STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Seeger (Nicasio) Dam No. 33-8 County Marin
Type of Dam ERTH Type of Spillway Concrete side channel ogee
Water is 4.8 feet below the spillway crest and 19.8 feet below the dam crest.

Weather Conditions Clear and mild
Contacts Made Lucy Croy, Conner Pollard, and Carl Sanders during the inspection
Reason for Inspection Periodic Evaluation

Important Observations, Recommendations or Actions Taken

As requested in the previous inspection, gravel fill has been placed within ruts within the lower access road that crosses the downstream face of the dam.

The upstream face is armored with large boulder riprap that remains in generally satisfactory condition, but that in limited areas may require additional material to compensate for normal wear and tear.

The owner has contracted with AECOM to perform a detailed evaluation of the spillway. I asked Ms. Croy to forward a copy of AECOM's spillway report to DSOD.

Conclusions

From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use.

Observations and Comments

Dam

The visible portions of the upstream face, crest, downstream face, and abutments are in satisfactory condition with no indication of surficial distress or instability. The upstream face is armored with large boulder riprap that remains in generally satisfactory condition, but that in limited areas may require additional material to compensate for normal wear and tear. As requested in the previous inspection, gravel fill has been placed within ruts within the lower access road that crosses the downstream face of the dam.

Vegetation control remains excellent, and the crest, groins, and both faces of the embankment are covered with ankle tall grass and other low ground cover that protect against erosion without hindering inspection and monitoring for seepage and other defects.

Similar to recent previous inspections, rodent control also remains satisfactory and little indication of rodent activity was observed within the embankment footprint. Rodent activity is abundant within the adjacent natural ground but the embankment surface appears to be too rocky to attract burrowers.

Spillway

The approach, control section, and exit channel were open and clear. Due to safety concerns, the spillway could not be entered for close examination, but no significant flaws were noted from our safe viewing locations. The owner has contracted with AECOM to perform a detailed evaluation of the concrete spillway. I asked Ms. Croy to forward a copy of AECOM's spillway report to DSOD.

The current design storm, prepared in 1985, is for a 40,000-year return period producing 17,647 cfs (~492 cfs / sq mi) from the 35.9 square mile drainage area. The spillway capacity is ~30,000 cfs which is greater than the peak inflow. Total freeboard is 15 feet and the residual freeboard for the design storm is 8.6 feet. Freeboard is satisfactory.

15 FEB 2018

Photos taken? Yes X No
cc for Owner/Book

Inspected by J. Lowe
Date of Inspection 13 February 2018
Date of Report 16 February 2018

RCB 2/27/18

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Date of Inspection 13 February 2018

Observations and Comments

Outlet

Four 24-inch diameter butterfly valves on the inclined inlet structure provide upstream control for the fully encased normally pressurized outlet. The four mechanically operated valves are located at elevations 157.0', 146.0', 126.0', and 90.0'. A pair of geared head drive 24-inch butterfly valves arrayed in series provides downstream control.

All upstream controls were fully cycled during and following the inspection, and all were found to be in good operating condition. The downstream control was not cycled during this inspection, but was fully cycled and found to be in good operating condition during the previous inspection on 7 February 2017.

Seepage

The downstream face, groins, and abutments were dry and free of evidence of any seepage.

The seepage weir and drainage channel beyond the weir have been cleared of sediment, leaves, and other debris, as requested. Clear seepage flow at the toe weir was roughly 7 gpm, and is within historical values. Normal peak seepage, in the range of 40 or more gpm, quickly falls to near zero following the secession of winter storms.

Instr.

Instrumentation consists of:

- Ten (10) survey monuments. Survey monuments were installed to monitor post construction settlement of the crest and settlement and displacement of the crest following significant seismic events. Survey monuments have been read at irregular intervals.
- One (1) seepage-measuring weir. The seepage-monitoring weir was installed to monitor flow beneath the toe of the embankment and is read monthly.

The ten survey monuments consist of seven (7) crest monuments, two (2) auxiliary monuments, and one (1) spillway monument. The seven survey monuments are located along the centerline of the embankment crest. Two (2) benchmarks are used to locate and reference the survey monuments.

The latest instrumentation data was received from the owner on 21 June 2017.

Survey data covers the reporting period between January 1982 and July 2016. There is no indication of increasing settlement of the embankment in the past fifteen years, and the apparent movement indicated by the survey data is most likely instrumentation or reading error. Lateral displacement data shows quite a bit of scatter, but again, there does not appear to be any continuing long-term trend of displacement.

The owner's conclusions from their June 2017 submittal were that, "The Seeger Dam (Nicasio Lake) weir flow is consistent with historic readings. ... Seeger Dam (Nicasio Lake) is trending toward stabilization: Settlement of -0.13 ft (maximum) and alignment of -0.13 ft (downstream direction; maximum)". Based on the data submitted I agree with the owner's conclusions. The dam appears to be performing satisfactorily, and no additional instrumentation is believed necessary at this time.

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The upstream face as seen from the spillway entrance, above, and as seen looking towards the spillway entrance, below. The upstream face is armored with large boulder riprap that remains in generally satisfactory condition, but that in limited areas may require additional material to compensate for normal wear and tear.

The downstream face and lower spillway, above, and a closer look at the lower spillway, below. The owner has contracted with AECOM to perform a detailed evaluation of the concrete spillway. I asked Ms. Croy to forward a copy of AECOM's spillway report to DSOD.

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The upper spillway as viewed from the upstream outlet control access road.

Clear seepage flow at the toe weir was roughly 7 gpm, and is within historical values. Normal peak seepage, in the range of 40 or more gpm, quickly falls to near zero following the secession of winter storms.