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June 13, 2024

Via Electronic Submittal (E-Filing)

Debbie-Anne A. Reese, Acting Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

RE: Potter Valley Hydroelectric Project, FERC No. 77-CA
2024 Minimum Instream Flow Variance Request Due to Restricted Storage
Supplemental Filing

Dear Secretary Reese:

This letter presents the results of two CE-QUAL-W2 hydrodynamic and water quality model (Model) scenarios for Lake Pilsbury, which is part of Pacific Gas and Electric Company's (PG&E) Potter Valley Project (Project), Federal Energy Regulatory Commission (FERC) No. 77.

The Model was completed as part of FERC's October 2, 2023, order approving temporary variance of flow requirements under license Article 52. On February 21, 2024, PG&E submitted a variance request to reduce East Branch Russian River (EBRR) flow requirements to proactively manage reservoir storage in a manner that is protective of Project facilities and minimize potential impacts to federally listed fish species in the Eel River. PG&E is currently operating the Project under the requirements of the Article 52 until FERC issues an order approving the 2024 variance request.

The first modeling scenario describes the baseline simulation forecast for June through October 2024 for Lake Pillsbury under normal operating conditions. The second modeling scenario assumes variance flows of 5 cfs to the EBRR are implemented from July 1 through October 2024. As discussed in the February 21, 2024, variance request, continued elevated withdrawals through the summer of 2023 accelerated the depletion of cooler water in Lake Pillsbury. This resulted in elevated release water temperature in late summer 2023 when compared to 2022 (Figure1).

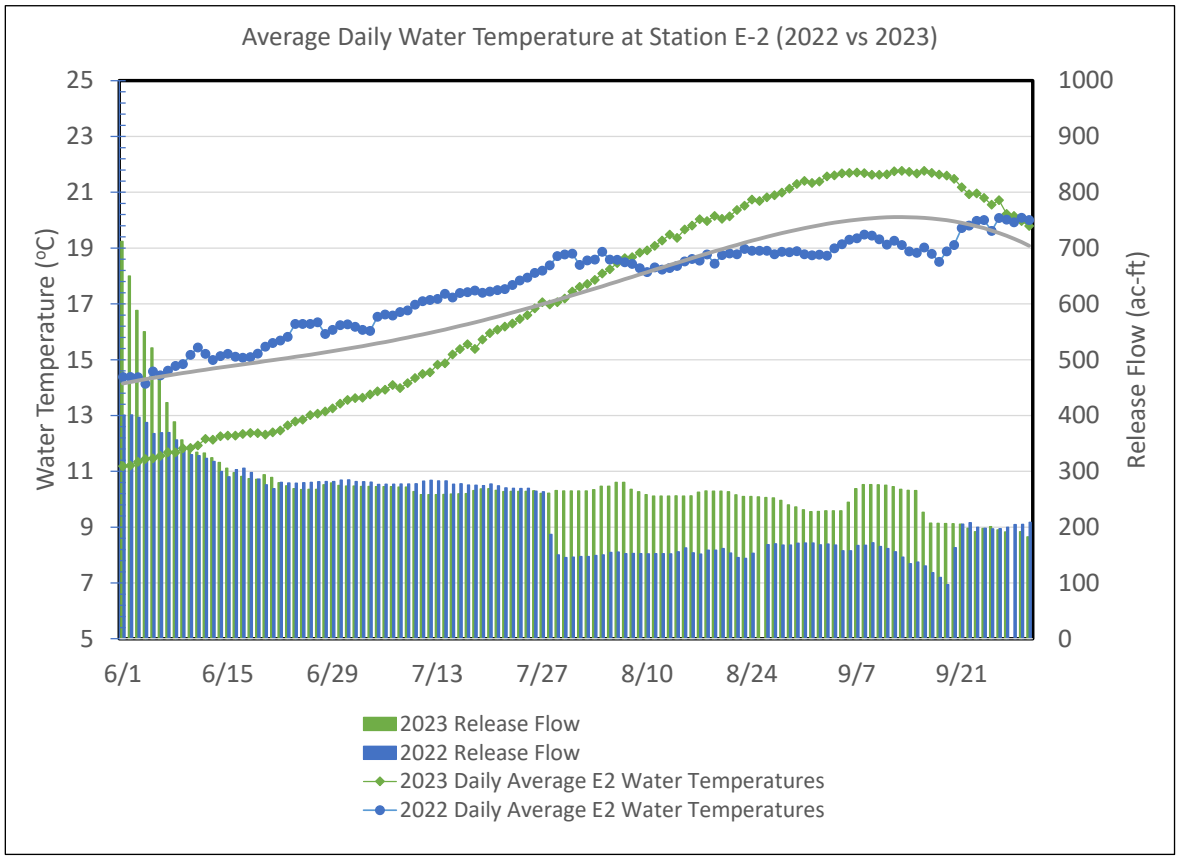

Figure 1: Comparison of Average Daily Water Temperatures at Station E-2 for 2022 and 2023.

Enclosed with this letter, please find the Baseline and Proposed Variance Simulation of June-October 2024 Lake Pillsbury Temperature Forecast Modeling (Enclosure 1).

PG&E is in the process of preparing a license amendment application to revise the flow requirements to the EBRR until Project decommissioning is completed; however, until that amendment can be processed, PG&E urges FERC to implement the February 21, 2024, variance request as soon as possible to minimize potential impacts to federally listed fish species in the Eel River and continue to provide a reliable water source to downstream users.

If you have any questions or comments please contact Chadwick McCready, License Coordinator for PG&E at (530) 254-4007.

Sincerely,

Chadwick McCready
Senior License Coordinator, Hydro Compliance

Enclosure:
1. Baseline and Proposed Variance Simulation of June-October 2024 Lake Pillsbury Temperature Forecast Modeling, completed on June 12, 2024

cc: via email w/enclosure
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ENCLOSURE 1

TECHNICAL MEMORANDUM

To:	Andrew Anderson, Edward Cheslak (PG&E)
From:	Vanessa Martinez and Craig Addley (Kleinschmidt Group)
Date:	6/12/2024
Re:	Baseline and Proposed Variance Simulation of June-October 2024 Lake Pillsbury Temperature Forecast Modeling (June 2024)

1.0 SUMMARY

This memorandum describes the Baseline and Proposed Variance water temperature model simulations of Lake Pillsbury for June-October, 2024, including the assumptions used to establish model boundary conditions and the results. The simulations assume the variance is approved June 30, 2024. The simulations also include block water releases beginning mid-August. The simulations show that implementing the variance would reduce the maximum water temperature in the Eel River below Scott Dam by up to 1.4 C and the duration of high temperatures by up to a month. The block flow releases have a negative effect on water temperature and it would benefit water temperature if the block flow water was not released from the reservoir.

2.0 MODEL

The CE-QUAL-W2 water temperature model of Lake Pillsbury used for the scenario runs was developed for PG&E by Stantec/Kleinschmidt and was originally calibrated to data collected between 2010 and 2022 (Martinez, 2023). The calibration model report is available upon request.

3.0 MODELING ASSUMPTIONS

3.1 MODEL HYDROLOGY AND INFLOW TEMPERATURES

Baseline – Lake Pillsbury 2024 daily inflow and outflow forecasts for June through October 2024, were developed by Michelle Lent (PG&E) and Scott McBain (McBain Associates) and provided on June 11, 2024. The 50% and 90% forecasts were found to be almost identical, therefore only the 90% was used for model input. A comparison of the

hydrology forecast with historical data indicated that 2023[1] was similar; therefore, 2023 empirical data was selected as a surrogate to estimate both the incoming water temperatures as well as the flow split between the Eel River and Rice Fork inflows to Lake Pillsbury. The daily inflow temperatures and flow splits were provided by Scott McBain (McBain Associates).

Proposed Variance – The Proposed Variance model runs used identical inflow assumptions, but different outflow assumptions. The Proposed Variance scenarios used the following outflow assumptions:

- Variance flows begin July 1, 2024. Prior to this date, the Baseline and Proposed Variance runs are identical.
- The most restrictive East Branch Russian River release of 5 cfs begins on July 1-September 30, with an increase to 25 cfs on October 1.
- PVID deliveries are 35 cfs for the entire period. Under the RPA flows (Baseline), PVID deliveries are 50 cfs.
- Blockwater is released 8/15/24 through 8/27/24 (same as Baseline).

3.2 STARTING TEMPERATURE PROFILE

A temperature profile was taken in Lake Pillsbury on May 31st, 2024. This was used to set the initial temperature in the reservoir for all scenarios.

3.3 METEOROLOGICAL BOUNDARY CONDITIONS

Meteorological data (air temperature, dew point temperature, wind speed, wind direction, cloud cover) were taken from the original model calibration period dataset. See the calibration model report for more information (Martinez, 2023).

Three model scenarios were run each with different meteorological datasets to capture variation due to different possible climate conditions in 2024. An analysis of air temperature from previous years indicated that 2010, 2018, and 2021 represented cool, average, and warm years respectively in the available 22-year record (2000-2022)[2].

Table 3-1 summarizes the modeling assumptions and boundary conditions used for each of the baseline model scenarios. The Proposed Variance scenarios were run with identical

[1] A sensitivity run using 2021 inflow temperatures (warmer) was also run to assess the impact of inflow temperatures and the Scott Dam outflow temperatures were similar to within a few tenths of a degree C.

[2] The period of available meteorological data extended beyond the original model calibration period of 2010-2022.

boundary conditions, with the exception of the outflow restrictions described above in section 3.1.

Table 3-1. Baseline Model Scenario Assumptions

Model Input	Scenario 1 (2010 Met; Cool)	Scenario 2 (2018 Met, Average)	Scenario 3 (2021 Met, Warm)
Inflow Rate	90% Lake Pillsbury Forecast	90% Lake Pillsbury Forecast	90% Lake Pillsbury Forecast
Outflow Rate (No Variance)	90% Lake Pillsbury Forecast	90% Lake Pillsbury Forecast	90% Lake Pillsbury Forecast
Inflow Temperatures	Measured 2023 inflow temperatures for Eel and Rice Fork	Measured 2023 inflow temperatures for Eel and Rice Fork	Measured 2023 inflow temperatures for Eel and Rice Fork
Inflow Split	Measured 2023 flow slit between Eel and Rice Fork	Measured 2023 flow slit between Eel and Rice Fork	Measured 2023 flow slit between Eel and Rice Fork
Meteorological Data	Measured 2010 Met Data (Cool)	Measured 2018 Met Data (Average)	Measured 2021 Met Data (Warm)
Initial Temperature Profile	Measured 5/31/2024 Lake Pillsbury Temperature Profile	Measured 5/31/2024 Lake Pillsbury Temperature Profile	Measured 5/31/2024 Lake Pillsbury Temperature Profile

4.0 MODEL RESULTS

Table 4-1 and Figure 4-1 provide a summary of the baseline and Proposed Variance water temperature model results below Scott Dam for the three modeled meteorological scenarios.

Comparison of Baseline and Proposed Variance scenarios show an average decrease in maximum summer temperature of about 1.2°C across all meteorological conditions due to the flow variance beginning on July 1st. The average monthly temperatures for July, August and September are 0.8°C, 2.0°C, and 0.1°C lower respectively due to the flow variance.

Table 4-1 Model Scenario Water Temperature Results below Scott Dam

Model Scenario	Maximum Summer Temperature (°C)	Average July Temperature (°C)	Average August Temperature (°C)	Average September Temperature (°C)
Scenario 1, Baseline cool met	23.6	18.9	22.1	21.7
Scenario 2, Baseline average met	23.4	19.0	22.0	21.1
Scenario 3, Baseline warm met	24.1	19.7	22.7	22.2
Scenario 1, Proposed Variance-cool met	22.1	18.0	19.9	21.3
Scenario 2, Proposed Variance -average met	22.1	18.2	20.0	21.1
Scenario 3, Proposed Variance -warm met	23.3	19.0	21.0	22.2

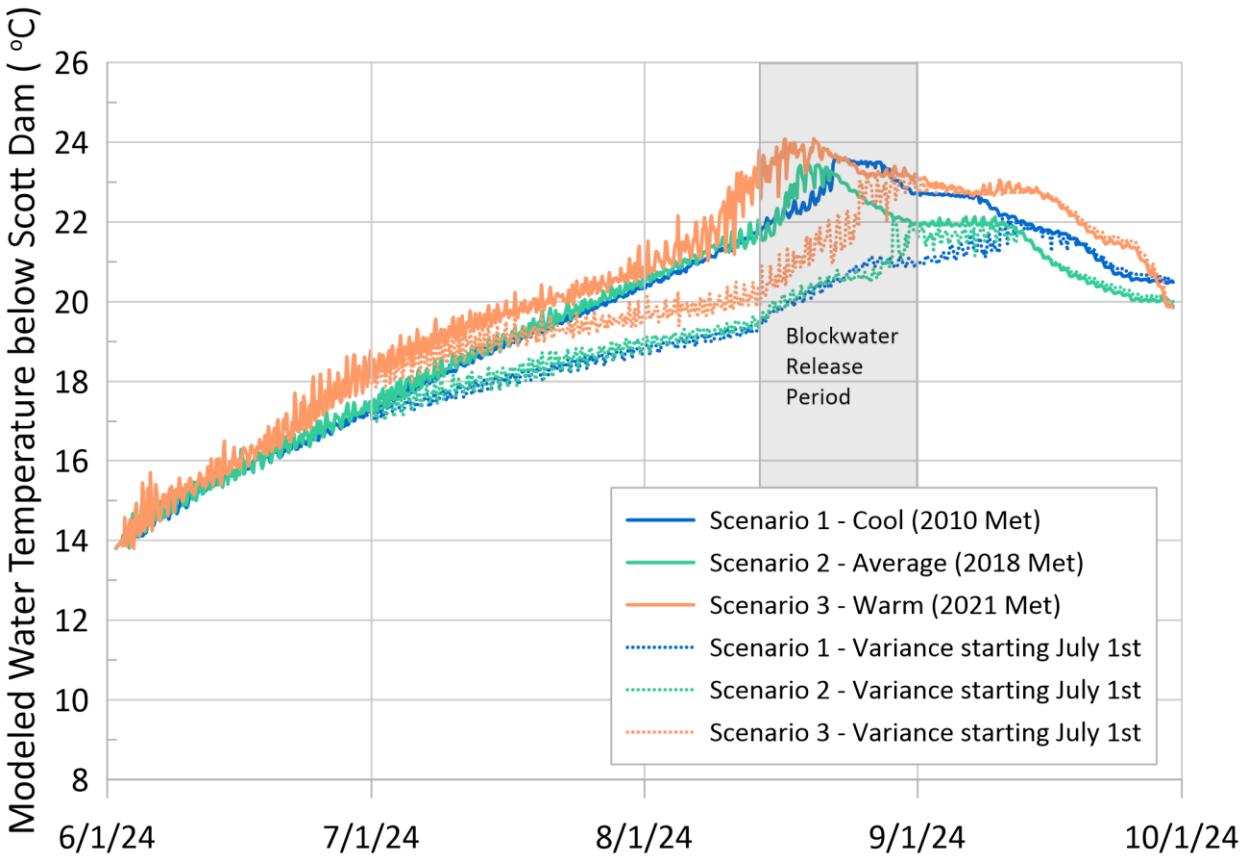

Figure 4-1 Water Temperatures below Scott Dam (Baseline and Proposed Variance Scenarios).

5.0 NEXT STEPS

The next steps include:

- Update Baseline and Proposed Variance model scenarios with future measured 2024 temperature profiles upon request.
- Model additional outflow scenarios to reflect possible variance request timing.

6.0 REFERENCES

Martinez, V., and Addley, C. (2023). *Lake Pillsbury CE-QUAL-W2 Water Temperature Model 2010–2022 Calibration Report.* [Stantec Inc]