



FRIENDS OF THE EEL RIVER

Working for the recovery of our Wild & Scenic River, its fisheries and communities.

Wednesday, March 4, 2020

To: Interested Parties

From: Scott Greacen, Conservation Director

Re: PG&E is concealing evidence of liabilities at its Potter Valley Project dams

PG&E appears to be systematically concealing information that would tend to show the extent of the utility's liabilities for its century-old Potter Valley Project dams. By itself, this fact is hardly surprising. The California Public Utilities Commission has documented, and federal judge William Alsup has recently emphasized, PG&E's history of avoiding even mandated investments in safety measures to secure higher returns for investors and executives.¹

As the Planning Agreement Group (PAG) of Eel and Russian River stakeholders works to define a sustainable agreement on the future of the Potter Valley Project, it is crucial that it receive full and accurate information regarding the dam safety issues at both Scott and Cape Horn dams.

I. Regulatory Background – Safety Inspection Reporting and Standards

Pacific Gas and Electric's (PG&E) Potter Valley Project includes two dams on the upper mainstem Eel River (Scott and Cape Horn Dams) as well as diversion works, tunnels and penstocks that carry Eel River water to the East Branch Russian River via Potter Valley.

Under its current 50-year operating license from the Federal Energy Regulatory Commission (FERC), PG&E is required to submit Safety Inspection Reports prepared by Independent Consultants, called "Part 12D" reports, every five years for both Scott and Cape Horn Dams.² These Part 12D reports are an essential mechanism to ensure dam safety, both because FERC does not address dam safety issues in relicensing procedures,

¹ See e.g. "(Judge) Alsup also said that 'people died as a result' of the company paying billions of dollars in dividends instead of investing in its equipment," in *Judge says PG&E is 'threat to the safety of Californians, presses for fire-safety details*, J.D. Morris, San Francisco Chronicle, Feb 20, 2020
<https://www.sfchronicle.com/business/article/Judge-presses-PG-E-for-more-details-on-power-line-15068382.php>

² Both Scott and Cape Horn Dams are subject to the requirements of Part 12D because each are higher than 10 meters in height above the streambed and have "high hazard potential," defined by FERC as "any dam whose failure, in the judgment of the Commission or its authorized representative, might endanger human life or cause significant property damage." See 18 CFR Part 12.31(b)

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and because PG&E classifies nearly all information related to dam safety as “Critical Energy Infrastructure Information” exempt from public disclosure.

FERC regulations require Independent Consultants to “identify any actual or potential deficiencies ... that might endanger public safety.”³ Independent Consultants inspect project works and review and assess “all relevant data” for a host of potential safety issues, including “seismicity ... (and) stability of critical slopes adjacent to a reservoir or project works,” with specific evaluation of structural issues including the “structural adequacy and stability of structures under all relevant loading conditions.”⁴ Because the Potter Valley Project dams are “high hazard” dams, consultants “must evaluate the ability of project works to withstand the loading or overtopping which may occur from a flood up to the probable maximum flood.”⁵ The Safety Inspection Report “must ... analyze the safety of the project works and the maintenance and methods of operation ... fully.”⁶ Finally, the report to FERC “must contain the independent consultant’s recommendations on ... any corrective measures necessary.”⁷

II. PG&E’s Part 12D Reports Fail to Meet FERC’s Standards in Critical Areas

A. Probable Maximum Flood

On Nov 18, 2019, FERC wrote to PG&E regarding the “Board of Consultants meeting for Scott Dam Site Probable Maximum Precipitation / Probable Maximum Flood Study.” FERC noted that “(d)uring the presentation of results ... it was revealed that a controlling storm ... had been eliminated from the approved ‘short list’ of storms since the previous meeting...”

FERC explained that “(t)he elimination of this storm is of great concern to us for the following reasons...” These included:

- 1) the importance of the deleted storm to the required study, without which FERC said the study “would not be consistent with ... the standard of the practice;”
- 2) the fact that elimination of the storm was not presented to or discussed with the Board of Consultants; and
- 3) the obvious inconsistency of the expressed rationale for deleting the storm.

FERC again notes that “the manner in which the storm was eliminated from (sic) storm ‘short list’ is very concerning.”⁸

³ 18 CFR § 12.32

⁴ 18 CFR Part 12.35(3)

⁵ 18 CFR Part 12.35(3)(b)(i)

⁶ 18 CFR 12.37(2)(i)

⁷ 18 CFR 12.37(4)(i)

⁸ Letter from FERC to PG&E, Nov 18 2019

In general, the effect of the deletion of the storm in question would be to reduce the magnitude of estimated Potential Maximum Floods (PMF) for the Potter Valley Project. A lower PMF value would reduce the likelihood that project works, including dam spillways, would be identified as potentially vulnerable to “loading or overtopping” in such a flood event. In addition, the specific effect of PG&E’s delay in completion of its PMF study was to continue the ongoing delay of six recommendations for project modifications which depend on the results of the PMF study. All were originally identified in 2015 or 2016; none have yet been completed.

PG&E has now responded to FERC that the company will “present its response” in a March 4, 2020 telephone meeting of the Board of Consultants. PG&E classified the information attached to its response as CUI/CEII, so it will not be made public.⁹ **PG&E should explain publicly and in detail the results of the PMF study, including how the results would have differed without the storm FERC required the utility to re-incorporate into the analysis.**

B. Stability of Project Structures

A central concern for safety of the Potter Valley Project dams is the potential for significant seismic activity from the Bartlett Springs Fault, an element of the San Andreas Fault system that stretches for approximately 105 miles across northwestern California, and runs within a mile of Scott Dam under its Lake Pillsbury reservoir. Recent assessments of the Bartlett Springs Fault suggest that it may be capable of producing tremors in excess of magnitude 7.¹⁰

In a Feb 7, 2020 letter to FERC, PG&E explains that it has yet to implement three safety recommendations for Scott Dam because they “depend on the results of a 2D static and seismic stability analysis of the dogleg section of Scott Dam, including the ‘pinnacle’ and adjacent slope at the left abutment of the dam.”¹¹

⁹ Letter from PG&E to FERC, February 19, 2020. CUI is “Controlled Unclassified Information,” while CEII is “Critical Energy Infrastructure Info: Engineering, vulnerability, or detailed design information about proposed or existing critical infrastructure that: a) Relates details about the production, generation, transportation, transmission, or distribution of energy; b) could be useful to a person in planning an attack on critical infrastructure; c) is exempt from mandatory disclosure under the FOIA, and d) does not simply give the general location of the critical infrastructure.” See 18 C.F.R. § 388.113.

¹⁰ See, e.g. Lozos, J. C., R. A. Harris, J. R. Murray, and J. J. Lienkaemper (2015), Dynamic rupture models of earthquakes on the Bartlett Springs Fault, Northern California, *Geophys. Res. Lett.*, 42, 4343–4349, doi:10.1002/2015GL063802.

¹¹ PG&E letter to FERC, February 7, 2020

The stability analysis was required under Recommendation 52 of the Tenth Part 12D Safety Inspection Report for Scott Dam no later than August 20, 2015.

Recommendation 52 stated:

“... perform 2-D static and seismic stability analyses of the pinnacle and adjacent slope with updated groundwater data ... and of the dogleg section (of the dam) ... to determine the sliding displacements which are likely during the postulated ground motions.”

Recommendation 53, however, stated:

“If the 2-D analysis results yield lower Factors of Safety and higher dynamic displacements than desired, development of a 3-D analytical model of the dam and pinnacle to better understand the forces transferred between them, both statistically and dynamically could be undertaken.”

Nonetheless, in its Feb 7, 2020 letter, PG&E states that it “completed the (2-D) analysis in 2018; however, PG&E has not received concurrence or review comments from the tenth Part 12D ICs to allow the analyses to be finalized.”¹² Why haven’t the Independent Consultants concurred? PG&E does not explain.

One possible answer is found in FERC’s 2017 *Engineering Guidelines for the Evaluation of Hydropower Projects, Appendix H – Part 12D Safety Inspection Report Outline*, which notes under “Certification” that

“(b)y signing this document, the Part 12D Independent Consultant is stating that the entire report has been developed by and under the direction of the undersigned. The Part 12D Independent Consultant shall make a clear statement that he/she generally concurs with the assumptions, methods of analyses, and results of all studies documented in the report.

The Part 12D Independent Consultant is thus taking responsibility for the Part 12D report contents as a Professional Engineer.” (FERC, January 3 2017, p. 14-H-4)

Did the stability analysis reveal “yield lower Factors of Safety and higher dynamic displacements than desired”? If so, why has PG&E failed to develop a 3D model per Recommendation 53?

PG&E can and should take a series of actions to provide transparency into the risks its actions have obscured. **PG&E should immediately release its 2018 2D analysis of Scott Dam to the Planning Agreement Group’s consultants.** The company should provide an explanation, supported by appropriate evidence, why the Independent Consultants did not concur with the 2018 2D analysis. And it should release all relevant

¹² *ibid*

information in its possession on the Bartlett Springs Fault, its potential to cause large earthquakes, and the vulnerability of Potter Valley Project infrastructure, including Scott and Cape Horn Dams, to seismic events.

C. Stability of Critical Slopes adjacent to a reservoir

PG&E does not appear to have taken any steps to assess the potential threat to the project works and facilities from an ancient landslide above Scott Dam's southern abutment. Friends of the Eel River secured an independent assessment of this feature from Miller Pacific Engineering in September 2018.¹³

That study showed that the landslide: (a) is not stable, but continues to move regularly; (b) is extremely vulnerable to activation by both seismic activity and large storm events, and especially to a combination of the two; and (c) could exert potentially hazardous forces on Scott Dam's vulnerable southern 'dogleg' abutment.

Again, FERC regulations require "(p)hysical field inspection of the project works and review and assessment of all relevant data concerning" an array of factors, including (xi) the "**stability of critical slopes adjacent to a reservoir or project works.**"¹⁴ Nonetheless, neither PG&E nor its consultants appear to have reported to FERC that the landslide is active, vulnerable to forces that could cause it to slip, and capable of doing substantial damage to Scott Dam.

As noted, PG&E is required to file its 11th Part 12D Safety Inspection Report for Scott Dam by March 2, 2020. The utility must address the status of the landslide assessed in the 2018 Miller Pacific report.

III. **Implications for Relicensing of the Potter Valley Project**

It should be emphasized that the effect of PG&E's deceptions around dam safety has been to delay a series of additional safety measures which FERC had required the company take, at unknown additional expense to the corporation. These include physical changes to the dams (e.g., armor the tailwater pool with riprap) as well as additional studies ("perform a tailwater analysis to assess the height of water on the downstream face during the (potential maximum flood)").¹⁵

¹³ See <https://eelriver.org/2018/09/06/scott-dam-report/>

¹⁴ 18 CFR 12.35(a)(2) (emphasis added)

¹⁵ Letter from PG&E to FERC, Nov 27, 2109

Give the risks identified above, the Planning Agreement Group now working to take over the relicensing of the Potter Valley Project would not be well advised to conclude a deal with PG&E to acquire the PVP facilities without complete transparency from the company on all questions relevant to the safety, construction, and maintenance of Scott and Cape Horn Dams, as well as any other information necessary to understand the risks and liabilities associated with the PVP facilities.

This should include an explicit agreement by PG&E to permit the California Department of Safety of Dams (DSOD) to publicly disclose the full independent review and study of Scott Dam that is now underway.

If PG&E refuses to release critical information necessary to the completion of a purchase under the two basin framework, we should move instead to FERC's Orphan Project process, under which FERC can and should require PG&E to decommission and remove all project facilities.

Regardless of whether dam removal proceeds via relicensing or the Orphan Project process, any agreement with PG&E should include enforceable provisions in which PG&E

- recognizes its full liabilities for the PVP facilities;
- agrees to request FERC order decommissioning and removal of the PVP dams, as appropriate; and
- agrees to bear all associated costs.

Absent such protective terms, it may be imprudent to expend public monies to purchase the PVP facilities given the associated liabilities.

Dam Safety Issues at Potter Valley Project – sources, status, and recommended PG&E actions

Issue	Source documents	Current Status	Recommended PG&E Action
<p><i>Probable Maximum Flood Study:</i></p> <p>Controlling storm removed from short list, rendering study inconsistent with practice standards</p>	<p>Letter from FERC to PG&E, Nov 18 2019</p> <p>Letter from PG&E to FERC, February 19, 2020</p>	<p>PG&E to present response at March 4, 2020 meeting of Board of Consultants.</p> <p>All associated information classified as CUI/CEII.</p>	<p>1) Make public all precipitation and flood information.</p> <p>2) Explain, with evidence, how and why the controlling storm was removed from previous analysis.</p>
<p><i>Stability of Project Structures:</i></p> <p>2D static and seismic stability analysis of the dogleg section of Scott Dam not submitted to FERC</p> <p>3D analytical model not yet developed</p>	<p>PG&E letter to FERC, February 7, 2020</p>	<p>“PG&E completed the 2D static and seismic stability analyses and submitted the results to the tenth ICs for review; however, the ICs were unable to complete their review prior to the eleventh Part 12D safety review. The analyses have been provided to the eleventh IC for review and comment.”</p>	<p>1) Release 2018 2D analysis of Scott Dam to Planning Agreement Group.</p> <p>2) Explain why Independent Consultants did not concur with 2018 2D analysis.</p> <p>3) Release information on Bartlett Springs Fault and vulnerability of Potter Valley Project to seismic events.</p>
<p><i>Stability of Critical Slopes:</i></p> <p>FERC requires ICs to “inspect project works and review and assess ‘all relevant data’ re ‘seismicity ... (and) stability of critical slopes adjacent to a reservoir or project works.’” 18 CFR Part 12.35(3)</p>	<p>2018 study by Miller Pacific engineering of ancient landslide above south abutment of Scott Dam shows it’s an active feature.</p>	<p>No official response from FERC or PG&E to Miller Pacific analysis.</p>	<p>1) Address in 11th Part 12D Safety Review.</p>