



February 14, 2025

**Via Electronic Submittal (E-File)**

Debbie-Anne A. Reese, Secretary  
Federal Energy Regulatory Commission  
Office of Energy Projects  
888 First Street, N.E.  
Washington, DC 20426

**RE: Potter Valley Hydroelectric Project, FERC No. 77-CA  
2025 Minimum Instream Temporary Flow Amendment Request**

Dear Secretary Reese:

Please consider this letter a request for a temporary license flow amendment (variance) for Pacific Gas and Electric Company's (PG&E) Potter Valley Hydroelectric Project (Project), Federal Energy Regulatory Commission (FERC) No. 77. Article 52 of the Project license requires PG&E to comply with the National Marine Fisheries Service (NMFS) Reasonable and Prudent Alternatives (RPA), as described in their 2002 Biological Opinion. Subsequently, the RPA prescribed minimum instream flows became license requirements following FERC's Order Amending License, issued January 28, 2004.

Since 2004, it has become increasingly challenging for PG&E to maintain compliance under Article 52. From 2013 to 2022, PG&E operated under temporary flow amendments in 7 out of 10 years due to insufficient water supply. In 2023 and 2024, PG&E requested temporary flow amendments to conserve reservoir storage and support cooler water temperature releases from Lake Pillsbury due to changes in operations resulting in lower water storage. The cumulative number of and repetitive nature of these temporary amendment requests has demonstrated to PG&E and FERC that the current flow regime under Article 52 does not provide adequate resource protection within the operational limitations and factors affecting the Potter Valley Project's existing operations.

In 2023, PG&E determined that the seismic risk to Scott Dam is greater than previously understood. To reduce the potential seismic risk, the gates at Scott Dam will remain open indefinitely, reducing the water storage capacity from approximately 76,000 acre-ft (AF) to 56,000 AF. This loss of roughly 20,000 AF of potential storage above the spillway further compounds the challenges to meet RPA flows.

On October 4, 2023, FERC issued a Request for Additional Information in response to PG&E's July 31, 2023, request for long-term amendment of the minimum flow requirements beginning in 2024 and continuing until decommissioning of the Potter Valley Project. In that letter, FERC requested that PG&E initiate the license amendment process to incorporate the modified flows into the license. On January 30, 2025, PG&E filed with FERC its license amendment application to reduce minimum instream flows below Scott Dam and the East Branch Russian River (EBRR).

While the amendment application is being processed, PG&E is requesting a temporary flow amendment from the current license requirements for 2025 to reduce EBRR flows to proactively manage reservoir storage in a manner that is protective of the Project facilities and minimizes potential impacts to federally Endangered Species Act (ESA)-listed salmonid species and other aquatic resources that occupy the Eel River within the Project area. Based on FERC’s procedural recommendations, PG&E is submitting this request well in advance of the 2025 summer/dry season flow period to provide FERC with adequate time to evaluate this temporary flow amendment. However, this approach requires some flexibility due to the inherent uncertainty with long-term weather forecasting and storage inflows for the remainder of the 2025 runoff season. This request has been developed in consultation with NMFS, California Department of Fish and Wildlife (CDFW), Round Valley Indian Tribes (RVIT) and United States Fish and Wildlife Service (USFWS) (hereafter Agencies).

**Current License Requirement**

The license includes requirements for the minimum instream flows released by the Project.

Table 1 below provides a summary of the license-required flows in the absence of a flow amendment. As of Feb 1, 2025, the cumulative inflow to Lake Pillsbury for the 2025 Water Year is at 239,818 AF, which exceeds the Critical and Dry Water Year Type threshold for E-2 and E-16 and the Very Dry Water Year Type for E-11, therefore, these drier Water Year types wouldn’t apply for 2025 and are accordingly deleted from consideration in Table 1.

**Table 1: Potter Valley Minimum Instream Flow Requirements**

<b>Compliance Point</b>	<b>4/1-5/31</b>	<b>6/1-9/30 Requirement with Classification*</b>	<b>10/1-12/31 Requirement with Classification*</b>
<b>Eel River below Scott Dam (E-2)</b>	<del>Critically Dry – 20 cfs Dry – 40 cfs Normal – 100 cfs</del>	<del>Critically Dry – 20 cfs Dry – 40 cfs Normal – 60 cfs</del>	<del>Critically Dry – 20 cfs Dry – 40 cfs Normal – 60 cfs</del>
<b>Eel River below Cape Horn Dam (E-11)</b>	Value depends on Eel Index Flow	<del>Very Dry – Summer base flow is 3 cfs Dry – 9 cfs Wet – 15 cfs Very Wet – 30 cfs</del>	Value depends on Eel Index flow
<b>East Branch Russian River (E-16)</b>	<del>Critically Dry – 5 cfs Dry – 35 cfs (25 cfs starting 4/15) Normal – 35 cfs</del>	<del>Critically Dry – 5 cfs Dry – 25 cfs Normal – 75 cfs Normal with Dry Spring Exclusion – 40 cfs</del>	35 cfs (begins 9/16)
<b>Notes:</b> cfs = cubic feet per second; RPA = Reasonable and Prudent Alternative. *Classifications are not finalized until May 15th for E-11 and June 1st for E-2/E-16.			

**Lake Pillsbury Minimum Pool**

As a condition of a prior temporary flow amendment for the Project issued on July 15, 2016, FERC required PG&E to “determine the current low level operation constraints at Lake Pillsbury (beyond operator recommendations) that support a low reservoir elevation level.” To address this requirement, PG&E submitted a technical memorandum (TM) to FERC on April 3, 2017, that identified and evaluated potential dam safety and operational constraints on

lowering the operating level. As described in the TM, a high potential of bank sloughing exists at pool levels between 5,000 and 12,000 AF; the degree of bank sloughing partially depends on the drawdown rate of the reservoir. Since this analysis was performed, PG&E has used 12,000 AF as the Lake Pillsbury planning minimum for water management.

## **2023 Water Temperature Analysis and 2024 Water Temperature Modeling Results**

### ***2023 Water Temperature Analysis***

In response to PG&E's *2022 Flow Variance Request Due to Limited Water Availability*, submitted May 13, 2022, FERC ordered PG&E to continue to conduct Lake Pillsbury water quality monitoring. FERC also ordered PG&E to develop scenarios for water temperature modeling, which would allow PG&E to evaluate the potential benefits of cooler reservoir temperatures and water storage that support federally ESA-listed salmonids during the dry season. PG&E evaluated 12 years of historical water temperature data collected under the RPA to develop a regression model and satisfy FERC's July 27, 2022, order<sup>1</sup>.

The conclusion of the PG&E water temperature analysis was that there are limited options for mitigating high water temperature in the release from Lake Pillsbury in the late-summer and early-fall months. The limited options are caused by the relatively shallow reservoir (small, deep-water volume), minimal spring/summer reservoir inflow that is typically warm, and summer withdrawals that are made from a low-level outlet that mixes the warm, upper layers of the reservoir throughout the water column. The regression-based analysis of existing water temperature data indicated a very predictable pattern based solely on calendar date and suggests that this analysis could be used as a guidance curve to compare current releases to usage patterns from other, similar water years. Two guidance curves were developed, one based on all water-year types with the second based only on dry water-year types. A proposed or ongoing reservoir release pattern is compared with the statistically derived guidance curves. This approach allows PG&E to compare the current strategy for water year releases to previous patterns, which informs operational decisions regarding increasing or decreasing release volumes. This approach provides a practical tool to determine how current spring and summer flow-release decisions may influence late-summer release water temperatures.

FERC's July 27, 2022, order approving PG&E's temporary amendment demonstrated the potential benefit of using reservoir release management to influence water temperature in late summer. The order went into effect and reduced E-16 flows from 75 to 5 cubic feet per second (cfs), and the water temperature benefits of this flow reduction were readily observable. As shown on Figure 1, water temperatures at E-2 were increasing as expected based on historical water temperature data (i.e., regression-based guidance curves) until withdrawals from the reservoir were reduced under the temporary flow amendment. Consequently, release temperature at E-2 decreased and remained stable until withdrawals from the reservoir increased again to support a Blockwater release in late September 2022. Further analysis of flow and temperature data from 2022 indicates that the flow reduction in

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<sup>1</sup> 2023 Flow Variance Request Due to Limited Storage Capacity, Enclosure 2, Potter Valley Project – Water Temperature Evaluation, 2023.

late July cooled release temperatures as much as 1.6 degrees Celsius (°C) during the approximately 2-month flow-reduction period (Figure 2).

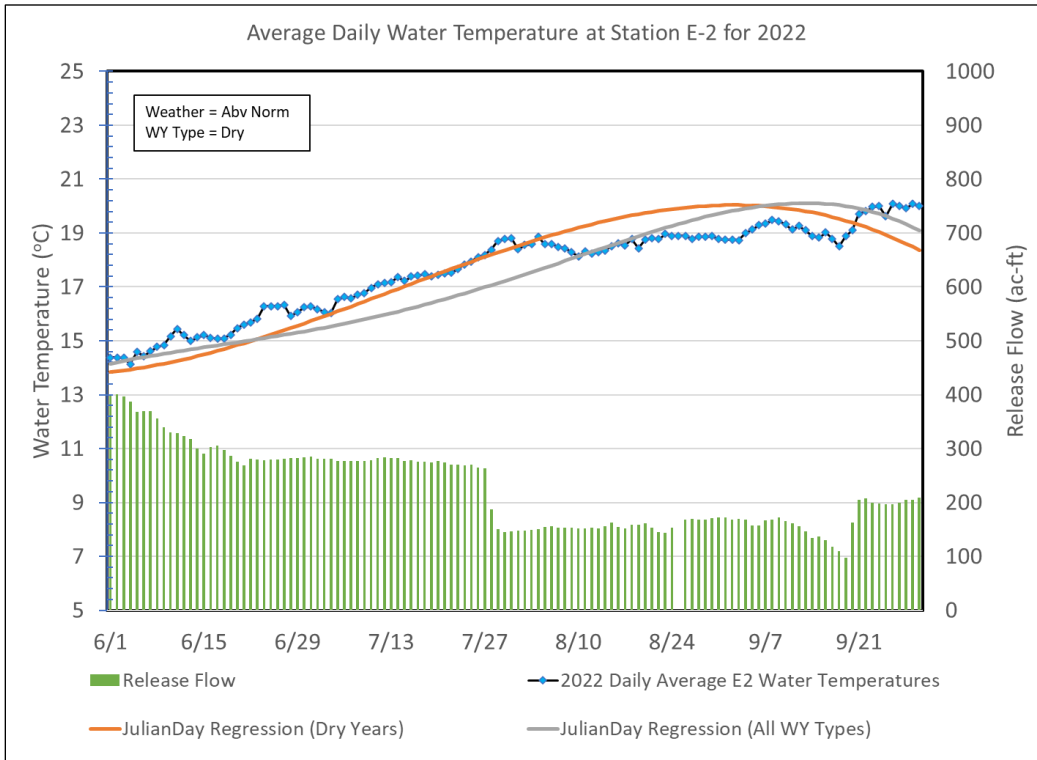
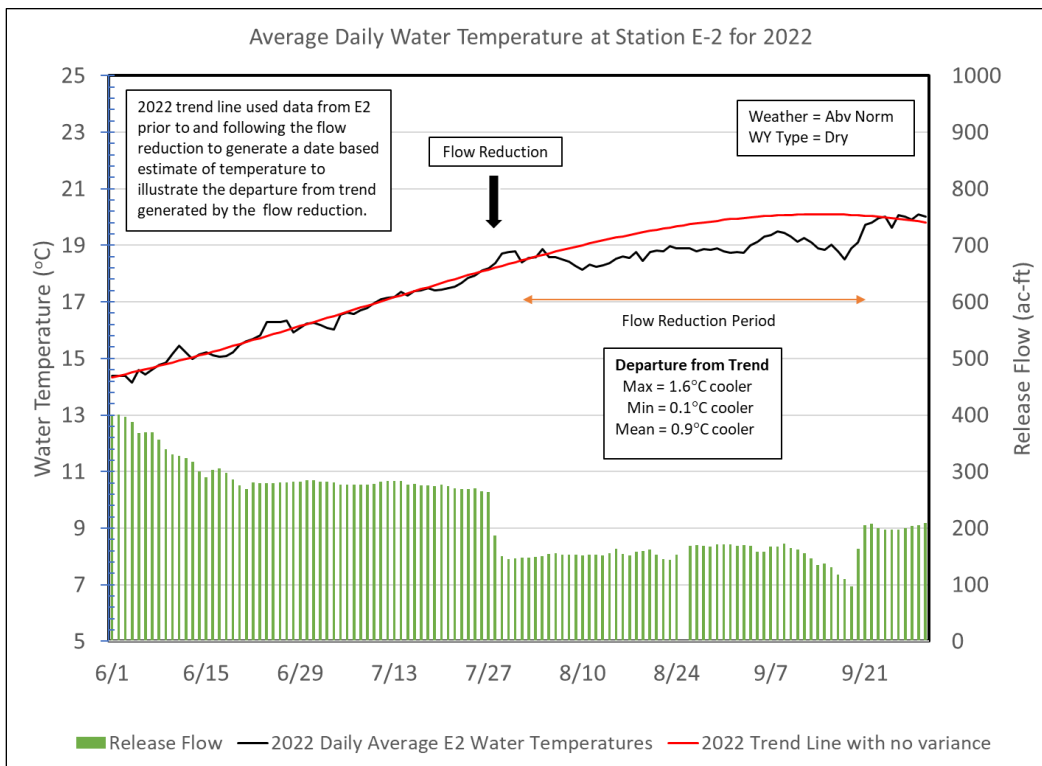
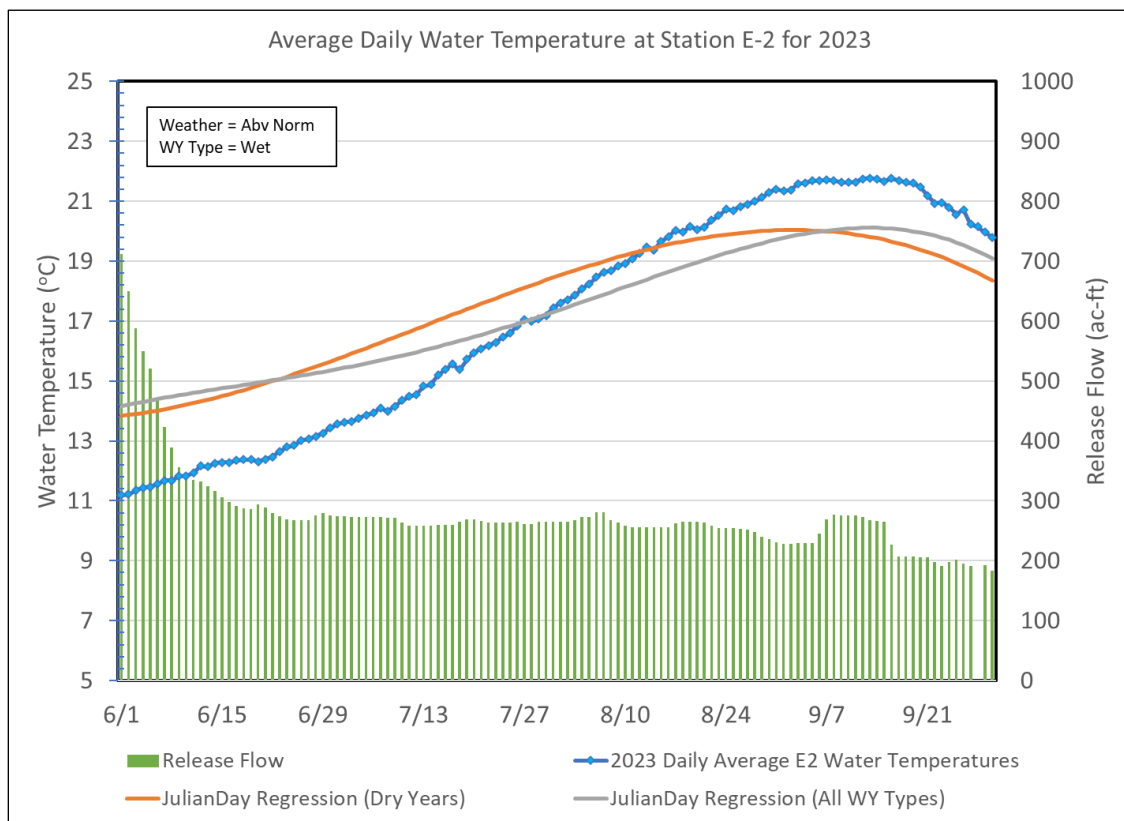


Figure 1: Average Daily Water Temperature at Gaging Station E-2 and release flow for 2022.



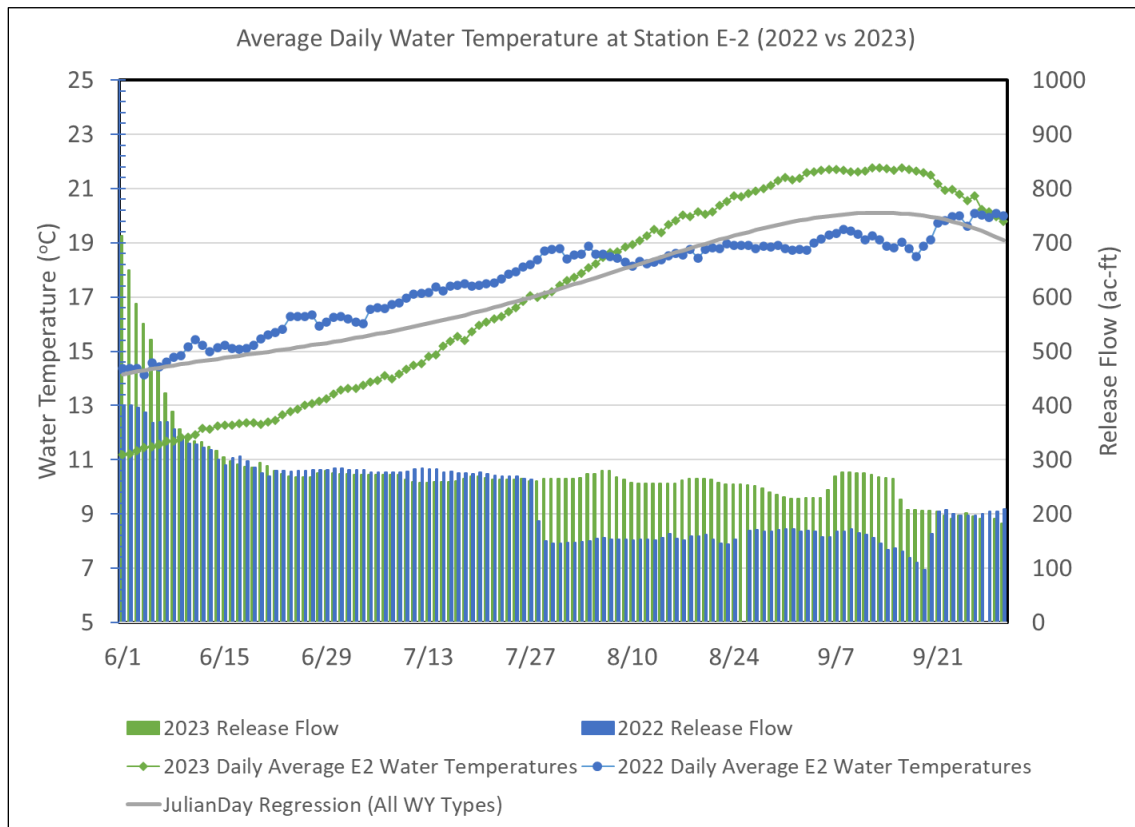
**Figure 2: Average Daily Water Temperature at Gaging Station E-2 with 2022 trend line.**

Based on the observations above, and in coordination with Agencies, PG&E developed a flexible reservoir release management strategy for the 2023 temporary flow amendment request that could better support cooler water temperatures for ESA-listed salmonids rearing in the Eel River downstream of Scott Dam. The strategy was included in PG&E’s 2023 request for temporary flow amendment submitted to FERC on May 22, 2023, and approved on October 2, 2023. However, because the temporary flow amendment started later than in previous years, reservoir withdrawals remained elevated during the summer period, depleting the cool water pool and resulting in increased water temperature above what was predicted by the guidance curves (Figure 3).



**Figure 3: Average Daily Water Temperature at Gaging Station E-2 and Release Flow for 2023**

A comparison of water temperature and release flow data from 2022 and 2023 supports the findings of PG&E’s water temperature analysis, with the result that the delayed implementation of the 2023 temporary flow amendment likely contributed to a 2.5 °C warmer maximum release temperature than in 2022, despite 2023 being a much wetter year. As shown on Figure 4, continued elevated withdrawals through the summer in 2023 accelerated the depletion of cooler water in Lake Pillsbury. This resulted in elevated release water temperature in late summer as compared to 2022, even though release water temperatures in early July were approximately 2°C cooler in 2023. Based on our understanding of the relationship between release volume and water temperature, it is likely that release water temperature in 2023 would have been minimized by the proposed flexible management release strategy outlined in PG&E’s 2023 temporary flow amendment request.



**Figure 4. Comparison of Average Daily Water Temperatures at Station E-2.**

### ***2024 Water Temperature Modeling Results***

As part of the 2024 temporary flow amendment request approved by FERC on June 27, 2024, PG&E agreed to implement additional monitoring measures, including completing and using the Lake Pillsbury CE-QUAL water temperature model (Model) to explore adaptive management opportunities in coordination with Agencies. The Model used for scenario runs was developed for PG&E by Stantec/Kleinschmidt and was originally calibrated to data collected between 2010 and 2022 (Martinez, 2024<sup>2</sup>).

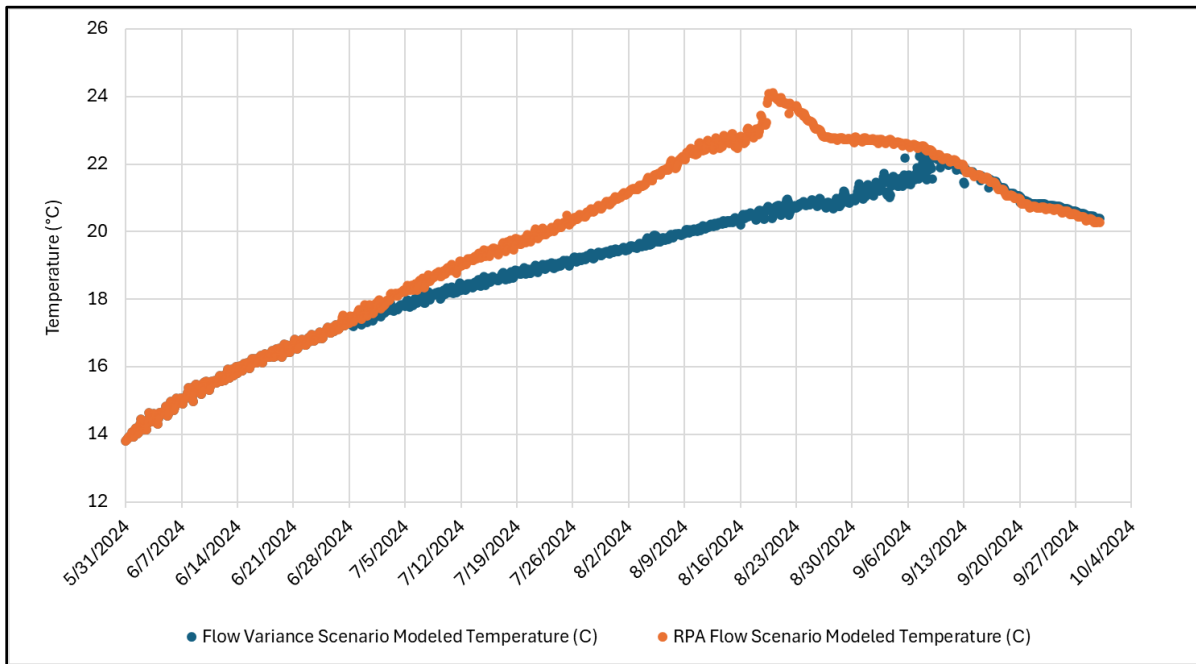
PG&E used the Model to show that implementing the 2024 temporary flow amendment improved habitat conditions for ESA listed species by reducing summertime water temperature in the Eel River downstream of Scott Dam. The water temperature modeling completed in January 2025 (Enclosure 1) compared the 2024 temporary amendment scenario with the RPA flow scenario from May 31, 2024, through September 31, 2024. The RPA flow scenario is a simulation of water temperature as if FERC had not approved PG&E's 2024 temporary flow amendment request and RPA flows were released in 2024. Additionally, a validation of the model was carried out to confirm that the model accurately simulated measured 2024 water temperatures.

<sup>2</sup> Martinez, V., and Addley, C. 2024. Technical Memorandum: Lake Pillsbury CE-QUAL-W2 Water Temperature Model, 2010-2022 Calibration Report – Final. March 7, 2024.

Comparison of the 2024 flow amendment flow scenario and the RPA flow scenario shows an average decrease in maximum summer temperature of about 1.8°C due to the temporary flow amendment (implemented on 6/27/24). The average monthly temperatures for July, August, and September would have been 0.8°C, 2.3°C, and 0.3°C higher, respectively, had the flow temporary flow amendment not been approved and RPA flows been released (Table 2, Figure 5). In addition, the number of days above 20°C decreased by 17 days (from 69 to 52) and the timing of peak water temperatures also shifted 21 days later, from August 20 under the RPA scenario to September 10 under the temporary flow amendment scenario.

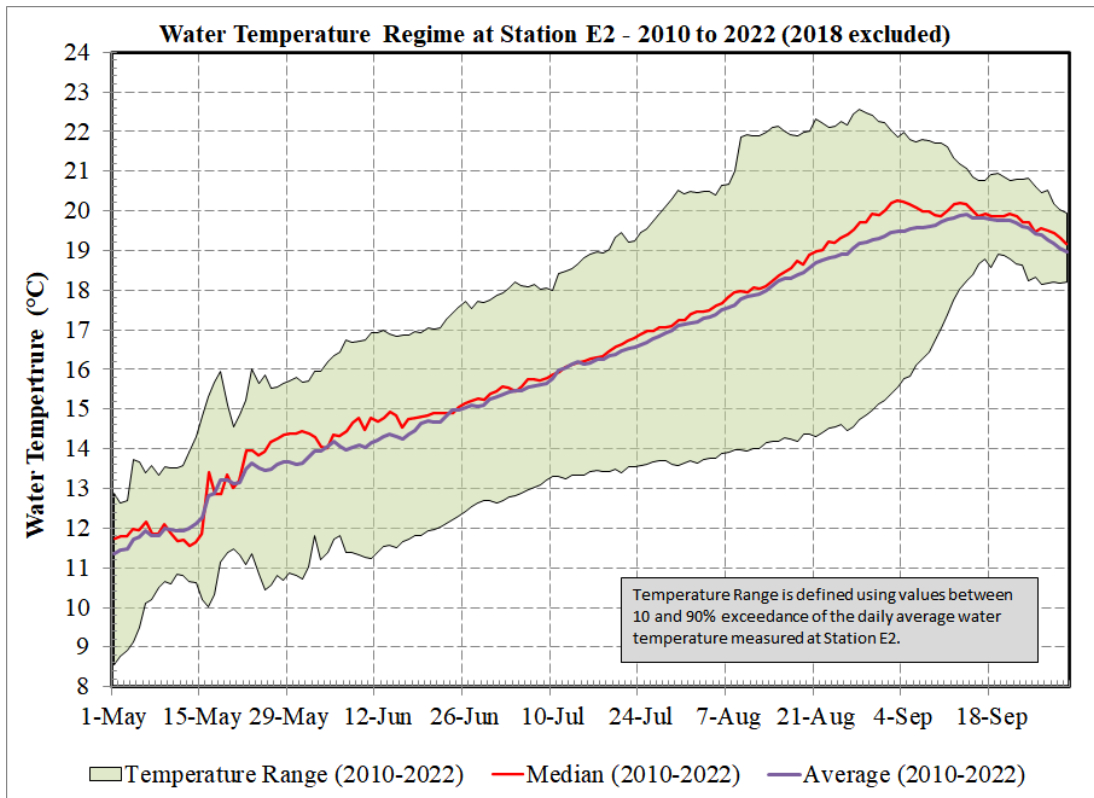
**Table 2: Model Temporary Flow Amendment and RPA Flow Scenario Water Temperature Results below Scott Dam**

Model Scenario	Maximum Summer Temperature (°C)	Average July Temperature (°C)	Average August Temperature (°C)	Average September Temperature (°C)
Flow Amendment Scenario (2024 Historical Operations)	22.3	18.6	20.4	21.3
RPA Flow Scenario	24.1	19.4	22.6	21.6
Average Temperature Difference between Scenarios	1.8	0.8	2.3	0.3



**Figure 5. Modeled Water Temperature below Scott Dam for the Flow Amendment and RPA Scenario Proposed Flexible Management Release Strategy**

PG&E will monitor release water temperature as measured at E-2 during the summer. When daily average water temperatures exceed 15°C (which could occur beginning in June, assuming median and average values [Figure 6]), PG&E will notify Agencies and begin meeting weekly to determine if diversions to the EBRR, as measured at E-16, should be further reduced in support of preserving water storage for cooler release temperatures.



**Figure 6: Summary of Median, Average, and 10–90 Percent Exceedance Range of Water Temperatures at E-2 between May and September, using 2010–2022 Data**

In coordination with Agencies, PG&E will adjust flows in EBRR between 25 and 5 cfs for July through September 30, as needed to preserve cooler water temperatures in the reservoir. The cooler water will be released in late summer in support of federally ESA-listed species in the Eel River downstream of Scott Dam. Flow adjustments will be informed by the regression-based analysis guidance curves, observed water temperatures for releases measured at E-2, and bi-weekly vertical temperature profiles collected within Lake Pillsbury. The new CE-



QUAL water temperature model, developed in coordination with Agencies, may also be used to inform flow adjustments to EBRR.

After September 30, E-16 will be classified as Dry and remain at 25 cfs, barring the reservoir storage forecast indicating a lower release is necessary to prevent the reservoir from reaching concerning storage levels later in the year.

**Requested Temporary Flow Amendment**

The following flow amendment conditions are requested for 2025 (Table 3), and will be implemented once approved by FERC:

- Gaging Station E-2 will be reclassified as a Critical Water Year Type. In practice, the E-2 flows will be the combined releases for E-11, E-16, and Potter Valley Irrigation District contract water, with a floor set by the minimum opening of the low-level outlet (approximately 35 cfs).
- Gaging Station E-16 flows will be reclassified initially as Dry (25 cfs), and then will be adjusted between 5 and 25 cfs based on PG&E and agency determination when daily average reservoir release water temperatures at E-2 exceed 15°C (E-2 water temperatures typically exceed 15°C in early June).
- After September 30, E-16 will be held at 25 cfs for the remainder of the temporary flow amendment.
- Reductions to E-16 flow releases may also occur if the Lake Pillsbury storage forecast indicates facility safety concerns due to low storage levels (12,000 AF).
- The Drought Working Group (DWG) will meet once monthly during the temporary flow amendment period to discuss storage levels, release flow rates, water temperature profiles, release temperatures, and estimated temperature projections at E-2.
- PG&E will submit monthly water storage and temperature reports to FERC.
- The temporary flow amendment will end when Lake Pillsbury storage exceeds 36,000 AF after October 1, 2024, or is superseded by another amendment. The 36,000 AF storage threshold would allow the reservoir to meet minimum flow obligations, including a possible Blockwater release, through January 2025 if inflow is extremely low in early winter.
- Flows will be calculated at a 24-hour average measured at Gaging Station E-11 rather than the current instantaneous measurement. This will allow for a tighter compliance buffer on minimum E-11 flows.

These conditions will be superseded if FERC approves PG&E’s February 3, 2025, license amendment request.

**Table 3: Requested Flows under 2025 Temporary Flow Amendment**

<b>Compliance Point</b>	<b>Allowed Range: Min/Max</b>	<b>Water Year Classification</b>	<b>Notes</b>
<b>Eel River below Scott Dam (E-2)</b>	20 cfs*/No max	Critical	Adjusted RPA minimum flow classification to critical

<b>Eel River below Cape Horn Dam (E-11)</b>	TBD**/No max	TBD**	No change from RPA
<b>East Branch Russian River (E-16)</b>	5 to 25 cfs	Critical or Dry	Adjusted RPA minimum flow classification to critical or dry
<b>Potter Valley Irrigation District</b>	No min/50 cfs*** (5 cfs post-irrigation season)	N/A	PG&E's discretion to meet temperature, storage and facility safety objectives
<p><b>Note:</b> cfs = cubic feet per second; TBD = to be determined on May 15.                  * In practice, assumed 35 cfs based on low level outlet minimum release (facility limitation)                  ** Water Year Type for E-11 determined May 15 of each year.                  *** Demand based deliveries to PVID are secondary to storage, temperature and facility safety objectives.</p>			

## Biological Impacts

PG&E biologists have reviewed this temporary flow amendment proposal and believe that it is necessary to conserve water in Lake Pillsbury and provide adequate flow releases and suitable water quality conditions for the long-term protection and recovery of federally ESA-listed salmonids within the Eel River watershed. The biological analysis is provided in the following subsections.

### ***Eel River below Lake Pillsbury and Van Arsdale Reservoir***

The primary federally and state ESA-listed salmonid species affected by the Project are Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead trout (*O. mykiss*). The life stages of these species that could potentially be in the river and whose habitat conditions are influenced by Project operations during the temporary flow amendment period are adult steelhead trout (pre- and post-spawn), juvenile Chinook salmon, and juvenile steelhead trout. If the flow amendment extends beyond October, adult Chinook salmon will be present as well.

Adult steelhead trout migrate into the upper Eel River watershed to spawn primarily from January through April (summer-run steelhead trout may migrate into the upper Eel River watershed later; however, the project area lacks suitable habitat for over-summering). PG&E would not reduce flows in the Eel River for adult steelhead trout migration and spawning below the license-prescribed flows. Juvenile Chinook salmon remain in the river for several weeks after hatching and then migrate to the ocean during spring (typically April–June), as flows decline, and water temperatures increase. Juvenile steelhead trout, which typically spend one or more years in the river before migrating to the ocean during late winter and spring (typically February–June), also require suitable habitat conditions throughout the summer. Available spring rearing habitat in the Eel River for juvenile salmon and steelhead trout would not be affected by the proposed temporary flow amendment. An increase in spring flows followed by a decrease to summer levels, as prescribed by the license, would still occur, thus providing important migration cues for downstream migrating juvenile fish.

Lower flows during mid- to late summer in the Eel River between Scott and Cape Horn Dams would result under the temporary flow amendment because surplus diversion flows to the EBRR would be reduced. However, the proposed temporary flow amendment would support

improved habitat conditions for summer-rearing juvenile steelhead trout by reducing withdrawals from Lake Pillsbury, which has been found to minimize water temperature increases in late summer (see PG&E WT analysis). The non-native Sacramento pikeminnow (*Ptychocheilus grandis*) is a predator and competitor of juvenile salmonids in the Eel River Basin. In laboratory streams, interspecific competition has been found to have a negligible effect on juvenile steelhead at water temperatures less than 18°C, while pikeminnow outcompete juvenile steelhead at temperatures 20-23°C (Reese and Harvey 2002<sup>3</sup>). Under the temporary flow amendment, PG&E would notify Agencies when water temperature exceeds 15°C at E-2 and meet upon request to manage withdrawals from the reservoir to minimize the duration juvenile steelhead trout are exposed to pikeminnow at temperatures above 18°C in late summer.

As mentioned above, the proposed temporary flow amendment would reduce minimum flows in the reach between Scott and Cape Horn Dams to preserve storage in Lake Pillsbury. While this may temporarily reduce the volume of available summer rearing habitat for steelhead trout between the dams, minimum flows would remain above the E-2 “Critical” classification as prescribed by the license and assessed in NMFS’ 2002 Biological Opinion. However, habitat conditions during mid- to late summer would be expected to improve and potentially expand accessible habitat for steelhead trout by maintaining suitable water temperatures. If cooler water temperatures are not maintained during mid- to late summer (see Figure 3. Average Daily Water Temperature at Gaging Station E-2 and Release Flow for 2023), habitat conditions between the dams are likely to become increasingly stressful and potentially unsuitable for steelhead trout due the presence of pikeminnow. Summertime flow requirements in the Eel River below Cape Horn Dam (Stream Gage E-11) under the proposed temporary flow amendment would remain unchanged from the license-prescribed summer flow classification (to be determined on May 15, 2024).

Transitioning into fall and winter, the proposed temporary flow amendment is the prudent action, given the potential for Lake Pillsbury to reach critical water levels because of unpredictable storm activity and inflow conditions. Low reservoir levels could limit PG&E's ability to release water at Scott Dam, and limited releases could in turn affect downstream aquatic resources (including Chinook salmon and steelhead trout) because of changes in flow, high levels of turbidity, and sedimentation. Implementation of the proposed temporary flow amendment would conserve water in Lake Pillsbury, improve water quality conditions below Scott Dam, and reduce the risk of reservoir bank erosion and sloughing at low reservoir storage levels. Agencies would also have their Water Year 2025 Blockwater allotments under the license available during the fall/winter adult Chinook salmon spawning season to supplement flows, if needed, given hydrologic conditions in the Eel River watershed.

Overall, the proposed temporary flow amendment would not reduce flows in the Eel River below what is prescribed by the license. Therefore, no further impacts to ESA-listed fish species are anticipated.

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<sup>3</sup> Reese, C.D., and B.C. Harvey. 2002. Temperature-Dependent Interactions between Juvenile Steelhead and Sacramento Pikeminnow in Laboratory Streams. Transactions of the American Fisheries Society. 131:599-606.

### ***East Branch Russian River***

The primary fish species of interest in the EBRR downstream of the Potter Valley Powerhouse is resident rainbow trout (*O. mykiss*), which are not ESA listed. Both natural origin and hatchery rainbow trout inhabit this stream reach. CDFW historically planted catchable resident rainbow trout to support the local sport fishery; however, planting activities have been reduced in recent years because of persisting drought conditions and lower flows. Under the proposed flow amendment, flows in the EBRR would be reduced from Normal to between Dry and Critical classifications (75 to 25–5 cfs), resulting in a reduction in habitat for rainbow trout and other aquatic species. In turn, this would result in the continuation of reduced sport fishing opportunities for the duration of the flow amendment.

### **Agency Consultation and Conclusion**

PG&E and Agency correspondence is listed below:

February 3, 2025, 2025: PG&E provided the Agencies a draft temporary flow amendment proposal.

February 5, 2025: PG&E met with the Agencies to review the draft temporary flow amendment.

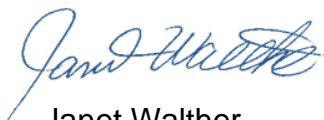
February 11, 2025: PG&E provided the revised temporary flow amendment request to the Agencies.

In addition, NMFS, CDFW, and RVIT provided emails of support following PG&E's revision to the draft temporary flow amendment. These support emails are provided as (Enclosure 2).

Given the risk that providing Project license–required flows with the reduced reservoir levels will lead to destabilizing drawdown rates and, in the worst case, reaching critical minimum pool at Lake Pillsbury, PG&E requests that the temporary flow amendment take effect as soon as FERC approves the request.

If you have questions, concerns, or comments, please do not hesitate to contact Chadwick McCready, senior license coordinator for PG&E at (530) 685-5710.

Sincerely,



Janet Walther  
Senior Manager, FERC License Management

Enclosures:

1. 2025 Water Temperature Modeling Memo
2. Agency Consultation

cc: See Attached List

cc: [via email w/enclosures](#)

Joshua Fuller, Fish Biologist, National Marine Fisheries Service  
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# **ENCLOSURE 1**

## Technical Memorandum

**To:** Andrew Anderson, Edward Cheslak (PG&E)  
**From:** Vanessa Martinez and Craig Addley (Kleinschmidt Group)  
**Date:** 1/28/25  
**Re:** 2024 Lake Pillsbury Water Temperature Modeling of Temporary Flow Amendment Compared to RPA Flows

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### 1.0 SUMMARY

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This memorandum describes Lake Pillsbury water temperature modeling for the 2024 temporary flow amendment (variance) compared to the RPA Flow scenario (5/31/2024 through 9/31/2024). The temporary flow amendment scenario models the actual historical operations in 2024. A model validation was carried out to confirm that the model accurately simulates measured 2024 water temperatures. The RPA Flow scenario is a simulation of water temperature as if the RPA flows had been implemented. The memorandum includes the assumptions used to establish model boundary conditions and the modeling results. The simulations show that implementing the temporary flow amendment reduced the maximum water temperature in the Eel River below Scott Dam by 1.8 °C (22.3 °C versus 24.1 °C) and the August average monthly temperature by 2.3 °C (20.4 °C versus 22.6 °C). The number of days above 20 °C decreased by 17 days and the timing of peak temperatures also shifted 21 days later (from 8/20/24 to 9/10/24) compared to the RPA Flow scenario.

### 2.0 MODEL

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

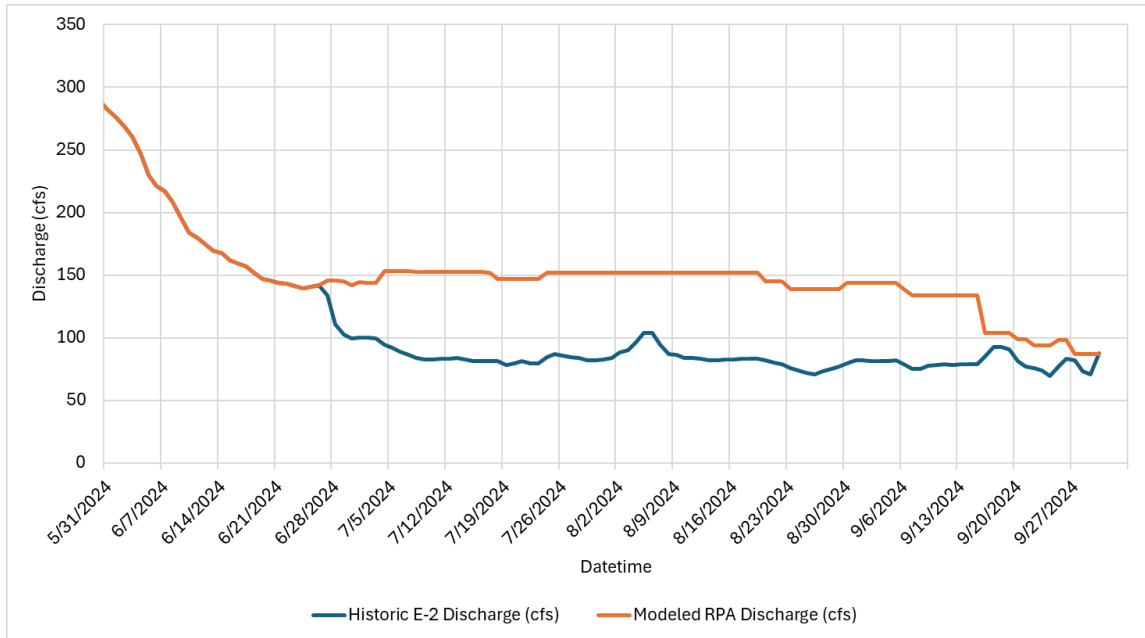
### 3.0 MODELING ASSUMPTIONS

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#### 3.1 MODEL HYDROLOGY AND INFLOW TEMPERATURES

**Flow Amendment Scenario (Historical) – Lake Pillsbury** 2024 daily historical inflow (calculated) and outflow (measured) data for May through October 2024 were developed by Michelle Lent (PG&E) and provided on January 11, 2025. The daily inflow temperatures for the same period were provided by Scott McBain (McBain Associates).

**RPA Flow Scenario** – The RPA Flow model run used identical inflow assumptions (flow and temperature) to the temporary flow amendment model, but different outflow assumptions (**Error! Reference source not found. 1**). Temporary amendment flows were implemented on 6/27/24; therefore, the RPA Flow scenario diverges from the temporary flow amendment on that date.



**Figure 1:** Temporary Flow Amendment Historic Discharge and RPA Scenario Modeled Discharge from Scott Dam

### 3.2 STARTING TEMPERATURE PROFILE

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

### 3.3 METEOROLOGICAL BOUNDARY CONDITIONS

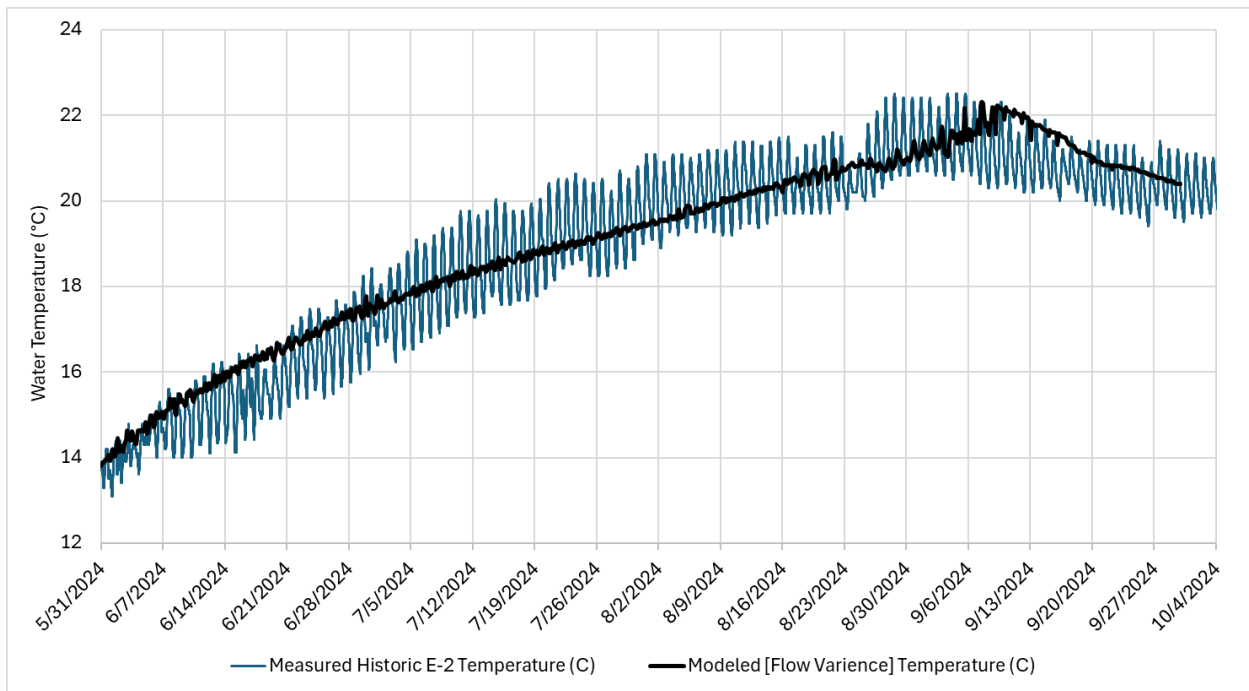
Meteorological data (air temperature, dew point temperature, wind speed, wind direction, cloud cover) for 2024 were downloaded from the same meteorological stations used to develop the original model calibration period dataset. See the calibration model report for more information (Martinez, 2023). Both model scenarios were run using identical inflow, water temperature, and meteorological boundary condition data.

## 4.0 2024 MODEL VALIDATION

The modeled outflow temperature from Scott Dam for the temporary flow amendment scenario was compared to the measured temperatures at E-2 (below Scott Dam) to



validate the performance of the 2024 CE-QUAL-W2 temperature model. A graphical comparison of modeled versus measured water temperature is shown in Figure 2 below. The modeled outflow temperature from Scott Dam matched the mean measured temperature at gage E-2 with a mean error of 0.16 °C for the entire modeling period. The measured data showed significant diurnal variations due to the travel time between the Scott Dam outlet and the gage location, which is 0.6 miles downstream (i.e., diel warming and cooling is occurring between the Scott Dam outlet and the E-2 gage location).



**Figure 2: Comparison of the modeled Temporary Flow Amendment (Variance) versus measured Eel River water temperature below Scott Dam at the E-2 gage.**

## 5.0 MODEL RESULTS

A summary of the temporary Flow Amendment and RPA Flow scenario water temperature model results below Scott Dam for key water temperature metrics is provided in Table 1, Table 2, and Figure 3 below. These key water temperature metrics were chosen based on discussions with PG&E and the agency/tribal group to reflect importance to juvenile steelhead rearing and pikeminnow predation of those juvenile steelhead.

Comparison of Temporary Flow Amendment and RPA Flow scenarios shows an average decrease in maximum summer temperature of about 1.8°C due to the temporary flow amendment (begins on 6/27/24). The average monthly temperatures for July, August,

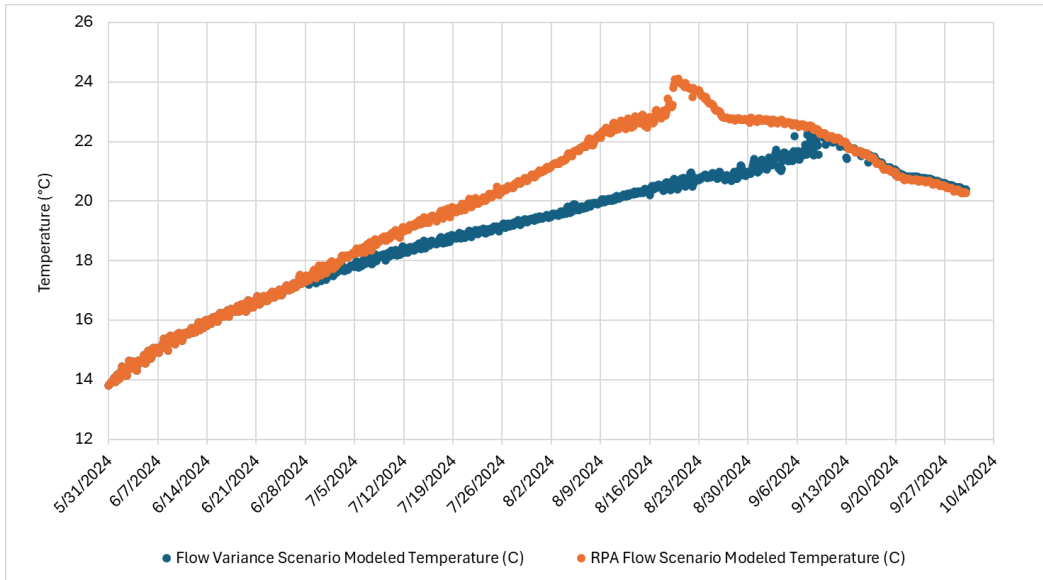
and September would have been 0.8°C, 2.3°C, and 0.3°C higher, respectively, had the temporary flow amendment not been approved and RPA flows been followed.

**Table 5-1 Modeled Temporary Flow Amendment and RPA Flow Scenario Water Temperature Results below Scott Dam.**

<b>Model Scenario</b>	<b>Maximum Summer Temperature (°C)</b>	<b>Average July Temperature (°C)</b>	<b>Average August Temperature (°C)</b>	<b>Average September Temperature (°C)</b>
Temporary Flow Amendment Scenario (2024 Historical Operations)	22.3	18.6	20.4	21.3
RPA Flow Scenario	24.1	19.4	22.6	21.6
Average Temperature Difference between Scenarios	1.8	0.8	2.3	0.3

**Table 5-2. Scenario Comparison of Days above 20°C and Date of Peak Water Temperature**

<b>Model Scenario</b>	<b>Days above 20°C (June – Sept)</b>	<b>Date of Peak Temperature</b>
Temporary Flow Amendment Scenario (2024 Historical Operations)	52	9/10/24
RPA Flow Scenario	69	8/20/24
Difference between Scenarios	17	21 days



**Figure 3: Modeled Water Temperature below Scott Dam for the Temporary Flow Amendment (Variance) and RPA Flow Scenarios.**

## 6.0 REFERENCES

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

# **ENCLOSURE 2**

**From:** [Joshua Fuller - NOAA Federal](#)  
**To:** [McCready, Chadwick](#)  
**Cc:** [nicholas.easterbrook@noaa.gov](mailto:nicholas.easterbrook@noaa.gov); [Boyce, Josh](#); [Matt Myers](#); [Chris Ramsey](#); [Renger, Allan@Wildlife](mailto:Renger.Allan@Wildlife); [Scott McBain](#); [Anderson, Andrew](#); [Urias, Anna](#); [Lent, Michelle](#); [Williamshen, Brian](#); [Cheslak, Edward](#); [Jeffrey Jahn](#); [Steve Edmondson](#)  
**Subject:** Re: 2025 Temporary Flow Request  
**Date:** Thursday, February 13, 2025 8:07:44 AM

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Dear Mr. McCready,

Thank you for the opportunity to review and comment on PG&E's *2025 Minimum Instream Temporary Flow Amendment Request* for the Potter Valley Hydroelectric Project (FERC No. 77-CA), received via email on February 10, 2025. The National Marine Fisheries Service (NMFS) supports this request to conserve water storage in Lake Pillsbury while ensuring suitable habitat conditions for federally ESA-listed salmonids downstream of Scott Dam and balancing water supply interests within the Russian River watershed.

NMFS believes that the proposed flow components of this request align with the intent of NMFS' 2002 Biological Opinion and key elements of the *Interim Protective Measures (IPMs)*, as outlined in NMFS' March 16, 2022, letter to FERC. We appreciate PG&E's efforts, as well as the technical flow and temperature analyses supporting this request and the fisheries monitoring that informs juvenile and adult salmonid habitat conditions influenced by the Potter Valley Project in the Eel River.

As PG&E advances through the FERC License Surrender and Decommissioning process, NMFS will continue providing technical assistance in support of future flow amendment requests and other conservation measures that protect federally ESA-listed salmonids.

Please feel free to contact me with any further questions or comments regarding this matter.

Joshua Fuller

On Mon, Feb 10, 2025 at 4:21 PM McCready, Chadwick <[COMM@pge.com](mailto:COMM@pge.com)> wrote:

Good afternoon everyone,

Attached you will find the revised 2025 Potter Vally temporary flow amendment request and its supporting temperature modeling memo. This version incorporates technical edits provided by RVIT and CDFW (thanks Scott and Chris!). Please let me know by COB tomorrow if you have any final questions or edits so that I can get this signed and over to FERC by the end of the week.

Thanks,



**Chadwick McCready**

*Senior Hydro License Coordinator | Power Generation*

Pacific Gas & Electric Company

C: (530) 685-5710 | e: [Chadwick.Mccready@pge.com](mailto:Chadwick.Mccready@pge.com)

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~~~~~

*Joshua Fuller*

*North Coast Branch Supervisor*

*California Coastal Office*

*NOAA Fisheries West Coast Region*

*U.S. Department of Commerce*

*777 Sonoma Ave., Rm. 325*

*Santa Rosa, CA 95404*

Office: 707-575-6096

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[Joshua.Fuller@noaa.gov](mailto:Joshua.Fuller@noaa.gov)

**From:** [Myers, Matt@Wildlife](mailto:Myers, Matt@Wildlife)  
**To:** [McCready, Chadwick](mailto:McCready, Chadwick); [Boyce, Josh](mailto:Boyce, Josh); [Ramsey, Chris@Wildlife](mailto:Ramsey, Chris@Wildlife); [Joshua Fuller - NOAA Federal](mailto:Joshua.Fuller@noaa.gov); [nicholas.easterbrook@noaa.gov](mailto:nicholas.easterbrook@noaa.gov); [Renger, Allan@Wildlife](mailto:Renger, Allan@Wildlife); [Scott McBain](mailto:Scott.McBain@mcbainassociates.com); [McKannay, Adam@Wildlife](mailto:McKannay, Adam@Wildlife); [Kormos, Brett@Wildlife](mailto:Kormos, Brett@Wildlife); [Tollefson, Trevor@Wildlife](mailto:Tollefson, Trevor@Wildlife)  
**Cc:** [Anderson, Andrew](mailto:Anderson, Andrew); [Urias, Anna](mailto:Urias, Anna); [Cheslak, Edward](mailto:Cheslak, Edward); [Williamshen, Brian](mailto:Williamshen, Brian); [Lent, Michelle](mailto:Lent, Michelle)  
**Subject:** RE: Draft Final 2025 Potter Valley Flow Amendment and Water Temperature Memo  
**Date:** Friday, February 7, 2025 10:33:48 AM

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Chadwick McCready,

The California Department of Fish and Wildlife (CDFW) has reviewed and provided input to PG&E's Potter Valley 2025 Minimum Instream Temporary Flow Amendment Request (2025 Variance), and we have no additional comments. The PG&E proposed variance flow schedule will conserve cold water in lake Pillsbury for the release of cold water during the summer and improved Eel River habitat conditions for federally ESA listed salmonids. We support PG&E's submittal of the 2025 Variance to FERC as soon as possible, and this email can be cited as support for submittal. Thank you for the opportunity to coordinate and comment on the request.

Please direct questions to Matt Myers at [Matt.Myers@wildlife.ca.gov](mailto:Matt.Myers@wildlife.ca.gov) or Allan Renger at [Allan.Renger@wildlife.ca.gov](mailto:Allan.Renger@wildlife.ca.gov).

Matt Myers  
Senior Environmental Scientist  
California Department of Fish and Wildlife  
530-638-6027 (cell)

---

**From:** McCready, Chadwick <COMM@pge.com>  
**Sent:** Wednesday, February 5, 2025 4:57 PM  
**To:** Boyce, Josh <josh\_boyce@fws.gov>; Ramsey, Chris@Wildlife <Chris.Ramsey@wildlife.ca.gov>; Joshua Fuller - NOAA Federal <joshua.fuller@noaa.gov>; Myers, Matt@Wildlife <Matt.Myers@wildlife.ca.gov>; nicholas.easterbrook@noaa.gov; Renger, Allan@Wildlife <Allan.Renger@wildlife.ca.gov>; Scott McBain <scott@mcbainassociates.com>  
**Cc:** Anderson, Andrew <A5AK@pge.com>; Urias, Anna <AXUS@pge.com>; Cheslak, Edward <EFC3@pge.com>; Williamshen, Brian <BOW2@pge.com>; Lent, Michelle <M4LQ@pge.com>

**Subject:** RE: Draft Final 2025 Potter Valley Flow Amendment and Water Temperature Memo

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Here is the document with some minor adjustments from our meeting. We are aiming to get this out by 2/14/2025. Let me know if you have any questions or concerns.

Thanks folks.



**Chadwick McCready**

*Senior Hydro License Coordinator | Power Generation*  
Pacific Gas & Electric Company  
C: (530) 685-5710 | e: [Chadwick.Mccready@pge.com](mailto:Chadwick.Mccready@pge.com)

---

**From:** McCready, Chadwick

**Sent:** Wednesday, February 5, 2025 3:37 PM

**To:** Boyce, Josh <[josh\\_boyce@fws.gov](mailto:josh_boyce@fws.gov)>; Chris Ramsey <[chris.ramsey@wildlife.ca.gov](mailto:chris.ramsey@wildlife.ca.gov)>; Joshua Fuller - NOAA Federal <[joshua.fuller@noaa.gov](mailto:joshua.fuller@noaa.gov)>; Matt Myers <[Matt.Myers@wildlife.ca.gov](mailto:Matt.Myers@wildlife.ca.gov)>; [nicholas.easterbrook@noaa.gov](mailto:nicholas.easterbrook@noaa.gov); Renger, Allan@Wildlife <[Allan.Renger@wildlife.ca.gov](mailto:Allan.Renger@wildlife.ca.gov)>; Scott McBain <[scott@mcbainassociates.com](mailto:scott@mcbainassociates.com)>

**Cc:** Anderson, Andrew <[A5AK@pge.com](mailto:A5AK@pge.com)>; Urias, Anna <[AXUS@pge.com](mailto:AXUS@pge.com)>; Cheslak, Edward <[EFC3@pge.com](mailto:EFC3@pge.com)>; Williamshen, Brian <[BOW2@pge.com](mailto:BOW2@pge.com)>; Lent, Michelle <[M4LQ@pge.com](mailto:M4LQ@pge.com)>

**Subject:** Draft Final 2025 Potter Valley Flow Amendment and Water Temperature Memo

Hi all,

Here is the updated draft final of the variance, as well as the water temperature modeling memo.

Talk to you shortly.



**Chadwick McCready**

*Senior Hydro License Coordinator | Power Generation*  
Pacific Gas & Electric Company  
C: (530) 685-5710 | e: [Chadwick.Mccready@pge.com](mailto:Chadwick.Mccready@pge.com)

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**From:** [Scott McBain](#)  
**To:** [Myers, Matt@Wildlife](#); [McCready, Chadwick](#); [Boyce, Josh](#); [Ramsey, Chris@Wildlife](#); [Joshua Fuller - NOAA Federal](#); [nicholas.easterbrook@noaa.gov](#); [Renger, Allan@Wildlife](#); [McKannay, Adam@Wildlife](#); [Kormos, Brett@Wildlife](#); [Tollefson, Trevor@Wildlife](#)  
**Cc:** [Anderson, Andrew](#); [Urias, Anna](#); [Cheslak, Edward](#); [Williamshen, Brian](#); [Lent, Michelle](#); [Erica Costa](#)  
**Subject:** RE: Draft Final 2025 Potter Valley Flow Amendment and Water Temperature Memo  
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Mr. McCready,

On behalf of the Round Valley Indian Tribes, I have reviewed the PG&E's Potter Valley 2025 Minimum Instream Temporary Flow Amendment Request (2025 Variance), and we have no additional technical comments. I appreciate the effort that PG&E has put into the analyses to support the Flow Amendment Request, which has been very helpful to inform 2024 and 2025 flow management on the Potter Valley Project. I support this 2025 Temporary Flow Amendment Request, and encourage submittal to FERC as soon as possible. Thank you,

Scott McBain

Consultant to the Round Valley Indian Tribes  
McBain Associates, dba *Applied River Sciences*  
980 7th Street  
Arcata, CA 95521  
(707)273-1045 (direct)  
(707)826-7794 (main directory)  
(707)845-0101 (cell)

---

**From:** Myers, Matt@Wildlife <Matt.Myers@wildlife.ca.gov>  
**Sent:** Friday, February 7, 2025 10:34 AM  
**To:** McCready, Chadwick <COMM@pge.com>; Boyce, Josh <josh\_boyce@fws.gov>; Ramsey, Chris@Wildlife <Chris.Ramsey@wildlife.ca.gov>; Joshua Fuller - NOAA Federal <joshua.fuller@noaa.gov>; nicholas.easterbrook@noaa.gov; Renger, Allan@Wildlife <Allan.Renger@wildlife.ca.gov>; Scott McBain <scott@mcbainassociates.com>; McKannay, Adam@Wildlife <Adam.McKannay@wildlife.ca.gov>; Kormos, Brett@Wildlife <Brett.Kormos@wildlife.ca.gov>; Tollefson, Trevor@Wildlife <Trevor.Tollefson@wildlife.ca.gov>  
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**Subject:** RE: Draft Final 2025 Potter Valley Flow Amendment and Water Temperature Memo

Chadwick McCready,

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Please direct questions to Matt Myers at [Matt.Myers@wildlife.ca.gov](mailto:Matt.Myers@wildlife.ca.gov) or Allan Renger at [Allan.Renger@wildlife.ca.gov](mailto:Allan.Renger@wildlife.ca.gov).

Matt Myers  
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**To:** Boyce, Josh <[josh\\_boyce@fws.gov](mailto:josh_boyce@fws.gov)>; Ramsey, Chris@Wildlife <[Chris.Ramsey@wildlife.ca.gov](mailto:Chris.Ramsey@wildlife.ca.gov)>; Joshua Fuller - NOAA Federal <[joshua.fuller@noaa.gov](mailto:joshua.fuller@noaa.gov)>; Myers, Matt@Wildlife <[Matt.Myers@wildlife.ca.gov](mailto:Matt.Myers@wildlife.ca.gov)>; [nicholas.easterbrook@noaa.gov](mailto:nicholas.easterbrook@noaa.gov); Renger, Allan@Wildlife <[Allan.Renger@wildlife.ca.gov](mailto:Allan.Renger@wildlife.ca.gov)>; Scott McBain <[scott@mcbainassociates.com](mailto:scott@mcbainassociates.com)>  
**Cc:** Anderson, Andrew <[A5AK@pge.com](mailto:A5AK@pge.com)>; Urias, Anna <[AXUS@pge.com](mailto:AXUS@pge.com)>; Cheslak, Edward <[EFC3@pge.com](mailto:EFC3@pge.com)>; Williamshen, Brian <[BOW2@pge.com](mailto:BOW2@pge.com)>; Lent, Michelle <[M4LQ@pge.com](mailto:M4LQ@pge.com)>  
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Thanks folks.



## Chadwick McCready

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C: (530) 685-5710 | e: [Chadwick.Mccready@pge.com](mailto:Chadwick.Mccready@pge.com)

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**Sent:** Wednesday, February 5, 2025 3:37 PM

**To:** Boyce, Josh <[josh\\_boyce@fws.gov](mailto:josh_boyce@fws.gov)>; Chris Ramsey <[chris.ramsey@wildlife.ca.gov](mailto:chris.ramsey@wildlife.ca.gov)>; Joshua Fuller - NOAA Federal <[joshua.fuller@noaa.gov](mailto:joshua.fuller@noaa.gov)>; Matt Myers <[Matt.Myers@wildlife.ca.gov](mailto:Matt.Myers@wildlife.ca.gov)>; [nicholas.easterbrook@noaa.gov](mailto:nicholas.easterbrook@noaa.gov); Renger, Allan@Wildlife <[Allan.Renger@wildlife.ca.gov](mailto:Allan.Renger@wildlife.ca.gov)>; Scott McBain <[scott@mcbainassociates.com](mailto:scott@mcbainassociates.com)>

**Cc:** Anderson, Andrew <[A5AK@pge.com](mailto:A5AK@pge.com)>; Urias, Anna <[AXUS@pge.com](mailto:AXUS@pge.com)>; Cheslak, Edward <[EFC3@pge.com](mailto:EFC3@pge.com)>; Williamshen, Brian <[BOW2@pge.com](mailto:BOW2@pge.com)>; Lent, Michelle <[M4LQ@pge.com](mailto:M4LQ@pge.com)>

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## Chadwick McCready

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