

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 Concrete weir and channel  
 Water is 55 feet below spillway crest and 75 feet below dam crest.

Weather Conditions Humid with overcast  
 Contacts Made S. Sweeney and J. Scott with SWD; B. Wesson, S. Habiger, and D. Drake with IRWD  
 Reason for Inspection Periodic Maintenance Inspection

**Important Observations, Recommendations or Actions Taken**

- All the outlet valves were operated during this inspection.
- The erosion at the upper abutment interface to the left end of the spillway continues to erode.
- An alteration application filed on June 24, 2020, and approved on September 21, 2020, remains open. The work consists of geotechnical investigations for designing a new spillway and outlet that will be incorporated with the enlargement application.
- An enlargement application was filed on December 17, 2021, and is under review by our Design Branch.
- Updated instrumentation data was submitted and reviewed.

**Conclusions**

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

**Observations and Comments**

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Dam</u>      | The gravel crest of the dam appeared to be level and in satisfactory condition. The visible portion of the concrete lined upstream slope appeared to be uniform, stable, and in satisfactory condition. The downstream slope also appeared to be stable and in satisfactory condition. Woody vegetation on the downstream slope was requested to be removed. The woody vegetation was promptly cleared following the inspection and photos were submitted showing the removal. Rodent control appeared adequate with bait traps strategically placed on the downstream embankment. No concerning erosion was detected on the dam embankment. The downstream toe area was dry and appeared to be normal. |
| <u>Spillway</u> | The approach, weir, channel, and exit of the spillway were open and clear. The erosion at the upper abutment interface at the left end of the spillway continues to erode and is closely monitored. The spillway remains serviceable. An enlargement application has been submitted that includes raising the dam crest, replacing the spillway, and outlet intake structure. A seasonal reservoir restriction at Elevation 762.5 feet from October 31 to March 14 is in effect until the seismic deficiency of the outlet tower is addressed.                                                                                                                                                          |
| <u>Outlet</u>   | The upper four gates in the outlet tower were fully cycled with an electric motor operator during this inspection. The lower four gates on the outlet tower are silted in and inoperable. The main service valve was cycled 50% during this inspection due to water demands. It was reported that the main service valve was fully cycled on May 18, 2022, when there were no water demands. The diversion valve and 30" blowoff were fully cycled 100% with no problems encountered. The exit and dissipating structure were unobstructed and appeared to be in satisfactory condition.                                                                                                                |

Photos taken? Yes  No  *CML* 7/29/2022 Inspected by Joe Boyce <sup>*JB*</sup> 7/29/2022  
 Date of Inspection 06/14/2022  
 cc for Owner/Files Date of Report 07/19/2022 <sup>*RD*</sup> 7/29/2022

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Date of Inspection 06/14/2022

### Observations and Comments

Seepage

There were no signs of seepage detected on the downstream slope, groins, or toe of the dam.

Instr.

The instrumentation for this dam consists of 7 open well multistage piezometers, 5 single stage piezometers, and 5 survey monuments. The latest instrumentation report was transmitted on April 24, 2021, and contains updated data for the January 2019 to December 2020 monitoring period.

Piezometer data showed fairly constant trends throughout the monitoring period with no unusual trends or conditions. Historical plots continue to show predictable and normal trends to reservoir levels.

The last two surveys were performed in June 2019 and December 2020. Movements between these two subsequent surveys showed small deflections within 0.01 feet in the vertical direction and within 0.03 feet in the horizontal direction. The survey data does not show any unusual trends or conditions except for a slight increasing upstream trend to BM5. BM5 is located at the left abutment contact to the spillway, and shows a slight increasing trend in the upstream direction with a net movement of about 0.08 feet. The upper left abutment interface with the spillway has been eroding in the upstream direction and documented in our reports. The movements at BM5 are probably influenced by the abutment erosion. The owner plans to replace the spillway and an enlargement application has been filed.

The instrumentation data shows the dam is performing satisfactorily, and the instrumentation network is judged adequate at this time.



View of the crest and downstream slope looking towards the right abutment.

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View of the outlet tower and spillway approach.



The interface between the upper left abutment and spillway continues to erode.

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The downstream diverter valve in the outlet house was fully cycled.



The main service valve was cycled 50% due to water demands.

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The downstream blowoff valve was fully cycled.



The four upstream valves in the outlet tower were fully cycled.