

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 Sand Canyon Dam No. 1029-2 County Orange
 Type of Dam Earth Type of Spillway Ogee weir and channel
 Water is 0.1 feet above spillway crest and 8.4 feet below dam crest.
 Water Surface Elevation El. 193.6'
 Weather Conditions Sunny
 Contacts Made Danielle Drake and Bill Wesson with IRWD
 Reason for Inspection Periodic Maintenance Inspection

Important Observations, Recommendations or Actions Taken

- The owner needs to collapse, backfill, and compact the rodent holes with suitable material as an ongoing maintenance item.
- There are reeds growing at the exit of the spillway. The owner needs to clear the vegetation at least 10 feet from the exit by November 1, 2023.
- The owner needs to continue to closely monitor piezometer P-2B for any further spikes in the data.
- For future instrumentation reports, rain data needs to be incorporated into the piezometer data plots.
- Arrangements need to be made to fully cycle Slide Gate #2 in DSOD's presence once the slide gate is repaired.

Conclusion

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

Observations and Comments

<u>Dam</u>	The crest appeared level and well-aligned. The visible portion of the asphalt-lined upstream slope, and the earthen downstream slope appeared uniform, stable, and in satisfactory condition. The visible portions of the groins, abutments, and downstream toe appeared satisfactory with no signs of instability or distress. The vegetation is well managed with periodic vegetation control from the owner. There is minor rodent activity along the dam. The owner needs to collapse, backfill, and compact the rodent holes with suitable material as an ongoing maintenance item.
<u>Spillway</u>	The spillway approach, control section, and channel were clear of debris. The concrete elements of the spillway appeared to be in satisfactory condition. There are reeds growing at the exit of the spillway. The owner needs to clear the vegetation at least 10 feet from the exit by November 1, 2023. Due to the water spilling over the weir, the spillway channel was not traversed for safety reasons.
<u>Outlet</u>	The outlet consists of 4 upstream controls and 7 downstream valves. Previously, there were only 3 downstream valves operated with DSOD. During the inspection, it was discovered that there are additional valves needed to dewater the reservoir. The owner fully cycled all valves during this inspection except for Slide Gate #2. The owner attempted to cycle Slide Gate #2, but the stem bent during the operation. The owner believes the nut holding the stem to the slide gate fell or broke off. The owner plans to send divers down to investigate the slide gate. Arrangements need to be made to cycle the gate in DSOD's presence once the gate is repaired. As previously requested, the exit of the portal was cleared of the dense vegetation, but the portal is still underwater. The owner plans to rehabilitate the channel downstream of the exit outlet area in the near future. Any plans to

Photos taken? Yes No
 cc for Owner/Book

Inspected by Tyler Clark TGC 8/3/2023
 Date of Inspection 4/18/2023 & 4/19/2023 CML
 Date of Report 7/10/2023 BC 8/4/2023

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUSName of Dam Sand CanyonDam No. 1029-2Date of Inspection 4/18/2023 & 4/19/2023**Observations and Comments**

rehabilitate the exit portal area need to be submitted to Area Engineer Cameron Lancaster for review.

Below is a table of when jurisdictional outlet components were last cycled:

Outlet Component	Date last fully cycled by owner	Date last fully cycled in presence of DSOD
U/S Main 20" Slide Gate	4/19/2023	4/19/2023
U/S 24" Slide Gate #1	4/19/2023	4/19/2023
U/S 24" Slide Gate #2	4/22/2022	1/14/2020
U/S 24" Slide Gate #3	4/19/2023	4/19/2023
D/S 20" Valve #19	4/19/2023	4/19/2023
D/S 20" Valve #5	4/19/2023	4/19/2023
D/S 20" Valve #34	4/19/2023	4/19/2023
D/S 16" Valve #32	4/19/2023	4/19/2023
D/S 24" Valve #33	4/19/2023	4/19/2023
D/S 24" Valve #24	4/19/2023	4/19/2023
D/S 24" Inlet Valve #23	4/19/2023	4/19/2023

Seepage

No visible seepage from the downstream slope, groins, or toe was noted. There are two subdrains at this dam. The right subdrain typically is wet or dry and the left subdrain is typically 2 GPM or less. The seepage was not measured during the inspection and is reported in the annual instrumentation report.

Instr.

The instrumentation at the dam consists of 11 open well piezometers, 7 vibrating wire piezometers, 6 survey monuments, and 2 subdrains. 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 and horizontal displacements show negligible movement in either direction during this monitoring period. The dam settlement has negligible changes since 1995. The horizontal changes are less than 0.08 feet in either the downstream or upstream direction since 1995.

Piezometers: Overall, the levels of the piezometers remain consistent with small fluctuations that correlate with the changes in the reservoir level. Piezometer P-2B showed two spikes in elevation; however, subsequent readings immediately returned to normal levels. GEI (author of the report)

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Sand Canyon Dam No. 1029-2

Date of Inspection 4/18/2023 & 4/19/2023

Observations and Comments

attributes the spikes to an obstruction in the well and, besides these spikes, the piezometer is performing within historic trends. The owner needs to continue to closely monitor this piezometer for any further spikes in the data. Besides the two high points at P-2B, the piezometer levels appear satisfactory with no adverse trends. For future reports, the owner needs to add rain data into the piezometer data plots.

Seepage: There are 2 seepage points at this dam and seepage during this monitoring period was as expected and followed changes in reservoir level and rainfall. The right subdrain is nearly dry showing 0 GPM and the left subdrain showed a max of 1.6 GPM during this monitoring period.

The instrumentation data shows the dam is performing satisfactorily and no new instrumentation is needed at this time.

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Name of Dam Sand Canyon Dam No. 1029-2

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Photo 1: View of the exit portal looking upstream. The approximate location of the exit portal is circled and is underwater.

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Name of Dam Sand Canyon Dam No. 1029-2

Date of Inspection 4/18/2023 & 4/19/2023



Photo 2: View of rodent holes near the crest and downstream slope.

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Photo 3: View of the ogee weir of the spillway.

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Photo 4: View of the reeds downstream of the concrete spillway channel.



Photo 5: View of the bent slide gate stem.