

**Enclosure I**

**Forest Service Preliminary Conditions and Recommendations  
Provided Under 18 CFR § 4.34 (b)(1)  
In Connection with the Application for Relicensing for the  
Middle American River Project  
(FERC No. 2079)**

**4 August 2011**

## Table of Contents

PART I: ADMINISTRATIVE CONDITIONS .....	3
Condition No. 1 – Consultation.....	3
Condition No. 2 - Approval of Changes.....	4
Condition No. 3 - Maintenance of Improvements on or Affecting National Forest System Lands	4
Condition No. 4 - Existing Claims .....	5
Condition No. 5 - Compliance with Regulations .....	5
Condition No. 6 - Surrender of License or Transfer of Ownership.....	5
Condition No. 7- Protection of United States Property .....	5
Condition No. 8 – Indemnification.....	5
Condition No. 9 - Damage to Land, Property, and Interests of the United States.....	6
Condition No. 10 - Risks and Hazards on National Forest System Lands .....	6
Condition No. 11 – Protection of FS Special Status Species .....	7
Condition No. 12 – Access.....	7
Condition No. 13 – Crossings .....	7
Condition No. 14 - Surveys, Land Corners .....	7
Condition No. 15 - Pesticide-Use Restrictions on National Forest System Lands.....	8
Condition No. 16 - Modifications of 4(e) Conditions after Biological Opinion or Water Quality Certification.....	9
Condition No. 17 – Signs .....	9
Condition No. 18 – Ground Disturbing Activities .....	9
PART II: RESOURCE CONDITIONS.....	9
Condition No. 19 – Use of National Forest System Roads for Project Access .....	9
Condition No. 20 - Access By The United States .....	11
Condition No. 21 - Road Use .....	11
Condition No. 22 – Minimum Streamflows .....	11
Condition No. 23 – Pulse Flows.....	21
Condition No. 24 – Ramping Rates.....	29
Condition No. 25 – Outages .....	33
Condition No. 26 – Spawning Habitat Improvement Plan for the Middle Fork American River Below Ralston Afterbay Dam .....	35
Condition No. 27 – Wildlife and Plant Protection Measures .....	35
Condition No. 28 – Monitoring Program .....	37
Condition No. 29 – Large Woody Debris .....	39
Condition No. 30 – Annual Review of Ecological Conditions .....	40
Condition No. 31 – Streamflow and Reservoir Elevation Gaging Plan .....	40
Condition No. 32 – Penstock and Other Drainage Structure Emergency and Maintenance Release Points .....	40
Condition No. 33 – Recreation Plan.....	40
Condition No. 34 – Recreation Operation, Maintenance, and Administration .....	41
Condition No. 35 – Specific Improvements at Dispersed Recreation Sites .....	41
Condition No. 36 – Recreation Work Station and Storage Facility .....	41
Condition No. 37 – Reservoir Minimum Pool Elevations and Reservoir Levels Recreation Objectives.....	41
Condition No. 38 – Reservoir Fish Stocking Program.....	43

Condition No. 39 – Recreation Streamflows in the Middle Fork American River Below Oxbow  
Powerhouse ..... 43  
Condition No. 40 – Visual Resource Management Plan ..... 47  
Condition No. 41 – Historic Properties Management Plan ..... 47  
Condition No. 42 – Cultural Resource Discovery ..... 48  
Condition No. 43 – Transportation System Management Plan ..... 48  
Condition No. 44 – Fire Management and Response Plan..... 48  
Condition No. 45 – Erosion and Sediment Control and Management ..... 48  
Condition No. 46 – Vegetation and Integrated Pest Management Plan ..... 49

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**PART I: ADMINISTRATIVE CONDITIONS**

**Condition No. 1 – Consultation**

The Licensee shall, beginning the first full calendar year after license acceptance, participate in annual meetings with the FS to present Project operation and maintenance activities planned for the next calendar year. In addition, Licensee shall present results from current year monitoring of noxious weeds and special status species as well as any additional information that has been compiled for the Project area, including progress reports on other resource measures. The goals of this meeting are to share information, mutually agree upon planned maintenance activities, identify concerns that the FS may have regarding activities and their potential effects on sensitive resources, and any measures required to avoid or mitigate potential effects.

The date of the consultation meeting will be between January 10 and March 15 of each year, as mutually agreed to by the Licensee and FS. Representatives from the FWS, CDFG, State Water Board, other interested agency representatives, and other interested parties concerned with operation of the Project may 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 FS and the Licensee during development of implementation 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 implementation plans approved as part of this license.
- 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. Discussion of needed protection measures for newly discovered cultural resource sites.

- Discussion of elements of current year maintenance plans, e.g. road and trail maintenance.
- Discussion of any planned pesticide use.

A record of the meeting shall be kept by the Licensee and shall include any recommendations made by the FS for the protection of NFS lands and resources. The Licensee shall file the meeting record, if requested, with FERC no later than 60 days following the meeting.

Copies of other reports related to Project safety and non-compliance shall be submitted to the FS 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 NFS lands.

The FS reserves the right, after notice and opportunity for comment, to require changes in the Project and its operation through revision of the Section 4(e) conditions to accomplish protection and utilization of NFS lands and resources.

### **Condition No. 2 - Approval of Changes**

Notwithstanding any license authorization to make changes to the Project, when such changes directly affect NFS lands the Licensee shall obtain written approval from the FS 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 FERC. Following receipt of such approval from the FS, and a minimum of 60 days prior to initiating any such changes, the Licensee shall file a report with FERC describing the changes, the reasons for the changes, and showing the approval of the FS for such changes. The Licensee shall file an exact copy of this report with the FS at the same time it is filed with FERC. This condition does not relieve the Licensee from the amendment or other requirements of Article 2 or Article 3 of this license.

### **Condition No. 3 - Maintenance of Improvements on or Affecting National Forest System Lands**

The Licensee shall maintain all its improvements and premises on NFS lands to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the FS. Disposal of all materials will be at an approved existing location, except as otherwise agreed by the FS.

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

The license shall be subject to all valid claims and existing rights of third parties. The United States is not liable to the Licensee for the exercise of any such right or claim.

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

The Licensee shall comply with the regulations of the Department of Agriculture for activities on NFS lands, and all applicable Federal, State, county, and municipal laws, ordinances, or regulations in regards to the area or operations on or directly affecting NFS lands, to the extent those laws, ordinances or regulations are not preempted by federal law.

#### **Condition No. 6 - Surrender of License or Transfer of Ownership**

Prior to any surrender of this license, the Licensee shall provide assurance acceptable to the FS that Licensee shall restore any Project area directly affecting NFS lands to a condition satisfactory to the FS upon or after surrender of the license, as appropriate. To the extent restoration is required, Licensee shall prepare a restoration plan which shall identify the measures to be taken to restore such NFS lands and shall include or identify adequate financial mechanisms to ensure performance of the restoration measures.

In the event of any transfer of the license or sale of the Project, the Licensee shall assure that, in a manner satisfactory to the FS, the Licensee or transferee will provide for the costs of surrender and restoration. If deemed necessary by the FS to assist it in evaluating the Licensee's proposal, the Licensee shall conduct an analysis, using experts approved by the FS, to estimate the potential costs associated with surrender and restoration of any Project area directly affecting NFS lands to FS specifications. In addition, the FS may require the Licensee to pay for an independent audit of the transferee to assist the FS in determining whether the transferee has the financial ability to fund the surrender and restoration work specified in the analysis.

#### **Condition No. 7- Protection of United States Property**

The Licensee, including any agents or employees of the Licensee acting within the scope of their employment, shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with this license.

#### **Condition No. 8 – Indemnification**

The Licensee shall indemnify, defend, and hold the United States harmless for:

- any violations incurred under any laws and regulations applicable to, or

- judgments, claims, penalties, fees, or demands assessed against the United States caused by, or
- costs, damages, and expenses incurred by the United States caused by, or
- the releases or threatened release of any solid waste, hazardous substances, pollutant, contaminant, or oil in any form in the environment related to the construction, maintenance, or operation of the Project works or of the works appurtenant or accessory thereto under the license.

The Licensee's indemnification of the United States shall include any loss by personal injury, loss of life or damage to property caused by the construction, maintenance, or operation of the Project works or of the works appurtenant or accessory thereto under the license. Indemnification shall include, but is not limited to, the value of resources damaged or destroyed; the costs of restoration, cleanup, or other mitigation; fire suppression or other types of abatement costs; third party claims and judgments; and all administrative, interest, and other legal costs. Upon surrender, transfer, or termination of the license, the Licensee's obligation to indemnify and hold harmless the United States shall survive for all valid claims for actions that occurred prior to such surrender, transfer or termination.

**Condition No. 9 - Damage to Land, Property, and Interests of the United States**

The Licensee has an affirmative duty to protect the land, property, and interests of the United States from damage arising from the Licensee's construction, maintenance, or operation of the Project works or the works appurtenant or accessory thereto under the license. The Licensee's liability for fire and other damages to NFS lands shall be determined in accordance with the Federal Power Act and standard Form L-1 Articles 22 and 24.

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

As part of the occupancy and use of the Project area, the Licensee has a continuing responsibility to reasonably identify and report all known or observed hazardous conditions on or directly affecting NFS lands within the Project boundary that would affect the improvements, resources, or pose a risk of injury to individuals. Licensee will abate those conditions, except those caused by third parties or not related to the occupancy and use authorized by the License. Any non-emergency actions to abate such hazards on NFS lands shall be performed after consultation with the FS. In emergency situations, the Licensee shall notify the FS of its actions as soon as possible, but not more than 48 hours, after such actions have been taken. Whether or not the FS is notified or provides consultation, the Licensee shall remain solely responsible for all abatement measures performed. Other hazards should be reported to the appropriate agency as soon as possible.

### **Condition No. 11 – Protection of FS Special Status Species**

Before taking actions to construct new project features on NFS lands that may affect FS special status species or their critical habitat, the Licensee shall prepare and submit a biological evaluation (BE) for FS approval. The BE shall evaluate the potential impact of the action on the species or its habitat. In coordination with FERC, the FS may require mitigation measures for the protection of the affected species.

The biological evaluation shall:

- Include procedures to minimize or avoid 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. 12 – Access**

Subject to the limitations set forth in Conditions 19, 20, and 21 hereof, the FS reserves the right to use or permit others to use any part of the licensed area on NFS lands for any purpose, provided such use does not interfere with the rights and privileges authorized by this license or the Federal Power Act.

### **Condition No. 13 – Crossings**

The Licensee shall maintain suitable crossings as required by the FS for all roads and trails that intersect the right-of-way occupied by linear Project facilities (powerline, penstock, ditch, and pipeline).

### **Condition No. 14 - Surveys, Land Corners**

The Licensee shall avoid disturbance to all public land survey monuments, private property corners, and forest boundary markers. In the event that any such land markers or monuments on NFS lands are destroyed by an act or omission of the Licensee, in connection with the use and/or occupancy authorized by this license, depending on the type of monument destroyed, the Licensee shall reestablish or reference same in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the County Surveyor, or (3) the specifications of the FS. Further, the Licensee shall ensure that any such official survey records affected are amended as provided by law.



## **Condition No. 15 - Pesticide-Use Restrictions on National Forest System Lands**

Pesticides may not be used on NFS lands or in areas affecting NFS lands to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, non-native fish, etc., without the prior written approval of the FS. During the Annual Consultation Meeting described in Condition 1, the Licensee shall submit a request for approval of planned uses of pesticides for the upcoming year. The Licensee shall provide at a minimum the following information essential for review:

- Whether pesticide applications are essential for use on NFS lands.
- Specific locations of use.
- Specific herbicides proposed for use.
- Application rates.
- Dose and exposure rates.
- Safety risk and timeframes for application.

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.

Pesticide use will be excluded from NFS lands within 500 feet of known locations of Foothill Yellow-Legged Frog or Western Pond Turtles or known locations of FS Special Status or culturally significant plant populations. Application of pesticides must be consistent with FS riparian conservation objectives.

On NFS lands, the Licensee shall only use those materials registered by the U.S. Environmental Protection Agency and consistent with those applied by the Eldorado and Tahoe National Forests and approved through FS review for the specific purpose planned. The Licensee must strictly follow label instructions in the preparation and application of pesticides and disposal of excess materials and containers. The Licensee may also submit Pesticide Use Proposal(s) with accompanying risk assessment and other FS required documents to use pesticides on a regular basis for the term of the license as addressed further in Condition No. 45, Vegetation and Integrated Pest Management Plan. Submission of this plan will not relieve the Licensee of the responsibility of annual notification and review.

### **Condition No. 16 - Modifications of 4(e) Conditions after Biological Opinion or Water Quality Certification**

The FS reserves the right to modify these conditions, if necessary, to respond to any Final Biological Opinion issued for this Project by the National Marine Fisheries Service, United States Fish and Wildlife Service; or any Certification issued for this Project by the State Water Resources Control Board.

### **Condition No. 17 – Signs**

The Licensee shall consult with the FS prior to erecting signs related to safety issues on NFS lands covered by the license. Prior to the Licensee erecting any other signs or advertising devices on NFS lands covered by the license, the Licensee must obtain the approval of the FS as to location, design, size, color, and message. The Licensee shall be responsible for maintaining all Licensee-erected signs to neat and presentable standards.

### **Condition No. 18 – Ground Disturbing Activities**

If the Licensee proposes ground-disturbing activities on or directly affecting NFS lands that were not specifically addressed in FERC's NEPA processes, the Licensee, in consultation with the FS, shall determine the scope of work and potential for Project-related effects, and whether additional information is required to proceed with the planned activity. Upon FS request, the Licensee shall enter into an agreement with the FS under which the Licensee shall fund a reasonable portion of FS's staff time and expenses for staff activities related to the proposed activities.

## **PART II: RESOURCE CONDITIONS**

### **Condition No. 19 – Use of National Forest System Roads for Project Access**

The Licensee shall obtain suitable authorization for all project access roads and NFS roads needed for Project access. The term of the permit shall be the same as the term of the license. The authorization shall require road maintenance and cost sharing in reconstruction commensurate with the Licensee's use and project-related use. The authorization shall specify road maintenance and management standards that provide for traffic safety, minimize erosion, and damage to natural resources and that are acceptable to FS.

The Licensee shall pay FS for its share of maintenance cost or perform maintenance or other agreed to services, as determined by FS for all use of roads related to project operations, project-related public recreation, or related activities. The maintenance obligation of the Licensee shall be proportionate to total use and commensurate with its

use. Any maintenance to be performed by the Licensee shall be authorized by and shall be performed in accordance with an approved maintenance plan and applicable BMPs. In the event a road requires maintenance, restoration, or reconstruction work to accommodate the Licensee's needs, the licensee shall perform such work at its own expense after securing FS authorization.

The Licensee shall complete a condition survey and a proposed maintenance plan subject to FS review and approval once each year. The plan may take the format of a road maintenance agreement provided all the above conditions are met as well as the conditions set forth in the proposed agreement.

In addition, all NFS roads used as Project Access roads (PAR) and Right-of-Way access roads (ROW) shall have:

- Current condition survey.
- Be mapped at a scale to allow identification of specific routes or segments.
- FS assigned road numbers are used for reference on the maps, tables, and in the field.
- GIS compatible files of GPS alignments of all roads used for Project access are provided to FS.
- Adequate signage is installed and maintained by the Licensee at each road or route, identifying the road by FS road number.

At a minimum the authorization shall include the following roads and may be amended as needed:

Road Name Road Number	Begin Termini / End Termini	Length	Jurisdiction
Mosquito Ridge Road NFSR 0096	Mile Post 1.5 Mile Post 40.6	38.10 miles	Forest Service - TNF
Blue Gate Road NFSR 0096-076	Mosquito Ridge Road French Meadows Res.	0.21 miles	Forest Service - TNF
Soda Springs – Riverton NFSR 0022	Mosquito Ridge Road Forest Boundary	0.977 miles	Forest Service - TNF
Blacksmith Flat Road NFSR 0023	Mosquito Ridge Road Forest Boundary	2.300 miles	Forest Service - TNF
Blacksmith Flat Spur NFSR 0023-002	Blacksmith Flat Road Parking Area	0.684 miles	Forest Service – TNF
Eleven Pines Road NFSR 14N08	Mile Post 19.3 Mile Post 21.136	1.836 miles	Forest Service - ENF
Lower Meadows Road NFSR 14N16	Eleven Pines Road Mile Post 0.182	0.182 miles	Forest Service - ENF
Ralston Ridge Road NFSR 14N22	Blacksmith Flat Road Mile Post 3.11	3.11 Miles	Forest Service - ENF
Blacksmith Flat Road	Forest Boundary	18.985 Miles	Forest Service - ENF

NFSR 14N25	Mile Post 18.985		
Tanners Point Road NFSR 14N31	Ralston Ridge Road Mile Post 1.12	1.12 Miles	Forest Service - ENF
North Long Canyon Road NFSR 14N42	Old Ice House Road Mile Post 0.45	0.45 Miles	Forest Service - ENF
Section 36 Road NFSR 14N55	Tanners Point Road Mile Post 1.0	1.0 Miles	Forest Service - ENF
End of the World Road NFSR 14N55	Tanners Point Road Mile Post 1.2	1.2 Miles	Forest Service - ENF
Old Ice House Road NFSR 17N02	Forest Boundary Mile Post 13.48	13.48 Miles	Forest Service - ENF
Horseshoe Bar Road NFSR 0096-006	Mosquito Ridge Road Private Property	1.00 Miles	Forest Service - TNF

### **Condition No. 20 - Access By The United States**

The United States shall have unrestricted use of any road over which the Licensee has control within the project area for all purposes deemed necessary and desirable in connection with the protection, administration, management, and utilization of Federal lands or resources. When needed for the protection, administration, and management 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. The United States shall control such use so as not to unreasonably interfere with the safety or security uses, or cause the Licensee to bear a share of costs disproportionate to the Licensee's use in comparison to the use of the road by others.

### **Condition No. 21 - Road Use**

The Licensee shall confine all vehicles being used for project purposes, including but not limited to administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes, as identified in the Transportation System Management Plan (refer to Condition No. 42). FS reserves the right to close any and all such routes where damage is occurring to the soil or vegetation, or, if requested by Licensee, to require reconstruction/construction by the Licensee to the extent needed to accommodate the Licensee's use. FS agrees to provide notice to the Licensee and FERC prior to road closures, except in an emergency, in which case notice will be provided as soon as practicable.

### **Condition No. 22 – Minimum Streamflows**

The Licensee shall maintain minimum streamflows in:

- Duncan Creek below Duncan Diversion Dam
- Middle Fork American River below French Meadows Reservoir Dam

- Middle Fork American River below Interbay Dam
- Rubicon River below Hell Hole Reservoir Dam
- North Fork Long Canyon Creek below North Fork Long Canyon Diversion Dam
- South Fork Long Canyon Creek below South Fork Long Canyon Dam
- Middle Fork American River immediately below Ralston Afterbay Dam
- Middle Fork American River below Oxbow Powerhouse

For compliance purposes, the point of measurement for each required minimum streamflow is described in the introduction to the minimum streamflow schedule for that particular stream reach. All specified streamflows are in cubic feet per second (cfs). The schedules specify minimum streamflows, by month and water year type, for each of the specified stream reaches. Streamflow compliance is based on hourly or daily average flows as described below.

### **Water Year Types**

The streamflow and reservoir minimum pool elevation requirements have been specified for six different water year type classifications. The water year type classifications are based on either forecasts or estimates of American River unimpaired flow (acre-feet) below Folsom Lake. The water year types and associated American River unimpaired flow ranges in acre-feet (ac-ft) are provided below:

<b>Water Year Types</b>	<b>American River Unimpaired Flow Below Folsom Lake (ac-ft)</b>
Wet (W)	≥3,400,000
Above Normal (AN)	2,400,000–<3,400,000
Below Normal (BN)	1,500,000–<2,400,000
Dry (D)	1,000,000–<1,500,000
Critically Dry (CD)	600,000–<1,000,000
Extreme Dry (ED)	<600,000

The American River unimpaired flow (ac-ft) below Folsom Lake for the water year (October 1-September 30) is to be determined using the California Department of Water Resources (DWR) Bulletin 120 Forecast of Unimpaired Flow Below Folsom Lake and/or the DWR’s estimated Full Natural Flow record for the American River at Folsom (California Data Exchange Center site AMF sensor 65) (<http://cdec.water.ca.gov>).

The Licensee shall determine the water year type for minimum streamflow requirements based on the following time periods and forecast/estimate methods using the water year types above unless otherwise specified.

**Minimum Streamflow Water Year Type Determination for all Stream Reaches Except Middle Fork American River Below Oxbow Powerhouse**

The Licensee shall determine the water year type for minimum streamflows for all stream reaches except Middle Fork American River below Oxbow Powerhouse based on the following time periods and forecast/estimate methods using the water year type classifications above.

<b>Time Period</b>	<b>American River Unimpaired Flow (ac-ft) below Folsom Lake Determination Method</b>	<b>Water Year Type Classification</b>
June 1–October 31	DWR Bulletin 120 May Forecast <sup>1</sup>	See water year types above (Wet, AN, BN, Dry, CD, ED)
November 1–March 14	End of Water Year Estimate of Full Natural Flows <sup>2</sup>	
March 15–May 31	DWR Bulletin 120 March Forecast <sup>1</sup>	

<sup>1</sup> American River unimpaired flow (ac-ft) below Folsom Lake for the water year, October 1 through September 30, is to be determined using the California Department of Water Resources (DWR) Bulletin 120 Forecast of Unimpaired Flow Below Folsom Lake.

<sup>2</sup> American River unimpaired flow (ac-ft) below Folsom Lake for the water year is to be determined by DWR’s Full Natural Flow record for the American River at Folsom (California Data Exchange Center site AMF sensor 65) after the end of the water year (October 1–September 30) (<http://cdec.water.ca.gov>).

**Minimum Streamflow Water Year Type Determination for Middle Fork American River Below Oxbow Powerhouse**

The Licensee shall determine the water year type for minimum streamflows for the Middle Fork American River below Oxbow Powerhouse based on the following time periods and forecast/estimate methods using the water year type classification above.

<b>Time Period</b>	<b>American River Unimpaired Flow (ac-ft) below Folsom Lake Determination Method</b>	<b>Water Year Type Classification</b>
June 1–October 31	DWR Bulletin 120 May Forecast <sup>1</sup>	See water year types above (Wet, AN, BN, Dry, CD, ED)
November 1–February 14	End of Water Year Estimate of Full Natural Flows <sup>2</sup>	
February 15–Mar 14	DWR Bulletin 120 February Forecast <sup>1</sup>	
March 15–May 31	DWR Bulletin 120 March Forecast <sup>1</sup>	

<sup>1</sup> American River unimpaired flow (ac-ft) below Folsom Lake for the water year, October 1 through September 30, is to be determined using the California Department of Water Resources (DWR) Bulletin 120 Forecast of Unimpaired Flow Below Folsom Lake.

<sup>2</sup> American River unimpaired flow (ac-ft) below Folsom Lake for the water year is to be determined by DWR’s Full Natural Flow record for the American River at Folsom (California Data Exchange Center site AMF sensor 65) after the end of the water year (October 1 – September 30) (<http://cdec.water.ca.gov>).

### **Minimum Streamflow Compliance**

Compliance with the minimum flow schedules must meet the following conditions:

- All specified minimum streamflows are in cubic feet per second (cfs).
- Minimum streamflows must be released by 5 pm on the date specified in the flow schedule tables below for each location unless access to release facility is prohibited by hazardous conditions (risk to operator safety). If this occurs, FERC, FS, CDFG, and State Water Board must be notified of the circumstances as soon as possible, but no later than 3 business days after such incident and the minimum streamflows must be released as soon as practicable.
- The minimum streamflows specified from March 15–May 31 shall not be lower than the minimum streamflow that was in effect on March 14.
- The streamflow hourly running average measurements (based on flow measured in 15-minute time increments) shall never be less than the thresholds specified in the tables below for each location, except as authorized below:
  - The minimum streamflow may be temporarily modified for short periods upon approval of FS, CDFG, and State Water Board and notification of FERC.
  - The minimum streamflows may be temporarily modified due to equipment malfunction or public safety emergencies reasonably beyond the control of the Licensee. If the streamflow is so modified, the Licensee shall notify FERC, FS, CDFG, and State Water Board as soon as possible, but no later than 10 days after such incident.

### **Implementation Schedule**

The Licensee shall provide the streamflow releases within 30 days of License issuance at locations where existing infrastructure and flow gages can provide and measure the new releases. Year 1 begins 30 days after license issuance. For all other locations, the Licensee will provide streamflow releases and pool elevations according to the following schedule.

<b>Implementation Schedule for Instream Flow and Minimum Pool Compliance.</b>			
<b>Measure</b>	<b>Flow Compliance Location</b>	<b>Interim Conditions Time Period (after License Issuance)</b>	<b>New Conditions Time Period (after License Issuance)<sup>1</sup></b>
<b>Minimum Instream Flows</b>			
	Rubicon River below Hell Hole Dam	Within 30 Days of License Issuance through Year 3.	Year 4 - License Term
	Middle Fork American River below French Meadows Dam	Within 30 Days of License Issuance through Year 2.	Year 3 - License Term
	Middle Fork American River below Middle Fork Interbay Dam	Within 30 Days of License Issuance through Year 2.	Year 3 - License Term
	Middle Fork American River Immediately Below Ralston Afterbay Dam	Within 30 Days of License Issuance through Year 2.	Year 3 - License Term
	Middle Fork American River below Oxbow Powerhouse	--	Within 30 days - License Term
	Duncan Creek below Diversion Dam	Within 30 Days of License Issuance through Year 3.	Year 4 - License Term
	North Fork Long Canyon Creek below Diversion Dam	Within 30 Days of License Issuance through Year 4.	Year 5 - License Term
	South Fork Long Canyon Creek below Diversion Dam	Within 30 Days of License Issuance through Year 4.	Year 5 - License Term
<b>Pulse Flows</b>			
	Rubicon River below Hell Hole Dam	--	Year 6 - License Term
	Middle Fork American River below French Meadows Dam	--	Year 1 - License Term
	Middle Fork American River below Middle Fork Interbay Dam	--	Year 3 - License Term
	Duncan Creek below Diversion Dam	--	Year 4 - License Term
	North Fork Long Canyon Creek below Diversion Dam	--	Year 5 - License Term
	South Fork Long Canyon Creek below Diversion Dam	--	Year 5 - License Term
<b>Down Ramp of Spill Flows</b>			
	Rubicon River below Hell Hole Dam	--	Year 6 - License Term
	Middle Fork American River below French Meadows Dam	--	Within 30 days - License Term
<b>Peaking Reach Ramping Rate Requirements</b>			
	Middle Fork American River below Oxbow Powerhouse	--	Within 30 days - License Term
<b>Recreation Flow Releases</b>			
	Middle Fork American River below Oxbow Powerhouse	--	Within 30 days - License Term
<b>Reservoir Minimum Pool Elevations</b>			
	Hell Hole Reservoir	--	Year 2 - License Term
	French Meadows Reservoir	--	Year 2 - License Term
<sup>1</sup> Year 1 begins 30 days after license issuance.			

At the locations where minimum streamflow requirements are higher than the capacity of the existing infrastructure, the Licensee will implement the new flow requirement up to the maximum capacity of the outlet works (Interim Condition) within 30 days of License issuance until modification of the infrastructure is completed.

At the locations where pulse flows or down ramp of spill flows depend on modification of existing infrastructure or construction of new Project facilities for either release or measurement of the flow, the pulse or down ramp of spill flow requirements will be implemented within 30 days after completion of the infrastructure modification or construction project.

The reservoir minimum pool elevation requirements can be implemented with the existing Project facilities. However, the new reservoir minimum pool elevation requirements will be provided starting in Year 2 after license issuance to avoid potential mid-year changes in minimum pool requirements.

The Licensee will promptly notify FERC, State Water Board, FS, and CDFG if any issues emerge during engineering design, permitting, or construction that may delay implementation of the required streamflow releases beyond the implementation schedule identified above.



**Duncan Creek below Duncan Creek Diversion Dam**

The Licensee shall maintain the minimum streamflow specified in the following schedule based on month and water year type. Minimum streamflows shall be measured beginning in Year 4 at USGS gage 11427750, Duncan Canyon Creek below Duncan Diversion Dam near French Meadows, CA and a new gage at Duncan Creek Diversion Tunnel. In the interim, streamflows will be measured at the Duncan Creek near French Meadows gage (USGS Gage No. 11427700) and the Duncan Creek below Diversion Dam Gage (USGS Gage No. 11427750). When inflow to the diversion is less than the minimum streamflow, licensee shall only be required to release this Natural Flow (NF).

<b>Duncan Creek Below Duncan Diversion Dam</b>						
	<b>Month</b>	<b>Minimum Streamflow by Water Year (cfs)</b>				
		ED/CD	DRY	BN	AN	WET
	<b>OCT</b>	4 or NF <sup>1</sup>	8 or NF	8 or NF	8 or NF	8 or NF
	<b>NOV</b>	4 or NF	8 or NF	8 or NF	8 or NF	8 or NF
	<b>DEC</b>	4 or NF	8 or NF	8 or NF	8 or NF	8 or NF
	<b>JAN</b>	4 or NF	8 or NF	8 or NF	8 or NF	8 or NF
	<b>FEB</b>	4 or NF	8 or NF	8 or NF	8 or NF	8 or NF
	<b>MAR 1-14</b>	4 or NF	8 or NF	8 or NF	8 or NF	8 or NF
	<b>MAR 15-31</b>	9 or NF	11 or NF	13 or NF	16 or NF	16 or NF
	<b>APR</b>	13 or NF	14 or NF	17 or NF	24 or NF	24 or NF
	<b>MAY</b>	13 or NF	14 or NF	17 or NF	24 or NF	24 or NF
	<b>JUNE</b>	7 or NF	7 or NF	9 or NF	12 or NF	12 or NF
	<b>JULY</b>	No Div <sup>2</sup>	No Div	No Div	No Div	No Div
	<b>AUG</b>	No Div	No Div	No Div	No Div	No Div
	<b>SEPT</b>	No Div	No Div	No Div	No Div	No Div

<sup>1</sup> NF: Natural Flow

<sup>2</sup>If July 1 inflow to the diversion exceeds the May minimum instream flow requirement, then the July minimum instream flow requirement will be equal to the May minimum instream flow requirement or natural inflow whichever is less. The intent is to avoid a large flow spike at the end of the diversion season on July 1.

**Middle Fork American River Below French Meadows Reservoir Dam**

The Licensee shall maintain the minimum streamflow specified in the following schedule based on month and water year type. Minimum streamflows shall be measured beginning in Year 3 at a new gage at the Middle Fork American River at French Meadows Dam. In the interim, streamflows will be measured at USGS gage 11427500, Middle Fork American River at French Meadows, CA.

<b>Middle Fork American River Below French Meadows Reservoir Dam</b>						
Month	Minimum Streamflow by Water Year (cfs)					
	ED/CD	DRY	BN	AN	WET	
OCT	8	9	10	11	13	
NOV	8	9	10	11	13	
DEC	8	9	10	11	13	
JAN	8	9	10	11	13	
FEB	8	9	10	11	13	
MAR 1-14	8	9	10	11	13	
MAR 15-31	11	11	11	15	16	
APR	11	13	13	20	20	
MAY	11	13	13	20	20	
JUNE	8	11	12	16	17	
JULY	8	9	10	11	13	
AUG	8	9	10	11	13	
SEPT	8	9	10	11	13	

**Middle Fork American River Below Interbay Dam**

The Licensee shall maintain the minimum streamflow specified in the following schedule based on month and water year type. Minimum streamflow shall be measured beginning in Year 3 at a new USGS gage to be sited on the Middle Fork American River below Interbay Dam. In the interim, streamflows will be measured at the Middle Fork American River below Interbay Dam Gage (USGS Gage No. 11427770).

<b>Middle Fork American River Below Middle Fork Interbay Dam</b>						
Month	Minimum Streamflow by Water Year (cfs)					
	ED/CD	DRY	BN	AN	WET	
OCT	12	24	24	25	25	
NOV	12	24	24	25	25	
DEC	12	24	24	25	25	
JAN	12	24	24	25	25	
FEB	12	24	24	25	25	
MAR 1-14	12	24	24	25	25	
MAR 15-31	16	25	32	45	47	
APR	18	27	40	65	65	
MAY	18	27	40	45	65	
JUNE	12	24	24	26	47	
JULY	12	18	24	26	34	
AUG	12	18	24	26	34	
SEPT	12	18	24	26	34	

**Rubicon River Below Hell Hole Reservoir Dam**

The Licensee shall maintain the minimum streamflow specified in the following schedule based on month and water year type. Minimum streamflow shall be measured beginning

in Year 4 at a new gage at the Rubicon River at Hell Hole Dam. In the interim, streamflows will be measured at USGS stream gage 11428800, Rubicon River below Hell Hole Dam, near Meeks Bay, CA.

<b>Rubicon River Below Hell Hole Reservoir Dam</b>						
Month	Minimum Streamflow by Water Year (cfs)					
	ED/CD	DRY	BN	AN	WET	
<b>OCT</b>	15	20	20	25	25	
<b>NOV</b>	15	20	20	25	25	
<b>DEC</b>	15	20	20	25	25	
<b>JAN</b>	15	20	20	25	25	
<b>FEB</b>	15	20	20	25	25	
<b>MAR 1-14</b>	15	20	20	25	25	
<b>MAR 15-31</b>	31	35	42	55	60	
<b>APR</b>	31	35	42	55	60	
<b>MAY</b>	23	35	42	55	60	
<b>JUNE 1-14</b>	19	28	31	50	50	
<b>JUNE 15-30</b>	15	20	20	40	40	
<b>JULY</b>	15	20	20	30	30	
<b>AUG</b>	15	20	20	30	30	
<b>SEPT</b>	15	20	20	30	30	

**North Fork Long Canyon Creek Below North Fork Long Canyon Diversion Dam**

The Licensee shall maintain the minimum streamflow specified in the following schedule based on month and water year type. Minimum streamflow shall be measured beginning in Year 5 at a new gage at North Fork Long Canyon Creek below the Diversion Dam and North Fork Long Canyon Creek Diversion Tunnel gage (USGS Gage No. 11433080). In the interim, streamflows will be measured at USGS gage 11433085, North Fork Long Canyon Creek below North Fork Long Canyon Diversion Dam, near Volcanoville, CA and North Fork Long Canyon Creek Diversion Tunnel Gage (USGS Gage No. 11433080). When inflow to the diversion is less than the minimum streamflow, licensee shall only be required to release this Natural Flow (NF).

<b>North Fork Long Canyon Creek Below North Fork Long Canyon Diversion Dam</b>						
	<b>Month</b>	<b>Minimum Streamflow by Water Year (cfs)</b>				
		ED/CD	DRY	BN	AN	WET
	<b>OCT</b>	2 or NF	2 or NF	2 or NF	2 or NF	2 or NF
	<b>NOV</b>	2 or NF	2 or NF	2 or NF	2 or NF	2 or NF
	<b>DEC</b>	2 or NF	2 or NF	2 or NF	2 or NF	2 or NF
	<b>JAN</b>	2 or NF	2 or NF	2 or NF	2 or NF	2 or NF
	<b>FEB</b>	2 or NF	2 or NF	2 or NF	2 or NF	2 or NF
	<b>MAR 1-14</b>	2 or NF	2 or NF	2 or NF	2 or NF	2 or NF
	<b>MAR 15-31</b>	6 or NF	10 or NF	7 or NF	7 or NF	7 or NF
	<b>APR</b>	6 or NF	10 or NF	10 or NF	11 or NF	11 or NF
	<b>MAY 1-14</b>	6 or NF	10 or NF	10 or NF	11 or NF	11 or NF
	<b>MAY 15-31</b>	2 or NF	5 or NF	10 or NF	11 or NF	11 or NF
	<b>JUNE</b>	2 or NF	5 or NF	5 or NF	6 or NF	6 or NF
	<b>JULY</b>	No Div	No Div	No Div	No Div	No Div
	<b>AUG</b>	No Div	No Div	No Div	No Div	No Div
	<b>SEPT</b>	No Div	No Div	No Div	No Div	No Div

**South Fork Long Canyon Creek Below South Fork Long Canyon Diversion Dam**

The Licensee shall maintain the minimum streamflow specified in the following schedule based on month and water year type. Minimum streamflow shall be measured beginning in Year 5 at a new gage at South Fork Long Canyon Creek below the Diversion Dam and South Fork Long Canyon Creek Diversion Tunnel Gage (USGS Gage No. 11433060). In the interim, streamflows will be measured at USGS gage 11433065, South Fork Long Canyon Creek below South Fork Long Canyon Diversion Dam, near Volcanoville, CA and South Fork Long Canyon Creek Diversion Tunnel Gage (USGS Gage No. 11433060). When inflow to the diversion is less than the minimum streamflow, licensee shall only be required to release this Natural Flow (NF).

<b>South Fork Long Canyon Creek Below South Fork Long Canyon Diversion Dam</b>						
	<b>Month</b>	<b>Minimum Streamflow by Water Year (cfs)</b>				
		ED/CD	DRY	BN	AN	WET
	<b>OCT</b>	2.5 or NF	5 or NF	5 or NF	5 or NF	5 or NF
	<b>NOV</b>	2.5 or NF	5 or NF	5 or NF	5 or NF	5 or NF
	<b>DEC</b>	2.5 or NF	5 or NF	5 or NF	5 or NF	5 or NF
	<b>JAN</b>	2.5 or NF	5 or NF	5 or NF	5 or NF	5 or NF
	<b>FEB</b>	2.5 or NF	5 or NF	5 or NF	5 or NF	5 or NF
	<b>MAR 1-14</b>	2.5 or NF	5 or NF	5 or NF	5 or NF	5 or NF
	<b>MAR 15-31</b>	5 or NF	9 or NF	9 or NF	9 or NF	9 or NF
	<b>APR</b>	6 or NF	12 or NF	12 or NF	14 or NF	14 or NF
	<b>MAY</b>	6 or NF	12 or NF	12 or NF	14 or NF	14 or NF
	<b>JUNE</b>	3 or NF	5 or NF	6 or NF	7 or NF	7 or NF
	<b>JULY</b>	No Div	No Div	No Div	No Div	No Div
	<b>AUG</b>	No Div	No Div	No Div	No Div	No Div
	<b>SEPT</b>	No Div	No Div	No Div	No Div	No Div

**Middle Fork American River Below Ralston Afterbay Dam**

The Licensee shall release a minimum streamflow of 3 cfs in the Middle Fork American River below Ralston Afterbay Dam until compliance with new minimum streamflows can be met. The new minimum streamflows in the following table shall be implemented (1) after the new gaging is installed at this location and (2) upon implementation of the Spawning Habitat Improvement Plan for the Middle Fork American River Below Ralston Afterbay Dam (see Condition No. 26). At that time, the Licensee shall maintain the minimum streamflow specified in the following schedule based on month and water year.

<b>Middle Fork American River Below Ralston Afterbay Dam</b>			
	<b>Month</b>	<b>Minimum Streamflow by Water Year (cfs)</b>	
		ED	All Other Years
	<b>OCT</b>	3	3
	<b>NOV</b>	3	3
	<b>DEC</b>	3	3
	<b>JAN</b>	3	3
	<b>FEB</b>	3	3
	<b>MAR 1-14</b>	3	3
	<b>MAR 15-31</b>	3	25
	<b>APR</b>	3	25
	<b>MAY</b>	3	25
	<b>JUNE</b>	3	10
	<b>JULY</b>	3	10
	<b>AUG</b>	3	10
	<b>SEPT</b>	3	10

**Middle Fork American River Below Oxbow Powerhouse**

The Licensee shall maintain the minimum streamflow specified in the following schedule based on month and water year type. Minimum streamflow shall be measured at Middle Fork American River near Foresthill gage (USGS Gage No. 11433300). The water year type determination for Middle Fork American River below Oxbow Powerhouse is different than for other stream reaches, as stated above.

<b>Middle Fork American River Below Oxbow Powerhouse*</b>							
<b>Month</b>	<b>Minimum Streamflow by Water Year (cfs)</b>						
	<b>ED</b>	<b>CD</b>	<b>DRY</b>	<b>BN</b>	<b>AN</b>	<b>WET</b>	
<b>OCT</b>	90	125	140	165	165	200	
<b>NOV</b>	90	140	145	185	225	250	
<b>DEC</b>	90	140	145	185	225	250	
<b>JAN</b>	90	140	145	185	225	250	
<b>FEB</b>	90	140	145	185	225	250	
<b>MAR 1-14</b>	90	140	145	185	225	250	
<b>MAR 15-31</b>	100	160	210	290	375	450	
<b>APR</b>	100	160	210	290	375	450	
<b>MAY</b>	100	160	210	290	375	450	
<b>JUNE</b>	100	160	210	245	300	350	
<b>JULY</b>	100	160	200	245	300	350	
<b>AUG</b>	100	160	200	245	300	350	
<b>SEPT 1-14</b>	100	150	160	200	250	300	
<b>SEPT 15-30</b>	100	150	160	200	250	300	

\* Water Year Type based on minimum flow table specific to Oxbow Powerhouse.

**Condition No. 23 – Pulse Flows**

**General**

The Licensee shall provide pulse flows in:

- Duncan Creek below Duncan Diversion Dam
- Middle Fork American River below French Meadows Reservoir Dam
- Middle Fork American River below Interbay Dam
- Rubicon River below Hell Hole Reservoir Dam
- North Fork Long Canyon Creek below North Fork Long Canyon Diversion Dam
- South Fork Long Canyon Creek below South Fork Long Canyon Diversion Dam

The pulse flows are specified in the following schedule by water year type. For compliance purposes, the point of measurement for each required pulse flow is included.

The Licensee shall determine the water year type for pulse flows based on the DWR Bulletin 120 April forecast of American River Unimpaired Flow (acre-feet) below Folsom Lake for the water year and the water year type classification in Condition No. 22.

Compliance with the pulse flows specified for each location in the sections below requires that the Licensee must meet the following conditions:

- All specified pulse flows are in cubic feet per second (cfs).
- Pulse flows must be initiated by 5 pm no later than one day after the date specified and subsequent flow changes must be made on the corresponding dates in the schedule (by 5 pm) unless access to the streamflow release infrastructure is prohibited by hazardous conditions (risk to operator safety). If this occurs, FERC, FS, CDFG, and State Water Board must be notified of the circumstances as soon as possible, but no later than 3 days after such incident and the pulse flows must be released as soon as practicable. If initiation of the pulse flow occurs on a day other than that specified, then all dates in the pulse flow schedule will be shifted accordingly.
- Pulse flows must be maintained for at least the number of days (duration) identified in the pulse flow schedules specified for each location below. The pulse flow, including each step in the pulse flow down ramp, can have a duration longer than that specified; however, in the Rubicon River below Hell Hole Reservoir Dam and the Middle Fork American River below Interbay Dam, the duration can extend no longer than 4 additional days unless a spill is forecasted at Hell Hole and French Meadows reservoirs, respectively.
- Once initiated, average daily flow (average of 15-minute flow data) must at all times be no less than the required pulse flow.
- The pulse flow specified may be temporarily modified upon approval of FS, CDFG, and State Water Board and notification of FERC.
- During the first two pulse flow events at the small diversions (Duncan Creek below Diversion Dam, North Fork Long Canyon Creek below Diversion Dam, and South Fork Long Canyon Creek below Diversion Dam), the Licensee will test their ability to provide the down ramp portion of the pulse flow schedules specified below. The Licensee will make a good faith effort to comply with the down ramp portion of pulse flow schedules. Any deviations from the compliance criteria specified above will not be considered violations during these first two pulse flow events, but will be reported to the FS, CDFG, and State Water Board within 30 days of the occurrence. At the conclusion of each of the first two pulse flow events, the Licensee will submit a testing report to the FS, CDFG, and State Water Board. After the second pulse flow

event, the Licensee will recommend modification to the down ramp portion of the pulse flow schedule(s), if needed, and will consult with FS, CDFG, and State Water Board. Following FS, CDFG, and State Water Board approval, the Licensee will submit the modified pulse flow schedule(s) to FERC.

A pulse flow schedule for each location is specified below.

### **Duncan Creek below Diversion Dam**

The Licensee shall implement the following pulse flows beginning in Year 4 following license issuance. Pulse flows shall be measured at the Duncan Creek below Diversion Dam Gage (USGS Gage No. 11427750) and a new gage.

#### **Wet Water Years**

In Wet water years pulse flows will be provided according to the following schedule:

- May 15. Release a minimum of 150 cfs or inflow, whichever is less.
- May 16. Close diversion completely.
- May 25. Release a minimum of 190 cfs or inflow, whichever is less.
- May 27. Release a minimum of 130 cfs or inflow, whichever is less.
- May 30. Release a minimum of 90 cfs or inflow, whichever is less.
- June 2. Release a minimum of 45 cfs or inflow, whichever is less.
- June 6. Release minimum streamflow requirement.

#### **Above Normal Water Years**

In Above Normal water years pulse flows will be provided according to the following schedule:

- May 7. Release a minimum of 150 cfs or inflow, whichever is less.
- May 8. Close diversion completely.
- May 10. Release a minimum of 190 cfs or inflow, whichever is less (can reopen diversion).
- May 12. Release a minimum of 130 cfs or inflow, whichever is less.
- May 15. Release a minimum of 90 cfs or inflow, whichever is less.
- May 18. Release a minimum of 45 cfs or inflow, whichever is less.
- May 22. Release minimum streamflow requirement.

At this location, if flows (e.g., accretion or storm events) during the down ramp portion of the pulse flow sequence exceed the average flow (24 hours) of a previous step, the down ramp will not be restarted. The pulse flows will be down ramped according to the schedule specified above.

### **Middle Fork American River below French Meadows Dam**



The Licensee shall implement the following pulse flows in beginning in Year 1 following license issuance. Pulse flows shall be measured at the Middle Fork American River at French Meadows Gage (USGS Gage No. 11427500). In Year 3 following license issuance, flows will be measured at the Middle Fork American River at a new gage at French Meadows Dam.

### **Wet Water Years**

In Wet water years pulse flows will be provided according to the following schedule:

- May 15. Increase flows from the minimum streamflow release to a minimum of 200 cfs.
- May 16. Increase flows to a minimum of 400 cfs.
- May 24. Reduce the flow to a minimum of 275 cfs.
- May 26. Reduce the flow to a minimum of 190 cfs.
- May 29. Reduce the flow to a minimum of 115 cfs.
- June 1. Reduce the flow to a minimum of 65 cfs.
- June 5. Release minimum streamflow requirement.

### **Above Normal Water Years**

In Above Normal years pulse flows will be provided according to the following schedule:

- May 7. Increase flows from the minimum streamflow release to a minimum of 200 cfs.
- May 8. Increase flows to a minimum of 400 cfs.
- May 10. Reduce the flow to a minimum of 275 cfs.
- May 12. Reduce the flow to a minimum of 190 cfs.
- May 15. Reduce the flow to a minimum of 115 cfs.
- May 18. Reduce the flow to a minimum of 65 cfs.
- May 22. Release minimum streamflow requirement.

If a spill is forecasted to occur at French Meadow Reservoir either (1) during the down ramp portion of the pulse flow or (2) after the end of the pulse flow, the 190 cfs portion of the pulse flow will be continued until the spill occurs or until a spill is no longer forecast. If a spill occurs during the pulse flow release, the pulse flow requirements are no longer in effect and are superseded by spill ramp down requirements (Condition No. 24).

If the average flow (24 hours) during the down ramp portion of the pulse flow sequence exceeds a previous step (due to spill or other conditions) then the pulse flow down ramp must be restarted from the previous step and the flows down ramped according to the schedule specified above.

## **Middle Fork American River below Middle Fork Interbay Dam**

The Licensee shall implement the following pulse flows beginning in Year 3 following license issuance. Pulse flows shall be measured at a new gage in the Middle Fork American River below Interbay Dam.

### **Wet Water Years**

In Wet water years provide a pulse flow according to the following schedule:

- May 15. Increase flows from the minimum streamflow release to a minimum of 200 cfs.
- May 16. Increase flows to a minimum of 450 cfs.
- May 24. Reduce the flow to a minimum of 360 cfs.
- May 26. Reduce the flow to a minimum of 260 cfs.
- May 29. Reduce the flow to a minimum of 155 cfs.
- June 1. Release minimum streamflow requirement.

If during pulse flow implementation there is a forced or unplanned outage at Middle Fork Powerhouse and inflow into Middle Fork Interbay is less than the specified pulse flow required downstream, then the inflow into Middle Fork Interbay will be passed downstream.

### **Above Normal Water Years**

In Above Normal water years provide a pulse flow according to the following schedule:

- May 7. Increase flows from the minimum streamflow release to a minimum of 200 cfs.
- May 8. Increase flows to a minimum of 450 cfs.
- May 10. After 10 am, reduce flows to a minimum of 360 cfs.
- May 12. Reduce the flow to a minimum of 260 cfs.
- May 15. Reduce the flow to a minimum of 155 cfs.
- May 18. Release minimum streamflow requirement.

If there is a forced or unplanned outage at Middle Fork Powerhouse and inflow into Middle Fork Interbay is less than the specified pulse flow required downstream, then the inflow into Middle Fork Interbay will be passed downstream.

If a spill is forecast to occur at French Meadow Reservoir either (1) during the down ramp portion of the pulse flow or (2) after the end of the pulse flow, the 260 cfs portion of the pulse flow will be continued until the spill occurs or until a spill is no longer forecast. If a spill occurs during the pulse flow release, the pulse flow requirements are no longer in effect and are superseded by spill ramp down requirements (Condition No. 24).

At this location, if flows (e.g., accretion or storm events) during the down ramp portion of the pulse flow sequence exceed the average flow (24 hours) of a previous step, the down ramp will not be restarted. The pulse flows will be down ramped according to the schedule specified above.

### **Rubicon River below Hell Hole Dam**

The Licensee shall implement the following pulse flows beginning in Year 6 after license issuance. Pulse flows shall be measured at new gages in the Rubicon River below Hell Hole Dam.

Initially, the Licensee shall implement the pulse flows specified below. Once the Licensee has completed the Hell Hole Outlet Feasibility Study described below, the final maximum pulse flow magnitude will be between 200 and 600 cfs and will be determined based on the results of the Hell Hole Outlet Feasibility Study results. If the magnitude of the pulse flow changes, then the volume of the pulse will remain the same, but the duration and down ramp will be modified. If the magnitude of the pulse flow changes, the starting date and duration of each step will be determined in consultation with FS, CDFG, and the State Water Board and provided to FERC.

### **Wet Water Years**

In Wet water years pulse flows will be provided according to the following schedule:

- May 15. Increase flows from the minimum streamflow release to a minimum of 200 cfs.
- June 21. Reduce the flow to a minimum of 150 cfs.
- June 23. Reduce the flow to a minimum of 90 cfs.
- June 26. Release minimum streamflow requirement.

### **Above Normal Water Years**

In Above Normal water years pulse flows will be provided according to the following schedule:

- May 1. Increase flows from the minimum streamflow release to a minimum of 200 cfs.
- May 16. Reduce the flow to a minimum of 150 cfs.
- May 18. Reduce the flow to a minimum of 90 cfs.
- May 21. Release minimum streamflow requirement.

If a spill is forecasted to occur at Hell Hole Reservoir during the down ramp portion of the pulse flow or after the end of the pulse flow, the 200 cfs portion of the pulse flow will be continued until the spill occurs or until a spill is no longer forecast. If a spill occurs during the pulse flow release, the pulse flow requirements are no longer in effect and are superseded by spill ramp down requirements (Condition No. 24).

If the average flow (24 hours) during the down ramp portion of the pulse flow sequence exceeds a previous step, then the pulse flow down ramp must be restarted from the previous step and flows down ramped according to the schedule specified above.

### **Hell Hole Dam Outlet Feasibility Study**

Within 1 year of license issuance, the Licensee will develop a feasibility study plan and implement the study to identify the maximum pulse flow between 200 and 600 cfs that can safely and reliably be released from the Hell Hole Dam existing low level outlet over the duration of the license. The study plan will be developed in collaboration with FS, CDFG, and State Water Board and in consultation with and approval from the California Division of Safety of Dams (DSOD) and FERC. The study will be implemented within 1 year of approval of a feasibility study plan by DSOD and FERC. The study will likely be conducted over a number of years; however, a goal of final reporting by Year 6 is intended. The study plan will specify the following:

- Explicit criteria to determine whether a flow can be safely and reliably released over the duration of the new license.
- Incremental approach for releasing and evaluating flow releases from 200 to 600 cfs (e.g., 250 cfs, 300 cfs, etc.).
- Reporting schedule, including draft reports after each test flow with results of the flow evaluation, a draft final report, and a final report.
  - Report(s) will include the Licensee's engineering assessment of the study flows that were released and recommended next steps.
  - Draft reports will be submitted to FS, CDFG, and State Water Board for a 60-day review period.
  - The final report will address and incorporate comments received and will be distributed to DSOD, FERC, and FS, CDFG, and State Water Board within 90 days of the end of the comment period.

If approved by DSOD and FERC, the pulse flow release will be increased up to the magnitude deemed safe in the final report, with the following conditions:

- The same volume of water used in the interim pulse flow release will be used in the revised pulse flow release (i.e., same volume but the number of days of release will be decreased in accordance with the higher peak flow and modified down ramping schedule).
- The down ramping rate will be consistent with the rate of change specified in the interim pulse flow release and down ramping of spill schedule.

The Licensee will inspect and perform maintenance, if necessary, on the outlet works, consistent with standard Project practices, once test flows and/or pulse flows are initiated. Any concern regarding system reliability from releases will be reported promptly to DSOD, FERC, FS, CDFG, and State Water Board.

### **North Fork Long Canyon Creek below Diversion Dam**

The Licensee shall implement the following pulse flows beginning in Year 5 after license issuance. Pulse flows shall be measured at a new gage below the North Fork Long Canyon Creek Diversion Dam and North Fork Long Canyon Creek Diversion Tunnel Gage (USGS Gage No. 11433080).

#### **Wet Water Years**

In Wet water years pulse flows will be provided according to the following schedule:

- May 15. Release a minimum of 50 cfs or inflow, whichever is less.
- May 16. Close diversion completely.
- May 25. Release a minimum of 35 cfs or inflow, whichever is less (can reopen diversion).
- May 27. Release a minimum of 21 cfs or inflow, whichever is less.
- May 30. Release minimum streamflow requirement.

#### **Above Normal Water Years**

In Above Normal water years pulse flows will be provided according to the following schedule:

- May 1. Release a minimum of 50 cfs or inflow, whichever is less.
- May 2. Close diversion completely.
- May 4. Release a minimum of 35 cfs or inflow, whichever is less (can reopen diversion).
- May 6. Release a minimum of 21 cfs or inflow, whichever is less.
- May 9. Release minimum streamflow requirement.

At this location, if flows (e.g., accretion or storm events) during the down ramp portion of the pulse flow sequence exceed the average flow (24 hours) of a previous step, the down ramp will not be restarted. The pulse flows will be down ramped according to the schedule specified above.

### **South Fork Long Canyon Creek below Diversion Dam**

The Licensee shall implement the following pulse flows beginning in Year 5 following license issuance. Pulse flows shall be measured at a new gage on South Fork Long

Canyon Creek and the South Fork Long Canyon Creek Diversion Tunnel Gage (USGS Gage No. 11433060).

### **Wet Water Years**

In Wet water years provide a pulse flow according to the following schedule:

- May 15. Release a minimum of 100 cfs or inflow, whichever is less.
- May 16. Close diversion completely.
- May 25. Release a minimum of 70 cfs or inflow, whichever is less (can reopen diversion).
- May 27. Release a minimum of 35 cfs or inflow, whichever is less.
- May 30. Release minimum streamflow requirement.

### **Above Normal Water Years**

In Above Normal water years provide a pulse flow according to the following schedule:

- May 1. Release a minimum of 100 cfs or inflow, whichever is less.
- May 2. Close diversion completely.
- May 4. Release a minimum of 70 cfs or inflow, whichever is less (can reopen diversion).
- May 6. Release a minimum of 35 cfs or inflow, whichever is less.
- May 9. Release minimum streamflow requirement.

At this location, if flows (e.g., accretion or storm events) during the down ramp portion of the pulse flow sequence exceed the average flow (24 hours) of a previous step, the down ramp will not be restarted. The pulse flows will be down ramped according to the schedule specified above.

## **Condition No. 24 – Ramping Rates**

### **Down Ramping of Reservoir Spill Flows**

The Licensee shall “down ramp” spill flows at Hell Hole Reservoir Dam and French Meadows Reservoir Dam. Compliance with the down ramp of spill flows requires that the Licensee meet the following conditions:

- All specified minimum streamflows are in cubic feet per second (cfs).
- Down ramp of spill flows must occur during the months specified in the schedule below.
- Initiation of down ramp flows must be made on the days specified in the schedule below unless access to the streamflow release infrastructure is prohibited by

hazardous conditions. If this occurs, FERC, FS, CDFG, and State Water Board must be notified of the circumstances as soon as possible, but no later than 10 days after such incident and the down ramp of spill flow must be released as soon as practicable.

- Down ramp of spill flow must be maintained for at least the number of days (duration) identified in each down ramp step. Each step of the down ramp can have a duration longer than that specified; however, at Rubicon River below Hell Hole Reservoir Dam and MFAR below Interbay Dam, the duration may be no longer than 4 additional days.
- Below French Meadows Reservoir, once the flows are set, average daily flow (average of 15-minute flow data) must at all times be no less than the required streamflow release specified in the schedule.
- Below Hell Hole Reservoir, down ramp of spill flows will be made at the new Hell Hole Dam crest gates (or a slide gate opening at the crest gates) to be installed as part of the Hell Hole Reservoir Seasonal Storage Improvement. The Licensee will consult with the FS, CDFG, and State Water Board during the design of the Hell Hole crest gates and slide gates. As such, a rating curve for the spillway crest gates (or other gate openings) will be developed as part of the improvement project and used for compliance. The gate flow release setting will be adjusted once every 24 hours. The Licensee will use the reservoir water surface elevation at that time to set the gate position (according to the rating table) to meet the required flow release for the subsequent 24-hour period. Total flow will be based on the gate setting and the average 24-hour flow of any additional releases from the bottom of the dam (e.g., powerhouse release, minimum flow pipe); the daily flow setting (gate setting + average 24-hour flow from the bottom of the dam) must at all times be no less than the required streamflow release specified in the schedule.
- During the first two spill events when down ramp of spill flows occur at Hell Hole and French Meadows reservoirs, the Licensee will test their ability to manage spill flows to provide the flow schedules specified below. The Licensee will attempt to comply with the down ramp of spill flow schedules. Any deviations from the compliance criteria specified above will not be considered violations during these first two spill management events but will be reported to the FS, CDFG, and the State Water Board within 30 days of the occurrence. At the conclusion of each of the first two spill events, the Licensee will submit a testing report to the FS, CDFG, and State Water Board. After the second spill event, the Licensee may recommend modification to the down ramp of the spill flow schedule(s), if needed, and consultation with FS, CDFG, and State Water Board. Following FS, CDFG, and State Water Board approval, the Licensee will submit the modified down ramp of spill flow schedule(s) to FERC.

The Licensee shall provide the down ramp of spill flows specified in the following schedules.

## **Rubicon River below Hell Hole Reservoir Dam**

The Licensee shall down ramp of spill flows at Rubicon River below Hell Hole Reservoir Dam beginning as soon as the Hell Hole Seasonal Storage Improvement is completed (anticipated to be completed in Year 5 and implemented in Year 6). The down ramp of spill flows shall be measured new gages at the Rubicon River at Hell Hole Reservoir Dam and the Rubicon River at Hell Hole Reservoir Dam Spillway (HHDS).

In the months of May through July, if a spill or multiple spills in excess of 600 cfs daily average flow (total combined spillway flow and flow releases from the bottom of the reservoir) occur at Hell Hole Reservoir Dam, the Licensee must down ramp the declining limb of the spill(s) the day after the daily average spill flow (total combined flow) becomes less than 600 cfs as follows:

### First 600 cfs Spill Event Down Ramp Schedule

Day 1.	Establish the daily flow setting at 600 cfs. <sup>1</sup>
Day 5.	Reduce the daily flow setting to 400 cfs.
Day 7.	Reduce the daily flow setting to 285 cfs.
Day 10.	Reduce the daily flow setting to 170 cfs.
Day 13.	Reduce the daily flow setting to 95 cfs.
Day 17.	Release minimum streamflow requirement.

### Subsequent 600 cfs (or greater) Spill Event Down Ramp Schedule (if they occur)

Day 1.	Reduce the daily flow setting to 400 cfs.
Day 3.	Reduce the daily flow setting to 285 cfs.
Day 6.	Reduce the daily flow setting to 170 cfs.
Day 10.	Reduce the daily flow setting to 95 cfs.
Day 14.	Release minimum streamflow requirement.

If a spill event occurs (total combined flow) in the months of May–July that does not exceed an average 24-hour flow of 600 cfs, but exceeds the 400, 285, or 170 cfs flow levels in the above schedule, the Licensee must down ramp the spill according to the lower flow levels in the schedule. Spills that do not exceed 170 cfs (24-hour average flow) will not be down ramped.

## **Middle Fork American River below French Meadows Dam**

The Licensee shall down ramp spill flows in the Middle Fork American River below French Meadows Dam beginning in Year 1 following license issuance. The down ramp

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<sup>1</sup> During the first spill event, there must be at least four days of the 600 cfs flow setting.



of spill flows shall be measured at the Middle Fork American River at French Meadows gage (USGS Gage No. 11427500).

In Year 3 after license issuance (Year 1 begins 30 days after license issuance), flows will be measured at the Middle Fork American River at French Meadows Gage (USGS Gage No. 11427500) and at a new gage at the Middle Fork American River at French Meadows Dam Gage.

In the months of May through July, if a spill or multiple spills in excess of 400 cfs daily average flow (total combined spillway flow and flow releases from the bottom of the reservoir) occur from French Meadows Reservoir, the Licensee will down ramp the declining limb of the spill(s) the day after daily average spill flow (total combined flow) becomes less than 400 cfs as follows:

400 cfs Spill Event Down Ramp Schedule

- Day 1. Release a minimum flow of 400 cfs
- Day 2. Reduce the the flow to a minimum of 275 cfs.
- Day 3. Reduce the the flow to a minimum of 190 cfs.
- Day 4. Reduce the flow to a minimum of 115 cfs.
- Day 5. Reduce the flow to a minimum of 65 cfs.
- Day 7. Release minimum streamflow requirement.

If a spill event (total combined flow) occurs in the months of May through July that does not exceed an average 24-hour flow of 400 cfs, but exceeds the 275, 190, or 115 cfs flow levels, the Licensee will down ramp the spill according to the lower flow levels in the schedule. Spills that do not exceed 115 cfs (24 hour average flow) will not be down ramped.

**Peaking Reach Ramping Rate and Oxbow Powerhouse Operations**

The Licensee shall provide the following ramping rates in the months of March through October in the Middle Fork American River below Oxbow Powerhouse based on the flow present in the Middle Fork American River near Foresthill USGS Gage (No. 11433300):

<b>Middle Fork American River Below Oxbow Powerhouse Ramping Rate</b>			
<b>Up Ramp</b>		<b>Down Ramp</b>	
<b>Gage Flow<sup>1</sup></b>	<b>Maximum Flow Change<sup>2</sup></b>	<b>Gage Flow<sup>1</sup></b>	<b>Maximum Flow Change<sup>2</sup></b>
<b>(cfs)</b>	<b>(cfs / hr)</b>	<b>(cfs)</b>	<b>(cfs / hr)</b>
≤175	300	≤500	250
>175–400	450	>500–800	400
>400–750	600	>800–1300	550
>750	750	>1300	750

<sup>1</sup>Gage Flow is the discharge (cfs) at the Middle Fork American River near Foresthill USGS Gage (No. 11433300) at the beginning of the Oxbow Powerhouse flow change.

<sup>2</sup>Maximum Flow Change is the maximum increase in Oxbow Powerhouse release given the Gage Flow for the up ramp, or the maximum decrease in Oxbow Powerhouse release given the Gage Flow for the down ramp.

In Years 1 and 2 after license issuance (Year 1 begins 30 days after license issuance), the ramping rate in the Middle Fork American River downstream of Oxbow Powerhouse shall be measured at the Middle Fork American River near Foresthill Gage (USGS Gage No. 11433300).

In Year 3 after license issuance, or as soon as the new Oxbow Powerhouse Penstock gage is operational, the ramping rate requirement will be measured at the new Oxbow Powerhouse Penstock gage and the Middle Fork American River near Foresthill gage (USGS Gage No. 11433300).

During the months of November through February, the Licensee will make a good faith effort to regulate Oxbow Powerhouse flow releases in the peaking reach. This will include, to the degree possible, scheduling Oxbow Powerhouse generation to moderate peaking in the Middle Fork American River using available active Ralston Afterbay storage. If Ralston Afterbay spills due to natural flow conditions beyond the control of the Licensee, the effort to moderate Middle Fork American River peaking shall cease until control is regained or for the remainder of the period.

The Licensee shall make available to FS, CDFG, and State Water Board the streamflow records related to ramping rates upon request.

The Licensee shall be excused from complying with the ramping rate requirements in the event of law enforcement or search and rescue activities, Division of Safety of Dams compliance requirements, equipment malfunction or failure that is directly related to providing the specified ramping rates, or a large storm event that is beyond its ability to control. The Licensee shall provide notice to FS, CDFG, and State Water Board within 10 days after such an event occurs and shall provide a report documenting the reason that ramping rates were not followed within 1 month after such an event occurs.

## **Condition No. 25 – Outages**

### **Unplanned Middle Fork and Ralston Powerhouse Outage (May–September)**

If a short-term (less than 2 weeks) unplanned outage occurs at the Middle Fork Powerhouse and Ralston Powerhouse in May - September, the minimum flow in the Middle Fork American River below Oxbow Powerhouse (peaking reach) during the outage will be established as described below based on the water surface elevation in Ralston Afterbay:

- If the Ralston Afterbay water surface elevation is greater than 1,161 feet at the time of the outage, the minimum flow release requirement will be 200 cfs or the minimum

flow specified in Condition No. 22, above, whichever is less, until the elevation reaches less than or equal to 1,161 feet.

- If the Ralston Afterbay water surface elevation is less than or equal to 1,161 feet any time during the outage, the minimum flow release requirement will be the October minimum flow specified in Condition No. 22, above.

It may be necessary to release additional water from Hell Hole Reservoir into the Rubicon River and from French Meadow Reservoir/Middle Fork Interbay into the MFAR to meet the minimum flow requirements in the peaking reach or downstream consumptive demands. In this case, release water will be split between the two rivers up to a maximum of 55 cfs release (60 cfs in Wet water years) in the Rubicon River and a maximum of 80 cfs in the MFAR below French Meadows Reservoir and below Interbay Reservoir. If these maximum flows of 80 cfs in the MFAR below Interbay Reservoir and 55 cfs (60 cfs in Wet water years) below Hell Hole Reservoir Dam are less than is necessary to meet the minimum streamflows described in the bulleted items above, the Licensee shall not release flows above these maximum flows except in the following circumstance: releases into the MFAR below Interbay Reservoir may exceed 80 cfs if necessary to meet consumptive demands and required minimum streamflows of 75 cfs at the American River Pump Station (75 cfs requirement pursuant to the Licensee's pump station mitigation requirement below American River Pump Station) upon commencement of FYLF monitoring and 24 hours advanced noticed to the FS, CDFG, and the State Water Board. If the unplanned outage extends beyond 2 weeks, minimum streamflows in the MFAR peaking reach during the remainder of the outage will be determined in consultation with FS, CDFG, and State Water Board. The flow release in the Rubicon River during the remainder of the outage will also be determined in consultation with FS, CDFG, and the State Water Board. Flow releases in the MFAR (from French Meadows Reservoir and/or the Middle Fork Powerhouse) will be determined by the Licensee in accordance with minimum streamflow requirements, water supply demands, and operational requirements (e.g., reservoir management, power generation).

#### **Unplanned Ralston Powerhouse Outage (June–September) – Middle Fork Powerhouse Operational**

If the Middle Fork Powerhouse is operational during the short-term (less than 2 weeks) unplanned outage (and Ralston Powerhouse is not operational in June - September), water will be released from the Middle Fork Powerhouse for minimum flow compliance in the peaking reach, water supply, and to avoid or minimize spill of Hell Hole Reservoir. The minimum streamflow requirement in the MFAR below Interbay Dam will be based on the following table.

Middle Fork American River Below Oxbow Powerhouse							
Month	Minimum Streamflow by Water Year (cfs)						
	ED	CD	DRY	BN	AN	WET	
JUNE	100	160	210	245	300	350	
JULY	100	160	165	190	200	200	
AUG	100	160	165	190	200	200	
SEPT	100	160	165	190	200	200	

Release water in the Rubicon River and MFAR to meet the minimum streamflow in the peaking reach will be split between the two rivers up to a maximum of 55 cfs release in the Rubicon River (60 cfs in Wet water years) and a maximum of 80 cfs in the Middle Fork American River below Interbay Reservoir. If these maximum flows of 80 cfs in the MFAR below Interbay Reservoir and 55 cfs (60 cfs in Wet water years) below Hell Hole Reservoir Dam are less than is necessary to meet the minimum streamflows described in the table above, the Licensee shall not release flows above these maximum flows except in the following circumstance: releases into the MFAR below Interbay Reservoir may exceed 80 cfs if necessary to meet consumptive demands and required minimum streamflows of 75 cfs at the American River Pump Station (75 cfs requirement pursuant to the Licensee’s pump station mitigation requirement below American River Pump Station) upon commencement of FYLF monitoring and 24 hours advanced noticed to the FS, CDFG, and the State Water Board.

If the unplanned outage extends beyond 2 weeks, minimum streamflows in the peaking reach during the remainder of the outage will be determined in consultation with FS, CDFG, and the State Water Board. The flow release in the Rubicon River during the remainder of the outage will also be determined in consultation with the FS, CDFG, and the State Water Board. Streamflow releases in the MFAR (from French Meadows Reservoir and/or the Middle Fork Powerhouse) will be determined by the Licensee in accordance with minimum flow requirements, water supply demands, and operational requirements (e.g., reservoir management, power generation).

**Condition No. 26 – Spawning Habitat Improvement Plan for the Middle Fork American River Below Ralston Afterbay Dam**

The Licensee shall, within 1 year of license issuance, complete a Spawning Habitat Improvement Plan for the Middle Fork American River below Ralston Afterbay Dam. The Licensee shall develop the plan in consultation with FS, CDFG, State Water Board, and other interested parties. Upon FERC approval, the Licensee shall implement the plan.

**Condition No. 27 – Wildlife and Plant Protection Measures**

**New Information Relating to Special Status Species**

The Licensee shall, beginning the first full calendar year after license issuance, in consultation with FS and CDFG, annually review the current list of special status plant and wildlife species (species that are Federal Endangered or Threatened, FS Sensitive, or Eldorado and Tahoe National Forest Watch Lists State Threatened or Endangered, CDFG Fully Protected) that might occur on National Forest System lands in the Project area directly affected by Project operations. When a species is added to one or more of the lists, FS and CDFG in consultation with the Licensee shall determine if the species or unsurveyed suitable habitat for the species is likely to occur on such National Forest System lands. For such newly added species, if FS determines that the species is likely to occur on such National Forest System lands, the Licensee shall develop and implement a study plan in consultation with FS to reasonably assess the effects of the project on the species. The Licensee shall prepare a report on the study including objectives, methods, results, recommended resource measures where appropriate, and a schedule of implementation, and shall provide a draft of the final report to FS and CDFG for review and approval. The Licensee shall file the report, including evidence of consultation, with FERC and shall implement those resource management measures required by FERC.

If new occurrences of FS special status plant or wildlife species as defined above are detected prior to or during ongoing construction, operation, or maintenance of the Project or during Project operations, the licensee shall immediately notify the FS. If the FS determines that the Project-related activities are adversely affecting FS sensitive or watch list species, the Licensee shall, in consultation with the FS, develop and implement appropriate protection measures. If new occurrences of state or federally listed or proposed threatened or endangered species are detected prior to or during ongoing construction, operation, or maintenance of the Project or during Project operations, the Licensee shall immediately notify FS and the relevant Service Agency (United States Fish and Wildlife Service or National Marine Fisheries Service or CDFG) for consultation or conference in accordance with the Endangered Species Act. If state listed or fully protected species are affected, CDFG shall be notified.

### **Project Powerlines**

Raptor-safe powerline design configurations described in Suggested Practices for Avian Protection on Power Lines: *The State of the Art in 2006* (APLIC 2006) will be used for all new powerlines or when replacement of existing poles, phase conductors, and associated equipment is required. The Bald Eagle Management Plan Table 6 provides a list of Project powerlines with one or more design elements that pose a risk for avian electrocution. The Licensee will initiate replacement or retrofitting of these poles pursuant to APLIC guidelines within 1 year of license issuance. Pole replacement or retrofitting will continue to be implemented over a 14 year period with completion of all poles, as specified in Table 6, within 15 years from license issuance.

Within 1 year of license issuance, the Licensee will conduct an evaluation of newly installed Project power poles to determine their consistency with Raptor-safe powerline design configurations described in suggested practices for Avian Protection on Power Lines (APLIC 2006). This includes an evaluation of the following:

- Poles installed in 2006 on the Ralston Powerhouse to Ralston Powerhouse Butterfly Valve House Communication Line/Powerline.
- Poles installed in 2008 on the French Meadows Powerhouse and Switchyard to Hell Hole-Middle Fork Tunnel Gatehouse, Dormitory Facility, Operator Cottages, and Hell Hole Powerhouse Communication Line/Powerline.

Following completion of the evaluation, a summary of the results will be provided to FWS, FS, and CDFG.

If it is determined that the configurations of the newly installed powerlines are determined to be consistent with APLIC guidelines, then no further action would be required. If it is determined that the configurations are inconsistent with APLIC guidelines, the poles will be replaced or retrofitted, as specified in Table 6, within 15 years of license issuance.

### **Bald Eagle Management Plan**

Upon FERC approval, the Licensee shall implement the attached Bald Eagle Management Plan.

### **Condition No. 28 – Monitoring Program**

The Licensee shall implement the following Monitoring Program after license issuance and through the term of the new license and any annual licenses, in coordination with FS, CDFG, and State Water Board. The Monitoring Program has been designed to monitor those items that are considered to be essential for determining if the resource objectives described in the Rationale Report are being met. Within the scope of the specified monitoring program, FS, CDFG, and State Water Board may select an equal number of alternative years to ensure that surveys occur during a range of water year types. Final study plans for each element of the Monitoring Program shall be approved by FS, CDFG, and State Water Board prior to implementation of the program. FS, CDFG, and State Water Board have the flexibility to alter the monitoring program methodologies and frequencies of data collection if it is determined that: (a) there is a more appropriate or preferable methodology or site to use than that described in the monitoring plan or (b) monitoring may be reduced or terminated because the relevant ecological resource objective has been met or no change in resource response is expected.

The Licensee shall file with FERC by June 30 of each year an annual report fully describing the monitoring efforts of the previous calendar year. FS, CDFG, and State Water Board shall have at least 30 days to review and comment on the draft report prior to filing with FERC. Comments shall be addressed in the final report, or as appropriate, comments shall be included with the filing to FERC. The Licensee shall provide copies of the annual report to FS, CDFG, and State Water Board.

The following guidelines shall be used in implementing the monitoring program: (a) monitoring and studies shall be relevant to the Project, (b) monitoring and studies shall be conducted such that they provide useful information for management decisions or establishing compliance with license conditions, and (c) monitoring and studies shall be as cost-effective as possible. Funding for performing the monitoring, as well as specified contingency funding, shall be provided by the Licensee.

For purposes of the Monitoring Program, each year is defined on a calendar year basis (i.e., January through December). This monitoring program covers monitoring to be conducted during all years until a new license is issued. Most monitoring described below is estimated to end after 30 years; however, if a new license is not issued within 30 years, FS, CDFG, and/or State Water Board reserve the right to extend the monitoring period as necessary.

The following monitoring plans have been identified as important for the Monitoring Program. FS and State Water Board, in coordination with CDFG, are currently working with Licensee and other relicensing participants to complete development of the appropriate monitoring plans.

The monitoring plans listed below were provided in the Final License Application. The Licensee will, in consultation with the FS, CDFG, and State Water Board, work to finalize the plans provided in the Final License Application and submit for FS approval. Once the plans are complete, they will be included as part of this condition.

#### **Fish Populations Monitoring**

#### **Foothill Yellow-legged Frog Monitoring**

#### **Western Pond Turtle Monitoring**

#### **Benthic Macroinvertebrates Monitoring**

#### **Mercury Bioaccumulation Monitoring**

#### **Geomorphology and Riparian Monitoring**

#### **Water Quality Monitoring**

The monitoring plans listed below are important for the monitoring program and are either addressed in plans that are attached or addressed in plans that were submitted as part of the Final License Application. The Licensee will, in consultation with the FS, CDFG, and State Water Board, finalize the plans provided in the Final License Application and submit for FS approval. Once the plans are complete, they will be included as part of this condition.

### **Sensitive Plant Monitoring**

Monitoring associated with sensitive plants that is related to vegetation management will be described in the Vegetation and Integrated Pest Management Plan (see Condition No. 46).

### **Monitoring Associated with Vegetation and Invasive Species Treatments**

Monitoring associated with vegetation and invasive species treatments will be described in the Vegetation and Integrated Pest Management Plan (see Condition No. 46).

### **Recreation Survey**

Monitoring associated with the recreation survey is described in the Recreation Plan (see Condition No. 33).

### **Review of Recreation Developments**

Monitoring associated with the review of recreation developments is described in the Recreation Plan (see Condition No. 33).

### **Cultural Resource Monitoring**

Monitoring associated with heritage resources is described in the Historic Properties Management Plan (see Condition No. 30).

### **Reservoir Levels Evaluation**

Monitoring associated with reservoir levels is described in Condition No. 37.

The following monitoring plan was not included in the Final License Application and needs to be developed.

### **Bear Management Monitoring**

Within 1 year of license issuance, the Licensee shall, in consultation with FS and CDFG, prepare a Bear Management Monitoring Plan that is approved by FS and CDFG.

### **Condition No. 29 – Large Woody Debris**

Within 1 year of license issuance, the Licensee shall, in consultation with the FS, CDFG, and State Water Board, prepare a Large Woody Debris (LWD) Management Plan approved by FS. The Plan will specify:

- Describe existing locations of LWD collection by Project facilities.



- Describe potential options for moving LWD below Project facilities and keeping the LWD within the river corridor.
- Identify suitable locations where LWD can be placed within the active channel to be mobilized by 2- to 5-year high flow events.

Upon FERC approval, the Licensee shall implement the Plan.

### **Condition No. 30 – Annual Review of Ecological Conditions**

Each calendar year, prior to May 15, when the annual maintenance schedule, final Water Year Forecast, and reservoir level forecasts are available, the Licensee shall schedule and facilitate a meeting with FS, CDFG, and State Water Board to review and discuss the results of implementing the streamflow and reservoir-related conditions, results of monitoring, and other issues related to preserving and protecting ecological values affected by the Project. The Licensee shall make available to FS, CDFG, and State Water Board 2 weeks prior to the meeting, an operations and maintenance plan for the year in which the meeting occurs. This meeting may be combined with the meeting described in Condition 1.

### **Condition No. 31 – Streamflow and Reservoir Elevation Gaging Plan**

A Streamflow and Reservoir Elevation Gaging Plan was provided in the Final License Application. The Licensee will, in consultation with the FS, CDFG, and State Water Board, finalize the plan provided in the Final License Application and submit for FS approval. Once the plan is complete, it will be included as part of this condition.

### **Condition No. 32 – Penstock and Other Drainage Structure Emergency and Maintenance Release Points**

The Licensee shall, within 1 year after license issuance, file with FERC a plan approved by FS and State Water Board, to evaluate penstock and other drainage structure emergency and maintenance release points to determine if improvements can be made to minimize potential adverse water quality impacts when the release points are used. The Licensee shall also consult with the CDFG in the development of the plan. The Licensee shall implement the recommendations contained in the plan upon approval.

### **Condition No. 33 – Recreation Plan**

Upon FERC approval, the Licensee shall implement the attached Recreation Plan.

### **Condition No. 34 – Recreation Operation, Maintenance, and Administration**

FS is working with the Licensee to develop a separate agreement that addresses this condition. Once the agreement is finalized, this condition will be removed.

Beginning the first full year after license issuance, the licensee shall enter into a collection agreement to provide annual funding to FS to provide for operation, maintenance, and administration in accordance with the Recreation Plan (see Condition No. 33). The cost basis for these payments shall be year 2010. The cost shall be escalated annually based on the U.S. Gross Domestic Product – Implicit Price Deflator (GDP-IDP).

### **Condition No. 35 – Specific Improvements at Dispersed Recreation Sites**

FS is working with the Licensee to develop a separate agreement that addresses this condition. Once the agreement is finalized, this condition will be removed.

Within 10 years of license issuance, the licensee shall enter into a collection agreement with FS (year 2010 cost basis) to provide funding on a one-time basis for design and construction and installation of a toilet facility and an information kiosk at the Cache Rock site along the MFAR in the Peaking Reach. The cost shall be escalated annually based on the U.S. Gross Domestic Product – Implicit Price Deflator (GDP-IDP).

### **Condition No. 36 – Recreation Work Station and Storage Facility**

FS is working with the Licensee to develop a separate agreement that addresses this condition. Once the agreement is finalized, this condition will be removed.

Within 5 years of license issuance, the Licensee shall, in consultation and coordination with FS, provide a Work Station and Storage Facility to serve the Hell Hole Recreation Area. The size, location, and required improvements for this facility shall be determined through agreement with FS. At a minimum, this facility will provide space for secured storage, work space, a fenced area, and necessary utilities. This facility may also serve a shared purpose with FS.

### **Condition No. 37 – Reservoir Minimum Pool Elevations and Reservoir Levels Recreation Objectives**

#### **Minimum Reservoir Pool Elevations**

The Licensee shall, in Year 2 after license issuance, meet or exceed the following minimum reservoir pool elevations in French Meadows and Hell Hole Reservoirs according to the following schedules. However, the Licensee shall make a good faith effort to implement the following minimum reservoir pools in Year 1.

Reservoir	Water Year Type (based on American River Unimpaired Flow Below Folsom Lake (ac-ft) Bulletin 120 Forecast) <sup>1</sup>	Date Range	WSE <sup>2</sup> (ft)	Date Range	WSE (ft)
French Meadows Reservoir	Wet	6/1–9/15	5,220	9/16–5/31	5,152
	Above Normal	6/1–9/15	5,220	9/16–5/31	5,152
	Below Normal	6/1–9/15	5,220	9/16–5/31	5,152
	Dry	6/1–9/1	5,200	9/2–5/31	5,152
	Critically Dry	6/1–9/1	5,175	9/2–5/31	5,152
	Extremely Dry	6/1–9/1	5,175	9/2–5/31	5,120
Hell Hole Reservoir	Wet	6/1–Labor	4,530	After Labor	4,451
	Above Normal	6/1–Labor	4,530	After Labor	4,451
	Below Normal	6/1–Labor	4,530	After Labor	4,402
	Dry	6/1–9/1	4,485	9/2–5/31	4,402
	Critically Dry	6/1–9/1	4,455	9/2–5/31	4,402
	Extremely Dry	6/1–9/1	4,404	9/2–5/31	4,341

<sup>1</sup> Unimpaired run-off of American River to Folsom Lake for current year, October 1 through September 30, as estimated by the DWR Bulletin 120 on or about the beginning of May.

<sup>2</sup> WSE: water surface elevation

The Licensee shall determine the water year type for the minimum pool requirements in Hell Hole and French Meadows reservoirs based on the DWR Bulletin 120 May forecast of American River Unimpaired Flow (ac-ft) below Folsom Lake for the water year and the water year type classification in Condition No. 22. The minimum pool requirements are to be implemented on June 1 of each year.

The compliance gage location for measuring reservoir water surface elevations in French Meadows is USGS Gage No. 11427400 and in Hell Hole Reservoirs is USGS Gage No. 11428700. Compliance with the reservoir minimum pool requirements requires that the Licensee meet the following conditions:

- Average weekly reservoir water surface elevation as calculated from the daily average water surface elevations at the existing reservoir gages will be used to measure compliance.
- Average weekly reservoir water surface elevations must at all times be no less than the minimum pool requirement.

For recreation purposes, the Licensee will provide FS a forecast of monthly June – November reservoir water surface elevations on or before May 15 and an updated forecast before July 1 each year. The Licensee will also provide reservoir water surface elevation information to the public via the Internet or other appropriate technologies as specified in the Recreation Plan (PCWA 2011a).

**Reservoir Levels Recreation Objectives**

The following objectives guide reservoir operation scheduling at French Meadows and Hell Hole Reservoirs to support mid-summer reservoir water surface elevations for reservoir-based recreation. The Licensee will make every reasonable effort to achieve the reservoir water surface elevation objectives to support recreation while at the same time meeting the primary operation purposes of the Project (e.g., water supply, water rights, hydroelectric generation). If the May 15 or July 1 reservoir water surface elevation forecasts indicate the Licensee cannot meet the operation objectives (or higher elevations), the Licensee will consult with FS by June 1 or July 15, respectively. During CD or ED water years, consultation would be to (1) determine reservoir levels based on available water (including projected water deliveries) and priorities (e.g. boat ramp access) and (2) implementation of any additional measures to be funded by Licensee due to low reservoir levels (e.g. additional patrols, shoreline protection from motorized use, additional public information). Based on this consultation, the Licensee will provide an alternative reservoir operation forecast as appropriate. The reservoir water surface elevation objectives are not compliance criteria, rather they are operation goals.

**Reservoir Levels Recreation Objectives<sup>1</sup>**

Reservoir	Water Year Type <sup>2</sup> and Water Surface Elevation Objectives											
	Wet		Above Normal		Below Normal		Dry		Critically Dry		Extremely Dry	
	Date	WSE (ft)	Date	WSE (ft)	Date	WSE (ft)	Date	WSE (ft)	Date	WSE (ft)	Date	WSE (ft)
French Meadows Reservoir	15-Jul	5245	15-Jul	5245	15-Jul	5240	15-Jul	5220	15-Jul	5200	--	--
Hell Hole Reservoir	15-Jul	4590	15-Jul	4580	15-Jul	4570	15-Jul	4530	15-Jul	4530	1-Sep	4450

<sup>1</sup>Note that these reservoir water surface elevation objectives are not compliance criteria, rather they are operation goals that are mutually acceptable between the Licensee and FS.

<sup>2</sup>Water year types are based on the DWR Bulletin 120 May forecast.

Within 5 years of license issuance, and every 5 years thereafter, the Licensee shall prepare a report describing whether the reservoir scheduling objectives have been achieved, and if not, the reasons and time periods when the target reservoir levels were not achieved. The Licensee shall provide a copy of the report to FS, CDFG, State Water Board, and FERC.

**Condition No. 38 – Reservoir Fish Stocking Program**

Within 1 year of license issuance, the Licensee shall implement the reservoir fish stocking program as described in the Recreation Plan (see Condition No. 33).

**Condition No. 39 – Recreation Streamflows in the Middle Fork American River Below Oxbow Powerhouse**

All provisions for recreation streamflows are subject to the safe operability of the Project facilities and equipment necessary to provide such streamflows. The recreation streamflows described below may be temporarily modified if required by equipment

malfunction or operating emergencies reasonably beyond the control of the Licensee. If the described recreation streamflows are so modified, the Licensee shall provide Notice to FERC, FS, State Water Board, CDPR, and BLM as soon as possible but no later than 24 hours after such incident and shall provide Notice via the website to be developed by the Licensee to disseminate flow information. The described recreation streamflows may also be temporarily modified for short periods in non-emergency situations upon approval of FS. If the described recreation streamflows are so modified, the Licensee shall provide Notice to FERC, FS, State Water Board, CDPR, and BLM.

**Whitewater Boating**

The Licensee shall, within 30 days following license issuance, provide the recreation streamflows specified in the following schedules based on water year type, date, and time. The recreation streamflows shall be measured at the Middle Fork American River near Foresthill gage (USGS Gage No. 11433300). Recreation streamflow requirements for (1) weekday Class IV; (2) weekend Class IV; (3) Class II; and (4) and recreation events for recreation flow releases are specified below.

**Weekday Class IV Run Recreation Streamflow Releases**

	<b>Flow Magnitude<sup>1</sup></b>	<b>Timing</b>	<b>June–Labor Day</b>	<b>After Labor Day–Sept 30</b>
<b>Wet</b>	1000 cfs	3 hrs	5 (M,T,W,Th,F)	4 (T,W,Th,F)
		(9 am–12 pm)		
<b>Above Normal</b>	1000 cfs	3 hrs	5 (M,T,W,Th,F)	3 (T,W,F)
		(9 am–12 pm)		
<b>Below Normal</b>	1000 cfs	3 hrs	4 (T,W,Th,F)	3 (T,W,F)
		(9 am–12 pm)		
<b>Dry</b>	1000 cfs	3 hrs	3 (T,W,F) except for Friday before Labor Day	2 (W,F)
		(8 am–11 am)		
<b>Critical</b>	1000 cfs	3 hrs	2 (W,F) except for Memorial Day <sup>2</sup>	<b>Water Year Type</b>
		(8 am–11 am)		
<b>Extreme Critical</b>	1000 cfs	3 hrs	1 (W)	--
		(8 am–11 am)		

<sup>1</sup>Flow compliance measured at the Middle Fork American River near Foresthill USGS Gage (No. 11433300).

<sup>2</sup>One of the days during this week is used for the Class II Run (Confluence) boating.

### Scheduled Weekend Class IV Run Recreation Flow Releases

Water Year Type	Flow Magnitude <sup>1</sup>	Timing	Saturday before Memorial Day–Labor Day	After Labor Day–Sept 30
<b>Wet</b>	1000 cfs	4 hrs	Saturdays and Sundays	Saturdays and Sundays
		(8 am–12 pm)		
<b>Above Normal</b>	1000 cfs	4 hrs	Saturdays and Sundays	Saturdays and Sundays
		(8 am–12 pm)		
<b>Below Normal</b>	1000 cfs	4 hrs	Saturdays (except for Western States 100)	Saturdays and Sundays
		(8 am–12 pm)		
<b>Dry</b>	1000 cfs	3 hrs	Saturdays except for Western States 100 and Tevis Cup Race Days	Saturdays and Sundays
		(8:30 am–11:30 am)	Sundays except one Sunday <sup>2</sup> in July	
<b>Critical</b>	1000 cfs	3 hrs	Saturdays except for Western States 100 and Tevis Cup Race Days	Saturdays
		(8:30 am–11:30 am)	Sundays except one Sunday <sup>2</sup> in July	
<b>Extreme Critical</b>	1000 cfs	3 hrs	Saturdays except for Western States 100 and Tevis Cup Race Days	---
		(8:30 am–11:30 am)	Sundays except one Sunday <sup>2</sup> in July	

<sup>1</sup>Flow compliance measured at the Middle Fork American River near Foresthill USGS Gage (No. 11433300).

<sup>2</sup>This Sunday used for Class II Run (Confluence) boating.

**Scheduled Class II Run (Confluence) Recreation Flow Releases**

Water Year Type	Flow Magnitude <sup>1</sup>	Timing	Weekdays	Weekends		
			Memorial Day–Labor Day	Saturday before Memorial Day–June 30	July 1–Labor Day	After Labor Day–Sept 30
Wet	800 cfs	5 hrs	--	--	Saturdays	2 Saturdays per month
		(3 am–8 am)				
Above Normal	800 cfs	5 hrs	--	--	Saturdays	2 Saturdays per month
		(3 am–8 am)				
Below Normal	800 cfs	4 hrs	--	2 Saturdays/Month	2 Saturdays per month	1 Saturday per month
		(4 am–8 am)				
	1000 cfs	3 hrs	--	Western States 100 Race Day	Tevis Cup Race Day	--
		(4 am–7 am)				
Dry	1000 cfs	3 hrs	Memorial Day and Friday before Labor Day	Western States 100 Race Day	1 Sunday in July and Tevis Cup Race Day	--
		(4 am–7 am)				
Critical	1000 cfs	3 hrs	Memorial Day	Western States 100 Race Day	1 Sunday in July and Tevis Cup Race Day	--
		(4 am–7 am)				
Extreme Critical	1000 cfs	3 hrs	--	Western States 100 Race Day	Tevis Cup Race Day	--
		(4 am–7 am)				

<sup>1</sup>Flow compliance measured at the Middle Fork American River near Foresthill USGS Gage (No. 11433300).

In addition to the above schedules, up to two unscheduled days per year may be scheduled for special whitewater flow events. Individuals, groups, or agencies may submit a request for single-day whitewater flow events to the Licensee by April 15 each year. The Licensee will select the event(s) based on available water supply and existing consumptive demands, hydro-electric generation demands, and generating unit availability. The Licensee will respond to requests for single-day flow event requests by May 15.

Whitewater boating flow requirements are superseded by the Tevis Cup and Western States 100 event recreation flows outlined in the special event recreation coordination section below.

The Licensee shall determine the water year type for recreation flow releases based on the DWR Bulletin 120 May forecast of American River Unimpaired Flow (ac-ft) below Folsom Lake for the water year and the water year type classification in Condition No. 22.

Compliance with the recreation flow releases specified below requires that the Licensee meet the following:

- All specified minimum streamflows are in cubic feet per second (cfs).

- The recreation flow releases must be provided at the time specified.
- Once initiated, the streamflow hourly running average measurements (flow measured in 15-minute time increments) must be no less than the required recreation streamflow releases.
- If there is a forced or unplanned outage at the Middle Fork Powerhouse, Ralston Powerhouse or Oxbow Powerhouse then whitewater boating flow requirements will be suspended until the powerhouse(s) are returned to service.

### **Special Event Recreation Coordination**

The Licensee will provide the whitewater boating and special event recreation flows in the peaking reach (Middle Fork American River below Oxbow Powerhouse) as specified below.

#### **Tevis Cup and Western States 100 Events**

The Licensee will annually coordinate with representatives of the Tevis Cup and Western States 100 to identify and provide flows suitable for trail crossing conditions for these events (when such flows are controllable by the Project). The Tevis Cup/Western States 100 event recreation flows, when they occur, take priority over whitewater boating flows. Where possible, whitewater boating flows will be provided as described in the whitewater boating section above.

#### **Wounded Warrior**

If the Licensee has been notified by June 1 that a Horseshoe Bar Fish and Game Preserve Wounded Warrior Event has been scheduled during an annual maintenance outage based on an annual maintenance outage schedule posted by the Licensee (May 1) and the outage schedule changes, the Licensee will work with the event organizers to provide steady flows during the event (for up to 5 days).

### **Condition No. 40 – Visual Resource Management Plan**

Upon FERC approval, the Licensee shall implement the attached Visual Resource Management Plan.

### **Condition No. 41 – Historic Properties Management Plan**

A Historic Properties Management Plan was provided in the Final License Application. The Licensee will, in consultation with the FS, finalize the plan provided in the Final License Application and submit for FS approval. Once the plan is complete, it will be included as part of this condition. The HPMP will be incorporated into the Programmatic Agreement (PA) by reference.



### **Condition No. 42 – Cultural Resource Discovery**

If, prior to or during ground disturbance or as a result of Project operations, items of potential cultural, historical, archeological, or paleontological value are reported or discovered, or a known deposit of such items is disturbed on National Forest System lands and Licensee adjoining property, the Licensee shall immediately cease work in the area so affected. The Licensee shall then notify FS and shall not resume work on ground disturbing activities until it receives written approval from FS.

If it deems it necessary, FS may require the Licensee to perform recovery, excavation, and preservation of the site and its artifacts at the Licensee's expense through provisions of an Archaeological Resources Protection Act permit issued by FS.

### **Condition No. 43 – Transportation System Management Plan**

A Transportation System Management Plan was provided in the Final License Application. The Licensee will, in consultation with the FS, finalize the plan provided in the Final License Application and submit for FS approval. Once the plan is complete, it will be included as part of this condition.

### **Condition No. 44 – Fire Management and Response Plan**

A Fire Management and Response Plan was provided in the Final License Application. The Licensee will, in consultation with the FS, finalize the plan provided in the Final License Application and submit for FS approval. Once the plan is complete, it will be included as part of this condition.

### **Condition No. 45 – Erosion and Sediment Control and Management**

Within 1 year of license acceptance, the Licensee shall file with FERC an Erosion and Sediment Control Management Plan developed in consultation with FS and other interested parties, and approved by FS that will provide direction for treating erosion and controlling sedimentation within the Project and Project-affected NFS lands during the term of the new license. Upon FERC approval, Licensee shall implement the Plan.

The Plan shall include at a minimum the components included in the referenced by this condition, unless otherwise agreed to by the FS during Plan finalization. Minimum components include, but may not be limited to:

#### **Sediment Management Plan**

Upon FERC approval, the Licensee shall implement the Sediment Management Plan, attached.

### **Erosion Control Guidelines for Existing Project-Affected Areas**

- Methods for initial and periodic inventory and monitoring of the entire Project area and Project-affected NFS lands to identify erosion sites and assess site condition for each. Periodic monitoring and inventory will include recording effectiveness of erosion treatment measures, and identification of new erosion sites for the term of the new license.
- Criteria for ranking and treating erosion sites including a risk rating and hazard assessment for scheduling erosion treatment measures and monitoring at each site.
- Erosion control measures that incorporate current standards, follow FS regulations and guidance (e.g. LRMP, RMO's, BMP's), are customized to site-specific conditions, and approved by FS.
- Develop and implement a schedule for treatment (e.g. repair, mitigate, monitor) of erosion sites, including a list of sites requiring immediate mitigation and schedule for their implementation.
- Effectiveness monitoring of completed erosion control treatment measures after treatment in order to determine if further erosion control measures are needed. If erosion control measures are not effective, the Licensee will implement additional erosion control measures approved by FS and continue monitoring until the site has stabilized.
- Protocols for emergency erosion and sediment control.
- Process for documenting and reporting inventory and monitoring results including periodic plan review and revision. Documentation shall include a FS compatible GIS database for maps keyed to a narrative description of detailed, site-specific, erosion treatment measures and sediment monitoring results.

### **Erosion Control Guidelines for New Construction or Non-Routine Maintenance**

Licensee shall develop site-specific temporary erosion control measures for each project to be approved by FS. These temporary measures will prevent erosion, stream sedimentation, dust, and soil mass movement during the period of ground disturbance until replaced by permanent measures.

### **Condition No. 46 – Vegetation and Integrated Pest Management Plan**

A Vegetation and Integrated Pest Management Plan was provided in the Final License Application. The Licensee will, in consultation with the FS and CDFG, finalize the plan provided in the Final License Application and submit for FS approval. Once the plan is complete, it will be included as part of this condition.

In addition to the elements in the draft plan, the Vegetation and Integrated Pest Management Plan will address the following elements:

- Boat cleaning stations at boat ramps for the removal of aquatic Invasive weeds.
- A plan to address invasive species such as the New Zealand mudsnail (*Potamopyrgus antipodarum*), Quagga mussels (*Dreissena bugensis*), and zebra mussels (*Dreissena polymorpha*) if they are found during any monitoring.
- The Licensee shall comply with the Eldorado National Forest and Tahoe National Forest prescriptions for seed, mulch, and fertilizer for restoration or erosion control purposes. Upon FERC approval, the Licensee shall implement the plan.
- Invasive algae (*Didymosphenia geminata*) was found throughout the Project area, although not detected in North Fork Long Canyon Creek and the North Fork American River. If future studies document a safe method of reducing this invasive algae in rivers, the Licensee may be asked to implement this task in Project-related locations.