for the geographic location of Nelsen Pond.

Inflow Management *§ 257.82(a)(1)*
Perimeter dikes prevent all stormwater inflow from entering the pond. The only source of inflow is from periodic hydraulic dredging of CCR material from the Slag Pond. Observation is conducted during dredging activities to ensure adequate freeboard is maintained. The Nelsen Pond is 5.0 acres in area and maintains a freeboard of 2.5 feet, for a total storage volume of 12.5 acre-feet.

A 24-hour, 100-year storm event of 4.81 inches would result in 2.0 acre-feet of run-off to Nelsen Pond as detailed in the calculation below:

(4.81 inches)/(12 inches per foot)(5 acres) = 2.0 acre-feet.*

The storage above the freeboard is adequate to collect and control the inflow from a 100-year flood event.

Outflow Management *§ 257.82(a)(2)*
The Nelsen Pond has two outlets; the primary outlet is located at the base of the pond in the southeast corner to allow water to gravity drain to the Sluice Outfall Pond. The secondary outlet is an emergency overflow structure. This structure is located 2.5 feet below the crest of the dike to ensure freeboard is maintained. The overflow structure flows to the Sluice Outfall Pond by gravity through a secondary pipe. Both outlets consist of concrete entrance structures connected to ductile iron pipes and are capable of controlling the peak discharge from a 100-year flood event.

***Discharges** § 257.82(b)*

The Nelsen Pond does not discharge into waters of the United States. All discharges are contained within the CCR impoundment network consisting of the Nelsen Pond, Sluice Outfall, and Slag Pond.

Amendment of Inflow Design Flood Control System Plan *§ 257.82(c)(2) and (4)*

If any event or change affects the plan, a modified Inflow Design Flood Control System Plan will be prepared and included in the facility's operating record and posted on the CCR website. At a minimum, the Inflow Design Flood Control System Plan will be reviewed and updated every five years beginning with this version of the Plan.

Certification *§ 257.82(c)(5)*

I hereby certify under penalty of law that this report was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

John McCain, PE
License No. PE-4345

October 17th 2016
Date


Nelsen Pond Drainage Area
Otter Tail Power Company - Coyote Station
Nelsen Pond Drainage Area - 5 Acres
Primary Outlet (not shown)
Emergency Overflow
N
400 ft
Google earth