

COVER SHEET

FEDERAL ENERGY REGULATORY COMMISSION

FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE
UPPER NORTH FORK FEATHER RIVER PROJECT

Project No. 2105-089

SECTION 5

STAFF'S CONCLUSIONS

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FEIS

5.0 STAFF'S CONCLUSIONS

5.1 COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE

Sections 4(e) and 10(a) of the FPA require the Commission to give equal consideration to all uses of the waterway on which a project is located. When we review a hydropower project, we consider the water quality, fish and wildlife, recreational, and other non-developmental values of the involved waterway equally with its electric energy and other developmental values. Accordingly, any license issued shall be best adapted to a comprehensive plan for developing a waterway or waterways for all beneficial public uses.

This section contains the basis for, and a summary of, our recommendations to the Commission for relicensing the UNFFR Project. We weigh the costs and benefits of our recommended alternative against other proposed measures.

5.1.1 Staff's Modifications to PG&E's Proposal

We developed the staff's alternative after evaluating PG&E's proposal and recommendations and comments from resource agencies and other interested parties and individuals. As a result, there were a number of proposed measures that were either modified or not included in the staff alternative.

In its license application, PG&E proposed to use the upper-level gates in the Canyon dam outlet tower for releases to the Seneca bypassed reach beginning on September 15 and continuing until at least November 1. However, in its rehabilitation plan for the Canyon dam outlet tower (PG&E, 2004c) it proposed using these upper-level gates from September 1 to October 15. We slightly modified this measure by recommending that a plan be developed to address the timing of use of the gates. Our recommended plan would rectify this inconsistency, while considering the potential effects on temperatures, odors and metals in the Seneca reach. Additionally, in its license application, PG&E proposed to continue to comply with measures protecting bald eagles according to existing nesting territory plans. Instead, we have recommended that PG&E develop an interagency bald eagle management plan in consultation with the FS, FWS, and CDFG to address project-related activities, especially those associated with a new license for the project. Our recommended plan would enable responses to conditions that arise during the term of a new license, some of which may not be foreseeable at this time (e.g., establishment of new nests within or adjacent to the project area, changes in recreational use patterns, changes in the bald eagle recovery plan, new management guidelines based on future research results), to be effectively addressed, rather than relying on existing plans.

The FS specified many of the SA measures in its final Section 4(e) conditions. We recommend that most of the terms of the SA be approved and made conditions of the license to be issued for the UNFFR Project. However, a specific Section 4(e) condition (and SA measure) that we do not include in the staff alternative is the funding for a river ranger position. We conclude that this should be the responsibility of the FS and/or Plumas County because the primary responsibility of this position would be for law enforcement, which is the responsibility of these agencies. We also recommend modifications to some of the measures PG&E proposed in the SA for reasons discussed in section 3.0, *Environmental Analysis*. Specific measures that we have modified, including five that are also FS Section 4(e) conditions, are listed below:

- Monitoring fish and benthic macroinvertebrates in the Belden and Seneca reaches: PG&E proposes and the FS specifies initiating monitoring between 10 and 12 years after license issuance, with sampling occurring every 2 years over a 6-year period, for a total of three sampling periods; we recommend initiating this monitoring during years 4 and 5 of the new license and then monitoring every fifth year. We recommend this modification because we are concerned that changes, negative or positive, to the fish, amphibian, and macroinvertebrate communities would not be evident in a timely manner under the monitoring program proposed by PG&E and specified by the FS.
- Pulse flows from Canyon and Belden dams: PG&E proposes and the FS specifies providing one pulse flow release from both Canyon dam and Belden dam in January, February, and March if the forecasted water year type for that month indicates that the water year is anticipated to be either normal or wet (no pulse flows are proposed in any of those months if the forecasted water year type is dry or critically dry); in addition to the pulse flows proposed by PG&E and specified by the FS, we recommend providing a pulse flow of 700 cfs below Canyon dam and Belden dam in March of dry years, unless the water temperature exceeds 10°C for two consecutive days in March and if a flow of this magnitude was not measured in the preceding January or February at NF4 (Seneca) and NF7 (Belden). We recommend this modification to ensure that periodic flows of the magnitude necessary to flush fine substrates from spawning gravels, redistribute small gravels, and activate floodplain habitat would occur with enough frequency to improve conditions for the aquatic biota in the bypassed reaches, especially during periods of drought.
- Gravel monitoring plan: PG&E proposes and the FS specifies developing and implementing a gravel monitoring plan to evaluate the movement of sediment that occurs in the Belden and Seneca reaches during scheduled pulse flow events and other flow events of similar magnitude; we recommend that the gravel monitoring plan include specific contingency actions for the enhancement of substrate distribution and abundance in the bypassed reaches.

We recommend this modification to facilitate corrective measures in case that monitoring shows that the recommended pulse flow schedule should be modified to improve the abundance and distribution of spawning-sized gravels, or that gravel supplementation or vegetation management is needed..

- Recreation flow implementation plan: PG&E proposes and the FS specifies implementing the recreation flow implementation plan, including test flows and monitoring, in the Belden reach, in year 1 of the license; we recommend delaying implementation of the plan until year 6. We recommend this modification because it provides an opportunity for the biotic community to adapt to the revised instream flow schedule without being disrupted by recreational release flows, which would improve the likelihood of enhancing macroinvertebrate and fish populations.
- Scheduled recreation flow releases: PG&E proposes and the FS specifies releasing recreation flows in the Belden reach beginning in year 4 of the license, following implementation of the recreation flow implementation plan; we recommend delaying the recreation flow releases in the Belden reach until year 9, also following the implementation of the recreation flow implementation plan.
- Lake Almanor water quality monitoring: PG&E proposes monitoring once every 5 years beginning in year 3 from license issuance; we recommend monitoring only in years 1 to 3.
- Bioaccumulation (methylmercury and PCBs) monitoring in catchable-sized fish: PG&E proposes monitoring once every 5 years beginning in year 1 from license issuance; we recommend monitoring only in years 5, 10, and 15. PG&E also proposes monitoring for bioaccumulation of silver; we do not recommend monitoring for bioaccumulation of silver because previous sampling indicates that silver body burdens are low, silver does not typically biomagnify, and we are not aware of an established action or screening level that represents the risk to human health.
- Bacteriological monitoring: PG&E proposes monitoring in years 1 to 5 from license issuance, then every other year; we recommend monitoring only in years 1 to 3.
- Cadmium and specific conductance monitoring: PG&E proposes monitoring in years 1 and 2 from license issuance, at a minimum; we recommend monitoring for up to 3 years in years 1 to 3.
- Monitoring the effectiveness of seasonal switching of the Canyon dam outlet tower gates: PG&E proposes monitoring for 6 water years (not necessarily

consecutive) beginning in year 1 from license issuance; we recommend monitoring only in years 1 to 3, only if those 3 water years are normal, dry, or critically dry.

- Shoreline management plan: PG&E proposes implementing the shoreline management plan included in the license application; the FS specifies and we recommend revising the shoreline management plan prior to implementation.

Additional measures not proposed by PG&E that we recommend include (1) a spoil disposal plan; (2) a water level and flow gaging plan; (3) a woody debris management plan; (4) an adaptive management plan for environmental resources; (5) a vegetation and invasive weed management plan; (6) expanding the amphibian plan to address the federally threatened CRLF; (7) a threatened, endangered, proposed for listing, and sensitive species protection plan; (8) a peregrine falcon monitoring plan; (9) a road management plan; and (10) a fire prevention, response, and investigation plan. Staff's alternative would provide the following benefits over PG&E's proposed measures: (1) greater aquatic habitat enhancement; (2) tracking of population trends of special-status species and, if necessary, adaptive adjustments made to project operations; and (3) monitoring of project-related features to identify the need for remedial measures and ensure that protective measures are functioning as planned.

5.1.2 Other Measures Not Included in Staff's Alternative

While not proposed for the UNFFR Project, as part of the SA for the Rock Creek-Cresta Project, PG&E agreed to evaluate the effectiveness of modifying the project's Prattville intake as a temperature control measure for the downstream reaches of the UNFFR. Based on our analysis in the EIS, summarized in section 5.1.4.1 below, we do not include any provisions for modifying the Prattville intake in staff's alternative.

On March 14, 2005, NOAA Fisheries submitted a modified Section 18 fishway prescription for the UNFFR Project to the Commission. Based on our analysis in the EIS, summarized in section 5.1.4.2 below, we do not include this prescription in staff's alternative.

5.1.3 No-action Alternative

The no-action alternative would result in the project continuing to operate as it is currently operated. The environmental protection and enhancement measures proposed by PG&E and recommended by staff would not be implemented.

5.1.4 Recommended Alternative

Based on our independent review and evaluation of the proposed project, the proposed project with our additional recommended environmental measures, and the no-action alternative, we select the staff's alternative (proposed project with our additional

recommended environmental measures) as the preferred alternative. The staff's alternative includes elements of the FS final Section 4(e) conditions, PG&E's proposed measures in its license application and in the SA, and some additional staff-recommended measures.

We recommend this alternative because (1) issuance of a new license would allow PG&E to continue to operate the project as a dependable source of electric energy for its customers; (2) the 342.6-MW project would avoid the need for an equivalent amount of fossil-fuel fired electric generation and capacity, continuing to help conserve these nonrenewable energy resources while reducing atmospheric pollution; and (3) the recommended environmental measures would protect or enhance fish and terrestrial resources, improve public use of recreational facilities and resources, and maintain and protect historic and archaeological resources within the area affected by project operations.

We evaluated numerous recommendations from resource agencies and other parties along with other potential measures considered by PG&E (to provide cooler water downstream at its Rock Creek-Cresta Project) in the resource sections and, after consideration of the environmental benefits and associated costs, we recommend including the following measures that PG&E proposes in staff's alternative for any license issued by the Commission for the UNFFR Project:

1. Use the upper-level gates in the Canyon dam outlet tower for releases to the Seneca reach beginning in September and continuing until at least mid-October.
2. Continue to implement the road maintenance agreement between PG&E and the Plumas National Forest as it pertains to project roads on FS lands within the project boundary.
3. Operate and maintain the existing gages to determine river stage and minimum streamflow below Canyon dam (NF-2) and Belden forebay dam (NF-70) under the supervision of the USGS. Within 3 years of license issuance, complete any modification to the two gage facilities that may be necessary to measure the new minimum streamflow releases.
4. Prepare annual water quality report(s) that contain elements consistent with reporting requirements from five water quality programs, and provide the report(s) to the Commission and appropriate resource agencies by no later than March 15 of the following year. Convene a discussion group meeting once annually between April 15 and April 28 that is noticed at least 30 days in advance.
5. Within 3 months of license issuance, develop a monitoring plan to evaluate the effectiveness of seasonal switching of releases from the Canyon dam outlet tower gates. This plan would be developed after consultation with

SWRCB, CVRWQCB, Plumas County, the FS, CDFG, and FWS. The plan would identify analytical methods to be used, sampling protocols and locations, QA/QC procedures, schedule, and reporting requirements.

6. Within 3 months of license issuance, develop a monitoring plan to determine if the elevated dissolved cadmium and specific conductance levels recorded within the UNFFR basin during 2002 and 2003 were caused by the project and, if so, potential remedial measures. The plan would be developed after consultation with SWRCB, CVRWQCB, Plumas County, the FS, CDFG, and FWS. The plan would identify analytical methods to be used, sampling protocols and locations, QA/QC procedures, schedule, and reporting requirements. Monitoring would be conducted during years 1 and 2 after license issuance, at a minimum.
7. Within 3 months of license issuance, develop a monitoring plan to document water quality conditions in Lake Almanor under altered project operations for the new license. This plan would monitor analytes seasonally (spring, summer, and fall) and would be developed through consultation with the SWRCB and the signatories of the SA; and identify analytical methods to be used, sampling protocols and locations, QA/QC procedures, schedule, and reporting requirements.
8. Within 3 months of license issuance, develop a monitoring plan to assess potential bioaccumulation of methylmercury and PCBs in catchable-sized fish in UNFFR Project waters. This plan would be developed after consultation with SWRCB, CVRWQCB, Plumas County, the FS, CDFG, and FWS; and identify analytical methods to be used, sampling protocols and locations, QA/QC procedures, schedule, and reporting requirements.
9. Within 3 months of license issuance, develop a bacteriological monitoring plan, using a methodology appropriate to determine compliance with state water quality standards. This plan would be developed after consultation with SWRCB, CVRWQCB, Plumas County, the FS, CDFG, and FWS, and identify analytical methods to be used, sampling protocols and locations, QA/QC procedures, schedule, and reporting requirements.
10. Provide minimum streamflows to the Seneca and Belden reaches, as measured at gages NF-2 and NF-70, respectively, as PG&E proposes in the SA (see tables 3-17 and 3-18). The minimum streamflows would commence within 60 days of the issuance of the new license, unless PG&E and/or the Commission determine that facility modifications are required.
11. Maintain existing streamflow in lower Butt Creek. No action would be taken to reduce dam leakage, tunnel leakage, spring or other natural flows that currently provide inflow to lower Butt Creek below the Butt Valley

dam, unless directed to do so by the Commission or other regulatory agencies.

12. Provide one pulse flow release from both Canyon dam (Seneca reach) and Belden dam (Belden reach) in each of January, February, and March if the forecasted water year type for that month indicates that the water year is anticipated to be either normal or wet. No pulse flows would be required in months where the water year type forecast for that month indicates that the water year would be critically dry.
13. Develop a monitoring plan to evaluate movement of sediment that occurs during scheduled pulse flow events and other flows of a similar magnitude. Emphasis would be placed on monitoring the movement of spawning-sized gravel and recruitment of similar-sized materials into the Belden and Seneca reaches. This plan would be developed after consultation with the FS, FWS, SWRCB, and CDFG. If it is determined that the pulse flows appear to have a detrimental effect on the availability and distribution of spawning-sized gravel, or it appears that a pulse flow of a different magnitude or duration would be beneficial, the pulse flow schedule would be altered to achieve the desired results.
14. Implement a ramping rate of 0.5 foot per hour, in all months, at Canyon dam, measured at gage NF-2, and Belden dam, measured at gage NF-70, when ramping rate can be controlled. The ramping rate would not apply to releases from project powerhouses or unregulated spills from project dams. In the event that studies or monitoring that may be required during the term of the license result in changes to the ramping rate, the new ramping rates would not result in an increase in the total volume of water that is released when the new ramping rates are applied.
15. Block load (i.e., maintain a constant generating load for a predetermined period) at the Belden powerhouse at times when the downstream Rock Creek dam is spilling water in excess of the minimum streamflow required under the license for the Rock Creek-Cresta Project, but less than 3,000 cfs. Block loading would assist in minimizing the frequency of fluctuation in the river stage and help meet ramping rates at downstream PG&E dams.
16. Rehabilitate and maintain an existing streamflow gaging station on lower Butt Creek designated as NF-9. An approximate rating curve would be maintained with periodic spot checks and re-rating, as necessary. The gage and the data collected on the gage would not be required to meet USGS standards. The gage would be read each year on or about April 1, June 1, August 1, and October 1.
17. Develop a monitoring plan in lower Butt Creek to (1) determine if the weir for gage NF-9 is acting to block upstream fish passage, and (2) evaluate

habitat quality at intervals of 3 to 5 years. This plan would be developed following consultation with the FS, FWS, SWRCB, and CDFG. If it is found that the weir is blocking upstream fish passage, remove or modify the weir within 1 year of the determination. If monitoring indicates that habitat quality in lower Butt Creek has been degraded, or if that habitat quality could be improved over existing conditions, a pulse flow regime would be developed in conjunction with the FS, FWS, CDFG, and SWRCB.

18. As part of the recreational flow implementation plan, develop a monitoring plan in the Belden reach for aquatic biota during the 3-year recreational flow release test period. Monitoring would include an analysis of the response of fish, benthic macroinvertebrates, and amphibians to recreational flow releases at a minimum three sites. Monitoring would include an analysis of stranding, displacement, disruption of spawning behavior and habitat, and all other noticeable effects associated with release flows. In addition, develop a recreational activities monitoring plan to assess the effects of boating, camping, access, angling, and recreational flow releases on fish and wildlife resources. These plans would be developed in consultation with the FS, FWS, NPS, SWRCB, and CDFG.
19. Maintain Lake Almanor water levels (PG&E datum) as follows:
 - Wet and Normal Water Years—By May 31, the water surface elevation would be at or above 4,485.0 feet (908,000 acre-feet) and from June 1 through August 31, at or above 4,485.0 feet (908,000 acre-feet);
 - Dry Water Years—By May 31, the water surface elevation would be at or above 4,483.0 feet (859,000 acre-feet) and from June 1 through August 31, at or above 4,480.0 feet (787,000 acre-feet);
 - Critically Dry Water Years—By May 31, the water surface elevation would be at or above 4,482.0 feet (835,000 acre-feet) and from June 1 through August 31, the water surface elevation is at or above 4,480.0 feet (787,000 acre-feet); and
 - Multiple Dry Water Years—In the event of multiple (two or more), sequential dry or critically dry water years, decreases in Lake Almanor surface water elevations below those specified above would be allowed.²⁸ By March 10 of the second or subsequent dry or critically dry water year and the year following the end of a sequence of dry or critically dry water years, notify CDFG, FWS,

²⁸ Similar deviations from the current minimum elevations specified for the Butt Valley and Belden reservoirs also would be permitted.

SWRCB, FS, and Plumas County of drought concerns. By May 1 of these same years, consult with representatives from CDFG, FWS, SWRCB, FS, and Plumas County to discuss operational plans to manage the drought conditions.

20. Take such reasonable actions as may be prudent to prevent the water surface elevation in Lake Almanor from exceeding elevation 4,494.0 feet unless a higher level is approved by the Commission and CDWR, Division of Safety of Dams.
21. Continue to operate Butt Valley reservoir so that the minimum water surface elevation from June 1 through September 30 is at or above 4,120.0 feet (32,000 acre-feet) and from October 1 through May 31 at or above 4,115.0 feet (24,500 acre-feet).
22. Continue to operate Belden reservoir so that the minimum water surface elevation is 2905.0 feet (300 acre-feet), year round.
23. Forecast the water year type on or about January 10; notify the FS, CDFG, FWS, SWRCB, and Plumas County within 15 days; and operate for the remainder of that month and until the next forecast, based on that January forecast. New forecasts would be made on or about the tenth of February, March, April, and May, after snow surveys are completed, and operations would be changed as appropriate. The May forecast would be used to establish the water year type for the remaining months of the year and until next January 10, when forecasting should begin again.
24. Remove the Gansner Bar fish barrier on the Belden reach.
25. Design a wildlife habitat enhancement plan, within 1 year of license issuance, to be developed after consultation with the FS, FWS, CDFG, SWRCB, and Plumas County, that would benefit sensitive biological resources at the UNFFR Project. The plan would also include measures to evaluate the response of riparian vegetation along the two bypassed reaches to the proposed flow regime.
26. Develop an amphibian monitoring plan for FS-sensitive species for the Seneca, Butt Creek, and Belden bypassed reaches and submit to the Commission within 1 year of license issuance. The plan would be developed after consultation with the FS, FWS, SWRCB, and CDFG, and would provide for monitoring conducted at 3-year intervals beginning no later than 3 years following license issuance.
27. Finalize a RRMP for the project that includes the following elements:
 - A recreation facilities development program that defines proposed responsibilities related to construction, including details of proposed recreation development projects, estimated costs, and schedules;

- A recreation O&M program that defines proposed existing and future recreation O&M responsibilities, including annual maintenance costs and maintenance standards to be used;
- An I&E program that describes how hydroelectric energy production, environmental, cultural, and informational I&E would be coordinated and conducted at project facilities;
- A recreation monitoring program that identifies the frequency at which the various recreational resource monitoring activities would be conducted, including monitoring standards and indicators and how the monitoring information would be used in decision-making;
- A resource integration and coordination program that defines how recreation resource needs would be integrated with other resource management needs over time, such as cultural, wildlife, and aquatic resources and discusses how actions would be coordinated through annual meetings; and
- A RRMP review and revision program that defines how the RRMP would be updated or revised over the term of any new license and limits updates to the RRMP to no more than once every 12 years.

The RRMP would be finalized in consultation with Plumas County, the FS, CDFG, Interior, and the U.S. Army Corps of Engineers within 1 year of license issuance.

28. Implement the following recreational facility enhancement measures (part of the recreation facilities development program) after initial license issuance and during the license term based on target completion dates and monitoring triggers (standards) included in the RRMP.

Lake Almanor Recreational Facilities and Access

- **Last Chance Family and Group Campground**—In accordance with ADA, modify two campsites and existing toilet buildings and provide a 150-foot access route leading to the nearby creek within 1 to 3 years after license issuance.
- **Rocky Point Campground and Day-Use Area**—Within 5 to 10 years after license issuance, convert the Loop 3 overflow camping area into a day-use swim area containing an approximately 1-acre sand beach above the high water level (4,494 feet elevation, PG&E datum), provide a swimming delineator, a paved parking area to accommodate 35 to 40 vehicles, and a double vaulted restroom; relocate the 20 Loop 3 overflow campsites to the Loop 1 camp overflow area and provide a new double vaulted toilet building at

this location; provide a new entrance kiosk at the campground, three fee-based shower facility buildings (one for each loop) with hot water, and bear-proof food lockers at each campsite (151); replace older Klamath stoves with campfire rings; and revegetate or harden areas significantly disturbed by pedestrian or vehicle traffic.

Implement the following accessibility improvements in accordance with the ADA: modify 10 campsites (four at Loop 1, three at Loop 2, and three at Loop 3); create an accessible access route to the high water level (4,494-foot elevation, PG&E datum) at the sandy beach; make improvements to existing recreation facilities as needed, such as the campground library box, telephones, and the envelope box at the pay station and provide appropriate ADA-accessible access routes; modify existing water faucets near accessible elements, such as toilets and campsites, to be ADA-accessible; create accessible routes to the toilet buildings near the campground entrance and near campsite # 100); and relocate the interior pay station directly across the road on a level, firm, and stable surface (Loop 2).

- **Forest Service Almanor Shoreline Facilities**—Within 1 to 13 years after license issuance, partner with the FS and provide approximately 40 percent of matching funding up to a maximum of \$5,000,000 (2004 dollars) for the FS to complete recreation improvements, including reconstruction of existing facilities and construction of new facilities, at the following FS-owned recreation facilities: the Almanor Family Campground, the Almanor Group Campground, the Almanor amphitheater, the Almanor picnic area, and the Almanor beach. If PG&E has not paid the FS the maximum \$5,000,000 (2004 dollars) at the end of the thirteenth year after the license is issued because the FS has been unable to obtain its corresponding share of the matching funds, then use the remaining funds (the difference between the amount PG&E has already paid the FS in matching funds and the \$5,000,000 cap [2004 dollars]) for recreation improvements at the Almanor beach and the East Shore family campground, which would include the addition of up to 28 campsites in a third loop as funding permits.
- **East Shore Group Camp Area**—Within 1 to 3 years after license issuance, convert the existing East Shore picnic area to a group reservation camp area that will accommodate one group of 16 RVs or two groups of eight RVs; widen the entrance road; improve internal road circulation to accommodate RVs; provide one ADA-accessible parking space near the existing double-vaulted toilet building and an ADA-accessible access route to the nearby trash receptacles; provide bear-proof food lockers at 16 sites; provide a

paved, non-accessible trail down to the shoreline with switchbacks and stairs; and institute erosion control measures.

- **East Shore Day-Use Area**—Within 1 to 5 years after license issuance, designate a day-use swim area in the existing cove adjacent to the proposed new East Shore campground which would include up to five picnic tables, non-paved shoreline access trails, a single vaulted toilet building, and parking for 10 to 20 vehicles.
- **East Shore Family Campground**—Over the term of the project license period, contingent on reaching the recreation monitoring standards contained in the RRMP during the new license term, provide a new two-loop family campground on PG&E-owned land along the east shore of Lake Almanor. Construct the campground in two phases with a total of approximately 63 new tent and RV campsites, bear-proof food lockers at each campsite, two user-fee buildings with indoor hot showers and flush toilets, approximately 20 boat moorage slips/buoys, and a camp host site.
- **North Shore Public Boat Launch**—Within 3 to 5 years after license issuance, provide a new and expanded public boat launching facility at the North Shore campground, including paved parking for 40 single vehicles with trailers and 12 single vehicles, a double vaulted toilet building, and a boarding float. Dredge and maintain the existing submerged river channel to provide an approximately 1,000-foot-long, 50-foot-wide, and 6-foot-deep boat channel that provides boat access to approximately the 4,480-foot elevation (PG&E datum). The boat launch would be open for public use from April 1 to December 1 when the lake's elevation is at or above the 4,480 foot elevation (PG&E datum) and as snow on the ground permits. Provide public access to the boat launch facility along an abandoned portion of Highway 36 located along the north side of the campground, in order to reduce traffic impacts at the campground. Relocate 22 campsites within the project boundary that would be affected by the expanded boat launch facility.
- **Stover Ranch Day-Use Area**—Within 3 to 5 years after license issuance, develop the Stover Ranch day-use area to provide improved Lake Almanor shoreline access for Chester residents, including gravel parking for 10 to 20 vehicles, a double-vaulted toilet building, four picnic tables, a non-paved trail to the shoreline, an interpretive sign, and an RV site to accommodate a new Lake Almanor caretaker. Coordinate these developments with the Chester Public Utility District and the Chester Recreation and Parks District.

- **Marvin Alexander Beach**—Within 1 to 3 years after license issuance, assume management responsibility of the PSEA swim beach and expand and improve the existing sandy beach to a 0.4 acre area above the high water level (4,494 foot elevation, PG&E datum), provide an improved gravel parking area for 30 to 45 single vehicles, replace the site's two single-vault toilet buildings and 10 picnic tables, and provide a swim delineator. Change the name of the site to the “Marvin Alexander Beach.”
- **Canyon Dam Day-Use Area**—Within 1 to 3 years after license issuance, provide an approximately 0.3 acre sandy beach above the high water level (4,494 foot elevation, PG&E datum), a swim area delineator, an informational kiosk, improved vehicle circulation, and eight new ADA-accessible picnic tables; and in accordance with ADA, modify eight existing picnic tables to make them accessible, provide an accessible parking space, and provide an accessible route to the high water level (4,494 foot elevation, PG&E datum) at the swim beach area in accordance with ADA. Reserve approximately 2.4 acres of land adjacent to the Canyon dam day-use area for potential future recreation development during the term of the new license.
- **Westwood Beach Day-Use Area**—Within 1 to 3 years after license issuance, provide a gravel parking area for 10 vehicles, six picnic tables, an ADA-accessible single vaulted toilet building, an approximately 0.1 acre sandy beach, a swim delineator, directional signage, and erosion control measures to protect the shoreline from wind-caused wave action at the Westwood beach.
- **Stumpy Beach Day-Use Area**—Within 1 to 3 years after license issuance, provide five picnic tables, directional signage, an approximately 0.7 acre sandy beach above the high water level (4,494 foot elevation, PG&E datum), a swim delineator, 8 to 10 paved parking spaces parallel to Highway 147 with trails connecting to the northern and southern portions of Stumpy beach (the southern trail would be ADA-accessible where feasible and the northern trail would be non-paved), four benches at the roadside parking area for viewing Lake Almanor and the surrounding mountains, and erosion control measures to protect the shoreline from wind-caused wave action. Provide a single vaulted toilet building if allowed by Plumas County and the California Department of Transportation set-back regulations; otherwise, provide a seasonal portable toilet building.
- **Catfish Beach**—Within 3 to 5 years after license issuance, make a good faith effort to negotiate a reasonable easement across private

lands to provide public road access to the Catfish beach area. Provide a single vaulted toilet building at this site and monitor and maintain the toilet building and the site's cleanliness through appropriate means.

- **Almanor Scenic Overlook**—Within 1 to 5 years after license issuance, provide an ADA-accessible route connecting the existing ADA-accessible double vaulted toilet building at the overlook with a new ADA-accessible parking space, and vegetative brushing and clearing to restore the views of Lake Almanor, Mt. Lassen, and the Canyon dam.
- **Southwest Shoreline Access Zone**—Within 1 to 5 years after license issuance, provide four shoreline access points at existing informally used areas along Lake Almanor's southwest shoreline between Prattville and Canyon dam after consultation with the FS. These shoreline access areas would provide vehicle access at or above the 4,494 foot elevation (PG&E datum) and serve as pedestrian access areas to the adjacent shoreline. Provide four gravel parking areas that provide parking for up to four to eight vehicles at two of the areas and 10 to 20 vehicles at the other two areas; vehicle barriers; regulatory, interpretive, and informational signs; gravel access roads; and, if appropriate, single vaulted toilet buildings at these access areas. Close and rehabilitate other user-created vehicular access routes along the southwest shoreline after consultation with the FS.
- **Camp Connery Reservation Group Camp Area**—Within 1 to 5 years after license issuance, provide an ADA-accessible parking space and a new bunk house cabin with accessible toilet and fee based hot shower and retrofit the existing telephone position and water faucet features to meet the ADA. Over the term of the project license period, contingent on reaching the recreation monitoring standards contained in the RRMP during the new license term, provide a new group reservation camping area adjacent to the existing Camp Connery group camp, which would either provide space for two groups of approximately eight self-contained RVs or one group of approximately 16 self-contained RVs, a centrally-located bear-proof food facility, and two user fee, indoor shower buildings with hot water and flush toilets.

Butt Valley Reservoir Recreational Facilities and Access

- **Powerhouse Trails**—Within 5 to 10 years after license issuance, provide improved angler access trails to two locations near the Butt

Valley powerhouse. One of the trails would be an approximately 200-foot, non-paved trail beginning at the existing gravel parking area next to the powerhouse down the steep slope east of the powerhouse to the levee below, with stairs, if needed. The second trail would be ADA-accessible (compact base rock) originating from an existing pullout along the Prattville-Butt Valley Road near the powerhouse, extending approximately 700 feet to the eastern shoreline of the inlet near the levee. Develop a new compacted base rock trailhead parking area with barriers for this trail.

- **Ponderosa Flat Campground**—Within 5 to 10 years after license issuance, provide a single person, non-heated outdoor shower at Ponderosa Flat campground, and, in accordance with ADA; modify four campsites and retrofit the existing designated accessible campsites to provide accessibility of the picnic table, fire ring, cooking grill, tent or RV area, and water faucet at each of these campsites; replace the vault toilets in the overflow area with one new accessible single vaulted toilet building and modify all of the other existing designated accessible toilet buildings to meet current ADA standards; provide an ADA-accessible access route to the toilet building near Site 45 and one ADA-accessible paved parking space near the toilet buildings; provide an ADA-accessible swimming area at the campground with an approximately 0.4 acre sandy beach above the high water elevation (4,132 foot elevation, PG&E datum) and a swim delineator; and provide a new ADA-accessible fishing access trail and pier or platform north of the overflow area. Over the term of the project license period, contingent on reaching the recreation monitoring standards contained in the RRMP during the new license term, provide approximately 20 new primitive tent campsites, likely to the north of the current overflow area, and a new 100 person capacity group camp area in the existing overflow area.
- **Cool Springs Campground**—Within 5 to 10 years after license issuance, provide a two-person, non-heated outdoor shower at Cool Springs Campground and one new ADA-accessible campsite with elements including a picnic table, a fire ring, a cooking grill, a tent or RV space, and water faucet.
- **Alder Creek Boat Launch**—Within 5 to 10 years after license issuance, expand the existing Alder Creek boat launch parking area to accommodate 10 to 20 additional vehicles with trailers and to improve vehicle circulation. New parking areas on the east side of the Butt Valley Reservoir Road would be gravel while the parking areas on the west side of this road would be paved. Modify the boat

launch to be accessible, and provide one ADA-accessible parking space near the existing double vaulted toilet building.

Belden Forebay Recreational Facilities and Access

- **Belden Forebay Access**—Within 5 to 10 years after license issuance, provide a car-top boat launch, a seasonal portable toilet building, and a gravel parking area for 10 single vehicles at the Belden forebay's existing undeveloped parking area, which also serves as the trailhead for the North Fork fishing trail; provide suitable access for launching small car-top watercraft at the Belden forebay; post signage referring to a Plumas County ordinance (once the ordinance is approved) limiting boat engines to 10 hp, boat speeds to 5 mph on small reservoirs such as the Belden forebay, prohibiting swimming or boating within 0.25 mile of Belden dam and prohibiting swimming or boating at night.
- **North Fork Fishing Trail**—Within 1 to 3 years after license issuance, improve the North Fork fishing trail from the Belden forebay parking area to the upstream side of Caribou No. 1 powerhouse, including retrofitting the existing metal trail decking and railing at the powerhouse above the turbine outlets providing enhanced access and safety, providing trail directional signs and a wider, more even non-paved trail base along the chain-link fencing at the powerhouse yard and along Caribou Road from the parking area.

Recreational Facilities and Access in the Bypassed Reaches

- **Upper Belden Reach River Access**—Prior to the initiation of any recreation release flows, provide a river access point at the upstream end of the Belden reach located at the spoil pile area which would include a seasonal portable toilet, a seasonal dumpster located over a concrete pad, and a non-paved parking area to accommodate 15 to 25 single vehicles.
- **Belden Reach Trails**—Within 1 to 3 years after license issuance, provide and maintain four trails to the Belden reach shoreline from existing informal parking areas where public access can be provided in a safe manner.
- **Belden Rest Stop (SR 70)**—Within 3 to 5 years after license issuance, relocate the existing picnic tables down to the rest stop's lower level and disperse them within the area from the Eby Stamp Mill to the gazebo near the creek; replace two of the tables with ADA-accessible tables; develop ADA-accessible routes to the gazebo, the overlook area next to the creek, and to the Eby Stamp

Mill historical features; and provide improved I&E elements at the rest stop and erosion control measures on the slope between the parking lot and the upper picnic area. Remove the existing cooking grills from the upper level and close that area. Over the term of the project license period, replace the existing vault restrooms when major renovation is needed. This improvement is contingent on the monitoring triggers (standards) contained in the RRMP being reached over the license term.

- **Lower Belden Reach River Access**—If a determination is made to proceed with scheduled river recreation flows, provide up to a maximum of \$125,000 (2005 dollars) to the FS for construction of non-project river access to the lower Belden reach.

29. Assume responsibility for operational maintenance and heavy maintenance of the following FS facilities prior to the start of the first recreation season following license issuance: the Dyer View day-use area, the Canyon dam boat launch and day-use area, and the Almanor boat launch. Additionally, as each recreation facility is individually constructed, assume operational maintenance and heavy maintenance responsibility for the southwest shoreline access zone facilities. Finally, within 6 months after the FS has completed construction of each of the recreation improvements it has planned for the FS Almanor Family Campground and amphitheater, the FS Almanor Group Campground, and the FS Almanor beach, apply to the Commission to incorporate these additional FS facilities within the project boundary and include these facilities in the O&M program.
30. Develop an I&E program (part of the RRMP) for the project after consultation with the FS and Plumas County within 2 years after license issuance that provides information to enhance recreation experiences and encourage appropriate resource protection, cooperative, and safe behaviors from project visitors. The I&E program would include themes, media, media design, prioritized sites, and prioritized services. As part of the I&E program, prepare a Lake Almanor bathymetric (underwater topographic) map within 1 year of license issuance, which would be available in pamphlet form to area boaters and posted on signs at Lake Almanor public boat ramps.
31. Complete a recreation monitoring program (part of the RRMP) after consultation with the FS and Plumas County, adopting the limits-of-acceptable change (LAC)-based monitoring approach as described in the October 2002 draft of the RRMP. Specifically monitor (at a minimum) the water surface of project reservoirs, and PG&E and FS recreation facilities and shoreline areas within the project boundary. Prepare periodic monitoring reports every 6 years in conjunction with FERC Form 80

recreation facility, and use monitoring requirements and conduct annual recreation planning and coordination meetings with other recreation providers in the project area to discuss recreation resource management decisions for the project area, implementation of project recreation enhancements, recreation monitoring results, potential grant applications, and other pertinent project-related recreation issues that may arise over the term of the new project license. If test river recreation flows are conducted, develop a study plan to monitor recreation use during the test flow period and produce a report on monitoring results after consultation with the FS.

32. Stock approximately 5,000 pounds of catchable trout per calendar year in the waters of the NFFR between its confluence with the EBNFFR and the Belden diversion dam and augment CDFG's existing Lake Almanor fisheries program by expanding the pen rearing program and/or constructing rearing habitat for warmwater fish.
33. Coordinate with the FS, Plumas County, and CalTrans to develop an MOU to produce a Belden interagency recreation river flow management plan that would address management and integration of recreation opportunities provided by the Belden recreation river flow release with other recreation opportunities in the watershed.
34. Establish a recreation river flow TRG for the purpose of consulting with PG&E in the design of recreation and resource river flow management and monitoring plans, reviewing and evaluating recreation and resource data, and in developing possible recreation river flows in the Belden reach. Include representatives of the FS, CDFG, SWRCB, FWS, NPS, and Plumas County in the TRG. Maintain, and make public, records of TRG meetings, and forward those records with any recommendations to the FS, SWRCB, and the Commission. Establish communication protocols after consultation with the TRG to facilitate interaction among TRG members, which would allow for open participation, consultation with independent technical experts, and communication among all TRG participants.
35. Implement the recreation flow implementation plan as described in the SA including:
 - Convene the Technical Review Group (TRG) to evaluate the existing available ecological information regarding recreation river flows to determine whether (1) sufficient information exists to conclude that recreation river flows would result in unacceptable impacts on sociological or ecological resources; or (2) recreation river test flows as prescribed should be conducted to further evaluate the ecological and social effects of the recreation river flows in the Belden reach. If the TRG determines that recreation test flows

should be conducted, it would not recommend any flow schedule that exceeds the frequency, magnitude, or duration of flows prescribed in the SA. Within 6 months of convening the TRG, forward the TRG recommendations regarding recreation test river flows to the FS and SWRCB.

- If the TRG recommends that recreation test river flows in the Belden reach should be conducted, the FS and SWRCB would consult with appropriate state and federal agencies, PG&E, and tribal governments about the TRG's proposal. If the proposed schedule for recreation test river flows does not exceed the frequency, magnitude, or duration of flows prescribed for any given month in the SA, then PG&E would submit the proposal to the Commission for approval.
 - Conduct the river recreation test flows upon approval from the Commission as prescribed in the SA for a 3-year period.
 - Prepare a Belden reach recreation river test flow evaluation plan and submit it to the FS and SWRCB for their review, consistent with the TRG recommendation. The plan would be designed to evaluate the effects of the recreation test river flow releases on ecological and social resources, and the metrics to be used in this determination. Upon approval of the plan by the Commission, implement the plan during the 3-year recreation test flow period.
 - Convene the TRG after the 3-year recreation test river flow period to evaluate the existing available ecological and social information. The TRG would make a recommendation whether recreation river flows should be continued to meet the river flow management for recreation objectives. The TRG would not recommend any flow schedule that exceeds the frequency, magnitude, or duration of flows prescribed in the SA.
 - Submit any recommendation regarding continued recreation river flows made by the TRG to the FS and SWRCB for review. The FS and SWRCB would consult with FWS, PG&E, and tribal governments during their review. If the proposed schedule for continued recreation river flows that does not exceed the frequency, magnitude, or duration of the flows prescribed for any given month in the SA, PG&E would submit the proposal to the Commission for approval.
36. Post, through a third party or other mechanism, an annual recreation flow calendar scheduling the initial recreation flow day per month.

37. Conduct an annual planning meeting each year in March to discuss expected water year type, results of monitoring efforts, PG&E maintenance needs that may conflict with recreation flow releases, and other relevant issues. Suggest that the TRG recommend the desired date of the month for any additional recreation river flow release days triggered by the number of boats per day as described below, based on evaluation of social and ecological considerations.
38. Postpone any scheduled recreation river flow release in the event of an emergency, providing as much notice as reasonably practicable under the circumstances. If practicable, reschedule postponed recreation river flow releases as recommended by the TRG.
39. During scheduled recreation river flows, count observed boater use in number of boats per day to determine whether recreation flow release days should be added or subtracted. All boats would be counted as one boat except for rafts 12 feet or greater in length which would be counted as two boats. All boats observed on the Belden reach for any part of a given day would be counted. If the number of boats per day on the first recreation river flow day for a month exceeds 100 boats per day, one day of recreation river flow would be added to the recreation river flow schedule in that month the next year. If the number of boats per day is less than 100 boats per day for both the recreation river flow releases in one month, one day of recreation river flow would be subtracted from the recreation river flow schedule for the that month in the next year. Recreation river flow releases would not decrease below one day per month and would not exceed the cap defined in the SA. Recreation river flow release days would not be added or subtracted during any period of recreation test river flows.
40. Develop and implement a visitor survey for up to 3 years to determine if visitors would choose to return to recreate on the Belden reach based on their experience related to the number of boats encountered on the river. The visitor survey questionnaire and methodology would be statistically valid. The TRG would evaluate the survey results and other data to determine if the trigger for adding/deleting days, based on the number of boats per day, should be amended based on this analysis.
41. Apply the basic ramping rates when implementing recreation river flows.
42. Create a calendar that lists the dates of the March pulse flow in the Seneca reach and any scheduled pulse flow or recreation river flow releases in the Belden reach, and make that calendar available on the Internet through a third party or other mechanism. The calendar would state the timing and magnitude of the scheduled flow release. The March pulse flow release in the Seneca reach would be posted by February 15, and the scheduled summer releases in the Belden reach would be posted by May 15. Post an

estimate of the release magnitude and duration of the flow if releasing flows of a similar magnitude and duration as a scheduled pulse flow in the Seneca or Belden reaches.

43. Meet annually with a committee appointed by the Plumas County Board of Supervisors between March 15 and May 15 to inform the committee about the water elevation levels of Lake Almanor predicted to occur between May 1 and September 30. Schedule an additional meeting with the committee if forecasts show that PG&E's obligation to deliver water to the state of California and the Western Canal Water District pursuant to the January 17, 1986, agreement would require it to deviate from the Lake Almanor water elevation levels previously predicted.
44. Modify the project boundary to include approximately 34 additional acres of the Plumas National Forest at Caribou powerhouse and Belden dam for the purposes of penstock maintenance and spoil management.
45. Apply to the Commission within 1 year of license issuance to adjust the project boundary to include all recreation improvements covered by the SA and associated roads at PG&E facilities including the East Shore campground, group camp area, and day-use area, the Stover Ranch day-use area, the Catfish Beach area, the Westwood Beach day-use area, the Stumpy Beach day-use area, the Upper Belden Reach river access site, the Belden reach trails, and those portions of the southwest shoreline access zone facilities currently outside the project boundary as well as the following FS facilities located on the Plumas and Lassen National Forests: Canyon dam boat launch and day-use area, Dyer View day-use area, and Almanor boat launch.
46. Apply to the Commission to adjust the project boundary as needed to incorporate the Almanor Family Campground and Amphitheater, the Almanor Group Campground, and the Almanor beach, 6 months after the FS has completed construction of all of the recreation improvements it has planned for each of these facilities.
47. File a road traffic survey plan for roads used for project purposes located on NFS lands with the Commission within 1 year of license issuance which includes provisions for monitoring traffic every 6 years when monitoring recreation use in accordance with FERC Form 80 requirements. At a minimum, the road traffic survey would include the Caribou Road (27N26) and the Caribou-Butt Valley Reservoir roads (27N26 and (27N60) and include the number and types of vehicles per day on these roads and a sampling schedule that includes the fishing season, including the opening weekend; holiday weekends including Memorial Day, Fourth of July, and Labor Day; non-holiday weekends; the day of and the day after any scheduled Belden reach recreation river flow releases; and weekdays.

Every 6 years, the road traffic reports would be reviewed by the FS and then filed with the Commission.

48. Implement the following measures within 2 years of license issuance:
 - Paint the metal siding and roof of the hoist house on the Prattville intake structure a dark green color similar to the current color;
 - Plant sufficient evergreen trees between the existing Prattville maintenance buildings and the shoreline to reduce visual domination of the buildings on the shoreline area. Monitor and oversee the survival of these trees through the first three summers to ensure successful establishment;
 - Re-grade the Oak Flat road debris spoil piles along Caribou Road to create a more natural rolling topography along the roadside and where possible move spoil materials farther from the road; and
 - Establish native plantings where possible between the road and the Oak Flat spoil piles to help screen the active use areas from passing motorists.
49. Within 2 years of license issuance, prepare a plan, after consultation with the FS, to annually apply dust palliatives or other measures, including regular grading, to help minimize dust emissions and improve the lower coupled segment of the Butt Valley-Caribou Road.
50. Consult with the FS on color selection when maintenance or repair work is scheduled on the Belden powerhouse penstocks, surge chamber, or other powerhouse facilities, to reduce visual contrast as seen from SR 70.
51. Maintain the exterior and landscaping of the clubhouse, houses, and grounds at Camp Caribou to preserve the historic features and character of the facility. Consult with the FS when planning maintenance or repair activities at this National Register eligible property.
52. File a visual management plan with the Commission within 60 days prior to any ground-disturbing activities on NFS lands. This plan will, at a minimum, address clearings, spoil piles, and project facilities such as diversion structures, penstocks, pipes, ditches, powerhouses, other buildings, transmission lines, corridors and access roads; facility configurations, alignments, building materials, colors, landscaping, and screening; a proposed mitigation and implementation schedule necessary to bring project facilities into compliance with the National Forest LRMP direction; locating spoil piles either in approved areas on NFS lands or in a location off of NFS lands; monitoring and eradication of noxious weeds as specified in any noxious weed management plan for the project; removal of all visible non-native materials, including construction debris from the

surfaces of piles located on NFS lands; and stabilization and revegetation of all native material that is allowed to be left on NFS lands, including compliance with visual quality objectives.

53. Meet with the FS and Plumas County a minimum of every 10 years to discuss the need to update the SMP. The need to update the SMP sooner may also be raised and discussed during the annual land use meetings with the FS and Plumas County.
54. Conduct an annual meeting with the FS, CDFG, and Plumas County to coordinate ongoing project related land management activities including recreation management and use, fire suppression and related forest health activities, and the planning for commercial, residential and industrial developments.
55. Finalize and implement the HPMP.

In addition to, or in lieu of, PG&E's proposed measures, we recommend the following additional resource measures based on our independent analysis (see section 3.0 of this EIS).

1. Develop a plan, including the schedule, for using the Canyon dam outlet upper-level gates to alleviate heavy metal concentrations and odors associated with late-summer and fall releases from Canyon dam. This plan would be developed after consultation with the SWRCB, CVRWQCB, Plumas County, the FS, CDFG, and FWS. The plan would be filed with the Commission within 3 months of license issuance.
2. File with the Commission a spoil disposal plan within 6 months of issuance of a new license and at least 60 days prior to any ground-disturbing or soil producing or piling activity.
3. Develop a water level and flow gaging plan. The plan would be developed and filed with the Commission within 3 months of license issuance, and implemented immediately upon approval. This plan would specify monitoring locations, instrumentation, monitoring protocols, schedule, and reporting requirements, including who the reports would be routed to. Minimum requirements of the plan would include continued operation of existing gages; monitoring of lower Butt Creek flows at or near station NF9 on or about April 1, June 1, August 1, and October 1; reporting of non-compliance conditions; and providing daily midnight Lake Almanor storage and water surface elevations, delayed between approximately 1 and 2 days, on the Internet through a third party or other mechanism.
4. As part of the proposed plan to document the effectiveness of seasonal switching of releases from Canyon dam outlet tower gates, seasonally monitor water quality in Lake Almanor near the outlet tower and the Seneca

reach for the first 3 years after license issuance, only if those three water years are normal, dry, or critically dry.

5. As part of the proposed plan to document water quality in Lake Almanor under altered project operations for the new license, seasonally monitor *in situ* parameters, general analytes, minerals, metals, nutrients, petroleum products, and Secchi depths in Lake Almanor annually for the first 3 years after license issuance.
6. As part of the plan to assess potential bioaccumulation of methylmercury and PCBs in catchable-sized fish, collect and analyze samples in years 5, 10, and 15 following license issuance.
7. As part of the bacteriological monitoring program, monitor fecal coliform densities, using a sampling regime that will allow determination of compliance with state standards, annually for the first 3 years after license issuance.
8. If the Commission reduces or terminates the current water temperature monitoring requirements of the Rock Creek-Cresta Project Water Temperature Management Plan for Project 2105 affected sites, develop a plan to monitor DO concentrations in Lake Almanor and Butt Valley reservoir. This plan would be developed after consultation with SWRCB, the FS, CDFG, and FWS; and filed with the Commission within 3 months of Commission approval of reduction or termination of the Rock Creek-Cresta Project Water Temperature Management Plan. This plan would describe monitoring methods and locations, QA/QC procedures, the monitoring schedule, and reporting requirements. The schedule would ensure monitoring for at least 3 years following license issuance.
9. If the Commission reduces or terminates the current water temperature monitoring requirements of the Rock Creek-Cresta Project Water Temperature Management Plan for Project 2105 affected sites, develop a water temperature monitoring plan to document water temperatures resulting from operating the project under a new license. The plan would ensure monitoring for at least 3 years following license issuance.
10. Provide a pulse flow release of 700 cfs in the Seneca reach and in the Belden reach in March of water years classified as dry, unless the water temperature exceeds 10°C for two consecutive days in March and if a flow of this magnitude was not measured in the preceding January or February at NF4 (Seneca) and NF7 (Belden).
11. As part of the proposed gravel monitoring plan, develop specific contingency actions for the enhancement of substrate distribution and abundance in the bypassed reaches.

12. Implement one mid-term geomorphological evaluation in project reaches to assess the response of channel processes to the recommended flow schedule.
13. File the aquatic monitoring plan for the Seneca and Belden reaches with the Commission within 1 year of license issuance. As part of the aquatic monitoring plan, periodically monitor fish populations (in a manner consistent with data presented in pre-filing study reports) and benthic macroinvertebrates in the Seneca and Belden reaches, as proposed in the SA, to determine the effects of measures included in the license, such as minimum flow regimes, pulse flows, and ramping rates. Initiate monitoring during years four and five of the new license to determine the biological response to any measures and to establish a new baseline for detecting biological responses to any modifications of measures. After this 2-year monitoring period, the frequency of surveys would be reduced to every fifth year to evaluate long-term responses to measures implemented in the new license and any subsequent modifications that are made. A draft aquatic monitoring plan would be distributed to the consulted agencies, who would be allowed a minimum of 30 days to comment on the plan. Distribute the results of each year's monitoring to CDFG, SWRCB, the FS, FWS, and the Commission.
14. Develop a woody debris management plan after consultation with CDFG, SWRCB, the FS, and FWS. The plan would be developed and filed with the Commission within 1 year of license issuance. A draft plan would be distributed to the consulted agencies which would be allowed a minimum of 30 days to comment on the plan and would include measures to warn and educate boater in the Belden reach about LWD obstacles in the riverine corridors.
15. Develop an adaptive management plan after consultation with CDFG, SWRCB, the FS, and FWS to be filed with the Commission within 1 year of license issuance. The plan would be designed to evaluate the effects of environmental measures on all resource areas and to evaluate the need for adjusting or implementing new measures to enhance environmental resources affected by the project. The plan would also define the process that would be used to determine whether or not there is a need to adjust measures that may be specified in a new license or implement new measures. The plan would also define consultation procedures that would be taken prior to undertaking any actions that would affect FS sensitive species or their habitat to determine whether preparation of a Biological Evaluation would be necessary. A review would be conducted and reports would be filed with the Commission every 5 years for the term of the license.

16. Delay implementation of recreational flow releases for a period of 6 years to allow the riverine aquatic biota to respond to new minimum and pulse flow schedules. In year 6 of the license, establish the recreation river flow TRG and implement the recreation flow implementation plan, as described in the SA. If a decision is made to continue recreation river flows following a 3 year test period, implement the recreation river flow schedule and other provisions as presented in the SA.
17. Within 1 year of license issuance develop a vegetation and noxious weed management plan for all project lands that provides for the following: protection of special-status plants that includes maintenance of the project GIS data base that would allow mapping and tracking occurrences of special-status plants to assist in evaluating plans for vegetation management, siting for new recreational facilities and considering other activities that would cause ground disturbance or habitat alteration; improvement of wildlife habitat, consulting with the FS to evaluate the consistency with FS standards and guidelines for management of the NFS lands, protection of listed and sensitive species; and control of noxious weeds. Part of this plan would include a plan for the protection and management of VELB habitat, including protection in the area around the known location of the elderberry shrub and pre-activity surveys in areas that would have vegetation clearing or cutting. PG&E would consult with the FS and FWS on protection and management of VELB habitat and ensure that measures identified in the plan (e.g., flagging and protecting elderberry shrubs with stems over 1 inch in diameter) are consistent with the current FWS guidelines (FWS, 1999, or subsequent update).
18. As part of the wildlife habitat enhancement plan, include additional monitoring of habitat for wading birds and waterbirds in the causeway area, and incorporate management considerations outlined in the “Conservation Assessment and Management Plan for Breeding Western and Clark’s Grebes in California.”
19. Develop a threatened, endangered, proposed for listing, and sensitive species protection plan, within 1 year of license issuance, as part of the biological and adaptive management plans for listed species. Consult with the FS and FWS prior to undertaking any actions that would affect FS sensitive species or their habitat, to determine whether preparation of a biological evaluation is necessary; identify BMPs that are consistent with FS standards and guidelines; and develop any specific protection measures that should be implemented.
20. As part of the amphibian monitoring plan, specify the process by which additional potential CRLF habitat would be determined and potential project-related effects identified. In addition, specify the consultation

process that would be implemented with FWS and other appropriate agencies, should the presence of a CRLF be confirmed within project-affected waters during monitoring, or based on credible information from other sources. After year 15, meet with the FS, FWS, SWRCB, and CDFG and determine the need, frequency, and locations of future monitoring efforts.

21. Develop a peregrine falcon monitoring plan within 1 year of license issuance after consultation with the FS, FWS, and CDFG. This plan would include provisions for monitoring of peregrine falcon nest territories in accordance with measures found in FWS' "Monitoring Plan for the American Peregrine Falcon" completed in December 2003. Where possible, this plan may be incorporated into the interagency bald eagle management plan to avoid duplication of effort.
22. Develop an interagency bald eagle management plan within 1 year of license issuance after consultation with the FS, FWS, CDFG, private timber companies (e.g., Collins Pine), and recreational groups (e.g., AW, Chico Paddleheads, and Shasta Paddlers). This plan would include, for all project lands and waters, at a minimum, provisions for (1) annual monitoring of bald eagle reproductive success, distribution, and abundance; (2) monitoring of human use patterns to determine human/eagle interactions; (3) coordination of any plans for timber harvest, mining, and recreational enhancements on PG&E lands influenced by the UNFFR Project with the FS, FWS, and other consulting agencies; (4) protection and enhancement measures within the management zones; and (5) steps to minimize eagle disturbance resulting from proposed changes in project operations, facilities, and recreational enhancements. Where possible, peregrine falcon nest territory monitoring may be incorporated into the interagency bald eagle management plan. At the discretion of the consulting agencies, PG&E may incorporate portions of this plan with the FS' "Bald Eagle Management Plan, Lake Almanor and the Upper Feather River, Recovery Zone 26, Lake Almanor Basin Area" completed in September 2003.
23. Prior to implementation of the Lake Almanor SMP, revise the draft SMP included in the final license application after consultation with SWRCB, CDFG, the FS, Plumas County, and the Maidu community to determine appropriate actions to take to evaluate the potential adverse effects of the altered lake level conditions on other resources. Revisions to the draft SMP would include addressing inconsistencies with county land-use designations, as identified by Plumas County; reevaluation of shoreline erosion at a few locations identified by Plumas County as having moderate to severe erosion; and addressing evaluation of potential adverse effects of shoreline erosion resulting from the altered lake level conditions on water quality, aquatic resources, cultural resources, recreation, and aesthetics.

PG&E would file the revised SMP along with comments on it with the Commission within 3 months of issuance of a new license.

24. Within 1 year of license issuance, develop a road management plan for all FS and unclassified roads on NFS lands needed for project access. The road management plan will identify all FS and unclassified roads on NFS lands needed for project access, including the road numbers; a map of all FS roads and unclassified roads on NFS lands needed for project access, including digital spatial data accurate to within 40 feet identifying each road by FS road number, detailed descriptions of each FS road segment and unclassified road on NFS land needed for project access; provisions for PG&E to consult with the FS prior to any road construction, realignment or closure involving FS roads or lands needed for project access; provisions for PG&E to cooperate with the FS on the preparation of a condition survey and a proposed maintenance plan annually, beginning the first full year after the road management plan has been approved. The road management plan will also specify that PG&E must obtain appropriate authorization from the FS for all project access roads under FS jurisdiction outside of the project boundary, including unclassified roads and FS system roads needed for project access. The road management plan would identify PG&E's responsibility for road maintenance and repair costs commensurate with PG&E's use and project-induced use. Any roads identified as necessary for operation of the project should be included within the project boundary.
25. Develop a fire prevention, response, and investigation plan developed in consultation with the FS and appropriate state and local fire agencies within 1 year of issuance of a new license that sets forth in detail the plan for prevention, reporting, control, and extinguishing of fires in the vicinity of the UNFFR Project.
26. Implement the measures outlined in the PA.
27. Provide Plumas County with copies of all requested cultural resources reports, including the non-confidential volume of the ethnographic study, if Plumas County agrees not to make the reports available to the public, in compliance with Section 304 of the NHPA.
28. Finalize the HPMP and include (1) the details of PG&E's employee and public education and interpretive program; (2) site-specific treatment measures for historic archaeological sites and standing structures that FERC, in consultation with the SHPO, has determined are eligible for the National Register; (3) protocols for PG&E to consult and work with the Greenville Rancheria, Susanville Indian Rancheria, and other interested Maidu groups; (4) results of any consultations on a curation facility or interpretive center; and (5) a discussion on the Cultural Resources Working Group, including member entities and a schedule for future meetings.

Implementation of these measures, in addition to the measures proposed by PG&E, would protect and enhance water quality, fisheries, terrestrial, recreational, aesthetic, and cultural resources in the project area. We present our rationale for some of our recommended measures in the following sections.

5.1.4.1 Water Resource Measures

Measures to Reduce Water Temperature

Water temperature data for the UNFFR Project area and the lower NFFR indicate that summer daily mean water temperatures frequently exceed 20.0°C and thereby adversely affect the coldwater fishes in surface waters of Lake Almanor and Butt Valley reservoir; Caribou powerhouse discharges; and the Belden, Rock Creek, Cresta, and Poe reaches (see table 3-7). PG&E evaluated numerous potential measures to reduce water temperatures in the Belden reach and the lower NFFR reaches. Although the primary goal of many of these measures is to reduce temperatures in reaches downstream of the UNFFR Project, because implementing some of them would necessitate modifying UNFFR Project facilities and/or operations, we evaluate these measures in this EIS (see *Water Temperature and Dissolved Oxygen Management* in section 3.3.1.2, *Water Quality*, and appendix D).

Although the use of thermal curtains in Lake Almanor and/or Butt Valley reservoir would reduce NFFR temperatures downstream of the Caribou powerhouses, we are concerned about the extreme adverse effects that these measures would have on the lakes' coldwater fishery and other environmental, cultural, and recreational resources, and the high cost. This also is the case for other Prattville intake modifications (see appendix D) evaluated by PG&E. Operating the project with Prattville intake modifications would have extreme ecological, social, and economical effects including:

- Adverse effects on the coldwater fishery of Lake Almanor (see section 3.3.2.2 of this EIS);
- Adverse effects on the existing trophy rainbow and brown trout fishery of Butt Valley reservoir (see section 3.3.2.2 of this EIS);
- Adverse effects on boating safety on Lake Almanor (see section 3.3.5.2 of this EIS);
- Elimination of public access and recreational use of approximately 16 acres of Lake Almanor (see section 3.3.5.2 of this EIS);
- Adverse effects on viewsheds of Lake Almanor (see section 3.3.6.2 of this EIS);
- Potential disturbance of Native American burial grounds associated with dredging of the submerged levees, if the levees are removed (see section 3.3.7.2 of this EIS);

- Cost of between roughly \$6,000,000 and \$18,000,000 to modify the Prattville intake depending on whether the levees are removed (Black & Veatch, 2004);
- Additional costs associated with operating and maintaining the floating curtain throughout the term of any new license; and
- Adverse effects on the local economy of Chester and the region near Lake Almanor (see section 3.3.8.2 of this EIS);

Studies also show that increasing Canyon dam releases and reducing withdrawals through the Prattville intake and consequently discharges from the Butt Valley and Caribou powerhouses would reduce temperatures in reaches of the NFFR. PG&E's proposed MIFs and use of the Canyon dam low-level gates would reduce temperatures in the Belden reach and lower NFFR reaches, although daily mean temperatures of greater than 20.0°C would still occur throughout most of these reaches during July and August. We estimate that implementing the proposed MIFs would decrease the net annual benefit of the project by about \$3,684,200.

Providing releases from Canyon dam higher than the proposed MIFs, while reducing withdrawals through the Prattville intake, would further reduce temperatures in the NFFR, although the incremental benefit would be smaller as flow releases are increased. In addition, reducing discharges from the Butt Valley powerhouse would increase Butt Valley reservoir temperatures and thus degrade its coldwater fishery. We estimate that these releases (200-cfs to 400-cfs releases from the Canyon dam outlet low-level gates through Canyon dam instead of the Butt Valley powerhouse) would have an average annual cost in lost generation to the project of approximately \$1,800,000 more than implementation of PG&E's proposed MIFs. For these reasons, along with the incremental decrease in the net annual benefit of the project, which would result from reduced generation at the Butt Valley and Caribou powerhouses, we do not recommend MIFs higher than those proposed by PG&E in the SA.

Water Quality Monitoring

Our review of PG&E's water quality data, detailed in section 3.3.1.1, *Water Quality*, indicates that project waters typically comply with the applicable federal and state standards for most water quality parameters. However, available information indicates that the applicable criteria for water temperature and DO are frequently not satisfied in some areas, and it is questionable whether other water quality standards including some trace metals are typically satisfied throughout project waters. Evidence also indicates that trace metals and PCBs accumulate in fish and crayfish in the Belden forebay and the NFFR downstream of the forebay.

Concentrations of dissolved cadmium in grab samples collected during 2002 and 2003 suggest that EPA's National 4-day average hardness-based criteria may be exceeded for the NFFR near Chester (NF1), Lake Almanor near Canyon dam surface

(LA1-S), and Butt Valley powerhouse tailrace (BV1) and specific conductance values exceeded the Basin Plan criterion of 150 $\mu\text{mhos/cm}$ at several stations on the NFFR and a station in lower Butt Creek.

Under existing project operation, PG&E typically uses the Canyon dam outlet tower low-level gates to supply the Seneca reach with cool water; however, these operations have resulted in elevated odors and trace metal concentrations in the NFFR downstream of Canyon dam, particularly in the fall prior to turnover of Lake Almanor.

Lake Almanor's limnology could be influenced by operating the project to provide for water surface elevations from June 1 through August 31 that are 10 feet higher than current levels in wet and normal water year types and 5 feet higher in dry and critically dry water year types. We conclude that it would be appropriate to monitor water quality conditions in Lake Almanor for the first 3 years of any new license period to assess the effects of changing project operation under any new license for this project. In this manner, the effects of the new operations could be readily evaluated and corrective actions, if necessary, could be made within a few years of implementing the new license terms.

In the SA, PG&E proposes developing a water quality study and monitoring plan that would incorporate five plans. These five plans, which we recommend with our specific details, are (1) a plan to evaluate the adequacy and efficacy of mitigating elevated odor and dissolved metal levels in the Seneca reach through seasonal gate switching at the Canyon dam outlet; (2) a plan to identify the cause of high dissolved cadmium and specific conductance levels in waters of the UNFFR that were measured in 2002-2003; (3) a water quality monitoring plan to monitor water quality conditions in Lake Almanor; (4) a plan to monitor the potential bioaccumulation of total mercury and PCBs in tissue samples collected from resident catchable-sized (minimum total length of 8 inches) fish in waters of the project in years 5, 10, and 15 following license issuance; and (5) a bacteriological monitoring plan consistent with the Basin Plan objectives for protection of the water contact recreation beneficial uses.

We estimate the annualized cost of developing and implementing these five recommended water quality plans, together with the cost of producing the water quality reports for the project, would be about \$150,900. Because we recommend a more abbreviated monitoring schedule than the one presented in the SA (we do not recommend monitoring for the entire license term), the cost of our recommendations is \$40,800 less than the recommendations as presented in the SA.

5.1.4.2 Aquatic Resource Measures

Minimum Flows

The minimum flow regime proposed by PG&E in the SA calls for the release of minimum flows, based on water year type, for the preservation and improvement of

aquatic resources in the Seneca and Belden reaches of the NFFR. The proposed flow schedules allow for variable releases that range from 60 to 150 cfs into the Seneca reach from Canyon dam, and variable releases that range from 75 to 235 cfs into the Belden reach from the Belden dam. The releases are dependent on the month and water year type (critically dry, dry, normal, and wet) and are designed to mimic the variability in flow that would occur with a natural hydrograph. The highest flows would typically occur during late winter and early spring, and the lowest flows would occur during late summer and early fall. The minimum flow regime specified in the SA would enhance aquatic habitat, including water temperature, for a number of key species and life stages, while retaining the ability of anglers to effectively fish in both project bypassed reaches, as discussed in section 3.3.2.

We estimate that implementing the minimum flow regime proposed in the SA would decrease the net benefit of the project by about \$3,684,200, due to the loss of generation. An advantage of the SA's flow shaping approach that is not evident in the lost revenue and generation values is that, during the period of peak energy demand, which is typically in July and August, the minimum flow requirements are near their lowest levels. Consequently, more energy would be available at those times than would be if a single higher year-round minimum flow regime was to be implemented in both of the bypassed reaches. We consider the environmental benefits of implementing this flow regime to be worth its cost.

In its Section 10(j) recommendation, Interior recommends that PG&E implement a proposed flow schedule that allows for variable releases dependent on the month and water year type. However, Interior recommends variable releases that range from 60 to 170 cfs into the Seneca reach from Canyon dam, and variable releases that range from 100 to 250 cfs into the Belden reach from the Belden dam. Interior's recommended flow regime, though providing somewhat higher flows during certain seasons for different water year types, does not provide for a substantial increase in habitat suitability for the evaluated species' lifestages over the flow regime recommended in the SA, as discussed in section 3.3.2. We estimate that implementing Interior's flow regime would decrease the net annual benefit of the project by \$469,000 more than our recommended flow regime, with little additional environmental benefit.

In the SA, PG&E commits to make a good faith effort to provide the specified minimum streamflows to the bypassed reaches where facility modifications are needed to release flows specified in the SA. No indication is provided as to which facilities may need to be modified to accommodate the flows and thus would be subject to interim good faith flow release provisions. It is important to establish whether facility modifications would be needed, and if so, at which dam, the cost of such facilities, and the advantages that the new facilities would provide over using the capabilities of the existing facilities. Additional capital costs may be necessary if PG&E and/or the Commission determine that facility modifications are required to release the minimum flows.

Lake Almanor Water Levels

The Lake Almanor water levels proposed by PG&E in the SA provide for water surface elevations from June 1 through August 31 that are 10 feet higher than current levels in wet and normal water year types and 5 feet higher in dry and critically dry water year types. In its Section 10(j) recommendation, Interior recommends that PG&E implement project operations to maintain the same water surface elevations as those proposed in the SA. Lake Almanor supports both warm- and coldwater fisheries. Maintaining lake levels during the late spring/summer period at higher elevations over existing conditions would increase the lake's surface area by approximately 12 percent during wet year types and 6 percent during normal year types. This increased surface area may provide further shallow water habitat in areas of the lake that are currently not watered, providing spawning habitat for centrarchids, such as smallmouth bass, largemouth bass, and Sacramento perch, as discussed in section 3.3.2.

Maintaining the level of Lake Almanor higher than the current levels also would improve conditions for recreation use and aesthetics, as discussed in section 3.3.2. Below approximately elevation 4,482 feet, the shoreline progressively becomes more undesirable to many beach users and viewers, due to exposed jagged volcanic-type rocks.

We estimate that implementing the Lake Almanor water levels as described in the SA would decrease the net benefit of the project by about \$1,527,500. Although this represents a substantial cost, we conclude that the environmental benefits (enhanced aquatic habitat and aesthetic conditions) as well as the socioeconomic benefits (increase in the capital value of residential property) associated with these higher water levels would be worth the cost.

Butt Valley Reservoir Water Levels

In the SA, PG&E proposes operating Butt Valley reservoir so that the minimum water surface elevation is 4,120 feet from June 1 through September 30, and 4,115 feet from October 1 through May 30 (sic); however, we assume that the reservoir will be operated to maintain a minimum surface elevation of 4,115 feet through May 31. Currently there are no elevation restrictions on the reservoir; however, from January 1975 until December 1999 (the period where data were available for all project gages), PG&E operated the reservoir at or above these recommended levels at almost all times, except during the time that it was drawn down to allow seismic remediation of the dam and for a few additional minor periods where elevations fell below the proposed limits. Typically, Butt Valley reservoir fluctuates about 1 foot on a daily basis and between 3 and 5 feet on a weekly basis depending on power system operating needs. The reservoir supports a trophy rainbow and brown trout fishery; however, available habitat for centrarchids in the reservoir is limited, with little or no littoral zone present, as discussed in section 3.3.2. Butt Valley reservoir has a more attractive shoreline than Lake Almanor, when exposed, and visual quality is generally preserved across the range of normal operating levels. Formalizing current Butt Valley reservoir water level management, as we recommend,

would not decrease the net annual benefit of the project because it is reflective of existing conditions. Our analysis has not demonstrated any negative effects on resources in the reservoir under the current operating regime, and in fact, Butt Valley reservoir supports a trophy rainbow and brown trout fishery.

Monitoring of Aquatic Resources in the Bypassed Reaches

In the SA, PG&E proposes to develop an aquatic monitoring plan for the Seneca and Belden reaches, in consultation with CDFG, SWRCB, the FS, and FWS. PG&E proposes initiating aquatic (fish and benthic macroinvertebrates) monitoring between 10 and 12 years after license issuance, with sampling occurring every 2 years over a 6-year period, for a total of three sampling periods. The FS, in its final Section 4(e) condition no. 26 specifies the same sampling plan as the one in the SA, but includes NOAA Fisheries as a consulting party. The plan proposed by PG&E and specified by the FS includes monitoring of fish populations (including condition and trend) and benthic macroinvertebrates (including population robustness, feeding group, and tolerance/intolerance trend monitoring) in at least three sites in each reach. Sampling could be deferred to the following year in the event of a critically dry year.

We agree that it would be appropriate to collect biological data to document the response of the aquatic community to changes in project operation, which would allow for a determination to be made as to whether the expected benefits of the new flow regime are occurring and, if not, whether any adjustments to the flow regime are necessary. However, monitoring is not proposed or specified until years 10 to 12, and we are concerned that changes, negative or positive, to the fish and macroinvertebrate communities would not be evident in a timely manner under this proposed monitoring program. We agree with monitoring fish populations and benthic macroinvertebrates in the Seneca and Belden reaches, as proposed in the SA, to determine the effects of measures included in the license, such as minimum flow regimes, pulse flows, and ramping rates. However, we have recommended that PG&E initiate this monitoring during years 4 and 5 of the new license to determine the biological response to any measures and to establish a new baseline for detecting biological responses to any modifications of measures. After this 2-year monitoring period, the frequency of surveys would be reduced to every fifth year to evaluate long-term responses to measures implemented in the new license and any subsequent modifications that are made.

Section 18 Fishway Prescription

Implementation of the NOAA Fisheries Section 18 prescription likely would provide access to approximately 15 miles of spawning and juvenile rearing habitat for Central Valley spring-run Chinook salmon and Central valley steelhead (assuming the prescription is included in the license for the UNFFR Project and implementation of a complementary prescription for the Oroville project) by trapping adults below the Oroville Project and transporting them to the Seneca reach and Yellow Creek. The

minimum instream flows that we recommend and that are proposed by PG&E and the resource agencies for the Seneca reach combined with the existing physical conditions in the UNFFR would likely provide suitable habitat for anadromous salmonids. However, as discussed in section 3.3.2.2, the potential success of this program is questionable and there would likely be many adverse effects associated with the implementation of the fish passage prescription such as adverse effects on the existing fish community and adverse effects on riparian habitat and instream habitat due to construction. Although the fish passage measures prescribed by NOAA Fisheries would likely be a more effective means of passing upstream and downstream migratory fish as compared to other more traditional measures (e.g., intake screens or fish ladders), there remains a wide discrepancy between the concepts presented by NOAA Fisheries in its March 14, 2005, prescription and the scientific evidentiary support necessary to guarantee the success of such efforts. Given that uncertainty, the potential adverse effects, and the cost of this measure (an estimated decrease of the net annual benefit of the project of \$2,435,400) we do not recommend the implementation of the NOAA Fisheries Section 18 fishway prescription.

5.1.4.3 Recreation Resource Measures

Recreation Resource Management Plan

In the SA, PG&E proposes finalizing the draft UNFFR RRMP, which would include six programs: (1) a recreation facilities development program that defines PG&E's proposed responsibilities related to construction, including details of proposed recreation development projects, estimated costs, and schedules; (2) a recreation O&M program that defines PG&E's proposed existing and future recreation O&M responsibilities, including annual maintenance costs and maintenance standards to be used; (3) an I&E program that describes how hydroelectric energy production, environmental, cultural, and informational interpretation and education would be coordinated and conducted by PG&E at project facilities; (4) a recreation monitoring program that defines how PG&E proposes conducting recreation resource monitoring, including monitoring standards and indicators, and how the monitoring information would be used in decision-making; (5) a resource integration and coordination program that defines how PG&E would integrate recreation resource needs with other resource management needs over time, such as cultural, wildlife, and aquatic resources and discusses how actions would be coordinated through annual meetings; and (6) a RRMP review and revision program that defines how the RRMP would be updated or revised over the term of the new license. We estimate that finalization of the RRMP would decrease the net annual benefit of the project by about \$39,400, but the benefits, directing management of recreation resources over the term of the license, would justify the costs.

Recreation Facility Improvements at Lake Almanor

In the SA, PG&E proposes improvements at four developed campgrounds located on Lake Almanor: Last Chance family and group campground, Rocky Point campground, the East Shore group camp, and the East Shore family campground. In the SA, PG&E also proposes improvements at nine day-use areas: Rocky Point, Stover Ranch, Marvin Alexander beach, Canyon dam, East Shore, Westwood beach, Stumpy beach, Catfish beach, and the Almanor scenic overlook. The SA also provides for improvements in the southwest shoreline access zone, at the North Shore public boat launch, and at the Camp Connery group camp. Many of these enhancements would increase opportunities for the public to access the Lake Almanor shoreline. Proposed improvements at existing facilities include modifications and upgrades in accordance with ADA, improving vehicle access and parking opportunities, providing bear-proof food lockers, and replacement of stoves with campfire rings. We estimate that completion of these improvements would decrease the net annual benefit of the project by about \$1,447,100. Even though this is a fairly significant cost to the project, these measures would help meet future recreation demand and could encourage additional tourism to the area, thereby increasing expenditures in the region and improving the economic viability of the local community of Chester.

In the SA, PG&E also proposes providing the FS with approximately 40 percent matching funds up to a total maximum of \$5,000,000 in the first 13 years following license issuance for the FS to construct recreation improvements at FS facilities along Lake Almanor including the Almanor Family Campground, the Almanor Group Campground, the Almanor amphitheater, the Almanor picnic area, and the Almanor beach. These improvements would include reconstruction of existing facilities and construction of new facilities. We estimate that providing matching funds to the FS for facility improvements would decrease the net annual benefit of the project by \$727,300. We believe this cost is reasonable because improvement of the FS facilities would bring them up to the current standards of the PG&E facilities and provide additional ADA-accessible elements.

Once improvements at these FS facilities are completed, PG&E proposes assuming O&M responsibility for these facilities and the Dyer View day-use area, the Canyon dam day-use area and boat launch, and the Almanor boat launch. PG&E's O&M of these facilities would allow for consistent management of all available facilities on the Lake Almanor shoreline. PG&E proposes to incorporate those facilities that are not currently in the project boundary into the project boundary. We estimate that PG&E's assumption of the O&M of these facilities would decrease the net annual benefit of the project by \$77,900, but providing consistent management is worth the increased cost.

Recreation Facility Improvements at Butt Valley Reservoir

In the SA, PG&E proposes improvements at the following PG&E facilities along the Butt Valley reservoir: Ponderosa Flat campground, Cool Springs campground, and the Alder Creek boat launch. Proposed improvements at these facilities include modifications and upgrades in accordance with ADA guidelines, improving vehicle access and parking opportunities, and providing showers. In the SA, PG&E also proposes providing angler access trails to two locations near the Butt Valley powerhouse. One of these trails would be accessible in accordance with ADA guidelines. We estimate that completion of these improvements would decrease the net annual benefit of the project by about \$128,100, but would increase visitor satisfaction at the Butt Valley reservoir which is worth the increased cost.

Recreation Facility Improvements at Belden Forebay

In the SA, PG&E proposes improving access at the Belden forebay by providing a car-top boat launch and other amenities at the trailhead for the North Fork fishing trail and also improving the North Fork fishing trail. Both of these improvements would improve angler access at the Belden forebay, which is worth the decrease in the net annual benefit of the project of \$20,900.

Recreation Facility Improvements in the Bypassed Reaches

In the SA, PG&E proposes improving facilities at the Belden rest stop and providing and maintaining 4 trails to the shoreline of the Belden reach. PG&E would increase accessibility in accordance with ADA guidelines and also improve visitor safety at the Belden rest stop. We estimate that providing these improvements would decrease the net annual benefit of the project by \$17,200. Also, if recreation release flows would be provided in the Belden reach, the SA provides for provision of a river access point at the upstream end of the Belden reach by PG&E. This would decrease the net annual benefit of the project by an additional \$4,100. If requested by the FS, PG&E would also provide funding to the FS for construction of non-project river access to the lower Belden reach, which would decrease the net annual benefit of the project by an additional \$18,200, but the benefits, including increased visitor satisfaction and improved environmental conditions, would justify the costs.

Recreation River Flow Management

We agree with PG&E's proposal as described in the SA to implement the recreation flow implementation plan, including test flows and monitoring, in the Belden reach. Additionally, in its final Section 4(e) condition no. 28(2), the FS specifies that PG&E implement the recreation flow implementation plan. We estimate that implementation of this plan would decrease the net annual benefit of the project by \$2,500. Implementation of scheduled releases following the 3 years of test flows

proposed in the recreation flow implementation plan would decrease the net annual benefit of the project by \$15,400 if implemented in year 4 of the license. Monitoring boater use once the scheduled releases are implemented would decrease the net annual benefit of the project by \$21,300 and developing and implementing a visitor survey for up to 3 years would decrease the net annual benefit of the project by \$39,200. The cost of environmental monitoring once the scheduled releases are implemented would decrease the net annual benefit of the project by another \$28,000. Collectively, preparing for and implementing scheduled whitewater releases as proposed in the SA would decrease the net annual benefit of the project by about \$106,400, but the benefit of enhanced whitewater boating opportunities in the area would justify the costs.

In its final 10(j) recommendation no. 26, Interior recommends delaying implementation of the recreational flow implementation plan for 6 years following license issuance to allow the biological communities in the bypassed reaches to respond to the new flow regime. In section 3.3.2.2, we analyze the effects of recreational flows on the aquatic community in the Belden reach and describe how a substantial flow increase could disrupt fish and amphibians, displace macroinvertebrates, and affect channel processes. We believe that monitoring the effects of recreational flows on aquatic resources within the Belden reach, using information from the evaluation of recreation flows in the Rock Creek and Cresta reaches of the NFFR, and incorporating the results of other pertinent studies would provide a better understanding of how recreation flows affect substrate conditions, macroinvertebrates, amphibians, and fish populations in the reach. The biotic community would have the opportunity to adapt to the revised instream flow schedule without being potentially disrupted by recreational release flows, which would improve the likelihood of enhancing macroinvertebrate and fish populations. The delay also would allow PG&E to implement monitoring to assess changes to the biotic community that may have resulted from implementation of the new flow schedule without the confounding effects of recreational flow releases. By delaying implementation of the recreational flow implementation plan from year 1 until year 6, the decrease in the net annual benefit is reduced from \$2,500 to \$1,200. By delaying implementation of the scheduled releases from year 6 until year 9 of the license, the decrease in the net annual benefit is reduced from \$15,400 to \$12,000. The cost of preparing for and implementing scheduled whitewater releases, with a delay of 6 years, would only reduce the net annual benefit from \$106,400 to \$101,700. The difference in the cost of implementing the recreational flow release program in year 1 or year 6 is slight, but the potential benefits of delaying implementation of the flows to the aquatic community, as well as a better understanding of how recreation flows affect the aquatic community, justifies the delay.

River Ranger Funding

We agree that the addition of a river ranger along the project river reaches could enhance the recreation experiences of some of the visitors to the project river reaches by

increasing visitor awareness of federal, state, county, and local regulations and laws. This increase in awareness could lead to an increase in compliance with those laws and regulations, and a greater degree of resource protection resulting from increased compliance. However, law enforcement at the UNFFR Project is the responsibility of the FS and Plumas County. PG&E pays property taxes to Plumas County that relate to the operation of its UNFFR Project and a portion of the tax payment would be expected to fund law enforcement activities associated with continued project operation. The FS is responsible for enforcing the natural resource protection provisions of the Plumas National Forest LRMP. Neither Plumas County nor the FS has provided any data to indicate the need for PG&E to fund a river ranger position to patrol the UNFFR Project area. Security at the project development is the responsibility of PG&E. We find no indication that law enforcement within the project area is inadequate, or that additional assistance is needed to complement the current levels of law enforcement. Additionally, we have no assurance that the river ranger would be used exclusively in the project area, in addition to the current levels of patrols in the project area. Therefore, we do not recommend funding of the river ranger position.

5.1.5 Conclusion

Based on our independent analysis, continued operation of the UNFFR Project with our recommended measures would improve environmental conditions in the project area and ensure an economically beneficial use of project resources.

5.2 CUMULATIVE EFFECTS SUMMARY

We identified the following resources that have the potential to be cumulatively affected by relicensing the UNFFR Project with our recommended measures in combination with other activities in the NFFR basin: (1) water quality and quantity, (2) rainbow trout, and (3) bald eagles.

In section 3.3.1.3, *Cumulative Effects on Water Resources*, we note that project facilities and operations have affected water temperatures throughout much of the NFFR, lower Butt Creek, and project impoundments ever since the construction of the UNFFR Project. Increasing summer flows in the Seneca and Belden reaches would cool water within these reaches, and modifying the Prattville intake to supply cold water from Lake Almanor to downstream reaches, if feasible and implemented, would result in cooler water in the Butt Valley reservoir and in the NFFR between the Caribou development and Lake Oroville. Implementation of some other coldwater supply options is also expected to cool water in the NFFR downstream of the Caribou development. However, implementation of options that include reducing discharges from Butt Valley powerhouse, or installing curtains in Butt Valley reservoir, would warm water in the Butt Valley reservoir. Routing a portion of the flow around the Rock Creek, Cresta, and Poe bypassed reaches warms water in these reaches. We conclude that the cumulative effects of the project and non-project facilities and operations would be largely dependent on

which, if any, coldwater supply option is implemented. If the Prattville intake is modified with a curtain, the cumulative effects would be cooling of water in the NFFR between the Caribou development and Lake Oroville; deepening of the thermocline in Lake Almanor; and cooling or warming of Butt Valley reservoir, depending on whether curtains also are constructed in Butt Valley reservoir and discharges through the Butt Valley and Caribou powerhouses are substantially reduced.

Several project and non-project actions affect trace metals concentrations within NFFR basin waters. PG&E's cloud seeding program has increased silver concentrations in the atmosphere of the Lake Almanor watershed, and consequently has increased the likelihood of elevated silver concentrations in precipitation and runoff. The accumulation of sediments with naturally high levels of metals in the reservoir combined with anoxic conditions in the reservoir's hypolimnion and at the water/substrate interface, have historically resulted in mineralization of trace metals in the reservoir and elevated trace metal concentrations in Lake Almanor's hypolimnion and the Seneca reach. Additionally, the continuation of non-project-related mining, which increases sedimentation and trace metal concentrations, is expected to continue in the Seneca and Belden reaches and other streams within the basin. Modifying the Prattville intake to draft deeper water from Lake Almanor, if implemented, is expected to increase oxygen levels in much of Lake Almanor and consequently reduce mineralization of metals contained in the sediments deposited in the reservoir. PG&E's use of the upper gates instead of the low-level gates at the Canyon dam outlet tower during periods with elevated hypolimnetic metal concentrations would reduce the conveyance of water with high metal concentrations to the Seneca reach. A cumulative effect of anticipated project and non-project actions also would be continued elevation of metals in sediments and the hypolimnion of Lake Almanor, but reduced metal concentrations in the Seneca reach. If the Prattville intake is modified to supply more cold water, metal concentrations in some of Lake Almanor likely would be reduced in comparison to existing conditions.

The expected increase in water-oriented recreation throughout the NFFR basin would increase the potential for fecal coliform bacteria and human pathogens to be introduced to surface waters in the basin. With continued project operation, the Lake Almanor shoreline bank may recede into or near septic leach fields that were constructed prior to raising the normal Lake Almanor water level to 4,494 feet (PG&E datum) in 1974 and subsequently result in introduction of fecal coliform bacteria and human pathogens from the leach fields into Lake Almanor waters. The cumulative effects of these actions would be additive and likely result in localized increases in concentrations of fecal coliform bacteria and human pathogens in surface waters of the NFFR basin.

In section 3.3.2.3, *Cumulative Effects on Aquatic Resources*, we indicate that construction of the UNFFR Project reservoirs and downstream reservoirs (Rock Creek, Cresta, Poe, and Oroville) has reduced the amount of riverine habitat in the NFFR between West Branch and Hamilton Branch from about 90 miles to about 41 miles,

divided among the Seneca, Belden, Rock Creek, Cresta, and Poe bypassed reaches. We recognize that, although some of these reservoirs provide suitable rearing habitat for rainbow trout, the fish communities in impounded areas have generally shifted toward warmwater species. Diversion of water for hydroelectric generation has substantially reduced flow volumes and altered temperature regimes in the bypassed reaches, but trout fisheries remain in good condition, especially in the Seneca, Belden, and lower Butt Creek reaches. Our recommendations to (1) provide pulse flow releases in both bypassed reaches for gravel entrainment and relocation to improve spawning habitat for trout; (2) increase minimum flows in the bypassed reaches, which would increase the amount of available physical habitat and improve summer water temperatures in the Belden bypassed reach; and (3) develop a plan for ramping spill flows to avoid rapid onset and termination of spill flows that may flush aquatic biota downstream, are expected to provide benefits to rainbow trout. The condition of rainbow trout would be expected to improve and could result in anglers catching larger trout from the Seneca and Belden bypassed reaches downstream from the Belden and Rock Creek dams, respectively.

Monitoring fish and macroinvertebrate populations would enable determination of trout responses to new project operations and an evaluation of the need to implement adaptive management measures. Providing scheduled whitewater flows in the Belden reach, if implemented, could adversely affect trout populations by scouring algae and invertebrates from the stream channel, but ecological monitoring during any such events would enable identification of substantial effects and provide a basis for taking corrective actions.

In section 3.3.4.3, *Cumulative Effects on Bald Eagles*, we conclude that, under existing conditions, a stable and abundant prey base for the bald eagle, which feed primarily on fish, exists, and regulated flows in the NFFR maintain foraging opportunities in smooth, shallow water. Modest increases in flows, such as those proposed in the SA, would be likely to maintain or increase the prey base, as well as foraging opportunities, and would represent a cumulative benefit to the bald eagle population.

5.3 FISH AND WILDLIFE AGENCY RECOMMENDATIONS

Under the provisions of Section 10(j) of the FPA, each hydroelectric license issued by the Commission shall include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of fish and wildlife resources affected by the project.

Section 10(j) of the FPA states that, whenever the Commission believes a fish and wildlife agency recommendation is inconsistent with the purposes of the requirements of the FPA or other applicable law, the Commission and the agency shall attempt to resolve any such inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of such agency.

Interior submitted 21 Section 10(j) recommendations for the UNFFR Project on December 1, 2003. In our draft EIS, we determined that 20 of them were within the scope of Section 10(j), but that 11 of them were potentially inconsistent with the FPA. In Interior's letter responding to our preliminary determinations of inconsistency, Interior stated that four of the measures staff recommended in the draft EIS provided acceptable alternative recommendations to its original recommendations. On February 3, 2005, Commission staff participated in a Section 10(j) teleconference with representatives from Interior, CDFG, the FS, SWRCB, Plumas County, and PG&E in an attempt to resolve the preliminary determinations of inconsistency with the FPA of the remaining seven of Interior's Section 10(j) recommendations. During the teleconference we resolved three of the potential inconsistencies, partially resolved two others, and two potential inconsistencies remained unresolved. Our summary of the teleconference was issued on March 22, 2005. Subsequent to the teleconference, we resolved two of the remaining inconsistencies, including one that was partially resolved during the teleconference. Two potential inconsistencies remain unresolved, including one that we initially considered partially resolved following the teleconference.

NOAA Fisheries submitted three Section 10(j) recommendations on November 26, 2003, that were contingent on the provision of passage for anadromous fish at one or more unspecified dams below the project area. These recommendations included (1) evaluating and monitoring any fishways prescribed at the UNFFR Project to meet the criteria specified by NOAA Fisheries in "Fish Screening for Anadromous Salmonids" and other specifications as necessary to provide for the safe, timely, and effective passage of anadromous fishes; (2) moderation of the ramping rate after anadromous fish have been reintroduced to the project area, so as not to produce a significant effect on anadromous fishes, their habitat, or their forage; and (3) provision for a fish water release device at the Butt Valley dam, in order to provide sufficient flow to enable the safe, timely, and effective passage of adult anadromous fishes upstream, and kelt and juvenile anadromous fishes downstream. Because the nature, location, and timing of potential future passage facilities for anadromous fish was not specified for any of the dams below the project area, it was not possible to evaluate NOAA Fisheries' original Section 10(j) recommendations in our draft EIS.

On March 11, 2005, NOAA Fisheries filed two "modified" Section 10(j) recommendations as replacement for its original three recommendations. These include a gravel enhancement plan and compensation for past mining activities. We analyze these recommendations in section 3.3.2.2, *Aquatic Resources*, of this final EIS, and, as discussed below, have adopted the gravel enhancement plan and found the mining compensation to be outside of the scope of Section 10(j). The timing and validity of these "modified" 10(j) recommendations will be discussed in the license order.

Table 5-1 summarizes recommendations from Interior and NOAA Fisheries, our conclusions on whether or not the recommendations are appropriate Section 10(j)

measures, and whether or not we adopt the recommendations. For its 10(j) recommendations, CDFG submitted a copy of the draft SA. Because CDFG is a party to the SA, we include its 10(j) recommendations in our recommended alternative and do not show them separately in table 5-1. We consider recommendations outside the scope of Section 10(j) under Section 10(a) and address them in other sections of this EIS.

Table 5-1. Fish and wildlife agency recommendations for the Upper North Fork Feather River Project. (Source: Staff)

Recommendation	Agency	Within the Scope of 10(j)?	Annualized Cost	Conclusion
1. Instream flow schedules for the Belden and Seneca bypassed reaches and lower Butt Creek (Interior 10(j) recommendation no. 1)	Interior	Yes	\$4,153,200	Not adopted; our recommended flow schedules provide similar results that (1) increase adult rainbow trout, spawning rainbow trout, and adult Sacramento sucker habitat suitability; (2) maintain juvenile rainbow trout habitat suitability near existing levels; and (3) maintain suitable water temperatures within both bypassed reaches for rainbow trout and Sacramento sucker.
2. Make pulse flow releases below Canyon dam and Belden forebay dam (Interior 10(j) recommendation no. 2)	Interior	Yes	\$415,900	Not adopted; adopted Interior's alternative recommendation (see item 2A in this table).
2A. Provide a pulse flow of 700 cfs below Canyon dam and Belden forebay dam in March of dry years, unless water temperature exceeds 10°C for two consecutive days in March (Interior alternative 10(j) recommendation no. 2)	Interior	Yes	\$10,900	Adopted

Recommendation	Agency	Within the Scope of 10(j)?	Annualized Cost	Conclusion
3. Within 6 months of license issuance, develop a lower Butt Creek pulse flow plan in consultation with FWS, the FS, CDFG, and SWRCB (Interior 10(j) recommendation no. 3)	Interior	Yes	\$2,900	Resolved; we did not adopt the original recommendation but Interior agrees that implementing staff's aquatic monitoring plan for the Seneca and Belden reaches resolves the issue.
4. Maintain minimum water surface elevations in Lake Almanor (Interior 10(j) recommendation no.4)	Interior	Yes	\$1,527,500	Adopted
5. Within 6 months of license issuance, develop a water temperature management plan, fund and construct a modified Prattville intake, and fund other structure(s) to satisfy appropriate water temperature criteria beyond that provided by the Coldwater Habitat and Fishery Mitigation and Enhancement Fund under the relicensing SA for the Rock Creek-Cresta Project (Interior 10(j) recommendation no. 5)	Interior	Yes	\$7,293,200	Not adopted; Interior provided a modified recommendation (see item 5A in this table).

Recommendation	Agency	Within the Scope of 10(j)?	Annualized Cost	Conclusion
5A. Within 6 months of license issuance, develop a water temperature management plan for the project's bypassed reaches and reservoirs in consultation with the FWS, FS, CDFG, and SWRCB, and provide funding beyond the Rock Creek-Cresta Project's Coldwater Habitat and Fishery Enhancement Fund for coldwater temperature control measures (Interior modified 10(j) recommendation no. 5)	Interior	Yes	\$7,293,200	Not adopted; but we do recommend a temperature monitoring plan. Also, components of Interior's recommended plan are addressed by the FERC-approved water temperature monitoring plan for the Rock Creek-Cresta Project, and recommended by staff in the event that monitoring of UNFFR Project sites is reduced or terminated under the Rock Creek-Cresta Project license.
6. Within 6 months of license issuance, develop a geomorphological monitoring plan for the project's bypassed reaches in consultation with FWS, the FS, CDFG, and SWRCB (Interior 10(j) recommendation no. 6)	Interior	Yes	\$13,800	Not adopted; adopted Interior's alternative recommendation (see item 6A in this table).
6A. Conduct geomorphological monitoring once during the license term (approximately mid-term) (Interior alternative 10(j) recommendation no. 6)	Interior	Yes	\$1,800	Adopted; we have also recommended gravel monitoring.
7. Within 6 months of license issuance, develop a vegetation management plan in consultation with FWS, the FS, CDFG, and SWRCB (Interior 10(j) recommendation no. 7)	Interior	Yes	\$19,500	Adopted; also includes development of an invasive weed management plan.

Recommendation	Agency	Within the Scope of 10(j)?	Annualized Cost	Conclusion
8. Within 6 months of license issuance, develop a coarse sediment management plan in consultation with the FWS, the FS, CDFG, and SWRCB (Interior 10(j) recommendation no. 8)	Interior	Yes	\$2,900	Resolved; we did not adopt the original recommendation but Interior agrees that clarifying and implementing staff's gravel monitoring plan resolves the issue.
9. Within 6 months of license issuance, develop a woody debris management plan in consultation with FWS, the FS, CDFG, and SWRCB (Interior 10(j) recommendation no. 9)	Interior	Yes	\$8,800	Adopted
10. Within 6 months of license issuance, develop a fish monitoring plan in consultation with FWS, the FS, CDFG, and SWRCB (Interior 10(j) recommendation no. 10)	Interior	Yes	\$24,700	Resolved; we did not adopt the original recommendation but Interior agrees that implementing staff's aquatic monitoring plan for the Seneca and Belden reaches resolves the issue.
11. Within 6 months of license issuance, develop a macroinvertebrate monitoring plan in consultation with FWS, the FS, CDFG, and SWRCB (Interior 10(j) recommendation no. 11)	Interior	Yes	\$11,300	Resolved; we did not adopt the original recommendation but Interior agrees that implementing staff's aquatic monitoring plan for the Seneca and Belden reaches resolves the issue.
12. Within 6 months of license issuance, develop an amphibian monitoring plan for the Belden and Seneca reaches in consultation with FWS, the FS, CDFG, and SWRCB (Interior 10(j) recommendation no. 12)	Interior	Yes	\$8,600	Adopted; however, we recommend the plan be developed within 1 year of license issuance.

Recommendation	Agency	Within the Scope of 10(j)?	Annualized Cost	Conclusion
13. Periodically review studies to ensure adaptive management to identify need to adjust flows or storage to achieve identified resource goals and objectives (Interior 10(j) recommendation no. 13)	Interior	Yes	\$3,100	Adopted; however we recommend the reviews to occur every 5 years during the term of the license.
14. Within 6 months of license issuance, develop a recreational activities monitoring plan in consultation with FWS, NPS, the FS, CDFG, and SWRCB (Interior 10(j) recommendation no. 14)	Interior	Yes	\$28,000	Adopted
15. Ensure endangered species compliance by complying with the terms and conditions required in any biological opinion issued for the project pursuant to Section 7 of the ESA (Interior 10(j) recommendation no. 15)	Interior	No. Not a specific measure to protect fish and wildlife.	\$1,400	Partially adopted; condition 1.b of Interior's biological opinion requires any new owners of lands in the project area previously owned by PG&E to agree in writing to abide by the terms and conditions of the biological opinion. The Commission could not impose or enforce any conditions on land that may be removed from the project boundary, so we cannot include this condition in the license.
16. Within 6 months of license issuance, develop an interagency bald eagle management plan in consultation with FWS, the FS, and CDFG (Interior 10(j) recommendation no. 16)	Interior	Yes	\$106,200	Adopted; combined with 10(j) recommendation no. 17.

Recommendation	Agency	Within the Scope of 10(j)?	Annualized Cost	Conclusion
17. Develop a bald eagle monitoring plan in consultation with FWS, the FS, and CDFG (Interior 10(j) recommendation no. 17)	Interior	Yes	\$0 (Cost is included in Interior's 10(j) recommendation no. 16)	Adopted, recommended as part of the interagency bald eagle management plan.
18. Develop a peregrine falcon monitoring plan in consultation with FWS, the FS, and CDFG (Interior 10(j) recommendation no. 18)	Interior	Yes	\$5,100	Adopted; could be incorporated as part of the interagency bald eagle management plan.
19. Develop an erosion control plan in consultation with FWS, the FS, CDFG, and SWRCB (Interior 10(j) recommendation no. 19)	Interior	Yes	\$3,600	Resolved; we did not adopt the original recommendation but Interior agrees that finalizing and/or implementing the spoil disposal plan, recreational resource management plan, and road maintenance agreement between PG&E and Plumas National Forest, and the annual meeting on land management issues resolve the issue.
20. Develop a ramping rate plan in consultation with FWS, the FS, CDFG, and SWRCB (Interior 10(j) recommendation no. 20)	Interior	Yes	\$2,900	Resolved; we did not adopt the original recommendation but Interior agrees that implementing staff's recommended ramping rates resolves the issue.
21. Develop a wildlife monitoring plan in consultation with FWS, the FS, CDFG, and SWRCB (Interior 10(j) recommendation no. 21)	Interior	Yes	\$26,500	Not adopted; adopted Interior's alternative recommendation (see item 21A in this table).

Recommendation	Agency	Within the Scope of 10(j)?	Annualized Cost	Conclusion
21A. Develop a wildlife management plan including additional monitoring of wading bird habitat in the causeway area (Interior alternative 10(j) recommendation no. 21)	Interior	Yes	\$7,900	Adopted
22. Delay implementation of recreational flow releases for a period of 6 years to allow the riverine aquatic biota to respond to new minimum and pulse flow schedules (Interior Section 10(j) recommendation no. 22)	Interior	Yes	\$12,000	Adopted
23. Develop and implement a gravel enhancement plan that determines the amount of gravel necessary to fully seed the Seneca reach with anadromous fish (NOAA Fisheries 10(j) recommendation no. 1)	NOAA	Yes	\$2,900	Adopted; gravel monitoring and gravel supplementation contingency actions are already provided for in the SA and in our recommendations for PM&E measures in the Seneca reach.
24. Provide suitable compensation to partially offset impacts on anadromous fish caused by past mining activities in the project area (NOAA Fisheries 10(j) recommendation no. 2)	NOAA	No	--	Not adopted; not a specific measure for the protection, mitigation, and enhancement of fish and wildlife resources, no nexus between project operation and mining, also outside the scope of the FPA.

In the draft EIS, we did not adopt Interior’s recommended instream flow schedules (Interior 10(j) recommendation no. 1) for the Belden and Seneca bypassed reaches. Interior recommended variable releases that range from 60 to 170 cfs into the Seneca reach from Canyon dam, and variable releases that range from 100 to 250 cfs into the Belden reach from the Belden dam. However, we recommended the minimum flow regime proposed in the SA and endorsed by CDFG, which calls for variable releases that range from 60 to 150 cfs into the Seneca reach from Canyon dam, and variable releases that range from 75 to 235 cfs into the Belden reach from the Belden dam. Providing the

minimum flow regimes in the Seneca and Belden reaches, under the existing Prattville intake configuration, as PG&E proposes in the SA would (1) maintain rainbow trout juvenile habitat suitability near or at existing high levels; (2) improve adult and spawning rainbow trout and adult Sacramento sucker habitat suitability; (3) maintain significant macroinvertebrate habitat suitability; (4) maintain suitable water temperatures within both reaches for rainbow trout and Sacramento sucker; and (5) maintain water temperatures in the Belden reach that are within the preferred range of hardhead. Interior's recommended flow regime provides somewhat higher flows during certain seasons for different water year types but does not provide for a substantial increase in habitat suitability for the evaluated species' life stages over the flow regime recommended in the SA. We considered the environmental benefit not to be worth the associated incremental annualized cost of \$469,000 associated with implementing Interior's measure over our recommended measure. We therefore made a preliminary determination that this measure may be inconsistent with the comprehensive planning standard of Section 10(a) of the FPA, including the equal consideration provision of Section 4(e) of the FPA.

We participated in a teleconference with Interior, CDFG, the FS, SWRCB, Plumas County, and PG&E on February 3, 2005, in an effort to resolve our preliminary findings of inconsistency pursuant to the provisions of Section 10(j)(2) of the FPA. We discussed Interior's recommended minimum instream flow, and Interior described the likely ecologic, geomorphic, and sedimentologic benefits it believed would occur due to increased flow to the bypassed reaches. It was Interior's opinion that certain benefits, including increased habitat for adult rainbow trout, increased movement of substrates, and activation of floodplain surfaces, would be substantially enhanced by the implementation of its flow recommendations. We mentioned that benefits to the aquatic system would occur as a result of either proposed flow regime, and that it was questionable as to whether the increase in water as recommended by Interior would result in a substantial increase in overall aquatic benefit. Flows recommended in the SA would more than double the current amount of habitat available for adult trout during the spring and high-flow events of wet/normal years, thus providing a substantial benefit to the trout fishery.

Following the teleconference, we conducted additional analyses and concluded that the flows proposed in our recommendation would provide similar benefits to the aquatic environment as compared to baseline conditions, and that the incremental increase of habitat for adult rainbow trout that would result from Interior's recommendation would be at the expense of juvenile trout macroinvertebrate community diversity. The flow regime recommended by Interior, though providing higher flows during certain seasons for different water year types, would likely not provide a substantial increase in overall ecosystem benefit as compared to the minimum flow schedule proposed in the SA. This potential inconsistency remains unresolved.

In the draft EIS, we did not adopt Interior's recommendation for pulse flow releases below Canyon dam and Belden forebay dam (Interior 10(j) recommendation no. 2). Interior recommended one release per month in January, February, and March of 1,500 cfs in wet years, one release per month in January, February, and March of 1,200 cfs in normal years, one release in March of 700 cfs in dry years, only if no other pulse was released in January or February, and no pulse flows in critically dry years. Our review of existing flow information for the 31 water years extending from 1970 through 2001 indicates that, in the Seneca and Belden reaches, peak flows exceeded 1,000 cfs in 9 years and 1 year, respectively. We recommended the pulse flows proposed in the SA: in wet years, one release per month in January (675 cfs), February (1,200 cfs), and March (1,200 cfs); in normal years, one release per month in January (675 cfs), February (1,000 cfs), and March (1,000 cfs); and no pulse flows in dry or critically dry years.

Our analysis of the sediment incipient motion study and geomorphic study concluded that the Interior-recommended pulse flows, though of greater magnitude, would not provide a significant increase in entrainment or relocation of substrates over that which would occur under the pulse flow schedule proposed by PG&E in the SA. The greater magnitude flows recommended by Interior would have the potential to move gravel out of the reaches at a rate greater than recruitment. Although transport of some gravel up to 15 mm in diameter would be achieved in the Seneca and Belden reaches during dry water years under Interior's pulse flow regime, such a flow release would be ineffective in mobilizing most spawning gravels within the reaches. The annualized cost of implementing Interior's recommended pulse flow releases in the Seneca reach would be \$102,900 more than our recommended measure, and the annualized cost of implementing Interior's recommended pulse flow releases in the Belden reach would be \$36,800 more than our recommended measure. We therefore made a preliminary determination that this measure may be inconsistent with the comprehensive planning standard of Section 10(a) of the FPA, including the equal consideration provision of Section 4(e) of the FPA.

During the Section 10(j) teleconference, Interior expressed its concern with the potential for consecutive years without any pulse flows in project reaches and cautioned us that if insufficient frequency of spring pulse flow is allowed for benefits to the ecosystem, there may be potential for a negative impact on organisms and ecosystem processes that rely on such pulse flows. Interior also expressed its desire to see a pulse flow of some magnitude in dry years, especially since the draft EIS and SA allow for recreation flows in dry and critically dry years. Interior provided an alternative to its original 10(j) recommendation, which provides for a pulse flow of 700 cfs in March of dry years, but qualifies that no pulse flow would occur if water temperature exceeded 10°C for two consecutive days in March. The annualized cost of implementing Interior's alternative recommended pulse flow releases in the Seneca reach would be \$7,600 more than our recommended measure, and the annualized cost of implementing Interior's recommended pulse flow releases in the Belden reach would be \$3,300 more than our

recommended measure. We further considered Interior's recommendation and, based on additional analysis, determined that a pulse flow of 700 cfs as recommended by Interior would be beneficial to aquatic resources. We consider this inconsistency resolved with Interior's alternative recommendation because the cost is more commensurate with the benefit to the resources.

In the draft EIS, we did not adopt Interior's recommendation for a pulse flow plan for lower Butt Creek (Interior 10(j) recommendation no. 3). Existing flows within lower Butt Creek exceed 10 cfs 90 percent of the time for all months. Therefore, current flows are sufficient to flush fines from larger substrates and transport gravels within the creek. Recent fishery, mollusc, habitat mapping, and IFIM studies conducted in lower Butt Creek document high quality coldwater habitat that does not show any sign of impairment or a need for pulse flows. Pulse flow releases, even on a trial basis, have the potential to result in adverse effects, and given the existing high quality habitat for aquatic biota, there is no need to evaluate pulse flow releases in lower Butt Creek. We estimate that implementation of Interior's plan could cost \$2,900 a year. We consider it more appropriate to conduct periodic monitoring of habitat to determine if such flows are needed to maintain or improve the quality of the habitat within the creek. We recommend an aquatic monitoring plan to monitor and assess aquatic habitat quality in lower Butt Creek between Butt Valley dam and its confluence with the NFFR. Monitoring of habitat quality would occur at intervals of 3 to 5 years, depending on water year type and other appropriate factors. If the monitoring results conclude that habitat quality has degraded, PG&E, in consultation with CDFG, SWRCB, the FS, and FWS, would initiate a pulse flow program if it is concluded such a flow would provide a significant benefit. We estimated the cost of implementing our recommended aquatic monitoring plan would be \$7,200. We therefore made a preliminary determination that this measure may be inconsistent with the substantial evidence standard of Section 313(b) and the comprehensive planning standard of Section 10(a) of the FPA, including the equal consideration provision of Section 4(e) of the FPA.

During the Section 10(j) teleconference on February 3, 2005, Interior agreed that the actions called for in our recommendation would be acceptable as long as adaptive management remains a viable and attainable component of the proposal. PG&E described the problems associated with providing pulse flows since Butt Valley dam has no low-level outlet and, at present, the only way to release pulse flows would be through the spillway. We evaluated the estimated cost and feasibility for a siphon system, weighed those costs against the expected benefits of a pulse flow in lower Butt Creek, and determined that the installation of a siphon system to provide future pulse flows is not warranted at this time. In addition to the excessive costs of initiating a siphon system, the timing of releases is problematic because water levels are likely not sufficient in March to release a pulse flow. Therefore, we decided that our original aquatic monitoring plan is sufficient, and we consider this inconsistency resolved.

In the draft EIS, we did not adopt Interior's recommendation to develop a water temperature management plan, fund and construct a modified Prattville intake, and fund other structure(s) to satisfy appropriate water temperature criteria beyond that provided by the Coldwater Habitat and Fishery Mitigation and Enhancement Fund under the relicensing SA for the Rock Creek-Cresta Project (Interior preliminary 10(j) recommendation no. 5). In addition, Interior specified that PG&E should develop appropriate additional temperature criteria by season, reach, and outlet location to avoid unintended adverse effects of sublethal temperature stress on aquatic biota as a result of structures or operations that involve planned surface water release discharge, and that these criteria be included in the water temperature management plan. In accordance with the Rock Creek-Cresta Project SA, PG&E is required to evaluate and potentially modify the Prattville intake and implement other options for using the coldwater supply in Lake Almanor and Butt Valley reservoir to attain cooler temperatures in the NFFR downstream of the Caribou developments.

Modification and implementation of the Prattville intake and/or implementation of measures for the Rock Creek-Cresta Project along with altering operations of the UNFFR Project under any new license could substantially alter the thermal regimes of Lake Almanor, Butt Valley reservoir, and the NFFR downstream of the Caribou developments. Prior to issuance of the draft EIS, however, PG&E and the ERC had not completed studies to determine the feasibility of modifying the Prattville intake to provide cooler water to downstream reaches, and the cost, benefits, and effects (both beneficial and adverse) of modifying the Prattville intake were unknown. By continuing to implement its water temperature monitoring plan for the Rock Creek-Cresta Project, PG&E would continuously monitor summer water temperatures at 25 stations within the UNFFR Project area and monitor summer vertical profiles in Lake Almanor and Butt Valley reservoir. We concluded that continued implementation of the water temperature monitoring plan would provide a thorough assessment of the thermal conditions in the reservoirs and project-affected reaches. We therefore made a preliminary determination that this measure may be inconsistent with the substantial evidence standard of Section 313(b) and the comprehensive planning standard of Section 10(a) of the FPA, including the equal consideration provision of Section 4(e) of the FPA.

During our 10(j) teleconference on February 3, 2005, we noted that on December 17, 2004, we issued an AIR to PG&E to obtain reports on the studies it has conducted to investigate the feasibility of providing cooler water to the reaches downstream of the project. PG&E stated that it has evaluated 23 alternatives to accomplish this goal, and filed several reports in its January 13, 2005, response to the AIR. On July 29, 2005, PG&E filed a report, which it amended on September 21, 2005, with the Commission for the Rock Creek-Cresta Project that summarizes the results of its investigation of 24 potential alternatives that it evaluated to provide cold water to NFFR reaches (PG&E, 2005b). PG&E also issued a news release in November 2004 stating that it does not currently anticipate recommending a floating curtain for the Prattville intake. PG&E and

the ERC are continuing to evaluate alternatives to provide cooler water to the reaches downstream of the project with the 2105 Collaborative group. Interior modified its 10(j) recommendation for the water temperature plan by recommending that PG&E establish a process to develop appropriate water temperature criteria for the Seneca and Belden reaches instead of developing the criteria, and changing its specific recommendation for modifying the Prattville intake to a more general recommendation to fund construction/modification of structure(s) to satisfy appropriate water temperature criteria beyond that required by the Coldwater Habitat and Fishery Mitigation Fund under the Rock Creek-Cresta Project SA.

In this EIS, we evaluate potential measures to control water temperature in the NFFR with the objective of providing daily mean water temperatures of less than 20°C, along with potential measures to address water quality and odors in the Seneca reach. Due to the extreme ecological, social, and economical costs associated with modifying the Prattville intake to provide cooler water to downstream reaches, we do not recommend that measure. We recommend monitoring water temperature for the first 3 years of any new license period. This potential inconsistency remains unresolved.

In the draft EIS, we did not adopt Interior's recommendations to develop a geomorphological monitoring plan (Interior 10(j) recommendation no. 6) and a coarse sediment management plan (Interior 10(j) recommendation no. 8) for the project's bypassed reaches. In its geomorphological monitoring plan, Interior recommended that PG&E monitor streambed cross-sections, longitudinal profiles, and overall channel dynamics, including mesohabitat dimensions, distribution, and net channel changes in years 1, 5, 10, and 20 of the license. Interior's coarse sediment management plan includes (a) a program for monitoring spawning gravel quantity and quality, (b) contingency actions for improving the quality and availability of such gravels, (c) triggers for the implementation of contingency actions, and (d) a special study of pulse flows. In place of Interior's two recommendations focusing on physical aquatic habitat, we recommended the gravel monitoring plan proposed by PG&E in the SA, which would allow PG&E to monitor the movement of coarse sediment that occurs in the Belden and Seneca reaches during scheduled pulse flow events and other flows of similar magnitude. The emphasis of this plan is on spawning-sized gravel, although it is expected that information on smaller and larger sized materials also would be gathered. Interior's recommended coarse sediment management plan includes a special study to evaluate the effects of pulse flows on sediment transport and gravel recruitment; the gravel monitoring plan that we recommend does not. The gravel monitoring plan would be filed with the Commission for approval before implementation. If, after review of the data collected through gravel monitoring efforts, the FS, CDFG, FWS, and SWRCB determine that the pulse flow schedule could be improved to enhance the availability and distribution of spawning-sized gravel or enhance riparian function, the agencies may propose revisions to the magnitude, duration, or frequency of pulse flows.

The approximated minimum discharge needed to mobilize the median bed material from representative sites in both the Seneca and Belden reaches would be 1,600 to 3,600 cfs. Our review of existing flow information for the 31 water years extending from 1970 through 2001 indicates that, in the Seneca and Belden reaches, peak flows exceeded 1,000 cfs in 9 years and 1 year, respectively. Based on the presence of established mature vegetation on mid-channel bars at several of the study transects that were able to survive the 1997 floods of 2,160 cfs in the Seneca reach and 3,500 cfs in the Belden reach, it is likely that it would take flows of even greater magnitudes to modify mid-channel bars and to alter the mature vegetation present on these mid-channel bars.

Given the magnitude of our recommended pulse flows and the particle size they would mobilize, large-scale changes in geomorphology of the reaches would likely not occur and therefore Interior's geomorphological monitoring plan would not be warranted. We recommend that, following implementation of a pulse flow regime, gravel should be monitored to assess whether the redistribution of gravel is resulting in the expected benefits to trout spawning habitat to ensure that the effectiveness of the pulse flows can be assessed. If the amount of gravel transported out of either the Seneca or Belden reaches is greater than the amount of gravel that enters the reaches from the material known to be available for transport adjacent to each reach, pulse releases could result in a decrease in trout spawning habitat. Monitoring of gravel at representative locations in both reaches would provide data to assess whether unintended consequences from pulse flows are occurring and quantify the actual benefits of pulse flow releases, and, enable contingency actions to be developed and implemented, if needed. The gravel monitoring plan would include provisions for adjusting pulse flows to lesser magnitude or less frequent releases if the expected benefits are not being realized, or unexpected adverse effects are documented. We estimated the cost of implementing our recommended gravel monitoring plan would be \$9,500 annually, \$7,200 less than the annual estimated cost of Interior's plans for monitoring geomorphology and coarse sediment. We therefore made a preliminary determination that these measures may be inconsistent with the substantial evidence standard of Section 313(b) and the comprehensive planning standard of Section 10(a) of the FPA, including the equal consideration provision of Section 4(e) of the FPA.

During the teleconference and in letters filed with the Commission on October 27, 2004, and November 1, 2004, Interior indicated that, while it prefers its original recommendation, as an alternative, it would be satisfied with geomorphological monitoring once during the license term (approximately mid-term) instead of four times (in years 1, 5, 10, and 20) as it originally recommended. However, Interior would like to see standard monitoring conducted, including longitudinal profiling and mesohabitat measurements, as well as monitoring changes resulting from the modified minimum flow schedule or pulse flows, changes resulting from vegetation encroachment (or lack of), and cumulative effects due to the project or other large-scale events. We agree that Interior's current alternative to its original recommendation provides a reasonable compromise with an annualized cost of \$1,800. We modified the recommended

alternative in section 5.1.1 of this final EIS accordingly and consider this inconsistency resolved.

During the teleconference, Interior indicated that it would be agreeable to the gravel monitoring plan as recommended in the draft EIS in place of its coarse sediment management plan if contingency actions (e.g., gravel supplementation) are more clearly defined in the final EIS. We agreed to do this, revised our recommended alternative in section 5.2.1 of this final EIS accordingly, and consider this inconsistency resolved.

In the draft EIS, we did not adopt Interior's recommendations to develop a fish monitoring plan (Interior 10(j) recommendation no. 10) and a macroinvertebrate monitoring plan (Interior 10(j) recommendation no. 11) for the project. Although we agree that such monitoring is needed to acquire data to document the response of the aquatic community (fish and macroinvertebrate populations) to a new flow regime specified in a new license, we did not agree with Interior's original 10(j) recommendation to monitor fish populations in years 1-3, 8-10, 15, 20, and 25. Instead, we recommend that PG&E begin monitoring of fish populations during years 4 and 5. After this 2-year monitoring period, we recommend a reduction in survey frequency to every fifth year, which is consistent with Interior's recommendations, and would allow for the evaluation of long-term responses to measures implemented in the new license and to any subsequent modifications that are made. Our recommended monitoring for macroinvertebrates is only marginally different than that recommended by Interior, which specified that macroinvertebrate populations be monitored at the onset of the license issuance and at 5-year intervals thereafter. Monitoring activities for both fish and macroinvertebrates should occur during the same years to allow for uniform sampling procedures and data comparison. Macroinvertebrate sampling and electrofishing surveys for fish would be coordinated in a manner that would reduce the likelihood of compromising either study. For example, macroinvertebrate sampling would be conducted prior to the implementation of electrofishing surveys or in areas that are geographically isolated from electrofishing surveys.

Adequate baseline data about fish populations in the Seneca and Belden reaches does exist and provides a reference for comparison with future monitoring results. The implementation of a new flow regime in the bypassed reaches would likely cause a state of flux within the aquatic community during the initial 2 to 3 years of the new license, as populations would have not yet adapted to the new flow regimes. Consequently, sampling during that time would likely not provide an accurate assessment of the effects of any newly instituted measures. We therefore made a preliminary determination that the monitoring schedule for fish populations made by Interior may be inconsistent with the substantial evidence standard of Section 313(b) of the FPA. In its response to the Commission's Section 10(j) preliminary determinations of inconsistency filed November 1, 2004, and during the Section 10(j) teleconference held on February 3, 2005, Interior agreed that the aquatic monitoring plan in the bypassed reaches as we recommend is

satisfactory and meets the goals of its Section 10(j) recommendation nos. 10 and 11. Therefore, we consider both of these inconsistencies resolved.

In the draft EIS, we did not adopt Interior's recommendation to develop an erosion control plan for the project (Interior 10(j) recommendation no. 19), although we recognize the need to address erosion at the UNFFR Project. PG&E's ground-disturbing activities, and its use and management of a roadway system that is necessary to maintain and operate the project, may result in erosion and subsequent degradation of water quality. However, we believe that PG&E is adequately addressing erosion control through other plans already in place, or that are proposed.

In 1998, PG&E and the Plumas National Forest entered into a road maintenance agreement that includes provisions for preventing and correcting erosion to the roads and adjacent lands. We recommend that PG&E continue to implement this road maintenance agreement only for roads within the project boundary. We also recommend the finalization of the RRMP, which includes a recreation facilities program. In the RRMP, erosion control will be addressed in site-specific design for any recommended new recreational facilities. We also recommend the development of a spoil disposal plan which would limit the potential for existing and new spoil piles to erode. We therefore made a preliminary determination that this measure may be inconsistent with the substantial evidence standard of Section 313(b) and the comprehensive planning standard of Section 10(a) of the FPA, including the equal consideration provision of Section 4(e) of the FPA. In its response to the Commission's Section 10(j) preliminary determinations of inconsistency filed November 1, 2004, Interior indicated that the road maintenance agreement, finalization of the RRMP, the SA measure to meet annually on land management issues, additional spoil disposal measures, and the need to consult with Interior on various proposed plans constituted an acceptable alternative to its recommendation. Therefore, we consider this inconsistency resolved.

In the draft EIS, we did not adopt Interior's recommendation to develop a ramping rate plan for the project (Interior 10(j) recommendation no. 20). We agree with Interior's premise that gradual ramping (either up or down) of flows to the Seneca and Belden bypassed reaches would be much more preferable than a non-ramping situation because the impacts associated with not ramping on non-mobile and low-mobility organisms (fish larvae, molluscs, macroinvertebrates) would be minimized. Therefore, in lieu of plan development, we recommend the basic ramping rates proposed in the SA, and endorsed by the CDFG, of 0.5 foot per hour in all months as measured immediately downstream of the dams (gaging stations NF-2 and NF-70, respectively). The recommended ramping rates for releases from Canyon and Belden dams would allow organisms in the Seneca and Belden reaches to more effectively relocate to suitable habitat as flows are adjusted. We also recommend block loading of the Belden powerhouse, which would assist PG&E with compliance with its required ramping rates at the downstream Rock Creek and Cresta dams that were developed to allow the aquatic organisms in the Rock Creek and

Cresta bypassed reaches to experience flow changes that would be similar to those occurring in the unregulated EBNFFR. We therefore made a preliminary determination that this measure may be inconsistent with the substantial evidence standard of Section 313(b) and the comprehensive planning standard of Section 10(a) of the FPA, including the equal consideration provision of Section 4(e) of the FPA. In its response to the Commission's Section 10(j) preliminary determinations of inconsistency filed November 1, 2004, Interior indicated that the provisions included in the SA, which the Commission adopted, were an acceptable alternative to its recommended ramping rate. Therefore, we consider this inconsistency resolved.

In the draft EIS, we did not adopt Interior's recommendation to develop a wildlife monitoring plan for the project (Interior 10(j) recommendation no. 21). Interior recommended a plan that would provide for evaluation of changes in wildlife use in response to changes in flows, lake levels, implementation of the vegetation management plan and other activities associated with project operations and required license conditions. Instead, we recommended a variety of other plans that would address Interior's concerns: a vegetation and noxious weed management plan, a wildlife enhancement plan, an amphibian monitoring plan, a threatened, endangered, proposed for listing and sensitive species plan, a peregrine falcon monitoring plan, and an interagency bald eagle management plan. We therefore made a preliminary determination that this measure may be inconsistent with the substantial evidence standard of Section 313(b) and the comprehensive planning standard of Section 10(a) of the FPA, including the equal consideration provision of Section 4(e) of the FPA.

In its letter filed with the Commission on November 1, 2004, Interior revised its initial recommendation to wildlife monitoring focusing on changes in habitat types and avian surveys for PG&E-owned lands as specified by the FS in its preliminary Section 4(e) condition no. 37. During the teleconference, Interior further refined its recommendation to a more focused request for wildlife studies specific to the causeway area (between Last Chance Creek Campground and the Chester Airport). Interior explained that this area is sensitive to water levels and under the new license water levels will be slightly higher and less variable. The causeway area is important for wading birds and waterbirds, and Interior believes a focused study here would be appropriate. Interior points out that this area is approximately the same area specified by the FS in its final 4(e) recommendation no. 31: "lands owned by the licensee on the shoreline of Lake Almanor from Last Chance Campground westward to approximately the northern edge of the flood control channel south of the Chester Airport." PG&E explained that the project has been operating at the same water levels (which are consistent with the SA) for the past 5 years and does not think the water level regime will markedly change post-licensing. When asked about the value of this monitoring, Interior responded that it would establish relationships of water level to wildlife habitat and use, and may assist adaptive management of water level outside of the operating target dates (after Labor Day). Although the response of individual resources would be monitored in a number of

resource-specific plans, as provided in the SA, we believe it would be beneficial to have a broader plan to guide the interpretation of monitoring results and consideration of potential effects on all resources, if any measures are adjusted via adaptive management. We agreed that the wildlife management plan should include the additional monitoring recommended by Interior and that the need for future actions based on the results of studies would best be addressed through the adaptive management plan. We consider this inconsistency resolved.

In its letter to the Commission filed November 1, 2004, and during the Section 10(j) teleconference held on February 3, 2005, Interior recommended implementing a 6-year waiting period following license issuance before the release of flows for recreational purposes (Interior 10(j) recommendation no. 22). Interior's primary concern is to allow the biological communities in the bypassed reaches to respond to the new flow regime. Interior also expressed concern that biological, geomorphic, and sedimentological monitoring of responses to the new flow regime would likely be confounded by the release of recreational pulse flows in the initial 5 years after license issuance. PG&E stated that the boating groups are opposed to a delay in implementing recreational flows. Interior stressed that it is not opposed to completing the recreational flow study and notes that the NPS has supported whitewater recreation flows at other projects. Interior believes temporarily delaying implementation of the recreational flow study, as proposed, would only result in a small reduction in recreational benefits while allowing the biotic community to adjust to the revised instream flow regime. It believes this delay would allow effects of the revised instream flows to be distinguished from the effects of summer recreational flows. PG&E stated it did not believe that it would be possible to discern the response of the biotic community to the instream flow regime from natural variation. Interior believes the new flow regime would result in significant responses and potential changes to the biotic community, and emphasized the need to exercise caution in light of studies showing recreational flow disruption of macroinvertebrates, including those for the Rock Creek-Cresta Project license. We agreed with Interior's recommendation that postponing recreational flows would allow a better assessment of the effects of the new license conditions. Following the teleconference, we conducted additional analysis and concluded that a delay in implementation of the recreational boating flows would benefit the aquatic community, with no substantial effect on the recreational boaters.

We adopted NOAA Fisheries' 10(j) recommendation no. 1 to develop and implement a gravel enhancement plan for the Seneca reach. The gravel monitoring plan that we recommend, as developed in the SA, would allow for evaluation of the sediment budget in the Seneca reach. Our recommendation calls for the development of specific gravel supplementation contingency actions to be identified by PG&E if deemed necessary by FWS, the FS, CDFG, and SWRCB, after review of study results. If Central Valley spring-run Chinook salmon and Central Valley steelhead are introduced into UNNFR project waters, we recommend that PG&E modify the gravel and coarse-sediment management plans to incorporate the substrate requirements of these species.

We encourage NOAA Fisheries to review the results of the gravel monitoring plan and study results, and cooperatively work with PG&E to evaluate the condition of gravels and other substrates in the Seneca reach.

We do not adopt NOAA Fisheries' 10(j) recommendation no. 2 to "partially offset impacts to anadromous fish caused by inundation of habitats and minimize adverse effects to the safe, timely, and effective passage of anadromous fishes, by providing suitable compensation from active mining interests in the Seneca Reach or Yellow Creek through conservation easements and the purchase and rehabilitation of sites used for mining operations." Providing "suitable compensation" is outside the scope of Section 10(j) because it is not a specific measure to protect fish and wildlife resources. Further, although NOAA Fisheries contends that the project, by reducing flows, enables mining operations to occur that would otherwise be impeded by unimpaired flows, mining in the watershed predated construction of the project by over 50 years. Consequently, we do not find the argument convincing that there is a nexus between project operation and mining impacts. Accordingly, we consider this measure under Section 10(a) of the FPA and do not recommend it.

5.4 CONSISTENCY WITH COMPREHENSIVE AND OTHER RESOURCE PLANS

Section 10(a)(2) of the FPA requires the Commission to consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, and conserving waterways affected by the project. Under Section 10(a)(2), federal and state agencies filed plans that address various resources in California.

Seventeen plans address resources relevant to the UNFFR Project:

1. California Advisory Committee on Salmon and Steelhead Trout. 1988. Restoring the balance: 1988 Annual Report. Sausalito, CA.
2. California Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and Bureau of Reclamation. 1988. Cooperative agreement to implement actions to benefit winter-run chinook salmon in the Sacramento River basin. Sacramento, CA. May 20. 10 pp. and exhibit.
3. California Department of Fish and Game. 1990. Central Valley salmon and steelhead restoration and enhancement plan. Sacramento, CA. April. 115 pp.
4. California Department of Fish and Game. 1993. Restoring Central Valley streams: a plan for action. Sacramento, CA. November. 129 pp.
5. California Department of Fish and Game. 1996. Steelhead restoration and management plan for California. February. 234 pp.

6. California–The Resources Agency. 1989. Upper Sacramento River fisheries and riparian habitat management plan. Sacramento, CA. January. 158 pp.
7. California Department of Parks and Recreation. 1998. Public opinions and attitudes on outdoor recreation in California. Sacramento, CA. March.
8. California Department of Parks and Recreation. 1994. California outdoor recreation plan–1993. Sacramento, CA. April. 154 pp. and appendices.
9. California Department of Water Resources. 1983. The California water plan: projected use and available water supplies to 2010. Bulletin 160-83. Sacramento, CA. December. 268 pp. and attachments.
10. California Department of Water Resources. 1994. California water plan update. Bulletin 160-93. Sacramento, CA. October. Two volumes and executive summary.
11. State Water Resources Control Board. 1999. Water quality control plans and policies. Adopted as part of the State Comprehensive Plan. Three enclosures.
12. Forest Service. 1988. Plumas National Forest Land and Resource Management Plan. Department of Agriculture, Quincy, CA. August 26. 342 pp. and appendices.
13. Forest Service. 1992. Lassen National Forest Land and Resource Management Plan, including Record of Decision. Department of Agriculture, Susanville, CA. Appendices and maps.
14. Forest Service. 2004. Sierra Nevada forest plan amendment, including final environmental impact statement and Record of Decision. Department of Agriculture, Vallejo, CA. January.
15. Fish and Wildlife Service. California Department of Fish and Game. California Waterfowl Association. Ducks Unlimited. 1990. Central Valley habitat joint venture implementation plan: a component of the North American waterfowl management plan. U.S. Department of the Interior, Portland, OR. February. 102 pp.
16. Fish and Wildlife Service. Canadian Wildlife Service. 1986. North American waterfowl management plan. U.S. Department of the Interior. Environment Canada. May. 19 pp.
17. Fish and Wildlife Service. Undated. Fisheries U.S.A: the recreational fisheries policy of the U.S. Fish and Wildlife Service. Washington, DC. 11 pp.
18. National Park Service. 1982. The nationwide rivers inventory. U.S. Department of the Interior. Washington, DC. January. 432 pp.

No conflicts were found with these plans.

5.5 RELATIONSHIP OF LICENSE PROCESS TO LAWS AND POLICIES

5.5.1 Water Quality Certification

Section 401 of the Clean Water Act (33 U.S.C. §1341) requires a license applicant to obtain from the state a certification that project discharges will comply with applicable effluent limitations, or waiver of certification. Without a 401 certificate, the project cannot be licensed. On October 9, 2002, PG&E applied to SWRCB for water quality certification (WQC) for the UNFFR Project as required by Section 401 of the Clean Water Act. SWRCB received this request on October 10, 2002. On September 15, 2003, PG&E withdrew and re-filed its request for WQC, and SWRCB received this re-filed request on September 22, 2003. On September 7, 2004, PG&E withdrew and re-filed its request for WQC, and SWRCB received this re-filed request the same day. On August 29, 2005, PG&E withdrew and re-filed its request for WQC, and SWRCB received this re-filed request the same day. SWRCB has not yet taken action on PG&E's request for WQC.

5.5.2 Section 18 of the Federal Power Act—Authority to Require Fishways

Section 18 of the FPA (16 USC §811) states that the Commission shall require the construction, maintenance, and operation by a licensee of such fishways as the Secretaries of Commerce and the Interior may prescribe. By letter dated December 1, 2003, Interior stated that it reserved its authority to prescribe the construction, operation, and maintenance of such fishways as appropriate, including measures to determine, ensure, or improve the effectiveness of such fishways. According to Interior's letter, this reservation includes, but is not limited to, authority to prescribe fishways for rainbow trout, steelhead, spring run Chinook salmon, and any other fish to be managed, enhanced, protected, or restored to the Feather River basin during the term of any license.

By letter dated November 26, 2003, NOAA Fisheries provided a fishway prescription, conditioned on the passage of anadromous fishes at one or more unspecified dams below the project area. Additionally, NOAA Fisheries stated that it reserved its authority to prescribe fishways under Section 18 of the FPA. On March 14, 2005, NOAA Fisheries issued its modified prescription for the UNFFR Project, which prescribes design, construction, and operation of collection facilities for juvenile Central Valley spring-run Chinook and juvenile and adult outmigrant Central Valley steelhead from the Belden forebay and Yellow Creek and design, construction, and operation of facilities for the release of adult Central Valley spring-run Chinook salmon and Central Valley steelhead into the Seneca reach and Yellow Creek. NOAA Fisheries states that its prescription for the UNFFR Project would be integrated with fish passage prescriptions for the downstream Oroville Project (P-2100).

5.5.3 Section 4(e) of the Federal Power Act

Because the project occupies lands of the Lassen and Plumas National Forests, the FS has authority to impose conditions under Section 4(e) of the FPA. The FS provided 50 preliminary Section 4(e) conditions, 26 of which are standard license conditions and 24 of which are project specific conditions (letter from J. Gipsman, Attorney, U.S. Department of Agriculture, Office of the General Counsel, Pacific Region, San Francisco, CA, to the Secretary of the Commission, dated December 1, 2003). The FS provided 47 final Section 4(e) conditions by letter dated November 4, 2004 (letter from J. Rider, Attorney, USDA Office of the General Counsel, Pacific Region, San Francisco, CA, to the Secretary of the Commission, dated November 4, 2004). Many of these conditions are identical to the terms that are specified in the SA.

5.5.4 Endangered Species Act

Section 7 of the ESA requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or cause the destruction or adverse modification of the critical habitat of such species.

Interior indicates that four endangered, threatened, or candidate species may be found in the UNFFR Project area, or may be expected to occur in the project area over any new license term: bald eagle (*Haliaeetus leucocephalus*), VELB (*Desmocerus californicus dimorphus*), CRLF (*Rana aurora daytoni*), and slender orcutt grass (*Orcuttia tenuis*) (letter from Willie R. Taylor, Director of the Office of Environmental Policy and Compliance, U.S. Department of the Interior, Office of the Secretary, Washington, DC, to the Secretary of the Commission, dated December 1, 2003). The federally threatened bald eagle presently has 14 nesting territories in the UNFFR Project area and vicinity. One elderberry bush, host plant for the federally listed threatened VELB, was found in the project area. The NFFR and selected tributary drainages have been included in the proposed critical habitat Unit 1 for the CRLF and include areas as far upstream as the Butt Creek confluence with the NFFR in the Seneca reach and the upper Mosquito Creek drainage east of Butt Valley reservoir. Suitable habitat for the CRLF exists at some locations in the UNFFR Project area, but no CRLFs were found there. No populations of or suitable habitat for slender orcutt grass exist within the UNFFR Project area.

In its December 1, 2003, letter, Interior also included the American peregrine falcon, which was federally listed until 1999. Interior points out that species that are delisted must be monitored for at least 5 years to determine if the status of the species is continuing to improve.

Our analyses of project effects on these species are presented in section 3.3.4, *Threatened and Endangered Species*, and our final recommendations are presented in section 5.2, *Comprehensive Development and Recommended Alternative*.

We conclude that relicensing the project with our recommended interagency bald eagle management plan would minimize the risk of adverse effects on bald eagles. However, construction of new recreation areas and project-related recreational activities could disturb bald eagles. Proposed changes in reservoir operation or the flow regime (including implementation of higher minimum flows, pulse flows, more restrictive ramping rates, and recreation releases) that affect fish populations or foraging conditions would also have the potential to affect bald eagles. We conclude that it may not be possible to avoid such minor effects and therefore, issuance of a new license is likely to adversely affect the bald eagle. Consequently, we initiated formal consultation with FWS regarding the bald eagle pursuant to Section 7 of the ESA.

Interior issued its biological opinion regarding the bald eagle by letter dated January 25, 2005, stating that the proposed licensing of the project and the cumulative effects are not likely to jeopardize the continued existence of the bald eagle. No critical habitat had been designated or proposed for the bald eagle; therefore, none would be adversely modified or destroyed. The biological opinion included two terms and conditions that state that the project should be implemented as described in the draft EIS and the final FS Section 4(e) conditions and that assurance that any new owners of land in the project area previously owned by PG&E, including holders of conservation easements, would agree in writing to abide by the terms and conditions of the biological opinion. Our recommendations in this final EIS are consistent with one of these terms and conditions. We do not agree that it is necessary for any new owners of project lands to agree in writing to abide by the terms of the biological opinion because there are existing standard conditions in place that ensure that all measures specified in a project license would be complied with regardless of the ownership of the land. For lands that would be outside the project boundary, the Commission has no authority to impose or enforce any conditions.

Given the very low abundance of elderberry shrubs in the project area that are suitable VELB habitat, together with the lack of exit holes in the one known shrub that represents potential habitat, we conclude that issuing a subsequent license for this project with our recommended conditions, is not likely to adversely affect the VELB. We have recommended that PG&E develop a vegetation monitoring plan that includes a plan for the protection and management of VELB habitat, including protection in the area around the known location of the elderberry shrub and pre-activity surveys in areas that would have vegetation clearing or cutting. PG&E would consult with the FS and FWS on protection and management of VELB habitat and ensure that measures identified in the plan (e.g., flagging and protecting elderberry shrubs with stems over 1 inch in diameter) are consistent with the current FWS guidelines.

Our recommended amphibian monitoring plan would include surveys designed to detect the presence of CRLF and determine how potential CRLF habitat is affected by any proposed changes in project operations, including changes in the project flow regime.

The plan would also provide a basis for determination of if and when further protective actions should be taken, after consultation with FWS and other agencies. We conclude that issuing a new license for this project, with our recommended measures, is not likely to adversely affect the CRLF.

Because no slender orcutt grass or suitable habitat for it exists within the UNFFR Project area, we conclude that issuing a new license for this project would have no effect on this plant. We sought concurrence from FWS regarding our conclusion for VELB, CRLF, and slender orcutt grass.

In its biological opinion, Interior stated that it concurs with our determination that the project is not likely to adversely affect the VELB and the CRLF and would have no effect on slender orcutt grass.

On March 14, 2005, NOAA Fisheries filed its modified fish passage prescription for the UNFFR Project. The prescription requires the design and construction of facilities to introduce federally threatened Central Valley spring-run Chinook salmon and Central Valley steelhead adults into the Seneca reach and Yellow Creek, a tributary that enters the NFFR in the vicinity of the Belden powerhouse and to collect juvenile Chinook and outmigration juvenile and adult steelhead for transportation downstream. NOAA Fisheries states that it will file a preliminary prescription for the downstream Oroville Project by October 2005, which would require the P-2100 licensee to implement a program to develop measures to trap and transfer adult anadromous fish collected below Oroville dam to the UNFFR facilities for release. NOAA Fisheries requested that we initiate formal Section 7 consultation for these two species. Our analysis of the potential project effects on Central Valley spring-run Chinook and Central Valley steelhead is presented in section 3.3.2.2, *Aquatic Resources*, of this final EIS.

Because anadromous fish do not currently exist within the UNFFR Project area, we conclude that issuing a new license for this project would have no effect on these species. Therefore, we conclude that consultation with NOAA Fisheries on these species is not warranted at this time.

5.5.5 National Historic Preservation Act

Relicensing is considered an undertaking within Section 106 of the NHPA of 1966, as amended (P.L.89-665; 16 U.S.C.470). Section 106 requires that every federal agency “take into account” how each of its undertakings could affect historic properties. Historic properties are districts, sites, buildings, structures, traditional cultural properties, and objects significant in American history, architecture, engineering, and culture that are eligible for inclusion in the National Register. As the lead federal agency for issuing a license, the Commission is responsible for ensuring that the licensee will take all necessary steps to “evaluate alternatives or modifications” that “would avoid, minimize, or mitigate any adverse effects on historic properties” for the term of the new license

involving the project. The lead agency must also consult with SHPO(s), as well as with other land management agencies where the undertaking may have an effect, and with Indian tribes who may have cultural affiliations with affected properties involving the undertaking. The overall review process involving Section 106 is administered by the Advisory Council, an independent federal agency.

To meet the requirements of Section 106, the Commission will execute a PA for the protection of historic properties from the effects of the continued operation of the UNFFR Project. The terms of the PA would ensure that PG&E would address and treat all historic properties identified within the project area through an HPMP. The HPMP entails ongoing consultation involving historic properties for the license term.

5.5.6 California Environmental Quality Act

The California Environmental Quality Act (CEQA) is the California counterpart to NEPA. CEQA went into effect in 1970 for the purpose of monitoring land development in California through a permitting process. This statute, enacted to protect the health of the environment from current and future development, requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. CEQA applies to all discretionary activities proposed to be undertaken or approved by California state and local government agencies. Because the California State Water Resources Control Board (SWRCB) must act on PG&E's request for a WQC for the UNFFR Project relicensing (see section 5.6.1, *Section 401 of the Clean Water Act—Water Quality Certification*), the SWRCB has responsibilities as the lead agency under CEQA.

Under CEQA, an environmental impact report (EIR) is prepared when the public agency finds substantial evidence that the project may have a significant effect on the environment. An EIR is the public document used to analyze the significant environmental effects of a proposed project, to identify alternatives, and to disclose possible ways to reduce or avoid the possible environmental damage. CEQA guidelines state that when federal review of a project is also required, state agencies are encouraged to integrate the two processes to the fullest extent possible, which may include a joint EIR/EIS. While this document is not a joint EIR/EIS, the SWRCB has the opportunity to use this document, as appropriate, to satisfy its responsibilities under CEQA.

The content requirements for an EIR under CEQA are similar to the requirements for an EIS, although an EIR must contain two elements not required by NEPA. The first element needed in an EIR not required by NEPA is a discussion of how the proposed project, if implemented, could induce growth. A project can be considered to have a growth-inducing effect if it directly or indirectly fosters economic or population growth or removes obstacles to population growth, strains existing community service facilities to the extent that the construction of new facilities would be needed, or encourages or facilitates other activities that cause significant environmental impacts. We discuss

growth-inducing impacts of the UNFFR Project in section 3.3.8, *Socioeconomic Resources*.

The second element needed in an EIR, but not required by NEPA, is a discussion of a program for monitoring or reporting on mitigation measures that were adopted or made conditions of project approval. The monitoring or reporting program must ensure compliance with mitigation measures during project implementation. The program may also provide information on the effectiveness of mitigation measures. Although discussion of the mitigation reporting or monitoring program can be deferred until the final EIR or, in some cases, after project approval, it is often included in the draft EIR to obtain public review and comment.

In section 5.2, *Comprehensive Development and Recommended Alternative*, we list the mitigation measures and monitoring and reporting requirements we recommend for inclusion in any license issued for the UNFFR Project. See chapter 3, *Environmental Analysis*, for a review of the analysis of each affected environmental resource and the rationale for each recommended measure. Many of the measures are consistent with the comprehensive SA for the UNFFR Project that was filed with the Commission by PG&E on April 30, 2004 (see section 1.5, *Settlement Agreement*, for more discussion). Even though SWRCB is not a party to (did not sign) the SA, it participated in the collaborative discussions leading to the settlement to provide the parties to the settlement with guidance concerning SWRCB's regulatory responsibilities and requirements. Any conditions of a WQC that may be issued for this project will become an enforceable part of the any license issued for this project.

On August 30, 2005, SWRCB issued a Notice of Preparation of a draft EIR and Notice of CEQA Scoping Workshop for the UNFFR WQC. SWRCB conducted a CEQA Scoping Workshop on September 27, 2005, in Chester, California, to obtain comments that will assist it with determining the range of actions, alternatives, mitigation measures, and significant effects that should be analyzed in depth in the EIR.

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