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 Rattlesnake Canyon Dam No. 1029-3 County Orange
Type of Dam Earth Type of Spillway Side channel
Water is 25.6 feet below spillway crest and 31.6 feet below dam crest.
Weather Conditions Sunny
Contacts Made Nang Mwe, Christian Wimenta, and Steve Habiger with IRWD
Reason for Inspection Maintenance Inspection

Important Observations, Recommendations or Actions Taken

Select if needed:		*Descriptions, actions, and recommendations:*
☒	Maintenance items required.	• Arrangements need to be made to fully cycle the "Bottom" 30-inch BFV in DSOD's presence once it is repaired. • As requested in DSOD's May 13, 2024, letter, IRWD has installed cathodic protection (zinc anodes) near the downstream meter vault of the outlet pipe since the last inspection. • V&A Consultant Engineers conducted a ROV on November 6, 2024, and produced a *Rattlesnake Reservoir Outlet Pipe Assessment* report, dated January 15, 2025. The report was submitted with a cover letter dated April 7, 2025; however, DSOD is awaiting a follow-up letter from IRWD concurring with the conclusions in the report. Per DSOD's letter, since the Issue Evaluation Study is complete, the follow-up letter also needs to include a plan and schedule to remediate the outlet.
☒	Outlet/spillway valves/gates need to be fully cycled during the next DSOD inspection.	
☐	Instrumentation submittal overdue.	
☐	Open construction, alteration, enlargement, repair, or removal application.	
☐	No Action Items/ Recommendations.	
☐	Other.	

Conclusions

Hazard Classification: ☒ Extremely High ☐ High ☐ Significant ☐ Low
Condition Assessment: ☐ Satisfactory ☒ Fair ☐ Poor ☐ Unsatisfactory
Reservoir Restriction: ☒ Yes ☐ No
Restricted Reservoir Elevation: 406.00 feet Datum: USC & GS Distance Below Spillway Crest: 6.00 feet

From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use at the restricted reservoir elevation of 406.00 feet.

Photos taken? ☒ Yes ☐ No

Inspected by C.M. Lancaster CML 7/10/2025
Date of Inspection 5/7/25
Date of Report 7/9/25 BC 7/10/2025

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Rattlesnake Canyon Dam No. 1029-3

Date of Inspection 5/7/25

Observations and Comments	
Dam	*Dam Description*: The dam consists of a homogenous earthen embankment with an asphalt-lined crest and upstream slope.
	Dam crest in satisfactory condition: ☒ Yes ☐ No *Maintenance needed*: None.
	Upstream/downstream slopes, abutments, and toe areas uniform, stable, and in satisfactory condition: ☒ Yes ☐ No *Maintenance needed*: None.
	Vegetation control satisfactory: ☒ Yes ☐ No *Maintenance needed*: None.
	Rodent control satisfactory: ☒ Yes ☐ No *Maintenance needed*: Some rodent activity was observed on the downstream slope and toe of the dam. The owner periodically gases the rodent burrows with carbon monoxide which appeared to have decreased rodent activity at the dam. Existing burrows need to continue to be collapsed, backfilled, and compacted during routine maintenance work.
	Dam comments: None.
Spillway	*Spillway Description*: The spillway consists of an asphalt-lined approach, reinforced concrete weir side channel control section, and a gunite-lined downstream channel.
	Log boom in place and intact: ☒ N/A ☐ Yes ☐ No
	Spillway approach area, control section, and downstream exit clear: ☒ Yes ☐ No *Maintenance needed*: None.
	Spillway condition satisfactory: ☒ Yes ☐ No *Maintenance needed*: None.
	Spillway comments: None.

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Name of Dam Rattlesnake Canyon Dam No. 1029-3

Date of Inspection 5/7/25

Observations and Comments

Outlet

Outlet Type/Description: The low-level outlet consists of a 24-inch steel pipe encased in reinforced concrete through the embankment. The upstream (U/S) end is controlled by one 24-inch butterfly valve (BFV) and three 30-inch BFVs. The downstream (D/S) end is controlled by a 24-inch gate valve and a 24-inch BFV blowoff.

Outlet Control: ☒ Yes ☐ No

Last Cycled (DSOD Presence): See table *(Independently by Owner):* See table

Outlet Control	Last Cycled in DSOD's Presence	Last Cycled by the Owner
U/S 24-inch BFV	4/19/23	November 2024
U/S 30-inch BFV (Top)	4/19/23	November 2024
U/S 30-inch BFV (Middle)	4/19/23	November 2024
U/S 30-inch BFV (Bottom)	4/19/23	November 2024
D/S 24-inch Gate Valve	4/19/23	November 2024
D/S 24-inch BFV Blowoff	4/19/23	November 2024

Comments: Reportedly, the upstream "Bottom" 30-inch BFV is inoperable in the closed position and is expected to be due to a shear pin failure.

Overall outlet condition satisfactory: ☐ Yes ☒ No

Outlet visually unobstructed: ☒ Yes ☐ No

Maintenance needed: The upstream "Bottom" 30-inch BFV needs to be repaired.

The outlet pipe is in poor condition with moderate to severe corrosion within the embankment section.

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Date of Inspection 5/7/25

Observations and Comments

Outlet comments: Arrangements need to be made to fully cycle the "Bottom" 30-inch BFV in DSOD's presence once it is repaired.

As requested in DSOD's May 13, 2024, letter, IRWD has installed cathodic protection (zinc anodes) near the downstream meter vault of the outlet pipe since the last inspection.

Additionally, V&A Consultant Engineers conducted an ROV on November 6, 2024, and produced a *Rattlesnake Reservoir Outlet Pipe Assessment* report, dated January 15, 2025. The report was submitted with a cover letter dated April 7, 2025; however, DSOD is awaiting a follow-up letter from IRWD concurring with the conclusions in the report. Per DSOD's letter, since the Issue Evaluation Study is complete, the follow-up letter also needs to include a plan and schedule to remediate the outlet.

Seepage

Instrumented seepage monitoring at the dam: ☒ Yes ☐ No

Description and measurements: There are 6 subdrains (FP-2, FP-3, FP-4, FP-5, FP-8, and FP-11) that outfall into a seepage vault in the downstream channel of the spillway and another 2 subdrains (FP-North and FP-South) that outfall into a seepage vault further downstream in the channel. FP-2, FP-3, and FP-4 collect seepage through the chimney drain, FP-5 collects seepage from the longitudinal drain in the right end of the dam and a right groin drain, FP-8 collects seepage from the downstream toe drain, and FP-11 collects seepage from the downstream right stability berm subdrain. FP-North collects seepage from the spillway subdrain and FP-South represents combined flow from the upper seepage vault.

Seepage observations and comments: See table below.

Seepage Drain	Flow (gpm)	Seepage Drain	Flow (gpm)
FP-2	Dry	FP-8	Dry
FP-3	~0.5	FP-11	Dry
FP-4	~0.25	FP-North	Dry
FP-5	Dry	FP-South	~1 gpm

Seepage conditions are consistent with past inspection observations: ☒ Yes ☐ No

Maintenance needed: None.

Instr.

Dam instrumented: ☒ Yes ☐ No *Submittal required:* ☒ Yes ☐ No

Submittal frequency: Annually *Overdue:* ☐ Yes ☒ No

Latest instrumentation submittal: 5/19/25 *Reporting period:* 01/24 – 12/24

Dam instrumentation: Instrumentation at the dam consists of 7 survey monuments, 16 open well piezometers, and 8 seepage drains.

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Date of Inspection 5/7/25

Observations and Comments

Instrumentation at the dam is judged adequate at this time: ☒ Yes ☐ No

Instrumentation review:

Survey Monuments: The survey monuments are located along the crest of the dam, and they are surveyed for horizontal and vertical movements. The report includes data from 1985 to 2024. In general, the monuments appear to have slight settling and downstream movement trends, which is to be expected. The maximum cumulative settlement of 0.162 feet occurred at Moment A and the maximum cumulative horizontal movement of 0.126 feet downstream occurred at Monument E. The movements are expected of an earthen embankment of this size and no concerning trends or conditions were observed in the survey data.

Open Well Piezometers: The piezometers are located along the crest, downstream bench, and downstream toe and measure pore pressures within the embankment upstream and downstream of the chimney drain, in the alluvium layer under the embankment, and in the bedrock foundation. Piezometers P-35A, P-1A, and P-2 were relatively unresponsive to reservoir elevation fluctuations and rainfall. Piezometer VBW/OW-3 has been mostly unresponsive since 2018, except for some small spike readings following larger rainfall events. Readings a P-30B dropped ~10 feet in 2016 and have remained lower while they still appear to track fluctuations in the reservoir elevation. Piezometer P-63 continues to increase towards its historic level prior to the sudden ~18-foot-drop in readings in 2018 but appears to be leveling off. The remaining piezometers appear to track fluctuations in the reservoir elevation to differing degrees. No concerning trends or conditions were observed in the data. Continue to monitor Piezometer P-63 as it approaches its pre-2018 readings.

Seepage Drains: The report includes data from 2007 to 2014. Seepage drains FP-2, FP-8, and FP-11 had little to no flows during the reporting period which is consistent with past trends. Drain FP-5 read dry during the reporting period but has shown readings less than one gpm during heavy rainfall events and higher reservoir elevations. Drains FP-3, FP-4, FP-North, and FP-South appear to track fluctuations in the reservoir to differing degrees and continued to remain within historical ranges during the reporting period. There were no concerning trends or conditions in the seepage data.

Instrumentation data indicate the dam is performing satisfactorily: ☒ Yes ☐ No

In accordance with Division 3, Part 1, Chapter 2, section 6029 of the California Water Code, the owner or operator of a dam or reservoir is responsible for the safe operation, performance, and maintenance of their dam or reservoir, and obtaining all necessary permits and approvals from other permitting agencies, as required.

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Date of Inspection 5/7/25

Photo 1. Upstream slope of the dam.

Photo 2. Downstream slope of the dam.

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Photo 3. Spillway approach and side channel control section.

Photo 4. Downstream channel of the spillway.