

1 *Our Analysis*

2 The original FERC license for the project was issued in 1955, prior to the passage
3 of the NHPA. Therefore, no article in the original license dealt with the management of
4 cultural resources. However, over time the license has been amended, and articles 37 and
5 44 were inserted to address cultural resources. These articles require that construction be
6 halted, the SHPO and FS consulted, and a mitigation plan developed if previously
7 unidentified cultural resources are discovered during construction activities. An Order in
8 1997 amended the license to attach the Memorandum of Agreement executed for the
9 seismic remediation program at the Butt Valley dam, outlining the measures implemented
10 to mitigate impacts on Camp 5, the Butt Valley Railroad, and the Butt Valley dam Gate
11 Tender's House and outbuildings.

12 The new license application filed by PG&E on October 23, 2002, provides the first
13 opportunity for FERC to address project-wide compliance with Section 106 of the
14 NHPA, through the execution of a PA. A draft PA was included in PG&E's license
15 application. Prior to issuing a new license to PG&E, FERC would produce its own draft
16 version of the PA, and request that the ACHP and the SHPO be signatories, and that the
17 Plumas National Forest, Lassen National Forest, Greenville Rancheria, Susanville Indian
18 Rancheria, Honey Lake Maidu, and MCDG be concurring parties. FERC's PA would
19 require that cultural resources be managed over the term of the new license according to a
20 final HPMP. The final HPMP would be based on PG&E's draft HPMP, after it has been
21 revised to address comments from interested parties. FS 4(e) condition 40 requires that
22 PG&E file an FS-approved HPMP within 1 year after license issuance. Implementation
23 of the measures outlined in the PA and the final HPMP would ensure that cultural
24 resources are afforded adequate protection.

25 PG&E has expressed a willingness to formulate a public I&E program relating to
26 the region's cultural history as proposed mitigation for effects on potential TCPs such as
27 Big Meadow and Butt Valley. The SA requires PG&E to develop an I&E program,
28 within 5 years after issuance of a new license, which addresses themes including Native
29 American cultures, pioneers, and the development of hydropower. Such a plan would
30 likely include an explanation of how information would be conveyed through interpretive
31 signs and kiosks and at recreational sites within the project. The details of PG&E's
32 employee and public I&E program would likely be outlined in the HPMP. Because the
33 FS and the Maidu community have requested a curation facility or interpretive center, we
34 expect that PG&E would consult with those parties and more fully investigate the
35 possibility of providing seed funds for such a facility, and that the results of those
36 consultations would be discussed in the HPMP. Implementation of these activities would
37 address concerns regarding the I&E program and PG&E's appropriate level of
38 involvement in establishing a curation facility.

39 The draft HPMP identified impacts on cultural resources resulting from wave
40 action, changing lake levels, erosion, and inundation from project reservoirs. The SA

1 requires PG&E to preserve the historic features and character of the old clubhouse and
2 grounds at Camp Caribou, and to consult with the FS when planning maintenance and
3 repair activities. The revised HPMP would likely provide more detailed site-specific
4 treatment measures, including addressing the historic archaeological sites and standing
5 structures that FERC, in consultation with the SHPO, has determined are eligible for the
6 National Register, such as sites P-32-1638 (Canyon dam), 1639 (Canyon dam intake
7 tower), 1641 (patrolman's house at Canyon dam camp), 1642 (cottage at Canyon dam
8 camp), 1643 through 1652 (Camp Caribou), Gate Tender's House at Camp Almanor, and
9 Caribou No. 1 powerhouse. Such revisions would ensure that project-related impacts on
10 these sites are adequately mitigated.

11 PG&E indicated that it no longer allows grazing on project lands. In addition, the
12 draft HPMP provides for barriers to limit ORV access. We agree with PG&E that
13 monitoring during the months when recreational activities are at the highest levels (April
14 to October) would be most effective. If Stage 1 monitoring shows continued impacts on
15 sites from tourists or recreational users of project lands, PG&E could increase monitoring
16 in Stage 2. Stage 2 also would include working with local law enforcement agencies to
17 undertake periodic patrols. The SA includes a provision that, if Plumas County would
18 pass an ordinance limiting vehicle traffic below the 4,500-foot elevation contour, PG&E
19 would agree to partially fund a seasonal Plumas County Sheriff's Department position to
20 enforce rules restricting visitor access below the 4,500-foot elevation contour. However,
21 it is outside the Commission's jurisdiction to mandate that PG&E fund law enforcement
22 activities as a condition to issuing a new license for this project. Both the Greenville
23 Rancheria and the Susanville Indian Rancheria offered the services of their members for
24 monitoring and other cultural resources investigations. Continued consultation among
25 PG&E, Plumas County, the Greenville Rancheria, Susanville Indian Rancheria, and other
26 interested Maidu groups during preparation of the revised HPMP should allow these
27 issues to be properly addressed.

28 PG&E indicated that the sites that the FS wants it to record (construction railroad
29 grade and historic trail) are outside of the currently defined APE, but that PG&E would
30 consult with the FS about this request. The SHPO and FERC have previously agreed
31 with PG&E's definition of the APE. We support the recordation, evaluation, and
32 treatment of all cultural resources within the APE as it currently exists, and as it may be
33 modified in the future.

34 While the FS and Honey Lake Maidu have suggested that unevaluated prehistoric
35 sites should be tested, the Greenville Rancheria and Susanville Indian Rancheria object to
36 archaeological excavations. The FS can require archaeological testing of sites on
37 National Forest lands, but this only applies to one unevaluated prehistoric site (CA-PLU-
38 284) within the APE. PG&E's management strategy of treating all unevaluated
39 prehistoric sites as if they are potentially eligible for the National Register, once
40 incorporated into the HPMP, would offer all potentially eligible sites the same protection

1 as historic properties, those resources listed or officially determined eligible for listing on
2 the National Register.

3 PG&E stated it would comply with all applicable state laws and regulations
4 (including Section 7050.5 of the California Health and Safety Code and Section 5097.98
5 of the California Public Resources Code) regarding the treatment of new discoveries of
6 human remains on non-federal project lands. The FS would be responsible for following
7 the Native American Graves Protection and Repatriation Act if human remains and
8 funerary objects are discovered on federal lands within the project boundaries. The
9 HPMP should establish protocols for consultation in the event of future discoveries of
10 human remains within the APE. All human remains and funerary objects previously
11 salvaged from the Lake Almanor shoreline were repatriated to members of the Maidu
12 community and reburied in October 2002. That action was done under the current license
13 and is not part of the undertaking considered in PG&E's new license application.

14 We acknowledge the special status of federally recognized tribes, and FERC staff
15 has consulted with the federally recognized Greenville Rancheria and the Susanville
16 Indian Rancheria. PG&E executed an MOU with the Greenville Rancheria for the
17 conduct of its ethnographic studies. PG&E invited the federally recognized Berry Creek,
18 Enterprise, and Mooretown rancherias to Cultural Resources Working Group meetings,
19 included them on the cultural resources mailing list, and had Albion contact them during
20 its ethnographic research.

21 We also acknowledge that other Maidu groups, which have not yet been granted
22 official federal recognition, have a demonstrated interest in the project because their
23 ancestors historically used or resided in the project area. We consider the Honey Lake
24 Maidu and the MCDG to be consulting parties in the process of complying with Section
25 106 of the NHPA, according to 36 CFR 800.2(c)(5). PG&E invited the Honey Lake
26 Maidu and MCDG to attend its Cultural Resources Working Group meetings, and
27 included them on its cultural resources mailing list. Albion contacted both the Honey
28 Lake Maidu and the MCDG during its ethnographic study.

29 Additionally, Plumas County and NPS could qualify as consulting parties in the
30 Section 106 compliance process according the 36 CFR 800.2(c)(3) and (5). Inclusion of
31 all interested parties in the Section 106 process should be addressed in the HPMP. This
32 would include PG&E inviting all consulting parties to future Cultural Resources Working
33 Group meetings, and providing them copies of cultural resources investigation reports.
34 However, the consulting parties must agree not to make these reports available to the
35 public as they contain confidential information protected under Section 304 of the
36 NHPA. PG&E has already indicated it would provide the FS with a copy of its
37 ethnographic report. Inclusion of Plumas County and NPS as consulting parties, as
38 appropriate, would help to ensure that all project impacts are identified and mitigated.

1 PG&E's ethnographic study listed plants historically important to the Maidu. To
2 mitigate impacts on some gathering locations identified in the TCP study, PG&E
3 recommended protecting certain species, and conferring with the Maidu community to
4 reach an agreement on how and where future gathering could be done. The SA includes
5 a condition that would require PG&E to produce and implement a habitat enhancement
6 plan that would protect rare plants, wetlands, riparian communities, and cultural
7 resources. However, PG&E did not agree to set aside specific project lands for
8 traditional cultural practices. We anticipate that the revised HPMP will address species
9 protection and the results of discussions with Maidu groups concerning access to project
10 lands for traditional cultural use.

11 It is a historical fact that some Indian allotments were acquired by Great Western
12 Power when it obtained rights and easements for the original UNFFR hydroelectric
13 project. In its application, PG&E states that it owns 29,984 acres out of the 31,522 acres
14 within the FERC project boundary. There are 1,500 acres of federal land managed by the
15 FS, and 38 acres of private land within the FERC project boundary. Land title is a legal
16 issue to be resolved in the courts and not an environmental issue to be reviewed under
17 NEPA or Section 106 of the NHPA. PG&E may volunteer to provide Maidu groups with
18 whatever historical data it deems appropriate regarding Indian allotments.

19 **3.3.7.3 Unavoidable Adverse Effects**

20 None.

21 **3.3.8 Socioeconomic Resources**

22 **3.3.8.1 Affected Environment**

23 The UNFFR Project is located in northeastern California in Plumas County, which
24 has an area of 2,554 square miles. The population of the county in 2000 was 20,824
25 (U.S. Census Bureau, 2003b). This rural county, with a population density of just 8.2
26 persons per square mile, has more than 100 lakes, 1,000 miles of rivers, and more than 1
27 million acres of national forest (Plumas County, undated). This abundance of natural
28 resources supports not only employment in wood products and forest management, but
29 also in recreation-related industries such as hotels and motels, food services, real estate,
30 and retail trade.

31 Between 1990 and 2000, the population of Plumas County grew by 1,085 people,
32 or approximately 5.5 percent. During the same period, the population of California grew
33 by approximately 13.6 percent (U.S. Census Bureau, 2003b). The town closest to the
34 UNFFR Project is Chester, which is located on the shores of Lake Almanor and has a
35 population of 2,316. Other nearby towns include Taylorsville, with a population of 154,
36 and Westwood, in Lassen County, with a population of 1,998 (ePodunk, undated).

1 According to the 2000 Census (U.S. Census Bureau, 2003a), Plumas County
2 ranked 48th out of 58 counties in the State of California in terms of total personal
3 income. Total personal income in the county equaled \$543,953, which was less than 1
4 percent of total personal income in the state. The average annual growth rate in total
5 personal income in Plumas County was 4.8 percent between 1990 and 2000, which was
6 lower than both the statewide rate (5.3 percent) and the national rate (5.6 percent) over
7 the same period. On a per capita basis, personal income in Plumas County was \$26,173
8 in 2000. This per capita income ranked 23rd in the state and equaled 81 percent of the
9 state average (\$32,363) and 88 percent of the national average (\$29,760). The average
10 annual growth rate in per capita income in Plumas County was 4.3 percent between 1990
11 and 2000, which was above the state average growth rate (4.0 percent) and equal to the
12 national average (4.3 percent).

13 Employment in all industries in 2000 equaled 7,200 people, an increase of 740
14 people (11.5 percent) compared to the 1990 employment of 6,460. By 2002, employment
15 equaled 7,370 people. During the same period, the unemployment rate was reduced from
16 9.8 percent to 8.4 percent of the labor force. The single largest employment sector in the
17 county is the local government sector, accounting for 28 percent of employment in 2000.
18 Other important sectors include leisure and hospitality services (14 percent), retail trade
19 (11 percent), and manufacturing (9 percent) (InfoUSA, 2002). Within the leisure and
20 hospitality sector, employment in accommodation and food/drink services predominates.
21 Among the 10 major employers in the county are the county government, the FS, several
22 hospitals, Feather River College, the Plumas Pines Golf Resort, and two sawmills and
23 planing mills.

24 Similar to statewide and national economic trends, the county has seen a
25 continuing shift away from goods-producing (that is, manufacturing, construction, and
26 natural resource-based employment) to service-providing. Between 1990 and 2000,
27 employment in goods-producing sectors was reduced from 21 percent to 17 percent of
28 employment, while service-providing employment grew from 78 percent to 81 percent of
29 the economy (InfoUSA, 2002). This shift is exemplified in Plumas County by the loss of
30 130 jobs in the natural resources and mining sector between 1990 and 2000, with a
31 simultaneous gain of 110 jobs in the arts, entertainment, and recreation sector (part of the
32 leisure and hospitality sector noted above).

33 Recreation and tourism are becoming increasingly important to the local economy,
34 and is one focus of local development efforts. The Plumas Corporation, which is the
35 county's non-profit economic development entity, is engaged in general economic and
36 business development, visitor attraction (through the Plumas County Visitor's Bureau),
37 and natural resource development. The organization has cited the area's scenic beauty,
38 the quality of life, and the recreational opportunities as some of the strengths that can be
39 drawn on in developing the local economy (Plumas Corporation, 2002).

1 According to one source, more than \$117 million was spent on tourism in the
2 county in 1992, including a payroll of \$18.1 million, employment of 1,800 people, tax
3 receipts of \$1.47 million (Plumas Corporation, 1996, cited in Pacific Health Consulting
4 Group LLC, 2000). A later study indicates that the total spent on tourism increased in
5 1993 to more than \$123 million, including a payroll of \$19.2 million and employment of
6 1,927 people (Sheffield and Warren, undated, cited in Pacific Health Consulting Group
7 LLC, 2000). According to Sheffield and Warren, vacation home residents had the
8 greatest influence on the economy, accounting for one-third of the jobs resulting from
9 tourism. Vacation home residents were found to spend more locally than those who stay
10 in hotels, motels, and other accommodations.

11 **3.3.8.2 Environmental Effects**

12 Relicensing of the UNFFR Project could affect the socioeconomic resources of the
13 communities near the project. Possible effects include direct changes in employment, tax
14 revenue, and local expenditures, as well as indirect influences on the local economy.

15 Under the no-action alternative, there would be no project-related changes in the
16 socioeconomic conditions of the local communities. Any changes in population growth,
17 employment, property tax payments, and recreation expenditures would be unrelated to
18 relicensing the project, and there would be no change in government revenue related to
19 the project. The recreation services industry associated with rafting, boating, camping,
20 fishing, and other recreational activities would likely continue to make up a substantial
21 portion of the local economy.

22 PG&E's proposal, including finalizing and implementing the RRMP; making
23 improvements in ADA accessibility; providing campground facilities, day use facilities,
24 boat launches, and trails; providing a new bathymetric map of Lake Almanor;
25 implementing river recreation flows; maintaining the surface of Lake Almanor at a higher
26 level through the summer recreation season; and improving the aesthetics of some project
27 features, would have a beneficial economic effect on the area. These measures would
28 help meet future recreation demand and could encourage additional tourism to the area,
29 thereby increasing expenditures in the region.

30 **Growth-inducing Impacts**

31 Growth-inducing impacts are another form of impact that may be attributed to
32 some projects. A project may be growth inducing if it fosters economic, population, or
33 housing growth or removes obstacles to growth, which could indirectly lead to additional
34 economic and environmental impacts. Evaluation of potential growth-inducing impacts
35 of the UNNFR Project was based on a qualitative analysis of the indirect effects that
36 could result from the use of power within PG&E's service area and from the additional
37 tourism that could occur as a result of improvements in recreation resources.

1 At its proposed generating capacity of 357.3 MW, the project represents
2 approximately seven-tenths of a percent of the current (2003) generating capacity in the
3 CA/MX (see table 1-1) and six-tenths of the generating capacity forecast for 2012.
4 Neither PG&E's proposed action nor the proposed action with staff-recommended
5 measures would change the generating capacity, while the cost of generation at the
6 project would increase by approximately 13 and 15 percent, respectively (see table 4-2).
7 Therefore, with respect to the use of power within PG&E's service area, any changes in
8 the project would not be expected to foster growth, remove obstacles to growth, or have
9 any growth-inducing impacts.

10 As noted above, PG&E's proposed recreational resource improvements could
11 encourage additional tourism and increase tourism-related expenditures in the area.
12 Those changes would likely be experienced as small incremental changes in existing
13 activities rather than as large changes. Any growth-inducing impacts would be very
14 small, if they occur.

15 **3.3.8.3 Unavoidable Adverse Effects**

16 None.

17 **3.4 NO-ACTION ALTERNATIVE**

18 Under the no-action alternative, PG&E would continue to operate the project
19 under the terms and conditions of the current license. The environmental measures
20 proposed by PG&E and/or recommended by staff would not be implemented.

21 **3.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF** 22 **RESOURCES**

23 Continued operation of the existing project would continue to commit the lands
24 and waters previously developed for energy production. This commitment of resources
25 would not necessarily be irreversible or irretrievable because removal of the project dams
26 and restoration of disturbed areas could return the project area to near pre-project
27 conditions. However, given the substantial costs and loss of energy, recreational, and
28 socioeconomic benefits, removal of the dams is unlikely.

29 Under PG&E's proposed project, or with the staff, agency, and NGO
30 recommended measures, maintaining the new minimum flow regime would commit
31 water for aquatic and riparian habitat enhancements instead of energy production. While
32 over the short term such commitment of water may be considered irretrievable, any
33 changes in flow requirements would not be irreversible over the longer term, since stream
34 flows are a renewable resource and flow requirements could be changed in a license
35 amendment proceeding or in any future license that may be issued for the project.

1 In addition, implementation of the staff-recommended alternative, or certain
2 measures recommended by others, would require the commitment of lands that would be
3 developed for recreational enhancements (e.g., trails, reservoir and river public access
4 sites, and development of current informal campgrounds and trails). However, our
5 measures would not change the existing, informal usage of such land and, therefore, there
6 would be no incremental irreversible or irretrievable commitment of resources.

7 **3.6 RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM**
8 **PRODUCTIVITY**

9 Our recommended operating alternative for the project is expected to provide an
10 average of at least about 1,074,298,000 kilowatt-hours (kWh) of energy each year to the
11 region. This long-term energy productivity would extend for at least as long as the
12 duration of the new license. Our recommendations are designed to minimize or avoid in
13 certain cases, long-term decreases in biological productivity of the system, as well as
14 enhance aquatic habitat and local and regional recreational opportunities.

15 If the project was to operate solely to maximize hydroelectric generation, there
16 could be a loss of long-term productivity of the river fisheries and perhaps sensitive
17 invertebrates and amphibians (i.e., foothill yellow-legged frog), due to decreases in
18 habitat availability. Moreover, many efforts to enhance recreational opportunities at the
19 project would be foregone.

20 With the proposed operating mode, as well as with proposed and recommended
21 enhancement or protection measures, the project would continue to provide a low-cost,
22 environmentally sound source of power. Moreover, the project, with our recommended
23 measures, would further the many goals and objectives identified by the agencies and
24 other interested parties for managing the resources of the UNFFR, Butt Valley reservoir,
25 and Lake Almanor.

1 **4.0 DEVELOPMENTAL ANALYSIS**

2 In this section, we analyze the project’s use of the water resources of the NFFR to
3 generate power, estimate the economic benefits of the UNFFR Project, and estimate the
4 cost of various environmental protection and enhancement measures and the effects of
5 these measures on project operations.

6 Under its approach to evaluating the economics of hydropower projects, as
7 articulated in Mead Corporation, Publishing Paper Division (72 FERC ¶61,027, July 13,
8 1995), the Commission employs an analysis that uses current costs to compare the costs
9 of the project and likely alternative power with no consideration for potential future
10 inflation, escalation, or deflation beyond the license issuance date. The Commission’s
11 economic analysis provides a general estimate of the potential power benefits and costs
12 of a project and reasonable alternatives to project-generated power. The estimate helps to
13 support an informed decision concerning what is in the public interest with respect to a
14 proposed license.

15 For our economic analysis of alternatives, we used the assumptions, values, and
16 sources shown in table 4-1.

17 **4.1 POWER AND ECONOMIC BENEFITS OF THE PROPOSED PROJECT**

18 As proposed by PG&E, the UNFFR Project would generate an average of
19 1,085,933,000 kWh of electricity annually, have an annual power value of \$69,322,900
20 (63.84 mills/kWh) and total annual costs of \$25,278,100 (23.52 mills/kWh), resulting in a
21 net annual benefit of \$44,044,800 (40.32 mills/kWh).

22 **4.2 POWER AND ECONOMIC BENEFITS OF THE STAFF-
23 RECOMMENDED ALTERNATIVE**

24 Resource agencies and NGOs recommended implementing a variety of measures
25 at the project. A settlement agreement entered into by several entities included measures
26 addressing several resource areas. Some of the parties to the SA, as well as other entities,
27 also recommended measures addressing other issues not covered in the SA. Many of
28 these measures not included in the SA were similar but somewhat different from each
29 other. Staff reviewed each recommendation and determined the measures that were most
30 appropriate for implementation.

31 As recommended by staff, the UNFFR Project would generate an average of
32 1,085,933,000 kWh of electricity annually, have an annual power value of \$69,322,900
33 (63.84 mills/kWh) and total annual costs of \$25,516,300 (23.74 mills/kWh), resulting in a
34 net annual benefit of \$43,806,600 (40.09 mills/kWh).

1 Table 4-1. Staff assumptions for economic analysis of the UNFFR Project. (Source:
2 PG&E as modified by staff, and staff)

Assumption	Value	Source
Energy value (2004\$) ^a	63.84 mills/kWh	PG&E
Capacity value (2004\$)	Included in energy value	
Cost of debt	6.61 percent	PG&E
Return on project equity	11.21 percent	PG&E/staff
Bond/Debt ratio	0.48	PG&E
Overall cost of money	9 percent	PG&E
Discount rate	9 percent	PG&E
State and federal income tax rate	34 percent	Staff
Local tax rate	3 percent	Staff
Insurance rate	0.25 percent of initial net investment	Staff
Term of financing	20 years	Staff
Period of analysis	30 years	Staff
Escalation rate after 2004	0 percent	Staff
Net investment (2004\$)	\$118,688,200	PG&E/staff
O&M costs (2004\$)	\$5,061,300	PG&E/staff
No-action average annual generation (kWh)	1,171,900,000	Staff
No-action dependable capacity (kW)	357,300	Staff

3 ^a Sum of energy, capacity, and ancillary benefits values from PG&E, escalated to 2004
4 dollars.

5 Table 4-2 compares the power value, annual costs, and net benefits for the no-
6 action alternative, PG&E's proposal, and PG&E's proposal with additional staff-adopted
7 measures for the UNFFR Project. Table 4-3 shows the effect on costs and power values
8 of individual measures proposed by PG&E and recommended by staff and others,
9 including the additional measures that staff has adopted. In section 5.2, *Comprehensive*
10 *Development*, we discuss our reasons for recommending the staff alternative and why we
11 believe the environmental benefits are worth these costs.

1 Table 4-2. Summary of the annual net benefits for PG&E's proposed action, PG&E's proposed action with additional
 2 staff-adopted measures, no-action alternative, and project retirement, for the UNFFR Project. (Source: Staff)

	PG&E's proposed action	Proposed action with additional staff-adopted measures	No action	Project Retirement
Installed capacity (MW)	357.3	357.3	357.3	0
Annual generation (kWh)	1,085,933,000	1,085,933,000	1,171,900,000	0 ^a
Annual power value (mills/kWh)	69,322,900	69,322,900	74,810,800	74,810,800
Annual cost (mills/kWh)	63.84	63.84	63.84	63.84
Annual net benefit (mills/kWh)	25,278,100	25,516,300	22,326,100	74,847,000
	23.52	23.74	19.05	63.87
Annual net benefit (mills/kWh)	44,044,800	43,806,600	52,484,700	-36,200
	40.32	40.09	44.79	-0.03

3 ^a No generation from project; energy purchased and resold at cost.

1 Table 4-3. Summary of capital and one-time costs, annual costs, annual energy costs, and total annualized costs of
 2 environmental measures proposed by PG&E and recommended by staff and others for the UNFFR Project.
 3 (Source: PG&E as modified by staff, and staff)

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs including O&M (2004\$)	Annual energy costs (2004\$)	Total annualized cost (2004\$)	Adopted by staff?	Notes
Water Resources Measures							
1. Maintain streamgages NF-2 (Seneca reach), NF-70 (Belden reach), NF-1 (Lake Almanor), NF-8 (Butt Valley reservoir), NF-67 (Belden forebay) (SA section 1, item 5; FS preliminary 4(e) condition 27.E)	SA, FS, staff	\$0	\$0	\$0	\$0	Yes	
2. Gaging 4 times per year in lower Butt Creek (SA section 1, item 8)	SA	\$0	\$200	\$0	\$200	Yes	a
3. Water quality monitoring program and reporting (SA section 5; FS preliminary 10(a) condition 31)	SA, FS	\$0	\$5,000	\$0	\$5,000	Yes	
4. Canyon dam mitigation measures evaluation (SA section 5, item 2D; FS preliminary 10(a) condition 31.A.4)	SA, FS	\$0	\$87,300	\$0	\$87,300	No	b

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs		Total annualized cost (2004\$)	Adopted by staff?	Notes
			including O&M (2004\$)	energy costs (2004\$)			
5. Canyon dam mitigation measures evaluation	Staff	\$0	\$49,300	\$0	\$49,300	Yes	c
6. Cadmium and specific conductance monitoring program (SA section 5, item 2A; FS preliminary 10(a) condition 31.A.1)	SA, FS	\$0	\$8,600	\$0	\$8,600	No	d
7. Cadmium and specific conductance monitoring program	Staff	\$0	\$12,300	\$0	\$12,300	Yes	e
8. Lake Almanor water quality monitoring program (SA section 5, item 2E; FS preliminary 10(a) condition 31.A.5)	SA, FS	\$0	\$29,800	\$0	\$29,800	No	f
9. Lake Almanor water quality monitoring program	Staff	\$0	\$37,000	\$0	\$37,000	Yes	g
10. Fish tissue bioaccumulation screening (SA section 5, item 2C; FS preliminary 10(a) condition 31.A.3)	SA, FS	\$0	\$11,800	\$0	\$11,800	No	h
11. Fish tissue bioaccumulation screening	Staff	\$0	\$6,600	\$0	\$6,600	Yes	i

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs		Total annualized cost (2004\$)	Adopted by staff?	Notes
			including O&M (2004\$)	energy costs (2004\$)			
12. Bacteriological sampling program (SA section 5, item 2B; FS preliminary 10(a) condition 31.A.2)	SA, FS	\$0	\$13,400	\$0	\$13,400	No	j
13. Bacteriological sampling program	Staff	\$0	\$4,900	\$0	\$4,900	Yes	k
14. Augment water quality program, if needed	Plumas	\$0	\$0	\$0	\$0	No	
15. Switch Canyon dam releases	PG&E	\$0	\$0	\$0	\$0	Yes	
16. Monitor DO in Lake Almanor, Butt Valley reservoir, and the Caribou No. 1 powerhouse tailrace	Staff	\$0	\$14,700	\$0	\$14,700	Yes	l
17. Water temperature management plan (FS preliminary 4(e) condition 32)	FS	\$0	\$0	\$0	\$0	Yes; Partially adopted	
18. Water temperature management plan, which includes construction of a modified Prattville intake) (Interior 10(j) recommendation 5)	Interior	\$0	\$0	\$0	\$0	No	m

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs		Total annualized cost (2004\$)	Adopted by staff?	Notes
			including O&M (2004\$)	energy costs (2004\$)			
19. Revise draft SMP	Plumas	\$0	\$900	\$0	\$900	Yes	n
20. Implement SMP (SA section 8, item H)	SA	\$0	\$10,000	\$0	\$10,000	Yes after revision	
21. Control shoreline erosion adversely affecting other resources	Plumas	\$0	\$0	\$0	\$0	Yes	
22. Erosion control as included in recreation facility development program and in land management measures	SA	\$0	\$0	\$0	\$0	Yes	
(SA section 7, items 1A1b, 1A1d, 1A1j, 1A1k, 1A1n, 1A4c, and section 8, items C, G, and H)							
23. Continued implementation of road maintenance agreement with Plumas National Forest	PG&E	\$0	\$0	\$0	\$0	Yes	
24. Erosion control plan for any new construction	FS	\$0	\$0	\$0	\$0	Yes; partially adopted	
(FS preliminary 4(e) conditions 22 and 24)							
25. Erosion control plan for all project facilities, roads, reservoirs, and bypassed reaches	Interior	\$25,000	\$0	\$0	\$3,600	No	

Environmental Measures (Interior 10(j) recommendation 19)	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs		Total annualized cost (2004\$)	Adopted by staff?	Notes
			including O&M (2004\$)	energy costs (2004\$)			
26. Spoil disposal plan (FS preliminary 4(e) condition 50)	FS	\$20,000	\$0	\$0	\$2,900	Yes	
Aquatic Resources Measures							
27. Seneca reach, Belden reach minimum flow regime per SA (SA section 1, item 1; FS preliminary 4(e) condition 27.A)	SA, FS	\$0	\$0	\$3,684,200	\$3,684,200	Yes	o
28. Seneca reach, Belden reach minimum flow regime as recommended by Interior (Interior 10(j) recommendation 1)	Interior	\$0	\$0	\$4,153,200	\$4,153,200	No	p
29. Maintain existing inflows in lower Butt Creek (SA section 1, item 2; FS preliminary 4(e) condition 27.B)	SA, FS	\$0	\$0	\$0	\$0	Yes	q
30. Maintain existing inflows in lower Butt Creek (Interior 10(j) recommendation 1)	Interior	\$0	\$0	\$0	\$0	Yes	q

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs			Adopted by staff?	Notes
			including O&M (2004\$)	energy costs (2004\$)	Total annualized cost (2004\$)		
31. Pulse flows in Seneca reach as proposed in SA (SA section 1, item 3A; FS preliminary 4(e) condition 27.C.1)	SA, FS	\$0	\$0	\$198,900	\$198,900	Yes	r
32. Pulse flows in Seneca reach as recommended by Interior (Interior 10(j) recommendation 2)	Interior	\$0	\$0	\$301,800	\$301,800	No	s
33. Pulse flows in Belden reach as proposed in SA (SA section 1, item 3A; FS preliminary 4(e) condition no. 7.C.1)	SA, FS	\$0	\$0	\$77,300	\$77,300	Yes	t
34. Pulse flows in Belden reach as proposed by Interior (Interior 10(j) recommendation 2)	Interior	\$0	\$0	\$114,100	\$114,100	No	u
35. Pulse flows in lower Butt Creek (study-dependent) (SA section 1, item 4; FS preliminary 4(e) condition 27.D)	SA, FS	\$0	\$0	\$0	\$0	Yes	q

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs		Total annualized cost (2004\$)	Adopted by staff?	Notes
			including O&M (2004\$)	energy costs (2004\$)			
36. Lower Butt Creek pulse flow plan + 1 year test pulse release within creek (Interior 10(j) recommendation 3)	Interior	\$20,000	\$0	\$0	\$2,900	No	q
37. Gravel monitoring plan (SA section 1, item 3B; FS preliminary 4(e) condition 27.C.2)	SA, FS	\$20,000	\$6,600	\$0	\$9,500	Yes	v
38. Coarse sediment management plan (Interior 10(j) recommendation 8)	Interior	\$20,000	\$0	\$0	\$2,900	No	
39. Geomorphological monitoring plan ^a (Interior 10(j) recommendation 6)	Interior	\$50,000	\$6,600	\$0	\$13,800	No	e
40. Develop a ramping rate plan (Interior 10(j) recommendation 20)	Interior	\$20,000	\$0	\$0	\$2,900	No	
41. Ramping rates at Canyon dam (SA section 1, item 6A; FS preliminary 4(e) condition 27.F.1)	SA, FS	\$0	\$0	\$0	\$0	Yes	q
42. Ramping rates at Belden dam (SA section 1, item 6A; FS preliminary 4(e) condition 27.F.1)	SA, FS	\$0	\$0	\$0	\$0	Yes	q

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs			Total annualized cost (2004\$)	Adopted by staff?	Notes
			including O&M (2004\$)	energy costs (2004\$)	annualized cost (2004\$)			
43. Belden block loading (SA section 1, item 7; FS preliminary 4(e) condition 27.G)	SA, FS	\$0	\$0	\$0	\$0	Yes	q	
44. Notification and minimization of emergency and planned maintenance outage spill plan (FS preliminary 4(e) condition 30)	FS	\$10,000	\$0	\$0	\$1,500	Yes		
45. Monitoring of the effects on the aquatic community of recreation flows within Belden reach (SA section 1, item 9; FS preliminary 4(e) condition 27.I; Interior 10(j) recommendation 14)	SA, FS, Interior	\$50,000	\$20,700	\$0	\$28,000	Yes	w	
46. Fish monitoring plan (Interior 10(j) recommendation 10)	Interior	\$20,000	\$21,800	\$0	\$24,700	No	x	
47. Macroinvertebrate monitoring plan (Interior 10(j) recommendation 11)	Interior	\$20,000	\$8,400	\$0	\$11,300	No	y	
48. Fish and benthic macroinvertebrate monitoring	FS	\$20,000	\$24,600	\$0	\$27,500	No	z	

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs			Total annualized cost (2004\$)	Adopted by staff?	Notes
			including O&M (2004\$)	energy costs (2004\$)				
(FS preliminary 4(e) condition 33)								
49. Seneca and Belden reaches habitat monitoring (fish and macroinvertebrates) (SA section 1, item 9; FS preliminary 4(e) condition 27.I)	SA, FS	\$20,000	\$3,700	\$0	\$6,600	No	aa	
50. Seneca and Belden reaches habitat monitoring (fish and macroinvertebrates)	Staff	\$20,000	\$8,300	\$0	\$11,200	Yes	ab	
51. Development and implementation of aquatic habitat monitoring in lower Butt Creek (SA section 1, item 8; FS preliminary 4(e) condition 27.H)	SA, FS	\$20,000	\$4,300	\$0	\$7,200	Yes	ac	
52. Woody debris management (plan, test program, and monitoring) (Interior 10(j) recommendation 9)	Interior	\$20,000	\$5,800	\$0	\$8,800	Yes	ad	
53. Adaptive management plan (Interior 10(j) recommendation 13)	Interior	\$10,000	\$1,700	\$0	\$3,100	Yes	ae	

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs		Total annualized cost (2004\$)	Adopted by staff?	Notes
			including O&M (2004\$)	energy costs (2004\$)			
54. Maintain Lake Almanor at specific water surface elevations per SA (SA section 3, item 2; FS preliminary 4(e) condition no. 29.B; Interior 10(j) recommendation 4)	SA, Interior, FS	\$0	\$0	\$1,527,500	\$1,527,500	Yes	af
55. Maintain Lake Almanor elevation at or below 4,494.0 feet (PG&E datum) (SA section 3, item 9; FS preliminary 10(a) condition 29.I)	SA, FS	\$0	\$0	\$0	\$0	Yes	q
56. Maintain Butt Valley reservoir per SA terms (SA section 3, item 3; FS preliminary 4(e) condition 29.C)	SA, FS	\$0	\$0	\$0	\$0	Yes	
57. Maintain Belden forebay per SA terms (SA section 3, item 4; FS preliminary 4(e) condition 29.D)	SA, FS	\$0	\$0	\$0	\$0	Yes	q
58. Develop and maintain water year type forecast (SA section 4)	SA	\$0	\$0	\$0	\$0	Yes	

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs			Total annualized cost (2004\$)	Adopted by staff?	Notes
			including O&M (2004\$)	Annual energy costs (2004\$)	\$0			
59. Monitoring of Lake Almanor and Butt Valley reservoir coldwater fisheries (if modifications to Prattville intake occur)	Staff	\$0	\$0	\$0	\$0	Yes	ag	
60. Design, construct, and operate pool-and-weir fish ladder at Belden dam	NMFS	\$11,900,000	\$100,000	\$0	\$1,831,000	No		
61. Design, construct, and operate positive barrier screening device at Belden powerhouse	NMFS	\$32,000,000	\$50,000	\$0	\$4,704,800	No		
62. Design, construct, and operate pool-and-weir fish ladder at Butt Valley dam	NMFS	\$7,200,000	\$100,000	\$0	\$1,147,300	No		
63. Design, construct, and operate positive barrier screening device at Caribou Nos. 1 and 2 powerhouses	NMFS	\$35,000,000	\$50,000	\$0	\$5,141,200	No		
64. Lower Butt Creek-monitoring of fish passage of weir (removal or modification if a barrier)	SA, FS	\$10,000	\$900	\$0	\$2,300	Yes	n	

(SA section 1, item 8; FS

	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs including O&M (2004\$)	Annual energy costs (2004\$)	Total annualized cost (2004\$)	Adopted by staff?	Notes
Environmental Measures							
preliminary 4(e) condition 27.H)							
65. Remove Gansner Bar fish barrier	PG&E	\$35,000	\$0	\$0	\$5,100	Yes	
Terrestrial Resources Measures							
66. Wildlife monitoring plan (Interior 10(j) recommendation 21)	Interior	\$10,000	\$25,000	\$0	\$26,500	No	
67. Wildlife habitat enhancement plan (SA section 6; FS preliminary 4(e) condition 37)	SA, FS	\$20,000	\$5,000	\$0	\$7,900	Yes	
68. Vegetation management plan as recommended by Interior (Interior 10(j) recommendation 7)	Interior	\$65,000	\$10,000	\$0	\$19,500	No	
69. Vegetation management plan as recommended by the FS (FS preliminary 4(e) condition 35)	FS	\$10,000	\$3,000	\$0	\$4,500	Yes	
70. Noxious weed management plan (FS preliminary 4(e) condition 36)	FS	\$10,000	\$6,000	\$0	\$7,500	Yes	
71. Belden reach bramble control testing	PG&E	\$0	\$0	\$0	\$0	Yes	

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs including O&M (2004\$)	Annual energy costs (2004\$)	Total annualized cost (2004\$)	Adopted by staff?	Notes
72. T&E management plan (FS preliminary 4(e) condition 39)	FS	\$5,000	\$2,000	\$0	\$2,700	Yes	
73. Amphibian monitoring plan (SA section 1, item 9; FS preliminary 4(e) condition 34; Interior 10(j) recommendation 12)	SA, FS, Interior	\$4,000	\$8,000	\$0	\$8,600	Yes	
74. Peregrine falcon monitoring (Interior 10(j) recommendation 18)	Interior	\$4,000	\$4,500	\$0	\$5,100	Yes	

Threatened and endangered species measures

75. Continue to comply with measures protecting bald eagles	PG&E	\$0	\$0	\$0	\$0	No	
76. Compliance with the Biological Opinion, pursuant to the ESA (Interior 10(j) recommendation 15)	Interior	\$3,000	\$1,000	\$0	\$1,400	Yes	
77. Bald eagle management plan (FS preliminary 4(e) condition 38)	FS	\$0	\$0	\$0	\$0	Yes	
78. Interagency bald eagle management plan (Interior 10(j) recommendation	Interior	\$15,000	\$104,000	\$0	\$106,200	Yes	

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs including O&M (2004\$)	Annual energy costs (2004\$)	Total annualized cost (2004\$)	Adopted by staff?	Notes
16)							
79. Bald eagle monitoring (Interior 10(j) recommendation 15)	Interior	\$0	\$0	\$0	\$0	Yes	
Recreational Resources Measures							
80. Within 1 year finalize and implement the draft RRMP for the project (SA, Interior), which includes the following elements: a recreation facility development program (SA, FS), a recreation O&M program (SA, FS), an I&E program (SA, FS), a recreation monitoring program (SA, FS, Interior), a resource integration and coordination program (SA, FS, Interior), and a RRMP review and revision program (SA, FS) (SA section 7; FS preliminary 4(e) conditions 42, 43, 44; Interior 10(a) recommendation 2)	See first column	\$56,700	\$31,100	\$0	\$39,400	Yes	ah,ai
81. Recreation within 1-3 years: upgrades at Last Chance campground	SA, FS	\$20,800	\$10,400	\$0	\$13,400	Yes	ah,ai

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs including O&M (2004\$)	Annual energy costs (2004\$)	Total annualized cost (2004\$)	Adopted by staff?	Notes
(SA section 7, item 1A1a; FS preliminary 10(a) condition 44.E.1)							
82. Recreation within 5-10 years: upgrades at Rocky Point campground and day-use area (SA section 7, item 1A1b; FS preliminary 10(a) condition 44.E.2)	SA, FS	\$207,500	\$31,800	\$0	\$62,000	Yes	ah,aj
83. Recreation within 1-3 years: provide matching funds to the FS to improve FS-owned recreation facilities (SA section 7, item 1A1c; FS preliminary 4(e) conditions 44.A.1 and 2)	SA, FS	\$5,000,000	\$0	\$0	\$727,300	Yes	ai
84. Within 1 year assume O&M responsibility for FS facilities: Dyer View day-use area, Canyon dam boat launch and day-use area, Almanor boat launch (SA section 7, item 4; FS preliminary 4(e) conditions 44 A.4, C and D)	SA, FS	\$0	\$15,600	\$0	\$15,600	Yes	ah,ai

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs including O&M (2004\$)	Annual energy costs (2004\$)	Total annualized cost (2004\$)	Adopted by staff?	Notes
85. Within 13 years assume O&M responsibility for FS facilities: Almanor family campground, Almanor group campground, Almanor beach (SA section 7, item 3; FS preliminary 10(a) conditions 44.A.1 and 2)	SA, FS	\$0	\$62,300	\$0	\$62,300	Yes	ah,ai
86. Recreation within 1-3 years: convert East Shore picnic area to group camp area (SA section 7, item 1A1d; FS preliminary 10(a) condition 44.E.3)	SA, FS	\$455,700	\$5,200	\$0	\$71,500	Yes	ah,ai
87. Recreation within 1-5 years: develop East Shore day-use area (SA section 7, item 1A1i; FS preliminary 10(a) condition 44.E.8)	SA, FS	\$264,700	\$2,600	\$0	\$41,100	Yes	ah,ai
88. Recreation over the term of the license: develop East Shore family campground (SA section 7, item 2A2; FS preliminary 10(a) condition	SA, FS	\$5,299,000	\$37,900	\$0	\$808,700	Yes	ah,ai

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual		Total annualized cost (2004\$)	Adopted by staff?	Notes
			costs including O&M (2004\$)	energy costs (2004\$)			
44.G.2)							
89. Recreation within 3-5 years: provide North Shore public boat launch (SA section 7, item 1A1e; FS preliminary 10(a) condition 44.E.4)	SA, FS	\$595,300	\$7,800	\$0	\$94,400	Yes	ah,ak
90. Recreation within 3-5 years: develop Stover Ranch day-use area (SA section 7, item 1A1f; FS preliminary 10(a) condition 44.E.5)	SA, FS	\$81,600	\$2,000	\$0	\$13,800	Yes	ah,ak
91. Recreation within 1-3 years: expand and improve Marvin Alexander beach (SA section 7, item 1A1g; FS preliminary 10(a) condition 44.E.6)	SA, FS	\$143,200	\$2,100	\$0	\$22,900	Yes	ah,ai
92. Recreation within 1-3 years: upgrades at Canyon dam day-use area (SA section 7, item 1A1h; FS	SA, FS	\$171,300	\$9,300	\$0	\$34,300	Yes	ah,ai

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs		Total annualized cost (2004\$)	Adopted by staff?	Notes
			including O&M (2004\$)	energy costs (2004\$)			
preliminary 4(e) condition 44.E.7)							
93. Recreation within 1-3 years: upgrades at Westwood beach day-use area (SA section 7, item 1A1j; FS preliminary 10(a) condition 44.E.9)	SA, FS	\$207,100	\$2,600	\$0	\$32,700	Yes	ah,ai
94. Recreation within 1-3 years: upgrades at Stumpy beach day-use area (SA section 7, item 1A1k; FS preliminary 10(a) condition 44.E.10)	SA, FS	\$292,200	\$2,600	\$0	\$45,100	Yes	ah,ai
95. Recreation within 3-5 years: upgrades at Catfish beach day-use area (SA section 7, item 1A1l; FS preliminary 10(a) condition 44.E.11)	SA, FS	\$114,400	\$3,900	\$0	\$20,600	Yes	ah,ak
96. Recreation within 1-5 years: improve Almanor scenic overlook (SA section 7, item 1A1m; FS preliminary 10(a) condition 44.E.11)	SA, FS	\$11,400	\$3,100	\$0	\$4,800	Yes	ah,ai

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs including O&M (2004\$)	Annual energy costs (2004\$)	Total annualized cost (2004\$)	Adopted by staff?	Notes
44.E.12)							
97. Recreation within 1-5 years: develop access to SW shoreline of Lake Almanor between Prattville and Canyon dam (SA section 7, item 1A1n; FS preliminary 4(e) condition 44.B.1)	SA, FS	\$425,600	\$10,400	\$0	\$72,300	Yes	ah,ai
98. Recreation in 1-5 years: upgrades at Camp Connery group camp (SA section 7, item 1A1o; FS preliminary 10(a) condition 44.G.1)	SA, FS	\$48,300	\$5,200	\$0	\$12,200	Yes	ah,ai
99. Recreation over the term of the license: expand Camp Connery group camp (SA section 7, item 2A2; FS preliminary 10(a) condition 44.G.1)	SA, FS	\$597,400	\$10,400	\$0	\$97,300	Yes	ah,ai
100. Recreation within 5 years: provide easements to expand the LART and provide O&M for those sections of the LART on	FS	\$0	\$5,200	\$0	\$5,200	No	ah,ai

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual		Total annualized cost (2004\$)	Adopted by staff?	Notes
			costs including O&M (2004\$)	Annual energy costs (2004\$)			
NFS land (FS preliminary 4(e) condition 44.B.2)							
101. Recreation within 5-10 years: provide Butt Valley reservoir powerhouse trails (SA section 7, item 1A2a; FS preliminary 10(a) condition 44.F.1)	SA, FS	\$56,700	\$1,300	\$0	\$9,600	Yes	ah,aj
102. Recreation within 5-10 years: improvements at Ponderosa Flat campground (SA section 7, item 1A2b; FS preliminary 10(a) condition 44.F.2)	SA, FS	\$48,600	\$10,600	\$0	\$17,700	Yes	ah,aj
103. Recreation over the term of the license: expand Ponderosa Flat campground (SA section 7, item 2B1; FS preliminary 10(a) condition 44.G.3)	SA, FS	\$311,400	\$5,200	\$0	\$50,500	Yes	ah,ai

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs		Total annualized cost (2004\$)	Adopted by staff?	Notes
			including O&M (2004\$)	energy costs (2004\$)			
104. Recreation within 5-10 years: improvements at Cool Springs campground (SA section 7, item 1A2c; FS preliminary 10(a) condition 44.F.3)	SA, FS	\$44,600	\$6,400	\$0	\$12,800	Yes	ah,aj
105. Recreation within 5-10 years: improvements at Alder Creek boat launch (SA section 7, item 1A2d; FS preliminary 10(a) condition 44.F.4)	SA, FS	\$239,800	\$2,600	\$0	\$37,500	Yes	ah,aj
106. Recreation within 5-10 years: provide Belden forebay car-top boating and trail access (SA section 7, item 1A3a; FS preliminary 4(e) condition 44.H.2)	SA, FS	\$59,700	\$300	\$0	\$8,900	Yes	ah,aj
107. Recreation within 1-3 years: improve North Fork fishing trail (SA section 7, item 1A3b; FS preliminary 10(a) condition 44.H.3)	SA, FS	\$75,300	\$1,000	\$0	\$12,000	Yes	ah,ai

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs including O&M (2004\$)	Annual energy costs (2004\$)	Total annualized cost (2004\$)	Adopted by staff?	Notes
108. Prior to any recreation release flows provide river access at upstream end of Belden reach (SA section 7, item 1A4a; FS preliminary 4(e) condition 44.H.4)	SA, FS	\$10,400	\$2,600	\$0	\$4,100	Yes	ah,ai
109. Recreation within 1-3 years: provide and maintain four trails to Belden reach shoreline (SA section 7, item 1A4b; FS preliminary 4(e) condition 44.H.5)	SA, FS	\$51,900	\$3,900	\$0	\$11,500	Yes	ah,ai
110. Recreation within 3-5 years: upgrades at the Belden rest stop (SA section 7, item 1A4c; FS preliminary 10(a) condition 44.H.6)	SA, FS	\$22,800	\$2,300	\$0	\$5,700	Yes	ah,ak
111. If decision is made to provide recreation release flows, provide funding to the FS to construct non-project river access to the lower Belden reach (SA section 7, item 1A4d; FS preliminary 10(a) condition 44.H.1)	SA, FS	\$125,000	\$0	\$0	\$18,200	Yes	ai

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs including O&M (2004\$)	Annual energy costs (2004\$)	Total annualized cost (2004\$)	Adopted by staff?	Notes
112. Within 2 years develop and implement an I&E program for the project (SA section 7, item 6; FS preliminary 4(e) condition 43)	SA, FS	\$77,800	\$10,400	\$0	\$21,700	Yes	ah,ai
113. Within 1 year develop and provide new Lake Almanor bathymetry map (SA section 7, item 6; FS preliminary 4(e) condition 43)	SA, FS	\$51,900	\$0	\$0	\$7,500	Yes	ah,ai
114. Recreation coordination and review meeting every 6 years (FS preliminary 4(e) condition 41)	FS	\$0	\$200	\$0	\$200	No	ai
115. Reimburse CDFG for fish stocking costs every year (SA section 7, item 5; FS preliminary 10(a) condition 44.G)	SA, FS	\$0	\$50,000	\$0	\$50,000	Yes	ai
116. Within 1 year provide funding for river ranger position (SA section 7, item 10; FS preliminary 4(e) condition 45)	SA, FS	\$0	\$25,000	\$0	\$25,000	Yes	ai
117. If decision is made to provide recreation release flows,	SA, FS	\$20,800	\$1,600	\$0	\$4,600	Yes	ag

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs including O&M (2004\$)	Annual energy costs (2004\$)	Total annualized cost (2004\$)	Adopted by staff?	Notes
cooperatively develop a Belden interagency river recreation flow management plan (SA section 7, item 11; FS preliminary 4(E) condition 47)							
118. Within 6 months establish a recreation river flow TRG (SA section 2, item 1; FS preliminary 4(e) condition 46.A)	SA, FS	\$10,400	\$1,000	\$0	\$2,500	Yes	ah,ai
119. Within 6 months, implement the recreation flow implementation plan, including test flows and monitoring (SA section 2, item 2; FS preliminary 4(e) condition 46.B)	SA, FS, CDFG	\$6,200	\$1,600	\$0	\$2,500	Yes	ah,ai
120. After 3 years, implement recreational flow regime as proposed in SA (SA section 2, item 3)	SA	\$0	\$0	\$15,400	\$15,400	Yes	ah,am
121. After 3 years, implement recreational flow regime as proposed by the FS (FS preliminary 4(e) condition	FS, Interior, CDFG	\$0	\$0	\$0	\$0	No	an

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs including O&M (2004\$)	Annual energy costs (2004\$)	Total annualized cost (2004\$)	Adopted by staff?	Notes
46.C; Interior 10(a) recommendation 1)							
122. After 3 years, implement recreational flow regime as proposed by AW	AW	\$0	\$0	\$0	\$0	No	an
123. Participate in annual planning meeting and post an annual recreation flow calendar (SA section 2, item 3A; FS preliminary 4(e) condition 46.C.1)	SA, FS	\$0	\$5,200	\$0	\$5,200	Yes	ah
124. During scheduled recreation river flows, count number of boats per day (SA section 2, item 3D; FS preliminary 4(e) condition 46.D)	SA, FS	\$0	\$21,300	\$0	\$21,300	Yes	ah
125. Develop and implement a visitor survey for up to 3 years (SA section 2, item 3D)	SA	\$100,000	\$24,600	\$0	\$39,200	Yes	ao
126. Annual meeting with Plumas County to discuss reservoir levels (SA section 3, item 12; FS preliminary 10(a) condition 29.L)	SA, FS	\$0	\$1,600	\$0	\$1,600	Yes	ah

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs		Total annualized cost (2004\$)	Adopted by staff?	Notes
			including O&M (2004\$)	energy costs (2004\$)			
Land Use and Aesthetic Resources Measures							
127. Within 1 year adjust project boundary (SA section 7, item 3)	PG&E, SA	\$0	\$0	\$0	\$0	Yes	ai,ap
128. Within 1 year prepare road traffic survey plan and implement every 6 years	SA, FS	\$10,000	\$2,700	\$0	\$4,100	Yes	
(SA section 7, item 12; FS preliminary 4(e) condition 48)							
129. Within 2 years, paint the metal siding and roof of the hoist house on the Prattville intake structure	SA, FS	\$10,000	\$500	\$0	\$2,000	Yes	
(SA section 8, item A; FS preliminary 4(e) condition 49)							
130. Within 2 years, plant evergreen trees at the Prattville maintenance area for visual buffering	SA, FS	\$7,000	\$500	\$0	\$1,500	Yes	
(SA section 8, item B; FS preliminary 4(e) condition 49)							
131. Within 2 years, regrade the	SA, FS	\$10,000	\$0	\$0	\$1,500	Yes	

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs including O&M (2004\$)	Annual energy costs (2004\$)	Total annualized cost (2004\$)	Adopted by staff?	Notes
Oak Flat road debris spoil piles (SA section 8, item C; FS preliminary 4(e) condition 49)							
132. Within 2 years, prepare a plan to minimize dust and improve the Butt Valley-Caribou Road	SA, FS	\$13,000	\$1,000	\$0	\$2,900	Yes	
(SA section 8, item D; FS preliminary 4(e) condition 49)							
133. Within 2 years, consult with the FS on Belden powerhouse visual upgrades	SA, FS	\$0	\$1,000	\$0	\$1,000	Yes	
(SA section 8, item E; FS preliminary 4(e) condition 49)							
134. Within 2 years, maintain exterior and landscaping at Caribou village	SA, FS	\$100,000	\$25,000	\$0	\$39,500	Yes	
(SA section 8, item F; FS preliminary 4(e) condition 49)							
135. Within 2 years, prepare and file visual management plans 60 days prior to any ground-disturbing activities	SA, FS	\$5,000	\$1,000	\$0	\$1,700	Yes	

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs		Total annualized cost (2004\$)	Adopted by staff?	Notes
			including O&M (2004\$)	energy costs (2004\$)			
(SA section 8, item G; FS preliminary 4(e) condition 49)							
136. Participate in annual meeting with the FS and Plumas County to coordinate land management activities	SA, FS	\$0	\$1,500	\$0	\$1,500	Yes	
(SA section 8, item I; FS preliminary 4(e) condition 49)							
137. Within 1 year, prepare and implement fire prevention and response plan	FS	\$20,000	\$0	\$0	\$2,900	Yes	
(FS preliminary 4(e) condition 26)							
Cultural Resources Measures							
138. Signage	PG&E	\$0	\$0	\$0	\$0	Yes	
139. Public education and interpretation program	PG&E, NPS, FS, Maidu	\$0	\$0	\$0	\$0	Yes	
140. Internal PG&E employee education program	PG&E	\$0	\$0	\$0	\$0	Yes	
141. Monitoring program	PG&E, Maidu	\$0	\$0	\$0	\$0	Yes	
142. Additional survey and recordation	PG&E, FS	\$0	\$0	\$0	\$0	Yes	

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs including O&M (2004\$)	Annual energy costs (2004\$)	Total annualized cost (2004\$)	Adopted by staff?	Notes
143. Archaeological test excavations and site evaluations	PG&E, FS, Maidu	\$0	\$0	\$0	\$0	Yes	
144. Mitigative treatment plans and data recovery	PG&E, FS, Maidu	\$0	\$0	\$0	\$0	Yes	
145. Additional consultations with the Commission, SHPO, FS, Maidu	PG&E, Maidu	\$0	\$0	\$0	\$0	Yes	
146. Barricades and blockage of ORV traffic	PG&E, Maidu	\$0	\$0	\$0	\$0	Yes	
147. Permit and construction restrictions	PG&E	\$0	\$0	\$0	\$0	Yes	
148. Access to TCPs, gathering locations, and protection of specific plant species	PG&E, Maidu	\$0	\$0	\$0	\$0	No	
149. Revised HPMP (FS preliminary 4(e) condition 40)	PG&E, FS	\$425,000	\$40,500	\$0	\$102,300	Yes	
150. Rehabilitation of operating structures according to Secretary's standards	PG&E	\$0	\$0	\$0	\$0	Yes	
151. Curation Facility and Maidu Culture Interpretative Center	FS, Maidu	\$2,000,000	\$250,000	\$0	\$540,900	No	

Environmental Measures	Recommending Entity	Capital and one-time costs (2004\$)	Annual costs		Total annualized cost (2004\$)	Adopted by staff?	Notes
			including O&M (2004\$)	energy costs (2004\$)			
152. Set aside lands for traditional cultural practices	Maidu	\$0	\$0	\$0	\$0	No	
153. Treatment and repatriation of unanticipated discoveries of prehistoric human remains	PG&E, Maidu	\$0	\$0	\$0	\$0	Yes	
154. Copies of cultural resources reports	Plumas	\$0	\$500	\$0	\$500	Yes	
155. PA and HPMP	FERC	\$0	\$0	\$0	\$0	Yes	
156. Additional Cultural Resources Working Group meetings	FERC	\$0	\$1,000	\$0	\$1,000	Yes	

- 1 ^a \$1,000/year in years 16 through 30, annualized to current cost.
- 2 ^b \$200,000/year in years 1 through 6, annualized to current cost.
- 3 ^c \$200,000/year in years 1, 2, and 3, annualized to current cost.
- 4 ^d \$50,000/year in years 1 and 2, annualized to current cost.
- 5 ^e \$50,000/year in years 1, 2, and 3, annualized to current cost.
- 6 ^f \$150,000/year in years 3, 8, 13, 18, 23, and 28, annualized to current cost.
- 7 ^g \$150,000/year in years 1, 2, and 3, annualized to current cost.
- 8 ^h \$50,000/year in years 1, 6, 11, 16, 21, and 26, annualized to current cost.
- 9 ⁱ \$50,000/year in years 5, 10, and 15, annualized to current cost.

- j** \$20,000/year in years 1 through 5 and odd years following year 5, annualized to current cost.
- k** \$20,000/year in years 1, 2, and 3, annualized to current cost.
- l** \$30,000/year in years 1 through 7, annualized to current cost.
- m** Study of the changes to the Prattville intake structure to modify water temperature is being done as part of the Rock Creek-Cresta Project license.
- n** \$10,000/year in year 1, annualized to current cost.
- o** Represents reduction in annual generation of 57.714 GWh versus no-action alternative.
- p** Represents reduction in annual generation of 65.060 GWh versus no-action alternative.
- q** No impact on generation.
- r** Represents reduction in annual generation of 3.115 GWh versus SA flow regime for Seneca and Belden reaches.
- s** Represents reduction in annual generation of 4.727 GWh versus SA flow regime for Seneca and Belden reaches.
- t** Represents reduction in annual generation of 1.211 GWh versus SA flow regime for Seneca and Belden reaches with Seneca reach pulse flows.
- u** Represents reduction in annual generation of 1.787 GWh versus SA flow regime for Seneca and Belden reaches with Seneca reach pulse flows.
- v** \$20,000/year in years 1, 3, 5, 10, 15, 20, 25, and 30, annualized to current cost.
- w** \$100,000/year in years 3, 4, and 5, annualized to current cost.
- x** \$50,000/year in years 1 through 3, 8 through 10, 15, 20, and 25, annualized to current cost.
- y** \$50,000/year in years 5, 10, 15, 20, 25, and 30, annualized to current cost.
- z** \$100,000/year in years 3, 6, 9, 14, 19, 24, and 29, annualized to current cost.
- aa** \$35,000/year in years 10, 12, and 14, annualized to current cost.
- ab** \$35,000/year in years 4, 5, 10, 15, 20, 25, and 30, annualized to current cost.
- ac** \$20,000/year in years 4, 8, 12, 16, 20, 24, and 28, annualized to current cost.

^{ad} \$40,000/year in year 2 and \$10,000/year in years 3, 5, 10, 15, 20, 25, and 30, annualized to current cost.
^{ae} \$10,000/year in years 5, 10, 15, 20, 25, and 30, annualized to current cost.
^{af} Represents reduction in annual generation of 23.928 GWh versus SA minimum and pulse flow regime.
^{ag} Part of Rock Creek-Cresta agreement associated with relicensing of that project; costs accounted for as part of that project.
^{ah} Costs escalated to 2004 dollars using Implicit Price Deflator.
^{ai} Assume costs begin to be incurred in year 1 of license.
^{aj} Assume costs begin to be incurred in year 8 of license; capital costs depreciated back to year 1 of license, and the present value of annual costs incurred during license determined.
^{ak} Assume costs begin to be incurred in year 4 of license; capital costs depreciated back to year 1 of license, and the present value of annual costs incurred during license determined.
^{al} \$1,500/year in years 6, 12, 18, 24, and 30, annualized to current cost.
^{am} Represents reduction in annual generation of 0.241GWh versus SA minimum and pulse flow regime and Lake Almanor and Butt Valley reservoir operation under SA.
^{an} No additional loss of generation versus SA recreational flow regime.
^{ao} \$50,000/year in years 1 through 3, annualized to current cost.
^{ap} \$20,000/year annual cost in years 6, 12, 18, 24, and 30, annualized to current cost.

1 **4.3 POWER AND ECONOMIC BENEFITS OF THE NO-ACTION**
2 **ALTERNATIVE**

3 Under the no-action alternative, the UNFFR Project would generate an average of
4 1,171,900,000 kWh of electricity annually, have an annual power value of \$74,810,800
5 (63.84 mills/kWh), and total annual costs of \$22,326,100 (19.05 mills/kWh), resulting in
6 a net annual benefit of \$52,484,700 (44.79 mills/kWh).

7 **4.4 POWER AND ECONOMIC BENEFITS OF THE PROJECT**
8 **RETIREMENT ALTERNATIVE**

9 Under the project retirement alternative, the UNFFR Project would no longer
10 generate electricity. The cost associated with this project would represent the cost of
11 purchasing 1,171,900,000 kWh of replacement energy, or \$74,810,800. In addition,
12 securing powerhouses and other structures under project retirement, assuming the
13 structures would remain in place, would require an additional capital cost of about
14 \$250,000, which corresponds as an annualized cost of \$36,400. Since the cost of
15 replacing this energy would be recuperated through the resale of the replacement
16 purchased energy, the power benefit would represent the cost of purchasing this energy,
17 or \$74,810,800, resulting in a net annual benefit under project retirement of -\$36,400.

18 **5.0 STAFF'S CONCLUSIONS**

19 **5.1 COMPARISON OF PROPOSED ACTION AND ALTERNATIVES**

20 Section 4(e) of the FPA directs the Commission to consider equally a broad range
21 of developmental and environmental purposes in making licensing decisions. Section
22 10(a) directs the Commission to license projects that are best adapted to a comprehensive
23 plan for improving or developing a waterway, which includes all relevant public
24 considerations.

25 Based on our independent review and evaluation of PG&E's proposed action,
26 staff's alternative, project retirement, and the no-action alternative, we recommend
27 licensing the project for continued operation with some additions and modifications to
28 PG&E's proposal. This alternative completely or partially includes 50 of the
29 environmental measures proposed by PG&E (see section 2.1.3, *Proposed Environmental*
30 *Measures*), and the additional or modified measures that are listed in section 2.2.2, *Staff's*
31 *Alternative*. We developed the staff's alternative after evaluating PG&E's proposal and
32 recommendations and comments from resource agencies and other interested parties and
33 individuals.

34 PG&E's proposed measures would protect and enhance the natural environment
35 and the public's use and enjoyment of that environment. The one measure proposed by
36 PG&E but not included in staff's alternative is PG&E's proposal to continue to comply

1 with measures protecting bald eagles according to existing nesting territory plans.
2 Instead, we have recommended that PG&E develop an IBEMP in consultation with the
3 FS, FWS, and CDFG to address project-related activities, especially those associated with
4 a new license for the project.

5 Staff's alternative, in most cases, provides additional details of what we expect to
6 be included in the development and implementation of PG&E's proposed environmental
7 measures. Additional measures not proposed by PG&E that we recommend include: (1)
8 a spoils disposal plan; (2) a water level and flow gaging plan; (3) a plan to measure DO
9 concentrations; (4) erosion control plans for new recreation construction; (5) a
10 notification and minimization of emergency and planned outage spill plan; (6) a woody
11 debris management plan; (7) an adaptive management plan; (8) a plan to evaluate
12 salmonid and wakasagi populations if modifications to the Prattville intake are approved;
13 (9) a vegetation and noxious weed management plan; (10) a threatened, endangered,
14 proposed for listing, and sensitive species protection plan; (11) an amphibian monitoring
15 plan, (12) a peregrine falcon monitoring plan; (13) an IBEMP; and (14) a fire prevention
16 and response plan. Staff's alternative would provide the following benefits over PG&E's
17 proposed measures: (1) greater aquatic habitat enhancement; (2) enable population
18 trends of special-status species to be tracked and if necessary, adaptive adjustments made
19 to project operations; and (3) monitoring of project-related features to identify the need
20 for remedial measures and ensure that protective measures are functioning as planned.

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

24 **5.2 COMPREHENSIVE DEVELOPMENT AND RECOMMENDED** 25 **ALTERNATIVE**

26 Sections 4(e) and 10(a) of the FPA require the Commission to give equal
27 consideration to all uses of the waterway on which a project is located. When we review
28 a hydropower project, we consider the water quality, fish and wildlife, recreational, and
29 other non-developmental values of the involved waterway equally with its electric energy
30 and other developmental values. In determining whether, and under what conditions, to
31 license a project, the Commission must weigh the various economic and environmental
32 tradeoffs involved in the decision.

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

1 **5.2.1 Recommended Alternative**

2 Based on our independent review and evaluation of the proposed project, the
3 proposed project with our additional recommended environmental measures, and the no-
4 action alternative, we select the staff's alternative (proposed project with our additional
5 recommended environmental measures) as the preferred alternative.

6 We recommend this alternative because: (1) issuance of a new license would allow
7 PG&E to continue to operate the project as a dependable source of electric energy for its
8 customers; (2) the 357.3-MW project would avoid the need for an equivalent amount of
9 fossil-fuel fired electric generation and capacity, continuing to help conserve these
10 nonrenewable energy resources while reducing atmospheric pollution; and (3) the
11 recommended environmental measures would protect or enhance fish and terrestrial
12 resources, improve public use of recreational facilities and resources, and maintain and
13 protect historic and archaeological resources within the area affected by project
14 operations.

15 We evaluated numerous recommendations in the resource sections and, given the
16 environmental benefits, we recommend that the following measures that PG&E proposes
17 should be included in staff's alternative for any license issued by the Commission for the
18 UNFFR Project:

- 19 (1) Use the upper-level gates in the Canyon dam intake tower for releases to
20 the Seneca reach beginning on September 15 and continuing until at least
21 November 1.
- 22 (2) Continue to implement the road maintenance agreement between PG&E
23 and the Plumas National Forest.
- 24 (3) Operate and maintain the existing gages to determine river stage and
25 minimum streamflow below Canyon dam (NF-2) and Belden forebay dam
26 (NF-70) under the supervision of the USGS. Within 3 years of license
27 issuance, complete any modification to the two gage facilities that may be
28 necessary to measure the new minimum streamflow releases.
- 29 (4) Prepare annual water quality report(s) that contain elements consistent with
30 reporting requirements from five water quality programs, and provide the
31 report(s) to the Commission and appropriate resource agencies by no later
32 than March 15 of the following year. Convene a discussion group meeting
33 once annually between April 15 and April 28 that is noticed at least 30 days
34 in advance.
- 35 (5) Develop a monitoring plan to evaluate the effectiveness of seasonal
36 switching of releases from the Canyon dam intake tower gates within 3
37 months of license issuance. This plan would be developed after
38 consultation with SWRCB, CVRWQCB, Plumas County, the FS, CDFG,

1 FWS, and parties who request involvement. The plan would identify
2 analytical methods to be used, sampling protocols and locations, QA/QC
3 procedures, schedule, and reporting requirements. Monitoring would begin
4 in the first year after license issuance, and occur during a minimum of 6
5 water years.

6 (6) Develop a monitoring plan to determine if the elevated dissolved cadmium
7 and specific conductance levels recorded within the UNFFR basin during
8 2002 and 2003 were caused by the project and, if so, potential remedial
9 measures within 3 months of license issuance. The plan would be
10 developed after consultation with SWRCB, CVRWQCB, Plumas County,
11 the FS, CDFG, FWS, and parties who request involvement. The plan would
12 identify analytical methods to be used, sampling protocols and locations,
13 QA/QC procedures, schedule, and reporting requirements. Monitoring
14 would be conducted during years 1 and 2 after license issuance, at a
15 minimum.

16 (7) Develop a monitoring plan to document water quality trends in Lake
17 Almanor under altered project operations for the new license within 3
18 months of license issuance. This plan would monitor analytes seasonally
19 (spring, summer, and fall) and would be developed through consultation
20 with the SWRCB, signatories of the SA, and parties who request
21 involvement; and identify analytical methods to be used, sampling
22 protocols and locations, QA/QC procedures, schedule, and reporting
23 requirements.

24 (8) Develop a monitoring plan to assess potential bioaccumulation of
25 methylmercury and PCBs in catchable-sized fish in the UNFFR Project
26 within 3 months of license issuance. This plan would be developed after
27 consultation with SWRCB, CVRWQCB, Plumas County, the FS, CDFG,
28 FWS, and parties who request involvement; and identify analytical methods
29 to be used, sampling protocols and locations, QA/QC procedures, schedule,
30 and reporting requirements.

31 (9) Develop a bacteriological monitoring plan, using a methodology
32 appropriate to determine compliance with state water quality standards
33 within 3 months of license issuance. This plan would be developed after
34 consultation with SWRCB, CVRWQCB, Plumas County, the FS, CDFG,
35 FWS, and other parties who request involvement, and identify analytical
36 methods to be used, sampling protocols and locations, QA/QC procedures,
37 schedule, and reporting requirements.

38 (10) Provide minimum streamflows to the Seneca and Belden reaches, as
39 measured at gages NF-2 and NF-70, in accordance with tables A-1 and A-2
40 in the SA. The minimum streamflows would commence within 60 days of
41 the issuance of the new license, unless facility modifications are required.

- 1 (11) Maintain existing streamflow in lower Butt Creek. No action would be
2 taken to reduce dam leakage, tunnel leakage, spring or other natural flows
3 that currently provide inflow to lower Butt Creek below the Butt Valley
4 dam, unless directed to do so by the Commission or other regulatory
5 agencies.
- 6 (12) Provide one pulse flow release from both Canyon dam (Seneca reach) and
7 Belden dam (Belden reach) in each of January, February, and March if the
8 forecasted WY type for that month indicates that the WY is anticipated to
9 be either normal or wet. No pulse flows would be required in months
10 where the WY type forecast for that month indicates that the WY would be
11 either dry or critically dry.
- 12 (13) Develop a monitoring plan to evaluate movement of sediment that occurs
13 during scheduled pulse flow events and other flows of a similar magnitude
14 as scheduled pulse flows. Emphasis would be placed on monitoring the
15 movement of spawning-sized gravel and recruitment of similar-sized
16 materials into the Belden and Seneca reaches. This plan would be
17 developed after consultation with the FS, FWS, SWRCB, and CDFG. If it
18 is determined that the pulse flows appear to have a detrimental effect on the
19 availability and distribution of spawning-sized gravel, or it appears that a
20 pulse flow of a different magnitude or duration would be beneficial, the
21 pulse flow schedule would be altered to achieve the desired results.
- 22 (14) Implement a ramping rate of 0.5 foot per hour, in all months, at Canyon
23 dam, measured at gage NF-2, and Belden dam, measured at gage NF-70,
24 when ramping rate can be controlled. The ramping rate would not apply to
25 releases from project powerhouses or unregulated spills from project dams.
26 In the event that studies or monitoring that may be required during the term
27 of the license result in changes to the ramping rate, the new ramping rates
28 should not result in an increase in the total volume of water required for
29 ramping.
- 30 (15) Block load at the Belden powerhouse at times when the Rock Creek dam is
31 spilling water in excess of the minimum streamflow required under the
32 license for the Rock Creek-Cresta Project, but less than 3,000 cfs. Block
33 loading would assist in minimizing the frequency of fluctuation in the river
34 stage and help meet ramping rates at downstream PG&E dams.
- 35 (16) Rehabilitate and maintain an existing streamflow gaging station on lower
36 Butt Creek designated as NF-9. An approximate rating curve would be
37 maintained with periodic spot checks and re-rating, as necessary. The gage
38 and the data collected on the gage would not be required to meet USGS
39 standards. The gage would be read each year on or about April 1, June 1,
40 August 1, and October 1.

- 1 (17) Develop a monitoring plan in lower Butt Creek to: (1) determine if the
2 weir for gage NF-9 is acting to block upstream fish passage, and (2)
3 evaluate habitat quality at intervals of 3 to 5 years. This plan would be
4 developed following consultation with the FS, FWS, SWRCB, and CDFG.
5 If it is found that the weir is blocking upstream fish passage, remove or
6 modify the weir within 1 year of the determination. If monitoring indicates
7 impaired habitat quality in lower Butt Creek from project operations, a
8 pulse flow regime would be developed.
- 9 (18) Develop an aquatic monitoring plan in the Seneca and Belden reaches that
10 includes monitoring of fish and benthic macroinvertebrates in at least three
11 sites in each reach. This plan would be developed following consultation
12 with the FS, FWS, SWRCB, and CDFG.
- 13 (19) Maintain Lake Almanor water levels (PG&E datum) as follows:
- 14 • Wet and Normal Water Years. By May 31, the water surface elevation
15 would be at or above 4,485.0 feet (908,000 acre-feet) and from June 1
16 through August 31, at or above 4,485.0 feet (908,000 acre-feet);
 - 17 • Dry Water Years. By May 31, the water surface elevation would be at
18 or above 4,483.0 feet (859,000 acre-feet) and from June 1 through
19 August 31, at or above 4,480.0 feet (787,000 acre-feet);
 - 20 • Critically Dry Water Years. By May 31, the water surface elevation
21 would be at or above 4,482.0 feet (835,000 acre-feet) and from June 1
22 through August 31, the water surface elevation is at or above 4,480.0
23 feet (787,000 acre-feet); and
 - 24 • Multiple Dry Water Years. In the event of multiple, sequential dry or
25 critically dry water years, decreases in surface water elevations below
26 those specified above would be allowed, as well as the current minimum
27 elevations specified for the Butt Valley and Belden reservoirs.
- 28 (20) Take such reasonable actions as may be prudent to prevent the water
29 surface elevation in Lake Almanor from exceeding elevation 4,494.0 feet
30 unless a higher level is approved by the Commission and CDWR, Division
31 of Safety of Dams.
- 32 (21) Continue to operate Butt Valley reservoir so that the minimum water
33 surface elevation from June 1 through September 30 is at or above 4,120.0
34 feet (32,000 acre-feet) and from October 1 through May 31 at or above
35 4,115.0 feet (24,500 acre-feet).
- 36 (22) Continue to operate Belden reservoir so that the minimum water surface
37 elevation is 2905.0 feet (300 acre-feet), year round.
- 38 (23) Forecast the WY type on or about January 10; notify the FS, CDFG, FWS,
39 SWRCB, and Plumas County within 15 days; and operate for the remainder

1 of that month and until the next forecast, based on that January forecast.
2 New forecasts would be made on or about the tenth of February, March,
3 April, and May, after snow surveys are completed, and operations would be
4 changed as appropriate. The May forecast would be used to establish the
5 WY type for the remaining months of the year and until next January 10,
6 when forecasting should begin again.

7 (24) Remove the Gansner Bar fish barrier on the Belden reach.

8 (25) Design a wildlife habitat enhancement plan, within 1 year of license
9 issuance, to be developed after consultation with the FS, FWS, CDFG,
10 SWRCB, and Plumas County, that would benefit sensitive biological
11 resources at the UNFFR Project. The plan would also include measures to
12 evaluate the response of riparian vegetation along the two bypassed reaches
13 to the proposed flow regime.

14 (26) Test bramble control methods at two to four river access sites along the
15 Belden reach, including planting alders to shade out the brambles.

16 (27) Develop an amphibian monitoring plan for FS-sensitive species for the
17 Seneca, Butt Creek, and Belden bypassed reaches and submit to the
18 Commission within 1 year of license issuance. The plan would be
19 developed after consultation with the FS, FWS, SWRCB, CDFG, and other
20 parties to the final SA, and would provide for monitoring conducted at 3-
21 year intervals beginning no later than 3 years following license issuance.

22 (28) Finalize a RRMP for the project that includes the following elements:

- 23 • A recreation facilities development program that defines proposed
24 responsibilities related to construction, including details of proposed
25 recreation development projects, estimated costs, and schedules;
- 26 • A recreation O&M program that defines proposed existing and future
27 recreation O&M responsibilities, including annual maintenance costs
28 and maintenance standards to be used;
- 29 • An I&E program that defines how hydroelectric energy production,
30 environmental, cultural, and informational I&E would be coordinated
31 and conducted at project facilities;
- 32 • A recreation monitoring program that defines recreation resource
33 monitoring, including monitoring standards and indicators, and how the
34 monitoring information would be used in decision-making;
- 35 • A resource integration and coordination program that defines how
36 recreation resource needs would be integrated with other resource
37 management needs over time, such as cultural, wildlife, and aquatic
38 resources and discusses how actions would be coordinated through
39 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.

The RRMP would be finalized after consultation with Plumas County, the FS, CDFG, and Interior.

- (29) 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 a maximum of 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:

1 the Almanor family campground, the Almanor group campground, the Almanor
2 amphitheater, the Almanor picnic area, and the Almanor beach.

3 **East Shore Group Camp Area** - Within 1 to 3 years after license issuance,
4 convert the existing East Shore picnic area to a group reservation camp area that
5 will accommodate one group of 16 RVs or two groups of eight RVs; widen the
6 entrance road; improve internal road circulation to accommodate RVs; provide
7 one ADA-accessible parking space near the existing double-vaulted toilet building
8 and an ADA-accessible access route to the nearby trash receptacles; provide bear-
9 proof food lockers at 16 sites; provide a paved, non-accessible trail down to the
10 shoreline with switchbacks and stairs; and institute erosion control measures.

11 **East Shore Day-Use Area** - Within 1 to 5 years after license issuance,
12 designate a day-use swim area in the existing cove adjacent to the proposed new
13 East Shore campground which would include up to five picnic tables, non-paved
14 shoreline access trails, a single vaulted toilet building, and parking for 10 to 20
15 vehicles.

16 **East Shore Family Campground** - Over the term of the project license
17 period, contingent on reaching the recreation monitoring standards contained in
18 the RRMP during the new license term, provide a new two-loop family
19 campground on PG&E-owned land along the east shore of Lake Almanor.
20 Construct the campground in two phases with a total of approximately 63 new tent
21 and RV campsites, bear-proof food lockers at each campsite, two user-fee
22 buildings with indoor hot showers and flush toilets, approximately 20 boat
23 moorage slips/buoys, and a camp host site.

24 **North Shore Public Boat Launch** - Within 3 to 5 years after license
25 issuance, provide a new and expanded public boat launching facility at the North
26 Shore campground, including paved parking for 40 single vehicles with trailers
27 and 12 single vehicles, a double vaulted toilet building, and a boarding float.
28 Dredge and maintain the existing submerged river channel to provide an
29 approximately 1,000-foot-long, 50-foot-wide, and 6-foot-deep boat channel that
30 provides boat access to approximately the 4,480-foot elevation (PG&E datum).
31 The boat launch would be open for public use from April 1 to December 1 when
32 the lake's elevation is at or above the 4,480 foot elevation (PG&E datum) and as
33 snow on the ground permits. Provide public access to the boat launch facility
34 along an abandoned portion of Highway 36 located along the north side of the
35 campground, in order to reduce traffic impacts at the campground. Relocate 22
36 campsites within the project boundary that would be affected by the expanded boat
37 launch facility.

38 **Stover Ranch Day-Use Area** - Within 3 to 5 years after license issuance,
39 develop the Stover Ranch day-use area to provide improved Lake Almanor
40 shoreline access for Chester residents, including gravel parking for 10 to 20
41 vehicles, a double-vaulted toilet building, four picnic tables, a non-paved trail to

1 the shoreline, an interpretive sign, and an RV site to accommodate a new Lake
2 Almanor caretaker. Coordinate these developments with the Chester Public
3 Utility District and the Chester Recreation and Parks District.

4 **Marvin Alexander Beach** - Within 1 to 3 years after license issuance,
5 assume management responsibility of the PSEA swim beach and expand and
6 improve the existing sandy beach to a 0.4 acre area above the high water level
7 (4,494 foot elevation, PG&E datum), provide an improved gravel parking area for
8 30 to 45 single vehicles, replace the site's two single-vault toilet buildings and 10
9 picnic tables, and provide a swim delineator. Change the name of the site to the
10 "Marvin Alexander Beach."

11 **Canyon Dam Day-Use Area** - Within 1 to 3 years after license issuance,
12 provide an approximately 0.3 acre sandy beach above the high water level (4,494
13 foot elevation, PG&E datum), a swim area delineator, an informational kiosk,
14 improved vehicle circulation, and eight new ADA-accessible picnic tables; and in
15 accordance with ADA, modify eight existing picnic tables to make them
16 accessible, provide an accessible parking space, and provide an accessible route to
17 the high water level (4,494 foot elevation, PG&E datum) at the swim beach area in
18 accordance with ADA. Reserve approximately 2.4 acres of land adjacent to the
19 Canyon dam day-use area for potential future recreation development during the
20 term of the new license.

21 **Westwood Beach Day-Use Area** - Within 1 to 3 years after license
22 issuance, provide a gravel parking area for 10 vehicles, six picnic tables, an ADA-
23 accessible single vaulted toilet building, an approximately 0.1 acre sandy beach, a
24 swim delineator, directional signage, and erosion control measures to protect the
25 shoreline from wind-caused wave action at the Westwood beach.

26 **Stumpy Beach Day-Use Area** - Within 1 to 3 years after license issuance,
27 provide five picnic tables, directional signage, an approximately 0.7 acre sandy
28 beach above the high water level (4,494 foot elevation, PG&E datum), a swim
29 delineator, 8 to 10 paved parking spaces parallel to Highway 147 with trails
30 connecting to the northern and southern portions of Stumpy beach (the southern
31 trail would be ADA-accessible where feasible and the northern trail would be non-
32 paved), four benches at the roadside parking area for viewing Lake Almanor and
33 the surrounding mountains, and erosion control measures to protect the shoreline
34 from wind-caused wave action. Provide a single vaulted toilet building if allowed
35 by Plumas County and the California Department of Transportation set-back
36 regulations; otherwise, provide a seasonal portable toilet building.

37 **Catfish Beach** - Within 3 to 5 years after license issuance, make a good
38 faith effort to negotiate a reasonable easement across private lands to provide
39 public road access to the Catfish beach area. Provide a single vaulted toilet
40 building at this site and monitor and maintain the toilet building and the site's
41 cleanliness through appropriate means.

1 **Almanor Scenic Overlook** - Within 1 to 5 years after license issuance,
2 provide an ADA-accessible route connecting the existing ADA-accessible double
3 vaulted toilet building at the overlook with a new ADA-accessible parking space,
4 and vegetative brushing and clearing to restore the views of Lake Almanor, Mt.
5 Lassen, and the Canyon dam.

6 **Southwest Shoreline Access Zone** - Within 1 to 5 years after license
7 issuance, provide four shoreline access points at existing informally used areas
8 along Lake Almanor's southwest shoreline between Prattville and Canyon dam
9 after consultation with the FS. These shoreline access areas would provide vehicle
10 access at or above the 4,494 foot elevation (PG&E datum) and serve as pedestrian
11 access areas to the adjacent shoreline. Provide four gravel parking areas that
12 provide parking for up to four to eight vehicles at two of the areas and 10 to 20
13 vehicles at the other two areas; vehicle barriers; regulatory, interpretive, and
14 informational signs; gravel access roads; and, if appropriate, single vaulted toilet
15 buildings at these access areas. Close and rehabilitate other user-created vehicular
16 access routes along the southwest shoreline after consultation with the FS.

17 **Camp Connery Reservation Group Camp Area** - Within 1 to 5 years
18 after license issuance, provide an ADA-accessible parking space and a new bunk
19 house cabin with accessible toilet and fee based hot shower and retrofit the
20 existing telephone position and water faucet features to meet the ADA. Over the
21 term of the project license period, contingent on reaching the recreation
22 monitoring standards contained in the RRMP during the new license term, provide
23 a new group reservation camping area adjacent to the existing Camp Connery
24 group camp, which would either provide space for two groups of approximately
25 eight self-contained RVs or one group of approximately 16 self-contained RVs, a
26 centrally-located bear-proof food facility, and two user fee, indoor shower
27 buildings with hot water and flush toilets.

28 *Butt Valley Reservoir Recreational Facilities and Access*

29 **Powerhouse Trails** - Within 5 to 10 years after license issuance, provide
30 improved angler access trails to two locations near the Butt Valley powerhouse.
31 One of the trails would be an approximately 200-foot, non-paved trail beginning at
32 the existing gravel parking area next to the powerhouse down the steep slope east
33 of the powerhouse to the levee below, with stairs, if needed. The second trail
34 would be ADA-accessible (compact base rock) originating from an existing
35 pullout along the Prattville-Butt Valley Road near the powerhouse, extending
36 approximately 700 feet to the eastern shoreline of the inlet near the levee.
37 Develop a new compacted base rock trailhead parking area with barriers for this
38 trail.

39 **Ponderosa Flat Campground** - Within 5 to 10 years after license issuance,
40 provide a single person, non-heated outdoor shower at Ponderosa Flat

1 campground, and, in accordance with ADA; modify four campsites and retrofit the
2 existing designated accessible campsites to provide accessibility of the picnic
3 table, fire ring, cooking grill, tent or RV area, and water faucet at each of these
4 campsites; replace the vault toilets in the overflow area with one new accessible
5 single vaulted toilet building and modify all of the other existing designated
6 accessible toilet buildings to meet current ADA standards; provide an ADA-
7 accessible access route to the toilet building near Site 45 and one ADA-accessible
8 paved parking space near the toilet buildings; provide an ADA-accessible
9 swimming area at the campground with an approximately 0.4 acre sandy beach
10 above the high water elevation (4,132 foot elevation, PG&E datum) and a swim
11 delineator; and provide a new ADA-accessible fishing access trail and pier or
12 platform north of the overflow area. Over the term of the project license period,
13 contingent on reaching the recreation monitoring standards contained in the
14 RRMP during the new license term, provide approximately 20 new primitive tent
15 campsites, likely to the north of the current overflow area, and a new 100 person
16 capacity group camp area in the existing overflow area.

17 **Cool Springs Campground** - Within 5 to 10 years after license issuance,
18 provide a two-person, non-heated outdoor shower at Cool Springs campground
19 and one new ADA-accessible campsite with elements including a picnic table, a
20 fire ring, a cooking grill, a tent or RV space, and water faucet.

21 **Alder Creek Boat Launch** - Within 5 to 10 years after license issuance,
22 expand the existing Alder Creek boat launch parking area to accommodate 10 to
23 20 additional vehicles with trailers and to improve vehicle circulation. New
24 parking areas on the east side of the Butt Valley Reservoir Road would be gravel
25 while the parking areas on the west side of this road would be paved. Modify the
26 boat launch to be accessible, and provide one ADA-accessible parking space near
27 the existing double vaulted toilet building.

28 *Belden Forebay Recreational Facilities and Access*

29 **Belden Forebay Access** - Within 5 to 10 years after license issuance,
30 provide a car-top boat launch, a seasonal portable toilet building, and a gravel
31 parking area for 10 single vehicles at the Belden forebay's existing undeveloped
32 parking area, which also serves as the trailhead for the North Fork fishing trail;
33 provide suitable access for launching small car-top watercraft at the Belden
34 forebay; post signage referring to a Plumas County ordinance (once the ordinance
35 is approved) limiting boat engines to 10 hp, boat speeds to 5 mph on small
36 reservoirs such as the Belden forebay, prohibiting swimming or boating within
37 0.25 mile of Belden dam and prohibiting swimming or boating at night.

38 **North Fork Fishing Trail** - Within 1 to 3 years after license issuance,
39 improve the North Fork fishing trail from the Belden forebay parking area to the
40 upstream side of Caribou No. 1 powerhouse, including retrofitting the existing
41 metal trail decking and railing at the powerhouse above the turbine outlets

1 providing enhanced access and safety, providing trail directional signs and a
2 wider, more even non-paved trail base along the chain-link fencing at the
3 powerhouse yard and along Caribou Road from the parking area.

4 *Recreational Facilities and Access in the Bypassed Reaches*

5 **Upper Belden Reach River Access** - Prior to the initiation of any
6 recreation release flows, provide a river access point at the upstream end of the
7 Belden reach located at the spoil pile area which would include a seasonal portable
8 toilet, a seasonal dumpster located over a concrete pad, and a non-paved parking
9 area to accommodate 15 to 25 single vehicles.

10 **Belden Reach Trails** - Within 1 to 3 years after license issuance, provide
11 and maintain four trails to the Belden reach shoreline from existing informal
12 parking areas where public access can be provided in a safe manner.

13 **Belden Rest Stop (SR 70)** - Within 3 to 5 years after license issuance,
14 relocate the existing picnic tables down to the rest stop's lower level and disperse
15 them within the area from the Eby Stamp Mill to the gazebo near the creek;
16 replace two of the tables with ADA-accessible tables; develop ADA-accessible
17 routes to the gazebo, the overlook area next to the creek, and to the Eby Stamp
18 Mill historical features; and provide improved I&E elements at the rest stop and
19 erosion control measures on the slope between the parking lot and the upper picnic
20 area. Remove the existing cooking grills from the upper level and close that area.
21 Over the term of the project license period, replace the existing vault restrooms
22 when major renovation is needed. This improvement is contingent on the
23 monitoring triggers (standards) contained in the RRMP being reached over the
24 license term.

25 **Lower Belden Reach River Access** - If a determination is made to proceed
26 with scheduled river recreation flows, provide up to a maximum of \$125,000
27 (2005 dollars) to the FS for construction of non-project river access to the lower
28 Belden reach.

29 (30) Assume responsibility for O&M of the following FS facilities prior to the
30 start of the first recreation season following license issuance: the Dyer
31 View day-use area, the Canyon dam boat launch and day-use area, and the
32 Almanor boat launch. Additionally, as each recreation facility is
33 individually constructed, assume O&M responsibility for the southwest
34 shoreline access zone facilities. Finally, within 6 months after the FS has
35 completed construction of each of the recreation improvements it has
36 planned for the FS Almanor family campground and amphitheater, the FS
37 Almanor group campground, and the FS Almanor beach, apply to the
38 Commission to incorporate these additional FS facilities within the project
39 boundary and include these facilities in the O&M program.

- 1 (31) Develop an I&E program (part of the RRMP) for the project after
2 consultation with the FS, Plumas County, and other stakeholders within 2
3 years after license issuance that provides information to enhance recreation
4 experiences and encourage appropriate resource protection, cooperative,
5 and safe behaviors from project visitors. The I&E program would include
6 themes, media, media design, prioritized sites, and prioritized services. As
7 part of the I&E program, prepare a Lake Almanor bathymetric (underwater
8 topographic) map within 1 year of license issuance, which would be
9 available in pamphlet form to area boaters and posted on signs at Lake
10 Almanor public boat ramps.
- 11 (32) Complete a recreation monitoring program (part of the RRMP) after
12 consultation with the FS, Plumas County, and other interested parties,
13 adopting the limits-of-acceptable change (LAC)-based monitoring approach
14 as described in the October 2002 draft of the RRMP. Specifically monitor
15 (at a minimum) the water surface of project reservoirs, and PG&E and FS
16 recreation facilities and shoreline areas within the project boundary.
17 Prepare periodic monitoring reports every 6 years in conjunction with
18 FERC Form 80 recreation facility, and use monitoring requirements and
19 conduct annual recreation planning and coordination meetings with other
20 recreation providers in the project area to discuss recreation resource
21 management decisions for the project area, implementation of project
22 recreation enhancements, recreation monitoring results, potential grant
23 applications, and other pertinent project-related recreation issues that may
24 arise over the term of the new project license. If test river recreation flows
25 are conducted, develop a study plan to monitor recreation use during the
26 test flow period and produce a report on monitoring results after
27 consultation with the FS and other interested parties.
- 28 (33) Provide up to \$50,000 (2004 escalated dollars) to: (1) reimburse CDFG for
29 stocking approximately 5,000 pounds of catchable trout per calendar year
30 in the waters of the NFFR between its confluence with the EBNFFR and
31 the Belden diversion dam; and (2) augment CDFG's existing Lake Almanor
32 fisheries program. Any augmented fisheries program in Lake Almanor
33 may include, but is not limited to, such projects as the expansion of the pen
34 rearing program and the construction of rearing habitat for warmwater fish.
- 35 (34) Provide up to \$25,000 (2004 dollars) to the FS by March 1 of each year of
36 the new project license to assist in funding a river ranger position to
37 provide additional light maintenance, visitor information/assistance, user
38 safety, and law enforcement presence in the project's bypassed river
39 reaches.
- 40 (35) Coordinate with the FS, Plumas County, and CalTrans to develop an MOU
41 to produce a Belden interagency recreation river flow management plan

1 that would address management and integration of recreation opportunities
2 provided by the Belden recreation river flow release with other recreation
3 opportunities in the watershed. The plan would address establishment of
4 visitor capacity thresholds, maintenance of facilities, signage, traffic
5 management, and monitoring. The plan and the MOU would not be
6 financially binding, but would document agency roles, responsibilities, and
7 intentions related to river recreation management.

8 (36) Establish a recreation river flow TRG within 6 months of issuance of a new
9 license for the purpose of consulting with PG&E in the design of recreation
10 and resource river flow management and monitoring plans, reviewing and
11 evaluating recreation and resource data, and in developing possible
12 recreation river flows in the Belden reach. Include representatives of the
13 FS, CDFG, SWRCB, FWS, NPS, Plumas County, and other parties to the
14 SA in the TRG. Maintain, and make public, records of TRG meetings, and
15 forward those records with any recommendations to the FS, SWRCB, and
16 the Commission. Establish communication protocols after consultation
17 with the TRG to facilitate interaction among TRG members, which would
18 allow for open participation, consultation with independent technical
19 experts, and communication among all TRG participants.

20 (37) Implement the RFIP as described in the SA including:

- 21 • Convene the TRG within 6 months after license issuance to evaluate the
22 existing available ecological information regarding recreation river flows to
23 determine whether: (1) sufficient information exists to conclude that
24 recreation river flows would result in unacceptable impacts on sociological
25 or ecological resources; or (2) recreation river test flows as prescribed
26 should be conducted to further evaluate the ecological and social effects of
27 the recreation river flows in the Belden reach. If the TRG determines that
28 recreation test flows should be conducted, it would not recommend any
29 flow schedule that exceeds the frequency, magnitude, or duration of flows
30 prescribed in the SA. Within 6 months of convening the TRG, forward the
31 TRG recommendations regarding recreation test river flows to the FS and
32 SWRCB.
- 33 • If the TRG recommends that recreation test river flows in the Belden reach
34 should be conducted, the FS and SWRCB would consult with appropriate
35 state and federal agencies, PG&E, tribal governments, and other interested
36 parties prior to approving, denying, or modifying the TRG's proposal. If
37 the FS and SWRCB approve a proposed schedule for recreation test river
38 flows that does not exceed the frequency, magnitude, or duration of flows
39 prescribed for any given month in the SA, then PG&E would submit the
40 proposal to the Commission for approval.

- 1 • Conduct the river recreation test flows upon approval from the Commission
2 as prescribed in the SA for a 3-year period.
- 3 • Prepare a Belden reach recreation river test flow evaluation plan and submit
4 it to the FS and SWRCB for their review and approval, concurrent with the
5 TRG recommendation. Upon FS and SWRCB approval, submit the plan to
6 the Commission for its approval. The plan would be designed to evaluate
7 the effects of the recreation test river flow releases on ecological and social
8 resources, and the metrics to be used in this determination. Upon approval
9 of the plan by the Commission, implement the plan during the 3-year
10 recreation test flow period.
- 11 • Convene the TRG after the 3-year recreation test river flow period to
12 evaluate the existing available ecological and social information. The TRG
13 would make a recommendation whether recreation river flows should be
14 continued to meet the river flow management for recreation objectives.
15 The TRG would not recommend any flow schedule that exceeds the
16 frequency, magnitude, or duration of flows prescribed in the SA.
- 17 • Submit any recommendation regarding continued recreation river flows
18 made by the TRG to the FS and SWRCB for review and approval. The FS
19 and SWRCB would consult with FWS, PG&E, tribal governments, and
20 other interested parties prior to approving, denying, or modifying the
21 TRG's proposal. If the FS and SWRCB approve a proposed schedule for
22 continued recreation river flows that does not exceed the frequency,
23 magnitude, or duration of the flows prescribed for any given month in the
24 SA, PG&E would submit the proposal to the Commission for approval.
- 25 (38) Implement the recreation river flow schedule and other provisions as
26 presented in the SA.
- 27 (39) Post, through a third party or other mechanism, an annual recreation flow
28 calendar scheduling the initial recreation flow day per month.
- 29 (40) Conduct an annual planning meeting each year in March to discuss
30 expected WY type, results of monitoring efforts, PG&E maintenance needs
31 that may conflict with recreation flow releases, and other relevant issues.
32 Suggest that the TRG recommend the desired date of the month for any
33 additional recreation river flow release days triggered by the number of
34 boats per day as described below, based on evaluation of social and
35 ecological considerations.
- 36 (41) Postpone any scheduled recreation river flow release in the event of an
37 emergency, providing as much notice as reasonably practicable under the
38 circumstances. If practicable, reschedule postponed recreation river flow
39 releases as recommended by the TRG.

- 1 (42) During scheduled recreation river flows, count observed boater use in
2 number of boats per day to determine whether recreation flow release days
3 should be added or subtracted. All boats would be counted as one boat
4 except for rafts 12 feet or greater in length which would be counted as two
5 boats. All boats observed on the Belden reach for any part of a given day
6 would be counted. If the number of boats per day on the first recreation
7 river flow day for a month exceeds 100 boats per day, one day of recreation
8 river flow would be added to the recreation river flow schedule in that
9 month the next year. If the number of boats per day is less than 100 boats
10 per day for both the recreation river flow releases in one month, one day of
11 recreation river flow would be subtracted from the recreation river flow
12 schedule for the that month in the next year. Recreation river flow releases
13 would not decrease below one day per month and would not exceed the cap
14 defined in the SA. Recreation river flow release days would not be added
15 or subtracted during any period of recreation test river flows.
- 16 (43) Develop and implement a visitor survey for up to 3 years to determine if
17 visitors would choose to return to recreate on the Belden reach based on
18 their experience related to the number of boats encountered on the river.
19 The visitor survey questionnaire and methodology would be statistically
20 valid and approved by the TRG. The TRG would evaluate the survey
21 results and other data to determine if the trigger for adding/deleting days,
22 based on the number of boats per day, should be amended based on this
23 analysis.
- 24 (44) Apply the basic ramping rates when implementing recreation river flows.
- 25 (45) Create a calendar that lists the dates of the March pulse flow in the Seneca
26 reach and any scheduled pulse flow or recreation river flow releases in the
27 Belden reach, and make that calendar available on the Internet through a
28 third party or other mechanism. The calendar would state the timing and
29 magnitude of the scheduled flow release. The March pulse flow release in
30 the Seneca reach would be posted by February 15, and the scheduled
31 summer releases in the Belden reach would be posted by May 15. Post an
32 estimate of the release magnitude and duration of the flow if releasing
33 flows of a similar magnitude and duration as a scheduled pulse flow in the
34 Seneca or Belden reaches.
- 35 (46) Meet annually with a committee appointed by the Plumas County Board of
36 Supervisors between March 15 and May 15 to inform the committee about
37 the water elevation levels of Lake Almanor predicted to occur between May
38 1 and September 30. Schedule an additional meeting with the committee if
39 forecasts show that PG&E's obligation to deliver water to the state of
40 California and the Western Canal Water District pursuant to the January 17,

1 1986, agreement would require it to deviate from the Lake Almanor water
2 elevation levels previously predicted.

- 3 (47) Modify the project boundary to include 34 additional acres of the Plumas
4 National Forest at Caribou and Belden dam for the purposes of penstock
5 maintenance and spoil management.
- 6 (48) Apply to the Commission within 1 year of license issuance to adjust the
7 project boundary to include all recreation improvements covered by the SA
8 at PG&E facilities as well as the following FS facilities located on the
9 Lassen National Forest: Canyon dam boat launch and day-use area, Dyer
10 View day-use area, and Almanor boat launch.
- 11 (49) Apply to the Commission to adjust the project boundary as needed to
12 incorporate the Almanor family campground and amphitheater, the
13 Almanor group campground, and the Almanor beach, 6 months after the FS
14 has completed construction of all of the recreation improvements it has
15 planned for each of these facilities.
- 16 (50) File an FS-approved road traffic survey plan for roads used for project
17 purposes located on NFS lands with the Commission within 1 year of
18 license issuance which includes provisions for monitoring traffic every 6
19 years when monitoring recreation use in accordance with FERC Form 80
20 requirements. At a minimum, the road traffic survey would include the
21 Caribou Road (27N26) and the Caribou-Butt Valley Reservoir roads
22 (27N26 and (27N60) and include the number and types of vehicles per day
23 on these roads and a sampling schedule that includes: the fishing season,
24 including the opening weekend; holiday weekends including Memorial
25 Day, Fourth of July, and Labor Day; non-holiday weekends; the day of and
26 the day after any scheduled Belden reach recreation river flow releases; and
27 weekdays. Every 6 years, the road traffic reports would be reviewed by the
28 FS and then filed with the Commission.
- 29 (51) Implement the following measures within 2 years of license issuance:
- 30 • Paint the metal siding and roof of the hoist house on the Prattville intake
31 structure a dark green color similar to the current color;
 - 32 • Plant sufficient evergreen trees between the existing Prattville
33 maintenance buildings and the shoreline to reduce visual domination of
34 the buildings on the shoreline area. Monitor and oversee the survival of
35 these trees through the first three summers to ensure successful
36 establishment;
 - 37 • Re-grade the Oak Flat road debris spoil piles along Caribou Road to
38 create a more natural rolling topography along the roadside and where
39 possible move spoil materials farther from the road; and

- 1 • Establish native plantings where possible between the road and the Oak
2 Flat spoil piles to help screen the active use areas from passing
3 motorists.
- 4 (52) *Within 2 years of license issuance, prepare a plan, after consultation with*
5 *the FS, to annually apply dust palliatives or other measures, including*
6 *regular grading, to help minimize dust emissions and improve the lower*
7 *coupled segment of the Butt Valley-Caribou Road.*
- 8 (53) Consult with the FS on color selection when maintenance or repair work is
9 scheduled on the Belden powerhouse penstocks, surge chamber, or other
10 powerhouse facilities, to reduce visual contrast as seen from SR 70.
- 11 (54) Maintain the exterior and landscaping of the old clubhouse facility and
12 grounds at Caribou Village to preserve the historic features and character of
13 the facility. Consult with the FS when maintenance or repair activities that
14 affect exterior appearance are to take place to help preserve, as practical,
15 the historic and visual appeal of the village landscaping and structures.
- 16 (55) File FS-approved visual management plans with the Commission within 60
17 days prior to any ground-disturbing activities on NFS lands. These plans
18 will, at a minimum, address clearings, spoil piles, and project facilities such
19 as diversion structures, penstocks, pipes, ditches, powerhouses, other
20 buildings, transmission lines, corridors and access roads; facility
21 configurations, alignments, building materials, colors, landscaping, and
22 screening; a proposed mitigation and implementation schedule necessary to
23 bring project facilities into compliance with the National Forest LRMP
24 direction; locating spoil piles either in approved areas on NFS lands or in a
25 location off of NFS lands; monitoring and eradication of noxious weeds as
26 specified in any noxious weed management plan for the project; removal of
27 all visible non-native materials, including construction debris from the
28 surfaces of piles located on NFS lands; and stabilization and revegetation of
29 all native material that is allowed to be left on NFS lands, including
30 compliance with visual quality objectives.
- 31 (56) Implement the Lake Almanor SMP included in the final license application
32 as amended for the project within 30 days after license issuance. PG&E
33 would meet with the FS and Plumas County, and other interested parties a
34 minimum of every 10 years to discuss the need to update the SMP. The
35 need to update the SMP sooner may also be raised and discussed during the
36 annual land use meetings with the FS, Plumas County, and interested
37 parties.
- 38 (57) Conduct an annual meeting with the FS, CDFG, and Plumas County to
39 coordinate ongoing project related land management activities including
40 recreation management and use, fire suppression and related forest health

1 activities, and the planning for commercial, residential and industrial
2 developments.

3 (58) Finalize and implement the HPMP.

4 In addition to, or in lieu of, PG&E's proposed measures, we recommend
5 additional resource measures. The basis for our recommendations is found in the
6 resources section of this document (chapter 3). Where the recommendations would
7 reduce the net economic benefits or conflict with other resources, we further discuss them
8 later in this section.

- 9 (1) File with the Commission a spoil disposal plan within 6 months of issuance
10 of a new license and at least 60 days prior to any ground-disturbing or soil
11 producing or piling activity.
- 12 (2) Develop a water level and flow gaging plan. The plan would be developed
13 and filed with the Commission within 3 months of license issuance, and
14 implemented immediately upon approval. This plan would specify
15 monitoring locations, instrumentation, monitoring protocols, schedule, and
16 reporting requirements, including who the reports would be routed to.
17 Minimum requirements of the plan would include continued operation of
18 existing gages; monitoring of lower Butt Creek flows at or near station NF9
19 on or about April 1, June 1, August 1, and October 1; reporting of non-
20 compliance conditions; and providing daily midnight Lake Almanor storage
21 and water surface elevations, delayed between approximately 1 and 2 days,
22 on the Internet through a third party or other mechanism.
- 23 (3) As part of the proposed plan to document water quality trends in Lake
24 Almanor under altered project operations for the new license, seasonally
25 monitor *in situ* parameters, general analytes, minerals, metals, nutrients,
26 petroleum products, and Secchi depths in Lake Almanor annually for the
27 first 3 years after license issuance.
- 28 (4) As part of the plan to assess potential bioaccumulation of methylmercury
29 and PCBs in catchable-sized fish, collect and analyze samples in years 5,
30 10, and 15 following license issuance.
- 31 (5) As part of the bacteriological monitoring program, monitor fecal coliform
32 densities, using a sampling regime that will allow determination of
33 compliance with state standards, annually for the first 3 years after license
34 issuance.
- 35 (6) Use existing water temperature models to assess the effects of operating the
36 project to meet flow and lake level requirements of a new license, while
37 being consistent with the Rock Creek-Cresta Project ERC and FS
38 determination for modifying the Prattville intake and implementing other
39 temperature control measures, within 3 months of license issuance. Water

1 temperature modeling would include Lake Almanor, Butt Valley reservoir,
2 and the Seneca and Belden reaches.

- 3 (7) Develop a plan to monitor DO concentrations in Lake Almanor, Butt
4 Valley reservoir, and the NFFR downstream to the Caribou No. 1
5 powerhouse tailrace. This plan would be developed after consultation with
6 SWRCB, the FS, CDFG, and FWS; and filed with the Commission within 3
7 months of issuance of a new license. This plan would describe monitoring
8 methods and locations, QA/QC procedures, the monitoring schedule for at
9 least 5 years following plan approval and reporting requirements. If the
10 Prattville intake is modified, monitoring would extend for a period of at
11 least 5 years following that modification.
- 12 (8) Develop site-specific plans for any recommended new recreational facilities
13 to control erosion and prevent potential adverse effects on water quality.
14 These plans would be included in the recreation facilities development
15 program of the RRMP.
- 16 (9) Develop a notification and minimization of emergency and planned outage
17 spill plan. The plan would be developed after consultation with CDFG,
18 SWRCB, the FS, and FWS. The plan would be filed with the Commission
19 within 1 year of license issuance. A draft plan would be distributed to the
20 consulted agencies, who should be allowed a minimum of 30 days to
21 comment on the plan.
- 22 (10) File the aquatic monitoring plan for the Seneca and Belden reaches with the
23 Commission within 1 year of license issuance. As part of the aquatic
24 monitoring plan, periodically monitor fish populations (in a manner
25 consistent with data presented in pre-filing study reports) and benthic
26 macroinvertebrates in the Seneca and Belden reaches, as proposed in the
27 SA, to determine the effects of measures included in the license, such as
28 minimum flow regimes, pulse flows, and ramping rates. Initiate monitoring
29 during years four and five of the new license to determine the biological
30 response to any measures and to establish a new baseline for detecting
31 biological responses to any modifications of measures. After this 2-year
32 monitoring period, the frequency of surveys could be reduced to every fifth
33 year to evaluate long-term responses to measures implemented in the new
34 license and any subsequent modifications that are made. A draft aquatic
35 monitoring plan would be distributed to the consulted agencies, who would
36 be allowed a minimum of 30 days to comment on the plan. Distribute the
37 results of each monitoring year to CDFG, SWRCB, the FS, FWS, and the
38 Commission.
- 39 (11) Develop a woody debris management plan after consultation with CDFG,
40 SWRCB, the FS, and FWS. The plan would be developed and filed with
41 the Commission within 1 year of license issuance. A draft plan would be

1 distributed to the consulted agencies who would be allowed a minimum of
2 30 days to comment on the plan.

- 3 (12) Develop an adaptive management plan after consultation with CDFG,
4 SWRCB, the FS, and FWS to be filed with the Commission within 1 year
5 of license issuance. The draft plan would be distributed to the consulted
6 agencies who would be allowed at least 30 days to comment on the plan.
7 The plan would be designed to evaluate the effects of environmental
8 measures on all resource areas and to evaluate the need for adjusting or
9 implementing new measures to enhance environmental resources affected
10 by the project.
- 11 (13) Develop a plan, if modifications to the Prattville intake are proposed and
12 approved, after consultation with CDFG, SWRCB, the FS, and FWS, to
13 evaluate salmonid and wakasagi populations in Lake Almanor and Butt
14 Valley reservoir prior to and after any modifications to the Prattville intake.
15 The plan should be developed and filed with the Commission within 180
16 days of the decision to modify the Prattville intake. A draft plan would be
17 distributed to the consulted agencies who would be allowed a minimum of
18 30 days to comment on the plan. Results of each monitoring year would be
19 distributed to CDFG, SWRCB, the FS, FWS, and the Commission.
- 20 (14) Develop within 1 year of license issuance a vegetation and noxious weed
21 management plan for all project lands that provides for the following:
22 protection of special-status plants that includes maintenance of the project
23 GIS data base that would allow mapping and tracking occurrences of
24 special-status plants to assist in evaluating plans for vegetation
25 management, siting for new recreational facilities and considering other
26 activities that would cause ground disturbance or habitat alteration;
27 improvement of wildlife habitat, consulting with the FS to evaluate the
28 consistency with FS standards and guidelines for management of the NFS
29 lands, protection of listed and sensitive species; and control of noxious
30 weeds. Part of this plan would include a plan for the protection and
31 management of VELB habitat, including protection in the area around the
32 known location of the elderberry shrub and pre-activity surveys in areas
33 that would have vegetation clearing or cutting. PG&E would consult with
34 the FS and FWS on protection and management of VELB habitat and
35 ensure that measures identified in the plan (e.g., flagging and protecting
36 elderberry shrubs with stems over 1 inch in diameter) are consistent with
37 the current FWS guidelines (FWS, 1999, or subsequent update).
- 38 (15) Develop a threatened, endangered, proposed for listing, and sensitive
39 species protection plan, within 1 year of license issuance, as part of the
40 biological and adaptive management plans for listed species. Consult with
41 the FS and FWS prior to undertaking any actions that would affect FS

1 sensitive species or their habitat, to determine whether preparation of a
2 biological evaluation is necessary; identify BMPs that are consistent with
3 FS standards and guidelines; and develop any specific protection measures
4 that should be implemented.

5 (16) As part of the amphibian monitoring plan, specify the process by which
6 additional potential CRLF habitat would be determined and potential
7 project-related effects identified. In addition, specify the consultation
8 process that would be implemented with FWS and other appropriate
9 agencies, should the presence of a CRLF be confirmed within project-
10 affected waters during monitoring, or based on credible information from
11 other sources. After year 15, meet with the FS, FWS, SWRCB, and CDFG
12 and determine the need, frequency, and locations of future monitoring
13 efforts.

14 (17) Develop a peregrine falcon monitoring plan within 1 year of license
15 issuance after consultation with the FS, FWS, and CDFG. This plan would
16 include provisions for monitoring of peregrine falcon nest territories in
17 accordance with measures found in FWS' "Monitoring Plan for the
18 American Peregrine Falcon" completed in December 2003. Where
19 possible, this plan may be incorporated into the IBEMP to avoid
20 duplication of effort.

21 (18) Develop an IBEMP within 1 year of license issuance after consultation with
22 the FS, FWS, CDFG, private timber companies (e.g., Collins Pine), and
23 recreational groups (e.g., AW, Chico Paddleheads, and Shasta Paddlers).
24 This plan would include, for all project lands and waters, at a minimum,
25 provisions for: (1) annual monitoring of bald eagle reproductive success,
26 distribution, and abundance; (2) monitoring of human use patterns to
27 determine human/eagle interactions; (3) coordination of any plans for
28 timber harvest, mining, and recreational enhancements on PG&E lands
29 influenced by the UNFFR Project with the FS, FWS, and other consulting
30 agencies; (4) protection and enhancement measures within the management
31 zones; and (5) steps to minimize eagle disturbance resulting from proposed
32 changes in project operations, facilities, and recreational enhancements.
33 Where possible, peregrine falcon nest territory monitoring may be
34 incorporated into the IBEMP. At the discretion of the consulting agencies,
35 PG&E may incorporate portions of this plan with the FS' "Bald Eagle
36 Management Plan, Lake Almanor and the Upper Feather River, Recovery
37 Zone 26, Lake Almanor Basin Area" completed in September 2003.

38 (19) Prior to implementation of the Lake Almanor SMP, revise the draft SMP
39 included in the final license application after consultation with SWRCB,
40 CDFG, the FS, Plumas County, and the Maidu community to determine
41 appropriate actions to take to evaluate the potential adverse effects of the

1 altered lake level conditions on other resources. Revisions to the draft SMP
2 would include: addressing inconsistencies with county land-use
3 designations, as identified by Plumas County; reevaluation of shoreline
4 erosion at a few locations identified by Plumas County as having moderate
5 to severe erosion; and addressing evaluation of potential adverse effects of
6 shoreline erosion resulting from the altered lake level conditions on water
7 quality, aquatic resources, cultural resources, recreation, and aesthetics.
8 PG&E would file the revised SMP along with comments on it with the
9 Commission within 3 months of issuance of a new license.

- 10 (20) Develop a fire prevention and response plan after consultation with the FS,
11 CDF, Plumas County, and local private timber companies within 1 year of
12 issuance of a new license that sets forth in detail the plan for prevention,
13 reporting, control, and extinguishing fires in the vicinity of the UNFFR
14 Project.
- 15 (21) Implement the measures outlined in the PA and final HPMP.
- 16 (22) Consult with the FS and the Maidu community to more fully investigate the
17 possibility of providing seed funds for a curation facility or interpretive
18 center, and provide the results of this consultation in the HPMP.
- 19 (23) Invite both Plumas County and NPS to attend future Cultural Resources
20 Working Group meetings.
- 21 (24) Provide Plumas County with copies of all requested cultural resources
22 reports, including the non-confidential volume of the ethnographic study, if
23 Plumas County agrees not to make the reports available to the public, in
24 compliance with Section 304 of the NHPA.
- 25 (25) Include, as part of the HPMP: the details of PG&E's employee and public
26 education and interpretive program; detailed site-specific treatment
27 measures; site-specific treatment measures for historic archaeological sites
28 and standing structures that FERC, in consultation with the SHPO, has
29 determined are eligible for the National Register, including sites P-32-1638
30 (Canyon Dam), 1639 (Canyon Dam Intake Tower), 1641 (Patrolman's
31 House at Canyon Dam Camp), 1642 (Cottage at Canyon Dam Camp), 1643
32 through 1652 (Camp Caribou), Gate Tender's House at Camp Almanor,
33 and Caribou 1 powerhouse; protocols for PG&E to consult and work with
34 the Greenville Rancheria, Susanville Indian Rancheria, and other interested
35 Maidu groups.

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

1 **5.2.1.1 Water Resource Measures**

2 **Water Quality Monitoring**

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

11 In its filing with the Commission dated December 1, 2003, the FS reports that
12 PG&E's 2002 to 2003 measurements of dissolved cadmium exceeded the respective
13 criteria at the NFFR near Chester (NF1), Lake Almanor near Canyon dam surface (LA1-
14 S), and Butt Valley powerhouse tailrace (BV1); and that measurements of specific
15 conductance exceeded the Basin Plan criterion of 150 mS/cm at several stations in the
16 NFFR.

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

21 Lake Almanor's limnology could be greatly influenced by operational changes
22 incorporated into a new license for the UNFFR Project including the potential
23 modification of the Prattville intake, as agreed to under the Rock Creek-Cresta SA. We
24 conclude that it would be appropriate to monitor water quality conditions in Lake
25 Almanor for the first 3 years of any new license period to assess the effects of changing
26 project operations under any new license for this project. In this manner, the effects of
27 the new operations could be readily evaluated and corrective actions, if necessary, could
28 be made within a few years of implementing the new license terms.

29 In the SA, PG&E proposes developing a water quality study and monitoring plan
30 that would incorporate five plans. These five plans, which we recommend with our
31 specific details, are: (1) a plan to evaluate the adequacy and efficacy of mitigating
32 elevated odor and dissolved metal levels in the Seneca reach through seasonal gate
33 switching at the Canyon dam intake; (2) a plan to identify the cause of high dissolved
34 cadmium and specific conductance levels in waters of the UNFFR that were measured in
35 2002-2003; (3) a water quality monitoring plan to monitor water quality trends in Lake
36 Almanor; (4) a plan to monitor the potential bioaccumulation of total mercury and PCBs
37 in tissue samples collected from resident catchable-sized (minimum total length of 8
38 inches) fish in waters of the project in years 5, 10, and 15 following license issuance; and

1 (5) a bacteriological monitoring plan consistent with the Basin Plan objectives for
2 protection of the water contact recreation beneficial uses.

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

9 **5.2.1.2 Aquatic Resource Measures**

10 **Minimum Flows**

11 The minimum flow regime proposed by PG&E in the SA calls for the release of
12 minimum flows, based on water year type, for the preservation and improvement of
13 aquatic resources in the Seneca and Belden reaches of the NFFR. The proposed flow
14 schedules allow for variable releases that range from 60 to 150 cfs into the Seneca reach
15 from Canyon dam, and variable releases that range from 75 to 235 cfs into the Belden
16 reach from the Belden dam. The releases are dependent on the month and water year
17 type (critically dry, dry, normal, and wet) and are designed to mimic the variability in
18 flow that would occur with a natural hydrograph. The highest flows would typically
19 occur during late winter and early spring, and the lowest flows would occur during late
20 summer and early fall. The minimum flow regime specified in the SA would enhance
21 aquatic habitat for a number of key species and life stages, while retaining the ability of
22 anglers to effectively fish in both project bypassed reaches, as discussed in section 3.3.2.

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

32 In its Section 10(j) recommendation, Interior recommends that PG&E implement a
33 proposed flow schedule that allows for variable releases dependent on the month and
34 water year type. However, Interior recommends variable releases that range from 60 to
35 170 cfs into the Seneca reach from Canyon dam, and variable releases that range from
36 100 to 250 cfs into the Belden reach from the Belden dam. Interior's recommended flow
37 regime, though providing somewhat higher flows during certain seasons for different
38 water year types, does not provide for a substantial increase in habitat suitability for the
39 evaluated species' lifestages over the flow regime recommended in the SA, as discussed

1 in section 3.3.2. We estimate that implementing Interior's flow regime would decrease
2 the net annual benefit of the project by \$469,000 more than our recommended flow
3 regime, with little additional environmental benefit.

4 In the SA, PG&E commits to make a good faith effort to provide the specified
5 minimum streamflows to the bypassed reaches where facility modifications are needed to
6 release flows specified in the SA. No indication is provided as to which facilities may
7 need to be modified to accommodate the SA flows, and thus would be subject to interim
8 good faith flow release provisions. We consider it important to establish whether facility
9 modifications would be needed, and if so, at which dam, the cost of such facilities, and
10 the advantages that the new facilities would provide over using the capabilities of the
11 existing facilities. Additional capital costs may be necessary if PG&E determines that
12 facility modifications are required to release the minimum flows.

13 **Lake Almanor Water Levels**

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

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

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

36 **Butt Valley Reservoir Water Levels**

37 In the SA, PG&E proposes operating Butt Valley reservoir so that the minimum
38 water surface elevation is 4,120 feet from June 1 through September 30, and 4,115 feet

1 from October 1 through May 30 (sic); however, we assume that the reservoir will be
2 operated to maintain a minimum surface elevation of 4,115 feet through May 31.
3 Currently there are no elevation restrictions on the reservoir; however, from January 1975
4 until December 1999 (the period where data were available for all project gages), PG&E
5 operated the reservoir at or above these recommended levels at almost all times, except
6 during the time that it was drawn down to allow seismic remediation of the dam and for a
7 few additional minor periods where elevations fell below the proposed limits. Typically,
8 Butt Valley reservoir fluctuates about 1 foot on a daily basis and between 3 and 5 feet on
9 a weekly basis depending on power system operating needs. The reservoir supports a
10 trophy rainbow and brown trout fishery; however, available habitat for centrarchids in the
11 reservoir is limited, with little or no littoral zone present, as discussed in section 3.3.2.
12 Butt Valley reservoir has a more attractive shoreline than Lake Almanor, when exposed,
13 and visual quality is generally preserved across the range of normal operating levels.
14 Formalizing current Butt Valley reservoir water level management, as we recommend,
15 would not decrease the net annual benefit of the project because it is reflective of existing
16 conditions. Our analysis has not demonstrated any negative effects on resources in the
17 reservoir under the current operating regime, and in fact, Butt Valley reservoir supports a
18 trophy rainbow and brown trout fishery.

19 **5.2.1.3 Recreation Resource Measures**

20 **Recreation Resource Management Plan**

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

1 **Recreation Facility Improvements at Lake Almanor**

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

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

29 Once improvements at these FS facilities are completed, PG&E proposes
30 assuming O&M responsibility for them and the Dyer View day-use area, the Canyon dam
31 day-use area and boat launch, and the Almanor boat launch. PG&E's O&M of these
32 facilities would allow for consistent management of all available facilities on the Lake
33 Almanor shoreline. We estimate that PG&E's assumption of the O&M of these facilities
34 would decrease the net annual benefit of the project by \$77,900, but providing consistent
35 management is worth the increased cost.

36 **Recreation Facility Improvements at Butt Valley Reservoir**

37 In the SA, PG&E proposes improvements at the following facilities along the Butt
38 Valley reservoir: Ponderosa Flat campground, Cool Springs campground, and the Alder
39 Creek boat launch. Proposed improvements at these facilities include modifications and

1 upgrades in accordance with ADA guidelines, improving vehicle access and parking
2 opportunities, and providing showers. In the SA, PG&E also proposes providing angler
3 access trails to two locations near the Butt Valley powerhouse. One of these trails would
4 be accessible in accordance with ADA guidelines. We estimate that completion of these
5 improvements would decrease the net annual benefit of the project by about \$128,100,
6 but would increase visitor satisfaction at the Butt Valley reservoir which is worth the
7 increased cost.

8 **Recreation Facility Improvements at Belden Forebay**

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

14 **Recreation Facility Improvements in the Bypassed Reaches**

15 In the SA, PG&E proposes improving facilities at the Belden rest stop and
16 providing and maintaining 4 trails to the shoreline of the Belden reach. PG&E would
17 increase accessibility in accordance with ADA guidelines and also improve visitor safety
18 at the Belden rest stop. We estimate that providing these improvements would decrease
19 the net annual benefit of the project by \$17,200. Also, if recreation release flows would
20 be provided in the Belden reach, the SA provides for provision of a river access point at
21 the upstream end of the Belden reach by PG&E. This would decrease the net annual
22 benefit of the project by an additional \$4,100. If requested by the FS, PG&E would also
23 provide funding to the FS for construction of non-project river access to the lower Belden
24 reach, which would decrease the net annual benefit of the project by an additional
25 \$18,200, but the benefits, including increased visitor satisfaction and improved
26 environmental conditions, would justify the costs.

27 **Recreation River Flow Management**

28 We agree with PG&E's proposal as described in the SA to implement the RFIP,
29 including test flows and monitoring, in the Belden reach. We estimate that
30 implementation of this plan would decrease the net annual benefit of the project by
31 \$2,500. Implementation of scheduled releases would decrease the annual net benefit of
32 the project by \$15,400. Monitoring boater use if scheduled releases are implemented
33 would decrease the net annual benefit of the project by \$21,300, and environmental
34 monitoring if scheduled releases are implemented would decrease the net annual benefit
35 of the project by \$28,000. Collectively, preparing for and implementing scheduled
36 whitewater releases would decrease the net annual benefit of the project by about
37 \$67,200, but the benefit of enhanced whitewater boating opportunities in the area, would
38 justify the costs.

1 **5.2.2 Conclusion**

2 Based on our independent analysis, continued operation of the UNFFR project
3 with our recommended measures would improve environmental conditions in the project
4 area and ensure an economically beneficial use of project resources. After our review of
5 the information available to us, we conclude that there is no sound basis to retire the
6 UNFFR Project and remove the three project dams.

7 **5.3 CUMULATIVE EFFECTS SUMMARY**

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

12 In section 3.3.1.3, *Cumulative Effects on Water Resources*, we note that project
13 facilities and operations have affected water temperatures throughout much of the NFFR,
14 lower Butt Creek, and project impoundments ever since the construction of the UNFFR
15 Project. Increasing summer flows in the Seneca and Belden reaches would cool water
16 within these reaches, and modifying the Prattville intake to supply cold water from Lake
17 Almanor to downstream reaches, if feasible and implemented, would result in cooler
18 water in the Butt Valley reservoir and in the NFFR between the Caribou development and
19 Lake Oroville. Implementation of other coldwater supply options is also expected to cool
20 water in the NFFR downstream of the Caribou development, but may warm water in the
21 Butt Valley reservoir. Routing a portion of the flow around the Rock Creek, Cresta, and
22 Poe bypassed reaches warms water in these reaches. We conclude that the cumulative
23 effects of the project and nonproject facilities and operations would be cooling of water
24 in the NFFR between the Caribou development and Lake Oroville, deepening of the
25 thermocline in Lake Oroville, and cooling or warming of Butt Valley reservoir,
26 depending on which coldwater supply option(s) are implemented.

27 Several project and non-project actions affect trace metals concentrations within
28 NFFR basin waters. PG&E's cloud seeding program has increased silver concentrations
29 in the atmosphere of the Lake Almanor watershed, and consequently has increased the
30 likelihood of elevated silver concentrations in precipitation and runoff. The accumulation
31 of sediments with naturally high levels of metals in the reservoir combined with anoxic
32 conditions in the reservoir's hypolimnion and at the water/substrate interface, have
33 historically resulted in mineralization of trace metals in the reservoir, elevated trace metal
34 concentrations in Lake Almanor's hypolimnion and the Seneca reach. Additionally, the
35 continuation of non-project related mining, which increases sedimentation and trace
36 metal concentrations, is expected to continue in the Seneca and Belden reaches and other
37 streams within the basin. Modifying the Prattville intake to draft deeper water from Lake
38 Almanor, if implemented, is expected to increase oxygen levels in much of Lake
39 Almanor and consequently reduce mineralization of metals contained in the sediments
40 deposited in the reservoir. PG&E's use of the upper gates instead of the lower gates at

1 the Canyon dam intake tower during periods with elevated hypolimnetic metal
2 concentrations would reduce the conveyance of water with high metal concentrations to
3 the Seneca reach.

4 The expected increase in water-oriented recreation throughout the NFFR basin
5 would increase the potential for fecal coliform bacteria and human pathogens to be
6 introduced to surface waters in the basin. With continued project operation, the Lake
7 Almanor shoreline bank may recede into or near septic leach fields that were constructed
8 prior to raising the normal Lake Almanor water level to 4,494 feet (PG&E datum) in
9 1974 and subsequently result in introduction of fecal coliform bacteria and human
10 pathogens from the leach fields into Lake Almanor waters. The cumulative effects of
11 these actions would be additive and likely result in localized increases in concentrations
12 of fecal coliform bacteria and human pathogens in surface waters of the NFFR basin.

13 In section 3.3.2.3, *Cumulative Effects on Aquatic Resources*, we indicate that
14 construction of the UNFFR Project reservoirs and downstream reservoirs (Rock Creek,
15 Cresta, Poe, and Oroville) has reduced the amount of riverine habitat in the NFFR
16 between West Branch and Hamilton Branch from about 90 miles to about 41 miles,
17 divided among the Seneca, Belden, Rock Creek, Cresta, and Poe bypassed reaches. We
18 recognize that although some of these reservoirs provide suitable rearing habitat for
19 rainbow trout, the fish communities in impounded areas have generally shifted toward
20 warmwater species. Diversion of water for hydroelectric generation has substantially
21 reduced flow volumes and altered temperature regimes in the bypassed reaches, but trout
22 fisheries remain in good condition, especially in the Seneca, Belden, and lower Butt
23 Creek reaches. Our recommendations to: (1) provide pulse flow releases in both
24 bypassed reaches for gravel entrainment and relocation to improve spawning habitat for
25 trout; (2) increase minimum flows in the bypassed reaches, which would increase the
26 amount of available physical habitat and improve summer water temperatures in the
27 Belden bypassed reach; and (3) develop a plan for ramping spill flows to avoid rapid
28 onset and termination of spill flows that may flush aquatic biota downstream, are
29 expected to provide benefits to rainbow trout. The condition of rainbow trout would be
30 expected to improve and could result in anglers catching larger trout from the Seneca and
31 Belden bypassed reaches downstream from the Belden and Rock Creek dams,
32 respectively.

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

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

7 **5.4 FISH AND WILDLIFE AGENCY RECOMMENDATIONS**

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

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

17 Table 5-1 summarizes recommendations from Interior, our conclusions on whether
18 or not the recommendations are appropriate Section 10(j) measures, and whether or not
19 we adopt the recommendations. For their 10(j) recommendations, CDFG submitted a
20 copy of the draft SA. Because CDFG is a party to the SA, their 10(j) recommendations
21 are included in our recommended alternative and are not shown separately in Table 5-1.
22 We consider recommendations that are outside the scope of Section 10(j) under Section
23 10(a) of the FPA and address them in other sections of this EIS.

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

Recommendation	Agency	Within the Scope of 10(j)?	Annualized Cost	Staff Recommending?
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; our recommendation provides similar benefits with respect to the entrainment and relocation of spawning gravels within the Seneca and Belden bypassed reaches.
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	Not adopted
4. Maintain minimum water surface elevations in Lake Almanor (Interior 10(j) recommendation no.4)	Interior	Yes	\$1,527,500	Adopted

Recommendation	Agency	Within the Scope of 10(j)?	Annualized Cost	Staff Recommending?
5. 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 (Interior 10(j) recommendation no. 5)	Interior	Yes	\$0	Not adopted; however, components of this plan are addressed by the FERC-approved water temperature monitoring plan for the Rock Creek-Cresta Project (No. 1962)
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; our recommendation for gravel monitoring is a more appropriate monitoring method.
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 as part of the vegetation management plan recommended also includes development of a noxious weed management plan.
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	Not adopted; however, components of this plan are addressed in our recommendation for gravel monitoring.
9. Within 6 months of license issuance, develop a woody debris management plan in consultation with the FWS, the FS, CDFG, and SWRCB (Interior 10(j) recommendation no. 9)	Interior	Yes	\$8,800	Adopted

Recommendation	Agency	Within the Scope of 10(j)?	Annualized Cost	Staff Recommending?
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	Not adopted; however, components of this plan are addressed in our recommendation for monitoring fish and macroinvertebrates in the Seneca and Belden bypassed reaches.
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	Not adopted; however, components of this plan are addressed in our recommendation for monitoring fish and macroinvertebrates in the Seneca and Belden bypassed reaches.
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.
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

Recommendation	Agency	Within the Scope of 10(j)?	Annualized Cost	Staff Recommending?
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	Adopted – it is the Commission’s practice to include terms and conditions of a BO in licenses to provide incidental take protection.
16. Within 6 months of license issuance, develop an IBEMP 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.
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 10(j) recommendation no. 16)	Adopted, recommended as part of the IBEMP.
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 IBEMP.
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	Not adopted; however, components of this plan are addressed by the recommended spoil disposal plan, recreational resource management plan, and the road maintenance agreement between PG&E and Plumas National Forest.

Recommendation	Agency	Within the Scope of 10(j)?	Annualized Cost	Staff Recommending?
20. Develop a ramping rate plan in consultation with FWS, the FS, CDFG, and SWRCB (Interior 10(j) recommendation no. 20)	Interior	Yes	\$900	Not adopted; our recommendation for ramping rates would minimize impacts on the aquatic resources within the Seneca and Belden bypassed reaches.
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; however, components of this plan are incorporated into other staff-recommended plans.

1

2 We do not adopt Interior's recommended instream flow schedules (Interior 10(j)
3 recommendation no. 1) for the Belden and Seneca bypassed reaches. Interior
4 recommends variable releases that range from 60 to 170 cfs into the Seneca reach from
5 Canyon dam, and variable releases that range from 100 to 250 cfs into the Belden reach
6 from the Belden dam. However, we have recommended the minimum flow regime
7 proposed in the SA and endorsed by CDFG, which calls for variable releases that range
8 from 60 to 150 cfs into the Seneca reach from Canyon dam, and variable releases that
9 range from 75 to 235 cfs into the Belden reach from the Belden dam. Providing the
10 minimum flow regimes in the Seneca and Belden reaches, under the existing Prattville
11 intake configuration, as PG&E proposes in the final SA would: (1) maintain rainbow
12 trout juvenile habitat suitability near or at existing high levels; (2) improve adult and
13 spawning rainbow trout and adult Sacramento sucker habitat suitability; (3) maintain
14 significant macroinvertebrate habitat suitability; (4) maintain suitable water temperatures
15 within both reaches for rainbow trout and Sacramento sucker; and (5) maintain water
16 temperatures in the Belden reach that are within the preferred range of hardhead.
17 Interior's recommended flow regime provides somewhat higher flows during certain
18 seasons for different water year types but does not provide for a substantial increase in
19 habitat suitability for the evaluated species' lifestages over the flow regime recommended
20 in the SA. We consider the environmental benefit not to be worth the associated
21 incremental annualized cost of \$469,000 associated with implementing Interior's measure
22 over our recommended measure. We therefore make a preliminary determination that
23 this measure may be inconsistent with the comprehensive planning standard of Section
24 10(a) of the FPA, including the equal consideration provision of Section 4(e) of the FPA.

25 We do not adopt Interior's recommendation for pulse flow releases below Canyon
26 dam and Belden Forebay dam (Interior 10(j) recommendation no. 2). Interior has

1 recommended one release per month in January, February, and March of 1,500 cfs in wet
2 years, one release per month in January, February, and March of 1,200 cfs in normal
3 years, one release in March of 700 cfs in dry years, only if no other pulse was released in
4 January or February, and no pulse flows in critically dry years. Our review of existing
5 flow information for the 31 water years extending from 1970 through 2001 indicates that,
6 in the Seneca and Belden reaches, peak flows exceeded 1,000 cfs in 9 years and 1 year,
7 respectively. We have recommended the pulse flows proposed in the SA: in wet years,
8 one release per month in January (675 cfs), February (1,200 cfs), and March (1,200 cfs);
9 in normal years, one release per month in January (675 cfs), February (1,000 cfs), and
10 March (1,000 cfs); and no pulse flows in dry or critically dry years. Our analysis of the
11 sediment incipient motion study and geomorphic study concluded that the Interior-
12 recommended pulse flows, though of greater magnitude, would not provide a significant
13 increase in entrainment or relocation of substrates over that which would occur under the
14 pulse flow schedule proposed by PG&E in the final SA. The greater magnitude flows
15 recommended by Interior would have the potential to move gravel out of the reaches at a
16 rate greater than recruitment. Although transport of some gravel up to 15 mm in diameter
17 would be achieved in the Seneca and Belden reaches during dry water years by Interior's
18 pulse flow regime, such a flow release would be ineffective in mobilizing most spawning
19 gravels within the reaches. The annualized cost of implementing Interior's recommended
20 pulse flow releases in the Seneca reach would be \$102,900 more than our recommended
21 measure, and the annualized cost of implementing Interior's recommended pulse flow
22 releases in the Belden reach would be \$36,800 more than our recommended measure.
23 We therefore make a preliminary determination that this measure may be inconsistent
24 with the comprehensive planning standard of Section 10(a) of the FPA, including the
25 equal consideration provision of Section 4(e) of the FPA.

26 We do not adopt Interior's recommendation for a pulse flow plan for lower Butt
27 Creek (Interior 10(j) recommendation no. 3). Existing flows within lower Butt Creek
28 exceed 10 cfs 90 percent of the time for all months. Therefore, current flows are
29 sufficient to flush fines from larger substrates and transport gravels within the creek.
30 Recent fishery, mollusc, habitat mapping, and IFIM studies conducted in lower Butt
31 Creek document high quality coldwater habitat that shows no signs of impairment nor a
32 need for pulse flows. Pulse flow releases, even on a trial basis, have the potential to
33 result in adverse effects, and given the existing high quality habitat for aquatic biota,
34 there is no need to evaluate pulse flow releases in lower Butt Creek. We estimate that
35 implementation of Interior's plan could cost \$2,900 a year. We consider it more
36 appropriate to conduct periodic monitoring of habitat to determine if such flows are
37 needed to maintain or improve the quality of the habitat within the creek. We
38 recommend an aquatic monitoring plan to monitor and assess aquatic habitat quality in
39 lower Butt Creek between Butt Valley dam and its confluence with the NFFR.
40 Monitoring of habitat quality would occur at intervals of 3 to 5 years, depending on water
41 year type and other appropriate factors. If the monitoring results conclude that habitat
42 quality has degraded, PG&E, in consultation with CDFG, SWRCB, the FS, and FWS,

1 would initiate a pulse flow program if it is concluded such a flow would provide a
2 significant benefit. We estimate the cost of implementing our recommended aquatic
3 monitoring plan would be \$7,200. We therefore make a preliminary determination that
4 this measure may be inconsistent with the substantial evidence standard of Section 313(b)
5 and the comprehensive planning standard of Section 10(a) of the FPA, including the
6 equal consideration provision of Section 4(e) of the FPA.

7 We do not adopt Interior's recommendation to develop a water temperature
8 management plan, fund and construct a modified Prattville intake, and fund other
9 structure(s) to satisfy appropriate water temperature criteria beyond that provided by the
10 Coldwater Habitat and Fishery Mitigation and Enhancement Fund under the relicensing
11 SA for the Rock Creek-Cresta Project (Interior 10(j) recommendation no. 5). In addition,
12 Interior specifies that PG&E should develop appropriate additional temperature criteria
13 by season, reach, and outlet location to avoid unintended adverse effects of sublethal
14 temperature stress on aquatic biota as a result of structures or operations that involve
15 planned surface water release discharge. These criteria would be included in the water
16 temperature management plan. PG&E is required under the terms of the Rock Creek-
17 Cresta Project SA to evaluate and potentially modify the Prattville intake and implement
18 other options for using the coldwater supply in Lake Almanor and Butt Valley reservoir
19 to attain cooler temperatures in the NFFR downstream of the Caribou developments.
20 Modification and implementation of the Prattville intake and/or implementation of
21 measures for the Rock Creek-Cresta Project along with altering operations of the UNFFR
22 Project under any new license could substantially alter the thermal regimes of Lake
23 Almanor, Butt Valley reservoir, and the NFFR downstream of the Caribou developments.
24 At this time, however, the ERC has not completed the studies being conducted to
25 determine the feasibility of modifying the Prattville intake to provide cooler water to
26 downstream reaches, and the cost, benefits, and effects (both beneficial and adverse) of
27 modifying the Prattville intake are unknown. By continuing to implement its water
28 temperature monitoring plan for the Rock Creek-Cresta Project, PG&E would
29 continuously monitor summer water temperatures at 25 stations within the UNFFR
30 Project area, and monitor summer vertical profiles in Lake Almanor and Butt Valley
31 reservoir. We conclude that continued implementation of the water temperature
32 monitoring plan would provide a thorough assessment of the thermal conditions in the
33 reservoirs and project-affected reaches. We therefore make a preliminary determination
34 that this measure may be inconsistent with the substantial evidence standard of Section
35 313(b) and the comprehensive planning standard of Section 10(a) of the FPA, including
36 the equal consideration provision of Section 4(e) of the FPA.

37 We do not adopt Interior's recommendations to develop a geomorphological
38 monitoring plan (Interior 10(j) recommendation no. 6) and a coarse sediment
39 management plan (Interior 10(j) recommendation no. 8) for the project's bypassed
40 reaches. Instead we have recommended the gravel monitoring plan proposed by PG&E
41 in the final SA as more appropriate. The approximated minimum discharge needed to

1 mobilize the median bed material from representative sites in both the Seneca and Belden
2 reaches would be 1,600 to 3,600 cfs. Our review of existing flow information for the 31
3 water years extending from 1970 through 2001 indicates that, in the Seneca and Belden
4 reaches, peak flows exceeded 1,000 cfs in 9 years and 1 year, respectively. Based on the
5 presence of established mature vegetation on mid-channel bars at several of the study
6 transects that were able to survive the 1997 floods of 2,160 cfs in the Seneca reach and
7 3,500 cfs in the Belden reach, it is likely that it would take flows of even greater
8 magnitudes to modify mid-channel bars and to alter the mature vegetation present on
9 these mid-channel bars. Given the magnitude of our recommended pulse flows and the
10 particle size they would mobilize, large scale changes in geomorphology of the reaches
11 would likely not occur and therefore Interior's geomorphological monitoring plan would
12 not be warranted. We have recommended that, following implementation of a pulse flow
13 regime, gravel should be monitored to assess whether the redistribution of gravel is
14 resulting in the expected benefits to trout spawning habitat to ensure that the
15 effectiveness of the pulse flows can be assessed. If the amount of gravel transported out
16 of either the Seneca or Belden reaches is greater than the amount of gravel that enters the
17 reaches from the material known to be available for transport adjacent to each reach,
18 pulse releases could result in a decrease in trout spawning habitat. Monitoring of gravel
19 at representative locations in both reaches would provide data to assess whether
20 unintended consequences from pulse flows are occurring and quantify the actual benefits
21 of pulse flow releases, and, enable contingency actions to be developed and implemented,
22 if needed. The gravel monitoring plan would include provisions for adjusting pulse flows
23 to lesser magnitude or less frequent releases if the expected benefits are not being
24 realized, or unexpected adverse effects are documented. We estimate the cost of
25 implementing our recommended gravel monitoring plan would be \$9,500 annually,
26 \$5,200 less than the annual estimated cost of Interior's plans for monitoring
27 geomorphology and coarse sediment. We therefore make a preliminary determination
28 that these measures may be inconsistent with the substantial evidence standard of Section
29 313(b) and the comprehensive planning standard of Section 10(a) of the FPA, including
30 the equal consideration provision of Section 4(e) of the FPA.

31 We do not adopt Interior's recommendations to develop a fish monitoring plan
32 (Interior 10(j) recommendation no. 10) and a macroinvertebrate monitoring plan (Interior
33 10(j) recommendation no. 11) for the project. Although we agree that such monitoring is
34 needed to acquire data to document the response of the aquatic community (fish and
35 macroinvertebrate populations) to a new flow regime specified in a new license, we do
36 not agree with Interior's recommended monitoring schedules. Instead, we have
37 recommended an aquatic monitoring plan. Monitoring activities for both fish and
38 macroinvertebrates would occur during the same years to allow for uniform sampling
39 procedures and data comparison. Adequate baseline data on the fish populations in the
40 Seneca and Belden reaches exists and provides a reference for comparison with future
41 monitoring results. The implementation of new flow regimes in the bypassed reaches
42 would likely cause a state of flux within the aquatic community during the initial 2 to 3

1 years of the new license, as populations would have not yet adapted to the new flow
2 regimes. Consequently, sampling during that time would likely not provide an accurate
3 assessment of the effects of any newly instituted measures. We conclude that initiating
4 monitoring during years 4 and 5 would allow the agencies and us to determine the
5 biological response to any measures and to establish a new baseline for detecting
6 biological responses to any future modifications of measures. After this 2-year
7 monitoring period, the reduction in the frequency of surveys to every fifth year,
8 consistent with Interior's recommendations, would allow the evaluation of the long-term
9 responses to measures implemented in the new license and any subsequent modifications
10 that are made. We therefore make a preliminary determination that these measures may
11 be inconsistent with the substantial evidence standard of Section 313(b) of the FPA.

12 We do not adopt Interior's recommendation to develop an erosion control plan for
13 the project (Interior 10(j) recommendation no. 19), although we recognize the need to
14 address erosion at the UNFFR Project. PG&E's ground-disturbing activities, and its use
15 and management of a roadway system that is necessary to maintain and operate the
16 project, may result in erosion and subsequent degradation of water quality. However, we
17 believe that PG&E is adequately addressing erosion control through other plans already
18 in place, or that are proposed. In 1998, PG&E and the Plumas National Forest entered
19 into a road maintenance agreement that includes provisions for preventing and correcting
20 erosion to the roads and adjacent lands. We have recommended that PG&E continue to
21 implement this road maintenance agreement. We have also recommended the
22 finalization of the RRMP, which includes a recreation facilities program. In the RRMP
23 erosion control will be addressed in site-specific design for any recommended new
24 recreational facilities. We have also recommended the development of a spoil disposal
25 plan which would limit the potential for existing and new spoil piles to erode. We
26 therefore make a preliminary determination that this measure may be inconsistent with
27 the substantial evidence standard of Section 313(b) and the comprehensive planning
28 standard of Section 10(a) of the FPA, including the equal consideration provision of
29 Section 4(e) of the FPA.

30 We do not adopt Interior's recommendation to develop a ramping rate plan for the
31 project (Interior 10(j) recommendation no. 20). We consider gradual ramping (either up
32 or down) of flows to the Seneca and Belden bypassed reaches to be much more
33 preferable than a non-ramping situation because the impacts associated with not ramping
34 on non-mobile and low-mobility organisms (fish larvae, molluscs, macroinvertebrates)
35 would be minimized. Therefore, we have recommended the basic ramping rates
36 proposed in the SA, and endorsed by the CDFG, of 0.5 foot per hour in all months as
37 measured immediately downstream of the dams (gaging stations NF-2 and NF-70,
38 respectively). The recommended ramping rates for releases from Canyon and Belden
39 dams would allow organisms in the Seneca and Belden reaches to more effectively
40 relocate to suitable habitat as flows are adjusted. We have also recommended block
41 loading of the Belden powerhouse, which would assist PG&E with compliance with their

1 required ramping rates at the downstream Rock Creek and Cresta dams that were
2 developed to allow the aquatic organisms in the Rock Creek and Cresta bypassed reaches
3 to experience flow changes that would be similar to those occurring in the unregulated
4 EBNFFR. We therefore make a preliminary determination that this measure may be
5 inconsistent with the substantial evidence standard of Section 313(b) and the
6 comprehensive planning standard of Section 10(a) of the FPA, including the equal
7 consideration provision of Section 4(e) of the FPA.

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

21 **5.5 CONSISTENCY WITH COMPREHENSIVE AND OTHER RESOURCE** 22 **PLANS**

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

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

- 1 5. California Department of Fish and Game. 1996. Steelhead restoration and
2 management plan for California. February. 234 pp.
- 3 6. California–The Resources Agency. 1989. Upper Sacramento River fisheries
4 and riparian habitat management plan. Sacramento, CA. January. 158 pp.
- 5 7. California Department of Parks and Recreation. 1998. Public opinions and
6 attitudes on outdoor recreation in California. Sacramento, CA. March.
- 7 8. California Department of Parks and Recreation. 1994. California outdoor
8 recreation plan–1993. Sacramento, CA. April. 154 pp. and appendices.
- 9 9. California Department of Water Resources. 1983. The California water
10 plan: projected use and available water supplies to 2010. Bulletin 160-83.
11 Sacramento, CA. December. 268 pp. and attachments.
- 12 10. California Department of Water Resources. 1994. California water plan
13 update. Bulletin 160-93. Sacramento, CA. October. Two volumes and
14 executive summary.
- 15 11. State Water Resources Control Board. 1999. Water quality control plans
16 and policies. Adopted as part of the State Comprehensive Plan. Three
17 enclosures.
- 18 12. Forest Service. 1988. Plumas National Forest Land and Resource
19 Management Plan. Department of Agriculture, Quincy, CA. August 26.
20 342 pp. and appendices.
- 21 13. Forest Service. 1992. Lassen National Forest Land and Resource
22 Management Plan, including Record of Decision. Department of
23 Agriculture, Susanville, CA. Appendices and maps.
- 24 14. Fish and Wildlife Service. California Department of Fish and Game.
25 California Waterfowl Association. Ducks Unlimited. 1990. Central Valley
26 habitat joint venture implementation plan: a component of the North
27 American waterfowl management plan. U.S. Department of the Interior,
28 Portland, OR. February. 102 pp.
- 29 15. Fish and Wildlife Service. Canadian Wildlife Service. 1986. North
30 American waterfowl management plan. U.S. Department of the Interior.
31 Environment Canada. May. 19 pp.
- 32 16. Fish and Wildlife Service. Undated. Fisheries U.S.A: the recreational
33 fisheries policy of the U.S. Fish and Wildlife Service. Washington, DC. 11
34 pp.
- 35 17. National Park Service. 1982. The nationwide rivers inventory. U.S.
36 Department of the Interior. Washington, DC. January. 432 pp.
- 37 No conflicts were found with these plans.

1 **5.6 RELATIONSHIP OF LICENSE PROCESS TO LAWS AND POLICIES**

2 **5.6.1 Water Quality Certification**

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

12 **5.6.2 Section 18 of the Federal Power Act - Authority to Require Fishways**

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

22 By letter dated November 26, 2003, NOAA Fisheries provided a fishway
23 prescription, conditioned on the passage of anadromous fishes at one or more unspecified
24 dams below the project area. Additionally, NOAA Fisheries stated that it reserved its
25 authority to prescribe fishways under section 18 of the FPA.

26 **5.6.3 Section 4(e) of the Federal Power Act**

27 Because the project occupies lands of the Lassen and Plumas National Forests, the
28 FS has authority to impose conditions under Section 4(e) of the FPA. The FS provided
29 50 preliminary Section 4(e) conditions, 26 of which are standard license conditions and
30 24 of which are project specific conditions (letter from J. Gipsman, Attorney, U.S.
31 Department of Agriculture, Office of the General Counsel, Pacific Region, San
32 Francisco, CA, to the Secretary of the Commission, dated December 1, 2003). Many of
33 these conditions are identical to the terms that are specified in the SA. The FS intends to
34 provide final Section 4(e) conditions within 60 days of the issuance of this draft EIS, if
35 the FS determines that it provides an adequate record to support its Section 4(e)
36 conditions. If the FS concludes that the record is still incomplete at that time, it will file
37 final 4(e) conditions within 60 days of the publication of the final EIS.

1 **5.6.4 Endangered Species Act**

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

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

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

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

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

37 Given the very low abundance of elderberry shrubs in the project area that are
38 suitable VELB habitat, together with the lack of exit holes in the one known shrub that

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

10 Our recommended amphibian monitoring plan would include surveys designed to
11 detect the presence of CRLF and determine how potential CRLF habitat is affected by
12 any proposed changes in project operations, including changes in the project flow regime.
13 The plan would also provide a basis for determination of if and when further protective
14 actions should be taken, after consultation with FWS and other agencies. We conclude
15 that issuing a new license for this project, with our recommended measures, is not likely
16 to adversely affect the CRLF.

17 Because no populations of or suitable habitat for slender orcutt grass exist within
18 the UNFFR Project area, we conclude that issuing a new license for this project will have
19 no effect on this plant. We will seek concurrence from FWS regarding our conclusion for
20 VELB, CRLF, and slender orcutt grass.

21 **5.6.5 National Historic Preservation Act**

22 Relicensing is considered an undertaking within Section 106 of the NHPA of
23 1966, as amended (P.L.89-665; 16 U.S.C.470). Section 106 requires that every federal
24 agency "take into account" how each of its undertakings could affect historic properties.
25 Historic properties are districts, sites, buildings, structures, traditional cultural properties,
26 and objects significant in American history, architecture, engineering, and culture that are
27 eligible for inclusion in the National Register. As the lead federal agency for issuing a
28 license, the Commission is responsible for ensuring that the licensee will take all
29 necessary steps to "evaluate alternatives or modifications" that "would avoid, minimize,
30 or mitigate any adverse effects on historic properties" for the term of the new license
31 involving the project. The lead agency must also consult with the SHPO(s), as well as
32 with other land management agencies where the undertaking may have an effect, and
33 with Indian tribes who may have cultural affiliations with affected properties involving
34 the undertaking. The overall review process involving Section 106 is administered by the
35 Advisory Council, an independent federal agency.

36 To meet the requirements of Section 106, the Commission will execute a PA for
37 the protection of historic properties from the effects of the continued operation of the
38 UNFFR Project. The terms of the PA would ensure that PG&E would address and treat

1 all historic properties identified within the project area through an HPMP. The HPMP
2 entails ongoing consultation involving historic properties for the license term.

3 **5.6.6 California Environmental Quality Act**

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

15 Under CEQA, an Environmental Impact Report (EIR) is prepared when the public
16 agency finds substantial evidence that the project may have a significant effect on the
17 environment. An EIR is the public document used to analyze the significant
18 environmental effects of a proposed project, to identify alternatives, and to disclose
19 possible ways to reduce or avoid the possible environmental damage. CEQA guidelines
20 state that when federal review of a project is also required, state agencies are encouraged
21 to integrate the two processes to the fullest extent possible, which may include a joint
22 EIR/EIS. While this document is not a joint EIR/EIS, we encourage the SWRCB to use
23 this document, as appropriate, as they move to satisfy their responsibilities under CEQA.

24 The content requirements for an EIR under CEQA are similar to the requirements
25 for an EIS, although an EIR must contain two elements not required by NEPA. The first
26 element needed in an EIR not required by NEPA is a discussion of how the proposed
27 project, if implemented, could induce growth. A project can be considered to have a
28 growth-inducing effect if it directly or indirectly fosters economic or population growth
29 or removes obstacles to population growth, strains existing community service facilities
30 to the extent that the construction of new facilities would be needed, or encourages or
31 facilitates other activities that cause significant environmental impacts. We discuss
32 growth-inducing impacts of the UNFFR Project in section 3.3.8, *Socioeconomic*
33 *Resources*.

34 The second element needed in an EIR, but not required by NEPA, is a discussion
35 of a program for monitoring or reporting on mitigation measures that were adopted or
36 made conditions of project approval. The monitoring or reporting program must ensure
37 compliance with mitigation measures during project implementation. The program may
38 also provide information on the effectiveness of mitigation measures. Although
39 discussion of the mitigation reporting or monitoring program can be deferred until the

1 final EIR or, in some cases, after project approval, it is often included in the draft EIR to
2 obtain public review and comment.

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

15