

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 Lagunitas Dam No. 33-2 County Marin
 Type of Dam Earth Type of Spillway Concrete weir with steel and timber flume
 Water is 0.2 feet above the spillway crest and 7.3 feet below the dam crest.
 Weather Conditions Sunny and warm
 Contacts Made Lucy Croy, Kristin Arnold, and Jonathan Fouche (Marin Municipal Water District)
 Reason for Inspection Annual Inspection

Important Observations, Recommendations or Actions Taken

Per the California Water Code, outlet controls used in emergency drawdown need to be cycled annually by the owner.

Tule and cattails along the upstream waterline and groins need to be removed (photo 1).

The occasional patches of dense vegetation on the downstream face need to be removed to allow for inspection and monitoring for seepage and other defects (photo 2).

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, downstream face, crest and abutments are in satisfactory condition with no indication of surficial distress or instability. The low concrete retaining wall along the upstream side of the crest is in satisfactory condition.</p> <p>As repeated from previous inspection reports, vegetation control along the upstream face needs improvement. Tule and cattails along the upstream waterline and groins need to be removed (photo 1). Vegetation control along the downstream face is mostly satisfactory, however, the occasional patches of dense vegetation need to be removed to allow for inspection and monitoring for seepage and other defects (photo 2).</p> <p>Rodent control is satisfactory, and no indications of rodent activity were observed.</p>
<u>Spillway</u>	<p>The approach, control section, chute, and flume were clear and unobstructed. Tules and cattails in the spillway entrance are satisfactory at this time but need to be cleared regularly to ensure smooth passage of flows (photo 4).</p> <p>Pressure treated timbers supporting the flume appear to be in good condition, as does the stainless-steel flume sheathing, the under flume supports, and flume foundation connections (photo 3).</p>
<u>Outlet</u>	<p>None of the outlet controls were cycled during this inspection. All upstream and downstream outlet controls were fully cycled in DSOD presence during the March 13, 2019 inspection. Per the owner's log, the outlets were not cycled when inspected on October 31, 2019. California Water Code mandates that critical outlet controls be cycled annually by the owner and in the presence of DSOD every three years.</p>

RB 4/29/2020 *LS* 4/29/2020 *MM* 4/29/2020

Photos taken? Yes No
 cc for Owner/Book

Inspected by Michelle Lockhart
 Date of Inspection April 15, 2020
 Date of Report April 29, 2020

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUSName of Dam Lagunitas Dam No. 33-2Date of Inspection April 15, 2020**Observations and Comments**

<u>Seepage</u>	<p>The downstream face, abutments, and toe were dry and free of any indications of seepage.</p> <p>Historical seepage from two sources along the left abutment, identified as the "Upper" and "Lower" leaks, is monitored from the seepage box located at lower left groin. Clear seepage through the Upper and Lower left abutment leaks were estimated at 10 gpm, and 2 gpm, respectively; seepage flows are within historical limits.</p> <p>The seepage collection box continues to accumulate a significant amount of sediment and is cleaned out regularly. The sediment appears to be carried by surface runoff and not from the dam as explained in the owner's annual instrumentation report.</p>
<u>Instr.</u>	<p>Instrumentation consists of two seepage measurement locations. Both seeps originate from the left abutment and are designated the "Upper" and "Lower" leaks. The "Upper" Leak refers to seepage from the embankment, and the "Lower" Leak refers to seepage from under the spillway.</p> <p>The Upper leak originates within a pea gravel backfilled shallow adit in the upper left abutment. The source of the upper leak is believed to be within the vicinity of the upstream end of the spillway and adjacent fractured rock abutment. The Lower leak collects seepage believed to originate in fractured rock in the lower left abutment. Both leaks are collected and delivered within 3" PVC pipes to the recently repaired and improved seepage collection vault. Valves at the end of the delivery pipes allow the observer to isolate, and by doing so measure, seepage from one source or the other.</p> <p>The latest instrumentation data was received from the owner on July 31, 2019.</p> <p>Seepage data covers the reporting period between July 2009 and July 2019. The maximum recorded seepage rate of the Upper Weir Flow was approximately 22 gpm in January 2010 and averages about 10 gpm. The maximum recorded seepage rate of the Lower Weir was approximately 20 gpm in February 2017 and averages about 2 gpm. Seepage from both sources is clear and reported rates remain within historical limits.</p> <p>Beginning in 2018, the owner began measuring sediment accumulation in the seepage collection area. The district does not believe the sediment entrained in the seepage is due to internal erosion of the embankment. The dam appears to be performing satisfactorily, and no additional instrumentation is believed necessary at this time.</p>

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Photo 1: View of the upstream face as seen from the right abutment.



Photo 2: View of the downstream face as seen from the toe. Patches of dense vegetation need to be removed.

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Photo 3: View of the timber supported flume, looking upstream.



Photo 4: The spillway approach was clear and unobstructed and slightly spilling.