

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 Soulajule Dam No. 33-9 County Marin
 Type of Dam ERTH Type of Spillway Concrete weir and chute
 Water is 1.3 feet above the spillway crest and 10.7 feet below the dam crest.
 Weather Conditions Overcast with light rain
 Contacts Made Lucy Croy, Trinity Leonard, and Carl Sanders during the inspection
 Reason for Inspection Periodic Evaluation

Important Observations, Recommendations or Actions Taken

Overall care and maintenance of the dam and appurtenances remains quite good, though consistent annual vegetation control is required to prevent emerging vegetation from reducing the effectiveness of inspection and monitoring for seepage and other defects.

Primary access to the dam is limited when the spillway is flowing. All-weather access for any and all equipment required to safely operate the dam and reservoir is a dam safety requirement. Existing access should be improved, or alternative all-weather access should be provided if not already in place.


Conclusions

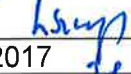


From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use.

Observations and Comments

<u>Dam</u>	<p>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 riprap armor remains in satisfactory condition and continues to provide reasonably adequate protection against wave action.</p> <p>Overall care and maintenance of the dam and appurtenances remains quite good, though consistent annual vegetation control is required to prevent emerging vegetation from reducing the effectiveness of inspection and monitoring for seepage and other defects. Mr. Sanders said he will continue removing excess vegetation later in the season when access to the downstream face of the embankment is improved. Rodent control remains satisfactory and only minor indications of burrowing are evident along portions of the crest.</p>
<u>Spillway</u>	<p>The approach, control section, and exit channel were open and clear; a polyethylene log boom was in place several hundred feet upstream of the dam. The spillway was flowing approximately 1.3 feet deep across the entrance weir. Flow within the concrete spillway chute appeared normal, and pockets and holes near the base of the concrete apron were repaired last year. Large bushes along the lower left spillway wall have also been trimmed back as recommended.</p> <p>The current design storm, prepared in 1978, is for a 10,000 year return period producing 15,223 cfs (~814 cfs / sq mi) from the 18.7 square mile drainage area. The spillway capacity is ~17,300 cfs which is greater than the peak inflow. Total freeboard is 12 feet and the residual freeboard for the design storm is 3.3 feet. Freeboard is satisfactory.</p>

Photos taken? Yes X No _____
 cc for Owner/Book


 Inspected by J. Lowe
 Date of Inspection 7 February 2017
 Date of Report 10 February 2017

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Date of Inspection 7 February 2017

Observations and Comments

<u>Outlet</u>	<p>Five 36-inch diameter butterfly valves mounted on the inclined inlet structure provides upstream control for the fully encased outlet. The five mechanically operated valves are located at elevations 323.0', 305.5', 228.0', 270.5', and 253.0'. Downstream control is provided by a pair of butterfly valves arrayed in series; a 36-inch butterfly valve within a concrete vault, followed by a recently installed 48-inch butterfly valve buried between the vault and outlet energy dissipater discharge. The outlet is normally pressurized.</p> <p>None of the outlet controls were cycled during this inspection. All of the outlet controls were partially cycled during the 5 April 2016 inspection, and all outlet controls were fully cycled and found to be in satisfactory operating condition during the February 24, 2015 periodic inspection.</p>
<u>Seepage</u>	<p>Rainfall prevented evaluation for minor seepage. No evidence of significant seepage was observed within the downstream face, groins, or abutments.</p> <p>The seepage monitoring weir next to the right side of the outlet energy dissipating structure was inundated by flow over the spillway, and could not be monitored during this inspection.</p>
<u>Instr.</u>	<p>Instrumentation consists of the following:</p> <ul style="list-style-type: none">• Twenty-one (21) survey monuments. Survey monuments were installed to measure post construction settlement and to monitor settlement and lateral displacement of the embankment crest and downstream face following significant seismic events. Surveys are performed approximately every five years.• Nineteen (19) piezometers. Piezometers were installed to monitor post construction pore water pressure and to monitor the phreatic surface within the embankment. Piezometers are read monthly.• One (1) 90-degree V-notch weir. The weir was installed to measure seepage from the toe drain and is monitored monthly. <p>The last instrumentation data was received from the owner on 16 December 2015, and no new data has been received since that time. The last instrumentation review is presented in the 5 April 2016 inspection report, and is not repeated here; I direct the reader to the earlier report for a detailed explanation of the instrumentation monitoring the dam, and the performance of the dam as reflected in the 16 December 2015 submittal. The conclusion of the April 2016 review was that, "Based on the data submitted the dam appears to be performing satisfactorily, and no additional instrumentation is believed necessary at this time".</p>
<u>Other</u>	<p>Primary access to the dam is limited when the spillway is flowing. The alternative access road is only partially armored, and may not be suitable for all equipment or in all weather. All-weather access for any and all equipment required to safely operate the dam and reservoir is a dam safety requirement. Existing access should be improved, or alternative all-weather access should be provided if not already in place.</p>

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The upstream face of the embankment as viewed from the spillway entrance.



The downstream face of the embankment as viewed from the alternative access road.

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A closer look at the right downstream groin and abutment. Scotch broom and other woody growth throughout the embankment, and within 15' of the groins, should be removed.



1.3' flow over the spillway entrance weir.

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The downstream face as viewed from the alternative access road. The alternative access road is only partially armored, and may not be suitable for all equipment or in all weather.



Spillway flow over the primary access road. All-weather access for any and all equipment required to safely operate the dam and reservoir is a dam safety requirement.