

Inflow Design Flood Control System Plan

Slag Pond

Otter Tail Power Company - Big Stone Plant

Introduction

This plan presents the Inflow Design Flood Control System Plan for the Slag Pond at the Big Stone Plant located near Big Stone City, South Dakota. The Slag 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 Slag Pond is considered an incised CCR surface impoundment and must comply with the prescribed 25-year flood event. Big Stone Plant is located in a region that has a type II rainfall distribution. According to the National Oceanic and Atmospheric Administration, a 25-year, 24-hour storm event yields 4.47 inches of rainfall for the geographic location of the Slag Pond.

Inflow Management §257.82(a)(1)

The Slag Pond receives inflows from various plant processes including but not limited to: cleaning water, boiler cleaning water, economizer ash and boiler slag sluice water, and yard drain wastewater. In addition to plant processes, the Slag Pond receives stormwater runoff from 43 acres of surrounding area. The Slag Pond is 2.1 acres in area and maintains a freeboard of 9 feet, for a total storage volume of 18.9 acre-feet.

A 25-year, 24-hour storm event of 4.47 inches would result in 16 acre-feet of run-off into the Slag Pond as detailed in the calculation below:

$$(4.47 \text{ inches}) / (12 \text{ inches per foot}) * (43 \text{ acres}) = 16 \text{ acre-feet.}$$

There is 16 acre-feet of runoff to the Slag Pond and 18.9 acre-feet of storage.

Outflow Management §257.82(a)(2)

The Slag Pond has one outlet: a discharge pipe located on the south end of the pond. The discharge pipe transfers water via pumps from the Slag Pond to the Cooling Pond as needed for plant processes and to maintain minimum freeboard requirements.

Discharges §257.82(b)

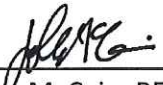
Big Stone Plant is a zero-discharge facility. The Slag Pond does not discharge into waters of the United States. All discharges consist of withdrawals for use in plant processes.

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. 8991

October 17, 2016
Date



Slag Pond Drainage Area

Offter Tail Power Company - Big Stone Plant

Slag Pond Drainage Area -
43 Acres

Slag Pond
2.1 Acres



1000 ft