

SOUTH CAROLINA ELECTRIC & GAS



INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN

FOR THE
**WILLIAMS STATION
FGD POND**
BERKELEY COUNTY, SOUTH CAROLINA

JULY 2016



1 OVERVIEW

The EPA Administrator, Gina McCarthy, signed the Disposal of Coal Combustion Residuals from Electric Utilities final rule on December 19, 2014, and it was published in the Federal Register (FR) on April 17, 2015. The regulations provide a comprehensive set of requirements for the safe disposal of coal combustion residuals (CCRs), commonly known as coal ash, from coal-fired power plants. The rule will be administered as part of the Resource Conservation and Recovery Act [RCRA, 42 United States Code (U.S.C.) §6901 et seq.], using the Subtitle D approach.

South Carolina Electric & Gas (SCE&G) is subject to the CCR Rule. Based on SCE&G's review of the rule, the **Flue Gas Desulfurization (FGD) Pond at SCE&G Williams Station** has been determined to be an existing CCR surface impoundment subject to the CCR rule requirements.

2 PURPOSE

The purpose of this report is to document that the Williams Station FGD Pond Inflow Design Flood Control System Plan meets the requirements of CCR rule §257.82 – *Hydrologic and Hydraulic Capacity Requirements*.

3 APPLICABLE REGULATIONS

CCR rule §257.82 – *Hydrologic and Hydraulic Capacity Requirements* states the following:

(a) The owner or operator of an existing or new CCR surface impoundment or any lateral expansion of a 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, as determined under § 257.73(a)(2) or § 257.74(a)(2), the probable maximum flood;

(ii) For a significant hazard potential CCR surface impoundment, as determined under § 257.73(a)(2) or § 257.74(a)(2), the 1,000-year flood;

(iii) For a low hazard potential CCR surface impoundment, as determined under § 257.73(a)(2) or § 257.74(a)(2), 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.

(c) Inflow design flood control system plan—(1) Content of the plan. The owner or operator must prepare initial and periodic inflow design flood control system plans for the CCR unit according to the timeframes specified in paragraphs (c)(3) and (4) of this section. These plans must document how the inflow design flood control system has been designed and constructed to meet the requirements of this section. Each plan must be supported by appropriate engineering calculations. The owner or operator of the CCR unit has completed the inflow design flood control system plan when the plan has been placed in the facility's operating record as required by § 257.105(g)(4).

40 CFR Rule § 257.3-3 Surface Water 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.

4 FGD POND DESCRIPTION

Williams Station is coal-fired electric generation plant located in Goose Creek, Berkeley County, South Carolina. The FGD Pond is used to manage wastewater generated from the flue gas desulfurization scrubber system. The FGD pond was constructed in accordance with construction permit (permit 19263-IW) issued from the South Carolina Department of Health and Environmental Control (DHEC) on March 9, 2009, and placed into operation in accordance with an operation approval issued by DHEC on October 6, 2009. Effluent discharge for the FGD Pond is regulated under NPDES Permit #SC0003883.

The FGD Pond includes two settling bays, each approximately 1.0 acre.

Based on SCE&G's review of the rule, the FDG Pond at Williams Station is a low hazard potential CCR surface impoundment.

5 FLOW INTO THE POND

Given the FGD Pond is considered a low hazard potential CCR surface impoundment, in accordance with 257.82 (a)(1) and 257.82 (a)(3), the FGD Pond's inflow design flood control system must adequately manage flow **into** the CCR unit during and following the peak discharge of the 100-year flood.

The topographic grades associated with the FGD Pond are higher than those of the surrounding land surface. Sheet 2 from the FGD Pond construction plans (Attachment 1) illustrates the location of the pond and associated grades. The FGD Pond rim sits at elevation 13.5. Surrounding grades in the vicinity of the pond sit at approximately elevation 10.

The Federal Emergency Management Agency (FEMA) provides mapping for the 100-year flood. The FGD Pond occurs on FEMA's FIRM Panel map 45015C0620D, effective 2003, in flood zone AE. The published 100-year flood elevation at the location of the FGD Pond is elevation 8. The rim of the FGD Pond sits at elevation 13.5. Therefore, discharge from the 100-year flood does not flow into the FGD Pond.

As constructed, flow into the FGD Pond during and following the peak discharge of the 100-year flood is limited to normal operational flows and direct precipitation from the 100-year storm event that falls on the pond.

The normal operating pool of the settling bays resulting from plant flows is elevation 11.5. As prescribed by the Berkeley County Stormwater Management Program, Stormwater Design Standards Manual (adopted December 1, 2009), the rainfall depth for the 100-year, 24-hour storm event in Berkeley County (South) is 9.8 inches. Therefore, the 100-year water surface in the pond settling is elevation 12.3, and the resultant freeboard is 1.1 feet. Therefore, flow into the pond during and following the peak discharge of the 100-year flood can be adequately managed via containment and storage in the pond.

6 FLOW FROM THE POND

Given the FGD Pond is considered a low hazard potential CCR surface impoundment, in accordance with 257.82 (a)(2) and 257.82 (a)(3), the pond's inflow design flood control system must adequately manage flow **from** the CCR unit to collect and control the peak discharge resulting from the 100-year flood.

The FGD pond is dewatered by gravity by a series of outlet pipes in each settling bay as shown on the attached Sheet 2. The FGD Pond's dewatering system will discharge the 100-year flood in a controlled manner to return the pond to its' normal operating, pre-flood conditions. Therefore, the existing systems can adequately collect and control the peak discharge from the FGD Pond resulting from the 100-year flood.

7 DISCHARGE FROM THE POND

§257.82 (b) requires discharge from the FGD Pond must be handled in accordance with the surface water requirements under § 257.3-3.

As previously mentioned, discharge from the FGD Pond is regulated in accordance with a National Pollutant Discharge Elimination System (NPDES) permit issued by the SCDHEC. The NPDES permit grants

Williams Station permission to discharge from the facility in accordance with effluent limitations, monitoring requirements and other conditions. The NPDES permit is issued in accordance with the provisions of the Federal Clean Water Act. Therefore, by complying with the NPDES permit, the discharge from the FGD Pond is being handled in accordance with the surface water requirements under § 257.3-3.

8 CONCLUSION

As constructed, the Williams Station FGD pond is not susceptible to inflow from the 100-year flood. The pond is capable of receiving and storing permitted wastewater flows as well as direct rainfall from the 100-year, 24-hour storm. The FGD Pond's outlet pipes are sufficient to collect and discharge the 100-year flood in a controlled manner. The discharge from the FGD Pond is permitted under a NPDES permit is issued in accordance with the provisions of the Federal Clean Water Act. Based on the discussions above, the Williams Station FGD Pond Inflow Design Flood Control System Plan meets the requirements of CCR rule §257.82 – *Hydrologic and Hydraulic Capacity Requirements*.

ATTACHMENT 1

