

**MEMORANDUM OF UNDERSTANDING**  
**TO ADVANCE A WATER DIVERSION AGREEMENT**  
**FOR A NEW EEL-RUSSIAN FACILITY**

**February 7, 2025**

This “Memorandum of Understanding” (MOU) is entered into by the California Department of Fish and Wildlife (CDFW), California Trout, Eel-Russian Project Authority (ERPA), Humboldt County, Mendocino County Inland Water and Power Commission (IWPC), Round Valley Indian Tribes (RVIT), Sonoma County Water Agency (Sonoma Water), and Trout Unlimited (Parties) through their executive leadership, to state the proposed terms for a Water Diversion Agreement for a new Eel-Russian Diversion Facility (NERF). The Parties commit to work expeditiously to finalize such agreement before July 29, 2025.

**1. Recitals.**

- 1.1. Pacific Gas and Electric Company (PG&E) is the licensee for the Potter Valley Project (PVP or Project). Since 1908 the Project has diverted water from the Eel River Basin into the Russian River Basin, for power generation and water supply. The Project has adversely affected anadromous fisheries, environmental quality, and related beneficial uses of water in the Eel River Basin.
- 1.2. The Federal Energy Regulatory Commission (FERC) issued the current license for PVP on October 4, 1983. That license expired on April 14, 2022. Since that time, PG&E has operated the Project under annual licenses.
- 1.3. On January 25, 2019, PG&E filed a notice with FERC stating that it will not seek or hold a new license for the Project. On May 11, 2022, FERC directed PG&E to file a plan and schedule for license surrender. PG&E is expected to file its license surrender application by July 29, 2025.
- 1.4. In December 2023, Sonoma Water, Sonoma County, and IWPC formed ERPA as a joint powers authority. RVIT subsequently joined ERPA’s Board of Directors.
- 1.5. ERPA proposes to construct, operate, and maintain the NERF, to divert water from the Eel River, at the site of and following the decommissioning and removal of Cape Horn Dam, on terms consistent with restoration of the anadromous fisheries of the Eel.

- 1.6. The Parties are negotiating a Water Diversion Agreement to avoid conflict over water resources, promote timely Eel River restoration and to achieve co-equal goals for the Eel and Russian River Basins (the “Two-Basin Solution”):
  - 1.6.1. Improving fish migration and habitat on the Eel River with the objective of achieving naturally reproducing, self-sustaining, and harvestable native anadromous fish populations; and
  - 1.6.2. Maintaining material and continued water diversion from the Eel River through the existing tunnel to the Russian River to support water supply reliability, fisheries, and water quality in the Russian River Basin.
- 1.7. The Parties are negotiating the Water Diversion Agreement with the following intentions:
  - 1.7.1. Advance the timely removal of Scott Dam and Cape Horn Dam through a cooperative approach with PG&E and interested parties from Eel and Russian River watersheds;
  - 1.7.2. Develop criteria for water diversions based on the best available scientific information to ensure that water diversions will be consistent with the recovery of Eel River fisheries and a functioning ecosystem;
  - 1.7.3. Secure equitable state and federal funding for substantial investments in water infrastructure within the Russian River basin and ecosystem restoration within the Eel River basin;
  - 1.7.4. Take a significant step toward restorative justice for RVIT and reconciliation with the history of adverse impacts on Eel River communities associated with out-of-basin diversions; and
  - 1.7.5. Establish a durable and mutually supportive relationship between the Eel and Russian Rivers basins and provide a strong foundation for continued regional collaboration based on incentives and mutual benefit.

2. **Purpose of MOU.** This MOU reflects essential terms that the Parties propose to include in a Water Diversion Agreement. The Parties will continue to work together to finalize a Water Diversion Agreement before July 29, 2025.

3. **PG&E’s License Surrender Application for the PVP.**

- 3.1. Decommissioning. PG&E has stated: “PG&E’s decommissioning plan will include the removal of in water facilities such that no feature will continue to impound water and the natural flow of the river will occur.”
- 3.2. Support. The Parties support PG&E’s removal of both Scott and Cape Horn Dams as part of license surrender. The Parties further support undertaking such decommissioning as expeditiously as practicable, targeting 2028 for commencement of such work. The Parties agree that NERF construction will not interfere with or delay such Decommissioning in any way.
- 3.3. Non-Project Use. The Parties agree to ask PG&E, in its license surrender application, to propose that FERC authorize NERF construction as a non-Project use of Project lands and facilities in the vicinity of Cape Horn Dam.

4. **Disposition of Project Water Rights.**

- 4.1. Transfer of PG&E Water Rights. The Parties agree to support the transfer of the Project’s appropriative water rights from PG&E to ERPA. The Parties propose that such transfer occur concurrent with the transfer of Project lands and facilities necessary for construction and operation of NERF, subject to any reservation necessary for PG&E’s continuing compliance with the license surrender order. Subject to Section 11.1, the Parties agree to support the transfer of each water right from ERPA to RVIT immediately after closing with PG&E, and ERPA’s not operating NERF until such transfer occurs.
- 4.2. Use of Water Rights Following Transfer. Subject to Section 11.1, the Parties agree to support RVIT’s dedication of all such transferred water rights to instream beneficial uses in the Eel River, except for that portion that is diverted into the Russian River Basin by NERF pursuant to a lease between RVIT and ERPA as stated in Term 7 below.

5. **Disposition of Project Lands and Facilities.** The Parties agree to support the transfer from PG&E to ERPA of all Project lands and facilities necessary for construction and operation of NERF, such transfer to occur when authorized by FERC.

6. **Design and Construction of the New Eel-Russian Facility.**

- 6.1. Design. The Parties support a design and construction of NERF using a pumping system for water diversion near the existing Cape Horn Dam site, as reflected in McMillen Inc., *Potter Valley Project Diversion Facilities Assessment - Preliminary Engineering Report* (May 25, 2024).
- 6.2. Responsibilities. ERPA will be responsible for the construction, operation, and maintenance of NERF. ERPA will be responsible to secure necessary funds for this purpose, as needed to supplement available public funds secured under Term 9.
7. **Water Right Lease for the Operation of NERF**. RVIT and ERPA agree to enter into a lease authorizing ERPA to operate NERF using RVIT's water right to divert flow from the Eel River.
  - 7.1. Diversion Schedule. ERPA will operate NERF to divert flow into the Russian River Basin in compliance with "Draft Diversion Rules" (Attachment 1).
  - 7.2. Environmental Outcomes.
    - 7.2.1. Performance Metrics. The Parties agree to the performance metrics contained in "Draft Framework for Monitoring and Evaluating NERF Operations" (Attachment 2), stating the expected outcomes of the diversion. Such metrics are intended to assure that the diversion into the Russian River Basin does not harm native fisheries in the Eel River Basin.
    - 7.2.2. Monitoring Plan. ERPA will develop a monitoring plan in collaboration with other Parties, as a condition of its anticipated federal and state regulatory approvals. The plan will require annual and five-year reports stating the monitoring results. ERPA will solicit comments from the appropriate federal and state regulatory agencies on these reports and will respond in writing to such comments.
    - 7.2.3. Meet and Confer. The Parties will meet and confer every five years (5), at a minimum, to review the monitoring results, including comments from regulatory agencies.
    - 7.2.4. Adaptive Management. The diversion schedule will be changed on the recommendations of a technical committee, if monitoring results demonstrate that NERF operations have caused

environmental impacts on the Eel River that are materially different than expected in the performance metrics.

7.3. Use Charge and Restoration Payment. The Parties agree that the lease will provide for ERPA to pay to RVIT a Use Charge and a separate Eel River Restoration Payment.

7.3.1. Payment Amounts in the Initial Term.

- (i) ERPA will pay a Use Charge of \$1,000,000 per year to RVIT, in consideration for the use of RVIT's water rights for the operation of NERF. RVIT's Tribal Council may use these funds for any lawful purpose.
- (ii) ERPA will make a Restoration Payment to RVIT, in recognition of RVIT's forbearing to assert federally reserved water and fishing rights against ERPA during the term of the lease. (a) The amount will be \$750,000 per year. (b) The amount will increase to \$1,000,000 per year if funding under Section 9.1.2 covers 100% of the construction cost of NERF. Such increase in funds will be split between the Use Charge and Restoration Payment as specified in the Water Diversion Agreement. (c) The amount stated in (a) will be adjusted on a sliding scale, if funding under Section 9.1.2 covers more than 75% but less than 100% of such construction cost. (d) As the basis for an increase in Restoration Payment under (b) – (c) above, such funding must be secured by December 2027, when ERPA otherwise would seek bond financing to cover such construction cost. (e) RVIT will pay these funds over to the Restoration Fund as specified in the Water Diversion Agreement.
- (iii) The Use Charge and Restoration Payment will be due on January 1 of each year of operation of NERF, as specified in the Water Diversion Agreement.

7.3.2. Payment Amounts in Renewal Term. In Year 31, the Use Charge and Restoration Payment will increase from the amount in Year 30 by (i) 50% of the savings from retirement of any bond that ERPA used to finance the construction of NERF, or (ii) 15%, whichever is greater. Such increase in funds will be split

between the Use Charge and Restoration Payment as specified in the Water Diversion Agreement, provided that at least 50% of such increase will be allocated to the Use Charge.

- 7.3.3. Index. The Use Charge and Restoration Payment will be adjusted based on California CPI or other mutually agreeable index stated in the Water Diversion Agreement.

## **8. Term for Diversion.**

8.1. Initial Term. The Parties agree that NERF will operate for an initial term of 30 years, beginning on the date operation begins.

8.2. Renewal Term. The Parties agree that the operation of NERF may be extended an additional 20 years upon the satisfaction of the following conditions:

8.2.1. On or after January 1, 2025, the Eel River Restoration Fund has received at least \$25 million in funds as specified in Term 9.1.1, excluding the Restoration Payment pursuant to Term 7.3.1(ii).

8.2.2. ERPA has substantially complied with the agreed upon payment and water diversion provisions.

8.2.3. ERPA demonstrates that continued diversion is not expected to materially adversely affect recovery of the native fish species in the Eel River during the renewal term, as documented in a report that (i) summarizes the status of species recovery (post-dam removal) on the Eel River upstream of the Middle Fork; (ii) analyzes the impact (if any) of the diversions under this Agreement on such recovery, not limited to compliance with the requirements of any Biological Opinion issued for NERF; and (iii) documents the changes that have resulted from adaptive management.

8.2.4. ERPA demonstrates a continued need for diversion from the Eel River for water supply reliability, fisheries, and water quality in the Russian River basin during the renewal term.

8.2.5. ERPA demonstrates that its members and other authorized water users in the Russian River basin have made substantial efforts during the Initial Term to achieve self-reliance at the conclusion of the renewal term, anticipating that the diversion from the Eel

River basin will terminate if subsequent renewal does not occur or if NERF reaches the end of its useful life, whichever is sooner.

8.3. Discretionary Renewal. At the conclusion of the Renewal Term, the Parties then in existence will decide whether to enter into a successor agreement regarding any continuing operation of NERF.

8.4. Removal of NERF. At the end of the useful life for NERF, or the termination of the Water Diversion Agreement and any successor thereto, whichever comes first, ERPA will be responsible for shutting down and removing the facility.

## 9. Additional Funding.

9.1. First Funding Phase. The Parties will make reasonable and material efforts to raise federal, state, and private funds (measured in 2025 dollars) to implement the Two-Basin Solution:

9.1.1. Eel River Restoration Fund. The Parties will undertake to raise \$50 million to contribute to the restoration of the Eel River fisheries. This amount includes the funds paid by ERPA through the Restoration Payment specified in Term 7.3.1(ii). This amount is expected to be additional to, and not supplant, funds historically allocated to Eel River restoration. RVIT and other Parties will establish mutually agreeable arrangements for the governance and management of Eel River Restoration Fund, as well as an annual report on the use of such funds, which are intended to be used to effect significant change in the environmental conditions that currently impair the fisheries. Such arrangements will include measures to provide for the participation in restoration efforts by other Indian tribes in the Eel River watershed, or that have connections to the watershed. The Water Diversion Agreement will include the details of such arrangements.

9.1.2. NERF. The Parties will undertake to raise \$50 million for the design, permitting, and construction of NERF. This amount does not include the bond financing obtained by ERPA, or the use charges paid by water users to ERPA, Sonoma Water, or IWPC. ERPA will prepare an annual report on the use of such funds, to demonstrate progress in completion of this facility.

- 9.2. Second Funding Phase. Parties will jointly undertake to raise additional funds for continued implementation of the Two-Basin Solution, in the following amounts (as measured in 2025 dollars): \$100 million for Eel River Restoration Fund, and \$100 million for projects to enhance water supply reliability in the Russian River Basin.
10. **Dispute Resolution.** The Parties agree to use a dispute resolution procedures to resolve all disputes related to the implementation of Water Diversion Agreement.
- 10.1. Range of Procedures. Such procedures will include meet-and-confer, mediation, arbitration, and enforcement by a court or a regulatory agency.
- 10.2. Enforceability. The Parties intend that the Water Diversion Agreement will provide for enforceability of the commitments therein, including a limited waiver of sovereign immunity by RVIT as necessary for such enforceability.
- 10.3. RVIT. The Parties acknowledge and support the assertion of sovereign immunity by RVIT in any action by a third party challenging the validity or legality of this MOU and/or the Water Diversion Agreement, including but not limited to the defense of indispensable party.
11. **Signature of this MOU.** The Parties agree to the following provisions, where “Participant” and “Party” have the same meaning.
- 11.1. No Legal Obligations, Rights, or Remedies. This Memorandum of Understanding is a voluntary initiative. It does not create any legally binding rights or obligations and creates no legally cognizable or enforceable rights or remedies, legal or equitable, in any forum whatsoever. In addition, the pledges in this Memorandum of Understanding are not conditioned upon reciprocal actions by other Participants; each Participant retains full discretion over implementation of its pledges in light of the Participant’s individual circumstances, laws, and policies; and each Participant is free to withdraw from the Memorandum.
- 11.2. No Pre-Decisional Determination. Nothing in this MOU is intended or will be construed to be a pre-decisional determination by any public agency Party to sign a Water Diversion Agreement or any other agreement. Each such Party must give due consideration to any terms negotiated by the Parties before deciding whether to sign a Water Diversion Agreement. All Parties further recognize that each public agency Party may need to comply with the California Environmental Quality Act and other applicable laws prior to making any legally binding commitments.



- 11.3. Compliance with Applicable Laws. This Memorandum of Understanding shall be construed consistent with all applicable laws, and activities undertaken in connection with this Memorandum of Understanding shall be subject to, and shall be undertaken in a manner consistent with, all otherwise-applicable laws.
- 11.4. Availability of Personnel and Resources.
- 11.4.1. This Memorandum of Understanding does not involve the exchange of funds, nor does it represent any obligation of funds by either Participant. All costs that may arise from activities covered by, mentioned in, or pursuant to this Memorandum of Understanding will be assumed by the Participant that incurs them, unless otherwise expressly agreed in a future written arrangement in accordance with applicable laws. All activities undertaken pursuant to this Memorandum of Understanding are subject to the availability of funds, personnel and other resources of each Participant.
- 11.4.2. The personnel designated by a Participant for the execution of this Memorandum of Understanding will work under the orders and responsibility of that Participant and any other organization or institution to which the personnel already belongs, at all times maintaining any preexisting employment relationship only with that Participant and organization or institution, and not with any other Participant.
- 11.5. Interpretation and Application. Any difference that may arise in relation to the interpretation or application of this Memorandum of Understanding will be resolved through consultations between the Participants, which will endeavor in good faith to resolve such differences.
- 11.6. Effect of Signature. This MOU may be signed by executive leadership for the Parties. For each Party, execution and implementation of a Water Diversion Agreement is conditioned upon and subject to approval by the decisional body of the Party, as may be required. By signing this MOU, the Parties confirm their commitment to continue efforts to finalize a Water Diversion Agreement, consistent with the terms outlined in this MOU, with a goal that the Water Diversion Agreement be executed prior to PG&E filing its license surrender application with FERC, or July 29, 2025.

11.7. Counterparts. This MOU may be signed in counterparts. For convenience, the signature blocks are organized in alphabetical order by Party.

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Dated: February \_\_\_\_, 2025

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California Department of Fish and Wildlife

Dated: February \_\_\_\_, 2025

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California Trout

Dated: February \_\_\_\_, 2025

\_\_\_\_\_  
Humboldt County

Dated: February \_\_\_\_, 2025

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Mendocino County Inland Water and Power  
Commission

Dated: February \_\_\_\_, 2025

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Round Valley Indian Tribes

Dated: February \_\_\_\_, 2025

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Sonoma County Water Agency

Dated: February \_\_\_\_, 2025

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Trout Unlimited

## New Eel-Russian Facility

### Draft Diversion Rules

February 7, 2025

#### 1 PURPOSE

The rules for the diversions from the Eel River to the Russian River (Diversion Rules) are intended to ensure that the Eel Russian Project Authority (ERPA) operates the New Eel-Russian Facility (NERF) and diverts water in a manner that protects Eel River biological resources and ecological processes. This Appendix describes the Diversion Rules and provides an overview of the ecological objectives that the rules are anticipated to protect.

#### 2 OPERATIONAL CONDITIONS

The Diversion Rules include the following conditions:

- All measurements described in this Appendix are in cubic feet per second (cfs);
- Diversions will occur at the NERF;
- Continuous (e.g., 15-minute to hourly) streamflow gaging will occur on-site to measure inflows to the NERF that define diversion rates;
- Diversions will occur on a sub-daily timestep (specific time step to be determined) due to variable frequency drive diversion pumps and on-site streamflow gaging;
- The minimum instantaneous flow that can be diverted is 5 cfs based on assumed pump constraints; and,
- The maximum instantaneous flow that can be diverted is 300 cfs based on the diversion tunnel capacity.

#### 3 COMPONENTS OF DIVERSION RULES

**Unimpaired Flow:** Unimpaired Flow is the Eel River streamflow immediately upstream of the NERF prior to any diversion by the NERF.

**Floor:** The Floor is the minimum Unimpaired Flow that is required for diversions to commence. Once the Unimpaired Flow drops below the Floor, or the allowable diversion amount is less than 5 cfs, diversions stop.

**Maximum Diversion Rate as a Percent-of-flow (POF):** POF diversion rates are the maximum allowable diversion amount, expressed as a percent of the Unimpaired Flow. Incorporating maximum diversion amounts as a POF precludes the need for water-year typing.

**Ramping Rates:** Ramping rates describe the rate that the diversion can accelerate, starting at no diversions at the Floor up to the Maximum Diversion Rate as a POF. Ramping rates ensure that once diversions commence, flows do not drop below the Floor, and that Eel River flows downstream of the NERF do not fluctuate due to the diversion. Diversions can commence once the Unimpaired Flow is above the Floor, and gradually increase (maintaining the Floor in the Eel River) until the diversion rate reaches the Maximum Diversion Rate (e.g., 20% POF).

**Timestep of Operations:** The timestep of diversion operations will be as short as possible to mimic natural hydrograph patterns, and will be finalized based on results of ongoing design of the NERF.

## 4 DIVERSION RULES

### 4.1 Considerations for Diversion Rules by Season

Diversion Rules were developed for four seasonal periods based on the natural hydrograph and life history of focal fish species. The components of the natural flow regime, priority ecological considerations for the mainstem Eel River, and hypotheses behind the diversion rules for each season are described below.

#### **Fall Flows (October 1 – December 31):**

**Hydrograph components:** Low baseflows, initial fall pulse flows.

**Primary Ecological Considerations:** Adult fall-run Chinook passage and spawning.

**Hypotheses Driving Diversion Rules:** Adult Chinook Salmon rely on fall pulse flows to move through all critical riffles from the lower Eel River to upper mainstem and tributaries. The first fall pulse flows cue fish migration and is critical to reduce pre-spawn mortality. Adult Chinook salmon are assumed to be able to travel upstream from the ocean to the NERF in 5 days. Baseflows between the fall pulse flows also provide habitat for Chinook Salmon spawning and egg incubation.

#### **Winter Flows (January 1 – February 29):**

**Hydrograph components:** Elevated wet season baseflows, storm peaks.

**Primary Ecological Considerations:** Adult winter-run steelhead passage and spawning.

**Hypotheses Driving Diversion Rules:** Elevated baseflows maintain volitional and unimpeded adult steelhead passage and maintain spawning habitat and egg incubation during winter for Chinook and Steelhead. Storm peaks maintain a dynamic channel, mobilize gravel and cobble, and support healthy benthic communities and food webs before spring.

#### **Spring Flows (March 1 – May 31):**

**Hydrograph components:** Early-spring recession, spring pulse flows.

**Primary Ecological Considerations:** Juvenile Chinook and steelhead rearing and outmigration, adult summer-run steelhead passage, non-native fish predation.

**Hypotheses Driving Diversion Rules:** The spring recession supports adult summer-run steelhead migration, juvenile Chinook and steelhead rearing, natural rates of water warming, and increased food web production. Elevated spring flows reduce upstream movement of non-native predatory pikeminnow. Spring pulse flows can re-set the food web to encourage healthy benthic communities.

#### **Summer Flows (June 1 – September 30):**

**Hydrograph components:** Late-spring recession, summer baseflows.

**Primary Ecological Considerations:** Juvenile steelhead rearing and redistribution, maintenance of river productivity.

**Hypotheses Driving Diversion Rules:** Summer baseflows maintain food web productivity, suitable water temperatures for salmonids, and enable juvenile steelhead redistribution to tributaries or cold-water refugia.

### 4.2 Summary of Diversion Rules

The Diversion Rules, including Floor, Maximum Diversion Rate as a POF, Ramping Rates, and additional flow rules for the four seasons are provided in Table 1.

Table 1. Summary of Diversion Rules including Floor, Maximum Diversion Rate as a POF, Ramping Rates, and additional rule for the Fall Flows season. Detailed diversion rate tables are shown in Section 5.

	Fall Flows*	Winter Flows	Spring Flows	Summer Flows
<b>Date Range:</b>	Oct 1 – Dec 31	Jan 1 – Feb 29	Mar 1 – May 31	Jun 1 – Sep 30
<b>Floor:</b>	300 cfs	250 cfs	125 cfs	35 cfs
<b>Maximum Diversion Rate:</b>	20%	30%	20%	20%
<b>Ramping Rates (see Section 5):</b>	Divert the difference between Unimpaired Flow and Floor of 300 cfs until the diversion rate hits Maximum Diversion Rate at 375 cfs	Divert the difference between Unimpaired Flow and Floor of 250 cfs until the diversion rate hits Maximum Diversion Rate at 357 cfs	Divert the difference between unimpaired flow and Floor of 125 cfs until the diversion rate hits Maximum Diversion Rate at 156 cfs	Divert the difference between Unimpaired Flow and Floor of 35 cfs until the diversion rate hits Maximum Diversion Rate at 43.75 cfs

\* Require one pulse flow with a duration of 5 days and magnitude of 500 cfs or greater before seasonal diversions begin.

### 4.3 Illustrative Examples of Diversion Rules

Ramping Rates are designed to reduce stair-stepping aspects of the Eel River hydrograph downstream of the NERF resulting from abrupt changes in diversion amounts. The Ramping Rates also allow the diversion to begin immediately once flows are above the Floor, thereby preventing flows below the NERF to drop below the Floor. Table 2 demonstrates how Diversion Rules determine the diversion amount based on the Unimpaired Flow for an example during the Winter Flows season. Figure 1 illustrates a hydrograph and diversion amounts that would result from implementing the Diversion Rules in spring and summer of a drier water year.

Table 2. Demonstration of calculation of diversion rates in the Winter Flows time period, where the Diversion Rules are: 1) 250 cfs Floor, 2) 30% Maximum Diversion Rate, 3) ramping rate allows for flows between the Unimpaired Flow and the Floor until the diversion rate hits the Maximum Diversion Rate, which occurs at 357 cfs, 4) minimum diversion capacity of 5 cfs, and 5) maximum diversion capacity of 300 cfs.

Unimpaired Flow	Percent of Unimpaired Flow Diverted to Russian River	Flow Diverted to Russian River	Eel River Flow Downstream of the NERF	Notes
250 cfs	0%	0 cfs	250 cfs	Floor, no diversion
254 cfs	0%	0 cfs	254 cfs	Above Floor, but diversion is less than 5 cfs, therefore no diversion
260 cfs	3.8%	10 cfs	250 cfs	Begin diversion because diversion flow is greater than 5 cfs, can divert the difference between the Unimpaired Flow and the Floor since diversion rate is less than the Maximum Diversion Rate
305 cfs	18%	55 cfs	250 cfs	Can divert the difference between the Unimpaired Flow and the Floor since diversion rate is less than the Maximum Diversion Rate
357 cfs	30%	107 cfs	250 cfs	Diversions reach 30% POF (Maximum Diversion Rate)

1,000 cfs	30%	300 cfs	700 cfs	Diversion at tunnel capacity, capped at 300 cfs, actual diversion POF is at 30%
1,500 cfs	20%	300 cfs	1,200 cfs	Diversion at tunnel capacity, capped at 300 cfs, actual diversion POF decreases
3,000 cfs	10%	300 cfs	2,700 cfs	Diversion at tunnel capacity, capped at 300 cfs, actual diversion POF decreases

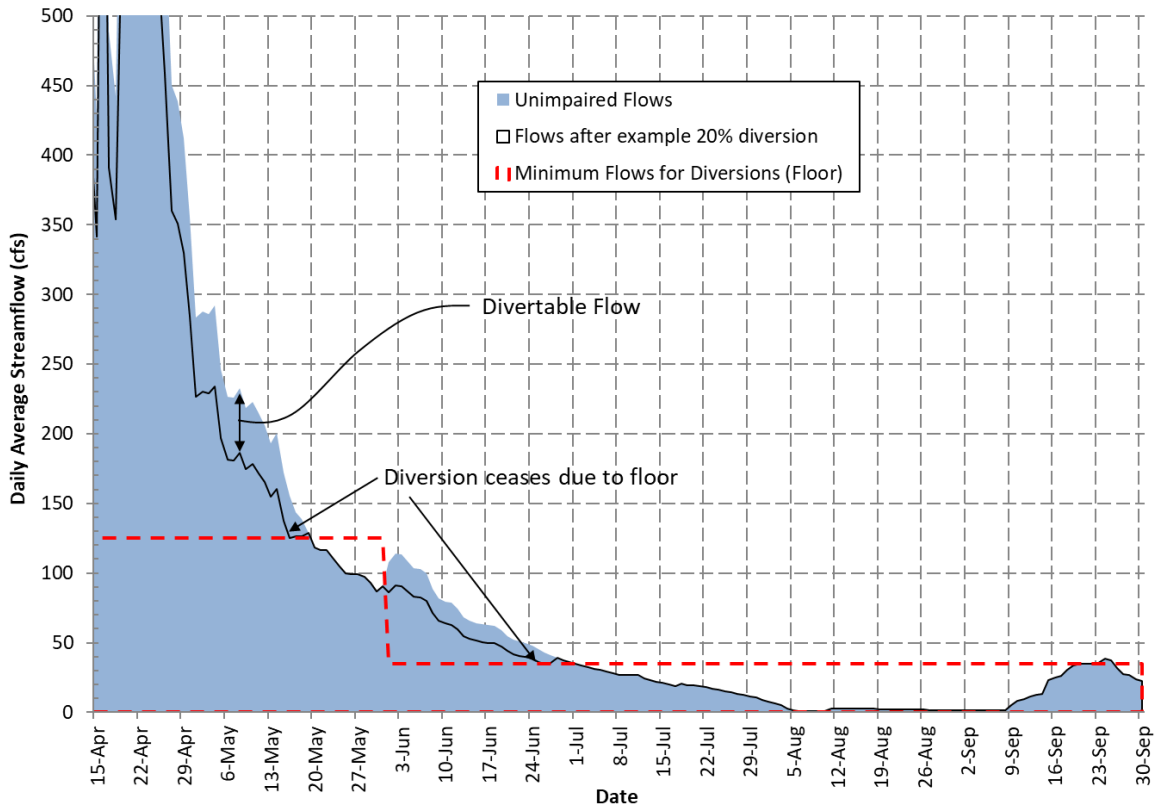


Figure 1. Example of hydrograph in the Eel River downstream of the NERF that would result from implementing the Diversion Rules in Water Year 2022, a drier water year, assuming no diversion constraints on the Russian River.

#### 4.4 Timestep of Diversion Operations

The timestep of calculating diversion amounts will occur on a timestep that 1) is as short as possible (hours) to reduce downstream stair-stepping flows and prevent downstream flows from dropping below the Floor, and 2) is feasible given operational constraints (pumps) at the NERF. The Maximum Diversion Rate as a POF will be calculated from the Unimpaired Flow at sub-daily timesteps, assumed to be several hours. Further hydrologic and engineering analyses of the NERF pumps will determine the exact timestep of diversion operations.

## 5 DIVERSION RATES SCHEDULE BY SEASON

The following tables describe the schedule for increasing diversion rates when the Unimpaired Flow rises above the seasonal Floor, and before the diversion POF reaches the Maximum Diversion Rate POF. For fall, winter, and spring seasons, the schedule is shown in 5 cfs increments, while for the summer season, the schedule is demonstrated in 1 cfs increments.

*Table 3. Diversion rates for Fall season (October 1 – December 31), ramping rates apply for Unimpaired Flows between 305 cfs and 370 cfs. Specific compliance rules (e.g., +/- X cfs or small buffer flow) will be refined at a later stage.*

<b>Unimpaired Flow upstream of NERF (cfs)</b>	<b>Diversion Flow (cfs)</b>	<b>Diversion POF %</b>	<b>Flow to the Eel River below NERF (cfs)</b>
300	0	0.0%	300
305	5	1.6%	300
310	10	3.2%	300
315	15	4.8%	300
320	20	6.3%	300
325	25	7.7%	300
330	30	9.1%	300
335	35	10.4%	300
340	40	11.8%	300
345	45	13.0%	300
350	50	14.3%	300
355	55	15.5%	300
360	60	16.7%	300
365	65	17.8%	300
370	70	18.9%	300
375	75	20.0%	300
380	76	20.0%	304
385	77	20.0%	308
390	78	20.0%	312



Table 4. Diversion rates for Winter season (January 1 – February 29), ramping rates apply for Unimpaired Flows between 255 cfs and 355 cfs. Specific compliance rules (e.g., +/- X cfs or small buffer flow) will be refined at a later stage.

Unimpaired Flow upstream of NERF (cfs)	Diversion Flow (cfs)	Diversion POF %	Flow to the Eel River below NERF (cfs)
250	0	0.0%	250
255	5	2.0%	250
260	10	3.8%	250
261	11	4.2%	250
265	15	5.7%	250
270	20	7.4%	250
275	25	9.1%	250
280	30	10.7%	250
285	35	12.3%	250
290	40	13.8%	250
295	45	15.3%	250
300	50	16.7%	250
305	55	18.0%	250
310	60	19.4%	250
315	65	20.6%	250
320	70	21.9%	250
325	75	23.1%	250
330	80	24.2%	250
335	85	25.4%	250
340	90	26.5%	250
345	95	27.5%	250
350	100	28.6%	250
355	105	29.6%	250
357	107	30.0%	250
360	108	30.0%	252
365	109.5	30.0%	255.5
370	111	30.0%	259
375	112.5	30.0%	262.5

Table 5. Diversion rates for Spring season (March 1 – May 31), ramping rates apply for Unimpaired Flows between 130 cfs and 156 cfs. Specific compliance rules (e.g., +/- X cfs or small buffer flow) will be refined at a later stage.

Unimpaired Flow upstream of NERF (cfs)	Diversion Flow (cfs)	Diversion POF %	Flow to the Eel River below NERF (cfs)
125	0	0.0%	125
130	5	3.8%	125
135	10	7.4%	125
140	15	10.7%	125
145	20	13.8%	125
150	25	16.7%	125
155	30	19.4%	125
156	31	19.9%	125
160	32	20.0%	128
165	33	20.0%	132
170	34	20.0%	136
175	35	20.0%	140

Table 6. Diversion rates for Summer season (June 1 – September 31), ramping rates apply for Unimpaired Flows between 40 cfs and 43 cfs. Specific compliance rules (e.g., +/- X cfs or small buffer flow) will be refined at a later stage.

Unimpaired Flow upstream of NERF (cfs)	Diversion Flow (cfs)	Diversion POF %	Flow to the Eel River below NERF (cfs)
35	0	0.0%	35
36	0	0.0%	36
37	0	0.0%	37
38	0	0.0%	38
39	0	0.0%	39
40	5	12.5%	35
41	6	14.6%	35
42	7	16.7%	35
43	8	18.6%	35
43.75	8.75	20.0%	35
44	8.8	20.0%	31
45	9	20.0%	36
46	9.2	20.0%	36.8
47	9.4	20.0%	37.6
48	9.6	20.0%	38.4

## **6 PRIMARY REFERENCES FOR DEVELOPING DIVERSION RULES**

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## New Eel-Russian Facility

### Draft Performance Metrics and Framework for Monitoring and Evaluating Operations

February 7, 2025

#### 1 PURPOSE

Monitoring will be conducted to ensure 1) compliance with the Diversion Rules of the Water Diversion Agreement (WDA) and 2) that the resulting Eel River flow regime protects intended ecological objectives and physical habitat downstream of the New Eel-Russian Facility (NERF).

#### 2 ASSUMPTIONS

Assumptions of monitoring metrics presented in this attachment include:

- Monitoring described below will be conducted and/or funded by the Eel-Russian Project Authority (ERPA), with the exception of suggestions for additional Informational monitoring, Section 4.4.
- Monitoring described below will occur for the duration of the WDA unless modified as described in Section 5 or the relevant sections of the WDA.
- Results of the ERPA monitoring will be summarized in publicly available reports, and monitoring data will be made available upon request.
- State and federal agencies may have additional requirements for monitoring associated with the NERF construction and operations, and these will be conducted by the ERPA. Information from the additional requirements will be included in annual and five-year reports and reviewed by the Technical Advisory Committee (TAC).
- State, federal, tribal, and NGO entities may conduct additional informational monitoring that will be funded and conducted outside the ERPA, but will occur in a collaborative manner with ERPA.
- ERPA will make good faith and reasonable efforts to make the NERF and associated monitoring facilities available for outside parties to conduct informational monitoring.
- ERPA will support a Technical Advisory Committee for the term of the WDA. The TAC may be composed of professionals with expertise in natural resource sciences and engineering from parties to the WDA, resource agencies, and academic institutions. For more detail regarding the composition, roles, and responsibilities of the TAC, please see relevant sections of the WDA.

#### 3 COMPONENTS OF MONITORING FRAMEWORK

Three types of monitoring metrics are defined for use in the monitoring framework:

**Compliance monitoring:** Compliance metrics will demonstrate that Diversion Rules are followed.

**Effectiveness monitoring:** Effectiveness metrics will help evaluate whether the Eel River flow regime is protective of physical habitat, including water temperature.

**Informational monitoring:** Informational metrics are important to understanding upper watershed fish biology, populations, water quality, and channel morphology, but may be difficult to correlate with NERF operations due to natural variability outside of the NERF footprint. This information will help evaluate flow-ecology hypotheses, ecological objectives in the Upper Eel River, and provide the necessary context for salmonid populations affected by a host of factors operating at

the watershed and marine scale (e.g., acknowledging variability caused by ocean productivity and other factors).

In addition, there may be monitoring conducted by PG&E as part of their regulatory obligations associated with PVP Decommissioning. These commitments are currently undefined and speculative, and therefore beyond the scope of this monitoring framework. There are two timescales for monitoring metrics:

**Continuous monitoring (sub-daily to annual):** Monitoring that will be conducted throughout the duration of the WDA. Depending on the metric, this will occur sub-daily (e.g., flow monitoring) to seasonally (e.g., adult fish counts).

**Periodic monitoring (every 5 years):** Monitoring or focused studies that will be conducted periodically to ensure that flow thresholds in the Diversion Rules are meeting their intended ecological objectives for physical habitat availability and fish passage. These monitoring tasks or focused studies will be conducted within 5 years of removing Scott Dam and Cape Horn Dam, and then every five years or sooner if needed (as agreed to by the TAC or WDA parties) due to episodic changes in channel morphology (e.g., following a large flood event).

## **4 MONITORING METRICS**

Metrics that link project operations to ecological response are desirable to ensure protection of Eel River ecological resources; however, dam removal, natural variability in meteorology and confounding factors influencing fish production and adult populations make it difficult to associate potential cause-and-effect relationships between NERF operations and ecological response. In addition, ecological data collection can be resource intensive. Therefore, the metrics listed below focus on a primary Compliance metric (flow), and a core set of Effectiveness metrics (physical habitat, fish passage, water temperature) that will be directly influenced by NERF operations. Other Informational metrics may be monitored by other entities to contribute to a broader understanding of ecological response in the upper Eel River watershed. All monitoring results will be considered in the 5-year review of the NERF operations.

### **4.1 Compliance Monitoring**

#### **Continuous Monitoring of Water Diversion Operations**

Flow will be measured continuously at a sub-daily timescale (1-hour intervals at minimum) in two locations:

- 1) Immediately downstream of NERF pumps at the stage control (location of former fish exclusion barrier); and,
- 2) In the diversion infrastructure, via pumping rates.

Unimpaired flows (inflows to the NERF) will be calculated at a minimum of hourly intervals by summing the flows immediately downstream of the NERF pumps and the diversion flows from the pumps. Diversion rates (pumping rate) will then be adjusted to follow the Diversion Rules based on computed NERF inflows. In addition, the flow monitoring stations will be tied into the operational SCADA system which will have alarms to alert an operator if the gages exceed or drop below compliance set points.

The flow measurements will be evaluated to ensure operations are in compliance with the Diversion Rules, specifically:

- Percent-of-flow diversion rates are followed at a sub-daily scale (likely 1-hour intervals);
- Ramping rates are not exceeded;

- Diversions do not cause flows below the NERF to drop below floors; and
- The timestep of operations are adequate to protect floors and the shape of the hydrograph.

In evaluating the performance of the NERF, some reasonable tolerances above and below the target Eel River release rates will be established in the future to account for uncertainties in streamflow measurements and unforeseen operational interruptions. Refinement to this metric will be conducted at a later stage as engineering and other physical factors are further understood.

## **4.2 Effectiveness Monitoring**

### **Continuous Adult Fish Passage**

To confirm that NERF diversions do not preclude passage of adult Chinook salmon and steelhead at the former Cape Horn Dam site (due to altered hydraulics) and through downstream critical riffles (due to flow reductions), a sonar and/or video fish monitoring system will be operated seasonally (October-April, as river conditions allow) at or near the NERF. The fish monitoring station will provide daily counts of passing adult Chinook salmon and winter-run steelhead. Adult fish passage monitoring could contribute to a life-cycle monitoring station at the NERF location (see Informational monitoring).

### **Periodic Physical Habitat Monitoring**

Periodic physical habitat monitoring will occur to confirm that the WDA's seasonal river floor thresholds are protecting the intended ecological function as described in the Diversion Rules. The first monitoring event will occur no later than 5 years after the removal of Scott Dam and Cape Horn Dam, a timeframe that is expected to allow the Eel River channel to reach an equilibrium condition (no large-scale scour or deposition) following dam removal. After that initial survey, field surveys will be conducted at a minimum of every 5 years downstream of the NERF. Physical habitat monitoring will focus on evaluating if flow thresholds are:

- 1) Maintaining the depth required for passage at critical riffles on the Eel River between the NERF and Outlet Creek. A field-based reconnaissance of critical riffles will first be conducted to identify up to 3 critical riffles between the NERF and Outlet Creek, and cross sections will be surveyed and evaluated at those three riffles for fish passage flow thresholds consistent with the methods used by CDFW. Results of the fish passage monitoring will be compared with thresholds intended to provide fish passage in the Diversion Rules.
- 2) Maintaining habitat capacity for Chinook salmon and winter-run steelhead spawning, egg incubation, and juvenile rearing. Habitat capacity will be modeled using an index site downstream of the NERF, likely the current 1-mile-long reference site on the Eel River just upstream of Tomki Creek. The topography of an index site will be surveyed with drone, LiDAR, and/or ground surveys, a 2-D hydraulic model calibrated and run for flows up to 1,000 cfs, and habitat capacity computed for salmonid habitat based on the 2-D hydraulic model. Results will be compared with flow-based fish habitat capacity curves documented from prior surveys and with the thresholds used in the Diversion Rules.

### **Continuous Water Quality Monitoring**

Water temperature will be monitored on the Eel River near the NERF as a part of Effectiveness monitoring. This monitoring will inform the review of the impact the diversion may have on physical habitat. Downstream monitoring sites will continue long-term records collected by PG&E and others. The following locations, roughly from upstream to downstream, will serve as monitoring locations for the following parameters at a continuous, sub-daily timestep (15-minute to hourly):

- 1) Eel River at the NERF - water temperature (in addition to flow, see Section 4.1 – Compliance monitoring)
- 2) Eel River above Tomki Creek (existing PG&E monitoring location) - water temperature
- 3) Eel River above Outlet Creek (existing PG&E monitoring location) - water temperature

Refinement to this metric will be conducted at a later stage as engineering and other physical factors are further understood.

### **4.3 Informational Monitoring Conducted by ERPA**

#### **Continuous Water Quality Monitoring**

Water quality monitoring upstream of NERF will be collected by ERPA to support the interpretation of informational monitoring data - particularly understanding water quality conditions in the upper watershed that may influence juvenile salmonid production. These two upstream sites are in addition to the monitoring sites near the NERF used for Effectiveness Monitoring:

- 1) Upper Eel River (existing gage location) - water temperature and turbidity (if needed).
- 2) Rice Fork of the Eel River (existing gage location) - water temperature and turbidity (if needed).

#### **Juvenile Outmigration Monitoring**

Juvenile salmonid outmigration monitoring will occur in close proximity to the NERF to document trends in the timing, relative numbers, and size of downstream salmonid migrants from the watershed upstream of the NERF. A single rotary screw trap will be operated, consistent with CDFW protocols, daily in the spring when a majority of juvenile salmonid outmigration occurs (approximately March-June). Operation of the trap will depend on river conditions and it will be removed during periods of high flows that would damage the trap or cause personnel safety issues.

### **4.4 Informational Monitoring Outside of ERPA Responsibility**

All of the monitoring efforts described above will be conducted and/or funded by ERPA. Additional Informational monitoring may be conducted and/or funded by other entities but should be coordinated with ERPA monitoring efforts. Good faith and reasonable efforts will be made to make the NERF and associated monitoring infrastructure available for use by outside parties. However, ERPA will not be responsible for obtaining regulatory approvals (e.g., scientific collecting permits) for outside parties.

Use of NERF monitoring infrastructure could attract additional studies and collaborations to understand linkages between freshwater habitat conditions and salmonid production that would be valuable for understanding ecological relationships in the Upper Eel River. These data may also facilitate the interpretation of NERF effectiveness monitoring. For example, the adult and outmigrant counts collected at NERF could be coupled with spawning ground and juvenile surveys to allow NERF to function as a life-cycle monitoring station for implementation of the CDFW California Monitoring Plan (CMP), which is used across the state to monitor trends in salmonid abundance.

## **5 REPORTING, SCHEDULE, AND ADAPTIVE MANAGEMENT**

Assessment of monitoring metrics will be conducted to ensure 1) compliance with Diversion Rules and 2) that the resulting Eel River flow regime protects intended ecological objectives and physical habitat downstream of the NERF. Reporting will take place annually, and a more detailed review will occur, at a minimum, every 5 years. Deviations from Compliance metrics (flows) will be remedied as soon as ERPA operators are aware of non-compliance. Certain biological data (e.g., adult fish passage) may be summarized informally via e-mail on a periodic basis (weekly, or monthly). ERPA will be responsible for reporting Compliance, Effectiveness, and Information monitoring on the following schedule:

### **Sub-Annual Reporting**

- River flow and diversions at NERF will be reported daily
- Fish counts will be reported bi-weekly (twice monthly)
- Water quality data will be reported seasonally

### **Annual Reporting**

- ERPA will release an annual report summarizing the results of:
  - Flow and water quality monitoring, including flow compliance.
  - Adult fish passage and juvenile outmigration monitoring.
- If flow compliance is not achieved, the Annual Report will document the operational challenges preventing compliance and recommend solutions to avoid non-compliance.

### **5-Year Review**

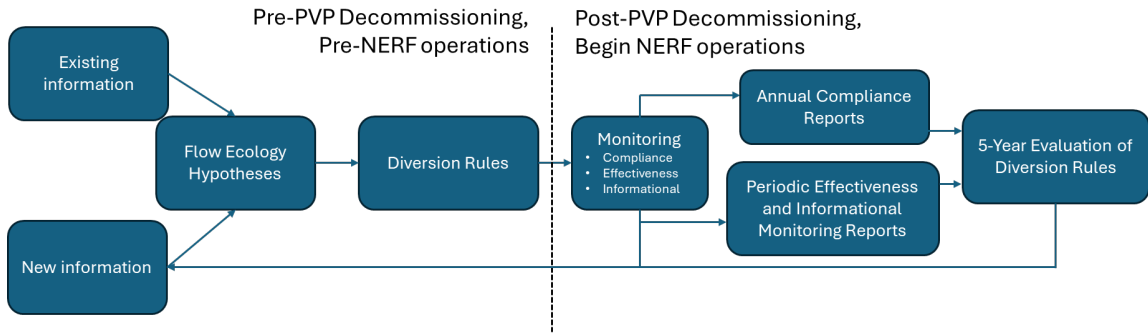
- ERPA technical representatives and the TAC will meet every 5 years to review monitoring results of all types of monitoring.
- The 5-year report will include synthesis and learning from the previous 4 years of annual report information.
- Information from studies conducted outside of ERPA (i.e., Informational monitoring) will be considered.
- The 5-year review will re-examine the next time-step that is necessary for conducting periodic monitoring studies for physical habitat capacity and critical riffle fish passage.

### **Adaptive Management**

The TAC will convene annually to review reports and receive operational and monitoring updates. The approximate 5-year milestone reviews present an opportunity to refine the Diversion Rules and propose studies to improve understanding of the flow-ecology hypotheses (Figure 1). If Effectiveness monitoring indicates that the Diversion Rules are not protecting fish passage, physical habitat, and water temperature, the TAC and ERPA technical representatives will attempt to determine why, including revisiting flow-ecology hypotheses driving the development of the Diversion Rules. Any recommended adjustments to the Diversion Rules and monitoring methods would be presented to the ERPA Board of Directors and regulatory agencies. If the 5-year review finds that the Diversion Rules and resulting Eel River flow regime may be negatively impacting fisheries recovery, additional studies may be required before the next 5-year milestone. Additional studies will be planned in coordination with the TAC, parties to WDA, and resource agency staff.

For a description of the adaptive management decision-making process, please refer to the relevant sections of the WDA.





*Figure 1. Conceptual process for developing Diversion Rules based on flow-ecology hypotheses, monitoring, and adaptive management once NERF operations begin.*