

Inflow Design Flood Control System Plan Sluice Outfall

Otter Tail Power Company - Coyote Station

Introduction

This plan presents the Inflow Design Flood Control System Plan for the Sluice Outfall at Coyote Station located near Beulah, North Dakota. The Sluice Outfall is an existing incised 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 Sluice Outfall is an incised CCR impoundment and must comply with the prescribed 25-year flood event. Coyote Station is located in a type II rainfall distribution region. According to the National Oceanic and Atmospheric Administration, a 25-year, 24-hour storm event yields 3.65 inches of rainfall for the geographic location of the Sluice Outfall.

Inflow Management §257.82(a)(1)

The Sluice Outfall receives inflows from stormwater and ash sluice water. The area contributing stormwater runoff is approximately 10 acres, which includes Nelsen Pond. The Sluice Outfall is 1.5 acres in area and maintains a freeboard of 4 feet, for a total storage volume of 6.0 acre-feet.

A 25-year, 24-hour storm event of 3.65 inches would result in 3.04 acre-feet of runoff to the Sluice Outfall as detailed in the calculation below:

$$(3.65 \text{ inches}) / (12 \text{ inches per foot}) * (10 \text{ acres}) = 3.04 \text{ acre-feet.}$$

The storage above the freeboard is adequate to collect and control the inflow from a 25-year flood event.

Outflow Management §257.82(a)(2)

The Sluice Outfall has two outlets; the primary outlet is located in the southeast corner and drains to the downstream Slag Pond by gravity. The secondary outlet is an emergency overflow structure located in the southwest corner of the unit. This structure is located 4 feet below the crest of the dike to ensure freeboard is maintained. The overflow structure flows to the Slag Pond by gravity through a secondary pipe. Both outlets consist of concrete entrance structures connected to ductile iron pipe and are capable of controlling the peak discharge from a 25-year flood event.

Discharges §257.82(b)

The Sluice Outfall does not discharge into waters of the United States. All discharges are contained within the 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 placed 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

Sluice Outfall Drainage Area

Otter Tail Power Company - Coyote Station

Sluice Outfall Drainage Area - 10 Acres

Sluice Outfall - 1.5 Acres

Primary Outlet

Emergency Overflow

600 ft

