

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	San Joaquin	Dam No.	1029	County	Orange			
Type of Dam	Earth	Type of Spillway	Broad crested weir					
Water is	2.7	feet	below	spillway crest and	8.2	feet	below	dam crest.
Weather Conditions	Sunny							
Contacts Made	Danielle Drake with IRWD (owner) and Richard Sanchez with GEI							
Reason for Inspection	Maintenance Inspection							

Important Observations, Recommendations or Actions Taken

Low-level outlet Valve 2 and Valve 5 leak hydraulic fluid when operated and are fixed in the open position. The owner plans to replace the actuators of all five upstream butterfly valves in the fall of 2025. This timeline is acceptable to DSOD.

Woody vegetation encroaching on the downstream left groin needs to be removed during routine maintenance work (Photo 4).

During an ROV inspection of the spillway pipes, the owner discovered a hole in the invert of the left spillway concrete pipe (Photos 7 and 8). Reportedly, the owner has a contract in place, and plans to inspect the hole soon. Subsequently, a repair plan will be prepared and submitted to DSOD for review.

Rainfall data needs to be included in future piezometer data plots.

Conclusions

From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use, pending the restoration of Valve 2 and Valve 5.

Observations and Comments

Dam	The asphalt-lined crest appeared to be well-aligned. There is a crown in the center of the crest that rises about 2 feet. The visible portions of the upstream asphalt-lined face and groins appeared uniform and stable. The asphalt lining on the face shows signs of age with several old cracks that are spalling and widening over time (Photo 2). The owner has hired a contractor and plans to complete repairs to the upstream liner in September 2024. The downstream face, groins, abutments, and toe appeared to be in satisfactory condition with no signs of instability or distress. Vegetation control was satisfactory, except for some woody vegetation that was beginning to encroach on the downstream left groin. The woody vegetation needs to be removed during routine maintenance. No significant rodent activity was observed.
Spillway	<p>There are two spillway drop-inlet structures, one toward each abutment of the dam. The approaches, drop inlet structures, and downstream exit were clear and unobstructed. The concrete surfaces appeared to be in satisfactory condition with no significant cracks or spalls observed.</p> <p>During an ROV inspection of the spillway pipes, the owner discovered a hole in the invert of the left spillway concrete pipe near the upper-most downstream bench. The hole is located where the storm drain pipe and the left spillway pipe converge (Photo 8). Due to the small drainage area (0.35 sq mi) and controlled inflows, the owner is able to ensure the spillway will not activate until repairs are completed. Reportedly, the owner has a contract in place, and plans to inspect the hole soon. Subsequently, a repair plan will be prepared and submitted to DSOD for review.</p>

Photos taken?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Inspected by	C. M. Lancaster <i>CML</i> 7/2/2024
cc for	Owner/Book	Date of Inspection	3/25/2024
		Date of Report	6/27/2024

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUSName of Dam San JoaquinDam No. 1029Date of Inspection 3/25/24**Observations and Comments**Outlet

The low-level outlet controls consist of five upstream butterfly valves (a 24-inch, a 60-inch, and three 48-inch) at different elevations and two downstream in-line butterfly blowoff valves. All of the controls were fully cycled during this inspection, except for Valve 2 (48-inch) and Valve 5 (60-inch) which leak hydraulic fluid when operated and are fixed in the open position. The owner is going to replace the actuators of all five upstream butterfly valves; however, the lead time is approximately 30 weeks to procure the actuators. The plan is to replace the actuators in the fall of 2025. This timeline is acceptable to DSOD.

Seepage

No signs of seepage were observed on the downstream face or groins of the dam. There are eight seepage locations at the dam. The following measurements were taken during the inspection:

East	38.9 gpm	Floor	N/A
West	44.8 gpm	U/S Collector 1	Dry
Filter	9.1 gpm	U/S Collector 2	0.5 gpm
Toe	N/A	6/16/08 Flowpoint	1.1 gpm

The Toe and Floor drains could not be measured because the seepage return line was off-line. The two drains daylight into two separate weirs inside of a seepage vault. When the seepage is then pumped back into the reservoir. Multiple failures occurred along the seepage return line since November 2022, resulting in the line being shut down and abandoned. DSOD has been kept apprised of the work and the new seepage line installation. The combined flows are still measured through an overflow pipe by the owner and included in the instrumentation report data.

Seepage flows appeared to be clear, and, except for the Toe and Floor drains, conditions were consistent with past inspections at similar reservoir elevations.

Inst

Instrumentation at this dam consists of 36 survey monuments (3 destroyed), 34 piezometers, 8 monitoring wells, and 8 seepage monitoring points. The latest instrumentation report was transmitted to DSOD on May 31, 2023, covering data through calendar year 2022. The instrumentation data was reviewed in our July 10, 2023, inspection report, which concluded that the data shows the dam is performing satisfactorily. As requested in the report, rainfall data needs to be included in the piezometer data plots.

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Photo 1. Upstream face of the dam.

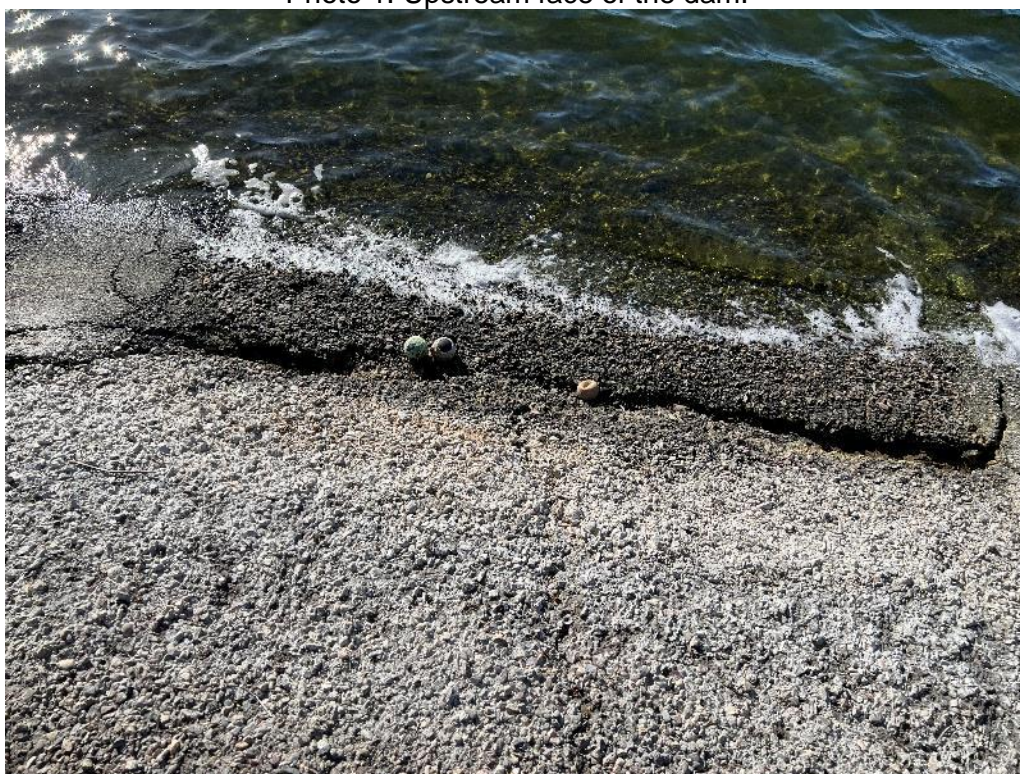


Photo 2. Example of cracks in upstream liner that will be repaired.

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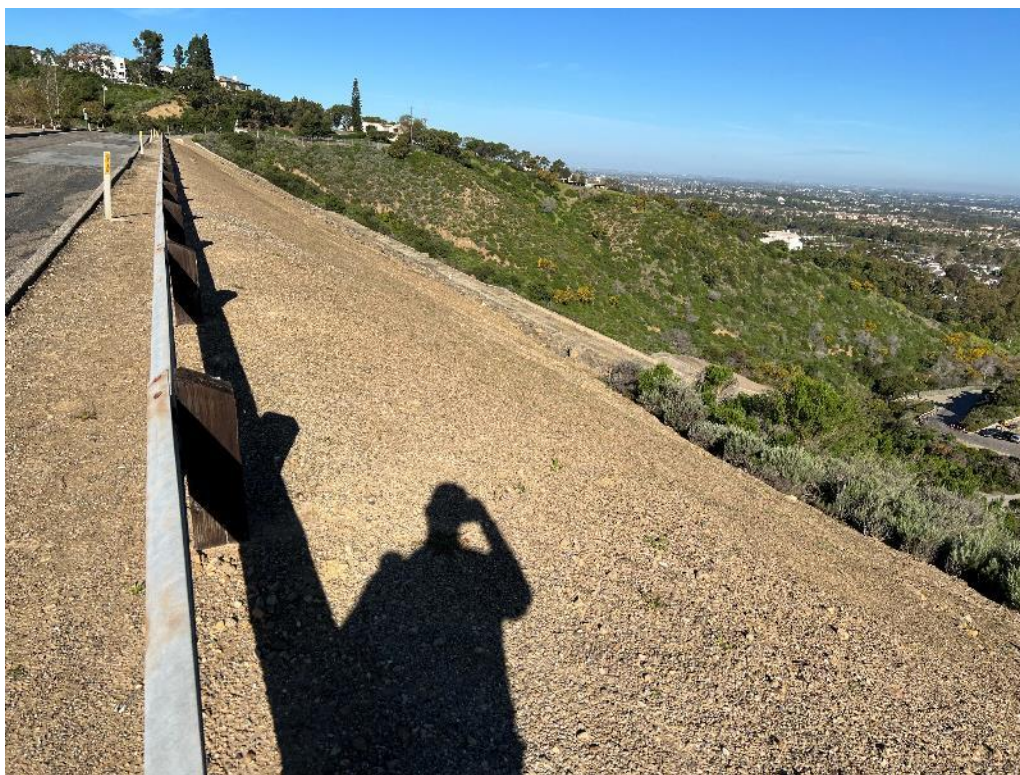


Photo 3. Downstream face of the dam.



Photo 4. Downstream left groin. Encroaching vegetation needs to be removed.

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Photo 5. U/S Collector 1 (left) and U/S Collector 2 (right) drain outfalls.



Photo 6. Cycling the downstream blowoff valves.

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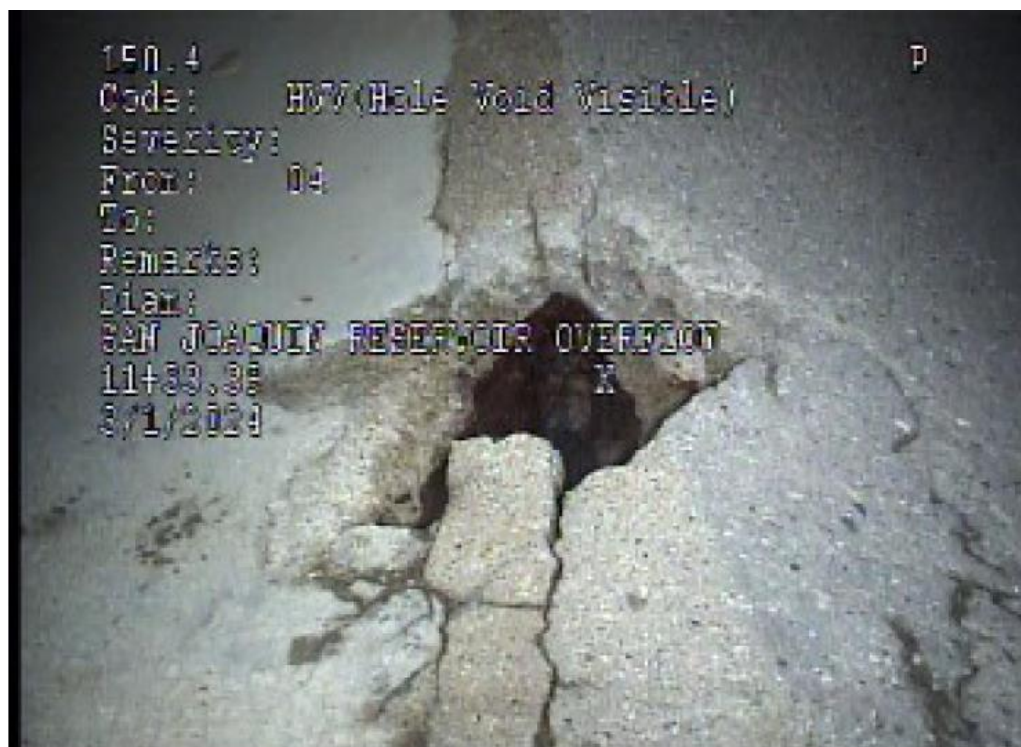
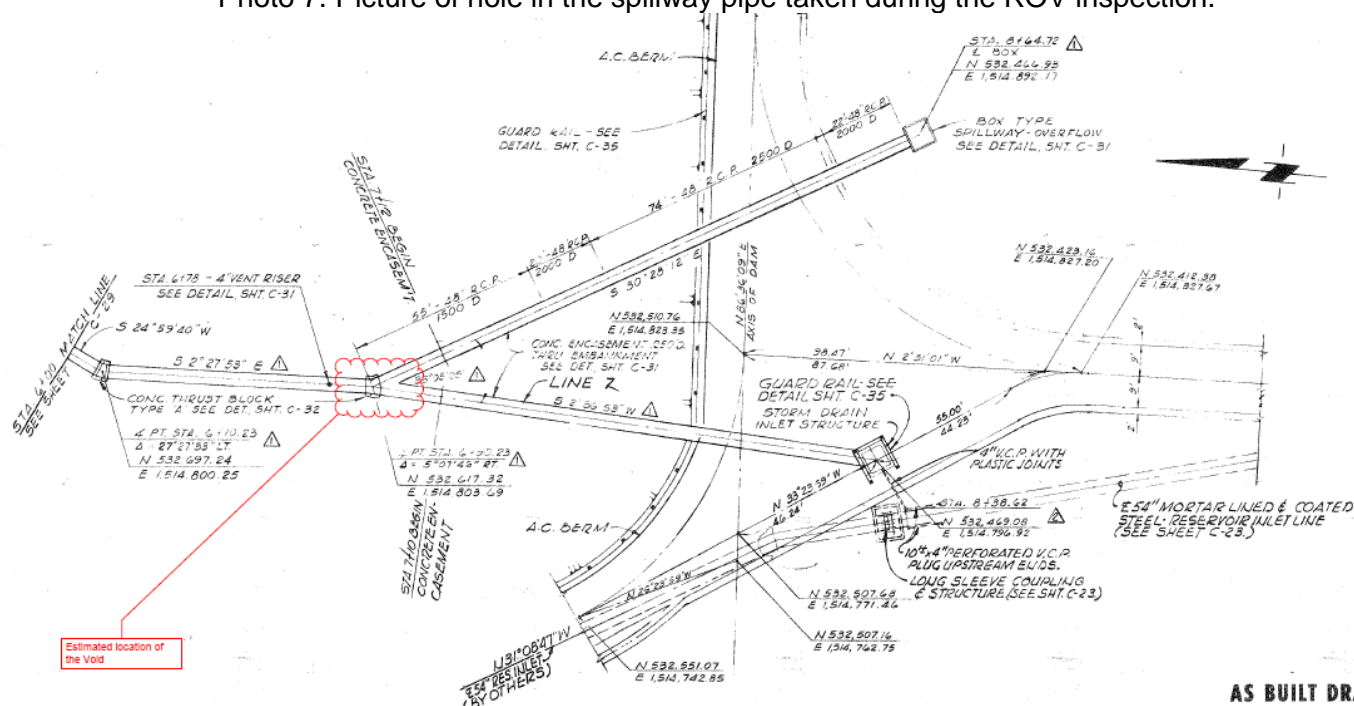
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Photo 7. Picture of hole in the spillway pipe taken during the ROV inspection.



AS BUILT DRAWING

Photo 8. Location of the hole in the spillway pipe.