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 Santiago Creek Dam No. 75 County Orange
Type of Dam Earth Type of Spillway Open Channel
Water is 10.6 feet below spillway crest and 30.6 feet below dam crest.
Water Surface Elevation El. 779.4'
Weather Conditions Sunny
Contacts Made Danielle Drake with IRWD and Steve Sweeney with Serrano Water District
Reason for Inspection Periodic Maintenance Inspection

Important Observations, Recommendations or Actions Taken

- The owner needs to continue the following as ongoing maintenance items:
  - Collapse, backfill, and compact the rodent holes with suitable material.
  - Repair the spillway spalling as it appears.
- The owner needs to remove the sediment and vegetation buildup at the spillway approach by November 1, 2023 (Photo 6).
- For future instrumentation reports, rain data needs to be incorporated into the piezometer data plots.

Conclusion

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

Observations and Comments

Dam

The crest appeared level and well-aligned. The visible portion of the upstream slope, and the downstream slope appeared uniform, stable, and in satisfactory condition. The groins, toe, and abutments appeared satisfactory with no signs of instability or distress. Overall, the vegetation is well managed with periodic vegetation control from the owner. During the inspection, there was significant vegetation growth throughout the concrete lined upstream slope. The owner plans to cut down the vegetation by May 3, 2023. Generally, the rodent control is satisfactory with minimal signs of rodent activity. The owner has bait traps around the dam and needs to continue rodent abatement. The owner needs to collapse, backfill, and compact the rodent holes with suitable material as an ongoing maintenance item.

There is work ongoing at the dam affiliated with an alteration application filed on June 24, 2020, and approved on September 21, 2020. The ongoing work includes geotechnical investigations to support the design of a new outlet and spillway.

Spillway

Generally, the spillway approach, control section, and channel were clear of debris. The spillway approach had a buildup of vegetation and sediment that the owner needs to remove by November 1, 2023. Overall, the concrete elements of the spillway appeared to be in satisfactory condition. However, the concrete at the spillway has continuous spalling from expansion and contraction and the owner repairs the spalling as an ongoing maintenance, which is acceptable. The longstanding erosion at the left abutment contact with the spillway appears unchanged since the previous inspection. The owner has submitted an enlargement application filed on December 17, 2021, and is currently in review by DSOD's design engineering branch. The enlargement application work includes a new spillway and outlet works, which will also address the ongoing erosion left of the spillway.

Photos taken? Yes x No
cc for Owner/Book

CML 7/11/2023

Inspected by Tyler Clark TGC 7/5/2023
Date of Inspection 4/17/2023
Date of Report 6/27/2023
BC 7/11/2023

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Observations and Comments

Outlet	The outlet consists of an outlet tower with a total of 8 upstream slide gates (4 upper and 4 lower). The 4 lower slide gates on the outlet tower are silted in and inoperable. The downstream controls include a 30” diversion valve and a 30” cone valve. There is a service valve that is not needed for emergency dewatering. The working outlet controls were last fully cycled in DSOD presence on June 14, 2022. Reportedly, the 4 upper slide gates were cycled on December 14, 2022, and the downstream controls were last cycled on March 31, 2023 by the owner. The exit of the outlet was clear of debris.
Seepage	No visible seepage from the downstream slope, groins, or toe was noted.
Instr.	The instrumentation at the dam consists of 7 open well multistage piezometers, 5 single stage piezometers, and 5 survey monuments. The latest instrumentation data report for this dam was dated May 31, 2023, and includes updated data for the monitoring period from January 1, 2022 through December 31, 2022. Survey Monuments: The vertical displacements show negligible changes since December 1989 with a max settlement of 0.058’ at BM-4. The max horizontal movement measured from January 1994 to December 2022 is 0.9 inches at BM-5. This survey monument is at the left end of the spillway where there has been erosion left of the spillway. There appears to be no concerning trends or conditions in the data. The owner has submitted an enlargement application to replace the spillway as well. Piezometers: The levels of the piezometers remain consistent with small fluctuations that correlate with the changes in the reservoir level. The piezometer levels appear satisfactory with no adverse trends. For future reports, the owner needs to add rain data into the piezometer data plots. The instrumentation data shows the dam is performing satisfactorily and no new instrumentation is needed at this time.

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Photo 1: View of new rodent activity along the downstream slope.

Photo 2: View of the upstream slope with weed growth.

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Photo 3: View of the erosion left of the spillway.

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Photo 4: View of the ongoing geotechnical investigation.

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Photo 5: View of the cleared upstream slope. (Supplied by owner after inspection [5/3/2023]).

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Photo 6: View of the spillway approach with sediment and vegetation buildup.