

October 14, 2016

Mr. Michael Malone
CPS Energy
145 Navarro, Mail Drop 100406
San Antonio, Texas 78296

Project No. 0352436

Subject: Inflow Design Flood Control Plan
Calaveras Power Station
San Antonio, Texas

**Environmental
Resources
Management**

CityCentre Four
840 W. Sam Houston Pkwy N.
Suite 600
Houston, Texas 77024
(281) 600-1000
(281) 600-1001 (Fax)

Dear Mr. Malone:

Environmental Resources Management Southwest, Inc. (ERM) is pleased to provide this Inflow Design Flood Control Plan for the Calaveras Power Station, to assist CPS Energy in complying with Title 40, Code of Federal Regulations, Part 257 (40 CFR §257), Subpart D Coal Combustion Residual (CCR) Rules.



The Calaveras Power Station has five CCR surface impoundments: the North and South Sludge Recycle Holding (SRH) Ponds, the North and South Bottom Ash Ponds (BAPs), and the Evaporation Pond (EP). All ponds were constructed as diked impoundments. The SRH Ponds were constructed as a single impoundment with a divider wall that separates the impoundment into the North and South SRH Ponds. A gate present in the divider wall is closed during normal operating procedures, but can be opened. The North and South BAPs share a common embankment that separates the BAPs, and are immediately east of the SRH Ponds. Only one BAP is typically in operation at one time. These four ponds are located east of the main plant. The EP is approximately a mile north of the main plant, and receives boiler chemical cleaning wastes via vacuum truck. While this material is not considered CCR under the regulation, the EP was originally constructed as a fly ash landfill in 1990, and then converted to a fly ash impoundment in 1996. It currently contains solids that are six inches to two feet below the top of the impoundment.

CCR regulation 40 CFR 257.82(a)(3) requires that dams with a low hazard potential be designed for a 1-percent annual chance of exceedance flood (average return frequency of no less than once in 100 years) and that dams with a significant hazard potential be designed for the 0.1-percent annual chance of exceedance flood (average return frequency of no less than once in 1,000 years). The North and South BAPs and North and South SRH Ponds are classified as significant hazard impoundments and the EP is classified as a low hazard impoundment.

Because all ponds are elevated diked structures, the drainage area for all units is limited to that which falls directly onto the interior footprint of the unit. Storm water that falls into a portion of the Calaveras Power Station is also pumped into the SRH Ponds. The 100-year, 24-hour design storm rainfall for the area is approximately 10 inches, as described in "Technical Paper No. 40, Rainfall Frequency Atlas of the United States", published by the US Department of Agriculture (TP-40). Utilizing the estimation techniques spelled out in TP-40 for return periods longer than 100 years, the estimated 1,000-year, 24-hour storm event for the area is approximately 13 inches.

The inflow design flood control system for all significant hazard impoundments includes maintaining a minimum 24-inch freeboard during dry weather. This is the standard operating condition for the BAPs and SRH Ponds. In the event of a major rain event, plant personnel will monitor water levels in the ponds. If inflow from direct precipitation and pumped influent exceeds the capacity of the outfall structure, water will be diverted to the inactive BAP as available to provide additional storage capacity. If freeboard is reduced to 13 inches, with or without diversion, storm water pumps feeding the ponds from other portions of the plant will be shut down. This remaining freeboard will be sufficient to handle excess storm water from the 1,000-year storm rainfall for each unit. Note that the design rainfall for the 1,000-year, 24-hour storm is 13 inches. The above procedure presumes that a rainfall event is already partially complete by the time the freeboard reaches 13 inches (the total rainfall for a 1000-year, 24-hour event), therefore the 13-inch freeboard threshold for pump shutdown is conservative.

The low hazard EP does not have alternative locations for discharge. The EP will be required to maintain a minimum 10-inch freeboard during dry weather, sufficient to handle excess storm water from the 100-year storm.

Based on our evaluation of the available information for the impoundments, this Inflow Design Flood Control Plan meets the requirements of 40 CFR 257.82(c).

Sincerely,

Environmental Resources Management



Chris Cunningham, P.E.

