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November 14, 2003

Via Electronic Filing

Ms. Magalie R. Salas, Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, D. C. 20426

**Subject: FOREST SERVICE FINAL SECTION 4(e) CONDITIONS, SECTION 10(a)  
RECOMMENDATIONS AND COMMENTS  
Pit 3, 4, 5 Hydroelectric Project, FERC. No. 233**

Dear Ms. Salas:

Enclosed for filing are the Forest Service's Final Terms and Conditions for inclusion in a new license for this project, comments, recommendations and rationale pursuant to Sections 4(e) and 10(a) of the Federal Power Act. The Federal Energy Regulatory Commission (FERC) Office of Energy Projects staff issued a Draft Environmental Impact Statement (DEIS) for the Pit 3, 4, 5 Hydroelectric Project, FERC No. 233, in March 2003. Much of the project is located on lands of the Shasta National Forest, administered by the Lassen and Shasta-Trinity National Forests, USDA Forest Service.

This project does not conflict with any project of which we are aware that should be or has been constructed by the United States. It neither interferes with nor is inconsistent with the purposes for which the Shasta National Forest was created or acquired. The Forest Service has no objection to a license being issued, subject to certain conditions necessary for the protection and utilization of National Forest System lands and resources affected by the project.

**Enclosure 1** contains conditions to be included in the license, necessary for the protection and utilization of the affected National Forest System lands. The conditions are based on the Forest Service review of the application, extensive coordination with Federal and State agencies and other members of the public, public comment, and consultation with the Licensee. These conditions are consistent with the goals, objectives, standards, and guidelines of the Lassen and Shasta-Trinity National Forests' Land and Resource Management Plans. Under authority delegated from the Secretary of Agriculture, the Forest Service considers these conditions necessary to avoid or mitigate resource and environmental impacts caused by proposed project operations.

**Enclosure 2** contains final revised Section 10(a) Recommendations. These update the October 9, 2002 preliminary Section 10(a) Recommendations filed by the USDA Forest Service with the FERC. The Section 10(a) Recommendations focus on actions that indirectly affect National Forest System lands and resources.

Together, these Section 4(e) conditions and the Section 10(a) recommendations encompass the suite of Protection, Mitigation, and Enhancement measures developed by the Pit River Collaborative Team (PRCT). The PRCT has met with the Licensee for over the past five years to collaboratively determine study needs, discuss study results, and determine necessary measures that protect and enhance resource and recreational values and allow for the continued operation of the Pit 3, 4, and 5 Project. For example, the flow related license conditions #17 and #18 are resource measures developed by the PRCT and filed by Pacific Gas and Electric Company (PG&E) with the FERC on October 31, 2003. It is anticipated that the other members of the PRCT will provide letters of support to the FERC within the next month from their respective agencies or organizations regarding these Section 4(e) conditions and Section 10(a) recommendations.

Extensive rationale documents that describe the information and process used to develop and support the Section 4(e) conditions have been provided to the FERC and are already a part of the administrative record. Rather than reiterating previously submitted rationale, this submittal contains limited new rationale associated with a few of the 10(a) Recommendations. For reference, previously filed documents providing rationale and support for the Forest Service 4(e) and 10(a) submittals are listed below:

- 1) Forest Service, October 9, 2002, "Pit 3, 4, and 5 Preliminary 4(e) Terms and Conditions, 4(e) Rationale, and 10(a) Recommendations" (FERC accession #20021009-5035 and 5056).
- 2) Forest Service, May 19, 2003, "Forest Service Comments to the FERC DEIS, Forest Service Revised Preliminary 4(e) Conditions PG&E – Pit 3, 4 and 5 Hydroelectric Project No. 233" (FERC accession #20030519-5052).
- 3) Forest Service, September 25, 2003, "Forest Service Response to FERC Clarification Meeting and Comments on Additional PG&E Studies, Pit 3, 4, and 5 Hydroelectric Project No. 233" (FERC accession #20031001-0042).
- 4) PG&E, October 31, 2003, "Collaborative Agreement on Proposed Protection, Mitigation, and Enhancement Measures" (FERC accession #20031103-0035).

The Forest Service has finalized the Biological Evaluations (BE) for Aquatic Vertebrates and Invertebrates, and for Terrestrial Wildlife Species. The Forest Service will file these documents under separate cover with the FERC. Finalization of these two documents did not result in any changes to the species effects determinations. In general, the Terrestrial Wildlife BE updated information about peregrine falcons and specified Limited Operating Periods for peregrines and goshawk nest sites. It also provides guidance to avoid affecting sensitive bats that may be present in the Tunnel adit below the Pit 4 dam. The conclusions and determinations in the Aquatic Vertebrates and Invertebrates BE have been updated to reflect the final Collaborative flow conditions agreement. Additionally, it further clarifies the lack of effects to some aquatic species at higher instream flows, beyond the information provided by the Forest Service at the

August 28, 2003 FERC Clarification Meeting and in the Forest Service follow-up letter of September 25, 2003, as referenced above.

In a review of the Final Application Project Boundary Maps, it appears there may be a need to update and expand the project boundary to ensure that project related facilities are incorporated into the boundary. For example, it appears that several recreation facilities around Lake Britton that are directly Project related are not entirely encompassed within the project boundary. The enclosed license conditions may also result in the addition of new facilities that are not currently within the Project boundary. The Forest Service would like to meet with the Licensee and the FERC to discuss this issue prior to the issuance of the license.

Finally, the FERC requested updated dollar estimates for several elements during the FERC Clarification Meeting. The Forest Service has worked with the Licensee to determine appropriate costs for some of the actions and activities associated with implementing the Section 4(e) conditions and Section 10(a) recommendations. Several conditions such as the gravel augmentation program have dollar limits included as part of the condition. The Forest Service suggests that the FERC could implement ceilings for several of the other broad categories. Since the development and implementation of many of the conditions are contingent upon the collaborative development of plans, these ceilings could be used to guide the plan details. The Forest Service recommends the following ceilings be based on 2003 dollars and be inflated over the life of a 30 year license as necessary using the Consumer Price Index (CPI) as the inflation factor:

Road conditions and recommendations package - \$6 million  
Recreation conditions and recommendations - \$6 million  
Biological monitoring for entire project - \$6 million

The Forest Service appreciates the opportunity to provide this 4(e) package prior to the release of the Final Environmental Impact Statement, so that the FERC can adequately analyze the Forest Service mandatory license conditions as well as the recommendations. Please contact Kathy Turner, Lassen National Forest (530-336-5521), if you have questions.

Sincerely,

/s/

Jack Gipsman  
Deputy Regional Attorney  
Office of General Counsel

Enclosures

cc: FERC service list  
Forest Service mail list

PRCT

John Mudre, FERC

Kathy Turner, HCRD

Kathy Valenzuela, STNF

Julie Tupper, RHAT

## **Certificate of Service**

I hereby certify that I will serve the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Fall River Mills, California, this 14th day of November, 2003.

/S/ \_\_\_\_\_  
Kathy Turner

## Enclosure 1

### Pit 3, 4, and 5 Final 4(e) Terms and Conditions

To clarify modifications between the May 2003 Revised Preliminary 4(e) Conditions, and these Final 4(e) Conditions, we have included the crosswalk table below.

#### Standard Conditions:

5/03 #	2003 Revised Preliminary 4(e) Title	10/03 #	2003 Final 4(e) Title	Remarks
1	Approval of Changes After Initial Construction	1	Approval of Changes After Initial Construction	
2	Annual Consultation on Affected National Forest Resources	2	Annual Consultation on Affected National Forest Resources	Considerable rewording
3	Maintenance of Improvements on or Affecting NFSL	3	Maintenance of Improvements on or Affecting NFSL	Language more abbreviated
4	Existing Claims on NFSL	4	Existing Claims on NFSL	
5	Compliance with Regulations on NFSL	5	Compliance with Regulations on NFSL	
6	Protection of United States Property	6	Protection of United States Property	Reworded
7	Surrender of License or Transfer of Ownership	7	Surrender of License or Transfer of Ownership	Reworded
8	Self Insurance	8	Self Insurance	
9	Damage to lands of United States – High hazard	9	Damage to lands of United States – High hazard	
10	Risks and Hazards on National Forest System Lands (NFSL)	10	Risks and Hazards on National Forest System Lands (NFSL)	
11	Licensee Signs on or affecting NFSL		Incorporated into #20 d	
12	Pesticide-Use Restrictions on NFSL	11	Pesticide-Use Restrictions on NFSL	Minor word change
13	Access by the United States	12	Access by the United States	
14	Modification of Forest Service Conditions for Protection of NF Resources	13	Forest Service Reserves the Right to Revise Section 4(e) Conditions	Modified language more specific than 1 <sup>st</sup> version

**Project Specific Conditions:**

<b>2002 #</b>	<b>2003 Revised Preliminary 4(e) Title</b>	<b>2003 #</b>	<b>2003 Final 4(e) Title</b>	<b>Remarks</b>
		14	Coordination with Projects in the Pit River System	New Condition
		15	Protection of Forest Service Special Status Species	Formerly included as a plan in #20 c
		16	Erosion and sediment control	Formerly included as a plan in #20 a
15	Flow Regime for Affected NFSL	17	Flow Regime for Affected NFSL <ul style="list-style-type: none"> <li>▪ Min Instream Flow</li> <li>▪ Instream Flow Measurement</li> <li>▪ Ramping Rates</li> <li>▪ Freshet Flow Release</li> <li>▪ Reservoir Operations</li> </ul>	As per PRCT consensus
16	Management of Planned Spill Events Affecting NFS Resources	18	Management of Spill Events Affecting NFS Resources	PRCT language
18	Reservoir and Afterbay Dredging Affecting NFSL	19	Reservoir and Afterbay Dredging Affecting NFSL	Reworded
20	Land & Habitat Management Plans (LHMP) for Mitigating Project Affects to NFS Resources	20*	Land Resource Plans for Mitigating Project Effects to NFS Resources <ul style="list-style-type: none"> <li>▪ Tunnel spoil pile mgt plan</li> <li>▪ Fire Mgt and Response Plan</li> <li>▪ Visual Mgt Plan</li> <li>▪ Sign Plan</li> </ul>	Changed to lands based plans only for clarity. See new #23 for habitat plans.
17	Gravel and Woody Debris Programs to Benefit NFS Resources	21	Gravel Management and Woody Debris Plans to Benefit NFS Resources	
19	Water Temperature Monitoring & Maintenance Plan For Affected NFSL	22	Water Quality and Temperature Monitoring Plan for Affected NFSL	

2002 #	2003 Revised Preliminary 4(e) Title	2003 #	2003 Final 4(e) Title	Remarks
		23	Biological Resources Management Plans for Mitigating Project Effects to NFS Resources: <ul style="list-style-type: none"> <li>▪ Technical Review Group</li> <li>▪ Fish Population trend and condition</li> <li>▪ Foothill YLF monitoring</li> <li>▪ Western Pond Turtle monitoring</li> <li>▪ Interagency Bald Eagle Mgt plan</li> <li>▪ Terrestrial Wildlife Mitigation and Monitoring</li> <li>▪ Vegetation and Noxious Weed Mgt Plan</li> </ul>	Previously in #20
		24	Cultural Resources Management Plan	Previously part of #20 f
		25	Project Patrol for Resource Protection of NFS Lands	New Plan as agreed to with Licensee
		26	Recreation Management Plan <ul style="list-style-type: none"> <li>▪ Recreation facilities Maintenance, Improvement and Expansion</li> <li>▪ Water Surface Access and Mgt</li> <li>▪ Information, Education, and Interpretation Plan</li> <li>▪ Streamflow information</li> <li>▪ Recreation Monitoring and Reporting</li> </ul>	Previously part of #20 g
		27	Roads and Facilities Management Plan <ul style="list-style-type: none"> <li>▪ Planning</li> <li>▪ Project Road Rehabilitation</li> <li>▪ Operation &amp; Maintenance</li> </ul> OHV and Vehicle Mgt Plan	Previously part of #20 h

**PACIFIC SOUTHWEST REGION, USDA FOREST SERVICE  
FINAL 4(e) TERMS AND CONDITIONS  
NECESSARY FOR THE PROTECTION AND UTILIZATION OF THE  
LASSEN AND SHASTA-TRINITY NATIONAL FORESTS  
Pit 3, 4, and 5 HYDROELECTRIC PROJECT,  
FERC No. 233**

**General**

The Forest Service (FS) provides the following final 4(e) conditions for the Pit 3, 4, and 5 Hydroelectric Project, FERC No. 233 (Project), in accordance with 19 CFR 4.34(b)(1)(i).

License articles contained in the Federal Energy Regulatory Commission's (Commission) Standard Form L-1 (revised October 31, 1975) issued by Order No. 540, cover those general requirements that the Secretary of Agriculture, acting by and through the Forest Service, considers necessary for adequate protection and utilization of the land and related resources of the Shasta National Forest, as administered by the Lassen and Shasta-Trinity National Forests. Section 4(e) of the Federal Power Act states the Commission may issue a license for a project within a reservation only if it finds that the license will not interfere or be inconsistent with the purpose for which such reservation was created or acquired. This is an independent threshold determination made by FERC, with the purpose of the reservation defined by the authorizing legislation or proclamation (see *Rainson v. FERC*, 106 F.3d 269 (9<sup>th</sup> Cir. 1977)). The FS may rely on broader purposes than those contained in the original authorizing statutes and proclamations in prescribing conditions (see *California Edison v. FERC*, 116F.3d 507 (D.C. Cir. 1997))

Under authority of Section 4(e) of the Federal Power Act (16 U.S.C. 797(e)), the following terms and conditions are deemed necessary for adequate protection and utilization of the Shasta National Forest lands and resources. These terms and conditions are based on those resource and management requirements enumerated in the Organic Administration Act of 1897 (30 Stat. 11), the Multiple-Use Sustained Yield Act of 1960 (74 Stat. 215), the National Forest Management Act of 1976 (90 Stat. 2949), and any other law specifically establishing a unit of the National Forest System or prescribing the management thereof (such as the Wilderness Act or the Wild and Scenic Rivers Act), as such laws may be amended from time to time, and as implemented by regulations and approved Land and Resource Management Plans prepared in accordance with the National Forest Management Act. Specifically, the 4(e) conditions are based on the Land and Resource Management Plans (as amended) for the Lassen and Shasta-Trinity National Forests, as approved by the Regional Forester of the Pacific Southwest Region. Therefore, pursuant to section 4(e) of the Federal Power Act, the following conditions covering specific requirements for protection and utilization of National Forest System lands shall also be included in any license issued.

## **STANDARD CONDITIONS**

### **Condition No. 1 - Approval of Changes After Initial Construction**

Notwithstanding any license authorization to make changes to the project, the Licensee shall obtain written approval from the Forest Service prior to making any changes in any constructed project features or facilities, or in the uses of project lands and waters or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from the Forest Service, and a minimum of 60-days prior to initiating any such changes, the Licensee shall file a report with the Commission describing the changes, the reasons for the changes, and showing the approval of the Forest Service for such changes. The Licensee shall file an exact copy of this report with the Forest Service at the same time it is filed with the Commission. This article does not relieve the Licensee from the requirement for license amendment or other requirements of Article 2 or Article 3 of this license. Any changes to the license made for any reason pursuant to Article 2 or Article 3 shall be made subject to any new terms and conditions the Secretary of Agriculture may make pursuant to section 4(e) of the Federal Power Act.

### **Condition No. 2 - Annual Consultation on Affected National Forest Resources**

The Licensee shall consult with the Forest Service between January 10 and March 15 of each year in regard to measures needed to ensure protection and utilization of the National Forest System land and resources affected by the Project. Representatives from the US Fish and Wildlife Service, California Department of Fish and Game, or other interested agency representatives concerned with operation of the project may request to attend the meeting. Consultation shall include, but not be limited to:

- A status report regarding implementation of license conditions;
- Results of any monitoring studies performed over the previous year in formats agreed to by the Forest Service and the Licensee during development of study plans;
- Review of any non-routine maintenance;
- Discussion of any foreseeable changes to project facilities or features;
- Discussion of any necessary revisions or modifications to plans approved as part of this license;
- Discussion of report/log of Project patrol person and any actions taken or recommended, or coordination needed to correct any identified problems.
- Discussion of needed protection measures for species newly listed as threatened, endangered, or sensitive or, changes to existing management plans that may no longer be warranted due to delisting of species or, to incorporate new knowledge about a species requiring protection; and
- Discussion of elements of current year maintenance plans, e.g. road maintenance.

A record of the meeting shall be kept by the Licensee and shall include any recommendations made by the Forest Service for the protection of National Forest System lands (NFSL) and resources. The Licensee shall file the meeting record with the Commission no later than 60 days following the meeting. A copy of the certified record for the previous water year regarding instream flow and reservoir elevation records, reports of any out-of-season operational spills for that past year, monitoring reports, and other pertinent records shall be provided to the Forest Service at least 10 days prior to the meeting date, unless otherwise agreed.

Copies of other reports related to project safety and non-compliance shall be submitted to the Forest Service concurrently with submittal to the FERC. These include, but are not limited to: any non-compliance report filed by the licensee, geologic or seismic reports, and structural safety reports for facilities located on or affecting NFSL.

The Forest Service reserves the right, after notice and opportunity for comment, to require changes in the project and its operation through revision of the 4(e) conditions to accomplish protection and utilization of National Forest lands and resources.

### **Condition No. 3 - Maintenance of Improvements on or Affecting NFSL**

The Licensee shall maintain all its improvements and premises on National Forest System lands (NFSL) to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the Forest Service. Disposal will be at an approved existing location, except as otherwise agreed by the Forest Service.

### **Condition No. 4 - Existing Claims on NFSL**

The license shall be subject to all valid claims and existing rights.

### **Condition No. 5 - Compliance with Regulations on NFSL**

The Licensee shall comply with the regulations of the Department of Agriculture and all Federal, State, county, and municipal laws, ordinances, or regulations in regard to the area or operations covered by this license, to the extent federal law does not preempt ordinances or regulations.

### **Condition No. 6 - Protection of United States Property**

The Licensee shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with this license, and shall pay the United States for any damage resulting from negligence or from the violation of the terms of this license or of any law or regulation applicable to the National Forests by the Licensee, or by any agents or employees of the Licensee acting within the scope of their agency or employment.

### **Condition No. 7 – Surrender of License or Transfer of Ownership**

As a condition of any transfer of the license or sale of the project, the Licensee shall guarantee or assure, in a manner satisfactory to the Forest Service, that the costs of surrender and restoration will be provided for by the Licensee or transferee. If deemed necessary by the Forest Service to assist it in evaluating the Licensee's proposal, the Licensee shall conduct an analysis, using experts approved by the Forest Service, to estimate the potential costs associated with surrender and restoration of the project area to Forest Service specifications. In addition, the Forest Service may require the Licensee to pay for an independent audit of the transferee to assist the Forest Service in determining whether the transferee has the financial ability to fund the surrender and restoration work specified in the analysis.

### **Condition No. 8 - Self Insurance**

The Licensee shall indemnify, defend, and hold the United States harmless for any costs, damages, claims, liabilities, and judgments arising from past, present, and future acts or omissions of the Licensee in connection with the use and/or occupancy authorized by this license. This indemnification and hold harmless provision applies to any acts and omissions of the Licensee or the Licensee's heirs, assigns, agents, employees, affiliates, subsidiaries, fiduciaries, contractors, or lessees in connection with the use and/or occupancy authorized by this license which result in: (1) violations of any laws and regulations which are now or which may in the future become applicable, and including but not limited to environmental laws such as the Comprehensive Environmental Response Compensation and Liability Act, Resource Conservation and Recover Act, Oil Pollution Act, Clean Water Act, Clean Air Act; (2) judgments, claims, demands, penalties, or fees assessed against the United States; (3) costs, expenses, and damages incurred by the United States; or (4) the release or threatened release of any solid waste, hazardous substances, pollutant, contaminant, or oil in any form in the environment.

### **Condition No. 9 – Damage to Lands of United States - High Hazard**

The Licensee is hereby made liable for all injury, loss, or damage to the United States land and property, including but not limited to fire suppression costs, directly or indirectly resulting from or caused by the Licensee's power lines covered by this license, or any other high risk use and occupancy of the area covered by this license, regardless of whether the Licensee is negligent or otherwise at fault, provided that the maximum liability without fault shall not exceed \$1,000,000 for any one occurrence, and provided further that the Licensee shall not be liable when such injury, loss, or damage results wholly, or in part, from a negligent act of the United States, or from an act of a third party not involving the facilities of Licensee.

Determination of liability for injury, loss, or damage, including fire suppression costs, in excess of the specified maximum, shall be according to the laws governing ordinary negligence.

**Condition No. 10 - Risks and Hazards on National Forest System Lands (NFSL)**

The Licensee is responsible for inspecting its site, right of way and immediate adjoining area for dangerous trees, hanging limbs, and other evidence of hazardous conditions and is responsible for removing such hazards, after securing permission from the Forest Service, except in an emergency where there is an imminent risk of death or injury to the public or damage to facilities in which case the Licensee shall notify the Forest Service of the action as soon as possible.

**Condition No. 11 - Pesticide-Use Restrictions on NFSL**

Pesticides shall not be used to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, undesirable fish, etc., without the prior written approval of the Forest Service. The Licensee shall submit a request for approval of planned uses of pesticides. The request must cover annual planned use and be updated as required by the Forest Service. The Licensee shall provide information essential for review in the form specified by the Forest Service. Exceptions to this schedule may be allowed only when unexpected outbreaks of pests require control measures that were not anticipated at the time the report was submitted. In such an instance, an emergency request and approval may be made.

The Licensee shall use on National Forest System land only those materials registered by the U.S. Environmental Protection Agency for the specific purpose planned. The Licensee shall strictly follow label instructions in the preparation and application of pesticides and disposal of excess materials and containers.

**Condition No. 12 – Access by the United States**

The United States shall have unrestricted use of any road constructed within the project area for all purposes deemed necessary or desirable in connection with the protection, administration, management, and utilization of Federal lands or resources. The United States shall have the right to extend rights and privileges for use of the right-of-way and road thereon to States and local subdivisions thereof, as well as to other users, including members of the public, except contractors, agents and employees of the Licensee. The agency having jurisdiction shall control such use so as not unreasonably to interfere with use of the road by the Licensee.

**Condition No. 13 - Forest Service Reserves the Right to Revise Section 4(e) Conditions**

The Forest Service reserves the right to modify final Section 4(e) conditions submitted to FERC for inclusion in the new license for the Pit 3, 4, & 5 Hydroelectric Project, FERC No.233, to resolve any conflict between: 1) 4(e) conditions and water quality certificate conditions issued by the State of California Department of Water Resources Control Board, or 2) in response to new terms and conditions imposed by the existing or revised U.S. Fish and Wildlife Service Biological Opinion issued for the relicensing of the Project.

### **Condition No. 14 – Coordination With Projects In The Pit River System**

If license measures for the upstream and downstream projects, (McCloud-Pit, Project No. 2106; Hat 1 and 2, Project No. 2661; and Pit 1, Project No. 2687) require changes in operation of the Pit 3, 4, & 5 Hydroelectric Project, FERC No.233, the Forest Service reserves the right, after notice and opportunity for comment, to require changes in the project and its operation through revision of Section 4(e) conditions.

### **PROJECT SPECIFIC CONDITIONS - GENERAL**

#### **Condition No. 15 – Protection of Forest Service Special Status Species**

Before taking actions to construct new project features on NFSL (including, but not limited to, proposed recreation developments) that may affect Forest Service special status species (i.e. Forest Service sensitive, survey and manage, and management indicator species) or their critical habitat, the Licensee shall prepare a biological evaluation evaluating the potential impact of the action on the species or its habitat and submit it to the Forest Service for approval. In coordination with the Commission, the Forest Service may require mitigation measures for the protection of the affected species. Where required, the Licensee shall also provide a report to address impacts to survey and manage and management indicator species.

The biological evaluation shall

- Include procedures to minimize adverse effects to special status species.
- Ensure project-related activities shall meet restrictions included in site management plans for special status species.
- Develop implementation and effectiveness monitoring of measures taken or employed to reduce effects to special status species.

#### **Condition No. 16 - Erosion and sediment control**

The Licensee shall notify the Forest Service within 3 days in the event a project facility requires, or a project-related activity results in the need for emergency site stabilization, erosion protection, or sedimentation management and affects National Forest System land or resources. Any temporary measures necessary to stabilize the condition shall be implemented as soon as practicable and the Forest Service shall be informed of the steps taken. The Licensee shall obtain Forest Service approval prior to implementing any permanent remediation measures.

## **PROJECT SPECIFIC CONDITIONS – WATER RESOURCES**

### **Condition No. 17 - Flow Regime for Affected NFSL**

#### **I. Minimum Instream Flow**

The Licensee shall, beginning as early as reasonably practicable and within 3 months after license issuance, maintain minimum streamflows as specified below for the Pit 3 and Pit 4 bypass reaches. Where facility modification is required to implement the requirements of this measure, the Licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to completion of such required facility modifications, the Licensee shall make a good faith effort to meet the requirements of the measure within the capabilities of the existing facilities.

The requirements of this measure are subject to temporary modification if required by equipment malfunction, emergency conditions or law enforcement activity, or critical electric system emergency beyond the control of the Licensee.

All required minimum streamflows listed below are the average of seven days of the mean daily flow. Individual mean daily flows may be less than the required minimum streamflow. The instantaneous, 15-minute streamflow must be at least 90 percent of the required minimum streamflow.

#### **Pit 3 Reach Required Minimum Streamflow**

For the Pit 3 reach, the spill event that triggers a change in required minimum streamflow is defined as a flow period in the reach that lasts at least three consecutive days and has a 3-day mean of more than 300 cfs (and a volume of at least 1,800 acre feet) above the required minimum streamflow for the Pit 3 reach. Streamflow in the Pit 3 reach shall be measured as the sum of spillway flow calculated from hourly reservoir elevation to account for spill volume and the hourly mean release from a calibrated release valve at the dam or by other means acceptable to the USGS. The Pit 3 dam spill release gates and valves shall be operated as described in the Reservoir Operations section of this Condition.

#### **A. Summer/Fall Required Minimum Streamflow:**

- i. Summer is defined as the period extending from April 21 through August 31.
- ii. Fall is defined as the period extending from September 1 until the first spill, as defined above, after November 1 or until November 30, whichever is earlier.
- iii. If no spill occurs between November 1 and April 20, the required minimum streamflow shall remain at the summer value throughout the winter.
- iv. The required minimum streamflow during summer shall be 300 cfs.
- v. The required minimum streamflow during fall shall be 280 cfs.

- vi. Following any spill, as defined above, between March 16 and June 15 the required minimum streamflow shall follow the flow regimen described in B. iv. below. Spills ending on or after June 16 shall be ramped back to the required summer minimum streamflow following the ramping rate specified in the Ramping Rates section of this Condition.

**B. Winter Required Minimum Streamflow:**

- i. As specified in the Reservoir Operation section of this Condition, the Licensee shall, within 24 hours following the cessation of the first spill event after November 1, but no later than December 1, fully deflate at least one of the Pit 3 Dam spillway bladder gates. At least one bladder gate shall remain deflated until the later of April 20 or until there is no flow passing the Pit 3 Dam in excess of the nominal required minimum streamflow for the Pit 3 reach. During this time period, the reservoir shall be operated so that the elevation of Lake Britton does not drop below 2,731.5 feet (NGVD) (2,751 feet, PG&E datum), as specified in the Reservoir Operations section of this Condition.
- ii. If a spill, as defined above, occurs after November 1 the required minimum streamflow following the cessation of the spill shall be 350 cfs. The required minimum streamflow shall remain at this rate until April 20 unless a spill occurs after March 15.
- iii. If no spill occurs between November 1 and April 20, the required minimum streamflow shall remain at the summer value throughout the winter.
- iv. If a spill, as defined above, occurs between March 16 and June 15, the required minimum streamflow following the cessation of the spill shall be 450 cfs for 14 days. The required minimum streamflow shall then be 400 cfs for the next 10 days and 350 cfs for 10 more days. Thereafter, the required minimum streamflow shall be set to the required summer minimum streamflow.

**Pit 4 Required Minimum Streamflow**

For the Pit 4 reach, the spill event that triggers a change in required minimum streamflow is defined as a streamflow period in the reach that lasts at least three consecutive days and has a 3-day mean of more than 300 cfs (and a volume of at least 1,800 acre feet) above the required minimum streamflow for the Pit 4 reach. Streamflow in the Pit 4 reach shall be measured at USGS gage 11362500 (Licensee gage PH30). The Pit 4 dam gates shall be operated as described in the Reservoir Operations section of this Condition.

**C. Summer/Fall Required Minimum Streamflow:**

- i. Summer is defined as the period extending from June 16 until August 31.
- ii. Fall is defined as the period extending from September 1 until the first spill, as defined above, after November 1 or until November 30, whichever is earlier.
- iii. If no spill occurs between November 1 and June 15, the required minimum streamflow shall remain at the summer value throughout the winter.
- iv. The required minimum streamflow during summer shall be 375 cfs.

- v. The required minimum streamflow during Fall shall be 350 cfs.
- vi. Following any spill, as defined above, between March 16 and June 15 the required minimum streamflow shall follow the flow regimen described in D. iii. Spills ending on or after June 16 shall be ramped back to the required summer minimum streamflow following the ramping rate specified in the Ramping Rates section of this Condition.

**D. Winter Required Minimum Streamflow:**

- i. If a spill, as defined above, occurs after November 1, the required minimum streamflow following the cessation of the spill shall be 450 cfs. The required minimum streamflow shall remain at this value until June 15 unless a spill occurs after March 15.
- ii. If no spill occurs between November 1 and June 15, the required minimum streamflow shall remain at the summer value throughout the winter.
- iii. If a spill, as defined above, occurs after March 15, the required minimum streamflow after cessation of spill shall decline in three steps, as specified below, when mean daily streamflow at USGS gage 11362500 (Licensee gage PH30) reaches approximately 700 cfs. After completion of the specified flow schedule, the required minimum streamflow shall be the summer required minimum streamflow.
  - a) From March 16 through April 30, the required minimum streamflow is 600 cfs;
  - b) From May 1 through May 31, the required minimum streamflow is 550 cfs; and
  - c) From June 1 through June 15, the required minimum streamflow is 500 cfs.
- iv. Spills ending on or after June 16 shall be ramped to the summer required minimum streamflow following the ramping rate specified in the Ramping Rates section of the Condition.

**II. Instream Flow Measurement**

The Licensee shall measure and document all instream flow releases in publicly available and readily accessible formats. For the purposes of measuring and documenting compliance with the required minimum instream flows in the Pit 3 and Pit 4 Project bypass reaches, the Licensee shall prepare and file with the Commission an Instream Flow Measurement Plan (Plan) that is approved by the Forest Service.

The Plan shall include a description of existing or proposed instream flow measurement gages or devices, including flow gages, spillway or reservoir outlet discharge measurement devices, etc., and a detailed proposal for measuring instream flow in each of the Project reaches with existing or proposed devices. The Plan must describe existing or proposed provisions for making mean daily flow data available to the public, and for making hourly and/or 15-minute gage data available to the Forest Service.

The Plan shall include evidence of gage calibration and historical and recent cross-section data, if applicable. The Licensee shall submit the Plan to the Forest Service as soon as practicable and no later than one year after license issuance and shall not begin construction of flow measurement devices or implementation of Plan elements until the Plan has been formally approved in writing from the Forest Service and filed with the Commission.

In the interim, prior to approval and implementation of the Plan, the Licensee shall maintain continual compliance with the Pit 4 minimum instream flow schedule at the existing Pit 4 reach gage (USGS gage 11362500 (PH 30)). There is presently no flow measurement device in the Pit 3 Project reach. Interim to implementation of the above Plan, compliance methodology for the Pit 3 bypass reach will jointly be agreed to by the Licensee and Forest Service based on the best available methods.

### **III. Ramping Rates**

In order to prevent adverse effects due to rates of change in streamflow releases that are inconsistent with natural rates of streamflow variation, the Licensee shall follow the ramping rates specified below when making streamflow releases from Pit 3 and Pit 4 Dams unless a different ramping rate is specified in another measure. These ramping rates shall be implemented as soon as practicable after license issuance dependent upon facility capability.

A ramping rate is the rate of change in stream stage height over a time period, such as 0.5 foot/hour, that shall be followed in each hour, up or down. The allowable change in stage height is applied to the current hour streamflow value to get the next hour allowable streamflow value. The Licensee shall be deemed in compliance with the up and down ramping rate if at least 75 percent of the periodic changes are less than the specified ramping rate, and all of the periodic changes are less than 150 percent of the specified ramping rate.

Where facility modification is required to implement the requirements of this measure, the Licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to completion of such required facility modifications, the Licensee shall make a good faith effort to meet the requirements of the measure within the capabilities of the existing facilities.

The requirements of this measure are subject to temporary modification if required by equipment malfunction, emergency and law enforcement activity, and critical electric system emergencies beyond the control of the Licensee.

- a. Ramping Rate for Freshet Flow Releases: A freshet flow may be released in March of some years, and will consist of a 21-day flow event that is described in detail in the Freshet Flow Release measure. The ramping rate to reach the daily target values for freshet flows shall be 0.5 foot/hour, up and down.
- b. Ramping Rate after Spills Influenced by Powerhouse Outages: As described in the Reservoir Operations section of this Condition, some spills may include, or be composed

entirely of, flow that should be passing through a powerhouse but is released as spill due to a powerhouse outage. The Reservoir Operations measure specifies that when returning the powerhouse to full load, the daily decrease of such spills should not exceed 50 percent of the difference between the flow passing a dam and the required minimum streamflow for the reach. The final step to the required minimum streamflow can occur when the difference between the spill flow and required minimum streamflow is less than 200 cfs. The ramping rate for the downstream reach shall be 0.5 foot/hour or less and there shall be an hour separation between each step until the daily decrease in spill is reached.

- c. Ramping Rate Before and After Out-of-Season Spills: As described in Condition 18, out-of-season spills past the Pit 3 and Pit 4 Dams may occur during summer and fall. In some cases, the Licensee may be able to anticipate that an out-of-season spill is imminent because the storage capacity of the affected reservoir will be exceeded. In this case, the Licensee shall make a good faith effort to initiate streamflow releases that ramp up to the expected spill rate in at least three steps.

The out-of-season spill shall be ramped down at a rate that is dependent on the duration of the spill. If the spill was less than 24 hours in duration, the down ramp shall be at a rate of 0.5 foot/hour. If the spill was longer than 24 hours in duration, the down ramp shall be at a rate of 0.5 foot/hour, but four hours shall separate each adjustment so that the down ramp is more gradual.

- d. Ramping Rate for Recreation Streamflow Releases: The ramping rate up and down for recreation streamflow releases shall be 0.5 foot/hour or less. Both up and down ramping steps shall be implemented every other hour until the specified recreation streamflow release (ramp up) or the required minimum streamflow (ramp down) is reached.
- e. Ramping Rate for Changes in Required Minimum Streamflow: Because the magnitude of changes in required minimum streamflow is less than the change in streamflow associated with a 0.5-foot change in stage height, no ramping is required for these changes in streamflow releases.

#### **IV. Freshet Flow Release**

In order to assure that a flow sufficient to maintain channel conditions and maintain the riparian community will occur at a frequency of at least every second year, the Licensee shall make freshet flow releases into the Pit 3 and Pit 4 reaches as described below. Project reaches shall be considered separately and independently when determining if a freshet flow is required. The Licensee shall not initiate a freshet flow in the Pit 4 reach if mean daily water temperature at USGS gage 11362500 (Licensee gage PH30), exceeds 11° C for two consecutive days in the two-week period prior to the scheduled initiation of the freshet flow. The trigger for not initiating a freshet flow in the Pit 4 reach may be modified with approval of the FS in consultation with CDFG, FWS, and SWRCB, based on ecological results achieved with the above temperature trigger.

The following planning events and action shall be implemented each year:

1. If, as of January 1 of each year, there has been no spill, as defined below, in the previous 15 months into a given Project-affected river reach, the Licensee shall notify the FS and interested parties that there is a potential need for a freshet flow release for that reach during the upcoming March.
2. If no spill has occurred as per item 1, the Licensee shall post, following the provisions in License Condition 26, "Recreation Management Plan" under the "Streamflow Information" section, a notice prior to February 15, of a planned freshet flow for that reach beginning between March 1 and March 7, scheduled so that the peak flow occurs over a weekend to facilitate whitewater boating opportunities. Additionally, the Licensee shall notify the community of Big Bend and the Big Bend Rancheria.
3. A freshet flow shall have the following characteristics: the duration of the event including the flow increase and decrease and the peak must be at least 21 days in length; the instantaneous peak flow magnitude must be at least 1,500 cfs, and there must be a 2-day average flow of at least 1,500 cfs. After the peak, streamflow shall decrease in five approximately equal steps of magnitude and duration over the remaining days of the freshet period, ending at the winter required minimum streamflow for the reach.
4. For the purposes of this measure, spill is defined as streamflow event at a Project dam during the 17 months prior to the March 1 freshet flow implementation date that meets all of the following characteristics: occurs between December 1 and May 31; has a cumulative volume of at least 25,000 ac-ft; has a cumulative duration of at least 21 days; and has at least two average daily flows exceeding 1,500 cfs. Spill may be made up of natural and released flows.

The requirements of this measure are subject to temporary modification if required by equipment malfunction, emergency conditions or law enforcement activity, or critical electric system emergency beyond the control of the Licensee.

Where facility modification is required to implement the requirements of this measure, the Licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to completion of such required facility modifications, the Licensee shall make a good faith effort to meet the requirements of the measure within the capabilities of the existing facilities.

## **V. Reservoir Operations**

In order to allow spills from Project reservoirs to increase and decrease at a rate resembling the natural unimpaired condition, the Licensee shall, beginning as early as reasonably practicable and no later than 6 months after license issuance, operate Project dams, reservoirs, and powerhouses according to the operation protocols specified below.

The requirements of this measure are subject to temporary modification if required by equipment malfunction, emergency conditions or law enforcement activity, or critical electric system emergency beyond the control of the Licensee. The Licensee shall notify the FS, CDFG, and

SWRCB prior to any temporary modification, and shall notify these agencies within 48 hours that any temporary modification has occurred.

Where facility modification is required to implement the requirements of this measure, the Licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to completion of such required facility modifications, the Licensee shall make a good faith effort to meet the requirements of the measure within the capabilities of the existing facilities.

For the purposes of this measure, a spill event is defined as a flow period that lasts at least three consecutive days and has a 3-day mean of more than 300 cfs (and a volume of at least 1,800 acre feet) above the required minimum streamflow.

### **Operation Protocols for Pit 3 Dam, Lake Britton, and Pit 3 Powerhouse**

1. The year-round minimum water surface elevation of Lake Britton shall be 2,731.5 feet (NGVD) (2,751 feet, PG&E datum).
2. Each year, within 24 hours following the cessation of the first spill event after November 1, but no later than December 1, at least one of the Pit 3 Dam spillway bladder gates shall be kept in the fully deflated position.
3. The Licensee shall take reasonable care to prevent a sudden release of flow when deflating the bladder gates if the bladder gates must be deflated as per item 2 above and Lake Britton surface elevation is at 2,732.5 feet (NGVD) (2,752 feet, PG&E datum) or higher with the bladder gates inflated.
4. During the period from December 1 through at least April 20 of each year, Lake Britton elevations shall be maintained between 2,731.5 and 2,733.5 feet (NGVD) (2,751 and 2,753 feet, PG&E datum) to the greatest extent practicable by regulating flow through the Pit 3 Powerhouse.
5. At least one of the Pit 3 Dam spillway bladder gates shall remain deflated until April 20 or until there is no flow passing the Pit 3 Dam in excess of the required minimum streamflow for the Pit 3 reach, whichever is later.
6. The maximum allowable Lake Britton water surface elevation shall be 2,735.5 feet (NGVD) (2,755 feet, PG&E datum) between April 21 and the Saturday preceding Memorial Day weekend.
7. The maximum normal water surface elevation of Lake Britton shall increase to 2,737.5 feet (NGVD) (2,757 feet, PG&E datum) on the Saturday preceding Memorial Day Weekend or until there is no streamflow passing the Pit 3 Dam in excess of the required minimum streamflow for the Pit 3 reach, whichever is later.

8. If after April 20, and after the streamflow in the Pit 3 reach has receded to the minimum required streamflow, the inflow to Lake Britton increases to a magnitude that requires deflation of a bladder gate to keep the elevation of Lake Britton within the levels specified above, the bladder gate shall remain deflated until streamflow in the Pit 3 reach recedes to the required minimum streamflow.
9. If the Pit 3 Powerhouse is operating at less than full load during a spill event, and is able to return to full load, the Licensee shall utilize the following protocol to prevent a rapid cessation of spill when increasing powerhouse load:
  - Powerhouse load shall be increased in steps;
  - Each step shall not exceed 50 percent of the streamflow passing Pit 3 dam in excess of the required minimum streamflow for the Pit 3 reach; and
  - There shall be at least a 24-hour interval between steps.

This protocol applies until the Pit 3 Powerhouse reaches full load or the rate of streamflow passing Pit 3 Dam is less than 200 cfs above the required minimum streamflow for the Pit 3 reach. If the powerhouse is not at full load at this point, the streamflow passing the Pit 3 dam may be reduced to the required minimum streamflow.

#### **Operation Protocols for Pit 4 Dam, Pit 4 Reservoir, and Pit 4 Powerhouse**

The normal operating elevation for Pit 4 Reservoir shall be between 2,415.5 feet and 2,422.5 feet (NGVD) (2,435 feet and 2,442 feet, PG&E datum).

During periods of increasing inflow to Pit 4 Reservoir, the following steps shall be taken, to the extent necessary, and in the sequence indicated, until inflow ceases to increase:

1. As inflow to Pit 4 Reservoir increases, Pit 4 Powerhouse flows shall be ramped up to match inflow, up to full powerhouse load.
2. If inflow to Pit 4 Reservoir continues to increase, and the reservoir water surface elevation reaches 2,424.2 feet (NGVD) (2,443.7 feet, PG&E datum), the #1 low-level outlet gate shall be fully opened. As the #1 low-level outlet gate is opened streamflow shall be transferred smoothly from spill to release. The minimum streamflow release valve shall be closed to prevent plugging with sediment or debris.
3. Step 2 above shall be repeated as required for each of the remaining two low-level outlets gates.
4. If inflow continues to increase, and the reservoir water surface elevation again reaches 2,424.2 feet (NGVD) (2,443.7 feet, PG&E datum), all three low-level outlets shall be closed and the #2 spillway drum gate shall be lowered, smoothly transferring the release from the low-level outlets to the open spillway.

5. If inflow continues to increase, and the reservoir water surface elevation again reaches 2,424.2 feet (NGVD) (2,443.7 feet, PG&E datum), step 2 above shall be repeated until all three low level outlets are opened or inflow ceases to increase.
6. If inflow continues to increase, and the reservoir water surface elevation again reaches 2,424.2 (NGVD) feet (2,443.7 feet, PG&E datum), step number 4 shall be repeated for the #1 spillway drum gate.
7. Further inflow increases shall be allowed to pass through the spillway.

In order to minimize flow pulses during the recession of spill flow and after inflow has reached a peak and inflow to Pit 4 Reservoir is decreasing, the Licensee shall take the following actions in the sequence listed, beginning with the action corresponding to the actual peak inflow:

1. As inflow to the reservoir declines, and the water surface elevation drops to the raised drum gate elevation of 2,423.5 feet (NGVD) (2,443.0 feet, PG&E datum), the # 1 spillway drum gate shall be raised and all three low-level outlets shall be opened, smoothly transferring a portion of the spill flow to release flow.
2. As inflow to the reservoir continues to decline, and the water surface elevation again drops to 2,423.5 feet (NGVD) (2,443.0 feet, PG&E datum), the # 3 low-level outlet shall be closed. This step shall be repeated until all three low-level outlets are closed.
3. As inflow to the reservoir continues to decline, and the water surface elevation drops to 2,415.5 feet (NGVD) (2,435.0 feet, PG&E datum), seven feet below the maximum elevation of the raised drum gate, the # 2 spillway drum gate shall be raised and all low-level outlets shall again be opened, smoothly transferring spill flow to release flow.
4. As inflow to the reservoir continues to decline, and the water surface elevation drops to 2,423.5 feet (NVGD) (2,443.0 feet, PG&E datum), the # 3 low-level outlet shall be closed. This step shall be repeated until all three low-level outlets are closed.
5. As the # 1 low-level outlet is closed, the minimum streamflow release valve shall be opened to the appropriate required minimum streamflow release setting.
6. If the Pit 4 Powerhouse is operating at less than full load during a spill event, and is able to return to full load, the Licensee shall utilize the following protocol to not cause a rapid cessation of spill when increasing powerhouse load by utilizing the following protocol:
  - Powerhouse load shall be increased in steps;
  - Each step shall not exceed 50 percent of the flow passing Pit 4 dam in excess of the required minimum streamflow for the Pit 4 reach; and
  - There shall be at least a 24-hour interval between steps.

This protocol applies until the powerhouse reaches full load or the rate of streamflow passing Pit 4 Dam is less than 200 cfs above the required minimum streamflow for the Pit

4 reach. If the powerhouse is not at full load at this point, the streamflow passing the Pit 4 dam may be reduced to the required minimum streamflow.

### **Condition No. 18 – Management of Spill Events Affecting NFS Resources**

During the license term, the Licensee shall provide written notification to the Forest Service 90 days prior to any planned or scheduled maintenance outages in the Pit 3 and 4 Project bypassed reaches. The notification shall include a description of Project and coordinated measures the Licensee plans to take to minimize the magnitude and duration of resulting spills into the Project reaches, and appropriate selection of the seasonal timing of the planned outage spill to lessen negative ecological effects. The Licensee shall not proceed with the planned maintenance outage without the formal written approval of the Forest Service.

The Licensee shall operate the Project in a manner that does not result in discretionary, out-of-season spill flows in excess of twice the required minimum required streamflow at Pit 3 Dam and Pit 4 Dam. An out-of-season spill is defined as a spill that occurs during the normally non-spill summer and fall period. In order to avoid such spills, the Licensee shall take all reasonable controllable actions, which shall include, as a first priority, utilization of Project storage.

In the event an out-of-season spill occurs, the Licensee shall take reasonable controllable actions to minimize the magnitude, duration, and potential adverse ecological impacts of such spill. Such actions shall include, to the extent practicable, ramping the spill flow up and down as described in the Ramping Rates measure. In the event a discretionary out-of-season spill occurs, the Licensee shall develop, through consultation with FS, CDFG, SWRCB, and FWS, and implement reasonable actions to mitigate for identified adverse ecological impacts of such spill. The Licensee shall not be required by this measure to provide mitigation for impacts reasonably related to recreation streamflow releases. The Licensee shall prepare, maintain, and on an annual basis provide to FERC, FS, CDFG, SWRCB, and FWS a record of any out-of-season spills, identifying the affected reach, hourly discharge, the maximum flow magnitude, dates and duration, and cause of spill.

Where facility modification is required to implement the requirements of this measure, the Licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to completion of such required facility modifications, the Licensee shall make a good faith effort to meet the requirements of the measure within the capabilities of the existing facilities.

The requirements of this measure are subject to temporary modification if required by equipment malfunction that directly results in non-discretionary spills, emergency and law enforcement activity, and critical electric system emergencies beyond the control of the Licensee. Further, this measure does not apply to any required recreation streamflow releases.

### **Condition No. 19 - Reservoir and Afterbay Dredging Affecting NFSL**

In the event it is necessary to dredge any project forebay or reservoir, the Licensee shall hold an initial consultation meeting with the Forest Service at least 90 days prior to any anticipated dredging to determine if there is a potential to impact National Forest System lands or resources. Following consultation with the Forest Service the Licensee shall develop a plan which at a minimum shall include:

- The reason for dredging,
- A description of material to be dredged,
- Approximate quantities of dredged material,
- Selected method of dredging along with alternatives considered,
- Location of any disposal sites considered,
- Mitigation measures and disposal site stabilization plans, and
- Schedule

Forest Service approval will be required before implementation of any dredging that affects NFS lands or resources. Documentation of correspondence with the Forest Service shall also be filed with the Commission prior to implementation of any dredging activity.

In addition the Licensee shall consult with the California Department of Fish and Game, State Water Resources Control Board, Fish and Wildlife Service, and U.S. Army Corps of Engineers and obtain any necessary approvals before proceeding.

### **PROJECT SPECIFIC CONDITIONS –RESOURCE PLANS**

#### **Condition No. 20 – Land Resource Plans for Mitigating Project Effects to NFS Resources**

Within the timeframes described below, and in consultation with applicable Federal and State agencies, the Licensee shall file with the Commission Land Resource Plans that are approved by the Forest Service, as they relate to resource management on the National Forest. The plans shall include:

- a. Tunnel Spoil Pile Management Plan
- b. Fire Management And Response Plan
- c. Visual Management Plan
- d. Sign Plan

#### **a. Tunnel Spoil Pile Management Plan**

The Licensee shall within one year of license issuance prepare a tunnel spoil pile management plan to address existing and future spoil originating from project construction on NFSL. At a minimum the plan shall address the following for piles of native material approved by the Forest Service to be left on NFSL:

##### General:

- Stabilization/erosion control (using only certified weed-free straw),
- Revegetation,

- Noxious weed management,
- Foreign material treatment, including removal of visible non-native materials,
- Monitoring of water quality (as per pre-licensing study protocol) and adherence to BMPs,
- Consideration of visual quality,
- Utilization of material (especially Pit 4 valve house site #4P), and
- Other measures (i.e. recreational overlook improvements at Pit 4 dam site #4D dispersed camping at the Adit Pile #4A, road closure #4D).

Specifically:

- Spoil Pile site #4P (at Pit 4 powerhouse) management : (This is the only site located on NFSL currently considered for disposal of project related native materials including dirt, rocks, and vegetation, but not asphalt or other non-native wastes).
  - a. Develop a stabilization/rehabilitation plan for the site incorporating future placement of road spoils from project roads, site leveling, slope revegetation, and other erosion prevention measures.
  - b. Show the current site (after above work considered) and calculations showing the amount of material the site could hold for future spoils placement.
  - c. Include a final pit plan including reclamation that shall also be submitted to Shasta County for compliance with Surface Mining and Reclamation Act (SMARA) regulations.
  - d. Additional visual mitigations may be necessary if this site is additionally used as a vista point for the public.

The Licensee shall prepare the plan after consultation with the Forest Service, State Water Resources Control Board, California Department of Fish and Game, and Pit River Tribe. Upon Commission approval, the Licensee shall implement the plan.

**b. Fire Management and Response Plan**

Within six months of license issuance the Licensee shall file with the Commission a Fire Management and Response Plan developed in consultation with the Forest Service, California Department of Forestry and Fire Protection, and the Big Bend Volunteer Fire Department. At a minimum the plan shall address the following categories:

- 1) Fuels treatment/Vegetation Management
  - Identification of fire hazard reduction measures to prevent the escape of project-induced fires.
- 2) Public awareness
  - Develop public awareness such as signs and brochures to educate the public about fire danger and safety
- 3) Prevention
  - Availability of fire access roads, community road escape routes, helispots to allow aerial firefighting assistance in the steep canyon, water drafting sites and other fire suppression strategies.
  - Develop fire prevention restrictions based on fire danger that are consistent with adjacent public land ownership for project-induced recreation on Licensee lands.

- Address fire danger and public safety associated with project induced recreation, including fire danger associated with dispersed camping, existing and proposed developed recreation sites, trails, and vehicle access.
- 4) Emergency response preparedness
    - Analyze fire prevention needs including equipment and personnel availability including fire patrols.
  - 5) Reporting
    - Provide the Forest Service a list of the location of available fire prevention equipment and the location and availability of fire prevention personnel.
    - Licensee shall report any project related fires to the Forest Service as soon as practicable.
  - 6) Fire control/extinguishing

Include appropriate measures from the Vegetation Management Plan condition and assure fire prevention measures will meet water quality BMPs. Upon Commission approval, the Licensee shall implement the plan.

### **c. Visual Management Plan**

Within 1 year of license issuance, the Licensee shall file with the Commission a Visual Management Plan that is approved by the Forest Service for any NFS lands that are visually affected by the Project. As a minimum the Plan shall address:

- Clearings, spoil piles, and project facilities, such as diversion structures, penstocks, pipes, ditches, powerhouses, other buildings, transmission lines, corridors, and access roads.
- Facility configurations, alignments, building materials, colors, landscaping, and screening.
- An Implementation schedule to bring the project facilities into compliance with applicable National Forest Land and Resource Management Plan direction.
- Mitigation measures that shall include, but are not limited to:
  - Surface treatments with colors and materials that are in harmony with the surrounding landscape.
  - Use of native plant species to screen facilities from view, where appropriate.
  - Reshaping and revegetating disturbed areas to blend with surrounding scenic characteristics.
  - Development of scenic overlooks along scenic routes.
  - Removal of project induced debris piles which detract from the visual quality.
  - General maintenance and upkeep of facilities.

Upon Commission approval, the Licensee shall implement the plan.

### **d. Sign Plan**

The Licensee shall prepare in consultation with the Forest Service, State Parks, and other interested parties, within one year of license issuance, a Sign Plan that shall conform to the Manual of Uniform Traffic Control Devices, Forest Service sign handbook, and other applicable standards. As a minimum the Plan is to include the location, design, size, color, and message for the following types of signs:

- Information and education signs
- Fire Prevention signs
- Regulatory and warning signs
- Project license signs
- Road signs
- Recreation signs
- Directional signs to assist non-local visitors
- Safety signs
- Sign format/consistency throughout project

The Plan shall also address maintenance standards so that all signs are maintained in a neat and presentable condition. Signs which are to be placed on National Forest System lands shall be approved by the Forest Service. The Licensee shall not be required to consult or obtain the prior approval of the Forest Service for signs on Licensee owned land that are not visible from National Forest System lands.

Upon Commission approval, the Licensee shall implement the plan.

### **Condition No. 21 - Gravel Management and Woody Debris Plans to Benefit NFS Resources**

The Licensee shall develop and file with the Commission within one year of license issuance, a Gravel Management Plan and a woody debris routing procedure that is approved by the Forest Service.

#### **1. Gravel Management Plan:**

Gravel augmentation shall require the addition of a minimum of 624 tons of gravel at a maximum cost of \$15,000 per reach per year for materials and placement (adjusted annually for inflation at the consumer price index (CPI) rate). The gravels to be used are to be clean, rounded and ranging in size from approximately 8-64 mm with a median size of approximately 25-35 mm.

At a minimum, the Gravel Management Plan shall:

- Identify proposed gravel placement locations near the upstream end of the reaches or at other agreed upon locations.
- Identify facilities necessary for the placement of gravel. Cost for these facilities shall be in addition to the materials and placement costs identified above.
- Include an adaptive management component to allow non-delivery of gravels in non-spill years or in years when spill is insufficient to mobilize the gravels from the placement sites.

The plan shall also include a monitoring component that is integrated into the Biological Monitoring Plan in Condition 23 in terms of species surveyed, timelines, and cost. The monitoring component shall include at a minimum: 1) pre-augmentation monitoring the first 4 years (or for a time period consistent with the Biological Monitoring Plan) after license

issuance, 2) post augmentation monitoring the year augmentation occurs, and 3) periodic monitoring every 4 years (or a period consistent with the Biological Monitoring Plan) for the life of the license. Monitoring shall evaluate the physical changes from gravel augmentation and biological population trends of species that are affected by the gravels, specifically trout, hardhead, and macroinvertebrates. The monitoring shall be conducted in agreed upon transects located in all river reaches, but not throughout the entire length of the river reaches.

During the Annual Consultation Meeting required by Condition 2, the Forest Service will review monitoring results and discuss any needed changes to the Gravel Plan.

## **2. Large Woody Debris Management Plan**

Licensee shall develop and implement an operating procedure to facilitate the passage of woody debris over the Pit 3 spillway during spill events. The Licensee shall provide the Forest Service a copy of the documentation for the procedure for approval.

### **Condition No. 22 - Water Quality and Temperature Monitoring Plan for Affected NFSL**

The Licensee shall within one year of license issuance develop a water quality monitoring plan to assess the affects of new instream flows on water quality in project reservoirs and project affected river reaches. The water quality monitoring plan elements shall at a minimum include but not necessarily be limited to:

- Continuous water temperature monitoring,
- Periodic measurements of dissolved oxygen,
- Periodic Lake Britton temperature and dissolved oxygen profiles,
- Documentation of procedures used to meet water-related Best Management Practices (BMPs).

The Licensee shall prepare the plan after consultation with the Forest Service, State Water Resources Control Board, California Department of Fish and Game, and U.S. Fish and Wildlife Service.

The Licensee shall include with the plan documentation of agency consultation, copies of comments and recommendations of the completed plan after it has been prepared and provided to agencies, and specific description of how agencies' comments are accommodated by the plan. Upon Commission approval, the Licensee shall implement the plan.

### **Condition No. 23 –Biological Resources Management Plans for Mitigating Project Effects to NFS Resources**

The plan components discussed below should be combined, as appropriate, to facilitate monitoring efficiency and cost effectiveness. The plans should incorporate monitoring elements from other Resource Conditions including Condition 21 (Gravel augmentation), Condition 22 (Water quality monitoring), and Condition 26 (Recreation) and include Forest Service approval

for affected NFS resources. The implementation schedules shall also be coordinated so that the various components of biological resource monitoring are coordinated in time and location.

**a. Biological Resources Program Technical Review Group**

Licensee shall, within 3 months of issuance of a new project license, establish a Biological Resources Program Technical Review Group (TRG) for the purpose of: a) consulting with the Licensee in the design of management and monitoring plans, b) review and evaluation of data, and c) developing adaptive management or other recommendations, as required by Conditions No. 17, 21, 22, 23, and 26. The TRG will be composed at a minimum, of specialists from the Forest Service, California Department of Fish and Game, California State Water Resources Control Board, Fish and Wildlife Service (FWS), National Park Service (NPS), the Pit 3, 4, & 5 Project Licensee, Tribal Governments, and NGO's whom have expressed an interest in participating. The group's meetings will be open to the public. The Licensee shall maintain and make public, records of consultation, and shall forward those records with any recommendations to the appropriate agencies and the Commission. The group shall establish communication protocols to facilitate interaction between group members, which allow for open participation, peer review, and communication between all parties.

**b. Fish population trend and condition monitoring in project reservoirs and river reaches**

Within six months of license issuance the Licensee shall in consultation with the TRG prepare a plan for monitoring fish population trends and fish condition factors in the Pit 3 and 4 Project bypassed reaches and reservoirs. At a minimum the monitoring plan shall identify which species are to be monitored, sampling and data analysis protocols, and reporting schedules. The monitoring shall be consistent with pre-licensing studies for comparative purposes and shall attempt to standardize sampling protocol to ensure comparability of results. Sampling shall occur at least once every three years (or for a period determined by the TRG to be sufficient that is consistent with other monitoring requirements) during the first decade after license issuance and then at least once every four years thereafter. Additionally, the Licensee shall conduct benthic macroinvertebrate population robustness, feeding group and tolerance/intolerance trend monitoring in the Pit 3 and 4 bypassed reaches on a schedule recommended by the TRG.

An element of the plan shall include an adaptive management strategy to incorporate an entrainment study if needed. Prior to initiation of an entrainment study, the results of fish population trend monitoring results would need to indicate, either directly or indirectly, that ongoing entrainment may be a significant contributing factor toward a substantive downward trend in the affected species' populations. If a trend towards listing is indicated for FS special status species, the Licensee shall discuss with the TRG the possible initiation of statistically meaningful entrainment studies. The studies would follow procedures developed by the Licensee and agreed to by the Forest Service and other consulting agencies and will occur at the Pit 3 and Pit 4 tailraces.

A draft technical report shall be prepared following completion of each sampling effort. In addition to describing the results, the report is to compare results with those of previous

surveys. The fish-based sampling shall discuss implications regarding trends in fish abundances, trends for entrained FS special status fish species, changes to bald eagle prey species, and any indication that bass are moving into project reaches. The benthic macroinvertebrate sampling report shall discuss any changes over time regarding the composition of functional feeding groups, overall population heterogeneity and robustness, and pollution tolerance/intolerance trends.

Upon Commission approval, the Licensee shall implement the plan.

**c. Foothill Yellow-Legged Frog (FYLF) Monitoring Plan:**

Within one year of license issuance the Licensee shall in consultation with the TRG prepare a foothill yellow-legged frog (*Rana boylei*) monitoring plan. The Plan and schedule shall include the following two phases: 1) An initial annual study period (length to be determined by the TRG during review of information at annual consultation meetings, but for at least four years), following initiation of the new flow regime required by this license. 2) Incremental monitoring of FYLF every 4 years (unless revision is recommended by the TRG) after the completion of the initial study period. Do not use previously identified potential breeding sites in this monitoring, unless actual breeding activity has occurred at that site.

At a minimum the two phases of the study should include and/or address, but not be limited to, the following:

- Surveys for Foothill yellow-legged frog distribution in the Pit 4 Reach throughout the spring and summer to determine presence and life stage development as well as distribution or presence of Cascades Frogs and/or FYLFs in the Pit 3 reach.
- A more thorough search during the spring breeding season to identify population centers / breeding sites (other than Deep Creek) and count numbers of clutches found.
- Descriptions of the physical features of all identified frog breeding sites including substrate, water temperatures at the onset of egg deposition, vegetative cover, water velocities at egg deposition sites, canopy categories, patch size, channel habitat type, evidence of predation, etc.
- Determination of whether changes in instream flows result in breeding in newly inundated margins, or utilization of old sites that are now deeper.
- Assessments of whether the new breeding sites: 1) connect with the summer lower flow channel; 2) remain as disconnected off channel water bodies; or 3) dry up entirely.
- Return visits to breeding sites and adjacent low flow areas that may be tadpole-rearing habitat to assess survival of tadpoles to metamorphosis. Beginning after hatching of larvae, revisit a subset of breeding sites every 3 weeks to determine survival and time of metamorphosis. To ensure comparability of density estimates, time and area constrained searches shall be used. This monitoring data will also be relevant to determining timing of young of the year population metamorphosis (full tail reabsorption).
- Estimates of the number of adults at the onset of breeding at each breeding site.
- Monitoring of the time from egg deposition to hatching.
- Monitoring of tadpole numbers and life stage development using K. L. Gossner (1960) life stage categories.

- Monitoring of water temperatures annually in March through May to determine at what temperature breeding initiates and terminates. This information shall be developed into a predictive tool in future years to avoid untimely spills or flow fluctuations that could detrimentally affect FYLF recruitment.
- Determination of whether the high tadpole mortality observed in 2002 was due to a water quality factor or predation. Predator-free tadpole enclosures shall be established at relatively remote sites (unlikely to be found by anglers) to monitor survival.
- Include the component under “Vegetation Management Plan” for removal of overhead canopy.
- Take advantage of non-planned spring/summer high flow events to determine any correlation between these spill events and changes in tadpole or metamorph numbers from years when these events did not occur.
- Take advantage of the naturally (or project induced) receding spring hydrograph to determine flow vectors at known breeding sites and their changes with flows.
- Observations where no activity has occurred (i.e. “zero data”).
- Reporting of survey & monitoring results.

Upon Commission approval, the Licensee shall implement the plan.

**d. Western Pond Turtle (WPT) Monitoring Plan**

Within one year of license issuance the Licensee shall prepare a Western Pond Turtle (*Clemys marmorata*) monitoring plan in consultation with the TRG. At a minimum the study should address:

- Establishment of a study schedule including an initial study phase for a defined period of time and follow-up monitoring on a defined schedule, as for FYLF above.
- WPT distribution within the project.
- Estimate of age distribution of the turtle population.
- Reporting of results to resource agencies.

Upon Commission approval, the Licensee shall implement the plan.

**e. Interagency Bald Eagle Management Plan**

Within six months of license issuance, the Licensee shall convene a collaborative team composed of the Fish and Wildlife Service, FS, California Department of Fish and Game, the California Water Quality Control Board, and Pit River Tribe to revise and update the Interagency Bald Eagle Management Plan as needed. The plan shall at a minimum consider and address the following elements:

- 1) Annual monitoring of nest productivity
- 2) Identification of disturbance factors and appropriate actions needed to minimize disturbances including recreational use, project operations, timber harvest, road maintenance, etc. Consider actions such as:
  - Buffer zones around each known nest territory.
  - Potential water surface zoning of project reservoirs with respect to watercraft use.

- Limited operating periods for industrial operations, recreational activities, or other disturbances identified.
- 3) Coordination of Licensee and Forest Service land management activities within bald eagle nest territories in the Project area, such as timber harvest, mining, woodcutting, etc.
  - 4) Periodic monitoring, in conjunction with recreation monitoring, of human use patterns to discern human/bald eagle interaction conflicts, including monitoring of watercraft use on areas of Lake Britton near nests.

The plan shall be submitted to the Commission within two years of license issuance. Upon Commission approval, the Licensee shall implement the plan.

**f. Terrestrial Wildlife Mitigation & Monitoring plan:**

Within one year of license issuance the Licensee shall prepare in consultation with the TRG a wildlife mitigation and monitoring plan to monitor project affected terrestrial Forest Service special status species (i.e. Forest Service sensitive, survey and manage, and management indicator species). At a minimum, the plan shall include and address the following monitoring elements:

- Occupation and population trends at five-year intervals (or an interval recommended by the TRG) of the Lake Britton bank swallow colonies.
- Annual monitoring of known peregrine falcon nest territories, surveys of potential peregrine falcon nesting habitats within or adjacent to the project area for new nesting territories until it is determined in consultation with the TRG that monitoring is no longer necessary. Unless modified during the development of this plan, a Limited Operating Period (LOP) shall be in effect from February 1 to August 15 from the nest site to a distance of ½ to ¾ mile out from the nest (dependant upon Forest Service biological evaluation of the site). The LOP would apply to those activities that could be scheduled including regular maintenance actions and irregular activities, such as the testing of sirens or cutting of hazard trees along roads and powerlines. The LOP does not apply to emergency actions.
- Periodic monitoring as determined by the TRG throughout the period of the license to determine if Townsend’s big-eared bats or other special status bats utilize Project facilities.
- Reporting of survey & monitoring results.

Mitigation measures to be implemented by the Licensee include:

- Continuation of the speed restriction zone at Upper Lake Britton, west of the gasline crossing where it currently exists.
- If goshawks are found during pre-disturbance surveys, limit operating periods around the active nest site (200 acres) from February 1 through August 15 or until the young have fledged.
- Protection of known sites of survey and manage molluscs (categories A, D, and E).
- Within one year of license issuance the Licensee shall design and install a gate on the Pit 4 Tunnel Adit that will allow bat passage and prevent public access to the tunnel.

The Licensee shall obtain Forest Service approval concerning the design and timing of the installation.

- The Licensee shall conduct pre-construction surveys for Forest Service special status species. The surveys shall follow standard approved protocols or protocols approved by the Forest Service if no standard protocol exist at the time. The results of the surveys shall be utilized to determine mitigation measures necessary to protect Forest Service sensitive species.

Upon Commission approval, the Licensee shall implement the Plan.

#### **g. Vegetation & Noxious Weed Management Plan**

Within two years of license issuance, the Licensee shall file with the Commission a vegetation and noxious weed management plan developed in consultation with the TRG, Shasta County Agricultural Commissioner and California Department of Food and Agriculture. At a minimum, the plan should include two components: a Noxious Weed Plan and a Vegetation Management Plan. Noxious weeds will be those weeds defined in the California Food and Agriculture code, and other species identified by the Forest Service.

1) The Noxious Weed Plan will include and address the following elements:

- Noxious weed treatment (aquatic and terrestrial) within the project boundary and adjacent to project features including recreation facilities, roads, and distribution and transmission lines.
- Inventory and mapping of new populations of noxious weeds using a Forest Service compatible database and GIS software. The Noxious weed GIS data layer will be updated periodically and shared with resource agencies.
- Action and/or strategies to prevent and control spread of known populations or introductions of new populations, such as vehicle/equipment wash stations.
- Develop a schedule for eradication of all A, B, Q and selected other rated invasive weed species, designated by resource agencies.
- New infestations of A& B rated weeds shall be eradicated within 12 months of detection. (A, B, C, & Q ratings refer to the California Department of Food & Agriculture Action Oriented Pest Rating System).
- At specific sites where other objectives need to be met (e.g. recreational use) all classes of noxious weeds may be required to be treated.
- On-going annual monitoring of known populations of noxious weeds for the life of the license in locations tied to Project actions or effects, such as road maintenance, at project facilities, O&M activities, recreational areas, new construction sites, etc. to evaluate the effectiveness of re-vegetation and noxious weed control measures.
- Monitoring will be done in conjunction with other project maintenance and resource surveys, so as not to require separate travel and personnel. Monitoring information, in database and GIS formats, will be provided to the Forest Service as part of the annual consultation on affected National Forest resources (Condition No. 2). To assist with this monitoring requirement, training in invasive plant identification will be provided to Project employees and contractors by the Forest Service.

- Licensee shall restore/revegetate areas where treatment has eliminated noxious weeds in an effort to eliminate the reintroduction of noxious weed species.
- Project-induced ground disturbing activities shall be monitored annually for the first 3 years after disturbance to detect and map new populations of noxious weeds.
- The plan will include an adaptive management element to implement methods for prevention of aquatic noxious weeds, as necessary. These actions may include, but may not be limited to: 1) public education and signing of public boat access, 2) preparation of an Aquatic Plant Management Plan approved by the Forest Service, and in consultation with other agencies, and 3) boat cleaning stations at boat ramps for the removal of aquatic noxious weeds.

2) The Vegetation Management plan shall include and/or address the following elements:

- Hazard tree removal and trimming;
- Powerline/transmission line clearing;
- Vegetation management for habitat improvement (e.g. provision of FYLF breeding habitat);
- Revegetation of disturbed sites;
- Soil protection and erosion control, including use of certified weed free straw; and
- Establishment of and/or revegetation with culturally important plant populations.
- Use clean, weed free seed with a preference for locally collected seed.
- Timing of activities shall account for limited operating periods for peregrine falcons, bald eagles, and northern goshawks (refer to Conditions 23 (e) and 23 (f)).

Upon Commission approval, the Licensee shall implement the plan.

### **Condition No. 24 – Cultural Resources Management Plan**

The Licensee shall file with the Commission, within one year following license issuance, a Cultural Resources Management Plan (CRMP), approved by the Forest Service, for the purpose of protecting and interpreting heritage resources. The CRMP is tiered to a Programmatic Agreement, to which the Forest Service will be a signatory, as defined by 36 CFR 800, and implements regulations of the National Historic Preservation Act. The Licensee shall consult with the State Historic Preservation Officer, Native American Tribes, Forest Service, and other applicable agencies and communities during the preparation of the Plan. The CRMP shall accurately define the area of potential effects, including effects of implementing Section 4(e) conditions, and shall take into account Project effects on the National Register Lake Britton Archaeological District, National Register properties, Native American traditional cultural values, and Project-induced recreational impacts to archaeological properties on or affecting National Forest System lands. The CRMP shall also provide measures to mitigate the identified impacts, including a monitoring program, a patrolling program, and management protocols for the ongoing protection of archaeological properties.

The new National Register Nomination for the Lake Britton Archaeological District shall be filed within one year of license issuance. If, prior to or during ground-disturbing activities or as a result of project operations, items of potential cultural, historical, archaeological, or

paleontological value are reported or discovered, or a known deposit of such items is disturbed on National Forest System lands, the Licensee shall immediately cease work in the area affected. The Licensee shall then: (1) consult with the California State Historic Preservation Officer (SHPO) and the Forest Service about the discovery; (2) prepare a site-specific plan, including a schedule, to evaluate the significance of the find and to avoid or mitigate any impacts to sites found eligible for inclusion in the National Register of Historic Places; (3) base the site-specific plan on recommendations of the SHPO, the Forest Service, and Secretary of the Interior's Standards and guidelines for Archaeology and Historic Preservation; (4) file the site specific plan for Commission approval, together with the written comments of the SHPO and the Forest Service; and (5) take the necessary steps to protect the sites from further impact until informed by the Commission that the requirements have been fulfilled.

Upon Commission approval, the Licensee shall implement the plan.

#### **Condition No. 25 - Project Patrol for Resource Protection of NFS Lands**

Within one year of license issuance the Licensee shall, after review by the Forest Service, file with the Commission a plan for providing a full time patrol of the Project, including National Forest System lands within the project area or affected by project facilities, for purposes of resource protection. At a minimum the plan shall provide for routine and regular physical inspections of affected lands, project facilities, and structures including implemented protection, mitigation and enhancement measures and the provisions of the Cultural Resources Management Plan required by the Project license. The plan shall also include a description of reporting responsibilities including observed violations of laws and communications with law enforcement agencies as well as required documentation of inspections.

#### **Condition No. 26 - Recreation Management Plan**

Within one year of license issuance the Licensee shall file with the Commission a Recreation Management Plan (RMP) developed in consultation with the Forest Service, National Park Service, California Department of Parks and Recreation, the US Fish and Wildlife Service, California Department of Fish and Game, State Water Resources Control Board, the Pit River Tribe, and other interested parties. The purpose of this plan is to mitigate for, and manage impacts to NFS lands in and near the project, to assist users of all abilities in accessing opportunities in the project area and associated facilities, to manage potential impacts to NFS lands due to overcrowding and displacement of visitors to areas with sensitive resources. The Licensee shall obtain Forest Service approval on the components of the Plan which affect NFS lands and final designs for any facilities on National Forest System lands prior to submitting to the Commission for approval. After Commission approval, the Licensee shall implement the Plan. At a minimum, the RMP shall address the following specifying location, design, structure, and schedules for completion:

## Recreation Facilities Maintenance, Improvement, and Expansion

### General

Licensee will consider sensitive resources in consideration of location, design, and construction timing for all actions below. This includes, but is not limited to, limited operating periods for peregrine falcons, bald eagles, and goshawks, noxious weed precautions, location of cultural resources, and visual quality impacts.

### Lake Britton Developed sites:

- 1) **Dusty Campground** - On a schedule approved by the Forest Service, Licensee shall improve the existing facility as follows:
  - a. Add picnic tables to all campsites; ADA campsite should have an appropriate style picnic table to accommodate wheelchairs.
  - b. Modify one campsite and adjacent restroom for accessibility, install ADA signage, and construct an accessible path for lake access consistent with federal ADA standards.
  - c. Addition of up to 4 more overnight sites.
  - d. Maintenance and expansion of beach areas.
  - e. Designation of a swim area.
  - f. Provide potable water.
  - g. Better define the parking areas for day use to help with overcrowding issues and parking competition with overnight users; Licensee to monitor the day-use parking and encourage compliance with any limitations; in consultation with the Forest Service, consider charging a parking fee.
  - h. In coordination with the Interpretive and Education Plan, provide information to users about alternative sites for overnight camping and for day-use opportunities at and near the Project.

Licensee shall continue to operate the campground under agreement with the Forest Service.

- 2) **Jamo Boat Ramp** – within two years of license issuance, in order to improve access for visitors to the National Forest areas of the project, Licensee shall, in consultation with the Forest Service,
  - a. Designate parking spaces for vehicles with trailers using signs and asphalt markings. Require site host or other Licensee employees to monitor for compliance.
  - b. Provide a convenience picnic table between the restroom and the shoreline. Evaluate the use of this convenience table during high use season and, should it cause the launch ramp area to become more congested, consult with the Forest Service and interested stakeholders about repositioning or removal.

- c. Improve the existing boat ramp and the fishing platform to increase accessibility. Use guidelines in “Accessible ramps and boarding platforms for boaters” report (Tech Rep. 0023-2837-MTDC) and the ADA Accessibility Guidelines for Buildings and Facilities; Recreation Facilities (36 CFR Part 1191) or other updated guidelines as applicable;
  - d. Provide a potable water source at this site or Pines Picnic Area that can be accessed by recreationists at all times.
- 3) **Day-Use Opportunities** – The Licensee shall provide additional day-use capacity around Lake Britton, specifically beach day use areas, in consultation with the Forest Service and other interested parties. This will help mitigate existing and prevent future negative impacts to National Forest resources. The Licensee should concentrate on enhancing existing sites/disturbed areas before any new locations are considered. The amount of capacity shall increase by 100 People at one time (PAOT) within 3 years of license issuance since day-use beach areas are currently reaching capacity. Possible locations include the existing Pines Picnic Area, the North Ferry Crossing, and North Shore Campground. Day use areas shall include the following features:
- Any new day-use beach area shall have regularly maintained beach sand if needed,
  - access to the shore designed to minimize erosion,
  - restrooms on site or nearby,
  - access by road or boat,
  - designated parking if access is by road,
  - trash collection, and
  - regular monitoring by a host or Licensee employee.
- 4) **New Overnight Capacity** – Licensee shall provide 25% more public overnight developed camping units over the life of the license (an increase of 39 sites). At least half of that capacity shall be added in the first 10-year period and the balance provided within 15 years of license issuance. New overnight sites in this provision should reflect the current or planned development level of an existing campground. Any new campgrounds will be development level 4 or 5. Additions to capacity should be within the project boundary or, within a 1-1/2 mile radius of the project waters. New capacity shall emphasize expansion of existing sites/use areas over development of new sites/use areas. An existing site is defined as a designated and managed recreation site containing man-made improvements. A use area is defined as an area being heavily utilized by the public such that its natural character has been heavily impacted. Examples are loss of vegetation due to parking and trampling, existence of makeshift facilities such as campfire rings, shelters, sanitation; considerable evidence of trash.

### **Lake Britton Dispersed sites –**

In order to manage recreational access by visitors to NFS lands and mitigate negative impacts to National Forest resources, the Licensee within 5 years of license issuance, shall:

- Improve usability of the car-top boat launch at the gas line crossing by improving the road into the site to a Forest Service maintenance level 3 or higher and adding sanitation measures;
- Close parking area 6 on the north side of the lake,
- Maintain recreational access to National Forest System lands and Licensee lands on the south side of Hat Creek, and
- Develop an ADA accessible path, compatible with the Recreation Opportunity Spectrum, for access for fishing on the riverine portion of the upper lake at either the Fish Barrier or an alternate upstream location.

Licensee shall also work with the Forest Service and interested parties to develop measures to maintain and upgrade existing trails around Lake Britton, including Clark Creek Falls Trail, in order to decrease erosion and increase usability.

### **Pit 3 and Pit 4 Reaches:**

In areas accessed by project facilities or affected by the project, the Licensee shall, in consultation with the Forest Service, include in the Recreation Management Plan a section addressing general dispersed areas. This section should specifically speak to opportunities and problems unique to the Pit reaches such as fire prevention, sanitation, parking, “site creep”, crowding, and length of stay limits.

**Developments and Improvements** – Except where otherwise noted, within 3 years of license issuance, the Licensee shall provide the following improvements:

#### **1) Trails and trailheads**

- Construct a 10-vehicle trailhead parking lot at Powder Spur and improve the parking at the Talus Siren site by removing debris to level the area.
- Provide potable water, sanitation, and trash collection to at least one location in each reach.
- Construct and maintain, to standards acceptable to the Forest Service, river-access hiking trails at Powder Spur, Delucci, Rock Creek, Malinda Gulch, and Oak Flat or at other locations as agreed to by the Forest Service. Trails shall be designed and maintained to accommodate foot traffic, alleviate erosion, and improve hiker safety.
- Trailhead parking at each trail listed above shall be improved to provide for a level parking surface that does not intrude into the roadway. Signing designating the trails and parking will be installed and maintained.

#### **2) Pit 4 Reservoir public access**

- Pursue a change in the County ordinance to allow public boating use, limited to non-motorized boats, battery powered trolling motor boats, and float tubes and, include a 5 mph speed limit.

- Sign and modify the unimproved boat ramp at the Pit 4 reservoir currently used by the Licensee in order to accommodate any new use permitted under Shasta County ordinance.
  - Improve the Pit 4 reservoir boat ramp site by adding picnic tables and trash collection.
- 3) Whitewater boating access**
- Develop and maintain two whitewater boating access points in each river reach consisting of a “put in” and “take out”. Access points can be coordinated with other developments listed above.
- 4) New day-use fishing access at Pit 3 Powerhouse**
- Design and construct a day-use fishing access near the Pit 3 powerhouse. The site shall have ADA accessible fishing access, a toilet, potable water nearby, trash collection, and improved parking. In addition to facilities to be designed and constructed, Licensee shall work with the Forest Service and CDF&G in this vicinity so that the Day Use Area will not conflict with the designated Wild Trout Fishery regulations.
- 5) Pit 4 Reach Scenic Overlook**
- Develop a site plan to convert the existing 240,000 cubic yard spoil pile #4D covering 3.35 acres on NFSL into a scenic canyon overlook. The Licensee shall cease any further use of this site as a disposal site. The site plan shall include measures that address:
    - Removal of all non-native materials visible on the surface of this pile.
    - Stabilization and erosion control to prevent further erosion into the active river channel and avoid further collapse of the southern canyon wall.
    - Implementation of Forest Service Road Management Objectives (RMO’s) to modify the road on the back of the pile that accesses the river (see License Condition #27 Roads).
    - Revegetation with native plants, and control of star thistle invasion.
    - Design and construction of parking and viewing area for scenic overlook.
    - Appropriate interpretation as coordinated with the Interpretation and Education plan.
    - A sampling plan for 5 years of testing at annual intervals to ensure there are no longer hazardous materials in the pile that are leaching into the ecosystem, unless completed tests can conclusively demonstrate that there are no hazardous materials buried in the pile. If hazardous materials are later discovered in the pile, the Forest Service reserves the right to require the Licensee to clean up or totally remove this pile.
- 6) Ruling Creek Dispersed Camping Area**
- Licensee shall develop and implement a site improvement plan consistent with the Recreation Opportunity Spectrum (ROS) for the Ruling Creek Dispersed Camping Area. At a minimum, the plan shall include or address the following elements:
    - Installation and maintenance of a portable, accessible, vault-style toilet (such as a CXT toilet);
    - Creation of camping/parking locations;

- Installation of metal fire rings;
- Improved pedestrian access to the river;
- Implementation of noxious weed mitigations as coordinated with the vegetation and noxious weed management plan;
- Elimination of the use of the site as spoil pile disposal area;
- Removal from or incorporation of existing road spoil material into site design for this recreation site;
- Relocation of existing roadbed away from rivers edge, with new road location based on recreational access needs; and
- Erosion control/stabilization measures for site disturbance and relocation of the existing roadbed.

### **Water Surface Access and Management**

Within one year of license issuance and, in consultation with the Forest Service and other interested stakeholders, the Licensee shall do the following:

**Lake Britton:** move the “no boating” buoy line at the Ferry Crossing as close as is practicable to the dam to increase the lake area available to recreational watercraft.

**Reservoir Water Surface Zoning Plan:** create a plan which documents existing speed zones and displays recommended changes. The Licensee shall recommend changes in county ordinances for Shasta County approval to implement a speed management zone for the newly opened area (above), request a change in the Highway 89 bridge “no ski” zoning to a 5 mph speed limit from the bridge to the end of the narrow channel (“the narrows”), and, Licensee shall seek no changes to the existing 5 mph speed restriction in Upper Lake Britton/Hat Creek area. Licensee shall pursue with the county additional modifications recommended during annual monitoring meetings or, as the result of other license planning efforts.

**Pit 4 Reservoir:** plan and recommend changes in county ordinances for Shasta County approval to open the Pit 4 reservoir to non-motorized boats, battery powered trolling motor boats, and float tubes between August 1 and December 31.

### **Information, Education, and Interpretation Plan**

Within two years of license issuance the Licensee shall file with the Commission a Plan to provide for Information, Education, and Interpretation (I&E Plan) needs of the project developed in consultation with the Forest Service, California Department of Parks and Recreation, National Park Service, US Fish and Wildlife Service, California Department of Fish and Game, the Pit River Tribe and interested parties. At a minimum, the I&E Plan shall include themes, design, audience, delivery methods, and a schedule for implementation. The Forest Service will approve information displayed on NFSL.

Specific projects include:

- Informational kiosks at 5 Corners, Pit 3 powerhouse, Big Bend Interagency Fire Station, Jamo Boat Ramp, or other locations, as agreed.
- Interpretive or orientation signs at Hwy 299 and the Red Cinder Road, Hwy 299 and Sand Pit Road, Pit 3 dam, Big Bend road and Pit 5 Powerhouse Road, 5 Corners, Pit 4 dam scenic overlook, or other locations as agreed.
- Brochures and Website information should be coordinated with non-recreation resource areas and could include topics as: Watchable wildlife, Endangered wildlife, fisheries, protection of cultural resources, history and prehistory of the area, project operations, noxious weeds, proper recreational behavior (Leave no Trace), and Fire Prevention.

### **Streamflow Information**

The Licensee shall, beginning as soon as reasonably feasible and no later than one year after license issuance make available to the public the recreation streamflow information listed below. Unless otherwise noted, the streamflow information shall be available to the public via toll-free phone and Internet, which may be accomplished through a third party. The streamflow information protocols may be modified upon mutual agreement of the Licensee, Forest Service, and responsive stakeholders, and acceptance by FERC. The following information shall be made available:

- a. The hourly average streamflow in the Pit River below each of the Pit 3 and Pit 4 dams for the current day and the past seven days. The flow information may be measured, calculated or a combination of the two. The flow information shall be posted within four hours of collection. Streamflows shall be rounded up to the nearest 50 cfs, and all plots and tables showing these data shall be labeled: "These provisional data have not been reviewed or edited, and may be subject to significant change."
- b. By January 5, the proposed dates and magnitude for any freshet flow, if applicable, planned to be provided by the Licensee, with updates by February 15 and within two days of any changes in plans.
- c. By July 1, the proposed dates for any recreation streamflow releases, with updates at least two weeks and one week in advance of each proposed date. The Licensee shall also notify the community of Big Bend and the Big Bend Rancheria of any recreational streamflow releases.

In addition, the Licensee shall, as soon as reasonably feasible and no later than two years after license issuance, install and maintain one simple staff gage/depth indicator at the following locations: Licensee gage PH30 below Pit 4 Dam, Licensee gage PH27 at Big Bend Bridge, and provided a suitable location is identified in consultation with FS and American Whitewater, below Pit 3 Dam. The Licensee shall make a good faith effort to locate the staff gages/depth indicators near public access locations so they are easily

accessible for public reference. The Licensee shall provide a means at each staff gage/depth indicator to reasonably correlate staff gage/depth indicator readings to cfs.

**Recreation Monitoring and Reporting Plan** - Within one year of license issuance, the Licensee shall, in consultation with the Forest Service, California Department of Parks and Recreation, National Park Service, US Fish and Wildlife Service, and the Water Quality Control Board, complete a Recreation Monitoring and Reporting Plan (RMRP) as follows:

1. The RMRP shall include but not be limited to monitoring changes in kinds of use and use patterns on water surfaces and land, user surveys as to preferences in recreational activities, kinds, and sizes of recreational vehicles including boats, preference for day use versus overnight use, and recreation user trends within the project area. In addition, the Licensee shall periodically monitor boat use numbers, activity types, and use areas from Memorial Weekend through Labor Day on all areas of Lake Britton. Licensee shall work with the Forest Service and other interested stakeholders to determine the methodology for the data collection including frequency and location.
2. On a time schedule to coincide with the FERC “Form 80” report, the Licensee shall produce a Report on Recreational Resources which will summarize the information above. The Report shall include a summary of regional and statewide trends in recreation based on available surveys and reports. Survey methods shall be reviewed and approved by the Forest Service, and other interested stakeholders prior to implementation. The Report on Recreational Resources shall also comply with the Commission’s regulations at 18 CFR Section 8.11 (Form 80) and shall be filed with the Commission after consultation with Forest Service and other interested stakeholders. The Forest Service reserves the right, after notice and opportunity for comment and administrative review, to require changes in the project and its operation through revision of the 4(e) conditions that require measures necessary to accomplish protection and utilization of National Forest resources identified as a result of those surveys.
3. Licensee shall, every six years (coinciding with the Commission’s recreation inspection schedule), consult with the Forest Service, appropriate agencies, and interested stakeholders to review and adjust project-wide recreation management objectives. This consultation shall take the form of an in-person meeting within reasonable distance to the project. This meeting could be coordinated with the Annual Consultation meeting required in Condition #2. This review shall be based on the Report on Recreational Resources and any other results from law enforcement monitoring, and other applicable study and monitoring results. The Report and other monitoring results shall be made available to the agencies and interested stakeholders not less than 15 days prior to the scheduled meeting. The review shall address, as a minimum, the following factors:
  - Capacity; including developed and dispersed sites, roads, trails, water bodies, and river reaches,

- Kinds and condition of facilities,
- Kinds, quality, quantity, and range of opportunities,
- Health and safety,
- User and resource conflicts,
- Discussion of possible strategies and adjustments to management of facilities and dispersed areas in order to mitigate negative impacts, and
- Changes in ADA guidelines and possible modifications to facilities planned or constructed.

Recreational improvements in the project reaches shall be considered every six years through adaptive management using trend data and reports in conjunction with user satisfaction surveys, capacity use figures, and identification of resource impacts as a basis for change. Changes could include expanding or improving existing recreational areas, developing new areas, changing management requirements, limiting use, closing roads, or other measures as determined appropriate to provide for the recreational needs commensurate with the resource values.

### **Condition No. 27 – Roads and Facilities Management Plan**

Within one year of license issuance the Licensee shall file with the Commission a Roads and Transportation Facilities Management Plan for National Forest system roads or Project roads affecting NF resources. The plan shall incorporate FS standards (i.e. FS manuals and handbooks) for design, construction, operation, and maintenance and be approved by the Forest Service. Upon Commission approval, the Licensee shall implement the Plan and actions specified therein. At a minimum the Roads and Transportation Facilities Management Plan shall include the following:

#### **A. Road Planning:**

- A map(s) compatible with FS Travel Routes database showing all project and non-project roads, culverts, bridges, drainages, watering sources, disposal sites for organic materials, and disposal sites for surplus rock and soil from road maintenance within and adjacent to the project boundary including designation of use, season of operation, and public use.
- Identification of the uses (i.e. recreation, facility access) of the roads, and season of operation.
- An inventory of road and road facilities conditions including any construction or maintenance needs.
- Description of the types of materials allowed to be disposed of in the spoil pile.
- Description of how organic materials will be treated.
- Soil protection and erosion control measures including revegetation of disturbed sites and spoil piles to avoid noxious weed infestation and erosion (using only certified weed-free straw).
- A Water Quality Monitoring Plan that includes runoff management.
- A Traffic Safety plan.

- An adaptive management component to allow changes should use or standards necessitate.

## **B. Project Road Rehabilitation.**

### **General Items:**

- Include limited operating periods (LOPs) for sensitive wildlife resources when planning rehabilitation projects (see Condition 23 (f) as well as provisions to prevent the infestation and spread of noxious weeds (Condition 23 (g)).
- Develop a road rehabilitation implementation schedule to bring existing roads and associated facilities (i.e. culverts, gates, bridges, crossings, cribwalls, etc.) into compliance with Forest Service standards that achieve the Forest Service’s Road Management Objectives (RMOs) for each road as listed in TABLE 1 (below). The schedule shall bring existing roads into compliance within 5 years of license issuance, with health and safety items shall be completed within the first year of implementation, water passage for resource objectives within the second year of implementation, road surfacing items within the third year of implementation, and all lower priority projects in year four and five after license issuance. Specifically:
  - Construct and maintain crossings to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.
  - Prevent chronic erosion to stream channels by installing proper drainage e.g. French drains, outsloping, rolling dips, waterbars, etc.
  - Provide for fish passage and proper stream function for all stream crossings that are identified as fish habitat areas.
  - All intermittent and perennial stream crossings shall accommodate a 100-year storm event and associated bedload and debris. Provide hydrologic information to verify calculations where requested by Forest Service.
  - All bridges shall be replaced or reconstructed to conform to AASHTO Standard specifications for Highway Bridges (latest edition) including guardrails. All bridge approaches must be paved to 50 feet either side.
  - Gates on NFS lands shall comply with FS standards for construction and signing.
  - Replace rotting log parking barriers with standard parking barrier devices, e.g. guardrails, concrete stops, etc.
  - Removal of all road spoil piles not currently located in approved areas on NFSL to a location either off the Forest, or to a Forest Service approved disposal site. Removal area shall be revegetated with approved native (locally collected) seed to reduce invasion of noxious weeds. Monitor and eradicate noxious weeds as specified in the “Noxious Weeds Management Plan” license condition.
  - Reconstruct project roads to meet Forest Service road standards consistent with “Road Management Objectives”, including shoulders, installing additional turnouts (with material matching that of the main roadbed), reconstructing sharp curves to meet standards for clearance and sight distance, and stabilizing cutbanks/fillslopes with cribwalls and other retaining structures to prevent road failure and excessive sedimentation to waterways.

**Specific Items:**

- At Ruling Creek curve, stabilize the riverbank to protect the road from failure at flood flows.
- Expand existing paved road from the Pit 3 Powerhouse (M.P. 5.8) to the Gravel Bar turn-off in the Pit 4 reach (M.P. 8.8).
- Bring the Pit 3 and 4 reach roads into compliance with above general conditions and Forest Service RMO's.

**C. Road Operation & Maintenance (O&M):**

- Develop an annual road operation and maintenance schedule for on-going needs to maintain Project roads on NFSL to comply with Forest Service standards and RMOs.
- Complete normal maintenance activities on an annual basis including: repair and replacement of damaged culverts identified in road logs, removal of existing vegetation to allow adequate sight distances, etc.
- Include any required LOPs for wildlife species and noxious weed prevention provisions in planning and performing maintenance activities.

**Specific Items:**

- Traffic use surveys shall be scheduled on a 6-year basis at Forest Service specified locations to determine the number and type of vehicles per day, describe study periods and reporting requirements, and to determine use trends. A minimum of 60 survey days/year shall be required. A road capacity and use review shall be conducted every 10 years to determine if the roads continue to meet current road management objectives.

**Off-Highway Vehicle (OHV) and Vehicle Management Plan –**

The Licensee shall within one year of the license issuance develop an Off-Highway Vehicle (OHV) and Vehicle Management plan in consultation with the Forest Service and the Pit River Tribe. At a minimum, the plan shall include:

- Identification of existing use patterns creating resource damage within the project area, including archaeological site disturbance.
- Restrictions and controls including seasonal closures to protect sensitive resources such as bald eagles, cultural resources, upland oak and riparian habitats.
- Rehabilitation of areas damaged by OHV use.
- Specifically address the Hat Creek Fishing barrier area where resource disturbance is occurring on Project lands and adjacent National Forest System lands, and the need for any permanent road closures.

**Table 1 – Pit 3 and 4 Project Roads which are on or affecting NFSL**

<b>Road Name</b>	<b>FS Road Number</b>	<b>Location</b>	<b>Remarks</b>
Pit 3 Reach Road	37N60Y	From 5 Corners to Pit 3 PH (Lassen National Forest-LNF))	Update Road Maintenance Objectives (RMO), Under special use permit
Rock Creek Penstock Road	37N60YA	From Pit 3 Reach Road to Penstock crossing (LNF)	RMO, Rolling dips
Pit 3 Surge Tank Road	360209UC01	Road behind Pit 3 powerhouse to surge tank (LNF)	Need to GPS road location. Need RMO.
River Road (Pit 4 Reach Road), FS#50	37N60Y	From Pit 3 PH to Pit 4 PH (Shasta-Trinity National Forest- STNF)	Needs RMO
Pit 4 Reservoir Spur 01	37N60Y A & B	Spurs extending north from Pit 4 reservoir in Township 36N, R2E, sections 4 & 9 (STNF)	Need RMO, possible disposal pile site.
Pit 4 Dam Spoil Pile Road	360208UC01	From Pit 4 Reach Road to the river on top of spoil pile #4D (STNF)	Need RMO
Ruling Creek Dispersed Site Road	360217UC01	From River Road (Pit 4 Reach Rd) through the Ruling Creek dispersed area (STNF)	Need RMO
Big Pine Deer Camp Road	360217UC03	From Pit 4 Reach Rd west of Ruling Creek into Big Pine Deer Camp (STNF)	FS System Road Level 2, need RMO
Gravel Bar Road	360217UC02	Off the Pit 4 Reach Rd just west of Pit 4 gage station (STNF)	Need RMO
Pit 4 Valve House Road	360115UC01	From Pit 4 Reach Rd to spoil pile #4P near Pit 4 Valve House (STNF)	Need RMO
Pit 4 Surge Tank Road	360115UC02	Spur from Valve House road to Pit 4 surge tank (STNF)	Need RMO.
North Shore Campground Road	37N61	From Clark Creek Road to North Shore Campground (LNF)	Under special use permit, needs RMO. Needs larger CG sign.
Dusty Campground Rd	37N59Y	From Hwy 89 through Dusty Campground (LNF)	Needs RMO. “Trailers not recommended” sign.
Lower Hat Creek “Loop” Road	36N09	From Hwy 299 to Hat Creek parking area adjacent to Hat Creek Fish Barrier (LNF)	Needs RMO
Bald Eagle Mgt Area Road	37N59Y	Between Warner Grade Road and Dusty CG, extension of FS road 37N59Y (LNF)	Closed at both ends – Level 1 road RMO needed
Gas Line Drafting Road	360312UC01	Road to the water drafting site on south side of Pit River near the PG&E DE mine (LNF)	Need RMO

## Enclosure 2

### Revised Final Forest Service Section 10(a) Recommendations and Rationale

The Forest Service captures in this 10(a) document the majority of the recommendations and agreements resulting from over five years of collaborative discussions by both the full Pit River Collaborative Team (PRCT) and PRCT sub-groups. In October of 2003 the PRCT reached final agreements on flow conditions. While the full PRCT did not have adequate time during the October meeting to review and reach final agreement on all of these recommendations, the collaborative has had copies of this document for many months and has had the opportunity to provide comments. Additionally, the Forest Service met and extensively reviewed the wording of these recommendations with PG&E and has incorporated their wording into the recommendations where possible. The lead-in paragraph of each recommendation states the level of agreement reached by the PRCT for the recommendation. In most cases we have not received comments opposing the recommendations. Therefore, while we can not characterize that there is full agreement on these recommendations, and cannot speak on behalf of other parties, we believe there is general agreement among the PRCT that the following Section 10(a) Recommendations should be included as license articles.

The Section 10(a) Recommendations include mitigation of resource effects induced by the project construction, operation, or maintenance, but where no National Forest System lands (NFSL) are directly affected. Therefore, these are recommendations for consideration by the FERC.

#### **Recommendation No. 1 - Minimum Instream Flow for Pit 5 Reach**

To be consistent with 4(e) Condition No. 17 - Flow Regime for Affected NFSL for the Pit 3 and Pit 4 reaches, the Forest Service recommends that the Licensee implement the following flow regimen in the Pit 5 bypass reach. This recommendation is consistent with the recommendation agreed to by the Pit River Collaborative Team.

##### **I. Minimum Instream Flow**

The Licensee shall, beginning as early as reasonably practicable and within 3 months after license issuance, maintain minimum streamflows as specified below for the Pit 5 bypass reach. Where facility modification is required to implement the requirements of this measure, the Licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to completion of such required facility modifications, the Licensee shall make a good faith effort to meet the requirements of the measure within the capabilities of the existing facilities.

The requirements of this measure are subject to temporary modification if required by equipment malfunction, emergency conditions or law enforcement activity, or critical electric system emergency beyond the control of the Licensee.

All required minimum streamflows listed below are the average of seven days of the mean daily flow. Individual mean daily flows may be less than the required minimum streamflow.

The instantaneous, 15-minute streamflow must be at least 90 percent of the required minimum streamflow. No ramping is required when changing between seasonal required minimum streamflow rates

For the Pit 5 reach, the spill event that triggers a change in required minimum streamflow is defined as a flow period in the reach that lasts at least three consecutive days and has a 3-day mean of more than 300 cfs (and a volume of at least 1,800 acre feet) above the required minimum streamflow for the Pit 5 reach. Streamflow in the Pit 5 reach shall be measured at USGS gage 11363000 (Licensee gage PH27). The Pit 5 dam gates shall be operated as described in the Reservoir Operations measure.

**A. Summer/Fall Required Minimum Streamflow:**

- i. Summer is defined as the period extending from April 21 through August 31.
- ii. Fall is defined as the period extending from September 1 until the first spill, as defined above, after November 1 or through November 30, whichever is earlier.
- iii. If no spill occurs between November 1 and April 20, the required minimum streamflow shall remain at the summer value throughout the winter.
- iv. The required minimum streamflow during summer shall be 400 cfs.
- v. The required minimum streamflow during fall shall be 350 cfs.
- vi. Following any spill, as defined above, between March 16 and June 15, the required minimum streamflow shall follow the flow regimen described in B. ii below. Spills after June 15 shall be ramped back to the required summer minimum streamflow following the ramping rate specified in the Ramping Rates measure.

**B. Winter Required Minimum Streamflow:**

- i. If a spill, as defined above, occurs after November 1, the required minimum streamflow following the cessation of the spill shall be 450 cfs. The required minimum streamflow shall remain at this level until April 20 unless a spill occurs after March 15.
- ii. If a spill, as defined above, occurs between March 16 and June 15, the required minimum streamflow following the cessation of the spill shall be 550 cfs for 14 days. The required minimum streamflow shall be 500 cfs for the next 10 days and 450 cfs for 10 more days. The required minimum streamflow shall then be set at the required summer minimum streamflow. Spills ending after June 16 shall be ramped to the required summer minimum streamflow level following the ramping rate specified in the Ramping Rates measure.
- iii. If no spill occurs between November 1 and April 20, the required minimum streamflow shall remain at the summer value throughout the winter.

**II. Instream Flow Measurement**

The Licensee shall measure and document all instream flow releases in publicly available and readily accessible formats. For the purposes of measuring and documenting compliance

with the required minimum instream flows in the Pit 5 Project bypass reaches, the Licensee shall prepare and file with the Commission an Instream Flow Measurement Plan (Plan).

The Plan shall include a description of existing or proposed instream flow measurement gages or devices, including flow gages, spillway or reservoir outlet discharge measurement devices, etc., and a detailed proposal for measuring instream flow for the Pit 5 reach with existing or proposed devices. The Plan must describe existing or proposed provisions for making mean daily flow data available to the public, and for making hourly and/or 15-minute gage data available to the Forest Service.

The Plan shall include evidence of gage calibration and historical and recent cross-section data, if applicable. The Licensee shall provide a copy of the Plan to the Forest Service as soon as practicable and no later than one year after license issuance.

In the interim, prior to approval and implementation of the Plan, the Licensee shall maintain continual compliance with the Pit 5 minimum instream flow schedule at the existing Pit 5 reach USGS gage 11363000 (PH 27).

### **III. Ramping Rates**

In order to prevent adverse effects due to rates of change in streamflow releases that are inconsistent with natural rates of streamflow variation, the Licensee shall follow the ramping rates specified below when making streamflow releases from the Pit 5 Dam unless a different ramping rate is specified in another measure. These ramping rates shall be implemented as soon as practicable after license issuance dependent upon facility capability.

A ramping rate is the rate of change in stream stage height over a time period, such as 0.5 foot/hour, that shall be followed in each hour, up or down. The allowable change in stage height is applied to the current hour streamflow value to get the next hour allowable streamflow value. The Licensee shall be deemed in compliance with the up and down ramping rate if at least 75 percent of the periodic changes are less than the specified ramping rate, and all of the periodic changes are less than 150 percent of the specified ramping rate.

Where facility modification is required to implement the requirements of this measure, the Licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to completion of such required facility modifications, the Licensee shall make a good faith effort to meet the requirements of the measure within the capabilities of the existing facilities.

The requirements of this measure are subject to temporary modification if required by equipment malfunction, emergency and law enforcement activity, and critical electric system emergencies beyond the control of the Licensee.

- a) Ramping Rate for Freshet Flow Releases: A freshet flow may be released in March of some years, and will consist of a 21-day flow event that is described in detail in the Freshet Flow Release measure. The ramping rate to reach the daily target values for freshet flows shall be 0.5 foot/hour, up and down.

- b) Ramping Rate after Spills Influenced by Powerhouse Outages: As described in the Reservoir Operations section of this Condition, some spills may include, or be composed entirely of, flow that should be passing through a powerhouse but is released as spill due to a powerhouse outage. The Reservoir Operations measure specifies that when returning the powerhouse to full load, the daily decrease of such spills should not exceed 50 percent of the difference between the flow passing a dam and the required minimum streamflow for the reach. The final step to the required minimum streamflow can occur when the difference between the spill flow and required minimum streamflow is less than 200 cfs. The ramping rate for the downstream reach shall be 0.5 foot/hour or less and there shall be an hour separation between each step until the daily decrease in spill is reached.
- c) Ramping Rate Before and After Out-of-Season Spills: As described in 4(e) License Condition 18 and Recommendation No. 2, out-of-season spills past the Pit 5 Dam may occur during summer and fall. In some cases, the Licensee may be able to anticipate that an out-of-season spill is imminent because the storage capacity of the affected reservoir will be exceeded. In this case, the Licensee shall make a good faith effort to initiate streamflow releases that ramp up to the expected spill rate in at least three steps.
- d) The out-of-season spill shall be ramped down at a rate that is dependent on the duration of the spill. If the spill was less than 24 hours in duration, the down ramp shall be at a rate of 0.5 foot/hour. If the spill was longer than 24 hours in duration, the down ramp shall be at a rate of 0.5 foot/hour, but four hours shall separate each adjustment so that the down ramp is more gradual.
- e) Ramping Rate for Recreation Streamflow Releases: The ramping rate up and down for recreation streamflow releases shall be 0.5 foot/hour or less. Both up and down ramping steps shall be implemented every other hour until the specified recreation streamflow release (ramp up) or the required minimum streamflow (ramp down) is reached.
- f) Ramping Rate for Changes in Required Minimum Streamflow: Because the magnitude of changes in required minimum streamflow is less than the change in streamflow associated with a 0.5-foot change in stage height, no ramping is required for these changes in streamflow releases.

#### **IV. Freshet Flow Release**

In order to assure that a flow sufficient to maintain channel conditions and maintain the riparian community will occur at a frequency of at least every second year, the Licensee shall make freshet flow releases into the Pit 5 reach as described below. Project reaches shall be considered separately and independently when determining if a freshet flow is required.

The following planning events and action shall be implemented each year:

1. If, as of January 1 of each year, there has been no spill, as defined below, in the previous 15 months into the Pit 5 reach, the Licensee shall notify the Forest Service and interested parties that there is a potential need for a freshet flow release for that reach during the upcoming March.
2. If no spill has occurred as per item 1, the Licensee shall post, following the provisions in 4(e) License Condition 26, Recreation Management Plan, Streamflow Information section, a notice prior to February 15, of a planned freshet flow for that reach beginning between March 1 and March 7, scheduled so that the peak flow occurs over a weekend to facilitate whitewater boating opportunities. Additionally, the Licensee shall notify the community of Big Bend and the Big Bend Rancheria..
3. A freshet flow shall have the following characteristics: the duration of the event including the flow increase and decrease and the peak must be at least 21 days in length; the instantaneous peak flow magnitude must be at least 1,500 cfs, and there must be a 2-day average flow of at least 1,500 cfs. After the peak, streamflow shall decrease in five approximately equal steps of magnitude and duration over the remaining days of the freshet period, ending at the winter required minimum streamflow for the reach.
4. For the purposes of this measure, spill is defined as streamflow event at a Project dam during the 17 months prior to the March 1 freshet flow implementation date that meets all of the following characteristics: occurs between December 1 and May 31; has a cumulative volume of at least 25,000 ac-ft; has a cumulative duration of at least 21 days; and has at least two average daily flows exceeding 1,500 cfs. Spill may be made up of natural and released flows.

The requirements of this measure are subject to temporary modification if required by equipment malfunction, emergency conditions or law enforcement activity, or critical electric system emergency beyond the control of the Licensee.

Where facility modification is required to implement the requirements of this measure, the Licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to completion of such required facility modifications, the Licensee shall make a good faith effort to meet the requirements of the measure within the capabilities of the existing facilities.

## **V. Reservoir Operations**

In order to allow spills from Project reservoirs to increase and decrease at a rate resembling the natural unimpaired condition, the Licensee shall, beginning as early as reasonably practicable and no later than 6 months after license issuance, operate Project dams, reservoirs, and powerhouses according to the operation protocols specified below.

The requirements of this measure are subject to temporary modification if required by equipment malfunction, emergency conditions or law enforcement activity, or critical electric system emergency beyond the control of the Licensee.

Where facility modification is required to implement the requirements of this measure, the Licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to completion of such required facility modifications, the Licensee shall make a good faith effort to meet the requirements of the measure within the capabilities of the existing facilities.

For the purposes of this measure, a spill event is defined as a flow period that lasts at least three consecutive days and has a 3-day mean of more than 300 cfs (and a volume of at least 1,800 acre feet) above the required minimum streamflow.

### **Operation Protocols for Pit 5 Dam, Pit 5 Reservoir, and Pit 5 Powerhouse:**

1. As inflow to Pit 5 Reservoir increases, Pit 5 Powerhouse flows shall be ramped up to match inflow up to the full powerhouse load.
2. As inflow to Pit 5 Reservoir exceeds the full load flow of Pit 5 Powerhouse, the Pit 5 Dam spillway gates shall be operated to maintain an approximately constant water surface elevation of 2,040.5 feet (NGVD) (2,060 feet PG&E datum) at Pit 5 Reservoir.

If the Pit 5 Powerhouse is operating at less than full load during a spill event, and is able to return to full load, the Licensee shall utilize the following protocol to not cause a rapid cessation of spill when increasing powerhouse load:

- Powerhouse load shall be increased in steps;
- Each step shall not exceed 50 percent of the flow passing Pit 5 dam in excess of required minimum streamflow for the Pit 5 reach; and
- There shall be at least a 24-hour interval between steps.

This protocol applies until the powerhouse reaches full load or the rate of streamflow passing the Pit 5 Dam is less than 200 cfs above the required minimum streamflow for the Pit 5 reach and the powerhouse is not at full load, at which point the streamflow passing the Pit 5 dam may be reduced to the required minimum streamflow.

### **Recommendation No. 2 - Management of Spill Events**

To be consistent with 4(e) License Condition No. 18 – Management of Spill Events Affecting NFS Resources for the Pit 3 and Pit 4 reaches, the Forest Service recommends that the Licensee implement the following in the Pit 5 bypass reach. This recommendation is consistent with the recommendation agreed to by the Pit River Collaborative Team.

The Licensee shall operate the Project in a manner that does not result in discretionary, out-of-season spill flows in excess of twice the required minimum required streamflow at Pit 5 Dam. An out-of-season spill is defined as a spill that occurs during the normally non-spill summer and fall period. In order to avoid such spills, the Licensee shall take all reasonable controllable actions, which shall include, as a first priority, utilization of Project storage.

In the event an out-of-season spill occurs, the Licensee shall take reasonable controllable actions to minimize the magnitude, duration, and potential adverse ecological impacts of such spill. Such actions shall include, to the extent practicable, ramping the spill flow up and down as described in the Ramping Rates measure. In the event a discretionary out-of-season spill occurs, the Licensee shall develop, through consultation with FS, CDFG, and FWS, and implement reasonable actions to mitigate for identified adverse ecological impacts of such spill. The Licensee shall not be required by this measure to provide mitigation for impacts reasonably related to recreation streamflow releases. The Licensee shall prepare, maintain, and on an annual basis provide to FERC, FS, CDFG, and FWS a record of any out-of-season spills, identifying the affected reach, hourly discharge, the maximum flow magnitude, dates and duration, and cause of spill.

Where facility modification is required to implement the requirements of this measure, the Licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to completion of such required facility modifications, the Licensee shall make a good faith effort to meet the requirements of the measure within the capabilities of the existing facilities.

The requirements of this measure are subject to temporary modification if required by equipment malfunction that directly results in non-discretionary spills, emergency and law enforcement activity, and critical electric system emergencies beyond the control of the Licensee. Further, this measure does not apply to any required recreation streamflow releases.

### **Recommendation No. 3 - Gravel Management and Woody Debris Plans**

To be consistent with 4(e) License Condition No. 21 - Gravel Management and Woody Debris Plans to Benefit NFS Resources for the Pit 3 and Pit 4 reaches, the Forest Service recommends that the Licensee implement the following in the Pit 5 bypass reach.

The Licensee shall develop and file with the Commission within one year of license issuance, a Gravel Management Plan and a woody debris routing procedure consistent with the plan for the Pit 3 and 4 reaches. This recommendation is consistent with discussions held by the Pit River Collaborative Team on this issue.

## **1. Gravel Management Plan:**

Gravel augmentation shall require the addition of a minimum of 624 tons of gravel at a maximum cost of \$15,000 per year (to be adjusted annually by an appropriate indexing factor for inflation). The gravels to be used are to be clean, rounded and ranging in size from approximately 8-64 mm with a median size of approximately 25-35 mm.

At a minimum, the Gravel Management Plan shall:

- identify proposed gravel placement locations near the upstream end of the reach or at other agreed upon locations,
- identify facilities necessary for the placement of gravel,
- include an adaptive management component to allow non-delivery of gravels in non-spill years or in years when spill is insufficient to mobilize the gravels.

The plan shall also include a monitoring component that is integrated into the Biological Monitoring Plan in 4(e) License Condition 23 in terms of species surveyed, timelines, and cost. The monitoring component shall include at a minimum: 1) pre-augmentation monitoring the first 4 years (or for a time period consistent with the Biological Monitoring Plan) after license issuance, 2) post augmentation monitoring the year augmentation occurs, and 3) periodic monitoring every 4 years (or a period consistent with the Biological Monitoring Plan) for the life of the license. Monitoring shall evaluate the physical changes from gravel augmentation and biological population trends of species that are affected by the gravels, specifically trout, hardhead, and macroinvertebrates. The monitoring is to be conducted in agreed upon transects located in all river reaches, but not throughout the entire length of the river reaches.

Monitoring results and any proposed changes to the Gravel Plan for the Pit 5 reach shall be presented to the Technical Review Group described in 4(e) License Condition No. 23.

## **2. Large Woody Debris Management Plan**

Licensee shall develop and implement an operating procedure to facilitate the passage of woody debris over the Pit 5 spillway during spill events.

### **Recommendation No. 4 – Water Quality and Temperature Monitoring Plan**

To be consistent with 4(e) License Condition No. 22 - Water Quality and Temperature Monitoring Plan for Affected NFSL for the Pit 3 and Pit 4 reaches, the Forest Service recommends that the Licensee implement the following in the Pit 5 bypass reach.

The Licensee shall within one year of license issuance develop a water quality monitoring plan to assess the affects of new instream flows on water quality in the Pit 5 bypass reach. The water quality monitoring plan elements shall at a minimum include but not necessarily be limited to:

- Continuous water temperature monitoring,
- Periodic measurements of dissolved oxygen,

- Documentation of procedures used to meet water-related Best Management Practices (BMPs).

The Licensee shall prepare the plan after consultation with the Forest Service, State Water Resources Control Board, California Department of Fish and Game, and U.S. Fish and Wildlife Service.

The Licensee shall include with the plan documentation of agency consultation, copies of comments and recommendations of the completed plan after it has been prepared and provided to agencies, and specific description of how agencies' comments are accommodated by the plan. Upon Commission approval, the Licensee shall implement the plan.

### **Recommendation No. 5 – Biological Resources Management Plans for Mitigating Project Effects**

To be consistent with 4(e) License Condition No. 23 –Biological Resources Management Plans for Mitigating Project Effects to NFS Resources for the Pit 3 and Pit 4 reaches, the Forest Service recommends that the Licensee implement the following in the Pit 5 bypass reach.

The plan components discussed below should be combined, as appropriate to facilitate monitoring efficiency and cost effectiveness. The plans should incorporate monitoring elements from other Resource Conditions including Condition 21 (Gravel augmentation), Condition 22 (Water quality monitoring), and Condition 26 (Recreation) and the corresponding Recommendations. The implementation schedules shall also be coordinated so that the various components of biological resource monitoring are coordinated in time and location.

#### **a. Biological Resources Program Technical Review Group**

Licensee shall, within 3 months of issuance of a new project license, establish a Biological Resources Program Technical Review Group (TRG) for the purpose of: a) consulting with the Licensee in the design of management and monitoring plans, b) review and evaluation of data, and c) developing adaptive management or other recommendations, as required by Conditions No. 17, 21, 22, 23, and 26. The TRG will be composed at a minimum, of specialists from the Forest Service, California Department of Fish and Game, California State Water Resources Control Board, Fish and Wildlife Service (FWS), National Park Service (NPS), the Pit 3/4/5 Project Licensee, Tribal Governments, and NGO's whom have expressed an interest in participating. The group's meetings will be open to the public. The Licensee shall maintain and make public, records of consultation, and shall forward those records with any recommendations to the appropriate agencies and the Commission. The group shall establish communication protocols to facilitate interaction between group members, which allow for open participation, peer review, and communication between all parties.

## **b. Fish population trend and condition monitoring in project reservoirs and river reach**

Within six months of license issuance the Licensee shall in consultation with the TRG prepare a plan for monitoring fish population trends and fish condition factors in the Pit 5 bypassed reach. At a minimum the monitoring plan shall identify which species are to be monitored, sampling and data analysis protocols, and reporting schedules. The monitoring shall be consistent with pre-licensing studies for comparative purposes and shall attempt to standardize sampling protocol to ensure comparability of results. Sampling shall occur at least once every three years (or for a period determined by the TRG to be sufficient that is consistent with other monitoring requirements) during the first decade after license issuance and then at least once every four years thereafter. Additionally, the Licensee shall conduct benthic macroinvertebrate population robustness, feeding group and tolerance/intolerance trend monitoring in the Pit 5 bypassed reach on a schedule determined by the TRG.

An element of the plan shall include an adaptive management strategy to incorporate an entrainment study if needed. Prior to initiation of an entrainment study, the results of fish population trend monitoring results would need to indicate, either directly or indirectly, that ongoing entrainment may be a significant contributing factor toward a substantive downward trend in the affected species' populations. If a trend towards listing is indicated for special status species, the Licensee shall discuss with the TRG the possible initiation of statistically meaningful entrainment studies. The studies would follow procedures developed by the Licensee and agreed to by the consulting agencies and will occur at the Pit 5 tailraces.

A draft technical report shall be prepared following completion of each sampling effort. In addition to describing the results, the report is to compare results with those of previous surveys. The fish-based sampling shall discuss implications regarding trends in fish abundances, trends for entrained special status fish species, changes to bald eagle prey species, and any indication that bass are moving into project reaches. The benthic macroinvertebrate sampling report shall discuss any changes over time regarding the composition of functional feeding groups, overall population heterogeneity and robustness, and pollution tolerance/intolerance trends.

Upon Commission approval, the Licensee shall implement the plan.

## **c. Foothill Yellow-Legged Frog (FYLF) Monitoring Plan**

Within one year of license issuance the Licensee shall in consultation with the TRG prepare a foothill yellow-legged frog (*Rana boylei*) monitoring plan. The Plan and schedule shall include the following two phases: 1) An initial annual study period (length to be determined by the TRG during review of information at annual consultation meetings, but for at least four years), following initiation of the new flow regime required by this license. 2) Incremental monitoring of FYLF every 4 years (unless revision is recommended by the TRG) after the completion of the initial study period. Do not use previously identified potential breeding sites in this monitoring, unless actual breeding activity has occurred at that site.

At a minimum the two phases of the study should include and/or address, but not be limited to, the following:

- Surveys for Foothill yellow-legged frog distribution in the Pit 5 reach throughout the spring and summer to determine presence and life stage development.
- A more thorough search during the spring breeding season to identify population centers / breeding sites and count numbers of clutches found.
- Descriptions of the physical features of all identified frog breeding sites including substrate, water temperatures at the onset of egg deposition, vegetative cover, water velocities at egg deposition sites, canopy categories, patch size, channel habitat type, evidence of predation, etc.
- Determination of whether changes in instream flows result in breeding in newly inundated margins, or utilization of old sites that are now deeper.
- Assessments of whether the new breeding sites: 1) connect with the summer lower flow channel; 2) remain as disconnected off channel water bodies; or 3) dry up entirely.
- Return visits to breeding sites and adjacent low flow areas that may be tadpole-rearing habitat to assess survival of tadpoles to metamorphosis. Beginning after hatching of larvae, revisit a subset of breeding sites every 3 weeks to determine survival and time of metamorphosis. To ensure comparability of density estimates, time and area constrained searches shall be used. This monitoring data will also be relevant to determining timing of young of the year population metamorphosis (full tail reabsorption).
- Estimates of the number of adults at the onset of breeding at each breeding site.
- Monitoring of the time from egg deposition to hatching.
- Monitoring of tadpole numbers and life stage development using K. L. Gossner (1960) life stage categories.
- Monitoring of water temperatures annually in March through May to determine at what temperature breeding initiates and terminates. This information shall be developed into a predictive tool in future years to avoid untimely spills or flow fluctuations that could detrimentally affect FYLF recruitment.
- Determination of whether the high tadpole mortality observed in 2002 was due to a water quality factor or predation. Predator-free tadpole enclosures shall be established at relatively remote sites (unlikely to be found by anglers) to monitor survival.
- Include the component under “Vegetation Management Plan” for removal of overhead canopy.
- Take advantage of non-planned spring/summer high flow events to determine any correlation between these spill events and changes in tadpole or metamorph numbers from years when these events did not occur.
- Take advantage of the naturally (or project induced) receding spring hydrograph to determine flow vectors at known breeding sites and their changes with flows.
- Observations where no activity has occurred (i.e. “zero data”).
- Reporting of survey & monitoring results.

Upon Commission approval, the Licensee shall implement the plan.

#### **d. Western Pond Turtle (WPT) Monitoring Plan**

Within one year of license issuance the Licensee shall prepare a Western Pond Turtle (*Clemys marmorata*) monitoring plan in consultation with the TRG. At a minimum the study should address:

- Establishment of a study schedule including an initial study phase for a defined period of time and follow-up monitoring on a defined basis, as for FYLF above.
- WPT distribution within the project.
- Estimate of age distribution of the turtle population.
- Reporting of results to resource agencies.

Upon Commission approval, the Licensee shall implement the plan.

#### **e. Interagency Bald Eagle Management Plan**

Within six months of license issuance, the Licensee shall convene a collaborative team composed of the Fish and Wildlife Service, FS, California Department of Fish and Game, the California Water Quality Control Board, and Pit River Tribe to revise and update the Interagency Bald Eagle Management Plan as needed. The plan shall at a minimum consider and address the following elements:

- 1) Annual monitoring of nest productivity.
- 2) Identification of disturbance factors and appropriate actions needed to minimize disturbances including recreational use, project operations, timber harvest, road maintenance, etc. Consider actions such as:
- 3) Buffer zones around each known nest territory.
- 4) Limited operating periods for industrial operations, recreational activities, or other disturbances identified.
- 5) Coordination of P&GE and Forest Service land management activities within bald eagle nest territories in the Project area, such as timber harvest, mining, woodcutting, etc.
- 6) Periodic monitoring, in conjunction with the recreation monitoring, of human use patterns to discern human/bald eagle interaction conflicts.

The plan shall be submitted to the Commission within two years of license issuance.

Upon Commission approval, the Licensee shall implement the plan.

#### **f. Terrestrial Wildlife Mitigation & Monitoring plan:**

Within one year of license issuance, the Licensee shall prepare in consultation with the TRG a wildlife mitigation and monitoring plan to monitor project affected terrestrial special status species. At a minimum, the plan shall include and address the following monitoring elements:

- Annual monitoring of known peregrine falcon nest territories, surveys of potential peregrine falcon nesting habitats within or adjacent to the project area for new nesting territories until it is determined in consultation with the TRG that monitoring is no

longer necessary. Unless modified during the development of this plan, the Limited Operating Period (LOP) shall be in effect from February 1 to August 15 from the nest site to a distance of ½ to ¾ mile out from the nest (dependant upon Forest Service biological evaluation of the site). The LOP would apply to actions involving maintenance and irregular activities that can be scheduled, e.g. testing of sirens, cutting of hazard trees along roads and powerlines. The LOP does not apply to emergency actions.

- Periodic monitoring as determined by the TRG throughout the period of the license to determine if Townsend's big-eared bats or other special status bats utilize Project facilities.
- Reporting of survey & monitoring results.

Mitigation measures to be implemented by the Licensee include:

- If goshawks are found during pre-disturbance surveys, limit operating periods around the active nest site (200 acres) from February 1 through August 15 or until the young have fledged.
- Protection of known sites of survey and manage molluscs (categories A, D, and E).
- The Licensee shall conduct pre-construction surveys for special status species. The surveys shall follow standard approved protocols or protocols approved by the TRG if no standard protocol exist at the time. The results of the surveys shall be utilized to determine mitigation measures necessary to protect sensitive species.

Upon Commission approval, the Licensee shall implement the plan and mitigation measures including any actions specified.

#### **g. Vegetation & Noxious Weed Management Plan**

Within two years of license issuance, the Licensee shall file with the Commission a vegetation and noxious weed management plan developed in consultation with the TRG, Shasta County Agricultural Commissioner and California Department of Food and Agriculture. At a minimum the plan should include two components: a Noxious Weed Plan and a Vegetation Management Plan. Noxious weeds will be those weeds defined in the California Food and Agriculture code, and other species identified by the Forest Service

1) The Noxious Weed Plan will include and address the following elements:

- Noxious weed treatment (aquatic and terrestrial) within the project boundary and adjacent to project features including recreation facilities, roads, and distribution and transmission lines.
- Inventory and mapping of new populations of noxious weeds using a Forest Service compatible database and GIS software. The noxious weed GIS data layer will be updated periodically and shared with resource agencies.
- Action and/or strategies to prevent and control spread of known populations or introductions of new populations, such as vehicle/equipment wash stations.
- Develop a schedule for eradication of all A, B, Q and selected other rated invasive weed species, designated by resource agencies.

- New infestations of A& B rated weeds shall be eradicated within 12 months of detection. (A, B, C, & Q ratings refer to the California Department of Food & Agriculture Action Oriented Pest Rating System).
- At specific sites where other objectives need to be met (e.g. recreational use) all classes of noxious weeds may be required to be treated.
- On-going annual monitoring of known populations of noxious weeds for the life of the license in locations tied to Project actions or effects, such as road maintenance, at project facilities, O&M activities, recreational areas, new construction sites, etc to evaluate the effectiveness of re-vegetation and noxious weed control measures.
- Monitoring will be done in conjunction with other project maintenance and resource surveys, so as not to require separate travel and personnel. Monitoring information, in database and GIS formats, will be provided to the Forest Service as part of the annual consultation on affected National Forest resources (Condition No. 2). To assist with this monitoring requirement, training in invasive plant identification will be provided to Project employees and contractors by the Forest Service.
- Licensee shall restore/revegetate areas where treatment has eliminated noxious weeds in an effort to eliminate the reintroduction of noxious weed species.
- Project-induced ground disturbing activities shall be monitored annually for the first 3 years after disturbance to detect and map new populations of noxious weeds.
- The plan will include an adaptive management element to implement methods for prevention of aquatic noxious weeds, as necessary. These actions may include, but may not be limited to: 1) public education and signing of public boat access, and 2) preparation of an Aquatic Plant Management Plan in consultation with other agencies.

2) The Vegetation Management plan will include and/or address the following elements:

- Hazard tree removal and trimming;
- Powerline/transmission line clearing;
- Vegetation management for habitat improvement (e.g. provision of FYLF breeding habitat);
- Revegetation of disturbed sites;
- Soil protection and erosion control, including use of certified weed free straw;
- Establishment of and/or revegetation with culturally important plant populations.
- Use of clean, weed free seed with a preference for locally collected seed.
- Timing of activities to account for limited operating periods for peregrine falcons, bald eagles, and northern goshawks (refer to sections (e) and (f) above).

Upon Commission approval, the Licensee shall implement the plan.

## **Recommendation No. 6 – Cultural Resources Management Plan**

To be consistent with 4(e) Condition No. 24 – Cultural Resources Management Plan for the Pit 3 and Pit 4 reaches, the Forest Service recommends that the Licensee implement the following in the Pit 5 bypass reach. This recommendation is consistent with discussions within the Cultural sub-group of the Pit River Collaborative Team.

The Licensee shall file with the Commission, within one year following license issuance, a Cultural Resources Management Plan (CRMP), approved by the Forest Service, for the purpose of protecting and interpreting heritage resources. The CRMP is tiered to a Programmatic Agreement, to which the Forest Service will be a signatory, as defined by 36 CFR 800, and implements regulations of the National Historic Preservation Act. The Licensee shall consult with the State Historic Preservation Officer, Native American Tribes, Forest Service, and other applicable agencies and communities during the preparation of the Plan. The CRMP shall accurately define the area of potential effects, including effects of implementing Section 4(e) conditions, and shall take into account Project effects on the National Register Lake Britton Archaeological District, National Register properties, Native American traditional cultural values, and Project-induced recreational impacts to archaeological properties on or affecting National Forest System lands. The CRMP shall also provide measures to mitigate the identified impacts, including a monitoring program, a patrolling program, and management protocols for the ongoing protection of archaeological properties.

If, prior to or during ground-disturbing activities or as a result of project operations, items of potential cultural, historical, archaeological, or paleontological value are reported or discovered, or a known deposit of such items is disturbed, the Licensee shall immediately cease work in the area affected. The Licensee shall then: (1) consult with the California State Historic Preservation Officer (SHPO); (2) prepare a site-specific plan, including a schedule, to evaluate the significance of the find and to avoid or mitigate any impacts to sites found eligible for inclusion in the National Register of Historic Places; (3) base the site-specific plan on recommendations of the SHPO, the Forest Service, and Secretary of the Interior's Standards and guidelines for Archaeology and Historic Preservation; (4) file the site specific plan for Commission approval, together with the written comments of the SHPO and the Forest Service; and (5) take the necessary steps to protect the sites from further impact until informed by the Commission that the requirements have been fulfilled.

Upon Commission approval, the Licensee shall implement the plan.

### **Rationale:**

The emphasis of archaeological license conditions and recommendations is to assure the protection and preservation of existing Cultural Resource Sites and Traditional Cultural Properties. As a cooperating agency, the Forest Service is evaluating cultural resources by looking at the project as a whole, not just those resources located on National Forest System lands. The FERC relies on all participating agencies to ensure that this project complies with Section 106 procedures. We are, therefore, commenting based on our specialists' intimate knowledge of the present condition and, the effects of past management activities on the

cultural resources within the APE for this Project. These conditions and recommendations will be wrapped together into the “Cultural Resources Management Plan” which provides the framework for meeting both site-specific and project-wide cultural resource needs.

### **Recommendation No. 7 – Project Patrol for Resource Protection**

To be consistent with 4(e) Condition No. 25 – Project Patrol for Resource Protection for the Pit 3 and Pit 4 reaches, the Forest Service recommends that the Licensee implement the following in the Pit 5 bypass reach within the timeframes suggested below. This recommendation is consistent with wording developed by PG&E.

Within one year of license issuance the Licensee shall file with the Commission and begin implementation of a plan for providing a full time patrol of the project area for resource protection. At a minimum the plan shall provide for routine and regular physical inspections of Project lands, facilities, and structures including implemented protection, mitigation and enhancement measures and, the provisions of the Cultural Resources Management Plan required by the Project license. The plan shall also include a description of reporting responsibilities including observed violations of laws and communications with law enforcement agencies as well as required documentation of inspections.

#### **Rationale:**

In the Pit 3, 4, and 5 reaches, visitors were generally satisfied with their experiences. According to the Final Application Appendix E5-3, there were a few instances where visitor satisfaction levels were somewhat lower which indicated higher dissatisfaction including trails, visual quality, and presence of rangers. Comments by those filling out the survey spoke about “never having seen a ranger”. The purpose of the project patrol is to be a “presence” of authority in the canyon as well as other areas of the project and to document conditions, complaints, and general uses that occur and to provide information to visitors about behavior and opportunities. While this condition is focused on recreational visitors, its use applies equally to cultural resource concerns about cultural resource site impacts due to unknowing visitors and to site vandalism. Additionally, long-term occupants on PG&E lands have intimidated visitors from recreating in certain parts of the project. Resource damage by OHVs and other uses inconsistent with PG&E’s land management policies have also required a management presence that has not been available in the past. This project patrol person will provide that presence to discourage illegal uses and report those that do occur.

### **Recommendation No. 8 – Recreational Project Development off NFSL**

To be consistent with 4(e) License Condition No. 26 - “Recreation Management Plan” for the Pit 3 and Pit 4 reaches, the Forest Service recommends that the Licensee implement the following recreational development within the timeframes suggested below in the Pit 5 bypass reach. This recommendation is consistent with discussions within the Recreational sub-group of the Pit River Collaborative Team.

## **Lake Britton Facilities**

### **1. Northshore Campground**

Within 3 years of license issuance, institute improvements to North Shore Campground including the following:

- Flush toilets and showers.
- Create and maintain beaches on the west shore of the campground and at the old launch ramp.
- Institute measures to reduce shoreline erosion due to beach use such as constructed stairways and bin walls.
- Designate swimming areas to separate swimming, and boat mooring/beaching.
- Consistent with any required sign plans, provide a larger directional entrance sign at Clark Creek Road and the campground access road.

### **2. Upper Lake Britton Day Use Facilities**

Hat Creek South Parking – maintain road to the south parking area to provide recreation access to the river.

### **3. New Overnight Camping Capacity**

Licensee shall provide 25% more public overnight developed camping units over the life of the license (an increase of 39 sites). The amount of increase specified is total for both Forest Service 4(e) License Conditions and 10(a) Recommendation, and not in addition to that of the 4(e). At least half of that capacity shall be added in the first 10-year period. New overnight sites in this provision should reflect the current or planned development level of an existing campground or, the designated ROS of the area. Additions to capacity should be within the project boundary or, within a 1-1/2 mile radius of the project waters. New capacity shall emphasize expansion of existing sites/use areas over development of new sites/use areas. Consider impacts to sensitive resources in location and design. An existing site is defined as a designated and managed recreation site containing man-made improvements. A use area is defined as an area being heavily utilized by the public such that its natural character has been heavily impacted. Examples of heavy utilization include loss of vegetation due to parking and trampling, existence of makeshift facilities such as campfire rings, shelters, sanitation; evidence of considerable amounts of trash.

For a portion of the total overnight capacity requested between the 4(e) License Condition and the 10(a) Recommendations, the Forest Service recommends that the licensee fund a portion of the California State Parks Master Plan for the McArthur-Burney Falls State Park in order to increase single-family overnight camping capacity near the project. The State Parks will own and manage all facilities constructed with these funds. Implementation of any construction should be specified to be accomplished within 10 years of license issuance.

#### 4. New Day-Use Facilities

Within 5 years of license issuance, the Forest Service recommends development of increased capacity for day-use, specifically beach use, around Lake Britton by concentrating on enhancing existing sites/disturbed areas before any new locations are considered. Capacity shall increase by 100 People at one time (PAOT) total for the Project. The amount specified is total PAOTs between Forest Service 4(e) License Conditions and 10(a) Recommendation and not in addition to that of the 4(e). Possible locations for new day-use include the area between the Pines Picnic Area and Jamo Boat Launch or at the North Ferry Crossing. The new day-use area should have regularly maintained beach sand, restrooms on site or nearby, road access, parking, trash collection, and regular monitoring by a host or Licensee employee.

#### 5. Facility Operations

Continue weekend management and policing of Jamo Boat Ramp until September 30 in order to keep the facility clean and orderly. Extend the season of the Pines Picnic area by opening on weekends in September. Keep North Shore campground open through September and continue periodic care and policing.

#### **Rationale:**

Recreation use at all facilities on Lake Britton has seen steady increases since the last relicensing according to use data gathered by PG&E (Application for License). The McArthur Burney Falls State Park is at capacity during the summer use season and has limited expansion capability for day use. Burney Falls State Park has completed an environmental analysis that allows reconstruction of the Park's facility to provide for additional group campsites which would, in turn, free up single-family campsites currently used by groups. Summer season weekend occupancy for non-State Park camping on Lake Britton is between 50% and 90% at Dusty Campground, and 35% to 70% for Northshore Campground. There are only 37 camping units between both of these campgrounds. Private camping opportunities in the Lake Britton area are confined to a single park that is well away from the lake and caters mostly to full-time residents. A second private campground, nearer the Lake, recently closed. A locally based survey showed that there would be interest (19% of all users and 26% of State Park users surveyed) for a "State Park-like" campground on the lake should they be denied entry to the existing State Park. This would indicate a demand for a higher level of development.

There is a high level of existing demand Statewide for trail hiking, developed and primitive camping, picnicking, swimming, fishing, and beach activities according to data researched by PG&E. Future participation in hiking, boating, developed camping, beach use, picnicking, and swimming is projected to increase by more than 50 percent during the license period.

While demand for camping, day use, and boat use falls dramatically after Labor Day, there is a continuing need for these opportunities during good weather in late summer and early fall. Also, its proximity to the main route, Highway 89, between Reno, Nevada and Interstate 5 in northern California, make the project area desirable for transient recreation

as well; those passing through on their way northward or southward. The recent designation of this highway as the National Volcanic Scenic Byway may induce more visitation to the area as the route is publicized and visitor centers are finished.

#### **Pit 5 River Reach Facilities**

1. Within 5 years of relicensing, construct a full-service campground of at least 20 units, near Camp Pit and the Tunnel Reservoir. The campground should accommodate both recreational vehicles (RV) and tent camping. There should be showers, flush toilets, and power/water RV hookups.
2. Improve the Trailer Road for dispersed camping opportunities by grading to a maintenance level 3 and regular patrols to prevent long-term occupancy.

#### **Pit 5 Reservoir Operations**

We recommend the Licensee request a change in the County ordinance to open the Pit 5 reservoir to non-motorized boats, motorized boats with battery –powered trolling motors, and float tubes between August 1<sup>st</sup> and December 31<sup>st</sup>. We recommend the licensee install a restrictive buoy near the intake structure, and that the area be signed to indicate the new regulation.

#### **Rationale:**

Based on PG&E user surveys of the Canyon, a majority of the users come from the Bay Area and visit from three to four days at a time. Most of these users must travel quite a distance to hotels in nearby areas such as Burney or Redding or, are staying at the PSEA camps, which are limited to current and former PG&E employees and are not available to the public. The owner of Evergreen Lodge, a private residence available for rent in the Big Bend vicinity, said recently that demand for his residence was so high that people wanted to reserve 3 years in advance. Henderson’s Spring Resort, also in the Big Bend area, is a fly fishing resort with private ponds and does not cater to overnight lodging alone. Rates range from \$160 to over \$240 per night per person, which includes meals and fishing on the property. This demonstrates that there is an existing demand for a greater amount and a higher development level of overnight accommodation in the lower Pit River reaches.

The Forest Service recommends any new recreational facilities be constructed where development already exists, such as near Big Bend. This would be consistent with minimizing development in reaches where the Recreation Opportunity Settings are semi-primitive motorized to semi-primitive non-motorized, versus the rural setting as one approaches the community. This preference was also expressed by existing users who indicated a desire to maintain the river reaches at a roaded modified setting or less. Existing river users also expressed a need for more trash cans, restrooms, and potable water, which are commonly found at developed sites.

As previously indicated above, hiking is, and will continue to be, in great demand Statewide and within the project area. A survey of existing river reach users indicated that 24% felt that more shore access trails were needed and 20% wanted more hiking trails. Project roads and operations have brought visitors to the area to fish, which is the primary activity within the

river reaches. Well-maintained trails, which will serve to access the river reaches, will meet both access and hiking needs while ameliorating resource damage and erosion from steep user created trails.

Currently PG&E limits public use in Project reservoirs that appear to not warrant these restrictions. In the Application for New License, Page B-5, PG&E states, “Lake Britton, Pit 4 forebay and Pit 5 forebay water surface elevations do not vary dramatically...”. While safety should be a prime consideration for any use of project reservoirs, it is not clear why non-motorized use of the reservoir would not provide increased recreational use while the seasonal dates avoid resource conflicts with foraging bald eagles. With the very slow movement of water into the intake in this reservoir, and the placement of an appropriate restrictive barrier, it appears that recreational use could be expanded into the Pit 5 Project reservoir.

The Forest Service has been a member of, and major contributor to, the Pit River Collaborative Team recreation sub-group, which includes PG&E and other interested parties. The recommendations for recreation facility development above are in keeping with the sub-group’s recommendations and concepts. The recommendations allow for a better balance of project induced recreational facilities throughout the 30 mile length of the project, and place emphasis on correcting on-going resource effects from the lack of facilities. It will be necessary to work with the Pit River Tribe, local communities, and other interested parties to assure protection of sensitive sites, and to consider the desires of adjacent communities.

### **Recommendation No. 9 – Whitewater Boating in the Pit 5 Reach**

This recommendation is consistent with the recommendation agreed to by the Pit River Collaborative Team with the exception of the Pit River Tribe who did not support the streamflow release component of this condition (although they did support the Streamflow Information portion).

#### **1) Recreation Streamflow Release**

The Licensee shall, within 6 months after license issuance and in consultation with SWRCB, CDFG, FWS, NPS, CDPR, Pit River Tribe, AW, and other parties who request involvement, develop and file with FERC a plan for providing annual recreation streamflow releases in the Pit 5 reach suitable for whitewater boating. The plan shall consist of the following key elements: Baseline Data; Recreation Streamflow Schedule; Monitoring; and Adaptive Management, with each element providing the information specified below.

The Licensee shall submit a draft plan for 30-day review and comment by the entities consulted, and shall within 30 days thereafter submit a final plan, along with all comments received on the draft plan, to FERC. The Licensee shall implement the final plan.

**Baseline Data:** This element shall identify essential baseline data necessary for effective evaluation of possible ecological effects of the recreation streamflow releases. The element shall identify existing data and data to be developed, and shall include a schedule and study

plans for obtaining such data. The element shall describe how the recommended data will be used. Additionally, the element shall specify the timing relationship between data acquisition and initiation of recreation streamflow releases. The period for acquisition of baseline data shall not exceed 5 years, and the scope shall be such that the Licensee's total cost for baseline data shall not exceed \$250,000.

**Recreation Streamflow Schedule:** This element shall specify details of the recreation streamflow release. The initial recreation streamflow release schedule shall consist of two consecutive weekend days in August with flows of 1,500 cfs from 10 AM to 4 PM at Pit 5 Dam and two consecutive weekend days in September with flows of 1,200 cfs from 10 AM to 4 PM at Pit 5 Dam. All flow magnitudes shall be 1,200 cfs in years that Pit 3 Dam does not spill, as defined in the Required Minimum Streamflow measure. The initial recreation flow schedule shall be maintained for a minimum of 3 consecutive years. Thereafter, it may be modified as described in the Adaptive Management element. The Licensee shall make a good faith effort to provide the specified flow magnitudes within the accuracy of the existing flow release facilities at Pit 5 Dam.

**Monitoring:** The Monitoring element shall consist of two subsections: environmental monitoring and boater-use monitoring. The environmental monitoring subsection shall describe the environmental monitoring to be performed to assess and evaluate potential environmental effects of the recreation streamflow releases. At a minimum, the environmental monitoring program shall include monitoring of impacts to aquatic biota, other river users, other recreation users, special status species, and cultural sites and uses. The environmental monitoring program shall commence upon implementation of the recreation streamflow releases, and shall continue for up to 3 years. The scope of the environmental monitoring program shall be such that the Licensee's total cost for the program shall not exceed \$150,000. The boater-use monitoring subsection shall describe the monitoring to be performed to assess the adequacy of number of recreation streamflow release days. The boater-use monitoring program shall provide for monitoring actual boater use of recreation streamflow releases. For the first three years of recreation streamflow releases, the Licensee shall, on each recreation streamflow release day, count observed boater use in "boater days." One boater day is defined as boating use of the Pit 5 reach by one person for any part of a given day. After the first 3 years of recreation streamflow releases, boater-use monitoring shall be performed in any year that the number of recreation streamflow release days is increased or decreased and at least once every three years over the term of the license. Boater-use monitoring may be discontinued by mutual agreement between the Licensee and SWRCB after consultation with AW, FWS and other interested members of the public, and with the concurrence of the FERC.

**Adaptive Management:** This element shall describe the adaptive management program for potential adjustment of the recreation streamflow releases in response to the results of the environmental and boater-use monitoring programs specified in the Monitoring element. Adjustment of the recreation streamflow releases and schedule may occur in response to the results of the environmental monitoring program. Such adjustments shall be objective and based on sound scientific study. The Licensee shall consult with SWRCB, CDFG, FWS, NPS, CDPR, Pit River Tribe, AW, and other parties who request involvement regarding any

such adjustments, and shall obtain approval by SWRCB and notify FERC before implementing such adjustments.

Adjustment of the recreation streamflow releases in response to the results of the boater-use monitoring shall consist of adding or subtracting recreation streamflow days based on actual use. One weekend day of recreation streamflow releases shall be added to the recreation streamflow schedule for the next year if actual use exceeds 80 boater days for each recreation streamflow release day in a given month. One weekend day of recreation streamflow releases shall be subtracted from the recreation streamflow schedule for the next year if actual boater use is less than 25 boater days for each recreation streamflow release day in a given month. The number of recreation streamflow days shall be adjusted for the same month in which the adjustment triggers were met. Based on boater use monitoring, the number of recreation streamflow days shall not be reduced to less than one weekend day in August and two consecutive weekend days in September, and shall not be increased to more than four weekend days in August and four weekend days in September. If the maximum number of recreation streamflow release days is being provided, and actual use exceeds 80 boater days on all days, one additional weekend day of recreation streamflow release shall be provided in October of the next year. The October recreation streamflow release day is subject to the same future adjustment as the August and September recreation streamflow release days, with a maximum number of two consecutive weekend days, and a minimum number of no days. Recreation streamflow days shall not be added during the 3-year environmental monitoring period.

The requirements of this measure are subject to temporary modification if required by equipment malfunction, emergency and law enforcement activity, and critical electric system emergencies beyond the control of the Licensee. Additionally, the measure is subject to the safe operability of the Project facilities and equipment necessary to provide such recreation streamflow releases and the Licensee's ability to utilize the recreation streamflow release for power generation at the Pit 3, Pit 4, Pit 6 and Pit 7 powerhouses. The Licensee shall make a good faith effort to maintain the operability of such facilities and equipment and shall not schedule discretionary outages of such facilities and equipment in conflict with providing the recreation streamflow releases. The Licensee shall make a good faith effort to make scheduled recreation streamflow releases on the days when such releases are scheduled to occur. In the event a scheduled recreation streamflow release is not provided, the Licensee shall make a good faith effort to provide a comparable recreation streamflow release as soon as practicable thereafter with sufficient notice to the boating community.

**Rationale:**

Whitewater boating is a recreation activity that has been growing in popularity over the past few decades. Boaters are increasingly looking for opportunities for this activity, in particular opportunities during the warm summer months. This measure is designed to provide this opportunity in the Pit 5 Reach. It is limited to the Pit 5 Reach due to concerns over the potential impacts on angling opportunities in the Pit 3 Reach and on the population of foothill yellow-legged frogs located in the Pit 4 Reach.

Making whitewater boating flow releases has the potential to disrupt the Pit 5 Reach ecosystem by creating out-of-season spikes in flow. To some extent establishing ramping rate criteria will mitigate these impacts. To assess these impacts it will be necessary to establish some level of ecological baseline prior to implementing annual whitewater boating flow releases. This information will be utilized to assess the impacts of these out-of-season flow events.

Monitoring is divided into ecological and boater-use monitoring. In this way it can be determined the extent of impacts caused by these flows as described above and the level of use by boaters can also be assessed relative to the ecological and power generation impacts. The knowledge obtained from monitoring efforts may result in adjustments to the flow amounts or changes in the number of days the boating flows are provided.

## **2) Streamflow Information**

The Licensee shall, beginning as soon as reasonably feasible and no later than one year after license issuance, each year make available to the public the recreation streamflow information listed below. Unless otherwise noted, the streamflow information shall be available to the public via toll-free phone and Internet, which may be accomplished through a third party. . The streamflow information protocols may be modified upon mutual agreement of the Licensee, FS and responsive stakeholders, and acceptance by FERC. The following information shall be made available:

- a. The hourly average streamflow in the Pit River below the Pit 5 dam for the current day and the past seven days. The flow information may be measured, calculated or a combination of the two. The flow information shall be posted within four hours of collection. Streamflows shall be rounded up to the nearest 50 cfs, and all plots and tables showing these data shall be labeled: “These provisional data have not been reviewed or edited, and may be subject to significant change.”
- b. By January 5, the proposed dates and magnitude for any freshet flow, if applicable, planned to be provided by the Licensee, with updates by February 15 and within two days of any changes in plans.
- c. By July 1, the proposed dates for any recreation streamflow releases, with updates at least two weeks and one week in advance of each proposed date. The Licensee shall also notify the community of Big Bend and the Big Bend Rancheria of any recreational streamflow releases.

In addition, the Licensee shall, as soon as reasonably feasible and no later than two years after license issuance, install and maintain one simple staff gage/depth indicator at the following location: Licensee gage PH27 at Big Bend Bridge. The Licensee shall make a good faith effort to locate the staff gage/depth indicator near a public access location so that it is easily accessible for public reference. The Licensee shall provide a means at the staff gage/depth indicator to reasonably correlate staff gage/depth indicator readings to cfs.

## **Rationale:**

Many of the public recreation activities are centered on flow in the Pit River. Whitewater boaters need information on flow rates in order to know where and when adequate flow is available for their particular craft or level of skill. Anglers need flow information to determine if they will likely be able to safely fish a particular reach. Providing flow information through publicly available media will aid recreationists in making decisions regarding their activities. It will be up to the individual to assess the suitability of a particular flow for their desired activity. The streamflow information system can also make available information regarding planned flow releases such as maintenance outages or freshet flow releases.

### **3) Whitewater Boating Access Points:**

The Forest Service recommends the Licensee develop and maintain two whitewater boating access points in the Pit 5 river reach consisting of a “put in” and “take out”. Access points can be coordinated with other developments. One potential desirable put-in location is at the “Trailer Road” and a possible take-out point is near Bush Bar. Whitewater boating access points should be developed in concert with local communities, resource agencies, and interested publics. Mitigations for potential whitewater boating/archaeological site conflicts should be addressed in the Cultural Resource Management Plan.

## **Recommendation No. 10 – Road Reconstruction and Maintenance**

The Forest Service recommends that the Licensee complete the following road rehabilitation projects and apply the following road maintenance standards to project roads not on, nor affecting, NFSL for the purpose of protecting the road facility and surrounding resource attributes. Many of these same measures were recommended by PG&E’s contractor during the relicensing road study titled, "Public Safety and Traffic Management Pit 3,4, &5 Hydroelectric Relicensing Project FERC No. 233", prepared for Pacific Gas and Electric Company by Foster Wheeler Environmental Corporation, March 2001, as denoted with an \* symbol.

### **General Recommendations:**

1. All gate signs used for road closures use the “Manual of Uniform Traffic Control Devices” (latest edition) standards.
2. Implement Best Management Practices (BMPs) for all road construction/maintenance activities.
3. Complete on an annual basis normal maintenance activities including: repair/replace damaged culverts, remove existing vegetation to allow for adequate sight distances, clean ditches, remove fallen trees on roads, replace faded signs etc.
4. Install gates or other vehicle control measures where necessary to achieve erosion protection.
5. Sign project roads and related recreational access points/facilities to assist non-local recreationists in finding destinations and project waters.

**Rationale:**

Fugitive dust is coming off of graveled project road surfaces. This dust affects air quality and delivers sediments into project waters in areas where the road is adjacent to, or near the river. The public has identified road dust in the vicinity of Camp Pit, near the project's Tunnel Reservoir in the Pit 5 reach, as a "recreational nuisance". Paving in this area would eliminate "dusting" of recreationists, as well as address other resource concerns such as sedimentation. While the paving would assist in reducing sedimentation of the river, adopting reasonable road maintenance techniques on all project roads would decrease sedimentation on river reaches not directly affecting NFSL.

Besides sedimentation, adequate signage and gating is needed to prohibit inappropriate access and to protect the driving public. Current road barriers include a cable with plastic flagging across a public road, which may not be visible to drivers. For safety reasons these need to be removed from Project roads. We recommend that the licensee use standard gate and signage packages, such as the Forest Service standard to provide for adequate resource protection and for public safety.

**Specific Recommendations:****Lake Britton/Hat Creek Fish Barrier Access Road**

1. Reconstruct this project road intersection with State Highway 299E in coordination with California State Department of Transportation (CALTRANS). Reconstruction is needed to incorporate a left hand turn lane, straighten the blind corner, or other public safety measures.
2. Install additional drainage structures on road, i.e. culverts and rolling dips where flowing water is eroding the road surface and surrounding terrain.
3. Install six inches of compacted surface material, i.e. cinders over existing road. Recommended road width should be 12 feet.
4. Develop appropriate access in conformance with both the "Upper Britton OHV and Vehicle Management Plan", and "Cultural Resource Management Plan" license conditions. \*
5. Recommend installation of a sign on Highway 299E "Minor Side Road", W2-2-30, to warn users that there may be slowing, entering, or exiting vehicles. \*

**Rationale:**

The existing intersection of this Project road and State Highway 299 has a very poor alignment, with recent traffic fatalities. Eastbound traffic must stop completely on a blind corner if westbound traffic prevents them making the left hand turn immediately. With the vehicle stopped on this corner, additional eastbound traffic traveling at the posted 55 mph speed limit has no opportunity to slow their vehicle or to avoid a collision with the stopped vehicle. This is a public safety issue as it relates to project induced recreationists' use of a Project road to access Hat Creek and Pit 3, 4, and 5 Project waters.

Traffic counts show that over 100 vehicles per day use the road during the opening day of fishing season. Additionally, this road is heavily used by Off-Highway Vehicle (OHV) recreationists on project and adjacent NFS lands. As there is no well-defined traveled way, and lack of drainage structures have induced vehicles to go around standing water, road widths have increased from 12 feet to up to 16 feet wide. The native road surface and flat terrain of the area has resulted in OHV users throughout the area, which has impacted cultural resources and is causing wildlife disturbance. Surfacing the road will clearly identify the road location to the recreationists. The objective of implementing the above measures for the Hat Creek fish barrier access road are to protect cultural resources, reduce sedimentation to Project waters from user created road development, reduce disturbance to wildlife, and provide an easily identifiable and well maintained route for project induced recreation. These measures are reasonable and necessary for not only the affected resources, but for public safety.

### **Hagen Flat Road (FR50)**

1. Install a road name sign at appropriate intersections along this road.
2. Extend the pavement on this road from where it currently ends near the PSEA Camp Pit, to the west end of the Pit 5 Dam (the dam itself is currently paved so this measure would extend pavement to the east end of the dam). Total estimated length would be less than 1 ½ miles.

### **Rationale:**

The road signs would assist non-local recreationists in locating project waters and facilities. An extension of existing pavement was requested by current users and Big Bend community members in order to reduce dust resulting from traffic along this graveled road. Additionally, it would assist in reducing Project road maintenance activity sediments from entering Project waters at Tunnel Reservoir, and down the grade as you approach the Pit 5 Dam and intake structures. These sediments prevent attainment of “best management practices” and are detrimental to fish habitat, etc.

### **Pit 5 Powerhouse Road**

1. Resurface existing asphalt road. \*
2. Repair existing 200-foot section of road (in the first ½ mile of this road after leaving the junction with the Hillcrest/Big Bend Road) that has settled due to drainage problems.
3. Extend existing crib wall adjacent to Miners Creek to prevent continued erosion, and possible road failure.
4. Repair/replace all damaged culverts as identified in road logs from PG&E Public Safety and Traffic Management Report (March 2001). \*
5. Replace faded signs and add additional object markers. All signs should conform to the Manual of Uniform Traffic Control Devices (MUTCD). \*
6. Install hazard markings on facilities adjacent to the road. \*
7. Add milepost markers for maintenance, public service, and emergency response. \*
8. Remove debris piles, material and equipment storage, etc. scattered along various portions of the road to a central location. \*

**Rationale:**

This project road is heavily used by the licensee for administrative traffic associated with Pit 5 powerhouse operations. It is additionally used by project-induced recreationists, and has not had major repairs for a number of years. Work items listed are necessary to maintain the road surface, and to reduce erosion leading to downstream sedimentation caused by inadequate road maintenance.

One of the most potentially serious road problems is #2, where the existing crib wall does not extend far enough along the cut bank. Continued erosion could eventually result in road failure, with a heavy rain event expediting this failure.

**Bush Bar Road**

Develop a Pit 5 reach disposal plan which provides for appropriate disposal of the licensee's operational materials outside of areas being used by project-induced recreationists, and where sedimentation to river resources cannot occur. This plan should eliminate use of this site at Bush Bar as a waste disposal area and provide measures for returning this site to a more natural setting.

**Rationale:**

This is one of many areas where the licensee indiscriminately piles maintenance debris, including: dirt, rock, old culvert pieces, log debris, and other material. This approximately ½ mile road dead-ends in an area of moderate project induced recreational use (as per PG&E recreation surveys), including the most accessible (and Big Bend communities favorite) swimming hole in the Pit 5 Reach. These piles of material prevent parking in a portion of the area, are visually unattractive, are in conflict with the historic site at this location, have introduced a seed bed which noxious weeds have exploited, and with several of the piles located adjacent to the Pit river, provide a sediment source during pile erosion. Developing a plan to rehabilitate inappropriate pile locations, while providing appropriate locations for disposal of material away from recreational and resource concerns would greatly benefit the public, and resources, while fulfilling licensee's administrative need to have approved disposal sites.

**Upper Lake Britton/Gas Pipeline Loop Road**

1. Install six inches of crushed cinders over surface of the road.
2. Install additional drainage structures on road, i.e. culverts and rolling dips.
3. Restrict access in conformance with both the "Upper Britton OHV and Vehicle Management Plan", and "Cultural Resource Management Plan" license conditions.
4. Install a sign at the entrance of intersection with Highway 299E, restricting OHV travel off existing roads.
5. Install object markers and replace faded sign on existing gate.
6. Install signs on Highway 299E "Minor Side Road", W2-2-30, to warn users that there may be slowing, entering, or exiting vehicles. \*
7. Install "Steep Grade" signs at the top of two existing spur roads to warn drivers of the steep grade before they encounter it. \*

**Rationale:**

The primary concerns of this road, as with the Lower Hat Creek Loop Road, are the impacts due to vehicle use on cultural resource sites, increased sedimentation to Project waters, and disturbance of wildlife. The existing native road surface consists of approximately 6 inches of fine material, which, when wet, creates very slick driving conditions. The flat terrain has resulted in vehicle use throughout the area. Surfacing the road will clearly identify the road prism location and keep traffic on the traveled way. It is recommended that the road system to be developed have the least impact on cultural resources. All other “unclassified roads” should be closed and rehabilitated.

**Recommendation No. 11 – Grazing on Project Lands**

Grazing on project lands, which was eliminated during the last relicense, should not be allowed on project-associated lands for the duration of this upcoming license.

**Rationale:**

The elimination of grazing on Licensee’s lands during the previous relicensing has since resulted in improved riparian habitat and functioning along the shores of Lake Britton, which has led to reduced erosion. Further, cattle disturbance to archaeological sites has been reduced and recreational values have increased where human use conflicted with cattle grazing. While there have been no discussions from the Licensee concerning returning cattle grazing to project lands, we recommend that this use not be reintroduced.

**Recommendation No. 12 – Miners Creek Tunnel Spoil Pile Rehabilitation in Pit 5 Reach**

This recommendation is consistent with discussions between the Forest Service, PG&E, and their contractor.

The Licensee, in consultation with the Forest Service and other interested parties should develop a spoil pile rehabilitation plan to prevent continuation of resource disturbance and on-going erosion into the Pit River by considering the following:

1. Measures to stop active erosion and gulying into Miner’s Creek.
2. Revegetation measures to assist with site stabilization/erosion, aesthetics, noxious weed prevention, etc.
3. Remove non-native material such as asphalt, trash, yard debris, etc, and dispose in an off-site facility.
4. Close site for any additional disposal, and prevent local dumping at site.

Upon approval of the plan by the Commission, the Licensee shall implement the Plan.

**Rationale:**

This large pile (287,000 cubic yards of material, covering approximately 5.6 acres) was one of the 16 piles inventoried and examined for erosion during PG&E’s relicensing studies (see Report E2.5.2 in Volume 4 of 9- PG&E Application). As stated in that report; “The erosion potential rating for this disposal site is considered to be high to medium (H/M) based upon the extensive gully formation, apparent loss of spoil pile materials through erosion, and the close proximity of Miners Creek at the toe of the disposal pile.” Although this pile has been in place for decades, it has neither stabilized nor revegetated (except by a heavy invasion of noxious weeds). See photographs of this and other licensee tunnel spoil piles in the reference Report above. Additionally, there are downstream effects from the erosion of this pile, including siltation and sedimentation of the river and substrates used by fish and benthic macroinvertebrates. The recommendations listed above, while not extensive, would greatly reduce erosional impacts of this Project induced pile on Project and non-project waters.

**Recommendation No. 13 – Hat Creek Fish Barrier**

This recommendation is consistent with tentative agreement between the California Department of Fish and Game and PG&E.

The Licensee shall cooperate with CDFG in maintaining an effective Fish Barrier located on Hat Creek at the point where it enters Lake Britton for the life of this license. The scope of the Licensee’s responsibilities are for the cost of materials, archeological investigations, monitoring, and mitigation required for needed maintenance, provided CDFG provides the associated planning, permitting, and construction for this same maintenance period. In the event it becomes necessary to replace the Hat Creek Fish Barrier, the Licensee shall cooperate with CDFG in replacing the barrier. The Licensee shall at a minimum provide materials, archaeological review and coordination, and some equipment. CFDG will provide design, planning, environmental review, permitting, and personnel to complete the replacement.

**Rationale:**

The California Department of Fish and Game (CDFG), non-governmental angler groups, and Pacific Gas and Electric Company (PG&E) cooperated in the development of the Hat Creek Wild Trout Management Program initiated by CDFG on non-project lands and waters upstream of the Pit 3, 4, and 5 Project (Project). The Hat Creek Fish Barrier was constructed by CDFG within the Pit 3, 4, and 5 Project boundary and is a necessary structure to prevent native non-game species in Lake Britton from entering the wild trout reach of Hat Creek. Subsequent to construction of the barrier non-native small mouth bass have been introduced into Lake Britton. The barrier serves as a means of preventing this predatory fish from entering and becoming established in Hat Creek. The barrier is therefore an essential component of CDFG’s Hat Creek Wild Trout Management Program and to prevent the impacts of non-trout species from entering Hat Creek.

The CDFG and PG&E agree that each party should share in the responsibility for the continued maintenance of the barrier and replacement if needed. While a Memorandum of Understanding between CDFG and PG&E could define the limits of each party's responsibilities, it would not give the same level of assurance of the Licensee's performance as would a license article. Additionally, a license article links responsibility for the barrier to the Licensee of the Pit 3, 4, and 5 Project whether the Licensee is PG&E or another party. This license measure will assure that the Pit 3, 4, and 5 Project Licensee contributes to the maintenance of the barrier while leaving ownership with CDFG. It will also facilitate the continued support of the barrier by angler groups by limiting the level of Licensee responsibility to a portion of the financial support leaving the balance to be provided by other sources.

Apart from the license condition, CDFG and PG&E must renew the easement agreement between the parties. The agreement will assure that the CDFG will continue to have the necessary rights to own, operate, and maintain a fish barrier on Hat Creek.

## References Cited

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