



SIKA® AT WORK

OROVILLE DAM SPILLWAY RECOVERY

OROVILLE DAM IS ONE OF THE KEY FEATURES OF THE CALIFORNIA STATE WATER SYSTEMS

BUILDING TRUST



OROVILLE DAM SPILLWAY RECOVERY



Oroville Dam spillway damage during failure

PROJECT DESCRIPTION

Oroville Dam is an earthfill embankment dam on the Feather River, east of the city of Oroville, California. Built by the California Department of Water Resources (DWR), Oroville Dam is one of the key features of the California State Water Project (SWP). The construction of the Dam was initiated in 1961.

In February 2017, the main and emergency spillways failed, leading to the evacuation of 188,000 people living near the dam. After deterioration of the main spillway largely stabilized, and the water level of the dam's reservoir dropped below the top of the emergency spillway, the evacuation order was lifted. In May, the spillway was shut down for the summer in order to allow demolition and repair work to begin.

PROJECT REQUIREMENTS

- Mix designs were required and developed for Roller Compacted Concrete (RCC), 3,000 psi Leveling "Dental" Concrete, Shotcrete, Structural Concrete, Self-Consolidating Concrete (SCC), SCC "Bedding" Concrete and Erosion Resistant Concrete (ERC).
- The total cost of the repair was projected to exceed \$400 million
- Approximately 900K cubic yards of RCC was to be placed in a continuous placement lasting numerous weeks.

SIKA® SOLUTION

- Sikacrete® 950 DP Silica Fume, Sikament® 686, Sika® Viscoflow® 2020 and Sikatard® 440 were all used to assure the stringent requirements for the erosion resistant spillway surface are successfully handled.

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Kiewit Construction placing concrete during the repair process



The entire project was scheduled for completion in late 2018

- To avoid "cold joints" between each day's placement set times of 16 - 24 hours initial and final of 24 - 45 hours. Sika's Plastiment® XR was utilized to handle the duties.
- Workability retention was an issue, with low slump and travel time to the cranes and pumps; Sikament® 686, Sikatard® 440 and Sika® Viscoflow® 2020 were utilized to handle this.

SIKA® PRODUCTS

Sikacrete® 950 DP
Sikament® 686
Sika® Viscoflow® 2020
Plastiment® XR
Sikatard® 440

PROJECT PARTICIPANTS

Project Type: Partial Demolition and Repair of Existing Dam
Location: Oroville, California
Owning Company: State of California
Project Partner: Kiewit Construction
www.kiewit.com