

SUMMARY OF FERC RECOMMENDATIONS AND DWR ACTIONS FERC Part 12 D 1999 INSPECTION REPORT

Note: Selected recommendations have been edited to protect Critical Energy Infrastructure Information.

All Part 12D reports for Oroville Dam ended with the conclusion that the project was suitable for continued operation.

The process for a Part 12D report is iterative. The Independent Consulting Board, required by FERC every five years, provides an independent inspection and evaluation of the facility, and provides recommendations to DWR in their Part 12D report. DWR then submits a plan and schedule to address those recommendations based on priority and risk. In some cases FERC provides feedback to DWR's plan and DWR responds with additional information and planned actions.

The summary provided for each Part 12D report is DWR's plan, approved by FERC, to address recommendations. It provides the latest action from DWR in response to the recommendations in the inspection process.

Summary of Recommendations – Oroville Dam (9 Total)

R-1. The recommendations provided in the DWR structural inspection and structural re-evaluation memorandum reports (May 1997 and February 1999 respectively) for the Oroville Dam radial gates should be implemented in conjunction with other radial gate findings for the Oroville-Thermalito Power Complex facilities.

***Status: Completed.** Between 2001 and 2002 DWR issued a contract to refurbish the radial gates which included addressing the referenced recommendations.*

R-2. Clean the weir plates and wall-mounted verniers to facilitate operation and measurements.

***Status: Completed (On-going activity).** DWR's dam surveillance personnel routinely perform this cleaning to ensure accurate readings of seepage.*

R-3. It is recommended that DWR clean and evaluate either removal of hydraulic piezometer equipment or abandon them in-place to enhance monitoring and maintenance of the operable instrumentation.

***Status: Completed (On-going Activity).** In response to this recommendation, DWR cleaned and evaluated the hydraulic piezometers and associated equipment. A number of piezometers were considered unreliable and abandoned in-place. Similar evaluations and abandonment of hydraulic piezometers have occurred over time as they become non-functional. DWR continues to maintain these areas to maximize the service life of remaining functional piezometers and to facilitate accurate seepage measurements.*

- R-4.** At Parish Camp Saddle Dam, drainage from the access roadway is resulting in minor surface erosion along a channel formed by the right downstream groin. Drainage in this area should be improved to reduce the potential for erosion and the groin area should be repaired and lined with riprap.

Status: **Completed.**

- R-5.** At the time of our inspection, three new spill areas were observed at the flood control outlet spillway bridge seats. DWR staff should continue to visually monitor this condition during their annual inspection of the facilities.

Status: **Completed (On-going Activity).** *Most recently, DWR engineers and Caltrans bridge engineers inspected the bridge and bridge seats on February 15, 2017 and again on March 30, 2017 with the benefit of a Caltrans under-bridge inspection truck. Measures have been taken to minimize the impact of heavy construction equipment on the bridge during the Spillway Emergency and Recovery efforts.*

- R-6.** Our inspection revealed some active seeps on the downstream slope surface of Oroville Dam at approximately elevation 700 feet (near the left abutment). It is recommended that DWR monitor this area to see if the seepage dries up in the summer months (e.g. a result of precipitation recharge on the slope above this location) or if the flow continues all season long. This area should be observed on a regular basis so that any changes would be noted in a timely manner.

Status: **Completed (On-going Activity).** *This recommendation refers to the "green spot" which DWR has monitored over the life of the project and continues today. Observations of seepage at this location and elevation began even before the dam was completed and the reservoir impounded. The available information indicates that moisture and seepage at this location is the result of rain infiltrating the dam and being impounded on lifts of embankment fill with higher fines content relative to surrounding highly pervious embankment material. This causes the downward infiltration of water to slow and the water to spread out laterally, with a portion of the seepage to exit slowly through the dam face. DWR has repeatedly observed this area dry up after periods of no rain.*

- R-7.** Monitoring of the questionable horizontal movement devices can be terminated.

Status: **Completed.** *However, DWR continues to perform surveys of surface monuments for vertical and horizontal movements of the dam.*

- R-8.** Although this is more of an operations issue, monitoring of the spoil area located just south of the flood outlet spillway chute should be continued.

Status: **Completed.** Subsequent to 1999, DWR continued to visually monitor this area and perform periodic surveys. This area has since been modified by the spillway incident, with much of this spoil from original construction being washed away.

- R-9.** New slope stability analyses should be conducted for the pertinent FERC loading conditions such as the inflow design flow, rapid drawdown, and seismic loading.

Status: **Completed.** Analyses performed in 2003 were updated and finalized in 2005.