

KRB STUDY REQUEST 6: *Tunnel Maintenance Flow*

RESPONSE TO COMMENTS

Our updated study proposal, which follows, reflects the comments we make above in response to Edison's proposed OPS-1 study, and we incorporate those here by reference.²⁰⁶ For the reasons stated there, along with those contained herein, we ask that the Commission direct Edison to implement this updated tunnel flow study plan.

KRB SR-6: TUNNEL MAINTENECE FLOWS 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 evaluate the effect that increasing and decreasing the quantity of water diverted at Fairview Dam — and thereby, increasing or decreasing the quantity of water conveyed through the project's tunnels — for purposes of whitewater mitigation has over and above the baseline rate of damage incurred by the tunnel liner due to naturally occurring variations in tunnel flow (annual, seasonal, and daily diurnal) and the nature of the material used to line the tunnel walls — namely, concrete — the results of which may constrain or afford opportunities for recreational mitigation measures.

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 the Federal Power Act to balance developmental values with nondevelopment values, including recreational and environmental values, in its formation of hydropower licenses in a manner best adapted for the affected resource, its user groups, and the goals of existing management plans. The United States Forest Service is charged with establishing conditions in hydropower licenses that are necessary for the public's utilization and enjoyment of the affected resource, including whitewater recreation. The results of this study may further the managing agencies' goals by providing solid data about constraints and opportunities the project's configuration affords for recreational mitigation. At present, recreational mitigation is capped at a maximum of 300 cfs (less if

²⁰⁶ See *ante* at 42

the tunnel is not full) due to a purported tunnel maintenance flow. This study seeks to determine whether there is a scientific basis for that cap.

The dewatered reach of 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 and is Southern California's primary resource for whitewater recreation of all kinds — whether by paddle raft, oar raft, open canoe, splashyak, shredder, hardshell kayak, stand up paddleboard, riverboard, or innertube. The dewatered stretch has inherently outstanding recreational values that are to be conserved and enhanced under governing management plans.²⁰⁷ Whether recreational mitigation should be capped at 300 cfs because of project effects rather than provided in some greater amount (up to 600 cfs) is a pressing issue for both the managing agencies and the public, and it is one that should be informed by science, not assertions. A study into whether the effects of tunnel watering and dewatering merit capping recreational mitigation at 300 cfs or whether those effects are more marginal than Edison asserts, providing for increased mitigation, would accordingly serve the public interest in designing a license best adapted to this public resource.

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

The current rec flow schedule limits the benefit of a recreational release (rec day) for whitewater boating to 300 additional cfs, maximum, out of the 600 cfs Edison diverts from incoming flows at Fairview Dam. The rationale for this limitation was founded upon a purported “SCE study” that showed “the removal of water from the [KR3 diversion's conveyance] tunnel for whitewater boating on a regular basis will create greater and more frequent damage to the tunnel liner.”²⁰⁸

From the earliest stage in this proceeding, stakeholders have asked to see this study. Stakeholders — including stakeholders who have already been qualified by FERC to view CEII — continued asking to see this study throughout the TWG process. John Gangemi, who was American Whitewater's signatory to the 2002 recreation settlement and who has subsequently switched sides, could not recall ever seeing this study.²⁰⁹ Current AW lead Theresa Simsiman looked for the study in AW's records and could not find it and has never seen it.²¹⁰ At the December 09, 2020 TWG meeting, David Moore said Edison would look for the study. At the April 29, 2021 TWG meeting, Moore said Edison could not find and did not have this study. So no person outside of Edison has ever seen this study, if it existed. And no current Edison employee has ever seen it.

²⁰⁷ 1994 USFS N&SFKR W&SR ROD&CMP at CMP 46-47

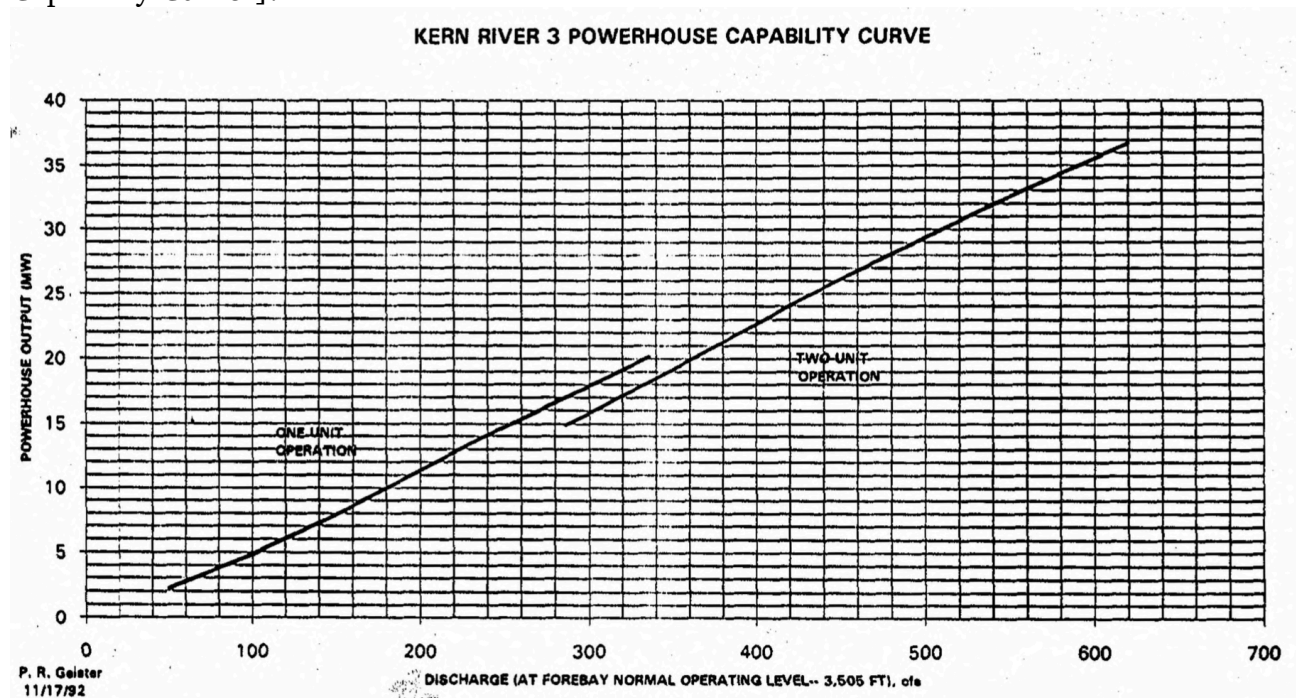
²⁰⁸ 2002 Whitewater Settlement, Rationale at 2

²⁰⁹ 09DEC2020 TWG meeting

²¹⁰ 01DEC2021 American Whitewater meeting

The purported study’s conclusion that 300 cfs is required to remain in the tunnel during rec days to prevent damage is controversial. Why is the required level for tunnel “integrity” 300 cfs instead of 250, or 200, or 150, or 100, or 50? Is the reason that 300 cfs is half of what Edison can divert, thereby strictly limiting the economic downside of mitigation? Is the reason that 300 cfs is the lowest quantity at which Edison can operate *both* of KR3’s turbines?²¹¹ Absent a scientific case for the selection of *that number, 300*, the number will continue to appear to be based on factors far afield of tunnel integrity. Indeed, Edison does not choose to limit its diversion to steady levels when the diurnal naturally results in a cycling of tunnel flows below 300 cfs; it only moves to “protect” the tunnels when mitigation comes into play. Absent the claims of recreation, Edison takes all the water it can get out of the river regardless of the diurnal’s cycling effects on its tunnels and accepts those effects as a cost of doing business. There is also no evidence that liner damage isn’t simply in the nature of transporting water over concrete. This proposed study seeks to take the place of the never-seen Edison study that animates the current 300 cfs mitigation cap. Finally, Edison indicates in the PAD that water does not crest the tunnel liner: “The tunnel segments [are] 8 feet high. . . . Water flow in the tunnel does not achieve a depth of greater than 7.5 feet, making lining of the arched ceiling unnecessary.”²¹² Edison also spent 16 months rehabilitating the tunnel liner in 2013-2014 to “improve” its integrity.²¹³ These

²¹¹ See FERC eLibrary No. 19930127-0376 at image 30 [“Kern River 3 Powerhouse Capability Curve”]:



²¹² PAD at 4-7

²¹³ FERC eLibrary No. 20130806-5052 at 3

facts call into question (1) whether the original tunnel maintenance study continues to apply and (2) whether Edison had the opportunity to modernize the tunnel liner, but chose not to.

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 presently takes the first 40-45 cfs of incoming flows at the Fairview diversion dam for minimum power generation, and then, after the seasonally varying minimum instream flow requirement is satisfied, takes the next 600 cfs. These conditions leave only 40-130 cfs or less in the dewatered reach when incoming flows are below 640 and 770 cfs, and decreases all incoming flows above 640 and 770 cfs by 600 cfs. The project accordingly has a major effect on recreation in the dewatered reach throughout the year. The results of this study will help to define the limits of project operation in order to inform a more equitable management plan in the license.

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.

Given the facts that (1) the tunnel maintenance flow serves Edison’s primary interest in the project by significantly limiting the amount of hydrological mitigation it can provide for recreation and (2) Edison has announced its desired conclusion of this study — namely, to validate the existing regime, and nothing else — it is unreasonable to expect Edison’s own engineers to conduct this study without bias. The public simply cannot be confident in a result here unless an independent engineering firm conducts it; Edison’s self-interest in the outcome is too great, and a clear conflict of interest exists. The Commission has conceded that in situations where a generator’s interest in a certain engineering result is too great to ignore, an independent engineering evaluation is called for.²¹⁴ We ask that the Commission reject this study request absent a requirement that it be conducted by an independent engineering firm selected in conjunction with the stakeholders.

Next, the study should not simply attempt to validate the current regime. Transporting water over concrete inevitably damages the concrete, as recent pictures of the project’s conveyance confirm.²¹⁵ There is thus some rate of damage to the concrete tunnel liners inherent in project operations absent any hydrologic mitigation. The relevant

²¹⁴ See FERC eLibrary No. 20220406-3072 at 1-2

²¹⁵ See *ante*, at KRB STUDY REQUEST 4: *Conveyance, Forebay, and Penstock Safety*

question for this study to answer is what additional damage attends mitigation? The study should accordingly not simply provide an up-or-down thumb on the current 300 cfs regime. It should instead report on the rates of damage under various mitigation schemes, including one that provides for full natural flows (*i.e.*, a complete cycling that empties the conveyance), one that reflects the current 300 cfs cap (*i.e.*, cycling of all but 300 cfs from the tunnels), and other levels in between (*e.g.*, the cycling of all but 50, 100, 150, 200 & 250 cfs from the tunnels).

Finally, Edison's position is that it cannot provide more than 0-300 cfs in hydrologic mitigation at any time (whatever is in the tunnel minus 300 cfs) due to the configuration of its project. The study should investigate whether there are alternate tunnel configurations (*e.g.*, different sealants, concrete formulations, or types of liner material) that would mitigate damage from mitigation cycling and what the costs of those materials would be. Edison shut the project down for 16 months in 2013-2014 to complete, among other things, a "Tunnel Rehabilitation Project."²¹⁶ One aspect of the tunnel project was to "improve the structural integrity" of the tunnels.²¹⁷ Edison does not indicate whether it chose to use superior materials for this project.²¹⁸ Given the congressional mandate to mitigate recreational losses from project operations that dates back to the mid-1980s, the study should inquire into what steps Edison took during its tunnel rehabilitation project to improve the structural integrity of the tunnels so that recreational flows of more than 0-300 cfs could be afforded the public as mitigation for project operations or, if it did not take any such steps, why not. Edison should not be allowed to avoid adequate statutory mitigation consistent with contemporary values simply because it has chosen to construct and rehabilitate its project in a manner that breaks if that mitigation is provided.

In sum, an independent engineering firm would be asked to evaluate:

- (1) the "natural" rate of damage expected to be incurred by the project's tunnel liners as it conveys water through the project, given (a) the tunnel's physical configuration and (b) naturally varying flows (operational flow analysis of hourly historical variances);

²¹⁶ See FERC eLibrary No. 20130620-4015. Edison improperly filed its entire application for that project as CEII because, as Edison later conceded, "only certain pages contained CEII." (FERC eLibrary No. 20130806-5052 at 3.) Edison informed FERC it would "appropriately segregate the public and CEII" portions and "resubmit the Applications" for public inspection. (*Id.*, at fn. 6.) KRB does not see any such resubmission in the FERC eLibrary.

²¹⁷ FERC eLibrary No. 20130620-4015 at 3

²¹⁸ See, *e.g.*, https://www.bestmaterials.com/PDF_Files/concrete-repair-guide-usbr.pdf & <https://nebula.wsimg.com/6d22154a2504a248dbd4457c6e6e20f9?AccessKeyId=8174FC00049DDC86865D&disposition=0&alloworigin=1>

- (2) the “additional” rate of damage expected to be incurred by the cycling of all but the specified “maintenance quantities” of water to be left in the tunnel during rec releases (e.g., 50, 100, 150, 200, 250 & 300 cfs);
- (3) the effect that alternate tunnel configurations (different sealants, concrete formulations, or types of liner material) would have on these rates of damage.

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.

Our proposal increase the amount of analysis required in comparison’s to Edison’s “validation of the present” proposal, but it will remain a desktop study, and the associated additional cost — estimated at \$10,000 — will ensure that the project’s composition does not unreasonably constrain the potential for hydrological mitigation. The cost is justified by the statutory duty of the managing agencies to balance and adapt the proposed license to mitigate the effects of the project on this outstanding recreational public resource that constitutes Southern California’s most important river. Edison’s alternative proposal is inadequate in that it does not (1) call for an independent engineering evaluation, (2) call for an examination of the natural rate of tunnel damage from project operations apart from mitigation cycling, (3) call for an evaluation of maintenance flows below 300 cfs, and (4) call for an evaluation of alternate liner materials that could accommodate the statutory mandate for adequate mitigation.