RIENDS O THE EEL RIVER

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

riday, une 30, 2023

ederal Energy Regulatory Commission
888 irst Street. NE
Washington, DC 20426

via e-filing (ERC Docket No. P-77

Re: Lake County Comments of April 3, 2023; the operation and future of Scott Dam and the Potter Valley Project

Dear Commissioners and staff,

The Lake County, California Counsel filed comments in this docket[1] on April 3, 2023 responding to PG&E's March 17 Dam Safety Compliance Report. Lake County's comments do not accurately reflect the facts at hand, nor the processes underway, with respect to Scott Dam and the Potter Valley Project.

Lake County Misunderstands Actions Taken to Protect Public Safety

Lake County construes P &E's decision not to raise Scott Dam's slide gates as an attempt

> *"… to determine the future of the Lake Pillsbury Community, the economic factors which influence the County of Lake's recovery after a prolonged and destructive pandemic, what is allowed to exist in the County's ecosystem, and the very access to an available water source in a county plagued for years by drought and wildfire."*

Lake County provides no evidence for these claims. There is, however, a simpler explanation which fits the known facts — that PG&E is responding to new information about dam safety risks with an action intended to protect public safety.

PG&E's March 17 report, filed with the Commission's Division of Dam Safety and nspections, includes a memorandum which the public cannot view because PG&E has classified it as Critical Energy Infrastructure nformation (CE . As we have previously noted, the overclassification of dam safety information as CE presents a serious and unnecessary barrier to public understanding of the risks associated with America's aging hydroelectric dams. Many dams across the American West were, like Scott Dam, situated on

[1] *Comments of County Counsel for the County of Lake regarding PG&E's March 17, 2023, Dam Safety Compliance Report under P-77*, FERC accession number 0230403-5105.

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faults, because places where rivers cross faults often present, like the upper Eel, a narrow canyon downstream of a reach with substantial floodplain.

rom PG&E's description, we understand that the memorandum presents the results of a simplified, two-dimensional seismic stability analysis of Scott Dam prepared by engineering consultant annett leming, nc. annett .[2] Lake County argues that "P &E is attempting to leverage a 'simplified seismic analysis' to justify what was announced as a permanent lowering of the gates, even though the more rigorous seismic analysis has not yet been completed."

Lake County's skepticism of the annett memorandum was not shared by the California Division of Safety of Dams (DSOD . An April 12, 2023 letter from DSOD to P &E's Chief Dam Safety Engineer, David Ritzman, clarifies that the annett "study is part of Pacific Gas and Electric Company's PG&E ongoing reevaluation of the dam that was initiated in response to DSOD's letter dated anuary 22, 2021, to address potential dam safety concerns."

DSOD further notes that it has **barred** PG&E from operating Scott Dam with the gates raised:

> *Based on dam safety, DSOD concurs with PG&E's proposed 10-foot reservoir restriction as an interim risk reduction measure.* ***Therefore, DSOD is restricting the year-round operation of the reservoir of Scott Dam to Elevation 1900.00, the spillway crest****, which is 24.58 feet below the dam crest. This reservoir restriction may be revisited as conditions warrant and will remain in effect until PG&E receives DSOD's written approval authorizing a different level of reservoir storage.* (emphasis added

As PGE noted in its March 17 letter, the purpose of the two-dimensional analysis is "… to provide an initial understanding of the expected performance of the dam under updated seismic loading conditions ..." PG&E further explained that the " s)eismic loads used in the analysis are developed from PG&E's recently completed deterministic seismic hazard study dated December 2021)."

The Bartlett Springs Fault Will Produce Very Large Earthquakes, to which Scott Dam Appears Especially Vulnerable.

t has been clear for some years that the Bartlett Springs ault, which passes directly underneath what is now the Lake Pillsbury reservoir, is capable of producing earthquakes significantly larger and more damaging than those recorded to date in Scott Dam's vicinity. As Lozos et al. noted in their 2015 publication, *Dynamic rupture models of earthquakes on the Bartlett Springs Fault, Northern California*, ***"… ground motions generated by a (Bartlett Springs Fault) earthquake may be sizeable… Our models produce a wide magnitude range: from M6.32 to M7.24…"***[3] emphasis added .

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[2] Scott Dam Simplified 2-D Stability Evaluation (CWA 2700755491 FCA No. 2), Gannett Fleming Project No. 070867, prepared by Gannett Fleming and dated March 14, 2023.

[3] 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.

ERC's docket for the Project includes a number of filings related to assessing seismic risks at Scott Dam. See for example *Potter Valley Hydroelectric Project (FERC No. 77) 30-Day Follow-up Report on Earthquake Incident*, September 8, 2016, which documents a magnitude 5.1 earthquake approximately 10 miles southeast of Scott Dam that occurred on the evening of August 9, 2016.[4] PGE's subsequent *Potter Valley Project Annual Operations Inspection Follow-up Response*,[5] dated November 21, 2016, shows that following the August earthquake, an inspection revealed multiple new cracks and a spraying leak on the dam's face.

Considerably more detail regarding seismic risk assessment can be found in an August 31, 2020 filing, *Potter Valley River Hydroelectric Project, Scott Dam, Plan and Schedule to Address Recommendations in FERC Independent Consultant 2019 Safety Inspection Report*,[6] in which PG E responds to FERC's recommendation R-6 as follows:

R-6. It is recommended that stability analyses of the dam for earthquake loading up to the MCE be performed using up-to-date methods of analysis. The loading should be consistent with the 2017 seismic hazard update for the dam site (PG&E, 2017b), once this study is accepted by FERC. The stability analyses should include analysis of the principal tangent and the dogleg tangent of the dam (left abutment area, including the pinnacle). The stability analysis should include predictions of stability and displacement for the dam and consider: a) the seismic response of the structure and representative base uplift conditions, b) stress nonuniformity and potential cracking at the dam base, and c) the stability of the left abutment area and downslope rockfill buttress and upslope left abutment landslide (see PFM No. 3 in Section 3.2.3 and Section 7.8.4). Additional recommended stability analysis of the downstream left abutment area is described in more detail under Recommendation R-29 below.

Response: *Loading conditions for the recommended stability analyses are dependent on the results of PG&E's 2017 seismic hazard studies, which PG&E is currently updating to address FERC review comments. After FERC has accepted the seismic hazard parameters for the site, PG&E plans to update its seismic stability analyses for Scott Dam in accordance with the following general steps:*

- *Develop an updated structural model of the dam and perform stability analyses for normal loading conditions.*
- *Using results of the accepted seismic hazard studies, model the seismic response of the structure and evaluate representative base uplift conditions.*
- *Perform seismic stability analyses of the dam for earthquake loading up to the maximum credible earthquake (MCE) using up-to-date analytical methods and tools. Analyze both the principal tangent and dogleg sections of the dam.*
- *Evaluate the seismic stability of the dam's left abutment area, including the downslope rockfill buttress (see R-29) and upslope left abutment landslide for earthquake loading up to the MCE. Based on the results of these studies, evaluate the potential effects of*

[4] FERC accession no. 20160908-5213, document title *PGE2016-0908_PV 30Day FU Rpt Earthquake Incident.*

[5] FERC accession no. 20161121-523, document title *PGE2016-11-21_PV_AnnualOpsInspection_FollowUpResponse.*

[6] FERC accession no. 20200831-5429**,** document title *PGE2020-0831_77_Scott_P12_PS_2019SafetyInspection.* (Remarkably, this previously public document is now inaccessible on FERC's website.)

seismically induced ground movement on the stability of the dam during or immediately after the earthquake.

PG&E believes that the recommended stability analyses may take several years to complete, depending on the time and effort required to conduct prerequisite studies and develop the necessary structural models. PG&E plans to perform the stability analyses in conjunction with updated analyses for flood loading conditions (see R-4).

Assuming FERC accepts the results of PG&E's seismic hazard analysis by early 2021, PG&E plans to complete preliminary stability analyses of the dam structure and left abutment slopes (upstream and downstream) by the end of 2021. Upon completion of the preliminary analyses, PG&E will provide the results to the Part 12D IC for review. In consultation with the IC, PG&E will identify appropriate next steps to finalize the seismic stability evaluation. By February 28, 2022, PG&E plans to submit to FERC a plan and schedule to finalize the recommended stability analyses. Alternatively, if FERC acceptance of the seismic hazard study is delayed, PG&E will submit by October 31, 2021, an updated schedule for addressing R-6.

Similar language appears with respect to other portions of Scott Dam in the document. In short, while seismic hazards may have been underestimated in the past, they are hardly a novel question for Scott Dam. As the above excerpt shows, P &E outlined its process for reassessing the safety of Scott Dam three years ago.

actors relevant to Scott Dam's vulnerability to seismic events have long been apparent, and indeed are clearly evident in the enclosed illustration. These factors include the 'dogleg' southern abutment of the dam referenced in ERC's recommendation R-6 above. Scott Dam had been planned to go straight across the river, a stronger configuration. But

the helpful extrusion of bedrock to which builders had planned to anchor their dam proved to be a giant boulder, referenced above as 'the pinnacle.' The boulder slid down the southern side of the canyon during dam construction. Builders chose to construct the southern portion of the dam in front of the boulder, at an angle to the rest of the dam. That southern abutment of Scott Dam rests against a slope below the dam that has been showing signs of instability for years.

As a study by Miller Pacific Engineering Group commissioned by riends of the Eel River demonstrated in 2018, the slope above Scott Dam that shifted when the pinnacle moved during dam construction is an ancient landslide, which has been moving continuously for decades, and appears vulnerable to catastrophic collapse in a big storm or a significant earthquake.[7] As well, the Miller Pacific report notes that the buildup of sediment against Scott Dam's upstream face appears to present an additional factor of potential seismic risk, as is common in aging dams.

n recent years, it has become clear that the amount and the configuration of sediment that has accumulated in the Lake Pillsbury reservoir threaten Scott Dam's ability to supply water to the rest of the Potter Valley Project. Sediment buildup around the upstream inlet to the needle valve that is Scott Dam's only low-level outlet presents an ever-increasing risk of clogging the valve, rendering the dam and the entire Potter Valley Project nonfunctional and uneconomic to repair. Meanwhile, the reservoir cannot be drained too quickly, or fully emptied, lest the piled sediments collapse, with the same effect: a clogged needle valve and an end to releases from Scott Dam.

To summarize, there are a number of compelling publicly known reasons to be concerned about seismic safety at Scott Dam, particularly given that it is a poorly constructed, aging dam never engineered to handle the stresses we now know it would be subject to when a significant quake occurs on the Bartlett Springs Fault. To our knowledge, Lake County has yet to evince concern regarding these hazards.

Dam Safety Isn't the Only Threat to Public Safety the Potter Valley Project Poses

Nor does the County appear to have addressed public safety risks associated with very high mercury levels in the Lake Pillsbury reservoir's fish. As P &E noted in its 2017 Pre-Application Document filed with FERC,

> *Sampling of fish tissue taken from Lake Pillsbury fish has detected* ***high concentrations of mercury****, averaging 1.31 parts per million (ppm) in 350 millimeter (mm) largemouth bass (*Micropterus salmoides*), and* ***the highest concentration for an individual fish*** *(4.08 ppm in a 559 mm largemouth bass) in statewide sampling (Davis et al. 2009). Consequently, Lake Pillsbury is designated as impaired for mercury on the California 303(d) list.* page 5-34, emphasis added

These mercury levels are the consequence of the constant raising and lowering of the reservoir, an effect not observed in natural lakes. Lake County does not appear to have

[7] The Miller Pacific report can be found at https://eelriver.org/wp-content/uploads/2018/09/Miller-Pacific-Technical-Memo-re-Scott-Dam.pdf.

taken any steps to protect its citizens and visitors from mercury poisoning incurred by consuming fish caught in the Lake Pillsbury reservoir.

Lake County Does Have Other Water Sources for Wildfire Protection

Lake County's also expresses concerns regarding the availability of water to fight wildfires should the level of the Lake Pillsbury be lowered or Scott Dam removed. The County claims to have "lost 60% of its land mass due to wildfire," and asserts there are "no comparable alternative sources for additional water" should Scott Dam be removed. The County writes that "wildfire risks of this measure should not be imposed on the County of Lake." The County cites no evidence that removal of the Lake Pillsbury reservoir will present additional wildfire risks.

n fact, the 2018 Ranch ire, at the time the largest fire in California's history, burned southeast of the Project notwithstanding the presence of the Lake Pillsbury reservoir. owever, most of the Ranch Fire and the same year's River ire were significantly closer to 68 square mile Clear Lake than to the Pillsbury reservoir, which never exceeds 3.6 square miles in surface area. It is in no way clear that removing Scott Dam would reduce any entity's ability to address wildfire risks in Lake County given the existence of Clear Lake, a fact of approximately 22 million years' duration.

Rather, there is good reason to believe that dam removal not only can but will result in significant improvements in wildfire resilience for the areas of Lake County around the Pillsbury reservoir. or example, as part of the Klamath dam removal arrangements, local communities have been made significantly more resilient to wildfire than they were previously. Lake County and the Commission should note the fire management plan filed with FERC as part of the Klamath dam removal.[8] It includes provision of water access points, firefighting vehicles and equipment, and improvements to emergency communications. We anticipate a similar plan will be implemented with the removal of the Potter Valley Project dams.

Scott Dam will be removed, and the Potter Valley Project decommissioned. What further stake does Lake County have in Cape Horn Dam?

Beyond the specific concerns expressed, however, there looms in Lake County's letter an overarching assertion that "its communities, its ecosystem, and its safety from wildfires" are placed at risk by PG&E's decision to address the seismic safety of Scott Dam, and by implication, by the pending removal of Scott Dam. Lake County has made it clear that it would prefer Scott Dam and the Pillsbury reservoir remain in place. Unfortunately, it continues to misrepresent the facts around the Project in service of that preference, to the detriment of public understanding of the choices actually at hand. n reality, Lake County is the least affected of the counties touched by the Project, drawing no water at all for irrigation use from the Eel River.

[8] https://klamathrenewal.org/fire-management-plan/.

And Scott Dam removal is now a certainty. The new understanding of the threat the Bartlett Springs ault poses to Scott Dam only crystallizes the already-overwhelming evidence that Scott Dam cannot and will not be kept in place. n addition to the sediment issues noted above, P &E has confirmed that it will not replace the transformer which failed in the PVP powerhouse in the summer of 2021. As the Commission is aware, P &E is expected to submit its draft decommissioning plan for the Project by November of 2023.

Thus, to the extent there remains a significant question regarding the future of Potter Valley Project facilities, that question appears to be whether Cape Horn Dam will be removed with Scott Dam. It is not clear Lake County is in any way affected by the presence and operation of Cape orn Dam, nor that Lake County would be impacted in any way by the removal of Cape orn Dam.

Dam Removal Will Directly Benefit the Upper Eel River Watershed in Lake County

Lake County also stands to benefit dramatically from removal of the Eel River dams and recovery of Eel River salmon and steelhead. While Scott Dam lacks any provision for fish passage, a recent study by NM S scientists shows that the Upper Mainstem Eel River above Scott Dam

> *… could likely support populations of winter-run steelhead, summer-run steelhead, and fall-run Chinook salmon based on the amount of thermally and geomorphically suitable habitat for multiple freshwater life stages during warm months and during drought. …In a similar system, multiple anadromous salmonid populations have recolonized – both naturally and with human assistance – the Elwha River in Washington since the removal of the Elwha Dam, which had been in place for over 100 years (Bellmore et al. 2019, McMillan et al. 2019). … Based on our evaluation of the quality and quantity of suitable habitat and potential capacity, enabling access to the blocked Upper Mainstem subbasin would be comparable to adding another Van Duzen subbasin to the Eel River Basin.*[9]

Removing the Eel River dams and allowing the recovery of salmon and steelhead in the upper Eel River would provide significant and lasting benefits to Lake County, just as it will to other Eel River communities. Salmon and steelhead are keystone species, providing vital nutrients in their upstream migrations which feed entire ecosystems.

Before Scott Dam was built, the southernmost run of summer steelhead on Earth ran up the Upper Mainstem Eel. Recent studies have confirmed that rainbow trout, the freshwater form of steelhead, trapped above Scott Dam for the last century, still have the genes which

[9] FitzGerald et al, Physical and biological constraints on the capacity for life-history expression of anadromous salmonids: an Eel River, California, case study, *Canadian Journal of Fisheries and Aquatic Sciences*, 4 December 2021, https://cdnsciencepub.com/doi/full/10.1139/cjfas-2021-0229.

could allow that run to return from extinction.[10] Lake County can take great pride in sheltering this extraordinary, endangered species.

iven the increasing weight of evidence that Scott Dam should be removed as soon as feasible, we cannot support Lake County's demands to dictate the future of the Potter Valley Project or its constituent dams. We understand that change is difficult, but we urge Lake County citizens and leaders to seize the opportunities ahead. We sincerely believe that Lake County, like the rest of the Eel River watershed, will be better off following removal of the Eel River dams.

Thank you for your patient attention.

Sincerely yours

/s/
Scott reacen
Conservation Director

[10] See https://eelriver.org/wp-content/uploads/2022/10/On-the-Ecology-and-Distribution-of-Steelhead-in-Californias-Eel-River-Kannry-2020.pdf.

UNITED STATES OF AMERICA

FEDERAL ENERGY REGULATORY COMMISSION

Pacific Gas & Electric Company Potter Valley Project	Project No. P-77-000

CERTIFICATE OF SERVICE

I hereby certify that I have this day served, by first class mail or electronic mail, a letter to the Federal Energy Regulatory Commission containing a response to comments made by Lake County regarding Scott Dam and the Potter Valley Project, P-77. This Certificate of Service is served upon each person designated on the official P-77-000 Service List compiled by the Commission in the above-captioned proceedings.

Dated this 30th day of June, 2023.

David Weibel
Legal Secretary
Shute, Mihaly & Weinberger LLP

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