KRB STUDY REQUEST 4: *Conveyance, Forebay, and Penstock Safety*

RESPONSE TO COMMENTS

EDISON: *Project facility safety is an ongoing process addressed outside of the relicensing process and any changes related to Project safety would be addressed as they occur. FERC has regularly reviewed and confirmed that the Kern River No.3 Project has a rating of "low hazard." Dams assigned low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.*
Per FERC regulations, the Project infrastructure is subject to inspections and FERC safety reviews. FERC routinely performs safety inspections at Fairview Dam/Intake, Flume/Sandbox, Salmon and Corral Creek Diversions, conveyance flowline, forebay, penstocks, and the powerhouse. The most recent inspection dated July 24, 2017, stated "The project features inspected and described herein were observed to be in satisfactory condition for continued operation." (PSP at 30.)
KRB: Edison neglects to point out that, like KR3, sister project Kern River No. 1 ("KR1") was the recipient of a "low hazard" rating prior to its catastrophic failure in 2013. KR1 had been subject to the same rubric of regulation and inspection Edison cites, yet it still failed catastrophically. FERC implicitly conceded its "low hazard" rating for KR1 was *wrong* when it increased that rating to "significant" following the two landslides it caused across a major highway, which fortunately only involved a 10-day full road closure and not a loss of lives. The Commission has acknowledged that independent engineering evaluations of project safety can be appropriate as a check on both internal bias and regulatory malaise, and as booster of public confidence as well.[192] We are asking at this time that the Commission require Edison to obtain an independent engineering firm to re-evaluate the current hazard rating for KR3 — based on its present configuration and condition, and knowing what we know now about KR1 — in order to properly inform the terms of any new license it issues and assuage public concerns. Images like those recently obtained (see *post,* THIS PROPOSAL) and the brief video shown here[193] do not inspire public confidence in the safety of this old project. This is the last time over the next 40 years the public can request FERC to direct an independent study of the risks this project poses to public safety, and we are asking for that now. For these reasons, we ask the Commission to direct Edison to implement our updated project safety study proposal.

[192] See 18 CFR Part 12, Subpart D
[193] https://vimeo.com/kernriver/siphon

KRB SR-4: CONVEYANCE, FOREBAY, AND PENSTOCK SAFETY
UPDATED STUDY PROPOSAL

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to describe and evaluate the potential safety risks of project operations to life, property, and infrastructure in the area that lies below the penstocks, forebay, and elevated conveyance near the powerhouse of the project, and to evaluate potential measures to prevent or minimize those risks. The study would be accomplished by an independent engineering firm.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

Not applicable.

Criterion (3) – if the requester is not a resource agency, explain any relevant public interest considerations in regards to the proposed study.

The Commission is charged by statute to ensure its licensed projects do not threaten persons and property. Project safety is a top priority of all managing agencies. The Wild and Scenic North Fork Kern River attracts vast members of the public throughout the year. It is the closest major perennial river to Southern California. It is served by Highway 99, a state road that parallels that river and passes beneath the project's penstocks, forebay, and the final elevated portion of its conveyance about two miles north of Kernville. To fully evaluate the risks these assets pose to the public interest — life, property, and infrastructure — as well as to mitigate those risks, an independent engineering study is in order.

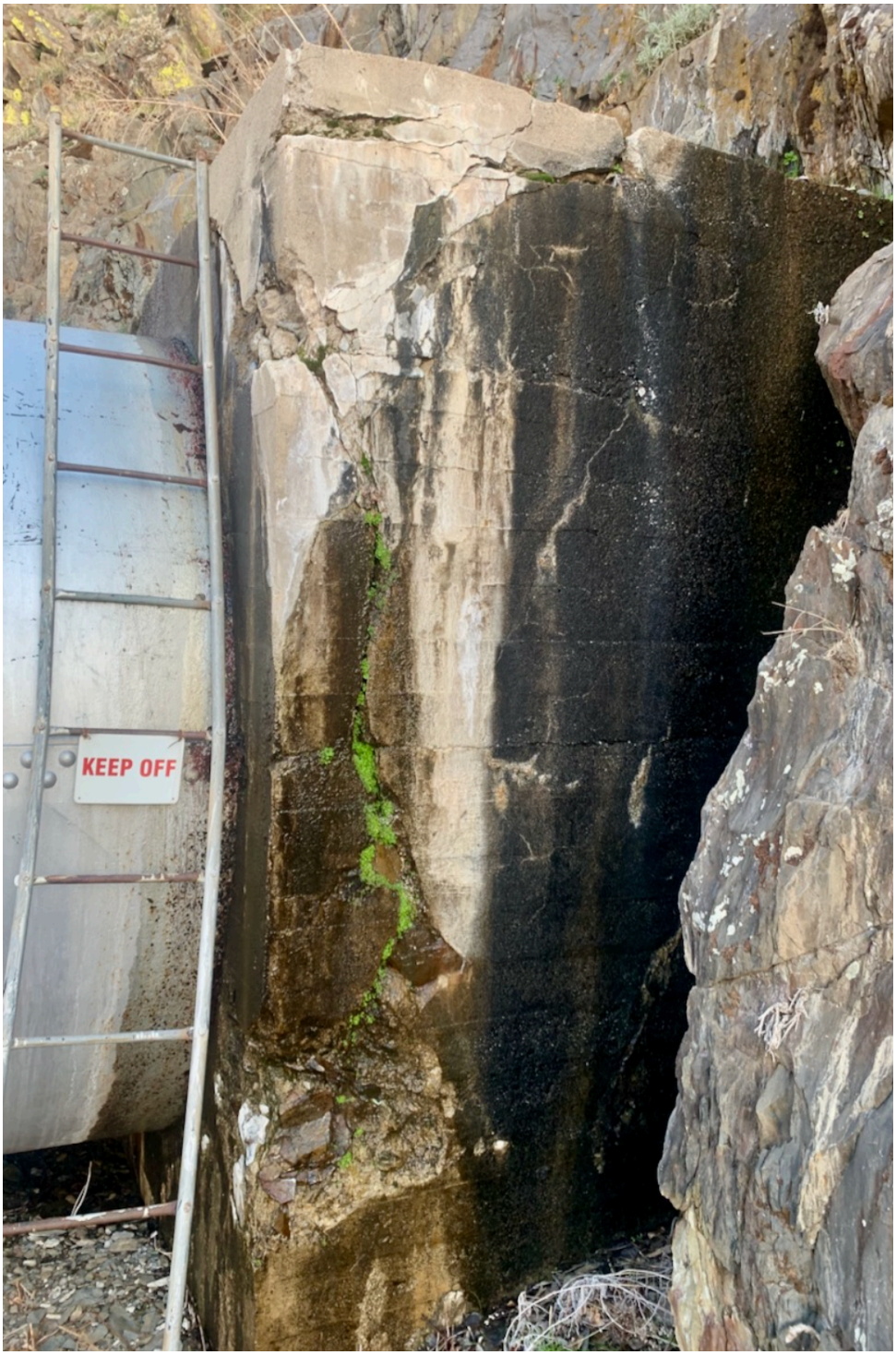
Criterion (4) – Describe existing information concerning the subject of the study proposal, and the need for additional information.

The PAD does not use the word "risk" or "safety" in reference to the project's penstocks, forebay, or final elevated conveyance. The PAD does not characterize or consider any risk to life or property posed by those assets.

Additional information is required due to the configuration of the project, which is substantially similar to sister project Kern River No. 1 ("KR1," P-1930). In 2013, KR1, which had a "low" hazard rating, failed catastrophically, causing two landslides across SR 178, closing the highway (the main artery in and out of the Kern River Valley) in both directions for 10 days. KR3 carries *50% more* water at elevation than KR1, also threatening a highway below (M99). The Commission implicitly conceded it had misread the threat posed by KR1 when it elevated its hazard rating from low to significant following the 2013 landslides.

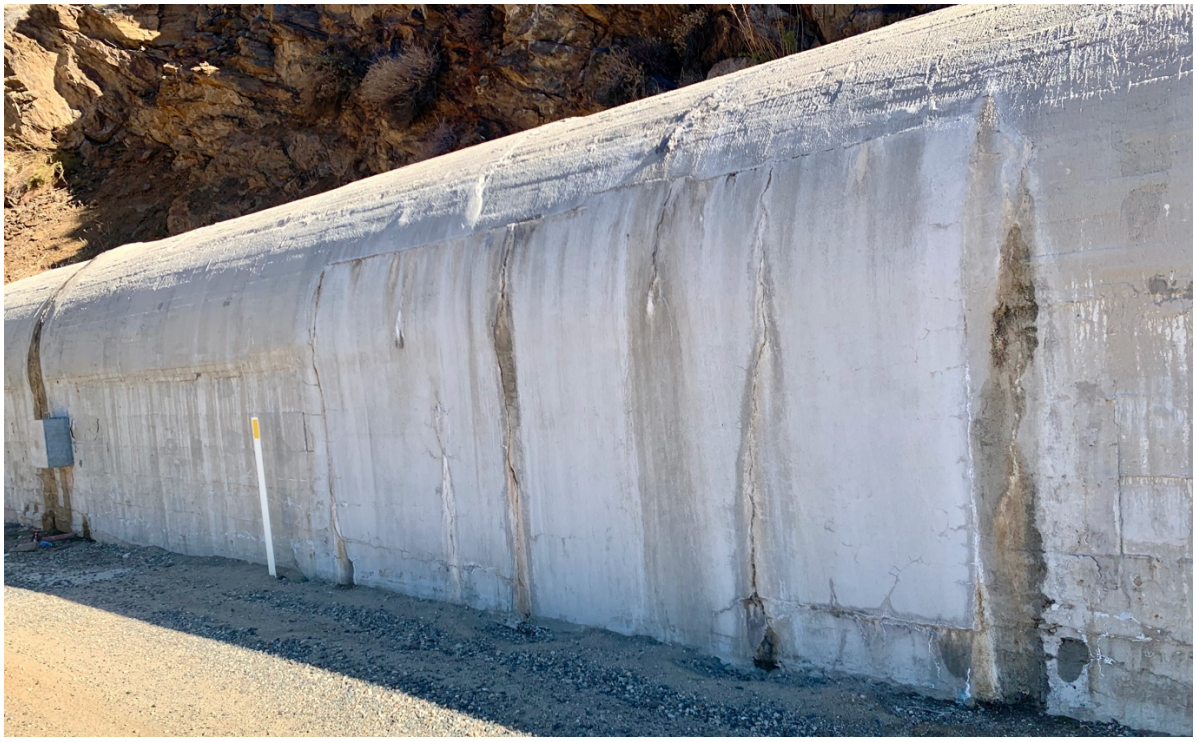
This study proposes to obtain an independent evaluation of whether the Commission has been wrong about this project's hazard rating.

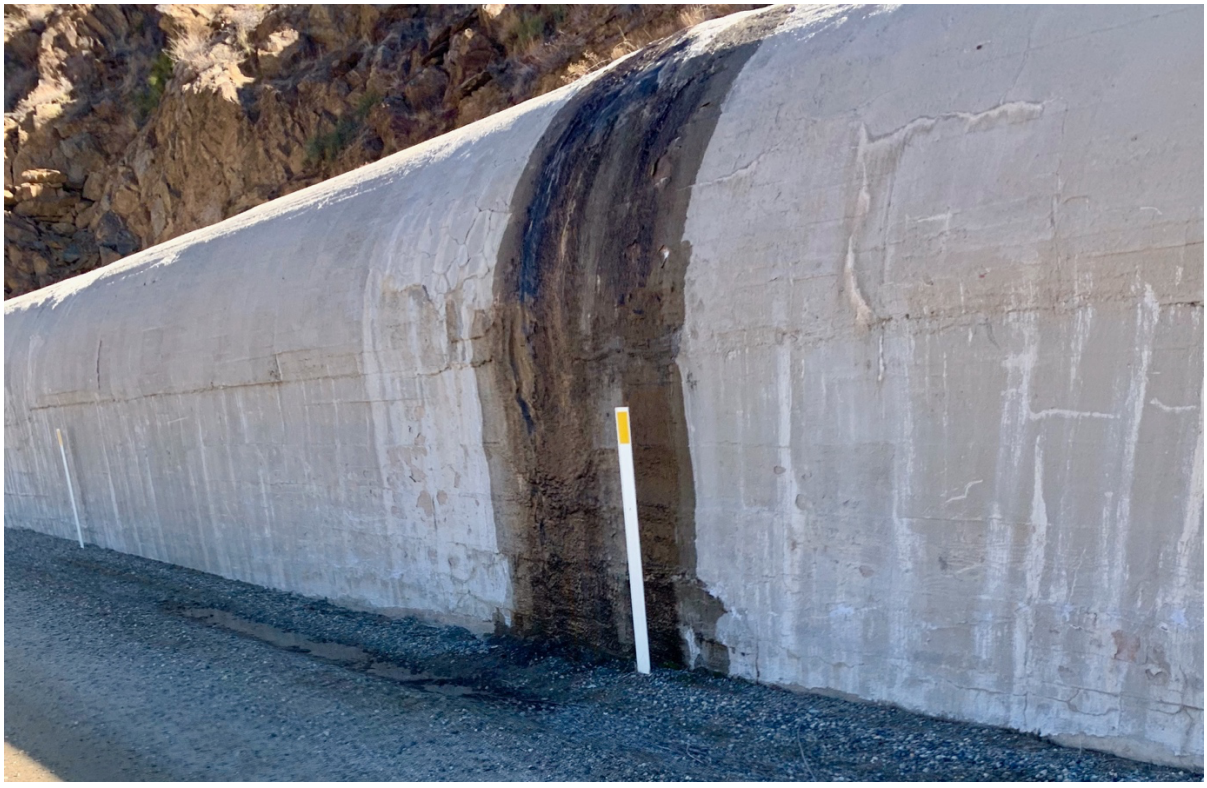
KRB has obtained this brief video[194] of the project's pressurized siphon, which is significantly cracked and leaking. An image therefrom:

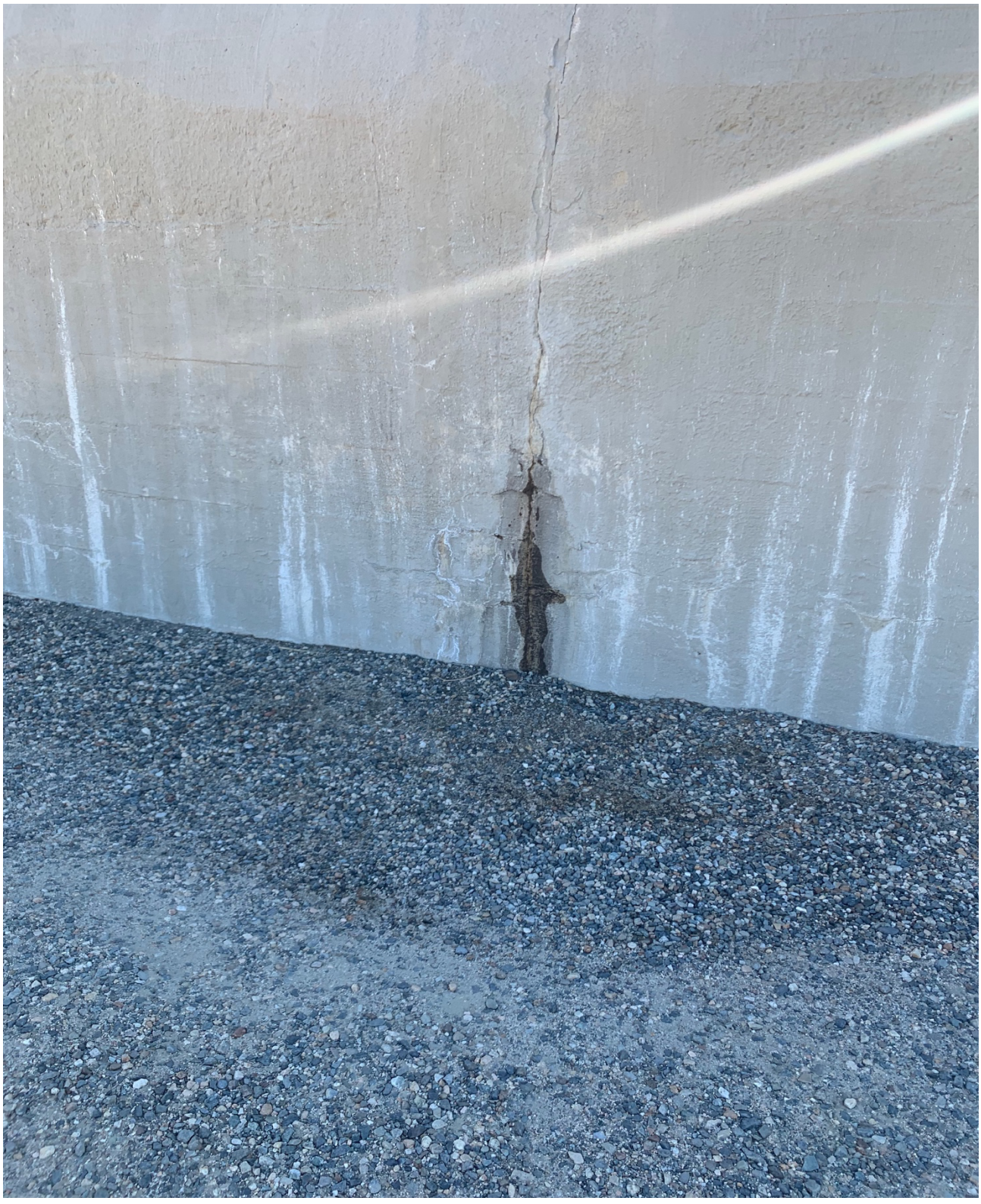


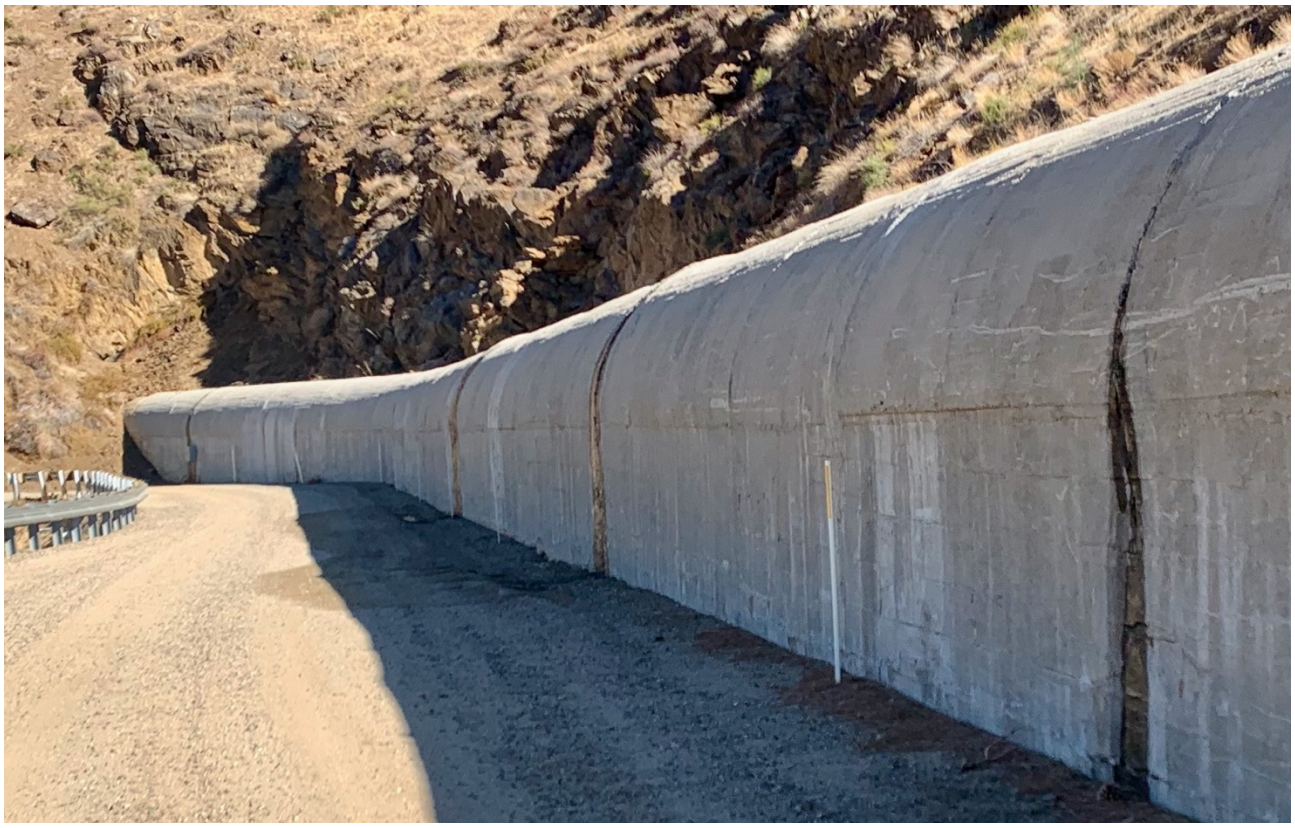
[194] https://vimeo.com/kernriver/siphon

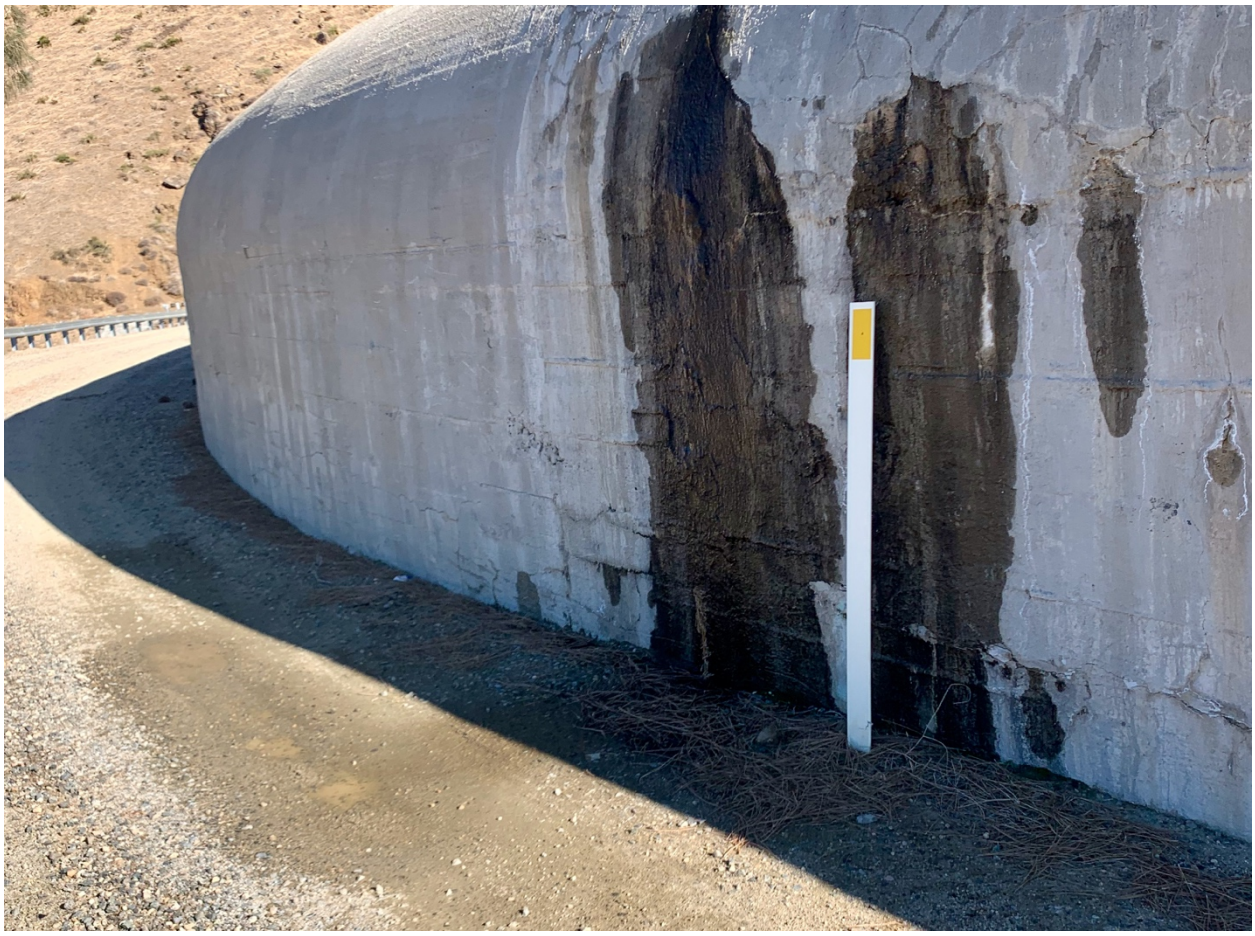
KRB has also obtained the following pictures depicting the recent condition of a small subset of the project conveyance above M99:

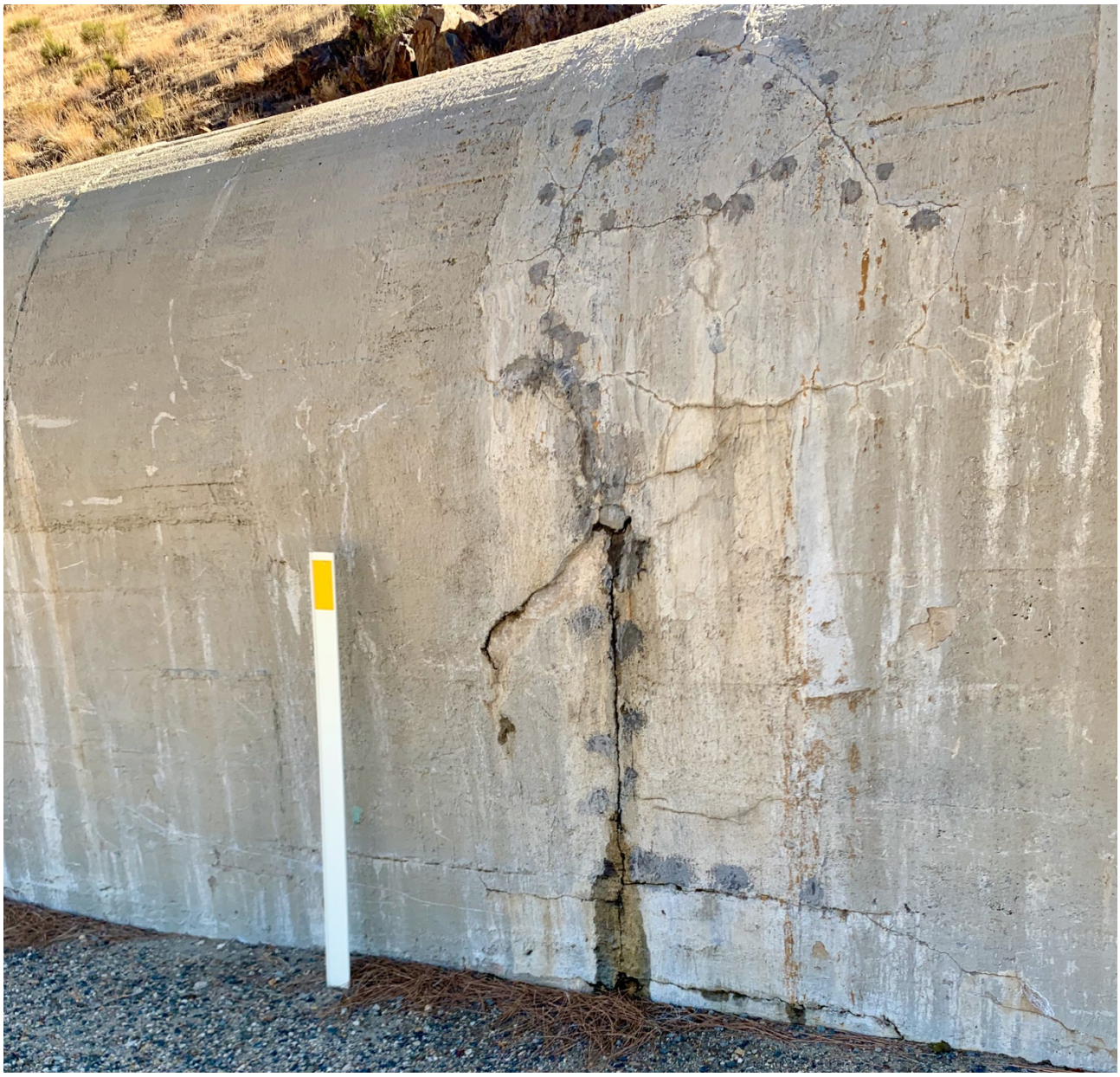












Criterion (5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

The project diverts 600 cfs at Fairview Dam and supplemental flows at Salmon and Corral creeks.[195] The "maximum conduit limit" is 620 cfs.[196] That amounts to 278,256 gallons or 2,309,524 pounds of water passing through project assets per minute. (One cubic foot amounts to 7.48 gallons, and one gallon of water weighs 8.3 pounds.) The forebay sits

[195] PAD at 4-5 & 4-6
[196] See 1996 EA at 5

821 feet above the powerhouse.[197] If there were a catastrophic failure of these elevated assets not confined to the spillway, the project would deluge the hillside as well as Mountain 99 and any traffic thereon. This study would inform the license's provision of project safety conditions.

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

The study would involve desktop methods and a site visit, if needed. The study should examine the threat posed by the project through the lens of the catastrophic failure that occurred at KR3's sister project — Kern River No. 1 (FERC Project No. P-1930, "KR1") — on August 19, 2013.[198] That day, a summer storm set loose water and debris that penetrated the project's conveyance and clogged its penstocks and emergency spillway. Water crested the forebay and deluged the mountainside below, "severely" eroding it (FERC 2013) and causing a landslide that closed Highway 178 — the Kern River Valley's primary artery — in both directions for ten days. Unable to immediately apprehend the situation or travel to the project, Edison continued diverting water to the forebay throughout the event. As a result of this incident, the Commission increased the hazard rating for the project from "low" to "significant."[199]

The risks inherent in KR3 should be studied through the lens of the KR1 incident because many of the same risk factors apply. Like KR1, KR3 conveys a large volume of moving water (again, 2,309,524 pounds per minute) at elevated levels above a highway. Mountain 99 is not travelled as much as Highway 178, but that would not matter to vehicles and passengers who happened to be on it during catastrophic landslide. Moreover, KR3 conveys 50% more water than KR1.[200] Finally, the elevated assets of KR3 at issue are less than two miles from a major fault.[201] FERC and its projects have commissioned independent engineering studies of risk in the past, and one is in order for this project.

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[197] PAD at 5-213

[198] See Lois Henry, "Mother Nature got help shutting down Hwy 178," Bakersfield Californian, March 29, 2014, at https://www.bakersfield.com/columnists/lois_henry/lois-henry-mother-nature-got-help-shutting-down-hwy-178/article_2378aaf7-7ab2-594a-97ec-4091ce4d1ddc.html

[199] FERC eLibrary Nos. 20131007-0307, 20131104-5010 & 20140325-0159

[200] PAD at 3-7

[201] See: https://pubs.geoscienceworld.org/gsa/geosphere/article/8/3/581/132511/Map-of-the-late-Quaternary-active-Kern-Canyon-and

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The cost for an independent engineering study should be an estimated $20,000 to $30,000. Again, desktop methods and potentially a site visit should suffice upon the receipt of technical descriptions of the elevated assets from Edison. There is no alternative study proposed.