

# OPS-1 TUNNEL ASSESSMENT STUDY PLAN

**KERN RIVER No. 3 HYDROELECTRIC PROJECT**  
***FERC PROJECT No. 2290***

***PREPARED FOR:***



Energy for What's Ahead®

**KERNVILLE, CALIFORNIA**

March 2022

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## **1.0 POTENTIAL RESOURCE ISSUE**

Routine cycling of flows (i.e., dewatering and refilling) in the Kern River No. 3 (KR3) Hydroelectric Project (Federal Energy Regulatory Commission [FERC] Project No. 2290) tunnel has the potential to effect tunnel integrity.

## **2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED**

Tunnel maintenance flows are required to maintain tunnel integrity and prevent unplanned outages. Results from the tunnel assessment will validate the need for tunnel maintenance flows.

## **3.0 STUDY GOALS AND OBJECTIVES**

Validate that tunnel maintenance flows and tunnel flow cycling procedures are needed to protect tunnel integrity for long-term Project operations.

## **4.0 EXTENT OF STUDY AREA AND STUDY SITES**

The study area includes the underground tunnel segments along the approximately 13 miles of water conveyance flowline from Fairview Dam to the KR3 Forebay.

## **5.0 EXISTING INFORMATION**

The Project's water conveyance flowline includes approximately 60,270 feet of below-ground tunnels that include 24 tunnel segments that vary in length from several hundred feet to over 1 mile. The tunnel segments range in size from 8.5 feet wide by 8 feet high to 9.5 feet wide by 8 feet high. The floors and sides of the tunnel are lined with concrete, and the arched ceiling of the tunnel is lined only where rock appears to be unstable. Tunnel portal access points, or adits, are situated at various tunnel or tunnel/flume junctions along the flowline.

## **6.0 STUDY APPROACH**

With support from a qualified engineer, SCE will conduct a desktop analysis summarizing current and available information on the Project tunnels as well as any readily available industry guidance on flow cycling in tunnels. The information to be collected and summarized may be obtained from:

- SCE documents including as-built drawings, descriptions of recent refurbishment work conducted on the tunnels, and any recent inspection reports.
- SCE's operational practices when cycling tunnel flows during Project operations or during tunnel dewatering for routine maintenance outages.
- Literature review of studies on tunnel structural integrity and long-term effects of cycling tunnel flows.

## 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC's Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC's Study Plan Determination. The ISR and USR will provide an update on SCE's overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

## 8.0 SCHEDULE

SCE is proposing to conduct this study during the course of one study year as outlined below.

Date	Activity
Winter 2022/2023	Conduct desktop analysis and prepare Technical Memo
August 2023	Provide Technical Memo with ISR

ISR = Initial Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$20,000, which includes study-specific consultation, data compilation and analysis, and reporting.

## 10.0 REFERENCES

None.