Upper American River Project,
FERC No. 2101
Chili Bar Hydroelectric Project,
FERC No. 2155
Comprehensive Resource Agency/NGO Alternative

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Executive Summary

Introduction

On July 11, 2001, the Sacramento Municipal Utility District (SMUD) filed a request with the Federal Energy Regulatory Commission (FERC) to follow the procedures of the Alternative Licensing Process (ALP), as specified in FERC regulations (18 CFR Section 4.34(I)) to relicense the Upper American River Project (UARP), FERC No. 2101. FERC noticed the request in the Federal Register on July 19, 2001, and approved the request on August 29, 2001. The license for the UARP expires on July 31, 2007. The UARP is a 688-megawatt project that consists of eleven reservoirs and eight powerhouses, located on the Rubicon River and its tributaries and the South Fork American River (SFAR) and its tributaries. In May 2003, SMUD decided to include the construction and operation of a new development – the proposed Iowa Hill Pumped Storage Project – in its relicensing proposal.

Concurrent with the UARP ALP, a separate relicensing process has been underway for the Chili Bar Project, FERC Project No. 2155, which is owned and operated by Pacific Gas & Electric Company (PG&E). The existing license for the Chili Bar Project expires on the same date as the UARP license, July 31, 2007. The Chili Bar Project is a 7-megawatt hydroelectric facility that largely operates on a water-available basis determined by UARP operation during the summer regulated-flow period. Its primary function is to operate as a regulating reservoir, with water discharging from the UARP's White Rock Powerhouse flowing directly into Chili Bar Reservoir. The combined operations of the UARP and Chili Bar Projects affect the 20-mile reach of the SFAR between Chili Bar Dam and Folsom Lake. SMUD and PG&E have worked cooperatively on the two relicensings as they relate to overlapping issues between the two Projects.

For more than 4 years, the resource agencies and several non-governmental organizations have participated in SMUD's ALP with the following major goals:

- Produce a comprehensive set of protection, mitigation, and enhancement (PM&E) measures, acceptable to the settlement negotiations group (SNG), for submittal in the July 2005 Final License Applications for the UARP and Chili Bar Projects.
- Produce a quality settlement agreement to be submitted to FERC for consideration in their environmental analysis.
- Preserve coordination between the UARP and Chili Bar Projects on overlapping issues.

In April 2004, with the timeline for development of PM&E measures and a settlement agreement behind schedule, the resource agencies proposed to the SNG that SMUD be excused from completing a draft license application and instead have adequate time to address the following goals:

- Complete studies.
- Review study reports.
- Develop and agree upon recommended PM&E measures.
- Write a comprehensive settlement agreement that the parties can "live with."

The SNG and FERC agreed that SMUD could be excused from filing a draft license application.

These goals were not achieved, and SMUD's Final License Application, including their preliminary draft environmental assessment, was filed without agreement on PM&E measures amongst the parties in the ALP and without knowledge from the parties as to the proposed environmental measures SMUD included in their final license application. PG&E also filed a Final License Application for the Chili Bar Hydroelectric Project in July 2005.

Since May 2005, the seven resource agencies and several non-governmental organizations (Agencies/NGOs) have worked to develop a comprehensive alternative that addresses the interests of these parties and the interests of the licensees, as they are understood by these participants. The Agencies/NGOs are:

- California Department of Fish and Game (CDFG)
- California State Water Resources Control Board (SWRCB)
- California State Department of Parks and Recreation (CDPR)
- USDA Forest Service (FS)
- USDI Bureau of Land Management (BLM)
- USDI Fish and Wildlife Service (FWS)
- USDI National Park Service (NPS)
- American River Recreation Association & Camp Lotus
- California Outdoors
- Chris Shutes, Unaffiliated Stream Fisheries Advocate
- Friends of the River
- American Whitewater
- Hilde Schweitzer, Private Boater

This group has completed their Agency/NGO Alternative and a Rationale Report that explains the rationale for the alternative. These documents have been submitted to FERC for consideration in the environmental analysis for both Projects and have been provided to the licensees. This Executive Summary provides an overview of the Alternative and Rationale Report for that alternative, focusing on areas of expected controversy.

A Balanced Alternative

In comparison to the Final License Applications, the Alternative is a balanced approach that addresses the interests of the seven resource agencies, most of the NGOs that

participated in the ALP, and the interests of SMUD and PG&E as we understand them. This Alternative represents a balance of hydroelectric generation, environmental, and recreation interests for the term of the licenses. The Alternative meets the minimum public environmental and recreational needs, not the optimum. The Agencies/NGOs have substantially reduced, from original proposals, all aspects of streamflows (minimum, pulse, and recreational) and reservoir levels from those originally proposed to develop an alternative that balances resource needs and SMUD's interests as we understand them. This Alternative does not represent a beginning point for negotiations. The Agencies/NGOs have worked to balance the competing interests in this Alternative, and defending major changes will be difficult based on available information and public trust needs.

This alternative meets SMUD's interests in the following ways:

- Supports issuance of a new license for the operation of the UARP.
- Meets the Minimum Energy Reliability Objective (MERO) release requirements at Union Valley Reservoir, as provided by the licensee.
- Has a per month (summer) average lake level for three main reservoirs to allow operational flexibility during those months.
- Substantially reduces the amount of water leaving the system as compared to our original proposals.
- Based on the Agency/NGO economic analysis, the change in gross benefits from base case to the Alternative is approximately 6 percent.
- Based on the Agency/NGO economic analysis, the Alternative represents 8.0 percent loss of power generation, which is well within the range of Projects recently relicensed in California. This loss of generation is not yet offset by the beneficial effects to SMUD that will result if the Iowa Hill Pumped Storage Project is constructed. In addition, the loss of generation is magnified in the UARP in comparison with other projects relicensed in the California, because the UARP is a relatively new project that is so well engineered that it fully uses the hydroelectric resources within the stream reaches that it affects. As such, any reduction is magnified when compared to the base case. This is not the case with most projects in the state, so comparing the loss of generation of the UARP with other projects is not necessarily an equivalent comparison.

Areas of Particular Controversy

Based on review of the Final License Applications, every aspect of the Alternative may be controversial to some degree; however, we believe that the following areas will be of greatest controversy:

- Minimum ecological streamflows throughout the Alternative, but likely primarily at Rubicon River below Rubicon Reservoir Dam, SFAR below Slab Creek Reservoir Dam, and SFAR below Chili Bar Reservoir Dam.

- Geomorphology measures including (1) pulse flows for Rubicon River below Rubicon Reservoir Dam, Gerle Creek below Loon Lake Reservoir Dam, and South Fork Silver Creek below Ice House Reservoir Dam and (2) distribution of sediment in SFAR below Chili Bar Reservoir Dam.
- Minimum recreational streamflows at South Fork Silver Creek below Ice House Reservoir Dam, SFAR below Slab Creek Reservoir Dam, and SFAR below Chili Bar Reservoir Dam.
- Reservoir levels.
- Recreation operation, maintenance, and administrative costs for UARP and Chili Bar.
- Iowa Hill Pumped Storage Project.

Minimum Ecological Streamflows in Rubicon River Below Rubicon Reservoir Dam

As we understand it, water from Rubicon River is the most valuable water in the Project, since it has the ability to run through all of the Project powerhouses except the Jones Fork Powerhouse. Water that goes down the Rubicon River for minimum streamflows leaves the system at this point and is lost to SMUD.

The Agency/NGO interests are as follows:

- Provide habitat for healthy rainbow trout populations and conditions less conducive for California roach and speckled dace.
- Provide habitat for healthy mountain yellow-legged frog populations.
- Attempt to address elevated aluminum levels in Rubicon Reservoir.
- Provide cold freshwater habitat.
- Move sediment through the system at the appropriate time of year.
- Distribute large woody debris throughout reach.
- Minimize winter fish kill in Rubicon Reservoir.
- Provide good water/habitat quality resulting in improved bioassessment composite metric scores, particularly in the lower reach.

To address SMUD's interest, the minimum streamflows in the Alternative have been substantially reduced from the resource agencies' original proposal (shown below).

Original Resource Agency Proposed Minimum Streamflows in Rubicon River Below Rubicon Reservoir Dam						
	Month	Minimum Streamflow by Water Year (cfs)				
		CD	DRY	BN	AN	WET
	OCT	2 or NF*	4 or NF*	6 or NF*	6	6
	NOV	2 or NF*	4 or NF*	6 or NF*	6	6
	DEC	2 or NF*	4 or NF*	6 or NF*	6	6
	JAN	6	8	12	12	12
	FEB	6	8	12	12	12
	MAR	12	16	24	24	24
	APR	12	16	24	24	24
	MAY	25	40	60	60	60
	JUNE	12	16	24	24	24
	JULY	6 or NF*	6 or NF*	6	6	6
	AUG	6 or NF*	6 or NF*	6	6	6
	SEPT	6 or NF*	6 or NF*	6	6	6

*If Natural Flow (NF) is below 1 cfs, the minimum flow shall be 1 cfs.

The resource agencies have completed their own analyses, at their own cost, due to the importance of this reach to SMUD for hydroelectric generation and to the resource agencies for ecological reasons. The resource agencies completed a Physical Habitat Simulation (PHABSIM) study and a wetted perimeter analysis in coordination with R2 Resource Consultants. Based on these analyses, the Alternative has been modified as in the following chart. Please note that each streamflow that is in bold highlighting has been changed from the original proposal.

Rubicon River Below Rubicon Reservoir Dam						
	Month	Minimum Streamflow by Water Year (cfs)				
		CD	DRY	BN	AN	WET
	OCT	**6 or NF***	**6 or NF***	6 or NF*	**6 or NF***	**6 or NF***
	NOV	**6 or NF***	**6 or NF***	6 or NF*	**6 or NF***	**6 or NF***
	DEC	**6 or NF***	**6 or NF***	6 or NF*	**6 or NF***	**6 or NF***
	JAN	**6 or NF***	**6 or NF***	6	**6**	6
	FEB	**6 or NF***	**6 or NF***	**6**	6	6
	MAR	**6**	**8**	**15**	**15**	**15**
	APR	**8**	**12**	**20**	**20**	**20**
	MAY	**10**	**15**	**35**	**35**	**35**
	JUNE	**6**	**8**	**15**	**15**	**15**
	JULY	6 or NF*	6 or NF*	6	6	6
	AUG	6 or NF*	6 or NF*	6	6	6
	SEPT	6 or NF*	6 or NF*	6	6	6

*If Natural Flow (NF) is below 1 cfs, the minimum flow shall be 1 cfs.

The minimum streamflows proposed by SMUD in its final license application are 6 cfs year-round in all water year types and represent no change from the current license flows.

Minimum Ecological Streamflows in South Fork American River Below Slab Creek Reservoir Dam

SMUD's interest, as we understand it, is to minimize loss of hydroelectric generation, maintain energy reliability, and minimize facility modifications.

The SFAR is very important ecologically due to the presence of Forest Service sensitive species (foothill yellow-legged frog and hardhead). This reach is a transitional aquatic species temperature reach, with both cold and warmer water species occurring. The Agency/NGO interests are as follows:

- Provide healthy habitat for foothill yellow-legged frogs. The current flow regime does not provide appropriate magnitude or timing of flows to trigger breeding.
- Provide habitat for healthy hardhead populations in this reach and in Slab Creek Reservoir.
- Provide habitat for healthy western pond turtle populations.
- Provide temperatures that allow for management of native fish and improve habitat conditions for foothill yellow-legged frogs and hardhead.
- Provide connectivity of flows from SFAR above Slab Creek Reservoir Dam and SFAR below Slab Creek Reservoir Dam.
- Ensure adequate large woody debris occurs in this reach.
- Provide good water/habitat quality resulting in improved bioassessment composite metric scores, particularly in the lower reach.
- Reduce riparian encroachment.

To reduce the loss of hydroelectric generation, the minimum streamflows in the Alternative have been substantially reduced from the resource agencies' original proposal (shown below).

Original Resource Agency Proposed Minimum Streamflows for SFAR Below Slab Creek Reservoir Dam					
Month	Minimum Streamflow by Water Year (cfs)				
	CD	DRY	BN	AN	WET
OCT	63	63	80	90	101
NOV	63	63	108	118	128
DEC	63	63	121	130	141
JAN	63	63	154	160	173
FEB	63	63	165	170	183
MAR	63	101	180	184	198
APR	100	183	287	319	343
MAY	109	183/159/135/111	303	395	415
JUNE	90	90	255/214/173/132	324/266/208/150	352/287/222/157
JULY	77	90	90	90	90
AUG	63	80	90	90	90
SEPT	63	63	90	90	90

The resource agencies have completed their own analysis, at their own cost, due to the importance of this reach to SMUD for hydroelectric generation and to the resource agencies for ecological reasons. The resource agencies consulted with Sara Kupferberg Ph.D., a foothill yellow-legged frog expert. Simulating the decline of the natural hydrograph was emphasized in designing the minimum streamflow regime, because this decline serves as an important cue for foothill yellow-legged frog reproduction, as well as reproduction for other aquatic species. The gradual decline was suggested by Kupferberg (2004), as it would decrease the chance of foothill yellow-legged frog eggs being stranded and allows tadpoles to follow the receding water line, if eggs and tadpoles are already present. This decline also simulates the unimpaired hydrograph for this important reproductive time of year.

To reduce the loss of hydroelectric generation, the minimum streamflows in the Alternative have been substantially reduced from late summer through late winter when the effects to sensitive species are of less concern. Also, because the higher spring flows would require SMUD to modify facilities, there is a minimum streamflow regime for the first 2 years that is within the capability of the existing facility, and then the proposed minimum streamflows are implemented. Only the chart showing years 3 through license term appears below. Please note that each streamflow that is in bold highlighting has been reduced from the original proposal (see the Alternative for the minimum streamflows for the first 2 years).

South Fork American River Below Slab Creek Reservoir Dam					
Years 3 Through License Term					
Month	Minimum Streamflow by Water Year (cfs)				
	CD	DRY	BN	AN	WET
OCT	63	63	**70**	**80**	**90**
NOV	63	63	**70**	**80**	**90**
DEC	63	63	**70**	**80**	**90**
JAN	63	63	**70**	**80**	**90**
FEB	63	63	**70**	**80**	**90**
MAR	63	101	180	**180**	**180**
APR	100	183	**263**	**263**	**263**
MAY	109	**164-145-126-107**	303	395	415
JUNE	90	90	255-210-165-120	324-256-188-120	352-274 197-120
JULY	77	90	90	90	90
AUG	63	**70**	**70**	**70**	**70**
SEPT	63	63	**70**	**70**	70

The minimum streamflows proposed by SMUD in its Final License Application are displayed in the following chart. Although they are in some months greater minimum streamflows than the current license (and in some months are less), they do not address the Agency/NGO interests in this reach, especially the interests related to protection of sensitive species as described above.

South Fork American River Below Slab Creek Reservoir Dam						
SMUD's Proposed Minimum Streamflows						
	Month		Minimum Streamflow by Water Year (cfs)			
			CD	DRY	BN	AN	WET
	OCT		64	64	64	84	84
	NOV		64	64	64	84	84
	DEC		64	64	64	84	84
	JAN		64	64	64	84	84
	FEB		64	64	64	84	84
	MAR		64	64	64	84	84
	APR		64	64	64	84	84
	MAY		64	64	64	84	84
	JUNE		30	30	50	50	50
	JULY		30	30	50	50	50
	AUG		30	30	50	50	50
	SEPT		30	30	50	50	50

Minimum Ecological Streamflows in South Fork American River Below Chili Bar Reservoir Dam

SMUD's interest, as we understand it, is to maintain operational flexibility, reduce the loss of hydroelectric generation, and maintain energy reliability. PG&E's interest, as we understand it, is to have coordinated operations with SMUD so that they can more efficiently operate Chili Bar Powerhouse for power generation, recreation, and ecological purposes.

The SFAR below Chili Bar Reservoir Dam to Folsom Reservoir is a difficult reach to address ecologically due to year-round fluctuations caused by the Projects, primarily from the UARP, and the recreation use that has developed as a result of Project operations. The Agency/NGO interests are as follows:

- Provide habitat for healthy foothill yellow-legged frog populations.
- Provide habitat for healthy hardhead populations in Chili Bar Reservoir.
- Provide habitat for healthy western pond turtle populations.
- Provide flows that reduce sediment accumulation, distribute sediment throughout the reach, and reduce vegetation encroachment.
- Determine if the fluctuating flow regime is affecting cottonwood age structure.
- Minimize effects of fluctuating flows on fish stranding and connectivity (fish passage) from SFAR to tributary streams.
- Ensure adequate large woody debris occurs in this reach.

Based primarily on results of the Flow and Fluctuation Study, the resource agencies developed a set of minimum streamflows (see following table) that they believed would address the interests listed above. However, once this alternative was modeled, it

resulted in substantial effects to upstream storage and did not provide the balance of beneficial uses that the Alternative was being developed to achieve.

Original Agency Minimum Streamflows In SFAR Below Chili Bar Reservoir Dam						
	Month	Minimum Streamflow by Water Year (cfs)				
		CD	DRY	BN	AN	WET
	OCT	200	200	250	325	400
	NOV	200	325	400	400	400
	DEC	200	325	400	400	400
	JAN	200	325	400	400	400
	FEB	200	325	400	400	400
	MAR	400	500	600	600	600
	APR	400	500	600	600	600
	MAY	400	500	600	600	600
	JUNE	400	500	600	600	600
	JULY	200	325	400	400	400
	AUG	200	200	250	325	400
	SEPT	200	200	250	325	400

To balance the ecological needs with the recreation and hydroelectric generation needs, the minimum streamflows have been substantially modified as shown in the following table. Every minimum streamflow has been reduced except for Dry Year August and September flows, which have been left unchanged.

South Fork American River Below Chili Bar Reservoir Dam							
	Month		Minimum Streamflow by Water Year (cfs)				
		SD	CD	DRY	BN	AN	WET
	OCT	150	185	200	250	200	250
	NOV	150	185	200	200	200	250
	DEC	150	185	200	200	200	250
	JAN	150	185	200	200	200	250
	FEB	150	185	200	200	200	250
	MAR	150	185	200	200	200	250
	APR	150	200	250	250	300	350
	MAY	150	200	250	250	350	500
	JUNE	200	200	250	250	350	500
	JULY	150	185	200	250	300	350
	AUG	150	185	200	250	300	300
	SEPT	150	185	200	250	200	250

The modified minimum streamflows balance interests in the following ways:

- Include a Super Dry (SD) water year type in recognition that water is scarce in multiple Dry or Critically Dry water years.
- Reduce minimum streamflows in all months in all water year types (except Dry Year flows in August and September.)

- Occur within the flows that already occur as part of SMUD's MERO release requirement at Union Valley Reservoir.
- Provide improvements to ecological resources while balancing other interests in this reach.

The minimum streamflows proposed by PG&E in its Final License Application are displayed in the following chart.

South Fork American River Below Chili Bar Reservoir Dam						
PG&E's Proposed Minimum Streamflows						
	Month	Minimum Streamflow by Water Year (cfs)				
		CD	DRY	BN	AN	WET
	OCT	100	100	200	200	200
	NOV	100	100	200	200	200
	DEC	100	100	200	200	200
	JAN	100	100	200	200	200
	FEB	100	100	200	200	200
	MAR	100	200	200	250	250
	APR	150	225	250	300	350
	MAY	150	225	250	300	350
	JUNE	100	200	250	300	350
	JULY	100	200	200	250	300
	AUG	100	200	200	250	300
	SEPT	100	200	200	250	300

*Or inflow, whichever is less, once available water if Chili Bar Reservoir has been depleted to minimum operating level.

Pulse Flows in Rubicon River Below Rubicon Reservoir Dam

SMUD's interests and the Agency/NGO interests are described above under "Minimum Ecological Streamflows in Rubicon River Below Rubicon Reservoir Dam."

Originally, the resource agencies proposed developing a method to restrict SMUD's diversion from the Rubicon River in all water year types to force spill into Rubicon River. The resource agencies proposed this method in order to meet the resource agency interests and to attempt to develop a pulse flow that did not require SMUD to modify facilities.

To address SMUD's interest as we understand it, the pulse flows in the Alternative have been substantially reduced from the resource agencies' original proposal. Critically Dry and Dry year pulse flows have been eliminated from the Alternative, and a pulse flow of 600 cfs for 3 days in other water years has been included based on SMUD's desire to have a specified flow rather than a method to restrict diversions at this location.

Pulse Flows in Gerle Creek Below Loon Lake Reservoir Dam

SMUD's interest, as we understand it, is to minimize loss of hydroelectric generation, maintain storage in Loon Lake Reservoir, and minimize facility modifications.

This reach currently has very unstable channel banks and a high degree of fine bedload. There are many downed logs in the channel. Lateral scour pools have been created as the channel attempts to move around the downed logs.

The Agency/NGO interests are:

- Improve habitat quality for native and desired non-native (in particular brown trout) species.
- Move the sediment through system to improve channel condition in Gerle Meadow area.

The resource agencies originally proposed pulse flows in this reach in all water year types, and the peak flow in Wet water year types was proposed to be 900 cfs (see following table).

Gerle Creek Below Loon Lake Reservoir Dam Pulse Flows					
	CD	Dry	BN	AN	Wet
Day 1	50	75	125	200	600
Day 2	50	75	125	200	600
Day 3	75	180	180	250	900
Day 4	50	75	125	200	600
Day 5	50	75	125	200	600

To reduce the amount of loss of hydroelectric generation, and to address recreational reservoir levels in Loon Lake Reservoir, Critically Dry and Dry water year pulse flows were eliminated from the Alternative. In addition, the peak flow in Wet water years was reduced to 740 cfs or the capacity of the licensee's outlet works, whichever is less, to address the licensee's interest to minimize facility modifications (see following table). In addition, several items will be completed (including test pulse flows) before the final pulse flow regime is established, and the alternative specifies that the final pulse flows will not exceed the pulse flows in the Alternative.

Gerle Creek Below Loon Lake Reservoir Dam Pulse Flows			
	BN	AN	Wet
Day 1	125	200	600
Day 2	125	200	600
Day 3	180	250	740*
Day 4	125	200	600
Day 5	125	200	600

*Or maximum capacity of oullet works, whichever is less.

Pulse Flows in South Fork Silver Creek Below Ice House Reservoir Dam

SMUD's interest, as we understand it, is to minimize loss of power generation, to maintain storage in Ice House Reservoir, and to minimize facility modifications.

This reach currently contains a considerable amount of bedload, contributed from tributaries and surrounding hillslopes. This reach was identified in the geomorphology report as a reach in need of the reintroduction of pulse flows due to its relatively low gradient, high amount of unsorted bedload, and few descriptive features (lack of pools, runs, riffles). Large woody debris is currently clumped in high amounts in some parts of the reach, with low amounts in others.

The Agency/NGO interests in this reach are:

- Provide hydrologic events that will fill the bankfull channel and distribute sediment into the flood prone area.
- Maintain channel shape, form, and dimensions.
- Support a healthy, diverse aquatic and riparian ecosystem.
- Distribute the large woody debris downstream.

The resource agencies originally proposed pulse flows in this reach in Dry through Wet water year types, and the peak flow in Wet water year types was proposed to be 900 cfs (see following table).

South Fork Silver Below Ice House Reservoir Dam Pulse Flows				
	Dry	BN	AN	Wet
Day 1	150	450	550	600
Day 2	150	450	550	600
Day 3	150	550	650	900
Day 4		450	550	600
Day 5		450	550	600

To reduce the loss of hydroelectric generation, and to address recreational reservoir levels in Ice House Reservoir, Dry water year pulse flows were eliminated from the alternative, and the peak flow in Wet water years was reduced to 780 cfs or the capacity of the licensee's outlet works, whichever is less.

South Fork Silver Below Ice House Reservoir Dam Pulse Flows			
	BN	AN	Wet
Day 1	450	550	600
Day 2	450	550	600
Day 3	550	650	780*
Day 4	450	550	600
Day 5	450	550	600

*Or maximum capacity of outlet works, whichever is less.

Pulse Flows Considered and Eliminated From Other UARP Reaches

The resource agencies also originally proposed passing runoff through Robbs Peak Reservoir Dam for 5 to 7 days during spring runoff; however, this was eliminated from the pulse flow regime in order to address licensee and recreational interests. The resource agencies also considered including pulse flows in Silver Creek below Junction Reservoir Dam to address undesirable algae conditions and to reset spawning gravels; however, a minimum streamflow regime that simulates the pattern of the unimpaired hydrograph was proposed instead to conserve water for power generation and recreational interests.

SMUD did not propose pulse flows in any reach of the UARP; however, they did include a measure to complete a study of the Gerle Creek below Loon Lake Reservoir Dam reach to determine the value of providing a pulse flow in this reach.

Distribution of Sediment in SFAR Below Chili Bar Reservoir Dam

The Agency/NGO interests are to reduce sediment accumulation, distribute sediment throughout the reach, and reduce vegetation encroachment.

To meet these interests, the following measures are included in the Alternative: (1) Completion of a Sediment Budget Plan within 5 years of license issuance and (2) based on the Sediment Budget Plan and geomorphology monitoring, if there is a need to dredge reservoirs during the license term, sediment that results from the dredging shall be placed in SFAR below Chili Bar Reservoir Dam in consultation with BLM, SWRCB, and CDFG, if it is determined appropriate by BLM, SWRCB, and CDFG.

Minimum Recreational Streamflows in South Fork Silver Creek Below Ice House Reservoir Dam

SMUD's interests are described above under "Pulse Flows in South Fork Silver Creek Below Ice House Reservoir Dam."

The Agency/NGO interest is to provide recreational streamflows within the natural hydrograph in selected UARP reaches that were identified in the whitewater flow studies.

Most whitewater runs above 5,000 feet in the Sierra Nevada are class V in difficulty and require expert boating skills. South Fork Silver Creek below Ice House Reservoir Dam represents a unique opportunity for intermediate and advanced boaters to experience boating in the high Sierra while only having to run moderate class III and IV rapids. The Ice House Reach Whitewater Boating Technical Report states that "runs that require intermediate to advanced boating skills are rare at such a high altitude in the Sierra." The run has many attractive attributes, including a short shuttle, challenging whitewater, the presence of numerous play spots, and plenty of locations for breaks.

To address the licensee's interests, the following is included in the Alternative:

- Flow magnitudes were set to stay within the unimpaired hydrograph for each water year type, while staying between the minimum and maximum boating levels.

- Recreational streamflows in Super Dry years were eliminated.
- The recreational streamflow schedule in BN, AN, and W years will be nested within the pulse flow when possible.

SMUD proposed recreational streamflows in this reach in their Final License Application. However, they are proposed to occur in the fall, which does not meet Agency/NGFO interests due to potential adverse ecological effects. In addition, SMUD's proposed streamflows occur for 30 consecutive hours on three weekends in certain water years, which does not fully meet Agency/NGO recreational interests, as whitewater boating at night would not be safe.

Minimum Recreational Streamflows in SFAR Below Slab Creek Reservoir Dam

SMUD's interest are described above under "Minimum Ecological Streamflows in SFAR Below Slab Creek Reservoir Dam."

The Agency/NGO interest is to provide recreational streamflows within the natural hydrograph in selected UARP reaches that were identified in the whitewater flow studies.

The Slab Creek Reach Whitewater Technical Report found this run to be "a high quality advanced to expert run." The reach is aesthetically pleasing with many attractive attributes for boating such as length of the run and shuttle, good portage routes, challenging whitewater, play spots, waves and holes, and plenty of locations for breaks. The class of difficulty for the entire reach was determined to be "between class IV and V, and is most suited for boaters with advanced skills or better."

To address the licensee's interests, the following is included in the Alternative:

- The number of days originally proposed for Critically Dry and Dry water years are reduced.
- Recognizing that the engineering and placement of a control structure on the diversion tunnel or some other engineered control modification that enables regularly scheduled releases of up to 1,500 cfs will take time, all non-spill scheduled flows were delayed for 5 years.
- A phased in approach that is based on monitoring and use delays the final flow regime for 10 years. This flow regime will only by implemented after the completion of demand and carrying capacity studies and if demand occurs during phases 1 and 2 that justifies the proposed increase in releases.

SMUD does not propose recreational streamflows in this reach in their Final License Application.

Minimum Recreational Streamflows in SFAR Below Chili Bar Reservoir Dam

SMUD's and PG&E's interests are described above under "Minimum Ecological Streamflows in SFAR Below Chili Bar Reservoir Dam."

S ininterest, as we understand it, is to minimize loss of power generation and maximize operational flexibility.

The Agency/NGO interest is to have a specified schedule for minimum recreational streamflows that provides longer flow durations to address boating safety and other resource objectives in the reach downstream of Chili Bar Reservoir Dam.

The SFAR is one of the most popular whitewater rivers in the western United States; in fact, there are more boaters per mile on the SFAR below Chili Bar Reservoir Dam than on any other reach in the United States. This reach has the most commercial boaters of any reach in the western United States. The SFAR attracts a large group of users because of its close proximity to the Bay Area, Sacramento, and various central valley cities; because of its level of difficulty, which allows users from beginners to those with moderate skill levels to use the river; and because it is one of the few remaining segments of river locally that is boatable during the entire year.

To address the licensee's interests, the following is included in the Alternative:

- The licensee's MERO release requirements at Union Valley Reservoir were used to establish minimum monthly summertime acre-foot targets, and recreational and ecological streamflows were kept within these targets.
- The upstream reservoir target levels were established to meet recreational and hydroelectric interests, respecting the licensee's MERO.
- The quantity of water available for each month of the period of record was modeled and calculated.
- Based on that monthly quantity of water, a recreational streamflow regime was developed.

The PG&E minimum recreational streamflows in PG&E's Final License Application utilize a "good-faith effort" standard of compliance. This does not meet the Agency/NGO interest to have a specified schedule for minimum recreational streamflows.

Reservoir Levels

SMUD's interest, as we understand it, is to have operational flexibility in the storage reservoirs.

The Agency/NGO interest is to provide reservoir levels sufficient to ensure that aesthetic, recreational, ecological, and hydroelectric generation needs are addressed. As an example, for Union Valley Reservoir, the original proposal included specific reservoir level targets, with year-round targets for most water year types (see following table).

Original Union Valley Proposed Reservoir Levels				
Month		BN to Wet	Dry or 1st Year CD	2nd Year CD
1-Jun		4860	4840/4855	4802
1-Jul		4860/full	4850/4865	4810
1-Aug		4855	4840/4845	4810
1-Sep		4835/4855	4820/4840	4810
1-Oct		4820/4830	4810/4820	4802
Year-round		4810	4810	None

To address SMUD's interest, the following changes were made to the Alternative for Loon Lake, Ice House, and Union Valley Reservoirs:

- Reservoir level targets were eliminated for all months except July, August, and September.
- Average reservoir levels are included in these three months instead of specific targets.
- Targets were eliminated in multiple Dry and CD years and instead a conference is included to agree on reservoir levels.
- Water year types were expanded and reservoir level targets were reduced in many water year types.

As an example, the following table displays the average reservoir level targets for Union Valley Reservoir.

Union Valley Reservoir Level by Water Year							
	Month		Monthly Average by Water Year				
			CD	DRY	BN	AN	WET
	JULY		4825	4840	4860	4865	4865
	AUGUST		4810	4830	4835	4855	4855
	SEPTEMBER		4802	4820	4835	4845	4845

SMUD proposed to maintain reservoir levels as high as possible during the recreation season in their Final License Application; however, this does not provide assurance that reservoir levels will be adequate to address Agency/NGO interests.

Recreational Operation, Maintenance, and Administration Costs for UARP and Chili Bar

We anticipate that the licensees' interests are to minimize costs related to recreation operation, maintenance, and administration.

The Agency/NGO interests are:

- Ensure Project-related facilities meet FS, BLM, and DPR design and accessibility standards, current and projected user needs, and public health and safety requirements.

- Ensure Project-related recreation is not adversely affecting other resources.
- Provide funding to assist the FS, BLM, and DPR in administering use permits that exist due to the location of the Project.
- Determine the appropriate level of licensees' responsibility for Project-related recreation, including dispersed and wilderness recreation, and ensure the licensees provide that level of assistance.
- Provide streamflow and other Project information to the public or assist the FS, BLM, and DPR in providing such information.
- Ensure Project-related recreation use is consistent with wilderness direction.

The costs the licensees would be obligated to provide in the Alternative are:

Forest Service
- $842,805 annually for UARP general recreation, recreation streamflow, and high country (Desolation Wilderness) operation, maintenance, and administration.
- $114,288 annually for public information services.
- $88,000 annually for dispersed recreation effects that occur as a result of the UARP.
- $147,746 annually for law enforcement.

Bureau of Land Management
- $387,000 annually for recreation operation, maintenance, and administration.

California State Department of Parks and Recreation
- $218,240 annually for recreation operation, maintenance, and administration.

Because of inadequate funding, the FS, BLM, and DPR have not been able to manage all Project-related recreation in a manner that meets FS, BLM, and DPR standards. Most of the UARP facilities were constructed by or funded by the licensee to address the increasing level of Project-related recreation. In the reach downstream of Chili Bar Reservoir Dam, no funding is currently provided to address the level of Project-related recreation. Management costs associated with this activity have continuously increased since the 1970s. BLM and CDPR annually expend substantial funds to manage recreational activities on public lands. These costs would not have been necessary without the hydroelectric projects.

Iowa Hill

The Iowa Hill Pumped Storage Project as proposed does not comply with the visual quality standards in the Eldorado National Forest Land and Resource Management Plan. Specifically, the views of the berm around the Iowa Hill Reservoir do not meet the standards. The Alternative requires SMUD to develop an alternative that meets the Eldorado National Forest Land and Resource Management Plan visual quality standards to ensure adequate protection during utilization of the Forest.

The following Alternative describes in detail the Agency/NGO proposed measures. The Alternative is separated into five appendices:

- Appendix A: Protection, Mitigation, and Enhancement Measures for the Upper American River Project, FERC No. 2101
- Appendix B: Protection, Mitigation, and Enhancement Measures for the Chili Bar Project, FERC No. 2155, Including the Reach Downstream of Chili Bar Reservoir Dam to Folsom Reservoir
- Appendix C: Protection, Mitigation, and Enhancement Measures for the Proposed Iowa Hill Pumped Storage Project of the Upper American River Project, FERC No. 2101
- Appendix D: Other Forest Service Protection, Mitigation, and Enhancement Measures
- Appendix E: Other Bureau of Land Management Standard Protection, Mitigation, and Enhancement Measures

The accompanying Rationale Report describes in detail the objectives, existing and desired conditions, information used, and rationale for each measure in the Alternative.

Abbreviations

4WD	Four Wheel Drive
ALP	Alternative License Process
ALTERNATIVE	Agencies and NGO's Alternative for FERC to use in developing their EIS
AN	Above Normal Water Year Type
ATV	All Terrain Vehicle
BASECASE	UARP Model Simulation of Existing UARP Operations
BASIN PLAN	The RWQCB Water Quality Control Board Plan for Sacramento and San Joaquin rivers
BEHI	Bank Erosion Hazard Index
BLM	Bureau of Land Management
BLM PLAN (BLM)	The South Fork American River: A Management Plan
BMI	Bentho-Macro Invertabrates
BN	Below Normal Water Year Type
CD	Critical Dry Water Year Type
CDFG	California Department of Fish and Game
CHILI BAR HYDRO-ELECTRIC PROJECT	A 7 MW project (FERC 2155), owned and operated by PG&E
EDC	El Dorado County
EXHIBIT R	Exhibit R of the License for Project 2101
FERC	Federal Energy Regulatory Commission
FOREST PLAN (FS) FS	Eldorado National Forest Land Resource Management Plan
FS	Forest Service
FYLF	Foothill Yellow Legged Frog
GPS	Global Positioning System
HPMP	Historic Properties Management Plan
HSC	Habitat Suitabilty Curves
LEO	Law Enforcement Officer
MERO	Minimum Energy Reliablity Objective
NF	Natural Flow
NGO	Non-Governmental Organization
NPS	National Park Service
OHV	Off Highway Vehicle
PA	Programmatic Agreement
PAOT	Persons At One Time
PDEA	Preliminary Draft Environmental Assessment
PG&E	Pacific Gas & Electric
PHABSIM	Physical Habitat Simulation Models
PM&E	Protection Mitigation & Enhancement
ROS	Recreation Opportunity Spectrum
RV	Recreational Vehicle
SD	Super Dry Water Year Type
SFAR	South Fork American River

SHP	State Historic Park
SMUD	Sacramento Municipal Utility District
SRA	State Recreation Area
SWRCB	State Water Resources Control Board
UARP	Upper American River Project, a 688 MW project (FERC 2101), owned and operated by SMUD
WSL	Water Surface Elevation
WSR	Wild and Scenic River
WUA	Weighted Usable Area

Appendix A

Protection, Mitigation, and Enhancement Measures Recommended for the Upper American River Project, FERC No. 2101

Section 1. Minimum Streamflows

The licensee shall, beginning as early as reasonably practicable within 3 months after license issuance, maintain minimum streamflows in Rubicon River below Rubicon Reservoir Dam, Little Rubicon River below Buck Island Reservoir Dam, Gerle Creek below Loon Lake Reservoir Dam, Gerle Creek below Gerle Creek Reservoir Dam, South Fork Rubicon River below Robbs Peak Reservoir Dam, South Fork Silver Creek below Ice House Reservoir Dam, Silver Creek below Junction Reservoir Dam, Silver Creek below Camino Reservoir Dam, Brush Creek below Brush Creek Reservoir Dam, and South Fork American River (SFAR) below Slab Creek Reservoir Dam. For compliance purposes, the point of measurement for each required minimum streamflow is described in the title of 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.

The minimum streamflows specified in the schedules may be temporarily modified if required by equipment malfunction or operating emergencies reasonably beyond the control of the licensee. If the streamflow is so modified, the licensee shall provide Notice to FERC, FS, BLM, CDFG, and the SWRCB as soon as possible, but no later than 10 days after such incident. The minimum streamflows specified may also be temporarily modified for short periods in non-emergency situations 5 days after Notice to FERC, and upon approval of the FS, CDFG, BLM, and SWRCB.

Where facility modification is required to maintain the specified minimum streamflows, the licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance, except that the licensee shall complete modifications necessary to meet the minimum ecological streamflows at Slab Creek Reservoir within 2 years after license issuance. Prior to such required facility modifications, the licensee shall make a good-faith effort to provide the specified minimum streamflows within the capabilities of the existing facilities.

In order for the licensee to adjust operations to meet the required minimum streamflows, the licensee shall have a 3-year period after the license is issued or 3 years after completion of necessary facility modifications, whichever is later, in which daily mean streamflows may vary up to 10 percent below the amounts specified in the minimum streamflow schedules, provided that the average monthly streamflow in any given month equals or exceeds the required minimum amount for the month. After the applicable period, the licensee shall meet the minimum streamflow requirements specified in the minimum streamflow schedules.

Water Year Types. The minimum streamflow schedules have been separated into five water year types: Wet, Above Normal (AN), Below Normal (BN), Dry, and Critically Dry (CD). The licensee shall determine water year type based on the predicted unimpaired inflow to Folsom Reservoir and spring forecasting information provided by the California Department of Water Resources Bulletin 120 report of water conditions in California each month from February through May. The water year types are defined as follows:

Wet = greater than or equal to 3.5 MAF
AN = greater than or equal to 2.6 MAF but less than 3.5 MAF
BN = greater than 1.7 MAF or equal to but less than 2.6 MAF
Dry = greater than 0.9 MAF or equal to but less than 1.7 MAF
CD = less than 0.9 MAF

Each February through May the licensee shall determine the water year type based on the DWR Bulletin 120 forecast and shall operate for that month based on that forecast. The May forecast shall be used to establish the final water year type for the remaining months of the water year. The water year type for the months of October through January shall be based on the Department of Water Resources' Full Natural Flow record for the American River at Folsom for the preceding water year. The licensee shall provide Notice to the FS, FERC, CDFG, BLM, and SWRCB of the final water year type determination within 30 days of making the determination.

Rubicon River below Rubicon Reservoir Dam

The licensee shall maintain the minimum streamflow specified in the following schedule based on month and water year type. Streamflows shall be measured at either USGS gage 11427960, located at the outlet structure on the Rubicon Reservoir Dam, or a new gaging station that is approved through the Streamflow and Reservoir Elevation Gaging Plan (Appendix A, Section 10).

Rubicon River Below Rubicon Reservoir Dam						
Month	Minimum Streamflow by Water Year (cfs)					
	CD	DRY	BN	AN	WET
OCT	6 or NF*	6 or NF*	6 or NF*	6	6
NOV	6 or NF*	6 or NF*	6 or NF*	6	6
DEC	6 or NF*	6 or NF*	6 or NF*	6	6
JAN	6 or NF*	6 or NF*	6	6	6
FEB	6 or NF*	6 or NF*	6	6	6
MAR	6	8	15	15	15
APR	8	12	20	20	20
MAY	10	15	35	35	35
JUNE	6	8	15	15	15
JULY	6 or NF*	6 or NF*	6	6	6
AUG	6 or NF*	6 or NF*	6	6	6
SEPT	6 or NF*	6 or NF*	6	6	6

*If Natural Flow (NF) is below 1 cfs, the minimum flow shall be 1 cfs.

The licensee shall maintain an overwintering minimum pool of 6,527 feet in elevation in Rubicon Reservoir once the reservoir begins to freeze for the protection of aquatic species. Below an elevation of 6,527 feet, streamflow releases from Rubicon Reservoir shall equal the lesser of the applicable flow listed in the table or the inflow to Rubicon Reservoir, except that at no times shall the streamflow release be less than 1 cfs.

Little Rubicon River Below Buck Island 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 at USGS gage 11428400, located at the outlet structure on Buck Island Reservoir Dam.

Little Rubicon River Below Buck Island Reservoir Dam						
Month	Minimum Streamflow by Water Year (cfs)					
	CD	DRY	BN	AN	WET	
OCT	1	1	1	1	1	
NOV	1	1	1	1	1	
DEC	1	1	1	1	1	
JAN	1	1	1	1	1	
FEB	1	1	1	1	1	
MAR	1	2	3	3	3	
APR	2	3	5	5	5	
MAY	2	3	8	8	8	
JUNE	1	2	3	3	3	
JULY	1	1	1	1	1	
AUG	1	1	1	1	1	
SEPT	1	1	1	1	1	

Gerle Creek Below Loon Lake 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 at USGS gage 11429500, located approximately 0.3 mile downstream from Loon Lake Reservoir Dam.

Gerle Creek Below Loon Lake Reservoir Dam						
	Month	Minimum Streamflow by Water Year (cfs)				
		CD	DRY	BN	AN	WET
	OCT	7	11	16	20	23
	NOV	7	11	16	20	23
	DEC	8	13	18	22	26
	JAN	12	15	19	23	28
	FEB	14	18	22	27	32
	MAR	19	24	30	37	44
	APR	23	32	40	49	58
	MAY	25	32	40	49	58
	JUNE	10	16	22	27	32
	JULY	5	14	22	27	32
	AUG	5	10	14	17	20
	SEPT	5	10	14	17	20

Gerle Creek Below Gerle Creek 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 at a new gaging station located immediately downstream of Gerle Creek Reservoir Dam.

Gerle Creek Below Gerle Reservoir Dam						
	Month	Minimum Streamflow by Water Year (cfs)				
		CD	DRY	BN	AN	WET
	OCT	5	9	10	10	10
	NOV	4	4	6	6	6
	DEC	4	5	6	6	6
	JAN	5	6	6	6	6
	FEB	5	6	6	6	6
	MAR	7	10	12	9	9
	APR	9	12	15	9	9
	MAY	9	12	15	15	15
	JUNE	9	12	15	15	15
	JULY	7	10	13	15	15
	AUG	5	9	12	12	12
	SEPT	5	9	10	10	10

South Fork Rubicon River Below Robbs Peak 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 at a new gaging station located immediately downstream of Robbs Peak Reservoir Dam.

South Fork Rubicon River Below Robbs Peak Reservoir Dam						
	Month	Minimum Streamflow by Water Year (cfs)				
		CD	DRY	BN	AN	WET
	OCT	3	3	3	3	3
	NOV	1	2	3	3	3
	DEC	1	3	4	4	4
	JAN	2	5	7	7	7
	FEB	2	5	8	8	8
	MAR	3	7	11	9	9
	APR	4	9	13	10	10
	MAY	4	9	13	13	13
	JUNE	4	9	13	13	13
	JULY	3	5	6	13	13
	AUG	3	5	6	11	11
	SEPT	3	5	6	6	6

South Fork Silver Creek Below Ice House 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 at USGS gage 11441500, located approximately 0.4 mile downstream from Ice House Reservoir Dam.

South Fork Silver Creek Below Ice House Reservoir Dam						
	Month	Minimum Streamflow by Water Year (cfs)				
		CD	DRY	BN	AN	WET
	OCT	5	10	15	15	15
	NOV	5	7	8	8	8
	DEC	5	8	11	11	11
	JAN	6	12	18	18	18
	FEB	6	12	18	18	18
	MAR	8	16	24	24	24
	APR	15	28	41	41	41
	MAY	30	46	68	68	68
	JUNE	25	31	46	46	46
	JULY	21	21	30	30	30
	AUG	14	14	15	15	15
	SEPT	10	10	15	15	15

Silver Creek Below Junction 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 at USGS gage 11441800, located at the outlet structure on Junction Reservoir Dam.

Silver Creek Below Junction Reservoir Dam					
Month	Minimum Streamflow by Water Year (cfs)				
	CD	DRY	BN	AN	WET
OCT	5	10	15	18	26
NOV	5	7	20	24	35
DEC	5	8	20	24	35
JAN	6	12	20	24	35
FEB	6	12	20	24	35
MAR	8	16	25	29	43
APR	15	28	42	49	73
MAY	30	46	68	80	100
JUNE	25	31	50	59	87
JULY	21	21	30	35	52
AUG	14	14	15	18	26
SEPT	10	10	15	18	26

Silver Creek Below Camino 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 at USGS gage 11441900, located approximately 0.4 mile downstream from Camino Reservoir Dam.

Silver Creek Below Camino Reservoir Dam					
Month	Minimum Streamflow by Water Year (cfs)				
	CD	DRY	BN	AN	WET
OCT	5	10	15	18	26
NOV	5	7	20	24	35
DEC	5	8	20	24	35
JAN	6	12	20	24	35
FEB	6	12	20	24	35
MAR	8	16	25	29	43
APR	15	28	42	49	73
MAY	30	46	68	80	100
JUNE	25	31	50	59	87
JULY	21	21	30	35	52
AUG	14	14	15	18	26
SEPT	10	10	15	18	26

Brush Creek Below Brush Creek 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 at USGS gage 11442700, located at the outlet structure on Brush Creek Reservoir Dam.

Brush Creek Below Brush Creek Reservoir Dam						
	Month	Minimum Streamflow by Water Year (cfs)				
		CD	DRY	BN	AN	WET
	OCT	4 or NF	4 or NF	4 or NF	4 or NF	4 or NF
	NOV	6 or NF	7 or NF	8 or NF	9 or NF	9 or NF
	DEC	6 or NF	7 or NF	8 or NF	9 or NF	10 or NF
	JAN	6 or NF	7 or NF	8 or NF	9 or NF	10 or NF
	FEB	6 or NF	7 or NF	8 or NF	9 or NF	10 or NF
	MAR	6 or NF	7 or NF	8 or NF	9 or NF	10 or NF
	APR	6 or NF	7 or NF	8 or NF	9 or NF	10 or NF
	MAY	6 or NF	7 or NF	8 or NF	9 or NF	10 or NF
	JUNE	6 or NF	7 or NF	8 or NF	9 or NF	9 or NF
	JULY	5 or NF	5 or NF	5 or NF	5 or NF	5 or NF
	AUG	4 or NF	4 or NF	4 or NF	4 or NF	4 or NF
	SEPT	3 or NF	3 or NF	3 or NF	3 or NF	3 or NF

South Fork American River Below Slab Creek Reservoir Dam

The licensee shall maintain the minimum streamflow specified in the following schedule based on month and water year type for years 1 and 2 of the new license in order to allow facility modifications to be completed at this location. Minimum streamflow shall be measured at USGS gage 11443500, located approximately 500 feet upstream from Iowa Canyon Creek.

South Fork American River Below Slab Creek Reservoir Dam						
Years 1-2						
	Month	Minimum Streamflow by Water Year (cfs)				
		CD	DRY	BN	AN	WET
	OCT	63	63	70	80	90
	NOV	63	63	70	80	90
	DEC	63	63	70	80	90
	JAN	63	63	70	80	90
	FEB	63	63	70	80	90
	MAR	63	101	180	180	180
	APR	100	183	222	222	222
	MAY	109	164-145-126-107	263	263	263
	JUNE	90	90	228-193-158-123	228-193-158-123	228-193-158-123
	JULY	77	90	90	90	90
	AUG	63	70	70	70	70
	SEPT	63	63	70	70	70

The licensee shall maintain the minimum streamflow specified in the following schedule based on month and water year type for years 3 through the new license term in order to allow facility modifications to be completed at this location.

South Fork American River Below Slab Creek Reservoir Dam					
Years 3 through license term					
Month	Minimum Streamflow by Water Year (cfs)				
	CD	DRY	BN	AN	WET
OCT	63	63	70	80	90
NOV	63	63	70	80	90
DEC	63	63	70	80	90
JAN	63	63	70	80	90
FEB	63	63	70	80	90
MAR	63	101	180	180	180
APR	100	183	263	263	263
MAY	109	164-145-126-107	303	395	415
JUNE	90	90	255-210-165-120	324-256-188-120	352-274-197-120
JULY	77	90	90	90	90
AUG	63	70	70	70	70
SEPT	63	63	70	70	70

Section 2. Pulse Flows

General

The licensee shall, beginning as early as reasonably practicable within 3 months after license issuance, but not prior to the implementation of the new minimum streamflows, provide annual pulse flow events in Rubicon River below Rubicon River Reservoir Dam, Gerle Creek below Loon Lake Reservoir Dam, and South Fork Silver Creek below Ice House Reservoir Dam as specified in the following pulse flow schedule by water year type. For compliance purposes, the point of measurement for each required pulse flow is included. All specified pulse flows are in cubic feet per second (cfs).

Pulse flows do not need to be implemented in water years where natural spill events provide flows of equivalent magnitude and duration during spring snowmelt runoff.

The pulse flows specified in the following schedule may be temporarily modified if required by equipment malfunction or operating emergencies reasonably beyond the control of the licensee. If a pulse flow is so modified, the licensee shall provide Notice to FS, FERC, CDFG, BLM, and SWRCB as soon as possible but no later than 10 days after such incident. The pulse flows specified may also be temporarily modified for short periods in non-emergency situations upon approval of FS, FERC, CDFG, BLM, and SWRCB.

Where facility modification is required to provide the specified pulse flows, the licensee shall make such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to such required facility modifications, the licensee shall

make a good-faith effort to provide the specified pulse flows within the capabilities of the existing facilities.

Rubicon River Below Rubicon Reservoir Dam

The licensee shall provide a pulse flow of 600 cfs for 3 days in BN, AN, and Wet water years to coincide with spring snowmelt runoff in the Rubicon River watershed. The pulse flows shall be measured at either USGS gage 11427960, located at the outlet structure on Rubicon Reservoir Dam, or at a new gaging station located downstream of the confluence of the spillway on the main dam and the spillway on the auxiliary.

Gerle Creek Below Loon Lake Reservoir Dam

The licensee shall provide pulse flows as specified in the following schedule based on month and water year type. The pulse flows shall be measured at USGS gage 11429500, located approximately 0.3 mile downstream from Loon Lake Reservoir Dam.

Gerle Creek Below Loon Lake Reservoir Dam Pulse Flows			
	BN	AN	Wet
Day 1	125	200	600
Day 2	125	200	600
Day 3	180	250	740*
Day 4	125	200	600
Day 5	125	200	600

*Or maximum capacity of outlet works, whichever is less.

Prior to implementing the pulse flows in Gerle Creek below Loon Lake Reservoir Dam and within 2 years of license issuance, the licensee shall complete the following:

1. A sensitive site investigation that includes additional permanent cross-sections and characterization of the upper and middle Rosgen Level 3 analysis reaches. Areas of unstable banks and downed logs that are obstructing streamflow shall be mapped. A professional riparian ecologist shall participate in the investigation.

2. Test pulse releases shall be made from the outlet works at different levels up to the prescribed 740 cfs or the maximum capacity of the outlet works, whichever is less, to determine the appropriate pulse flows for the desired channel conditions.

3. Analysis of the downstream features including bridges, campgrounds, and day-use areas for potential impacts from the pulse flows.

Once these items are completed, the FS may adjust the prescribed pulse flows, if necessary, based on the results of the investigation and objectives of restoring the stream channel to a proper functioning condition. The final pulse flows shall not exceed those described in the pulse flow schedule.

South Fork Silver Creek Below Ice House Reservoir Dam

The licensee shall provide pulse flows as specified in the following schedule based on month and water year type. The pulse flows shall be measured at USGS gage 11441500, located approximately 0.4 mile downstream from Ice House Reservoir Dam.

South Fork Silver Below Ice House Reservoir Dam Pulse Flows			
	BN	AN	Wet
Day 1	450	550	600
Day 2	450	550	600
Day 3	550	650	780*
Day 4	450	550	600
Day 5	450	550	600

*Or maximum capacity of outlet works, whichever is less.

Timing of Pulse Flows

Pulse flows shall be timed to coincide with spring snowmelt runoff in each of the specific watersheds in which the pulse flow is required. The specific timing of the pulse flows shall be approved by FS, CDFG, BLM, and SWRCB prior to the pulse flow events in the water years in which pulse flows are to occur.

Section 3. Ramping Rates

The licensee shall, beginning as early as reasonably practicable within 3 months after license issuance, use a ramping rate of 1 foot per hour when making the following licensee-controlled releases:

1. Pulse flow releases in Gerle Creek below Loon Lake Reservoir Dam and South Fork Silver Creek below Ice House Reservoir Dam.

2. Minimum streamflow releases in Silver Creek below Camino Reservoir Dam and SFAR below Slab Creek Reservoir Dam.

3. Recreational streamflow releases in South Fork Silver Creek below Ice House Reservoir Dam and SFAR below Slab Creek Reservoir Dam.

The ramping rate shall be measured at the streamflow gaging stations located immediately downstream of each of the release points.

Where facility modification is required to provide the specified ramping rates, the licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to such required facility modifications, the licensee shall make a good-faith effort to provide the specified ramping rates within the capabilities of the existing facilities.

The licensee shall make available to the FS, CDFG, and SWRCB the streamflow records related to ramping 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 the FS, CDFG, and SWRCB 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.

Section 4. Coordinated Operations

The licensee shall coordinate operations with the licensee of the Chili Bar Hydroelectric Project, FERC No. 2155, in order to comply with the minimum streamflows, pulse flows, ramping rates, and recreational streamflows for both Projects.

Section 5. 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 the FS, CDFG, FWS, and SWRCB. Within the scope of the specified monitoring program, the FS, CDFG, FWS, and SWRCB may select an equal number of alternative years to ensure that surveys occur during a range of water year types. Final study plans shall be approved by the FS, CDFG, FWS, and SWRCB. The FS, CDFG, FWS, and SWRCB 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. The FS, CDFG, FWS, and SWRCB shall have at least 30 days to review and comment on the draft report prior to filing with FERC. The licensee shall provide copies of the annual report to the FS, CDFG, FWS, and SWRCB.

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 ecological resources adaptive management 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, the FS, CDFG, FWS, and/or SWRCB reserve the right to extend the monitoring period as necessary.

1. Fish Populations

Method: Electrofishing and/or snorkeling (as conducted in 2002-2003 by the licensee) during late summer/fall for rainbow trout at all stations listed below, brown trout in the Gerle Creek below Loon Lake Reservoir Dam Reach only, and hardhead sampling in SFAR below Slab Creek Reservoir Dam Reach only:

a. Rubicon River below Rubicon Reservoir Dam (upper and lower sample section of sites RRD-F1 and RRD-F2).

b. Little Rubicon River below Buck Island Reservoir Dam (upper sample section of site BID-F1).

c. Gerle Creek below Loon Lake Reservoir Dam (upper and lower sample section of sites LLD-F1 and LLD-F2).

d. Gerle Creek below Gerle Creek Reservoir Dam (upper and lower sample section of site GCD-F1).

e. South Fork Rubicon River below Robbs Peak Reservoir Dam (upper and lower sample section of site RPD-F1).

f. South Fork Silver Creek below Ice House Reservoir Dam (upper and lower sample section of sites IHD-F1 and IHD-F2).

g. Silver Creek below Junction Reservoir Dam (upper and lower sample section of site JD-F1).

h. Silver Creek below Camino Reservoir Dam (upper and lower sample section of site CD-F1).

i. Brush Creek below Brush Creek Reservoir Dam (site BCD-F1). This site shall be surveyed once every 10 years after license issuance.

j. SFAR below Slab Creek Reservoir Dam (electrofishing at upper and lower sample section of site SCD-F2). Hardhead snorkeling shall be conducted from immediately downstream of Mosquito Road Bridge to and including site SCD-F2.

Frequency: Rainbow trout and brown trout: Years 5, 6, 10, 11, 15, 16, 20, 21, 25, 26, 30, 31. Hardhead: Years 2, 3, 5, 6, 10, 11, 15, 16, 20, 21, 25, 26, 30.

Rationale: Sampling for 2 years in the beginning of each 5-year period provides a mean of 2 years for comparison to the ecological resource objective and reduces electroshocking effects to individuals, with sufficient response time to the new streamflow regimes. Hardhead sampling in years 2 and 3 will evaluate initial response to the new flow regime.

2. Aquatic Macroinvertebrates

Method: A method accepted by FS, CDFG, and SWRCB. The results shall be compared to an aquatic health index approved by the FS, CDFG, and SWRCB. The following sites shall be included:

a. Rubicon River below Rubicon Reservoir Dam (RR-I3).

b. Gerle Creek below Loon Lake Reservoir Dam (LL-I2).

c. Gerle Creek below Gerle Reservoir Dam (impaired reach) (GC-I2).

d. South Fork Rubicon River below Robbs Peak Reservoir Dam (RPD-I2).

e. South Fork Silver Creek below Ice House Reservoir Dam (impaired reach) (IH-I2).

f. Silver Creek below Junction Reservoir Dam (JD-I1 and JD-I2).

g. Silver Creek below Camino Reservoir Dam (CD-I2 and CD-I3).

h. SFAR below Slab Creek Reservoir Dam (SC-I2).

Reference streams that were sampled as part of the macroinvertebrate monitoring program during the relicensing shall be incorporated into the monitoring program if the FS, CDFG, and SWRCB determine they are necessary. Reference sites may be substituted upon approval by the FS, CDFG, and SWRCB.

Frequency: Years 5, 6, 10, 11, 15, 16, 20, 21, 25, 26, 30.

Rationale: Compare sites to ensure they have improvement if impaired or maintenance if not (California Energy Commission IBI).

3. Amphibians (Habitat Evaluation & Determination of Species Presence/Distribution)

Foothill Yellow-legged Frog

Methods: Conduct protocol surveys for sensitive species using the procedures of Pacific Gas and Electric Company (2002) in a sub-sample of appropriate habitat types to document species presence and distribution. Identify amphibian breeding and larval periods in Project-affected reaches by periodically surveying reaches of known presence during spring/summer. Qualifications of surveyors shall be reviewed and meet approval of the FS and CDFG prior to commencing work.

The first year of surveys shall be to determine the timing and success of the following life stages of existing known populations: egg laying, tadpole rearing, metamorphosis, and size/condition of metamorphs in late September to estimate probability of overwintering success. For subsequent years, the FS, CDFG, and SWRCB may approve a subset of survey sites or a less intensive program, based on review of the first year's data. In the future, the FS, CDFG, and SWRCB may request additional breeding site habitat data to assess the cause of unexpected or chronic reproductive failures that may be related to Project operations. Licensee shall also survey for western pond turtles during FYLF surveys.

Spill flows that occur after water temperatures rise above 12°C mean daily temperature for a 7-day running average at SFAR 6 shall be monitored in the reach below Rock Creek for effects to aquatic species (amphibians, fish, and aquatic reptiles) as soon as possible after the decline of this spill.

Foothill yellow-legged frog Monitoring Sites:

a. Silver Creek below Junction Reservoir Dam (site associated with site JD-F2).

b. Silver Creek below Camino Reservoir Dam (C-A3 and SFA-A4).

c. SFAR below Slab Creek Reservoir (entire reach between and including SCA-6a and SCA-4).

Frequency: (1) Silver Creek below Junction Reservoir Dam and SFAR below Slab Creek Reservoir Dam 2, 3, 5, 10, 15, 20, 25, 30 and (2) SFAR below Slab Creek Reservoir Dam spill flows as soon as possible after the decline of this spill, and (3) Silver Creek below Camino Reservoir Dam: Years 1, 2, 3, 5, 6, 10, 11, 15, 16, 20, 21, 25, 26, 30.

Rationale: Determination of presence and distribution of sensitive amphibian species and identification of breeding and larval periods are important in evaluating potential impacts resulting from streamflow modifications (particularly short-term fluctuations). Foothill yellow-legged frog monitoring shall determine if any threshold is reached from project flow changes or fluctuations where this species is being affected in any life stage. Monitoring each 5-year period provides an index of changes in amphibian populations, following sufficient response time to streamflow modifications. Monitoring SFAR below Slab Creek Reservoir

Dam spill flows will assist in determining if there are effects to aquatic species (amphibians, fish, and aquatic reptiles) from spills.

Mountain Yellow-legged Frog

Method: Protocol surveys for sensitive species using the procedures of CDFG (2001) in a subsample of appropriate habitat types to document species presence and distribution. Surveys shall focus on presence of the larval stage at sites by periodically surveying reaches of known presence during spring/summer. Qualifications of surveyors shall be reviewed and meet approval of the FS and CDFG prior to commencing work. If CDFG or the FS collect data associated with Rubicon Reservoir, Rockbound Lake, and Buck Island Reservoir and associated waters including Highland Creek, that information can be used to satisfy this requirement after the FS, CDFG, and SWRCB review results and approve use of these data.

Mountain yellow-legged frog Monitoring Sites:

a. Rubicon Reservoir

b. Rockbound Lake

c. Buck Island Reservoir

d. Associated waters of these reservoirs/lake, including Highland Creek

Frequency: Years 5, 10, 15, 20, 25, 30.

Rationale: Determination of presence and distribution of sensitive amphibian species are important in evaluating long-term population trends. Monitoring at the end of each 5-year period provides an index of changes in amphibian populations.

4. Amphibians (Foothill Yellow-legged Frog Flow Fluctuations)

Method: Conduct visual surveys for FYLF in Silver Creek below Camino Reservoir Dam at any time June through September when (1) the streamflows are 100 cfs or less and (2) the flows fluctuate more than 40 cfs or more over 1 week's time. Water velocities and discharge shall be recorded. To the extent possible, the licensee shall provide advance notification to the FS, SWRCB, and CDFG if such fluctuations are going to occur and shall conduct visual surveys as described above prior to and after the fluctuations.

Frequency: See above. The surveys can be discontinued if the FS, SWRCB, and CDFG determine that the flow fluctuations can occur without resulting in egg mass or tadpole displacement.

Rationale: Determine if flow fluctuations are displacing egg masses or tadpoles.

5. Riparian Vegetation Monitoring

Method: Aerial photo flights and Greenline method at the 15 Intensive Field Study Sites (riparian) that were surveyed in the Riparian Study. Data collected at each site will include transects to document species composition, percent cover, and quantification of length and width of riparian community.

Frequency: Every 5 years.

Rationale: Monitoring at the end of each 5-year period provides an index of changes in riparian conditions over that period of modified streamflow (it should be noted that, depending on the water year cycle that occurs, 5 years may be a relatively short response time for riparian vegetation).

6. Algae Species Identification and Monitoring

Method: Collect, identify, and archive samples of the species of algae inhabiting the stream channel of Silver Creek below Junction Reservoir Dam using a lab approved in consultation with the FS, CDFG, and SWRCB (USEPA Fact Sheet, 2005). Additional baseline samples shall be collected in South Fork Rubicon River below Robbs Peak Reservoir Dam, Silver Creek below Camino Reservoir Dam, and SFAR below Slab Creek Reservoir Dam. Additional sites or reaches may be added should algal species be deemed to have negative effects upon the aquatic ecosystem.

Frequency: A sampling visit to obtain enough material for a positive identification to species.

Rationale: The algae in Silver Creek below Junction Reservoir Dam is a water quality concern and may be an indicator of water temperature, nitrate, or other imbalance issues. Additionally, documentation of baseline algal species in South Fork Rubicon River below Robbs Peak Reservoir Dam, Silver Creek below Camino Reservoir Dam, and SFAR below Slab Creek Reservoir Dam will allow assessment of the distribution and possible adverse affects in Project-affected reaches. Identification to species would determine whether this algae is a native or invasive species.

7. Geomorphology (Sensitive Site Investigation & Mitigation Plan Development)

Method: A detailed investigation of fluvial geomorphic properties will be carried out in the Gerle Creek below Loon Lake Reservoir Dam, at LL-DG1 and LL-G2. Refer to Appendix A, Section 2, Pulse Flows: Gerle Creek below Loon Lake Reservoir Dam.

Frequency: Years 1 and 2.

Rationale: The fluvial geomorphology study results indicated a problem with channel stability in the Gerle Creek channel(s), with an apparent imbalance in bedload and streamflow in these reaches, and a potential impact on fluvial processes downstream. There is a need to further investigate these sites to determine the most effective method of stabilization. Channel sites with identified problems may benefit from the implementation of channel stabilization techniques.

8. Geomorphology (Continuing Evaluation of Representative Channel Areas)

Method: Establishment and monitoring of permanent cross-section transects, longitudinal profiles, and channel properties in representative channel areas (Rosgen Level 3). Measurement of cross-section profile and substrate composition at each transect. The following sites shall be evaluated:

a. Rubicon River below Rubicon Reservoir Dam (RD-G1).

b. Gerle Creek below Loon Lake Reservoir Dam (LLD-G1 and LL-G2).

c. South Fork Rubicon River below Robbs Peak Reservoir Dam (RPD-G1).

d. South Fork Silver Creek below Ice House Reservoir Dam (IH-G1 and IH-G2).

e. Silver Creek below Camino Reservoir Dam (CD-G1).

f. SFAR below Slab Creek Reservoir Dam (SC-G1).

In addition, prior to any reservoir dredging, additional downstream cross-sections shall be surveyed as determined necessary by the FS, CDFG, and SWRCB.

Frequency: Years 5, 10, 15, 20, 25, 30.

Rationale: Monitoring of permanent cross-sections, in combination with channel properties, provides the basis for evaluating changes in channel condition. Sampling as part of the relicensing process has provided baseline data prior to streamflow modification and/or measurable response to streamflow modification. Monitoring at the end of each 5-year period provides an index of changes in channel condition relative to changes in streamflow regime.

9. Water Temperature

The licensee shall, within 1 year following license issuance, develop and file with FERC a Water Temperature Monitoring Plan that has been approved by the Chief

of the Division of Water Rights for the SWRCB. Within 3 months of license issuance, the licensee shall consult with the FS and CDFG on the development of a Plan consistent with the method and frequencies described below. The licensee shall provide the draft Plan for a minimum 90-day review by the SWRCB, FS, and CDFG. The licensee shall implement the plan upon approval by FERC.

Method: Continuous recording devices shall be installed and maintained at a minimum of 16 stream temperature stations as designated below, as soon as weather and flow conditions allow safe installation of these devices. Reservoir temperature profiles may be added if stream temperature problems are identified and the FS, CDFG, and SWRCB determine that reservoir temperatures are a controllable factor. Up to five additional monitoring sites may be added to the water temperature program, as determined necessary through review of the monitoring data and annual consultation with FS, CDFG, and SWRCB. Modifications to the temperature monitoring program and the determination of final monitoring sites shall be made by the FS, CDFG and SWRCB.

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At a minimum, the temperature plan shall address compliance gaging at the following locations:

a. Rubicon River immediately below Rubicon Reservoir Dam.

b. Little Rubicon River immediately below Buck Island Reservoir Dam.

c. Rubicon River below confluence of Little Rubicon River at the Project boundary.

d. Gerle Creek immediately below Loon Lake Reservoir Dam.

e. Gerle Creek immediately below Gerle Creek Reservoir Dam.

f. South Fork Rubicon River immediately below Robbs Peak Reservoir Dam.

g. South Fork Rubicon River below confluence of Gerle Creek at the Project boundary.

h. South Fork Silver Creek immediately below Ice House Reservoir Dam.

i. South Fork Silver Creek immediately upstream of Junction Reservoir.

j. Silver Creek immediately below Junction Reservoir Dam.

k. Silver Creek immediately below Camino Reservoir Dam.

l. Silver Creek immediately upstream of SFAR.

m. Brush Creek immediately below Brush Creek Reservoir Dam.

n. SFAR immediately below Slab Creek Reservoir Dam.

o. SFAR approximately ½ mile upstream of White Rock Powerhouse.

p. SFAR immediately below Chili Bar Reservoir Dam.

Frequency: For streams, from March 15 to September 30 in all years after license issuance until a subsequent license is issued or until it can been demonstrated by the licensee that operation of the Project reasonably protects the "cold freshwater" beneficial use as determined by SWRCB, FS, and CDFG. For reservoirs, if a determination as described above is made by SWRCB, FS, and CDFG, seasonal temperature profiles shall be monitored in applicable reservoir(s) during multiple water year types to develop data necessary for decision-making.

Rationale: Temperature monitoring is needed during summer on an annual basis to determine if the cold water ecological resource objective is being met in designated Project reaches. Temperature monitoring is needed during spring to evaluate breeding conditions for amphibians. Temperature monitoring in the primary storage reservoirs would be needed to understand the extent of cold water availability. Some temperature stations may be deleted if the FS, CDFG, and SWRCB find sufficient temperature data have been collected and find no temperature issue exists for the relevant area.

10. Water Quality

Within 3 months of license issuance, the licensee shall consult with the FS, BLM, CDFG, SWRCB, and Regional Water Quality Control Board, Central Valley Region (RWQCB) on the development of a draft Water Quality Monitoring Program Plan (Plan). The Plan shall include the water quality monitoring elements listed below, and must (1) provide detail on field sampling locations, sampling frequency, handling methods and QA/QC; and (2) define the laboratory analyses and associated method detection limits for all constituents and parameters to be monitored in the various elements of the monitoring program. Following consultation, and within six months of license acceptance, the licensee shall submit the draft Plan for review and approval by the Chief, Division of Water Rights, SWRCB. The final Plan shall be filed with FERC for approval. The approved Plan shall be implemented by the licensee as described, through the life of the license. The Plan may be modified pursuant to adaptive management program needs as recommended by the FS, BLM, CDFG, RWQCB, and approved by SWRCB and FERC.

Water Chemistry Monitoring

Method: The licensee shall conduct a water chemistry sampling program designed to demonstrate seasonal conditions at all reservoir and stream locations described in the Project No. 2101 relicensing Water Quality Study Plan (Plenary approval, January 8, 2003). Unless otherwise identified through Plan development (above), both "triage" and "contingent" sampling locations defined in the relicensing Water Quality Study shall be included as required post-licensing monitoring sites for the water chemistry monitoring element. Laboratory analyses shall be conducted using USEPA Standard Methods adequately sensitive to detect constituent levels for determination of compliance with recognized state and federal criteria.

a. *In situ* physical parameters (pH, water temperature, dissolved oxygen, specific conductance, and turbidity) shall be sampled at representative locations on diverted stream reaches below all Project No. 2101 reservoirs. *In situ* physical parameters shall be monitored at reservoir profiles collected at 1-meter intervals in Loon Lake, Gerle Reservoir, Ice House Reservoir, Union Valley Reservoir, Junction Reservoir, Camino Reservoir, and Slab Creek Reservoir.

   Frequency: In stream reaches, once seasonally in spring (April-May), summer (August), fall (November) and winter (January-February, as accessible) each year after license issuance. In reservoirs, in spring (April-May) and fall (October-November) each year after license issuance.

   Rationale: To monitor compliance with state and federal water quality standards and track potential changes in surface waters associated with Project No. 2101.

b. General chemistry monitoring. *In situ* parameters, minerals, nutrients, metals (total and dissolved fractions), measured hardness, and petroleum products shall be conducted. General chemistry samples shall be collected from all Project reservoirs and in stream locations including tributary inflow to reservoirs, dam release points from reservoirs, and representative sites along all diverted stream reaches greater than 1 mile in length. Reservoir samples shall be collected at the surface and near the bottom at multiple, representative locations within each impoundment. Secchi disc measurements shall be collected at Loon Lake, Ice House Reservoir, Union Valley Reservoir, and Slab Creek Reservoir.

   Frequency: General chemistry samples shall be collected seasonally in spring, summer, fall, and immediately following the third rain of the fall-winter period, once every 5 years beginning in Year 3 after license issuance. Secchi disk measurements shall be collected in summer and fall seasons, once every 5 years after license issuance.

Rationale: To monitor for compliance with state and federal water quality standards and track potential changes in surface waters associated with the UARP. Monitoring at 5-year intervals will provide an index of changes in water quality conditions. Data collected will allow for the development of a long-term trend analysis in waters regulated by Project features and operations.

Bacterial Monitoring

Method: The licensee shall conduct bacterial monitoring consistent with Basin Plan objectives for protection of the REC-1 beneficial uses annually, at a minimum of 15 shoreline recreational locations within the Project boundary. Sampling locations shall be selected based on criteria that include: (1) swimming and other water contact recreation activities are known to occur in the area, and (2) there are sources for potential introduction of pathogens to the water column in the immediate vicinity.

Candidate sites for annual REC-1 pathogen monitoring will include developed recreation sites and frequently used dispersed sites at reservoir and riverine locations. The bacterial monitoring program shall include sampling at a minimum of four annually rotating stations at Union Valley Reservoir swim areas, and a minimum of two beach locations each at Buck Island Reservoir, Loon Lake, Ice House Reservoir, and Gerle Creek Reservoir along with three other selected stations. Five near-shore samples shall be collected at each of the 15 sampling locations during the 30-day period that spans either the Independence Day Holiday (June-July) or the Labor Day Holiday (August-September), using the five samples in 30-day methodology or other protocol as amended in the Basin Plan.

The licensee, in consultation with the FS, CDFG, SWRCB, and RWQCB shall determine sampling locations for each upcoming field season. Licensee shall consult with SWRCB and other listed parties for final determination of the locations to be sampled no later than May 31 of each designated sampling year.

Frequency: Bacterial monitoring shall be conducted annually for the first 5 years after license issuance, then may be decreased in frequency to every other year at reservoirs where no exceedances of Basin Plan objectives for protection of REC-1 designated waters have been identified during Years 1-5. If data demonstrates bacterial concentrations that present risks to human health at specific reservoir(s) or riverine sites, the program shall continue annually in the water body, through the life of the license.

Rationale: The UARP provides water contact recreational opportunities that include swimming, angling, and water skiing. Monitoring will be conducted to demonstrate summer bacterial concentrations at swim beaches affected by Project operations, to ensure that pathogen levels are recognized and do not exceed the thresholds acceptable for protection of human health.

Metals Bioaccumulation Monitoring

Method: The licensee shall monitor for potential uptake of mercury, copper, lead, and silver through the aquatic food chain resident in Project-affected impoundments. Resident fish species from Loon Lake Reservoir, Gerle Reservoir, Ice House Reservoir, Union Valley Reservoir, Camino Reservoir, and Slab Creek Reservoir shall be collected and analyzed to determine tissue residue levels of mercury, copper, lead, and silver. Target species, numbers of individuals, sampling strategy, and analytical methods used shall be consistent with current Surface Water Ambient Monitoring Program needs (SWRCB), and shall be defined prior to each sampling event through licensee consultation with the FS, CDFG, SWRCB, RWQCB, and the state Office of Environmental Health Hazard Assessment. Fish tissue samples shall be collected and analyzed for rates of bioaccumulation, and monitoring shall continue through the term of the new Project License.

Frequency: Once every 5 years beginning in year 2 following license issuance.

Rationale: Reservoirs operated by the licensee have the potential to impound sediments and organic materials that may transport bound metals. Impounded metals have the potential to concentrate and become bioavailable to aquatic organisms. Metals that are bioacummulated in the aquatic prey-base may bioconcentrate up through the food chain where elevated levels could become health risks to human and wildlife consumers. Monitoring at 5-year intervals will provide an index of changes in fish body burdens of silver, mercury, copper and lead.

Overall Water Quality Program Rationale

Through the water quality monitoring program the licensee will monitor compliance with state and federal water quality standards and track potential changes in surface waters associated with the UARP and Chili Bar Hydroelectric Project operations. The monitoring program will provide data necessary to develop a long-term water quality trend assessment through the life of the FERC licenses. Data collected will provide water quality regulators the opportunity to identify trends of risk to human health and wildlife, and to design possible measures to intervene in this degradation. Water quality monitoring will focus on the identification of inorganic constituent levels and physical parameters, along with bacterial concentrations that may impair beneficial uses designated for waters impounded by the project and releases to diverted reaches downstream of Projects' reservoirs.

11. Recreation Survey

Monitoring associated with the recreation survey is described in Appendix A, Section 16.

12. Robbs Peak Powerhouse Entrainment

Method: Population monitoring as described in number 1, above. Monitoring to determine when and at what flow fish migration is occurring using a method approved by CDFG and the FS.

Frequency: Years 1 and 2.

Rationale: There is potential for entrainment in Robbs Peak Powerhouse turbines that may contribute to declining fish populations above Robbs Peak Reservoir Dam. The monitoring will assist in determining if fish are going through the powerhouse, and if so, how to design and construct a fish screen in South Fork Rubicon River that will minimize this entrainment.

13. Terrestrial Wildlife Monitoring

Bear Management

Method: Monitor effectiveness of measures related to bear management using a method acceptable to the FS and CDFG.

Frequency: Annually.

Rationale: The alternative includes several measures related to managing bear populations to keep them away from recreation sites. This monitoring will determine whether additional or different measures need to be implemented.

Bald Eagle Monitoring

Method: Coordinate with FWS and FS to continue monitoring bald eagle nest sites.

Frequency: Annually.

Rationale: To ensure bald eagle nest sites are not being affected by Project-related activities.

14. Heritage Resource Monitoring

Monitoring associated with heritage resources shall be described in the Heritage Resource Management Plan.

15. Recreation Survey

Monitoring associated with the recreation survey is described in Appendix A, Section 16.

16. Review of Recreation Developments

Monitoring associated with the review of recreation developments is described in Appendix A, Section 18.

17. Reservoir Levels Evaluation

Monitoring associated with lake levels is described in Appendix A, Section 26.

Section 6. Adaptive Management Program

The licensee shall, beginning as early as reasonably practicable within 3 months after license issuance, implement an ecological resources adaptive management program as described below. The program generally consists of (a) implementation of a monitoring program and (b) specific adaptive management measures that shall be implemented if the monitoring program and other scientific information indicate that the applicable ecological resource objectives identified in the Rationale Report, will likely not be met without adjustment.

Monitoring shall be conducted to determine if the applicable ecological resource objectives are achievable and being met. Analysis of the monitoring results from a specified period shall be used to determine any needed changes in adaptive management measures. Adaptive management decisions shall be based on monitoring results and other scientific information and a determination that the applicable ecological resource objectives identified in the Rationale Report are not being met and will likely not be met without application of the adaptive management measures.

For purposes of the ecological resources adaptive management program, each year is defined on a calendar year basis (i.e., January through December). Year 1 is defined as the first year during which all initial streamflows required by the license are implemented by May 1.

1. Monitoring Program

The licensee shall, within 3 months of license issuance, implement the monitoring program described in Appendix A, Section 5.

2. Deferral of Pulse and Recreational Streamflows in South Fork Silver Creek Due to Water Temperature

If foothill yellow-legged frogs (FYLF) *(Rana boylii)* are found on South Fork Silver Creek, and water temperatures at SFSC 1 rise above 12°C mean daily temperature for a 7-day running average at USGS gage 11441500, the licensee shall defer the pulse and recreational flow events in South Fork Silver Creek unless the FS and CDFG determine that such events are compatible with protection of FYLF and other biological resources. The licensee shall provide Notice to FERC, FS, and CDFG within 10 days of determining that the above temperature trigger has been met, causing deferral of the pulse and recreational flow events. The licensee shall provide Notice to FERC if the FS and CDFG approve a modification to the water temperature trigger.

3. Deferral of Recreational Streamflows in SFAR Due to Water Temperature

If water temperatures below Slab Creek Reservoir Dam rise above 12°C mean daily temperature for a 7-day running average at SFAR 6, the licensee shall defer the recreational flow events in SFAR below Slab Creek Reservoir Dam unless the FS and CDFG determine that such events are compatible with protection of FYLF and other biological resources. The licensee shall provide Notice to FERC, FS, and CDFG within 10 days of determining that the above temperature trigger has been met, causing deferral of the pulse and recreational flow events. The licensee shall provide Notice to FERC if the FS and CDFG approve a modification to the water temperature trigger.

4. Fish Screen in South Fork Rubicon River

If monitoring indicates that fish are being entrained in Robbs Peak Powerhouse during fish migration, and CDFG and FS determine that the entrainment is having a substantial negative impact on the South Fork Rubicon fishery, a fish screen shall be designed and constructed that allows downstream fish passage around Robb's Peak Afterbay and Dam to minimize this entrainment. The fish screen shall be designed in coordination with the FS, SWRCB, and CDFG, and it shall meet CDFG's applicable fish screening criteria.

5. Sediment Management

Based on results of geomorphology monitoring, if the FS, BLM, SWRCB, and CDFG determine there is a need to place sediment downstream of the dams, and if there is a need to dredge reservoirs associated with the Project during the license term, sediment that results from the dredging shall be placed downstream of the dams in consultation with FS, BLM, SWRCB, and CDFG, if it is determined appropriate by the FS, BLM, SWRCB, and CDFG.

6. Algae Growth in Silver Creek Below Junction Reservoir Dam

If the new streamflow regime does not reduce algae growth in Silver Creek below Junction Reservoir Dam and South Fork Rubicon River below Robbs Peak

Reservoir Dam within 2 years of license issuance, the licensee shall reduce or eliminate the excessive algae growth using a method approved by the FS, SWRCB, and CDFG. If any future pervasive algal blooms are identified on any Project-affected stream reaches, the licensee shall reduce or eliminate the algae growth using a method approved by the FS, SWRCB, and CDFG if the FS, SWRCB, and CDFG determine the algae needs to be reduced or eliminated.

7. Metals Bioaccumulation

If the results of metal testing are suspected to adversely affect the health of aquatic species by comparing results with published scientific information, then additional studies may be requested by the agencies.

8. Bear/Human Interactions

If, over a 5-year period, monitoring indicates that the number of bear/human interaction incidents does not decline or decrease in severity, the licensee shall work with the CDFG and FS to identify and implement additional measures necessary to reduce such problems.

9. Coordinated Operations

Coordinated operations, described in Appendix A, Section 4, will be reviewed annually to determine if they are effective in achieving the ecological and recreational streamflows downstream of Chili Bar Reservoir Dam. If they are not effects, other measures shall be investigated to achieve the streamflow requirements, including dredging of Chili Bar Reservoir Dam and changes in incremental storage.

Section 7. Gerle Creek Channel Stabilization

Within 2 years of license issuance, the licensee shall develop a stabilization plan for the Gerle Creek channel below Loon Lake Reservoir Dam. The licensee will consult with appropriate staff from the FS and CDFG in the development of the stabilization plan. The licensee shall implement the plan once it is approved by the FS and shall involve the FS in implementing the plan if they desire.

Section 8. Fish Passage at Gerle Creek

The reservoir level at Gerle Creek Reservoir shall be maintained at a minimum elevation of 5,228 feet from August through October to ensure brown trout fish passage into Gerle Creek.

Section 9. Large Woody Debris

The licensee shall ensure that mobile instream large woody debris continues downstream beyond Robbs Reservoir Dam, Junction Reservoir Dam, Camino Reservoir Dam, and Slab Creek Reservoir Dam. At a minimum, all sizes greater than both 20 centimeters wide and 1/2 bankfull width in length shall be allowed to continue downstream beyond dams. Smaller sizes are also allowed but are not required to be moved beyond these dams.

At the existing Slab Creek Reservoir Dam log deck site (along right bank), 8 to 10 logs shall be removed and added to the reach downstream so that they are carried downstream by a flow of 2,000 cfs or greater. These shall be placed on the bank during a period of lower flow and not within the wetted channel. If logs are displaced and move downstream, they shall be replaced within 4 months. Logs shall not be placed so that they are mobilized during whitewater boating flows.

Section 10. Streamflow and Reservoir Elevation Gaging

The licensee shall, within 1 year after license issuance, develop and file with FERC approval a Streamflow and Reservoir Elevation Gaging Plan (gaging plan) that meets United States Geological Survey (USGS) standards. The licensee shall provide copies of the gaging plan and USGS review results to the FS, SWRCB, CDFG, and FERC. The plan shall be approved by the Chief of the Division of Water Rights for the SWRCB prior to filing with FERC. The licensee shall implement the plan upon approval.

At a minimum, the plan shall address compliance gaging at the following locations:

1. Streamflow Gaging Locations

    a. Rubicon River below Rubicon Reservoir Dam

    b. Little Rubicon River below Buck Island Reservoir Dam

    c. Gerle Creek below Loon Lake Reservoir Dam

    d. Gerle Creek below Gerle Creek Reservoir Dam

    e. South Fork Rubicon River below Robbs Peak Reservoir Dam

    f. South Fork Silver Creek below Ice House Reservoir Dam

    g. Silver Creek below Junction Reservoir Dam

    h. Silver Creek below Camino Reservoir Dam

    i. Brush Creek below Brush Creek Reservoir Dam

    j. SFAR below Slab Creek Reservoir Dam

2. Reservoir Elevation Gaging Locations

   a. Rubicon Reservoir

   b. Loon Lake Reservoir

   c. Gerle Creek Reservoir

   d. Ice House Reservoir

   e. Union Valley Reservoir

   f. Junction Reservoir

   g. Camino Reservoir

   h. Brush Creek Reservoir

   i. Slab Creek Reservoir

Within 2 years of license issuance, the licensee shall install and maintain simple staff gages at the put-ins for the Slab Creek and Ice House recreational boating runs.

The licensee shall perform an investigation to determine whether telemetry equipment can be installed at Rubicon River below Rubicon Reservoir Dam and Little Rubicon River below Buck Island Reservoir Dam to monitor conditions and/or control operations. If the licensee and the FS concur that such equipment is economically and technologically feasible and can be installed consistent with law, regulations, and policies applicable to Desolation Wilderness, the licensee shall seek necessary approvals for such installation and shall install this equipment if the necessary approvals are received.

Section 11. Canal and Penstock Emergency and Maintenance Release Points

The licensee shall, within 1 year after license issuance, file with FERC a plan approved by the FS and SWRCB, to evaluate canal and penstock 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.

Section 12. Wildlife and Plant Protection Measures

1. To protect wildlife from the hazards of open canals and other Project facilities, the licensee for the term of a new license for the Project shall maintain and operate in working condition all devices and measures for wildlife along Project canals that are deemed necessary by the FS and CDFG. The licensee shall provide the FS and CDFG by April 1 of each year an annual report describing the date, location, and species information (deer or other wildlife) found in project canals. Should annual wildlife mortality (deer) during any 3-year period be more than three individuals, the licensee shall develop a Wildlife Exclusion Plan that is approved FS and CDFG. The licensee shall implement the Wildlife Exclusion Plan upon approval. The amount, kind, and location of any future fencing or other protective measures shall be decided upon at the annual meeting described in Appendix A, Section 14.

2. Before commencing any new construction or maintenance (including but not limited to proposed recreation developments) authorized by the license on National Forest System lands that may affect a FS sensitive plant or wildlife species or its habitat, the licensee shall ensure that a biological evaluation (including necessary surveys) is completed that evaluates the potential effects of the action on the species or its habitat and follows the recommendations in the biological evaluation determined necessary by the FS. The operations and maintenance plan referenced in Appendix A, Section 14, will assist the FS in determining whether a biological evaluation is necessary for any annual maintenance. The biological evaluation must be approved by the FS. In consultation with FERC, the FS may require mitigation measures for the protection of sensitive species. Before commencing any activities to construct (including, but not limited to, proposed recreation developments), operate, or maintain the Project that may affect a species proposed for listing or listed under the federal Endangered Species Act, or that may affect that species' critical habitat, the licensee shall ensure that a Biological Assessment that evaluates the potential effects of the action on the species or its critical habitat is prepared and reviewed by the FS prior to the licensee submitting the Biological Assessment to the relevant Service agency (United States Fish and Wildlife Service or National Marine Fisheries Service) for consultation or conference in accordance with the Endangered Species Act.

3. If occurrences of FS sensitive plant or wildlife species 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 and FWS. If the FS determines that the Project-related activities are adversely affecting the sensitive species, the licensee shall, in consultation with the FS and FWS, develop and implement appropriate protection measures.

4. The licensee shall not undertake maintenance under transmission lines within the Pine Hill Rare Plant Preserve until consultation with BLM, FWS, and CDFG has been completed.

5. The Bird-Powerline Associations Technical Report (Devine Tarbell & Associates 2004c), identifies the following problem designs based on the design and sighting standards developed by the Avian Power Line Interaction Committee (APLIC) for avoidance or minimization of bird electrocutions and collisions (APLIC 1996 and APLIC 1994):

   a. Eleven type-H five-pole dead end structures used on the Jones Fork-Union Valley 69 kV line, with less than 36 inches of clearance between energized jumper wires and grounded cross-arms.

   b. Exposed energized hardware and inadequate phase-to-phase and phase-to-ground spacing along the 1.2-mile-long Brush Creek 12 kV tap line.

   c. Overhead groundwires existing throughout most of the higher elevation segments of the transmission line from Loon Lake Powerhouse to just west of Camino Powerhouse, including the Jones Fork-Union Valley transmission line segment, and an isolated segment of approximately 3.0 miles near White Rock Powerhouse.

   Within 1 year of license issuance, the licensee shall retrofit all transmission lines to meet the design and sighting standards established by APLIC for avoidance or minimization of bird electrocutions and collisions, or shall develop an Avian Protection Plan that is approved by the FWS.

Section 13. Noxious Weeds

Within 6 months after license issuance, the licensee shall file with FERC a plan approved by the FS for the prevention and control of Project-related noxious weeds. The plan shall include (a) areas to be surveyed to determine existing noxious weed populations on or affecting National Forest System lands, (b) a monitoring plan that details ongoing yearly monitoring surveys conducted to detect any new noxious weed occurrences from Project construction, operation, or maintenance activities, the corrective measures that will be taken if Project-related noxious or exotic weeds are found, and the prevention measures employed to minimize the risk of weed introductions, (c) a requirement for an annual written report documenting the results of the monitoring and all known noxious weed populations within the Project area, and (d) a description of how licensee shall clean construction equipment before entering Project areas and ensure that seeds of noxious weeds are not introduced into construction areas. Once the plan has been approved by the FS, it must be filed and approved with FERC. The licensee shall implement the plan upon issuance of the new Project license.

The licensee shall use certified weed-free straw for all construction or restoration needs. If certified weed-free straw is not available, rice straw may be substituted. The licensee shall comply with the Eldorado National Forest prescriptions for seed, mulch, and fertilizer for restoration or erosion control purposes.

Section 14. Annual Review of Ecological Conditions

Each calendar year, by April 1, the licensee shall schedule and facilitate a meeting with the FS, CDFG, FWS, and SWRCB to review and discuss the results of implementing these conditions, as well as to discuss other issues related to preserving and protecting ecological values affected by the Project. The licensee shall make available to the FS, CDFG, FWS, and SWRCB 2 weeks prior to the meeting, an operations and maintenance plan for the year in which the meeting occurs.

Section 15. Recreation Implementation Plan

A recreation implementation plan shall be developed by the licensee in coordination with the FS within 6 months of license issuance. The implementation plan shall include a construction schedule for the recreation facilities specified in Appendix A, Section 20, as well as other details related to recreation resources, including, but not limited to, signing and sign placement, public information dissemination, a schedule for design of facilities to be reconstructed, and consideration of measures to improve efficiencies. The implementation plan shall be maintained and updated in conjunction with the review of recreation developments required in Appendix A, Section 18.

Section 16. Recreation Survey

The licensee shall conduct a Recreational Survey and prepare a Report on Recreational Resources that is approved by the FS every 6 years from the date of license issuance. The Recreational Survey shall include, but not be limited to, changes in kinds of use and use patterns, levels of use, user survey as to preferences in recreation activities, kinds and sizes of recreational vehicles, preference for day use versus overnight use, carrying capacity information sufficient to indicate changes in capacity, and recreation user trends within the project area. The Report on Recreational Resources shall comply with FERC's regulations at 18 CFR section 4.51(f) (1996), or as amended, and shall be provided to the FS for review and comment prior to being filed with FERC. Within 1 year of submission of the Report on Recreation Resources, the FS and other interested parties will meet to discuss the results of the Report and make recommendations to address the findings. In accordance with Appendix D, Section 3, the FS reserves the authority to require changes in the Project and its operation to accomplish protection and utilization of National Forest System resources identified as a result of these surveys.

Section 17. Forest Service Liaison

The FS and the licensee shall each provide an individual for liaison, whenever planning or construction of recreation facilities, other major Project improvements, and maintenance activities are taking place within the National Forest. The licensee agrees to cooperate with the FS through this individual in contract review and work inspection.

Section 18. Review of Recreation Developments

The FS and the licensee shall meet at least every 6 years to review all recreation facilities and areas associated with the Project and to agree upon necessary maintenance, rehabilitation, construction, and reconstruction work needed and its timing, as described in Appendix A, Sections 19 and 20. Because the standard life of recreation facilities ranges from 20 to 30 years, it is anticipated that during the life of the license, facilities that are currently in good condition may need to be redesigned and reconstructed to standards applicable at that time. The criteria for project selection will depend on the amount and type of use, current recreation facility policy, condition of facilities, effects on surrounding areas, and other factors. Following the review, the licensee shall develop a 6-year schedule for maintenance, rehabilitation, and reconstruction, which shall be approved by the FS prior to being filed with FERC.

The following recreation facilities, which are associated with the Project, shall remain inside the Project boundary:

1. Loon Lake Area
    a. Pleasant Campground.
    b. Loon Lake Campground and Boat Ramp Complex.
    c. Loon Lake Chalet.
    d. Northshore Recreational Vehicle Campground.
    e. Red Fir Group Campground.
    f. Ellis Creek Staging Area.
    g. Deer Crossing Camp.
    h. Loon Lake Trailhead.
    i. Loon Lake (Schlein) Dump Station.
2. Gerle Reservoir Area
    a. Gerle Creek Campground Complex.
    b. Airport Flat Campground.
    c. Angel Creek Day Use Area.
3. Union Valley Reservoir Area

a. Sunset Campground and Boat Launch Complex.

b. Fashoda Campground.

c. Jones Fork Campground.

d. Big Silver Group Campground.

e. Camino Cove Campground.

f. Yellowjacket Campground and Boat Launch.

g. Wolf Creek Campground.

h. Wolf Creek Group Campground.

i. West Point Campground and Boat Launch.

j. Wench Creek Campground and Group Campground.

k. Azalea Campground.

l. Lone Rock Campground.

m. Union Valley Bike Trail.

n. SMUDEA Camp.

o. Fashoda Picnic Area.

p. Yellowjacket Dump Station.

4. Ice House Reservoir Area

a. Ice House Campground and Boat Launch Complex.

b. Ice House Picnic Area.

c. Strawberry Point Campground.

d. Northshore Campground.

e. Mountain Camp II.

f. Ice House Dump Station.

g. Crystal Basin Station.

5. Junction Reservoir Boat Launch.

6. Brush Creek Reservoir Boat Launch.

7. Slab Creek Reservoir Area.

   a. Forebay Boat Launch.

   b. West End Boat Launch.

8. Big Hill Overlook.

If these facilities are not currently within the license boundary, the boundary shall be adjusted to include them. Recreation facilities constructed or reconstructed by the licensee in the future shall be included within the Project boundary; the boundary shall be adjusted as necessary.

Section 19. Specific Recreation Measures

The following list of initial recreation projects identified at time of license issuance, including construction, reconstruction, and restoration, shall be completed by the licensee at the sites listed below. The licensee will be responsible for the following items requiring FS approval: survey; design; contract preparation and administration; environmental analysis and documentation necessary for construction of proposed facilities, including any permits; and preparation of "as-built" drawings. The FS shall provide the following: preliminary site plan (after the licensee provides a base survey), review of environmental documentation and preparation of decision documents, current FS specifications and standard drawings applicable to each project, and project coordination and monitoring during planning and construction. The licensee will be responsible for funding the actual cost of the items and services provided by the FS. All improvements will become property of the FS upon completion, final inspection, and acceptance by the FS.

1. Buck Island Reservoir Area

   North Shoreline

   Within 2 years of license issuance, inventory areas impacted by dispersed recreation to the northwest and northeast of the dam, and develop a dispersed motorized camping area (Development Level 2) in these areas. The following describes the specific elements of this condition.

   a. Construct new vault toilet, to be maintained by helicopter.

b. Identify and mark designated campsites.

c. Restrict vehicle access to motorized trail and designated camping areas only through the use of barrier rocks and other natural materials, and restore impacted areas.

d. Reroute a portion of the Rubicon OHV route away from sensitive areas, and rehabilitate the existing routes.

West Shoreline

Within 2 years of license issuance, improve or relocate existing non-motorized trails connecting to the Rubicon Hiking Trail.

2. High Country Area Trails

Within 2 years of license issuance, improve selected connecting trails off Rubicon hiking trail that access Spider Lake.

Rubicon Hiking Trail

Within 2 years of license issuance, reconstruct or relocate portions of the trail to meet FS standards and facilitate proper drainage, including improvement of tread on the portion of the trail using the old construction road. Trail width shall accommodate quads for licensee's administrative use only up to the wilderness boundary.

Trail Connecting Pleasant Boat-In Campground to Rubicon Hiking Trail

Within 2 years of license issuance, reconstruct trail to standard, including tread, vegetation clearing, drainage, and signage.

3. Rubicon OHV Trail System - Ellis Creek Tie to Rubicon Trail

Within 2 years of license issuance, provide improvements at the Ellis Creek staging area:

a. Provide trailhead parking, sanitation and improved information adjacent to the Ellis Creek staging area (Loon Lake spillway) where uncontrolled parking currently occurs.

b. Implement measures to confine OHVs to this designated route using barrier rocks and other natural materials.

c. Close and restore user created routes adjacent to Loon Lake shoreline.

4. Crystal Basin

Loon Lake Area

a. Loon Lake Recreation Plan

Within 2 years of license issuance, the licensee shall prepare a development plan, to be approved by the FS, that addresses impacts to the lakeshore zone and islands from unmanaged recreation, and the need for additional day use opportunities. The licensee shall be responsible for developing sites and/or implementing the measures identified in this plan within 5 years of license issuance. The following elements shall be addressed:

- Sanitation.
- User conflicts.
- Carrying capacity.
- Day use versus overnight camping.
- Vehicle control.
- Boating access.
- Emergency resource protection measures.

In addition to the elements above, the following specific areas shall also be addressed:

- Evaluate the need for improvements at the old construction road east of the auxiliary dam for use as a car-top boat launch. There is potential for day use and overnight (individual family or group) camping at this site.
- Determine appropriate use for area between North Shore Recreational Vehicle Campground and the Main Dam. Consider day use, or continued dispersed camping with appropriate vehicle parking adjacent to the roadway.
- Survey all existing dispersed sites to determine where use is suitable; engineer suitable dispersed sites to minimize impacts; and close and restore other dispersed sites in the area using standard FS techniques.

b. Pleasant Campground

Within 10 years of license issuance, the licensee shall redesign and reconstruct the 10-unit boat-in campground, retaining existing capacity on existing footprint, to meet the current FS design standards requirements of the Americans with Disabilities Act (ADA). The following describes the specific elements of this condition.

- Replace the two single-unit pit restrooms with new accessible vault restrooms that can be serviced by helicopter.
- Reconstruct pathways/routes between camp units and toilets to meet a difficult level of access, where feasible, by widening the pathways to 36-inch minimum, and reducing sustained grades to 8.33 percent and maximum grades to 10 percent for 50 feet or less.
- Remove submerged hazards, and mark a safe channel to the shoreline.
- Regrade camp units to 900-square-foot level compacted surface, with maximum 3 percent cross slope where feasible.
- Install bear proof food lockers.
- Replace 10 tables with accessible ones, and provide for a clear and level surface of at least 36 inches around each table.
- Replace existing stoves with new 18-inch high accessible fire rings and pedestal grills.
- Provide appropriate signing that meets FS standards.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

c. Northshore Recreational Vehicle Campground

Within 5 years of license issuance, the licensee shall upgrade the existing 15-unit campground to meet the current FS design standards requirements of the Americans with Disabilities Act, and expand the campground to the east and west to take in areas heavily impacted by dispersed camping. Target capacity will be 35 units. The following are the specific elements of this condition:

- Expand facility to the east and west to take in dispersed use on both sides of campground, including new construction of roads, spurs, campsites, tables, grills, and vault toilets as appropriate (restrooms currently inadequate to deal with overuse in area).
- Reconstruct spurs in existing loop for units 1, 12, and 13 to 16 feet in width, and reset the barrier rocks 4 feet apart for accessibility.
- Replace fire rings in existing loop with 18-inch high accessible fire rings, and provide for a clear and level ground surface of at least 36 inches around each ring.
- Develop a potable water system, and provide faucet units for both existing and expanded campground loops.
- Install bear proof food lockers in both existing and new loops.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for accessibility and bear resistance.

- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

d. Loon Lake Campground (including Equestrian Loop)

Within 8 years of license issuance, the licensee shall redesign and reconstruct the 62 unit campground, retaining existing capacity on existing footprint, to meet the current FS design standards and requirements of the ADA. The following describes the specific elements of this condition.

- Reconstruct campground entrance road off Ice House Road to meet current standards.
- Construct potable water filling station for recreational vehicles (near boat launch).
- Engineer and reconstruct water storage and distribution system, sized to accommodate new flush toilets, recreational vehicle filling station and shower units. Replace potable water distribution in older section of the campground (Units 1 through 34).
- In loop 1-34, reconstruct roadway to reduce grade to 10 percent or less, and repave all roads in the older section.
- Reconstruct all spurs in loop 1-34, and selected spurs in loop 35-53 to 16 feet wide and 25 or 50 feet in length, and reset barrier rocks; reconstruct equestrian loop spurs E-1, E-2, E-8 and E-9.
- Replace the three older toilets with accessible vault toilets, and provide paved turnout in front of each, and paved access route to the toilet entrances.
- Construct one eight-stall shower facility with toilet (including septic system).
- In loop 1-34, replace eight faucets with accessible faucet units with paved apron in front and on sides of units. In loop 35-53, replace faucet controls with paddle-type, self-closing levers and raise height to 32 inches above surface, and raise paved surface around faucets so that it is flush with the top of the sump.
- Replace tables in units 1-24 with accessible ones. Replace or retrofit 24 tables in units 35 through 53 and E-1 through E-9 by replacing the 8-foot-long top boards with 10-foot-long boards and raising the top boards to provide a minimum of 28 inches of clearance under the table ends.
- Replace pedestal grills in units 1 through 34, install at a cooking surface height of 30 to 36 inches and provide a 36-inch clear and level surface around them.
- In units 1 through 34, improve camp pads to minimum of 1,200 square feet level and compacted native surface, no more than 3 percent cross slope. Reset bear proof food lockers if necessary.

- In loop 1-34, construct trash bin pads with paved approaches from the roadway.
- Provide removable stalls at the equestrian units.
- Improve lakeshore access from campground to include accessible trail.
- Reconstruct trail system associated with equestrian camping.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

e. Loon Lake Group Campgrounds

Within 8 years of license issuance, the licensee shall upgrade Loon Lake Group Site 1 (30 PAOT) and Loon Lake Group Site 2 (50 PAOT) to meet the current FS design standards and requirements of the ADA. The following describes the specific elements of this condition.

- Replace the four faucets at Group Site 1 and the two faucets at Group Site 2 with paddle-type, self-closing lever controls, and raise faucets so that the control valve is 32 inches above the ground. Raise grade around faucets flush with the top of the sump.
- At Group Site 1, replace or retrofit the 10 tables by replacing the 8-foot top boards with 10-foot boards and raising them to provide 28 inches of minimum of clearance under the table ends. Replace the old tables in the group eating area with accessible tables. At Group Site 2, replace or retrofit five tables by replacing the 8 foot top boards with 10- foot ones, and raising the boards to provide for 28 inches minimum clearance under the table ends. Install an additional accessible table in the group eating area.
- Widen one spur in Unit 2 to 16 feet and repave surface.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

f. Loon Lake Group Equestrian Campground

Within 8 years of license issuance, the licensee shall redesign and reconstruct the five-unit (30 PAOT) group campground, retaining existing capacity on existing footprint, to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.

- Replace existing single unit vault toilet with new accessible vault toilet.
- Replace the two faucet units with accessible ones, and provide for a level and compacted surface in front of and on the sides of the faucet.
- Provide new chip seal surface on roads.
- Regrade and widen pathways and compact native surface.
- Widen the five spurs to 16 feet and resurface with compacted aggregate base rock.
- Replace all tables with accessible ones, and provide a clear and level surface of at least 36 inches around each table.
- Replace existing fire rings with 18-inch-high accessible rings, and provide a clear and level surface of at least 36 inches around each ring.
- Replace pedestal grills and provide a clear and level surface of at least 36 inches around the each grill.
- Regrade tent pads, and enlarge to minimum of 1,200 square feet, keeping grades to 3 percent or less.
- Provide removable stalls for holding horses.
- Replace signboards
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

g. Loon Lake Boat Launch (and Day Use Area)

Within 8 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.

- Replace two picnic tables with accessible ones. Provide a clear and level ground surface of at least 36 inches around each table.
- Install bear-proof food lockers to serve overnight recreational vehicle campers.
- Level and compact the native surface at each picnic pad. Enlarge the pads to a minimum of 600 square feet to allow room for the table and pedestal grill. Keep grades of the pads to 3 percent or less.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.

h. Red Fir Group Campground

Within 20 years of license issuance, the licensee shall upgrade the 30 PAOT group campground to meet the current FS design standards

requirements of the ADA. The following describes the specific elements of this condition.

- Replace toilet seats in the two-unit vault toilet with 18-inch-high seats.
- Raise control valve on faucet unit to 24 inches above the surface, and replace it with a paddle-type, self-closing lever valve. Pave the surface around the faucet flush with the top of the sump.
- Widen the two double spurs to 32 feet, for four of the units. Repave the surface of the spurs.
- Replace or retrofit all five tables by raising the top boards to provide a minimum of 28 inches of clearance under the ends of the tables and shorten the seat boards to 6 feet in length.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

i. Loon Lake Chalet

Within 8 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.

- Change primary building entrance to south side to address winter safety issues, and provide wheelchair access to second level and deck (consider an interior lift built into south entrance building expansion).
- Install pay telephone.
- Provide flush toilets and shower.
- Reroute vehicle access to Chipmunk Bluff Road around the chalet on north side, and provide gate to restrict non Chalet traffic.
- Reconstruct Chalet parking area to improve drainage and ice accumulation during the winter months.
- Continue to provide electrical service and potable water to serve the Chalet.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.

j. Loon Lake (Schlein) Sanitation Station

Within 20 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.

- Cut out part of the concrete island in front of the water tower in order to reach the control valve from the turn out. Lower the control valve, and replace it with a lever type control.

k. Loon Lake Trailhead

Within 8 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA. Opened in 1992, facility components are in good condition and not in immediate need of replacement. The following describes the specific elements of this condition.

- Raise the height of the faucet control valve to 34 inches above the ground and replace it with a paddle-type, self-closing lever valve. Raise the surface around the faucet to the top of the sump edge and repave the surface.
- Designate two accessible spaces in the parking lot, and sign one as van accessible.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

l. South Shore of Loon Lake

Within 20 years of issuance of license, develop a new campground (500 PAOT) on the South Shore of Loon Lake between the LL Hiking Trail Facility and Deer Camp. Construct a new paved two lane access road from the existing Loon Lake Campground to the new campground site, including new trailhead parking for the Loon Lake and Desolation area. This site was previously identified as proposed Red Fir Campground in the "Recreation Plan for Crystal Basin, Project 2101, November 1973."

Gerle Creek Reservoir Area

a. Gerle Creek Recreation Plan

Within 2 years of license issuance, licensee shall prepare a development plan, to be approved by the FS that addresses impacts to the Gerle Creek and Airport Flat areas from unmanaged recreation, and the need for additional day use opportunities. Licensee shall be responsible for the development of sites and/or implementation of measures identified in this plan within 15 years of license issuance. The following elements shall be addressed:

- Sanitation.
- User conflicts.
- Carrying capacity.
- Day use versus overnight camping.
- Vehicle control.
- Boating access.
- Emergency resource protection measures.

b. Gerle Creek Campground

Within 5 years of license issuance, the licensee shall redesign and reconstruct the 50-unit campground, retaining existing capacity on existing footprint, to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.

- Replace all vault toilets with new accessible units.
- Replace faucet controls with paddle type self-closing lever controls, and provide level paved pads at front and side of the faucet units.
- Pave access and all interior campground roads. Include a paved parking turnout adjacent to the entrance station.
- Regrade pathways between camp units and spurs/roadway for accessibility.
- Reconstruct and pave all spurs to 16 feet minimum width and cross-slopes at 2 percent or less. Reset barriers 4 feet apart to allow for access from spur to unit.
- Replace all tables with accessible ones and provide for a clear and level ground surface of at least 36 inches around each.
- Replace fire rings with 18-inch-high accessible ones with a clear and level surface of 36 inches around each ring.
- Reset all grills for a cooking surface height of 30 to 36 inches and provide a clear and level surface of at least 36 inches around each grill.
- Level and compact tent pads to a minimum of 1,200 square feet, with a maximum cross slope of 3 percent.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

c. Gerle Creek Day Use Area

Within 5 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA. Site has an accessible fishing pier. The following describes the specific elements of this condition.

- Improve fishing pier to bring up it to current ADA standards.
- Plan and implement hardening improvements along shoreline for hand-launching boats and ADA accessibility.
- Replace seats in vault toilet with 18-inch-high seats.
- Install French drain to improve drainage near toilet at day use parking area.
- Replace faucet with paddle-type, self-closing lever control.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

d. Angel Creek Day Use Area

Within 5 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.

- Reconstruct and pave access road and parking. Designate one accessible parking space with a van accessible sign.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

e. Airport Flat Campground

Within 10 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA, and harden adjacent dispersed area on the south side of Gerle Creek. The following describes the specific elements of this condition.

- Per access plan, install accessible picnic table, and accessible fire ring (18-inch height with 36-inch level surface around it) at unit 16.
- Harden adjacent dispersed area on the south side of Gerle Creek to accommodate approximately 30 PAOT, including campfire rings, barrier rock, aggregate base rock, and a vault toilet.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility at both the campground and the hardened dispersed area.

- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

f. Angel Creek Trail

Within 5 years of license issuance, the licensee shall extend the trail to tie to the Summer Harvest Trail (making a loop trail around the reservoir).

g. Summer Harvest Trail

Within 5 years of license issuance, upgrade trail surface to a similar standard (aggregate base) as the new trail at Angel Creek Day Use Area. Replace missing or damaged interpretive signs as needed.

Union Valley Reservoir Area

a. Union Valley Recreation Plan

Within 2 years of license issuance, licensee shall prepare a development plan, to be approved by the FS that addresses impacts to the Union Valley area from unmanaged recreation, and the need for additional day use opportunities. Licensee shall be responsible for the development of sites and/or implementation of measures identified in this plan within 10 years of license issuance. The following elements shall be addressed:

- Sanitation (including adequate facilities accessible near the Ice House Road/Jones Fork Silver Creek crossing).
- User conflicts.
- Carrying capacity.
- Day use versus overnight camping.
- Vehicle control.
- Boating access.
- Emergency resource protection measures.

b. Union Valley Reservoir Boating Management

Within 2 years of license issuance, develop and implement a plan approved by FS and CDFG that addresses reservoir surface use and hazards. Elements of this plan will include:

- User conflicts between differing types of watercraft.
- Human and wildlife conflicts.
- Marking or removal of underwater hazards to enhance boater safety.
- Speed limits and need for marker buoys.

c. Azalea Cove Campground

Within 5 years of license issuance, the licensee shall complete the following specific elements:

- Provide paved off site parking area for 10 vehicles at the intersection of the existing service road and the bike trail.
- Develop a potable water source and distribution system.
- Improve shoreline adjacent to facility to enhance boating access.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

d. Big Silver Group Campground

Within 20 years of license issuance, the licensee shall upgrade the existing facilities offered at this 50 PAOT group campground. The following describes the specific elements of this condition.

- Develop a potable water system.
- Construct a shade structure.
- Control OHV traffic in campground.
- Install bear-proof food lockers.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

e. Camino Cove Campground

Within 15 years of license issuance, upgrade existing facilities to meet current FS standards. The following are the specific elements of this condition:

- Pave all roads and spurs in the campground.
- Develop campground host site (including septic and utilities).
- Install accessible picnic tables at all sites.
- Provide a potable water system and faucet units.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Install bear-proof food lockers at all camp units.

- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

f. Fashoda Campground

Within 5 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.

- Repave parking area and access roads. Designate two additional accessible parking spaces (in addition to one for unit 6), including one space to be constructed and signed as van accessible near camp units 12 to 16.
- Retrofit all 29 tables for accessibility by replacing the 8-foot table top boards with 10-foot boards and raising the boards to provide a minimum of 28 inches of clearance under the ends of the table.
- Construct an amphitheatre with accessible access routes, seating to accommodate 200 people, and electrical service.
- Install bear-proof food lockers at each camp site.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Upgrade shower units by providing a photovoltaic power source with generator back up.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

g. Fashoda Day Use Area

- Within 5 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.
- Provide a 16-foot-wide designated parking space at unit 4 and sign parking as accessible (similar to the one at unit 5).
- Replace or retrofit the four remaining tables (unit 5 is already accessible) by replacing the 8-foot-long top boards with 10-foot-long boards, and raising the boards to provide a clearance of 28 inches minimum under the table ends.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

h. Jones Fork Campground

Within 20 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.

- Where feasible, reconstruct and pave spurs to 16-foot minimum width, with slopes and cross-slopes at 2 percent or less. Reset barrier rocks to allow for 4 feet between them for access to the camp unit.
- Provide potable water source and distribution system.
- Replace fire rings with 18-inch-high accessible fire rings.
- Formalize access routes to the shoreline from the campground.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

i. Lone Rock Campground

Within 20 years of issuance of license, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA The following describes the specific elements of this condition.

- Provide potable water system.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

j. Sunset Campground

Within 5 years of license issuance, the licensee shall redesign and reconstruct the 131 unit campground, retaining existing family unit capacity on existing footprint, to meet the current FS design standards requirements of the ADA, and add a Group Site. The following describes the specific elements of this condition.

- Replace all 15 two-unit vault toilets with a combination of vault and flush toilets (where septic system is feasible). Relocate some toilets to reduce the distance between them and to avoid the steeper sections of the roads that have grades over 10 percent. Construct paved turnouts in front of each toilet, and provide a paved access route to the toilet entrances.
- Construct one eight-stall shower facility with toilet (including septic system).
- Construct potable water filling station for recreational vehicles.

- Engineer and reconstruct water storage and distribution system, sized to accommodate new flush toilets, recreational vehicle filling station and shower units.
- Replace any non-accessible faucet units with new units of ADA-approved design. Provide a level and compacted surface on the sides and in front of each faucet unit.
- Construct a campground entrance station with building to serve the Sunset peninsula facilities.
- Pave access and all interior campground roads.
- Where feasible, reconstruct and pave all spurs to 16-foot minimum widths and 25- or 50-foot lengths, with slopes and cross slopes at 2 percent or less. Set barrier rocks 4 feet apart for access from spur to unit.
- Replace all tables with accessible ones, level surfaces, and provide 36 inches of clearance around tables.
- Replace all grills that have exceeded their service life, and reset newer grills to accessible cooking surface height of 30 to 36 inches. Provide 36 inches of clear level area around pedestal grills.
- Where feasible, level and regrade tent pads to provide 1,200 square feet each, with a maximum cross-slope of 3 percent in all directions. Where feasible, construct raised tent pads for accessibility (27 potential campsites have been identified).
- Regrade pathways between camp units and spurs/roadways.
- Formalize access routes to the shoreline from the Campground, and consider erosion (wave action) control measures along shoreline.
- Replace control valve at the sanitary dump station to a lever-type valve of accessible design.
- Add a group site (30 PAOT) on the south side of the access road near Loop 2.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

k. Sunset Boat Launch

Within 5 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.

- Replace toilet seats in the 2-unit vault toilet with 18-inch-high toilet seats, and install accessible signage on the toilet.
- Develop five day use picnic sites between the lake shore and the parking area.

- Select four spaces close to the launching ramp and the toilet and designate them as accessible spaces. Sign one space as van accessible.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.

l. Wench Creek Campground

Within 15 years of license issuance, the licensee shall redesign and reconstruct the 100-unit campground, retaining existing capacity on existing footprint, to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.

- Construct potable water filling station for recreational vehicles.
- Engineer and reconstruct water storage and distribution system, sized to accommodate new flush toilets, recreational vehicle filling station and shower units (at both the family and group campgrounds).
- Replace the four two-unit flush toilets and nine two-unit vault toilets with accessible toilets in kind. Relocate the toilets closer to the roadway or to flatter locations. Construct paved turnouts in front of each toilet and a pave access route to the toilet entrances.
- Construct a campground entrance station with building.
- Pave access and all interior campground roads, and restripe.
- Where feasible, widen 16 narrow spurs to 16 feet in width. For the 84 double spurs, widen the first 30 to 16 feet. Repave all spurs. Reset barrier rocks 4 feet apart for access into camp units.
- Level and compact tent pads, enlarging them to 1,200 square feet minimum, with no more than 3 percent cross slope.
- Regrade and compact pathways between camp units and spurs/roadway.
- Replace all 100 tables with accessible ones.
- Reset or replace all pedestal grills to a cooking surface height of 30 to 36 inches above the ground, and provide a clear and level ground surface of at least 36 inches around each grill.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Install bear proof food lockers.
- Construct two eight-stall shower facilities with toilet (including septic systems).
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

m. Wench Creek Group Campground

Within 15 years of license issuance, the licensee shall redesign and reconstruct the two 50 PAOT group sites, retaining existing capacity on existing footprint, to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.

- Replace the six-unit flush restroom in unit 1 with a flush toilet building of accessible design, and replace the four-unit flush restroom in unit 2 with a six-unit flush toilet building of accessible design. Include two shower stalls in each toilet building.
- Widen all parking spurs to 16 feet, and repave them.
- Widen all pathways in both areas (between cooking and eating areas, restrooms, tent camping areas and group fire ring areas) to 6 feet minimum; level and surface with aggregate base rock.
- Design and construct paved, accessible trails from each group site to the shoreline of Union Valley Reservoir.
- Replace tables with accessible ones. Provide a clear and level ground surface of at least 36 inches around each table.
- Regrade tent pad areas. Provide for a minimum of 25 tent pads in each group area.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Regrade group cooking and eating areas.
- Pave access and all interior campground roads, and restripe parking lot and designate/sign one van accessible parking space.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

n. West Point Campground

Within 8 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA. Design and construct expansion of the existing family campground by 25 units, and add a group campground (30 PAOT) adjacent to the facility, across the road to meet current FS standards. The following are specific elements of this condition.

- Expand campground by 25 additional units to include roads, spurs, barriers, fire rings, tent pads, and additional restrooms.
- Pave all campground roads and spurs.
- Develop a water system to serve the campground, existing and expanded.
- Provide accessible tables at all existing and new campsites.

- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.
- Survey all remaining dispersed sites on the West Point peninsula to determine where use is appropriate; engineer suitable dispersed sites to minimize impacts; and close and restore other dispersed sites in the area using standard FS techniques.

o. West Point Boat Launch

Within 5 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA.

- Construct a cut-off wall along shore side of ramp to protect side of ramp from wave action.
- Replace toilet seats in the existing two-unit vault toilet with 18-inch-high seats and install the required accessible toilet signs.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Remove and restore dispersed camp sites adjacent to this facility using standard FS techniques.
- Develop boat ramp extension designs for review and approval by FS, CDFG, and SWRCB. Construction of boat ramp extension shall be completed within 2 years of design approval.

p. Wolf Creek Campground

Within 15 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA. The following are the specific elements of this condition.

- Pave all roads in the campground.
- Install bear-proof food lockers.
- Construct one eight-stall shower facility with toilets (including septic system).
- Engineer and reconstruct water storage and distribution system, sized to accommodate shower units.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

q. Wolf Creek Group Campground

Within 15 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA.

- Pave all roads.
- Construct one eight-stall shower facility with toilets (including septic system).
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

r. Yellowjacket Campground

Within 8 years of license issuance, the licensee shall redesign and reconstruct the 40-unit campground, retaining existing capacity on existing footprint, to meet the current FS design standards requirements of the ADA. The following describes specific elements of this condition.

- Replace four two-unit flush toilets and one two-unit vault toilet with accessible buildings in kind.
- Construct one six-stall shower facility with toilets (including septic systems).
- Widen spurs for units 1, 2, 5, and 27 through 31 to 16 feet and repave surface. Reset the barrier rocks 4 feet apart for access to the camp unit.
- Replace all 40 tables with accessible ones, and provide a clear and level ground surface of at least 36 inches minimum around each table.
- Replace or reset pedestal grills to the accessible cooking surface height of 30 to 36 inches, and provide a clear and level ground surface of at least 36 inches around each grill.
- Improve pathways between camp units and spurs/roadway.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Where feasible, level and compact camp units to minimum of 1,200 square feet, with grades to 3 percent or less.
- At sanitary dump station, cut out part of the concrete island in front of the water tower to reach the control valve from the turn out. Lower the control valve, and replace it with a lever-type control valve.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

s. Yellowjacket Boat Launch

Within 5 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA.

- Engineer and extend boat ramp with cutoff wall to address low-water conditions, to eliminate sand and material from depositing on the ramp and to prevent undercutting of the ramp.
- Engineer and construct a parking facility below the high-water line to extend usability of the boat ramp under low-water conditions.
- Replace existing vault restroom with new accessible restroom.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.

t. Union Valley Bike Trail

Licensee shall complete the bicycle trail system around Union Valley Reservoir. The following are the specific elements of this condition:

- Within 10 years of license issuance, designate accessible parking spaces at Jones Fork Trailhead.
- Within 2 years of license issuance, expand the paved bike trail from Yellow Jacket Campground to connect with the existing trail near Tells Creek, including construction of a suspension bridge or through truss bridge across Tells Creek (approximate span of 200 feet).
- Within 8 years of license issuance, expand the paved bike trail from Wolf Creek Campground to the Union Valley Dam (at West Point Campground).
- Within 10 years of license issuance, construct a native surface non-motorized mountain bike/hiking trail with a design standard of 60 inches around the south side of Union Valley Reservoir from the Union Valley Dam to Jones Fork Trailhead (where the paved trail begins to the north). A bridge will need to be constructed across Jones Fork Silver Creek near its confluence with Union Valley Reservoir.

u. North Union Valley Road

Within 5 years of license issuance, the licensee shall provide access trails from paved turnouts and/or parking pockets along the road to the shore. The licensee shall also restore damaged sites between road and shoreline. (see also Appendix A, Section 33).

Ice House Reservoir Area

a. Ice House Recreation Plan

Within 2 years of license issuance, the licensee shall prepare a development plan, to be approved by the FS that addresses impacts to the Ice House area from unmanaged recreation, and the need for additional day use opportunities. In addition, this plan shall address the whitewater recreation opportunities in South Fork Silver Creek, above and below Ice House Reservoir. The licensee shall be responsible for the development of sites and/or implementation of measures identified in this plan within 8 years of license issuance. The following elements shall be addressed:

- Sanitation.
- User conflicts.
- Carrying capacity.
- Day use versus overnight camping.
- Vehicle control.
- Boating access (including day use and overnight camping along the shore).
- Access to the reservoir across private land.
- Need for day use recreation opportunities at Ice House to mitigate impacts to surrounding areas (for example, Wrights Lake, Jones Fork, Lyons Creek, Silver Creek).
- Determine necessary put-ins, take-outs, and parking for whitewater activities.
- Acquire necessary private land to facilitate day use recreation opportunities identified in this plan.
- Emergency resource protection measures.
- On-river boat patrol.

In addition to the elements above, the following specific areas shall also be addressed:

- At the south side of the reservoir, where several dispersed camping sites and user-created access roads exist along the shoreline, determine proper location and size for a small designated boat-in camping area (approximately five units). Determine restoration needs at other areas impacted by dispersed use on south side of reservoir.

b. Ice House Campground

Within 5 years of license issuance, the licensee shall redesign and reconstruct the 83-unit campground, retaining existing capacity on existing footprint, to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.

- Where feasible, reconstruct and widen all spurs to 16 feet (plus shoulders) and either 25 or 50 feet in length, depending on site features. Reset barrier rocks 4 feet apart for access into the camp unit.
- For all pathways between camp units and spurs/roadway, remove ground protrusions, regrade and widen the pathways, and compact the native surface. Construct 5-foot-wide access routes into the walk in units at less than 10 percent grade, including any necessary retaining walls on upper side, and surface with aggregate base rock. Add steps if necessary.
- Level and harden pads at campsites.
- Redefine user created foot trails to lake shore
- Repave campground roads and spurs.
- Install bear proof food lockers.
- Replace remaining three two-unit toilets with new accessible vault toilets. Replace seats in the six accessible toilets with 18-inch-high seats.
- Replace 80 tables (all except units 81-83) with accessible ones, and provide for a clear ground surface of at least 36 inches minimum around each table.
- Provide electricity at host sites in each half of the campground.
- Construct a potable water filling station for recreational vehicles.
- Add shower building (with flush toilets) for each half of the campground, or a combined shower facility at the boat launch parking area (between the two campground areas).
- Engineer and reconstruct water storage and distribution system, sized to accommodate recreational vehicle filling station and shower units with flush toilets.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

c. Ice House Day Use Area

Within 5 years of license issuance, the licensee shall redesign and reconstruct the existing 10 unit day use area, retaining existing capacity on existing footprint, to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.

- Replace the two-unit toilet with a new two-unit accessible vault toilet. Locate toilet closer to the parking lot for easier access and servicing.
- Replace the 10 tables with accessible ones. Provide a clear and level ground surface of at least 36 inches around each table.

- Reset all pedestal grills where the cooking height is 30 to 36 inches above the ground. Provide a clear and level ground surface of at least 36 inches around each grill.
- Enlarge picnic pads to a minimum of 600 square feet, removing obstacles and leveling and compacting the native surface. Keep grades to 3 percent or less in all directions.
- Install curb ramps to access sites from the 13-space parking area.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.

d. Northwind Campground

Within 15 years of license issuance, the licensee shall upgrade the facilities at this existing nine-unit campground to meet the current FS design standards requirements of the ADA, provide potable water, and address needs for lakeshore access. The following describes the specific elements of this condition.

- Retrofit tables at all nine units by replacing the 8-foot-long table top boards with 10-foot-long boards and raising the boards to provide 28 inches of minimum clearance under the extended ends of the table.
- Reset pedestal grills at all units to provide for a cooking surface height of 30 to 36 inches, and provide a clear and level ground surface of at least 36 inches around each grill
- Replace toilet seats with 18-inch high accessible seats.
- Improve camp pad at each site by removing obstacles, leveling and compacting the native surface. Keep grades to 3 percent or less in all directions
- Reconstruct and widen to 16 feet the spurs for units 2, 7, and 8. Repave the spurs. Reset barrier rocks to provide 4 feet of clearance between them to provide access to these units.
- Install bear proof food lockers.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Develop a potable water system with accessible faucet units.
- Construct lakeshore access (accessible path paved, with a concrete footing/cutoff wall on one side and several level areas for fishing).
- Redesign and pave the fisherman access parking area.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

e. Strawberry Point Campground

Within 15 years of license issuance, the licensee shall upgrade the facilities at this existing ten-unit campground to meet the current FS design standards requirements of the ADA, provide potable water, and address needs for lakeshore access. The following are specific elements of this condition:

- Retrofit tables at all ten units by replacing the 8-foot-long table top boards with 10-foot-long boards and raising the boards to provide for 28 inches of minimum clearance under the extended ends of the table, and clear ground surface of at least 36 inches around each table.
- Reset pedestal grills at all units to provide for a cooking surface height of 30 to 36 inches, and provide a clear and level ground surface of at least 36 inches around each grill. If there is not enough room, then reset the grills in a new location.
- Replace toilet seats with 18-inch-high accessible seats.
- Improve camp pad at each site by removing obstacles, leveling and compacting the native surface. Keep grades to 3 percent or less in all directions.
- Reconstruct and widen to 16 feet the spurs for units 3 and 8. Repave the spurs. Reset barrier rocks to provide 4 feet of clearance between them to provide access to these units.
- Install bear-proof food lockers.
- Develop potable water system with accessible faucet units.
- Construct a loop trail around the point for day use recreation. Ensure access to the trail is separated from campsites. Construct accessible lakeshore access.
- Reconstruct and pave the day use parking area.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

f. Ice House Boat Launch

Within 5 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA and repair damage to boat launch parking lot subgrade and pavement. The following are specific elements of this condition.

- Repair and repave parking area.
- Replace toilet seats with 18-inch-high seats.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.

g. Ice House Sanitation Station

Within 5 years of license issuance, the licensee shall redesign and reconstruct the facility, on existing footprint, to meet the current FS design standards requirements of the ADA. The following describes the specific elements of this condition.

- Reconstruct, stabilize banks and repave the access road.
- Provide for adequate ground clearance between drain basin and the water tower.
- Replace water control valve with a lever-type control.

h. Ice House Reservoir Lakeshore Road

Within 5 years of license issuance, licensee shall provide access trails from paved turnouts and/or parking pockets along the road to the shore. The licensee shall also restore damaged sites between road and shoreline. (see also Appendix A, Section 33).

i. Highland Point Day Use Area

Within 5 years of license issuance, develop Highland Point for fishing access and day use. Land acquisition may be required. Construct new 10-unit picnic area to include:

- Paved access roads, parking and vehicle control
- Accessible vault toilet
- Trails
- Accessible picnic tables and grills
- Accessible access routes
- Trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

j. Upper Silver Creek Ice House Day Use

Within 5 years of license issuance, licensee shall develop parking and day use facilities to accommodate existing unmanaged dispersed day use associated with Ice House Reservoir and Silver Creek. Land acquisition and/or easements may be necessary.

- Construct paved parking area for 12 to16 vehicles at the end of the road,

- Provide one- or two-unit vault restroom with bear-proof trash receptacle adjacent to the parking area.
- Construct a bridge across Silver Creek suitable for bicycle and pedestrian traffic.
- A viewing platform/deck with benches shall be built at the end of the parking area near bridge and beginning of Silver Creek Trail.
- Construct trail up Silver Creek, with other small viewing platforms constructed (possibly mid way and at terminus of trail).
- Provide day use picnic facilities on the southeast side of the bridge with a connecting trail to the paved parking area.

k. Ice House Mountain Bike Trail

Within 10 years of license issuance, extend the Ice House Mountain Bike Trail (native surface) completely around Ice House Reservoir, including stream and spillway crossings. The licensee shall also construct an interconnecting trail between the Ice House mountain bike trail and the Union Valley mountain bike trail.

Other Crystal Basin Facilities

a. Crystal Basin Work Center and Information Station

Within 15 years of license issuance, the licensee shall upgrade existing facilities. The following describes the specific elements of this condition.

- Upgrade existing water storage facilities.
- Construct EPA approved fueling station.

b. Big Hill Vista

Within 15 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA and provide visitor amenities. The following describes the specific element of this condition.

- Install two accessible tables and picnic pads, and accessible garbage cans.

c. Cleveland Corral Information Station

Within 15 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards requirements of the ADA and provide visitor amenities. The following describes the specific elements of this condition.

- Reconstruct gravel walkway and pave the surface with asphalt to meet accessibility standards per access plan.
- Interpret Pony Express Trail and Cleveland Corral Waystation.
- Construct shade structure.
- Raise surface around sump flush with the stop of sump and repave surface around the dump and faucet per access plan.

d. Silver Creek Campground

At such time whitewater flows are provided by licensee, redesign and reconstruct the twelve-unit Silver Creek Campground, and provide access on adjacent land for whitewater access parking and staging. The following describes the specific elements of this condition.

- Redesign and reconstruct access roads and spurs to meet current design standards and provide a paved turnaround area.
- Replace toilet with an accessible vault toilet located adjacent to the parking area and provide paved access to the entrances
- Reconstruct main access paths to a width of 5 feet, surfaced with aggregate base rock.
- Replace informational signing.
- Replace 12 tables with accessible ones and provide clear and level ground surface of at least 36 inches around each table.
- Replace existing stoves with 18-inch-high fire rings and provide clear level surface of 36 inches around each ring.
- Level, compact, and enlarge camp units.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for bear resistance and accessibility.
- Provide vegetative screening, and use natural materials to restrict indiscriminate pedestrian and bicycle traffic within and between campsites and use areas.

5. Canyonlands

Junction Reservoir

a. Boat Launch at Junction Reservoir

Within 10 years of license issuance, improve boat launch (for day use only). The following describes the specific elements of this condition.

- Pave access road to informal boat launch with turnouts for light traffic.
- Provide parking facilities suitable for light trailerable or hand launch boats. Estimate that the site will accommodate up to 10 spaces, but

could be fewer because of topographic constraints. Use site design to implement the desired carrying capacity.

- Provide surfaced boat launch extending to low water level.
- Provide one- or two-unit vault restroom.
- Remove existing dispersed campsites near water edge, and install signage (pack-in/out, visitor education, etc).

b. Dispersed Area - Bryant Springs Road and South Fork Silver Creek Bridge

Within 10 years of license issuance, improve access trail (construction road) between Bryant Springs Road and stream. Provide turnouts for parking at take-out site for whitewater boating on South Fork Silver Creek.

Brush Creek Reservoir Boat Launch

Within 5 years of license issuance, licensee shall prepare a development plan, to be approved by the FS that addresses reservoir access, day use opportunities, and facility needs or improvements. Licensee shall be responsible for developing sites and/or implementing measures identified in this plan within 8 years of license issuance. The following elements shall be addressed:

a. Sanitation and garbage.

b. User conflicts.

c. Carrying capacity.

d. Informational and directional signage.

e. Day use and overnight use.

f. Vehicle control.

g. Boating access.

h. Emergency resource protection measures.

In addition to the elements above, the following areas of concerns shall also be addressed:

i. Evaluate the need for improvements to provide for shoreline fishing access or an accessible fishing pier on the reservoir.

j. Determine if the improved access to the reservoir from Pollock Pines is leading to increased use by other users, such as off-highway vehicle users.

Slab Creek Reservoir

a. Boat Launch at Slab Creek Reservoir at Forebay Road

Within 2 years of license issuance, licensee shall prepare a development plan, to be approved by the FS that addresses safe and reasonable boating access, impacts from unmanaged recreation, and the need for additional day use and overnight facilities. Licensee shall be responsible for the development of sites and/or implementation of measures identified in this plan within 5 years of license issuance. The following elements shall be addressed:

- Design of a boat launch and access trail that extends to the minimum reservoir level.
- Sanitation and garbage.
- Vehicle control.
- Carrying capacity.
- Day use and overnight use.
- Informational and directional signage.
- Resource protection measures.

In the event that construction of the Iowa Hill Reservoir causes temporary closure of the boat launch access near the dam, the Forebay boat launch and parking facilities shall be completed before the downstream public access is made unavailable.

b. Boat launch at Slab Creek Reservoir near Dam

Within 2 years of license issuance, licensee shall prepare a development plan, to be approved by the FS that addresses safe and reasonable boating access, impacts from unmanaged recreation, and the need for additional day use facilities. Licensee shall be responsible for the development of sites and/or implementation of measures identified in this plan within 5 years of license issuance. The following elements shall be addressed:

- Needed improvements to road access from North Canyon Road (County Road 8014 and Forest Road 11N96) to provide for public safety, such as widening, turnaround at boat launch, turnouts, signs (no trailer access).
- Provide parking for a minimum of 10 vehicles within a reasonable distance of boat launch.

- Improve boat launch and harden to extend to the minimum reservoir level and restrict trailer use.
- Provide one-unit vault restroom.
- Needs for garbage collection.
- Provide resource protection measures at the boat launch and along the access road from North Canyon Road (Forest Road 11N96).
- Directional sign at intersection of County Road ELD-8014 and North Canyon Road.
- Information kiosk or signboard at boat launch.

The licensee shall be responsible for ensuring that the boat launch is accessible to the minimum reservoir level throughout the license period.

c. SFAR - Slab Creek Dam to Chili Bar Reservoir Reach Put-In

Within 5 years of license issuance, the licensee shall prepare a recreation management plan, to be approved by the FS and BLM, that addresses the whitewater recreation needs in the Slab Creek Dam to Chili Bar Reservoir Reach. The licensee shall be responsible for the development of sites and/or implementation of measures identified in this plan within 8 years of license issuance. The following elements shall be addressed:

- Use levels and projected future use levels.
- Carrying capacity.
- Sanitation and garbage.
- User conflicts.
- Resource effects along the river and including effects to private land.
- Necessary put-ins, take-outs and parking for whitewater activities.
- Emergency resource protection measures.
- Public safety, search and rescue needs and other emergency response needs.
- Information and educational signing needs.
- Demand for commercial services or outfitting, including shuttle services and guiding.
- On-river boat patrol.

In addition to the elements above, the recreation plan shall propose utilization metrics to be used as triggers for determining when the licensee shall increase the number of days of recreation streamflows to be provided. Following 10 years of boating flows, and every 5 years thereafter, the licensee shall, in cooperation with the FS, BLM, and other interested parties, prepare a report describing whitewater recreation use and impacts, whether utilization has exceeded predetermined triggers such that additional recreation streamflow days should be provided, and whether modifications to recreation facilities or additional facilities or

services are needed to meet recreation use and impacts. This report shall be filed with FERC, following FS and BLM approval.

Section 20. Heavy Maintenance

The licensee will be responsible for the cost of the necessary maintenance, rehabilitation, and reconstruction, including the costs of design and administration, as determined through the Review of Recreation Developments (as described in Appendix A, Section 18) for the Project recreation facilities.

Heavy maintenance and rehabilitation are defined as work that is necessary to keep existing facilities in serviceable condition to meet FS standards and includes components of recreation facilities such as water systems, traffic control barriers, roads, spurs, and associated drainage structures, grills and firerings, picnic tables, toilets, and signboards. The licensee shall use FS standards for the frequency of heavy maintenance as a guideline, but not a prescription, for licensee's performance of its heavy maintenance responsibilities. As determined through the Review of Recreation Developments (as described in Appendix A, Section 18), heavy maintenance projects may be deferred that would otherwise be timely under FS frequency standards, if the FS determines that actual conditions indicate that the project is not yet necessary.

Section 21. Recreation Operation, Maintenance, and Administration

The licensee shall annually pay, by October 1, $741,805 (year 2005 cost basis). The cost shall be escalated annually based on the U.S. Gross Domestic Product – Implicit Price Deflator (GDP-IDP). These funds are for the FS to provide for operation, maintenance, and administration of those developed recreation sites adjacent to or in the vicinity of Project reservoirs and facilities listed in Appendix A, Section 18, Review of Recreation Developments (either developed as part of the original/amended license or affected by operations). This will include, but not be limited to, managing use within and immediately adjacent to the Project boundary, and performing both regular and annual maintenance. In addition, this will fund the special use permit administration required for facilities developed as part of the original/amended license and operated by a concessionaire. Work to be completed within these areas is to consist of conducting patrols, picking up litter, providing public information, enforcing rules and regulations, rehabilitating impacted areas, addressing sanitation, maintaining day use sites (such as concentrated use areas), maintaining trails, information signs, and regulatory signs, responding to fires and other emergencies, assisting in search and rescue, addressing resource impacts, and area condition monitoring.

Section 22. Recreational Streamflow Operation, Maintenance, and Administration

The licensee shall annually pay, by October 1, $48,000 (year 2005 cost basis). The cost shall be escalated annually based on the U.S. Gross Domestic Product – Implicit Price

Deflator (GDP-IDP). These funds are for the FS to provide for river rangers during the whitewater boating season, or for El Dorado County to provide some or all of this service through agreement. The river rangers shall provide administrative presence on the Slab Creek Reach and the Ice House Reach, put-ins and take-outs, maintenance of signing, monitoring whitewater boating use, monitoring of the adequacy of recreation streamflows for an acceptable boating experience, evaluating carrying capacity thresholds, and other necessary duties.

Section 23. High Country Patrol (Desolation Wilderness Area)

The licensee shall annually pay, by October 1, $53,000 (year 2005 cost basis). The cost shall be escalated annually based on the U.S. Gross Domestic Product – Implicit Price Deflator (GDP-IDP). These funds will be used to provide for High Country patrol and management of recreation use within the high country area around Project reservoirs, including Buck Island and Rubicon Reservoirs, and the trail adjoining these reservoirs. Work to be completed within this area includes conducting patrols, picking up litter, providing public information, enforcing rules and regulations, rehabilitating impacted areas, addressing sanitation, maintaining trails, information signs, and regulatory signs, responding to fires and other emergencies, assisting in search and rescue, and area condition monitoring.

Section 24. Dispersed Area Patrol (Zone 3)

The licensee shall annually pay, by October 1, $88,000 (year 2005 cost basis). The cost shall be escalated annually based on the U.S. Gross Domestic Product – Implicit Price Deflator (GDP-IDP). These funds are for the FS to provide patrol and management of dispersed recreation areas and uses, as well as trails and other locations utilized by visitors to the Project, within the area affected by the project designated as Zone 3. Work to be completed within these areas includes conducting patrols, picking up litter, providing public information, enforcing rules and regulations, rehabilitating impacted areas, addressing sanitation, maintaining day use sites (such as concentrated use areas), maintaining trails, information signs, and regulatory signs, responding to fires and other emergencies, assisting in search and rescue, and area condition monitoring. Resource impacts are still occurring locally within the Zone 3 lands, including vegetation damage from dispersed camping, improper vehicle use, day use, trail damage from use, continued litter, improperly disposed human waste, and abandoned campfires. Areas will be maintained or rehabilitated through the funds provided by the licensee, in conjunction with funds provided by the FS.

Section 25. Carrying Capacity on Lands Affected by the Project

The FS is responsible for establishing the carrying capacity for the Project area and is awaiting information that is still being collected or analyzed to make this determination. The licensee shall provide data to support the determination of carrying capacity on lands affected by the Project, including, but not limited to: visitor perceptions of crowding, user

perceptions of "desired conditions," user preferences for amenities, capacity conditions at developed facilities within or affected by the Project, and resource impacts and social experience. The FS reserves the right to make changes to Appendix A, Section 19, once these data are made available.

Section 26. Reservoir Levels

The licensee shall, beginning as early as reasonably practicable within 6 months after license issuance, operate Loon Lake, Gerle, Ice House, Union Valley, and Slab Creek Reservoirs as follows. Reservoir level is defined as surface water elevation, determined in Appendix A, Section 10 (Streamflow and Reservoir Level Gaging).

1. Loon Lake Reservoir

   Maintain the reservoir level to meet the monthly average reservoir level shown in the table below. The monthly average shall be determined by using the mean daily reservoir level as the value for each day of the month and then taking the mean of all daily values for each month.

Loon Lake Reservoir Level by Water Year							
	Month		Monthly Average by Water Year				
			CD	DRY	BN	AN	WET
	JULY		6390	6395	6400	6400	6400
	AUGUST		6385	6390	6395	6395	6395
	SEPTEMBER		6380	6385	6390	6390	6390

2. Union Valley Reservoir

   Maintain the reservoir level to meet the monthly average reservoir level shown in the table below. The monthly average shall be determined by using the mean daily reservoir level as the value for each day of the month and then taking the mean of all daily values for each month.

Union Valley Reservoir Level by Water Year							
	Month		Monthly Average by Water Year				
			CD	DRY	BN	AN	WET
	JULY		4825	4840	4860	4865	4865
	AUGUST		4810	4830	4835	4855	4855
	SEPTEMBER		4802	4820	4835	4845	4845

3. Ice House Reservoir

   Maintain the reservoir level to meet the monthly average reservoir level shown in the table below. The monthly average shall be determined by using the mean daily

reservoir level as the value for each day of the month and then taking the mean of all daily values for each month.

Ice House Reservoir by Water Year						
	Month		Monthly Average by Water Year			
			CD	DRY	BN	AN	WET
	JULY		5435	5440	5445	5445	5445
	AUGUST		5430	5435	5440	5440	5440
	SEPTEMBER		5423	5430	5435	5435	5435

4. Gerle Reservoir

The licensee shall make every reasonable effort to maintain the water surface in Gerle Reservoir at as high an elevation as practicable, and with a minimum of fluctuation, from May 1 to September 10 of each year in order to provide maximum recreational benefits. If the licensee anticipates the reservoir will be drawn down in excess of 2 feet below full pool, the licensee shall consult with the FS, SWRCB, and CDFG following the direction in number 8 (Temporary Modification) below.

5. Slab Creek Reservoir

Maintain the reservoir level above 1,830 feet in elevation during daylight hours. Restrict daily fluctuations to less than 6 feet per day during daylight hours.

6. Other Reservoirs

Maintain the seasonal reservoir levels at Junction and Brush Creek Reservoirs within the range of levels measured during the period of record between 1975 through 2000. The licensee shall make every reasonable effort to maintain the water surface in Rubicon and Buck Island Reservoirs at as high an elevation as practicable, and with a minimum of fluctuation, from May 1 to September 10 of each year in order to secure the maximum recreational benefits. As described in Appendix A, Section 1, the licensee shall maintain an overwintering minimum pool of 6,527 feet in elevation in Rubicon Reservoir for the protection of aquatic species.

7. Super Dry Water Year

A Super Dry (SD) is defined as any CD year that is immediately preceded by a Dry or CD year or any Dry year that is immediately preceded by any combination of two Dry or CD years. In the event of a SD year, the licensee shall, by March 10, notify the FS, CDFG, SWRCB, and other interested parties of the licensee's concerns related to reservoir levels. By May 1 of a SD year, the licensee shall confer with the FS, CDFG, SWRCB, and other interested parties to discuss

reservoir operations plans and reservoir levels during the SD water year. The licensee may implement the revised operations for a SD year upon approval by the FS, FERC, SWRCB and CDFG.

8. Temporary Modifications.

The minimum reservoir levels specified in the schedules may be temporarily modified if required by equipment malfunction or operating emergencies reasonably beyond the control of the licensee. If the reservoir levels are so modified, the licensee shall provide Notice to FERC, FS, CDFG, and the SWRCB as soon as possible, but no later than 10 days after such incident. The minimum reservoir levels specified may also be temporarily modified for short periods in non-emergency situations 5 days after Notice to FERC, and upon approval of the FS, CDFG, and SWRCB.

9. Reservoir Level Monitoring and Adjustment

Within 5 years of license issuance, and every 5 years thereafter, the licensee shall prepare a report describing whether the target reservoir levels 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 the FS, CDFG, SWRCB, and FERC.

Section 27. Recreation Streamflows

1. SFAR Below Slab Creek Reservoir Dam

For the first 5 years after license issuance, the licensee shall provide recreational streamflows in the SFAR below Slab Creek Reservoir Dam as follows. In AN and Wet water years, the licensee shall release and/or spill water stored in Slab Creek Reservoir to result in streamflows between 850 and 1,500 cfs between the hours of 10:00 am and 4:00 pm on the following days and times: in the period beginning April 1 and ending May 31, at least 9 days, 6 of which shall occur on weekend days or holidays, with priority given to Memorial Day weekend.

Recreation Streamflows for SFAR Below Slab Creek Reservoir Dam for Years 1 – 5 After License Issuance

Water Year Type	March	April	May	June - September	October
CD					
D					
BN					

AN		850 cfs - 1500 cfs[1] for 9 days, of which 6 are weekend days[2]		
W		850 cfs - 1500 cfs for 9 days, of which 6 are weekend days		

1. Flows shall be released between the hours of 10:00 am and 4:00 pm.
2. Priority shall be given to providing recreational streamflows on Memorial Day weekend.

For years 6-10 after license issuance, the licensee shall provide recreational streamflows in the SFAR below Slab Creek Reservoir Dam as follows.

a. In CD water years, the licensee shall release and/or spill water stored in Slab Creek Reservoir to result in (1) streamflows between 850 and 950 cfs between the hours of 10:00 am and 1:00 pm on the following days and times: in the period beginning April 1 and ending April 30, at least 4 weekend days. (2) Streamflows between 1,400 and 1,500 cfs between the hours of 10:00 am and 12:30 pm and on the same days streamflows between 850 and 950 cfs between the hours of 1:30 pm and 4:00 pm on the following days and times: in the period beginning April 1 and ending April 30 at least 2 weekend days that are different from the days listed in (1).

b. In Dry water years, the licensee shall release and/or spill water stored in Slab Creek Reservoir to result in (1) streamflows between 850 and 950 cfs between the hours of 10:00 am and 1:00 pm on the following days and times: in the period beginning March 15 and ending April 30, at least 4 weekend days, and in the period beginning October 1 and ending October 31, at least 2 weekend days. (2) Streamflows between 1,400 and 1,500 cfs between the hours of 10:00 am and 12:30 pm and on the same days streamflows between 850 and 950 cfs between the hours of 1:30 pm and 4:00 pm on the following days and times: in the period beginning March 15 and ending April 30, at least 6 weekend days that are different from the days listed in (1).

c. In BN water years, the licensee shall release and/or spill water stored in Slab Creek Reservoir to result in (1) streamflows between 850 and 950 cfs between the hours of 10:00 am and 1:00 pm on the following days and times: in the period beginning April 1 and ending May 31, at least 2 weekend days or holidays, and in the period beginning October 1 and ending October 31, at least 6 weekend days. (2) Streamflows between 1,400 and 1,500 cfs between the hours of 10:00 am and 12:30 pm and on the same days streamflows between 850 and 950 cfs between the hours of 1:30 pm and 4:00 pm on the following days and times: in the period beginning April 1 and ending May 31, at least 9 days that are different from the days listed in (1), 8 which shall occur on weekend days or

holidays. Priority shall be given to providing recreational streamflows on Memorial Day weekend.

d. In AN and Wet water years, the licensee shall release and/or spill water stored in Slab Creek Reservoir to result in (1) streamflows between 850 and 950 cfs between the hours of 10:00 am and 1:00 pm on the following days and times: in the period beginning October 1 and ending October 31, at least 6 weekend days. (2) Streamflows between 1,400 and 1,500 cfs between the hours of 10:00 am and 12:30 pm and on the same days streamflows between 850 and 950 cfs between the hours of 1:30 pm and 4:00 pm on the following days and times: in the period beginning April 1 and ending May 31, at least 12 days, 10 of which shall occur on weekend days or holidays. Priority shall be given to providing recreational streamflows on Memorial Day weekend.

Recreational Streamflowsfor SFAR Below Slab Creek Reservoir Dam for Years 6 – 10 After License Issuance

<table>
<tr><th>Water Year Type</th><th>March</th><th>April</th><th>May</th><th>June - September</th><th>October</th></tr>
<tr><td>CD</td><td></td><td>850 cfs - 950 cfs kayak[1] flows for 4 weekend days PLUS 1400 cfs – 1500 cfs rafting[2] flows for 2 weekend days</td><td></td><td></td><td></td></tr>
<tr><td>D</td><td colspan="2">850 cfs - 950 cfs kayak flows for 4 weekend days PLUS 1400 cfs - 1500 cfs rafting flows for 6 weekend days</td><td></td><td></td><td>850 cfs - 950 cfs kayak flows for 2 weekend days</td></tr>
<tr><td>BN</td><td></td><td>850 cfs - 950 cfs kayak flows for 3 weekend days[3]/holidays PLUS 1400 cfs - 1500 cfs rafting flows for 9 days of which 8 are weekend days[3]/holidays</td><td></td><td></td><td>850 cfs - 950 cfs kayak flows for 6 weekend days</td></tr>
</table>

AN		1400 cfs - 1500 cfs rafting flows for 12 days, 10 of which are weekend days[3]/holidays		850 cfs - 950 cfs kayak flows for 6 weekend days
W		1400 cfs - 1500 cfs rafting flows for 12 days, 10 of which are weekend days[3]/holidays		850 cfs - 950 cfs kayak flows for 6 weekend days

1. Kayak flows shall be released between the hours of 10:00 am and 1:00 pm.
2. Rafting flows shall be released between the hours of 10:00 am and 12:30 pm, and include a kayak release of 950 cfs between the hours of 1:30 pm and 4:00 pm.
3. Priority shall be given to providing recreational streamflows on Memorial Day weekend.

For the remainder of the license term, the licensee shall provide recreational streamflows in the SFAR below Slab Creek Reservoir Dam as follows at such time as triggers determined through the recreation plan described in Appendix A, Section 20 (Specific Recreation Measures; SFAR Reach and Put In), have been met or exceeded based on the monitoring described in Appendix A, Section 20.

a. In CD water years, the licensee shall release and/or spill water stored in Slab Creek Reservoir to result in streamflows between 850 and 950 cfs between the hours of 10:00 am and 1:00 pm on the following days and times: in the period beginning March 1 and ending April 30, at least 10 weekend days.(2) Streamflows between 1,400 and 1,500 cfs between the hours of 10:00 am and 12:30 pm and on the same days streamflows between 850 and 950 cfs between the hours of 1:30 pm and 4:00 pm on the following days and times: in the period beginning April 1 and ending April 30 at least 2 weekend days that are different from the days listed in (1).

b. In Dry water years, the licensee shall release and/or spill water stored in Slab Creek Reservoir to result in (1) streamflows between 850 and 950 cfs between the hours of 10:00 am and 1:00 pm on the following days and times: in the period beginning March 1 and ending April 30, at least 11 days, 8 of which shall occur on weekends, and in the period beginning October 1 and ending October 31, at least 4 weekend days. (2) Streamflows between 1,400 and 1,500 cfs between the hours of 10:00 am and 12:30 pm and on the same days streamflows between 850 and 950 cfs between the hours of 1:30 pm and 4:00 pm on the following days and times: in the period beginning March 1 and ending April 30, at least 9 days that are different from the days listed in (1), 6 of which shall occur on weekends.

c. In BN water years, the licensee shall release and/or spill water stored in Slab Creek Reservoir to result in (1) streamflows between 850 and 950 cfs between the hours of 10:00 am and 1:00 pm on the following days and times: in the period beginning March 1 and ending May 31, at least 11 days, 8 of which shall occur on weekends, and in the period beginning October 1 and ending October 31, at least 8 weekend days. (2) Streamflows between 1,400 and 1,500 cfs between the hours of 10:00 am and 12:30 pm and on the same days streamflows between 850 and 950 cfs between the hours of 1:30 pm and 4:00 pm on the following days and times: in the period beginning March 1 and ending May 31, at least 17 days that are different from the days listed in (1), 14 of which shall occur on weekend days or holidays. Priority shall be given to providing recreational streamflows on Memorial Day weekend.

d. In AN and Wet water years, the licensee shall release and/or spill water stored in Slab Creek Reservoir to result in (1) streamflows between 850 and 950 cfs between the hours of 10:00 am and 1:00 pm on the following days and times: in the period beginning October 1 and ending October 31, at least 8 weekend days. (2) Streamflows between 1,400 and 1,500 cfs between the hours of 10:00 am and 12:30 pm and on the same days streamflows between 850 and 950 cfs between the hours of 1:30 pm and 4:00 pm on the following days and times: in the period beginning March 1 and ending May 31, at least 28 days, 22 of which shall occur on weekend days or holidays. Priority shall be given to providing recreational streamflows on Memorial Day weekend.

e. In uncontrolled spill occurs in SFAR below Slab Creek Reservoir Dam before June 1, the licensee shall make a good faith effort to manage the spill to provide recreational streamflows within the time periods and flow magnitudes described above. If uncontrolled spill occurs in SFAR below Slab Creek Reservoir Dam on or after June 1, the licensee shall make a good faith effort to manage the spill to provide recreational streamflows between 500 cfs and 2000 cfs during daylight hours.

Recreational Streamflows for SFAR Below Slab Creek Reservoir Dam for Years 11 – License Term After License Issuance (if determined necessary through recreation plan)

Water Year Type	March	April	May	June - September	October
CD	850 cfs - 950 cfs kayak[1] flows for 10 weekend days				
		1400 cfs - 1500 cfs rafting[2] flows for 2			

	weekend days			
D	850 cfs - 950 cfs kayak flows for 11 day 8 of which are weekend days **PLUS** 1400 cfs - 1500 cfs rafting[2] flows for 9 days of which 6 are weekend days			850 cfs - 950 cfs kayak flows for 4 weekend days
BN	850 cfs - 950 cfs kayak flows for 11 days of which 8 are weekend days[3] **PLUS** 1400 cfs - 1500 cfs rafting flows for 17 days of which 14 are weekend days[3]/holidays			850 cfs - 950 cfs kayak flows for 8 weekend days
AN	1400 cfs - 1500 cfs rafting flows for 28 days, of which 22 are weekend days[3]/holidays			850 cfs - 950 cfs kayak flows for 8 weekend days
W	1400 cfs - 1500 cfs rafting flows for 28 days, of which 22 are weekend days[3]/holidays			850 cfs - 950 cfs kayak flows for 8 weekend days

1. Kayak flows shall be released between the hours of 10:00 am and 1:00 pm.
2. Rafting flows shall be released between the hours of 10:00 am and 12:30 pm, and include a kayak release of 850 cfs - 950 cfs between the hours of 1:30 pm and 4:00 pm.
3. Priority shall be given to providing recreational streamflows on Memorial Day weekend.

2. South Fork Silver Creek Below Ice House Reservoir Dam

The licensee shall, beginning as early as reasonably practicable within 3 months after license issuance but not prior to the implementation of the new minimum streamflows, provide recreation streamflows as follows.

a. In SD water years, there shall be no recreational streamflow releases.

b. In CD water years, the licensee shall release water stored in Ice House Reservoir to result in streamflows of 300 cfs for 2 weekend days between at least 10:00 am and at least 3:00 pm between May 1 and May 31.

c. In Dry water years, the licensee shall release water stored in Ice House Reservoir to result in streamflows of 300 cfs for 6 weekend days between at least 10:00 am and at least 3:00 pm between May 1 and May 31.

d. In BN water years, the licensee shall release water stored in Ice House Reservoir to result in the following streamflows between May 1 and June 30: (1) 300 cfs for 5 weekend or holiday days between at least 10:00 am and at least 3:00 pm, (2) 400 cfs between at least 10:00 am and 3:00 pm for 5 weekend or holiday days that are different than the days in (1), and (3) 500 cfs between at least 10:00 am and 3:00 pm for 2 weekend or holiday days that are different than the days in (1) and (2).

e. In AN water years, the licensee shall release water stored in Ice House Reservoir to result in the following streamflows between May 1 and June 30: (1) 300 cfs for 5 weekend or holiday days between at least 10:00 am and at least 3:00 pm, (2) 400 cfs between at least 10:00 am and 3:00 pm for 5 weekend or holiday days that are different than the days in (1), (3) 500 cfs between at least 10:00 am and 3:00 pm for 3 weekend or holiday days that are different than the days in (1) and (2), and (4) 600 cfs between at least 10:00 am and 3:00 pm for 3 weekend or holiday days that are different than the days in (1), (2), and (3).

f. In Wet water years, the licensee shall release water stored in Ice House Reservoir to result in the following streamflows between May 1 and June 30: (1) 300 cfs for 4 weekend or holiday days between at least 10:00 am and at least 3:00 pm, (2) 400 cfs between at least 10:00 am and 3:00 pm for 7 weekend, Friday or holiday days that are different than the days in (1), (3) 500 cfs between at least 10:00 am and 3:00 pm for 6 weekend Friday or holiday days that are different than the days in (1) and (2), and (4) 600 cfs between at least 10:00 am and 3:00 pm for 3 weekend Friday or holiday days that are different than the days in (1), (2), and (3).

Recreational Streamflows for South Fork Silver Creek Below Ice House Reservoir Dam

Water Year Type	January – April	May	June	July - December
CD		300 cfs for 2 weekend days[1]		
D		300 cfs for 6 weekend days		
BN		300 cfs for 5 weekend days/holidays **PLUS** 400 cfs for 5 weekend days/holidays **PLUS** 500 cfs for 2 weekend days/holidays		

AN		300 cfs for 5 weekend days/holidays **PLUS** 400 cfs for 5 weekend days/holidays **PLUS** 500 cfs for 3 weekend days/holidays **PLUS** 600 cfs for 3 weekend days/holidays	
W		300 cfs for 4 weekend days/holidays **PLUS** 400 cfs for 7 weekend days/holidays or Fridays **PLUS** 500 cfs for 6 weekend days/holidays or Fridays **PLUS** 600 cfs for 3 weekend days/holidays or Fridays	

1. Flows shall be released between the hours of 10:00 am and 3:00 pm.

All provisions for recreation streamflows are subject to the safe operability of the Project facilities and equipment necessary to provide such streamflows. The licensee shall make a good faith effort to maintain the operability of such Project facilities and equipment and shall not schedule discretionary outages of such Project facilities and equipment in conflict with providing the recreation streamflows described above. The licensee shall make a good faith effort to make scheduled recreation streamflow releases on the days when such releases are forecast to occur.

The recreation streamflows described above 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, and BLM as soon as possible but no later than 10 days after such incident. The described recreation streamflows may also be temporarily modified for short periods in non-emergency situations upon approval of the FS and BLM for areas within their jurisdiction. If the described recreation streamflows are so modified, the licensee shall provide Notice to FERC, FS, and BLM.

Section 28. Public Information Services

The licensee shall annually pay, by October 1, $114,288 (year 2005 cost basis). The cost shall be escalated based on the U.S. Gross Domestic Product – Implicit Price Deflator (GDP-IDP). These funds are to provide information services to visitors. In addition to

funding the annual staffing of the Crystal Basin Information Stations, the licensee shall be responsible for the following additional public information measures:

1. Streamflow and Reservoir Level Information

The licensee shall make recreation streamflow and reservoir level information available to the public via toll-free telephone and internet. Notification of recreation streamflow releases shall be provided at least 7 days in advance of the actual releases. The licensee shall, within 1 year of license issuance, submit a plan to FERC that addresses, at a minimum, information on daily average reservoir stage height for the following reservoirs:

a. Rubicon Reservoir

b. Loon Lake Reservoir

c. Ice House Reservoir

d. Union Valley Reservoir

e. Gerle Creek Reservoir

f. Brush Creek Reservoir

g. Junction Reservoir

The plan shall also address, at a minimum, information on hourly average reservoir stage height and storage for Slab Creek Reservoir.

The plan shall also address real-time streamflows for the following Project-related stream reaches. The plan shall be approved by the FS and SWRCB prior to filing with FERC. Following approval, the minimum streamflow schedules from Appendix A, Section 1, and current water year type information shall be published on the licensee's website.

h. Rubicon River Below Rubicon Reservoir Dam

i. Little Rubicon River Below Buck Island Reservoir Dam

j. Gerle Creek Below Loon Lake Reservoir Dam

k. Gerle Creek Below Gerle Creek Reservoir Dam

l. South Fork Rubicon River Below Robbs Peak Reservoir Dam

m. South Fork Silver Creek Below Ice House Reservoir Dam

n. Silver Creek Below Junction Reservoir Dam

o. Silver Creek Below Camino Reservoir Dam

p. Brush Creek Below Brush Creek Reservoir Dam

q. SFAR Below Slab Creek Reservoir Dam

Within 6 months of completion of the information plan described above, the licensee shall implement the elements described in the information plan. The streamflow and reservoir level information plan may be modified upon mutual agreement of the licensee, FS, CDFG, and SWRCB.

2. Project Recreation Brochure/Map

The licensee shall develop and print one or more brochures and maps that describes the recreation opportunities, recreation facilities, rules, and responsibilities for the area of the Project, including the canyonlands, high country lakes, and streams. The brochure will be provided to the FS for review and approval prior to completion. The licensee shall make the brochure/map available to the public free of charge. The brochure/map shall be made available continuously and shall be updated as conditions change.

3. Interpretive, Education, and Public Information Plan

Within 2 years of license issuance, the licensee, in consultation with the FS and other appropriate agencies and interested parties, shall complete an Interpretive, Education, and Public Information Plan that shall be approved by the FS and filed with FERC. At a minimum, the plan shall include themes, design, audience, delivery methods, and schedule for implementation for providing up-to-date information such as: sightseeing, hiking, observing wildlife, and utilizing facilities such as boat ramps, campgrounds, and beaches. The licensee shall coordinate this plan with the licensee for the Chili Bar Hydroelectric Project, FERC No. 2155.

Section 29. Fish Stocking

The licensee shall provide 50,000 pounds of fish per year to be distributed among Loon Lake, Union Valley, and Ice House Reservoirs as determined by CDFG.

Section 30. Visual Resource Protection

1. The FS and licensee shall meet every 5 years to review opportunities to improve how well Project facilities blend in with the surrounding landscape. The type of rehabilitation/reconstruction work needed will be dependent on current policies,

technologies, condition of facilities, impacts to surrounding areas, and other factors.

2. During planning and prior to any new construction or maintenance of facilities that have the potential to affect visual resources of National Forest System lands (including but not limited to the recreation related construction), the licensee shall file with FERC, a plan approved by the FS for the protection and rehabilitation of National Forest System visual resources affected by the Project. At a minimum, the plan shall address clearings, spoil piles, and Project facilities like diversion structures, penstocks, pipes, ditches, powerhouses, other buildings, transmission lines, corridors, and access roads. The plan shall address facility configurations, alignments, building materials, colors, landscaping, and screening. The Plan shall provide a proposed mitigation and implementation schedule to bring the Project facilities affecting visual resources on National Forest System lands into compliance with visual resource standards and guidelines in the Eldorado National Forest Land and Resource Management Plan.

   Mitigation measures identified for either the visual resource plan for new construction or the measures identified for existing facilities shall include, but are not limited to: (1) surface treatments with FS approved colors and natural appearing materials that will be in harmony with the surrounding landscape, (2) use of non-specular conductors for the transmission lines, (3) use of native plant species to screen facilities from view, (4) reshaping and revegetating disturbed areas to blend with surrounding visual characteristics, and, (5) locating transmission facilities to minimize visual impacts.

3. The following mitigation measures to existing facilities will be performed to improve visual quality reductions within 2 years of license issuance:

   a. Rubicon Reservoir. Paint the metal components of the gaging station, intake booms, telemetry facilities and cable crossing and bucket a non-reflective black color. Perform a visual inspection every 2 years and touch-up or re-paint as necessary to maintain the facility in good condition. Replace galvanized chain link fence at tunnel outlet with black fencing.

   b. Robbs Peak Forebay. Paint galvanized railings with non-reflective black paint. Perform a visual inspection every 2 years and touch-up or re-paint as necessary to maintain the facility in good condition. Replace galvanized chain link fence with black vinyl fencing with black posts. Powder coating is preferred over painted metal. Paint or stain building roof a dark gray color to be approved by the FS.

   c. Robbs Powerhouse Facilities. Paint all paintable surfaces the same color as the Robbs Penstock.

d. Union Valley Dam and Sub-station. Sand-blast white paint from guardrail. Paint non-reflective black or replace with core-ten guardrail. Replace all chain link fence with black vinyl fencing with black posts. Powder coated posts are preferred over painted metal.

e. Loon Lake Sub-station. Paint doors on building dark gray.

f. Loon Lake Passive Reflector (Wentworth Peak). Move the reflector from the skyline to a location with a back-drop. Paint a camouflage design on reflector in colors that allow it to blend in with the natural surroundings. If re-location is not possible because of site-line, investigate alternative technology to replace the facility with a structure with less visual impact.

g. Loon Lake Gate Shaft. Paint roof and building colors approved by the FS.

h. Gerle Reservoir Dam. Paint handrail and guardrail non-reflective black.

i. Licensee-owned Weather Stations. Paint all reflective components with non-reflective black paint.

j. Jones Fork Penstock. Paint the same color as the Robbs Penstock.

Section 31. Heritage Resources

Within 6 months after license issuance, the licensee shall complete a Heritage Properties Management Plan (HPMP) for FS approval. The HPMP will be incorporated into the Programmatic Agreement (PA) by reference. The HPMP will take into account Project effects on prehistoric and historic resources, Native American traditional cultural values, direct and indirect effects to heritage resources within the area of potential effect, ethnographic studies, historic archaeological studies, and Project-related recreation impacts to archaeological properties affecting National Forest System lands. The HPMP shall also provide measures to mitigate the identified impacts, a monitoring program, and management protocols for the ongoing protection of archaeological properties. The plan shall be filed with FERC. The licensee shall implement the plan upon approval.

Section 32. Heritage 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 the FS and shall not resume work on ground disturbing activities until it receives written approval from the FS.

If it deems it necessary, the 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 the FS.

Section 33. Transportation System Management

1. Transportation System Management Plan

Within 1 year of license issuance, the licensee shall file with FERC a Transportation System Management Plan that is approved by the FS for roads on or affecting National Forest System lands. The plan shall establish the level of licensee responsibility for Project-related roads. The licensee shall have primary responsibility for non-system roads and for maintenance level 1 and 2 roads. There shall be shared levels of responsibility for maintenance level 3, 4, and 5 roads. The FS shall make available to the licensee all information it has about these roads. The licensee shall implement the plan upon approval. At a minimum the Plan shall:

a. Include a map showing all roads, both FS system roads (classified), and FS non-system (unclassified) roads associated with the Project.

b. Identify and list on a spreadsheet the Project-related uses of all roads described above, including an estimate of the amount of use by season of the year.

c. Identify and list the condition of the roads described above that are determined to be the primary responsibility of the licensee, including any construction or maintenance needs. Information shall include length and width of road, location and size of culverts, grade, slope position, hydrologic connectivity, surfacing, and jurisdiction sufficient for the FS to complete the roads use permit Exhibit A and to complete any required Roads Analysis.

d. Include a map of a Traffic Safety and Signage plan for all roads described above that are determined to be the responsibility of the licensee. Include both safety and destination/distance information signs at major road intersections and features. An inventory of all signs, together with photographs of each sign, shall be included. Mapping shall be completed using global positioning system (GPS) instrumentation and made available as a digital format layer. Signs shall conform to FS Manual direction and the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).

e. Include a map of all drainage crossings of bridges and culverts for all roads described above that are determined to be the responsibility of the licensee. Provide hydraulic calculations verifying that all intermittent and

perennial stream crossings shall pass a 100-year storm event and associated bedload and debris, and allow fish passage through all culverts identified as fish habitat areas. The licensee shall develop a plan for FS approval to upgrade those culverts not meeting this standard. Priority for upgrading will be based on the potential impact to the ecological value of the riparian resources affected.

f. Address measures to control erosion related to Project facilities on or affecting National Forest System lands, including dams, roads, penstocks, powerlines, transformer sites, reservoirs, and reaches. Consider stream sedimentation, dust, and soil movement induced by Project roads and road maintenance activities, preventing loss of roads through ongoing hillside erosion, sediment management of roads within 150 feet of the river, and diversion prevention dips in specified areas to minimize damage from culvert failure.

g. Identify helispots routinely used to access Project facilities on National Forest System lands, including any staging areas and access roads. Include notification standards for FS (Camino dispatch), including radio frequencies and N (tail) numbers.

h. Include a map showing easements or other right of way agreements for all roads, associated with the Project and identify roads for which an easement or right of way is needed. Implementation shall include acquisition of any needed easements or right of ways.

Every 5 years, the licensee shall prepare a 5-year plan to identify the maintenance and reconstruction needs for roads associated with the Project. The licensee shall file the plan with FERC after approval by the FS. All road maintenance and construction shall meet FS specifications and best management practices.

The licensee shall construct, operate, and maintain Project facilities, including roads, parking and storage lots, reservoir shorelines, bridges, and culverts to maintain natural fluvial and colluvial sediment transport to the Project reaches, as far as feasible.

All road maintenance and construction shall meet FS specifications and best management practices.

2. Specific Transportation Needs

a. Within 5 years of license issuance, the licensee shall pave the access road from the existing pavement at Northshore Recreational Vehicle Campground across the dam to the Ellis Creek staging area.

b. Within 5 years of license issuance, the licensee shall improve, by reconstructing and asphalt concrete paving, the "North Union Valley Road" (a system of connecting roads consisting of 12N78-Union Valley, 12N52-Wolf Creek, and 12N30-Deer Knob Peavine; this described work extends from the intersection of 12N78 and Yellow Jacket Campground access road westerly to the West Point boat ramp access road). The work shall be meet design and construction standards approved by the FS. Land acquisition and/or right of way acquisition may be necessary where easements do not currently exist. In addition, improvement of the North Union Valley Road shall include:

- Control of motorized recreational use along both sides of the road.
- Adequate directional and information signing along roadway.
- Paved turnouts and/or parking pockets with barriers along the road, where undeveloped parking and user-created access trails have been created, to restrict vehicle access (see also Appendix A, Section 20, Union Valley Bike Trail).

c. Within 10 years of license issuance, the licensee shall close the road to Junction Reservoir Dam (FS Road 12N30D) to public access and construct a turnaround/parking area for one to two vehicles.

d. Within 5 years of license issuance, the licensee shall realign and construct the Wrights Lake Tie Road (FS Road 11N37) to improve the intersection with the Ice House Campground entrance road to facilitate traffic flow away from the campground.

e. Within 5 years of license issuance, the licensee shall improve, by reconstructing and asphalt concrete paving, the Lakeshore Road (FS Road 11N52 from the intersection of the Strawberry Point Campground access road to the end of the road) to design and construction standards approved by the FS. Land acquisition and/or right of way acquisition may be necessary where easements do not currently exist. In addition, improvement of this segment of the Lakeshore Road shall include:

- Control of motorized recreational use along both sides of the road.
- Adequate directional and information signing along roadway.
- Paved turnouts and/or parking pockets with barriers along the road, where undeveloped parking and user-created access trails have been created, to restrict vehicle access (see also Appendix A, Section 19, Ice House Mountain Bike Trail).

3. Snow Plowing

The licensee shall annually provide to the FS for review, prior to the snow plowing season, a snow plowing plan that addresses public safety and access.

Section 34. Trails System Management

1. Trails System Management Plan

   Within 1 year of license issuance, the licensee shall file with FERC a Trails System Management Plan that is approved by the FS for the trails that are needed for Project operations and are located on or affect National Forest System lands. The licensee shall implement the plan upon approval. At a minimum the Plan shall:

   a. Include a map showing the location of all trails, both FS system (classified) trails and FS non-system (unclassified) trails associated with the Project.

   b. Map trail locations using a global positioning system (GPS), software, pre- and post-processing standards, collection standards and data dictionary approved by the FS, to ensure that data collected meet national standards.

   c. Identify the season(s) of use and the amount of use by the licensee for each trail annually.

   d. Identify the condition of the trails described above, including any construction or maintenance needs.

   Every 5 years, the licensee shall prepare a 5-year plan identifying maintenance and reconstruction needs for trails required for Project operations. The licensee shall file the plan with FERC after approval by the FS. All trail maintenance and construction shall meet FS specifications and best management practices.

2. Specific Trail System Needs

   See Appendix A, Section 19.

Section 35. Facility Management

Within 1 year of license issuance, the licensee shall file with FERC a Facility Management Plan that is approved by the FS. The licensee shall implement the plan upon approval. At a minimum, the Plan shall:

1. Include a map showing all Project facilities, including structures on or affecting National Forest System or BLM lands (and associated water and septic systems, and other utilities); above- and below-ground storage tanks; etc.

2. Identify the type and season of use of each structure.

3. Identify the condition of each structure, and planned maintenance or removal.

Every 5 years, the licensee shall prepare a 5-year plan that will identify the maintenance, reconstruction, and removal needs for Project facilities, including transmission lines. The licensee shall file the plan with FERC after approval by the FS.

Transmission lines shall not be removed from the FERC license until the licensee has obtained the appropriate rights of way or permits for transmission lines that affect National Forest System or BLM lands.

Section 36. Vegetation Management Plan

The licensee shall file with FERC, within 2 years of license issuance or prior to any ground-disturbing activities, a Vegetation Management Plan that is approved by the FS. At a minimum the plan shall:

1. Identify and prioritize (into high, moderate, and low priority sites) all inadequately vegetated areas to be re-vegetated or rehabilitated along with an implementation schedule.

2. List the plant species to be used along with planting locations, methods, and densities (emphasis shall be given to use of native plant species, especially those with cultural importance). Emphasis shall also be given to using seed from certified weed-free sources and using seed from local sources.

3. Address vegetation management under existing project-associated distribution and transmission lines on National Forest System lands.

Section 37. Fire Prevention Plan

Within 1 year of license issuance or 60 days prior to any ground-disturbing activity, the licensee shall file with FERC a Fire Prevention Plan that is approved by the FS in consultation with appropriate State (California Department of Forestry and Fire Protection) and local fire agencies. At a minimum, the licensee shall:

1. Address availability of fire access roads, community road escape routes, helispots to allow aerial firefighting assistance in the steep canyon, water drafting sites in the river that meet resource concerns, and other pre-fire suppression strategies.

2. Identify fire hazard reduction measures (e.g., eliminating ladder fuels, reducing fuel loading, clearing around fire rings and dispersed camping areas, thinning and slash treatment 50 feet on either side of designated and developed trails, fuelbreaks) to prevent the escape of project-induced fires.

3. Analyze fire prevention needs to ensure that prevention equipment and personnel are available. Provide the FS a list of the location of available fire-prevention equipment and the location and availability of fire prevention personnel.

4. Develop fire prevention restrictions based on fire danger that are consistent with adjacent public land ownership for Project-related recreation on licensee lands. Implement these measures through signage and patrols, as necessary.

5. See Vegetation Management Plan condition for related prescribed fire treatment measures.

Section 38. Law Enforcement

The licensee shall annually pay, by October 1, $147,746 (year 2005 cost basis). The cost shall be escalated annually based on the U.S. Gross Domestic Product – Implicit Price Deflator (GDP-IDP). These funds are for the FS to provide for law enforcement officers with the full range of law enforcement authority, including arrest authority. These funds will provide for Project-wide enforcement of rules and regulations in relations to resource protection, law enforcement investigations, public protection, responding to fires and other emergencies, assistance in search and rescue, and law enforcement administration and planning. The funds provided by the licensee, will be used in conjunction with funds provided by the FS.

Section 39. License Term

The license term should be 30 years unless the licensee constructs the Iowa Hill Pumped Storage Project.

Appendix B

Protection, Mitigation, and Enhancement Measures for the Chili Bar Project, FERC No. 2155, Including the Reach Downstream of Chili Bar Reservoir Dam to Folsom Reservoir

Section 1. Minimum Streamflows

The licensee shall, beginning as early as reasonably practicable within 3 months after license issuance, maintain minimum streamflows in SFAR below Chili Bar Reservoir Dam. For compliance purposes, the point of measurement for the required minimum streamflows is described in the title to the minimum streamflow schedule. All specified streamflows are in cubic feet per second (cfs). The schedule specifies minimum streamflows, by month and water year type.

The minimum streamflows specified in the schedules may be temporarily modified if required by equipment malfunction or operating emergencies reasonably beyond the control of the licensee. If the streamflow is so modified, the licensee shall provide Notice to FERC, BLM, CDFG, and the SWRCB as soon as possible, but no later than 10 days after such incident. The minimum streamflows specified may also be temporarily modified for short periods in non-emergency situations 5 days after Notice to FERC, and upon approval of the CDFG, BLM, and SWRCB.

Where facility modification is required to maintain the specified minimum streamflows, the licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to such required facility modifications, the licensee shall make a good-faith effort to provide the specified minimum streamflows within the capabilities of the existing facilities.

In order for the licensee to adjust operations to meet the required minimum streamflows, the licensee shall have a 3-year period after the license is issued or 3 years after completion of necessary facility modifications, whichever is later, in which daily mean streamflows may vary up to 10 percent below the amounts specified in the minimum streamflow schedules, provided that the average monthly streamflow in any given month equals or exceeds the required minimum amount for the month. After the applicable period, the licensee shall meet the minimum streamflow requirements specified in the minimum streamflow schedules.

Water Year Types. The minimum streamflow schedules have been separated into six water year types: Wet, Above Normal (AN), Below Normal (BN), Dry, Critically Dry (CD), and Super Dry (SD). The licensee shall determine water year type based on the predicted unimpaired inflow to Folsom Reservoir and spring forecasting information provided by the California Department of Water Resources Bulletin 120 report of water conditions in California each month from February through May. The water year types are defined as follows:

Wet = greater than or equal to 3.5 MAF
AN = greater than or equal to 2.6 MAF but less than 3.5 MAF
BN = greater than 1.7 MAF or equal to but less than 2.6 MAF
Dry = greater than 0.9 MAF or equal to but less than 1.7 MAF
CD = less than 0.9 MAF
SD = any CD year that is immediately preceded by a Dry or CD year or any Dry year that is immediately preceded by any combination of two Dry or CD years.

Each February through May the licensee shall make a monthly forecast of the water year type and operate for that month based on that forecast. The May forecast shall be used to establish the final water year type for the remaining months of the water year. The water year type for the months of October through January shall be based on the Department of Water Resources' Full Natural Flow record for the American River at Folsom for the preceding water year. The licensee shall provide Notice to FERC, CDFG, BLM, and SWRCB of the final water year type determination within 30 days of making the determination.

South Fork American River Below Chili Bar Reservoir Dam							
	Month		Minimum Streamflow by Water Year (cfs)				
		SD	CD	DRY	BN	AN	WET
	OCT	150	185	200	250	200	250
	NOV	150	185	200	200	200	250
	DEC	150	185	200	200	200	250
	JAN	150	185	200	200	200	250
	FEB	150	185	200	200	200	250
	MAR	150	185	200	200	200	250
	APR	150	200	250	250	300	350
	MAY	150	200	250	250	350	500
	JUNE	200	200	250	250	350	500
	JULY	150	185	200	250	300	350
	AUG	150	185	200	250	300	300
	SEPT	150	185	200	250	200	250

Section 2. Ramping Rates

The licensee shall, beginning as early as reasonably practicable within 3 months after license issuance, use the following ramping rates for licensee-controlled streamflow releases:

South Fork American River Below Chili Bar Reservoir Dam Ramping Rates	
Ramp Up	Ramp Down
500 cfs per hour for flows between 150 and 1,000 cfs	1 foot/hour for flows between 1,950 and 1,000 cfs
1 foot per hour for flows between 1,000 and 1,950 cfs	500 cfs per hour for flows between 1,000 and 600 cfs
	250 cfs per hour for flows between 600 and 150 cfs

Where facility modification is required to provide the specified ramping rates, the licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to such required facility modifications, the licensee shall make a good faith effort to provide the specified ramping rates within the capabilities of the existing facilities.

The licensee shall make available to the BLM, CDFG, and SWRCB the streamflow records related to ramping 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 the BLM, CDFG, and SWRCB 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.

Section 3. Coordinated Operations

The licensee shall coordinate operations with the licensee of the Upper American River Project, FERC No. 2101, in order to comply with the minimum streamflows, pulse flows, ramping rates, and recreational streamflows for both projects.

Section 4. Monitoring Program

1. Fish Populations

Method: Electrofishing and/or snorkeling (as conducted in 2002-2003 by the licensee) at the following stations:

SFAR below Chili Bar Reservoir Dam (snorkeling sites upper and lower sample section of sites CB-F1 and CB-F4).

Frequency: Rainbow trout and brown trout: Years 5, 6, 10, 11, 15, 16, 20, 21, 25, 26, 30, 31. Any hardhead that are detected shall be noted.

Rationale: Sampling for 2 years in the beginning of each 5-year period provides a mean of 2 years for comparison to the ecological resource objective and reduces electroshocking effects to individuals, with sufficient response time to the new streamflow regimes.

2. Aquatic Macroinvertebrates

Method: A method accepted by BLM, CDFG, and SWRCB. The results shall be compared to an aquatic health Index approved by the FS, CDFG, and SWRCB. The following sites shall be included:

SFAR below Chili Bar Reservoir Dam (CB-I1 and CB-I4).

Frequency: Years 5, 6, 10, 11, 15, 16, 20, 21, 25, 26, 30.

Rationale: Compare sites to ensure they have improvement if impaired or maintenance if not (California Energy Commission IBI).

3. Amphibians & Reptiles (Habitat Evaluation & Determination of Species Presence/Distribution for Foothill yellow-legged frog (FYLF), California red-legged frog (CRLF), and Western pond turtle (WPT))

Method: Conduct protocol surveys for special status, FS sensitive, and listed amphibian species (FYLF, CRLF, and WPT) using the procedures of the FWS and the Pacific Gas and Electric Company (2002) in a sub-sample of appropriate habitat types to document species presence and distribution. Identify amphibian breeding and larval periods in Project-affected reaches by periodically surveying reaches of known presence during spring/summer. The licensee shall also survey for WPT and CRLF during amphibian and reptile surveys.

The first year of surveys shall be to determine the timing and success of the following life stages of existing known populations: egg laying, tadpole rearing, metamorphosis, and size/condition of metamorphs in late September to estimate probability of overwintering success. For subsequent years, the BLM, FWS, CDFG, and SWRCB may approve a subset of survey sites or a less intensive program, based on review of the first year's data. In the future, BLM, FWS, CDFG, and SWRCB may request additional breeding site habitat data to assess the cause of unexpected or chronic reproductive failures that may be related to Project operations. The licensee shall also survey for WPT during FYLF surveys.

Monitoring Sites:

SFAR below Chili Bar Reservoir Dam (entire reach from CB-A15 to Ponderosa Campground on right and left banks).

Frequency: Years 2, 3, 5, 6, 10, 11, 15, 16, 20, 21, 25, 26, 30.

Rationale: Determination of presence and distribution of special-status amphibian and reptile species and identification of breeding and larval periods are important in evaluating potential impacts resulting from streamflow modifications (particularly short-term fluctuations). FYLF, CRLF, and WPT monitoring shall determine if any threshold is reached from project flow changes or fluctuations where these species are being affected in any life stage. Monitoring around each 5-year period provides an index of changes in amphibian and reptile populations, following sufficient response time to streamflow modifications.

4. Riparian Vegetation Species Composition

Method: Aerial photo flights and Greenline method at the five Intensive Field Study Sites (riparian) that were surveyed in the Riparian Study.

Frequency: Every 5 years.

Rationale: Monitoring at the end of each 5-year period provides an index of changes in riparian conditions over that period of modified streamflow (it should be noted that, depending on the water year cycle that occurs, 5 years may be a relatively short response time for riparian vegetation).

5. Geomorphology (Continuing Evaluation of Representative Channel Areas)

Method: Establishment and monitoring of permanent cross-section transects, longitudinal profiles, and channel properties in representative channel areas (Rosgen Level 3). Measurement of cross-section profile and substrate composition at each transect. The following sites shall be evaluated:

> SFAR below Chili Bar Reservoir Dam (1 mile downstream of CB-G1, CB-G2, and CB-G3).

Frequency: Years 5, 10, 15, 20, 25, 30.

Rationale: Monitoring of permanent cross-sections, in combination with channel properties, provides the basis for evaluating changes in channel condition. Sampling as part of the relicensing process has provided baseline data prior to streamflow modification and/or measurable response to streamflow modification. Monitoring at the end of each 5-year period provides an index of changes in channel condition relative to changes in streamflow regime.

6. Water Temperature

The licensee shall, within 1 year following license issuance, develop and file with FERC a Water Temperature Monitoring Plan that has been approved by the Chief of the Division of Water Rights for the SWRCB. Within 3 months of license

issuance, the licensee shall consult with the BLM and CDFG on the development of a Plan consistent with the method and frequencies described below. The licensee shall provide the draft Plan for a minimum 90-day review by the SWRCB, BLM, and CDFG. The licensee shall implement the plan upon approval by FERC.

Method: Continuous temperature recording devices shall be installed and maintained at a minimum of four stream temperature stations as designated below. Reservoir temperature profiles may be added if the BLM, CDFG, and SWRCB determine that reservoir temperatures are a controllable factor in the Chili Bar stream reach or if impoundment chemistry dictates a need for additional temperature considerations. Initial monitoring sites shall be determined in consultation with BLM, CDFG, and SWRCB, and up to two additional stream sites may be added if temperature problems are identified. Approval of final monitoring sites shall be made by the BLM and SWRCB.

At a minimum, the temperature plan shall address compliance gaging at the following locations:

a. SFAR immediately below Chili Bar Dam.

b. SFAR upstream of Dutch Creek confluence.

c. SFAR immediately upstream of Camp Lotus.

d. SFAR immediately upstream of Greenwood Creek.

Frequency: For streams, from March 15 through October 15 in all years after license issuance until a subsequent license is issued or until it can been demonstrated by the licensee that operation of the project reasonably protects the "cold freshwater" beneficial use as determined by the BLM, SWRCB, and CDFG. For Chili Bar Reservoir, if a determination as described above is made by BLM, SWRCB, and CDFG, seasonal temperature profiles shall be monitored at applicable locations within the reservoir during multiple water year types to develop data necessary for decision-making.

Rationale: Temperature monitoring is needed during summer on an annual basis to determine if the cold water ecological resource objective is being met in designated Project reaches. Temperature monitoring is needed during spring to evaluate breeding conditions for amphibians. Temperature monitoring in the reservoir would be needed to understand the extent of cold water availability. Some temperature stations may be deleted if CDFG, BLM, and SWRCB find sufficient temperature data have been collected and find no temperature issue exists for the relevant area.

7. Water Quality

Within 3 months of license issuance, the licensee shall consult with the BLM, CDFG, SWRCB, and RWQCB on the development of a draft Water Quality Monitoring Program Plan (Plan). The Plan shall include the water quality monitoring elements listed below, and must (1) provide detail on field sampling locations, sampling frequency, handling methods and QA/QC; and (2) define the laboratory analyses and associated method detection limits for all constituents and parameters to be monitored in the various elements of the monitoring program. Following consultation, and within six months of license acceptance, the licensee shall submit the draft Plan for review and approval by the Chief, Division of Water Rights, State Water Resources Control Board. The final Plan shall be filed with FERC for approval. The approved Plan shall be implemented by the licensee as described, through the life of the license. The Plan may be modified pursuant to adaptive management program needs as recommended by the BLM, CDFG, and RWQCB and approved by the SWRCB and FERC.

Water Chemistry Monitoring

Method: The licensee shall conduct a water chemistry sampling program designed to demonstrate seasonal conditions at all reservoir and stream locations described in the Project No. 2101/2155 relicensing Water Quality Study Plan (Plenary approval, January 8, 2003). Unless otherwise identified through Plan development (above), both "triage" and "contingent" sampling locations defined in the relicensing Water Quality Study shall be included as required post-licensing monitoring sites for the water chemistry monitoring element. Laboratory analyses shall be conducted using USEPA Standard Methods adequately sensitive to detect constituent levels for determination of compliance with recognized state and federal criteria.

a. *In situ* physical parameters (pH, water temperature, dissolved oxygen, specific conductance, and turbidity) shall be sampled at representative locations in the SFAR downstream of the Chili Bar Reservoir. *In situ* physical parameters shall be monitored in Chili Bar Reservoir as vertical profiles collected at 1-meter intervals from surface to bottom.

   Frequency: In stream reaches, once seasonally in spring (April-May), summer (August), fall (November) and winter (January-February) each year after license issuance. In Chili Bar Reservoir, in spring (April-May and fall (October-November) each year after license issuance.

   Rationale: To monitor for compliance with state and federal water quality standards and track potential changes in surface waters associated with Project No. 2155 operations.

b. General chemistry monitoring (*in situ* parameters, minerals, nutrients, metals [total and dissolved fractions], measured hardness, and petroleum

products) shall be conducted. General chemistry samples shall be collected from Chili Bar Reservoir and at a minimum of three representative sites along the SFAR between Chili Bar Dam and the confluence of Greenwood Creek. Reservoir samples shall be collected at the surface and near the bottom at multiple, representative locations.

Frequency: Seasonally in spring, summer, fall, and immediately following the third rain of the fall-winter period, once every 5 years beginning in year 3 after license issuance.

Rationale: To monitor for compliance with state and federal water quality standards and track potential changes in surface waters associated with Chili Bar Hydroelectric Project operations. Monitoring at 5-year intervals will provide an index of changes in water quality conditions. Data collected will allow for the development of a long-term trend analysis in water regulated by project features and operations.

Bacterial Monitoring

Method: The licensee shall conduct bacterial monitoring consistent with Basin Plan objectives for protection of the REC-1 beneficial uses annually, at a minimum of eight shoreline recreational locations in the Project-affected reach. Sampling locations shall be selected based on criteria that include: (1) swimming and other water contact recreation activities are known to occur in the area, and (2) there are sources for potential introduction of pathogens to the water column in the immediate vicinity.

Candidate sites for annual REC-1 pathogen monitoring will include developed recreation sites and frequently used white water boating take-out sites along the Chili Bar reach of the SFAR. The bacterial monitoring program shall include sampling at a minimum of four swim beach sites including the Coloma and Camp Lotus areas, along with four other selected stations. Five near-shore samples shall be collected at each of the eight sampling locations during the 30-day period that spans either the Independence Day Holiday (June-July) or the Labor Day Holiday (August-September), using the five samples in 30-day methodology or other protocol as amended in the Basin Plan.

The licensee, in consultation with the BLM, CDFG, SWRCB, and RWQCB shall determine sampling locations for each upcoming field season. Licensee shall consult with SWRCB and other listed parties for final determination of the locations to be sampled no later than May 31 of each designated sampling year.

Frequency: Bacterial monitoring shall be conducted annually for the first 5 years after license issuance, then may be decreased in frequency to every other year if data demonstrates no exceedances of the Basin Plan bacterial objective for protection of REC-1 designated waters during Years 1 through 5. If data

demonstrate bacterial concentrations that present risks to human health at specific stream sites, the program shall continue annually, through the life of the license.

Rationale: The Project provides water contact recreational opportunities that include swimming, angling, and white water boating. Monitoring will be conducted to demonstrate summer bacterial concentrations at swim beaches and recreational areas influenced by Project operations, to ensure that pathogen levels are recognized and do not exceed the thresholds acceptable for protection of human health.

Metals Bioaccumulation Monitoring

Method: The licensee shall monitor for potential uptake of mercury, copper, lead, and silver through the aquatic food chain resident in Chili Bar Reservoir. Resident fish species from Chili Bar Reservoir shall be collected to determine tissue residue levels of mercury, copper, lead, and silver. Target species, numbers of individuals, sampling strategy, and analytical methods used shall be consistent with Surface Water Ambient Monitoring Program needs (State Water Resources Control Board), and shall be defined prior to each sampling event through licensee consultation with BLM, CDFG, SWRCB, RWQCB, and the state Office of Environmental Health Hazard Assessment. Fish tissue samples shall be collected and analyzed for rates of bioaccumulation once every 5 years beginning in the first year after License issuance, and monitoring shall continue through the term of the New Project License.

Frequency: Once every 5 years beginning in year 2 following license issuance.

Rationale: Reservoirs have the potential to impound sediments and organic materials that may transport bound metals. Impounded metals have the potential to concentrate and become bioavailable to aquatic organisms. Metals that are bioacummulated in the aquatic prey-base may bioconcentrated up through the food chain where elevated levels could become health risks to human and wildlife consumes. Monitoring at 5-year intervals will provide an index of changes in fish body burdens of silver, mercury, copper, and lead.

Algae Monitoring

Method: *Didymosphenia genminata* (invasive diatomaceous algae) monitoring shall be completed in conjunction with the annual water quality monitoring for the in the SFAR downstream of Chili Bar Reservoir Dam.

Frequency: The licensee shall monitor the presence or absence of this algae annually in conjunction with the other water quality monitoring.

Rationale: There is a known invasive diatomaceous algae (*Didymosphenia geminata*) blanketing the bottoms of some western streams and there is concern

about potential adverse effects upon aquatic ecosystems (National Institute of Water and Atmospheric Research, Ltd. 2004).

Overall Water Quality Program Rationale

Through the water quality monitoring program the licensee will monitor compliance with state and federal water quality standards and track potential changes in surface waters associated with the UARP and Chili Bar Hydroelectric Project operations. The monitoring program will provide data necessary to develop a long-term water quality trend assessment through the life of the FERC licenses. Data collected will provide water quality regulators the opportunity to identify trends of risk to human health and wildlife, and to design possible measures to intervene in this degradation. Water quality monitoring will focus on the identification of inorganic constituent levels and physical parameters, along with bacterial concentrations that may impair beneficial uses designated for waters impounded by the project and releases to diverted reaches downstream of Projects' reservoirs.

8. Recreation Survey

Monitoring associated with the recreation survey is described in Appendix B, Section 13.

9. Review of Recreation Developments

Monitoring associated with the review of recreation developments is described in Appendix B, Section 13.

10. Coordinated Operations

Monitoring associated with coordinated operations is described in Appendix B, Section 5.

Section 5. Adaptive Management Program

The licensee shall, beginning as early as reasonably practicable within 3 months after license issuance, implement an adaptive management program as described below. The program generally consists of: (a) implementation of a monitoring program and (b) specific adaptive management measures that shall be implemented if the monitoring program and other information indicate that the applicable resource objectives identified in the Rationale Report will likely not be met without adjustment of the initial conditions.

Monitoring shall be conducted to determine if the applicable resource objectives are achievable and being met. Analysis of the monitoring results from a specified period shall be used to determine implementation of adaptive management measures. Adaptive

management decisions shall be based on monitoring results and other scientific information and a determination that the applicable ecological resource objectives identified in the Rationale Report are not being met and will likely not be met without application of the adaptive management measures.

For purposes of the adaptive management program, each year is defined on a calendar year basis (i.e., January through December). Year 1 is defined as the first year during which all initial streamflows required by the license are implemented by May 1.

10. Monitoring Program

The licensee shall, within 3 months of license issuance, implement the monitoring program described in Appendix B, Section 4.

11. Coordinated Operations

Coordinated operations, described in Appendix B, Section 4, will be reviewed annually to determine if they are effective in achieving the ecological and recreational streamflows downstream of Chili Bar Reservoir Dam. If they are not effects, other measures shall be investigated to achieve the streamflow requirements, including dredging of Chili Bar Reservoir Dam and changes in incremental storage.

3. Sediment Management

Based on results of geomorphology monitoring and the Sediment Budget Plan in Appendix B, Section 6, if there is a need to dredge reservoirs during the license term, the licensee shall place sediment that results from the dredging in SFAR below Chili Bar Reservoir Dam in consultation with BLM, SWRCB, and CDFG, if it is determined appropriate by BLM, SWRCB, and CDFG.

Section 6. Sediment Budget Plan

Within 5 years after license issuance the licensee will develop a Sediment Budget Plan for the SFAR below Chili Bar Reservoir Dam to Folsom Reservoir using a method approved by BLM, CDFG, and SWRCB based on the following information: bedload transport modeling, riparian ecology, and channel geomorphology. The purpose of the plan is to determine the amount of material necessary to balance streamflow and sediment input. The goal would be to stop further incision of the streambed, reduce the steepening and destabilization of channel banks, and achieve proper functioning condition of the channel.

Section 7. Large Woody Debris

The licensee shall ensure that mobile instream large woody debris continues downstream beyond Chili Bar Reservoir Dam. At a minimum, all sizes greater than both 20 centimeters wide and one-half bankfull width in length shall be allowed to continue downstream beyond the dam. Smaller sizes are also allowed but are not required to be moved beyond the dam.

Section 8. Streamflow and Reservoir Elevation Gaging

The licensee shall, within 1 year after license issuance, develop and file for FERC approval a Streamflow and Reservoir Elevation Gaging Plan (gaging plan) that meets United States Geological Survey (USGS) standards. The licensee shall provide copies of the gaging plan and USGS review results to the BLM, SWRCB, CDFG, and FERC. The plan shall be approved by the Chief of the Division of Water Rights for the SWRCB prior to filing with FERC. The licensee shall implement the plan upon approval.

At a minimum, the plan shall address compliance gaging at the following locations:

1. Streamflow Gaging Locations

   SFAR Below Chili Bar Reservoir Dam

2. Reservoir Elevation Gaging Locations

   Chili Bar Reservoir

Section 9. Wildlife and Plant Protection Measures

1. Before commencing any new construction or maintenance (including but not limited to proposed recreation developments) authorized by the license on BLM lands that may affect a BLM sensitive plant or wildlife species or its habitat, the licensee shall ensure that a biological evaluation (including necessary surveys) is completed that evaluates the potential impacts of the action on the species or its habitat and follows the recommendations in the biological evaluation determined necessary by the BLM. The operations and maintenance plan referenced in Appendix B, Section 11, will assist the BLM in determining whether a biological evaluation is necessary for any annual maintenance. The biological evaluation must be approved by the BLM. In consultation with FERC, the BLM may require mitigation measures for the protection of sensitive species. Before commencing any activities to construct (including but not limited to proposed recreation developments), operate, or maintain the Project that may affect a species proposed for listing or listed under the federal Endangered Species Act, or that may affect that species' critical habitat, the licensee shall ensure that a Biological Assessment that evaluates the potential impacts of the action on the species or its critical habitat is prepared and reviewed by the BLM prior to the licensee submitting the Biological Assessment to the relevant Service agency (FWS or National Marine

Fisheries Service) for consultation or conference in accordance with the Endangered Species Act.

2. If occurrences of BLM sensitive plant or wildlife species are detected prior to or during ongoing construction, operation, or maintenance of the Project or during Project operations, the licensee shall immediately notify the BLM, CDFG, and FWS. If the BLM determines that the Project-related activities are adversely affecting the sensitive species, the licensee shall, in consultation with the BLM, CDFG, and FWS, develop and implement appropriate protection measures.

Section 10. Noxious Weeds

Within 6 months after license issuance, the licensee shall file with FERC a plan approved by the BLM for the prevention and control of Project-related noxious weeds. The plan shall include (a) areas to be surveyed to determine existing noxious weed populations on or affecting BLM lands, (b) a monitoring plan that details ongoing yearly monitoring surveys conducted to detect any new noxious weed occurrences from Project construction, operation, or maintenance activities, the corrective measures that will be taken if Project-related noxious or exotic weeds are found, and the prevention measures employed to minimize the risk of weed introductions, (c) a requirement for an annual written report documenting the results of the monitoring and all known noxious weed populations within the Project area, and (d) a description of how licensee shall clean construction equipment before entering Project areas and ensure that seeds of noxious weeds are not introduced into construction areas. Once the plan has been approved by the BLM, it must be filed and approved with FERC. The licensee shall implement the plan upon issuance of the new Project license.

Section 11. Annual Review of Ecological Conditions

Each calendar year, by April 1, the licensee shall schedule and facilitate a meeting with the CDFG, BLM, and SWRCB to review and discuss the results of implementing these conditions, as well as to discuss other issues related to preserving and protecting ecological values affected by the Project. The licensee shall make available to the BLM, CDFG, and SWRCB 2 weeks prior to the meeting, an operations and maintenance plan for the year in which the meeting occurs. The meeting may also include the United States Fish and Wildlife Service.

Section 12. Recreation Implementation Plan

A recreation implementation plan shall be developed by the licensee in coordination with the BLM within 6 months of license issuance. The implementation plan shall include a construction schedule for the recreation facilities specified in Appendix B, Section 14 and 15, as well as other details related to recreation resources, including, but not limited to, signing and sign placement, public information dissemination, a schedule for design of facilities to be reconstructed, and consideration of measures to improve efficiencies. The

implementation plan shall be maintained and updated in conjunction with the review of recreation developments required in Appendix B, Section 16.

Section 13. Recreation Survey

The licensee shall conduct a Recreational Survey and prepare a Report on Recreational Resources that is approved by the BLM every 6 years from the date of license issuance. The Recreational Survey shall include, but not be limited to, changes in kinds of use and use patterns, levels of use, user survey as to preferences in recreation activities, preference for facility improvements, carrying capacity information sufficient to indicate changes in capacity, and recreation user trends within the project area. Monitoring will also include implementing site observation strategies identified in Appendix D of The South Fork American River: A Management Plan. The Report on Recreational Resources shall comply with FERC's regulations at 18 CFR section 4.51(f) (1996), or as amended, and shall be provided to the BLM for review and comment prior to being filed with FERC. Within 1 year of submission of the Report on Recreation Resources, the BLM and other interested parties will meet to discuss the results of the Report and make recommendations to address the findings. In accordance with Appendix D, Section 3, the BLM reserves the authority to require changes in the Project and its operation to accomplish protection and utilization of BLM resources identified as a result of these surveys.

Section 14. BLM and CDPR Liaisons

The BLM, CDPR, and the licensee shall each provide an individual for liaison, whenever planning or construction of recreation facilities, other major Project improvements, and maintenance activities are taking place on BLM or CDPR lands. The licensee agrees to cooperate with the BLM and CDPR through this individual in contract review and work inspection.

Section 15. Specific Recreation Measures

The following recreation projects, including construction, reconstruction, and restoration, shall be completed by the licensee. The implementation schedule shall be approved by the BLM or CDPR. The BLM or CDPR will be responsible for survey, design, contract preparation, and contract administration of the facilities. The licensee will be responsible for funding all of these items. If these facilities are not currently within the license project boundary, the boundary shall be adjusted to include them.

Chili Bar Reservoir

1. Within 3 years of license issuance, the licensee shall construct a gravel parking area for three to four vehicles off Rock Creek Road. A 36-inch-wide trail that meets a grade of 5 percent or less will be built from the parking area to Chili Bar Reservoir. A kiosk sign will be placed along the trail near the beginning,

explaining the rules of the area. One picnic table of coated wire mesh material will be provided in a leveled out area that is outside of the floodplain.

2. Within 5 years of license issuance, the licensee shall construct a boater takeout and parking area to accommodate twelve vehicles at Whiterock Powerhouse. One kiosk sign and two trash containers will be provided at this site. During boating releases, the licensee shall provide a portable toilet at the site for public use. The licensee shall be responsible for maintenance of the site.

South Fork American River Below Chili Bar Reservoir Dam

1. Miner's Cabin Planning Unit

   Licensee will work with owners of American River Resort in securing a trail easement (on a willing seller willing buyer type relationship) across the property with an approved trail design so the public can cross and or scout Troublemaker Rapid from the trail. An Information sign will be constructed in informing the public about respecting private property and keeping them on the trail.

2. Greenwood Creek Planning Unit

   Within 5 years of license issuance, the licensee shall install six 18-inch-high accessible fire rings, one informational kiosk sign, and two camping permit boxes beginning approximately 1/3 of a mile downstream of the Greenwood Creek confluence.

3. Cronan Ranch Planning Unit

   Within 3 years of license issuance, the licensee shall implement the following:

   a. Construct gravel parking lot for up to 70 vehicles.

   b. Install three informational kiosk signs.

   c. Install 10 trash can containers including six, 6-yard dumpsters.

   d. Add 3 miles of 6-inch compacted gravel road base to Cronan Administrative Access Road.

   e. Install culverts on the road.

   f. Replace 22 porta-potties with six ADA CXT toilets.

   g. Install ten campfire rings 18 inches high.

h. Construct six trails that meet ADA accessible standards leading to the toilet facilities from the river.

4. Pine Hill

Within 5 years of license issuance, the licensee shall construct one informational kiosk sign, install three 18-inch-high campfire rings, and install two camping registration boxes for river users.

5. Marshall Gold Discovery State Historic Park – River Access

Within 5 years of license issuance, the licensee shall construct a paved parking area for 20 vehicles, make necessary improvements to the entrance road, improve the access trail to the river, construct an information/interpretive sign kiosk, and replace (when needed) the existing restroom facility at the site. All improvements will meet CDPR standards, including CDPR Accessibility standards. Specific improvements include:

a. Construct a paved parking area for 20 vehicles with all required striping and signing. This includes two accessible parking spaces.

b. Construct improvements to the entrance and roads at the North Beach recreation site necessary to provide appropriate and adequate access to the new 20-car river access parking lot. This includes all grading, paving, striping and signs necessary to provide vehicle access to the parking area.

c. Construct a 6-foot-wide gravel or decomposed granite trail from the paved 20-car parking area to the river.

d. Construct an information/Interpretive signboard or kiosk.

6. Salmon Falls and Skunk Hollow Satellite Parking Area

The licensee shall provide one-half of the cost of purchasing a property acquisition adjacent to Folsom Lake State Recreation Area (SRA) in the immediate vicinity of Salmon Falls or Skunk Hollow for inclusion in the SRA. The property must be sufficient to provide the following facilities: a satellite or overflow parking area and a staging area that meets the needs of current use/demand at the Salmon Falls and Skunk Hollow area. The licensee contribution shall not exceed $500,000. CDPR will be responsible for identifying the property and handling all details of the property transaction. CDPR only acquires property only from willing sellers.

Once the above property acquisition is completed, the licensee shall provide funding for construction of a parking area and other facilities on the property necessary to meet existing demand for river access. All improvements will meet

CDPR standards, including CDPR Accessibility standards. Specific improvements include:

a. Construct a paved parking for 15 buses and 25 vehicles with all required striping and signing. This includes the required number of accessible parking spaces.

b. Construct entrance road necessary to provide access to the new parking lot. This includes all grading, paving, striping, and signs necessary to provide vehicle access to the parking area.

c. Construct two pre-fabricated concrete double-vault toilet restrooms.

d. Construct an information/Interpretive signboard or kiosk.

Section 16. Review of Recreation Developments and Long-Term Maintenance

Within 1 year of license issuance, BLM, CDPR, and the licensee shall meet and review all existing river-related recreation facilities and areas associated with the Project and agree upon necessary maintenance, rehabilitation, construction, and reconstruction work needed and agree upon a schedule for completing this work. The criteria for project selection will be the condition of facilities. BLM and CDPR will prioritize each project. Following the review, the licensee shall develop a 6-year schedule for maintenance, rehabilitation, construction, and reconstruction, which shall be approved by BLM and CDPR prior to being filed with FERC.

After the initial review, BLM, CDPR, and licensee will meet at least every 6 years to review all recreation facilities and areas associated with the Project and agree upon necessary maintenance, rehabilitation, construction, and reconstruction work needed and its timing. The criterion for project selection will be the condition of facilities. BLM and CDPR will prioritize work among the different sites.

The licensee shall be responsible for funding the cost of the necessary maintenance, rehabilitation, or reconstruction of these facilities determined necessary through the reviews described above. This work includes maintenance and rehabilitation of recreation facilities necessary to keep these existing facilities in a serviceable condition and to meet BLM and CDPR standards, including accessibility requirements. Some of this work will include replacement of photovoltaic units, batteries, and other facilities that may occur on an annual basis. Other work will involve long-term maintenance that is required approximately every 6 years, including, but not limited to, resealing asphalt on all paved surfaces and re-striping parking areas and entrance roads; painting and re-roofing restrooms and other structures and replacing fixtures as necessary; and replacing picnic tables, signboards and other accessory structures as necessary.

The following BLM and CDPR planning units and recreation sites will be included in the long-term maintenance and in the periodic review. These facilities are not currently within the license Project boundary; the boundary shall be adjusted to include them.

1. Miners Cabin Planning Unit. Accessible only by river.

    a. Six river campsites.

    b. Six 18-inch-high accessible fire rings.

    c. One informational kiosk.

    d. Two camping registration boxes.

2. Miners Cabin Day Use Area. Accessible only by river.

    a. Trail leading up to two-hole ADA accessible composting toilet facility.

    b. The composting facility itself.

3. Parcel C Planning Unit. Accessible only by river.

    a. One camping registration box.

    b. Three 18-inch-high accessible fire rings

    c. One informational kiosk.

4. Greenwood Creek Planning Unit. Accessible from Highway 49 and by river.

    a. Greenwood Creek Whitewater Boating Put-In.

    b. Take-out facility including a 42-vehicle asphalt parking lot.

    c. One informational kiosk.

    d. One ADA accessible CXT toilet.

    e. Four trash containers.

    f. One-quarter-mile trail leading to the river.

    The following are located 1/3 mile downstream of the Greenwood Creek confluence:

    g. Five 18-inch-high accessible fire rings.

h. One informational kiosk.

i. Two camping permit boxes.

j. One two hole ADA accessible composting toilet.

5. Cronan Ranch. Primarily accessible by river only though there is an access road for administrative purposes including maintenance, permitted uses, and search and rescue and fire emergency situations.

a. Gravel parking lot that holds up to 70 vehicles.

b. Three informational kiosks.

c. Ten trash can containers, including six, 6-yard dumpsters.

d. Three miles of 6-inch compacted gravel road base with culverts.

e. Six ADAaccessible CXT toilets to replace 22 porta potties.

f. Ten 18-inch-high campfire rings.

g. Six trails that meet ADA accessible standards leading to the toilet facilities from the river.

6. Norton Ravine. Accessible by river only.

a. One ADA accessible composting toilet.

b. Two picnic tables of rubber coded wire mesh material.

c. Trail leading from the river to the toilet.

d. Two registration boxes.

e. Three 18-inch-high campfire rings.

f. One informational kiosk.

7. Pine Hill. Accessible by river only.

a. One informational kiosk.

b. Three 18-inch-high campfire rings.

c. Two camping registration boxes.

8. Marshall Gold Discovery State Historic Park River Access.

a. Unpaved parking for about 10 vehicles.

b. Information signboards.

c. Trash containers.

d. Restroom with water and flush toilets.

e. Informal trail to the river.

9. Salmon Falls River Access, Folsom Lake State Recreation Area.

a. Paved parking for 32 vehicles and 12 buses.

b. Two concrete vault toilet restrooms.

c. Information signs.

10. Skunk Hollow River Access, Folsom Lake State Recreation Area.

a. Paved parking for 35 vehicles.

b. Two concrete vault toilet restrooms.

c. A pedestrian ramp.

d. Information signs.

e. Three picnic tables.

Section 17. Recreation Operation, Maintenance, and Administration

The licensee shall fund the annual operation, maintenance, and administration costs for BLM and CDPR river access and whitewater boating facilities along the SFAR below Chili Bar. The licensee shall annually pay to BLM, by October 1, $387,000 (year 2005 cost basis). The licensee shall annually pay CDPR, by July 1, $218,240 (year 2005 cost basis). The costs shall be escalated based on the U.S. Gross Domestic Product – Implicit Price Deflator (GDP-IDP). This funding will be used by the BLM and CDPR to implement river- related and whitewater boating related management actions outlined in the Final South Fork American River Management Plan, the Folsom Lake SRA General Plan/Resource Management Plan and according to BLM and CDPR policies and standards. Specifically the funding will be used for the following activities:

1. Issuing, administering, maintaining, and monitoring BLM Organized and Commercial Special Recreation Use Permits and CDPR commercial river use permits and whitewater boating concession contracts and fees.

2. The daily opening and closing of entrance gates at some sites.

3. Regular law enforcement patrols.

4. River and land patrols for monitoring and managing river use.

5. Routine cleaning, housekeeping, re-supply, repair, and maintenance by BLM or CDPR staff of all facilities within the sites listed below.

6. Restroom vault pumping.

7. Trash removal and litter pick-up.

8. Maintenance of signboards and information on the signboards according to BLM or CDPR standards.

9. Vegetation management around these sites and facilities.

10. Monitoring carrying capacity at each of BLM's eight planning units including the Cronan Ranch.

11. Issuing and monitoring BLM camping recreation use permits and BLM gold dredging permits for river users.

12. Monitoring noise levels.

13. Administering the BLM community-based stewardship program for the SFAR.

14. On-site staffing and visitor use management during peak use periods.

15. Supervision and management of seasonal whitewater program staff.

16. Vehicle costs associated with annual operation and maintenance.

Specific sites and recreation use areas that are included in these annual operation, maintenance, and administration costs include the following areas and facilities:

1. Miners Cabin Planning Unit and Miners Cabin Day Use Area.

2. Parcel C Planning Unit.

3. Greenwood Creek Planning Unit.

4. Cronan Ranch Planning Unit.

5. Norton Ravine Planning Unit.

6. Pine Hill Planning Unit.

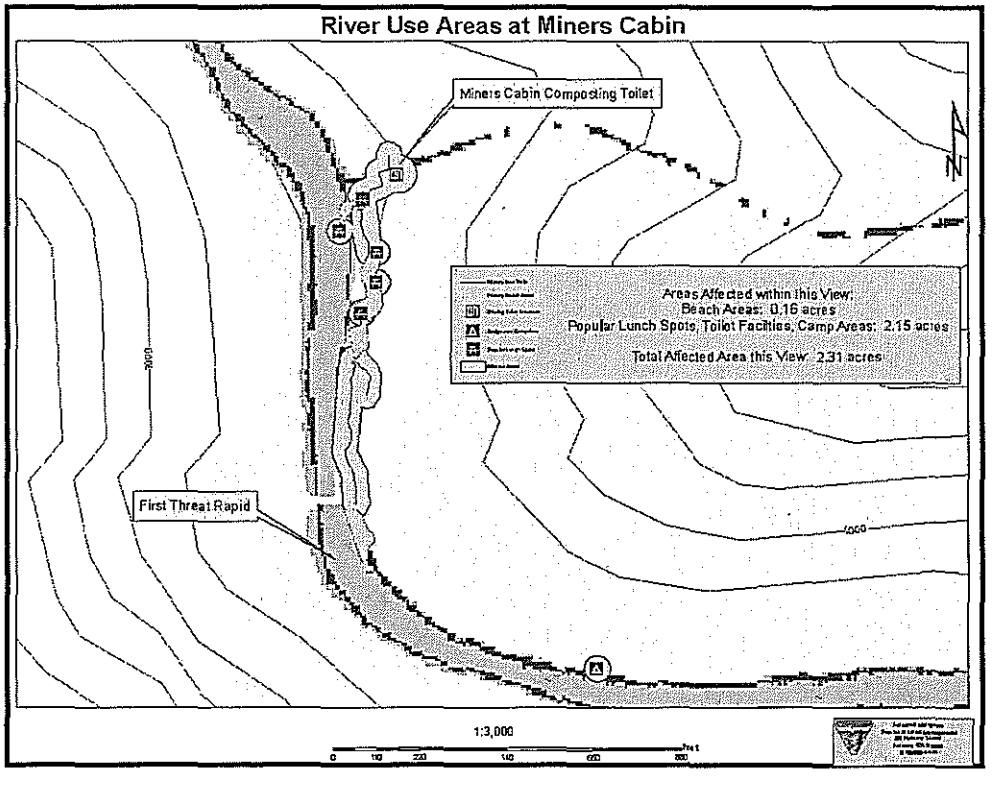
7. Marshall Gold Discovery SHP River Access.

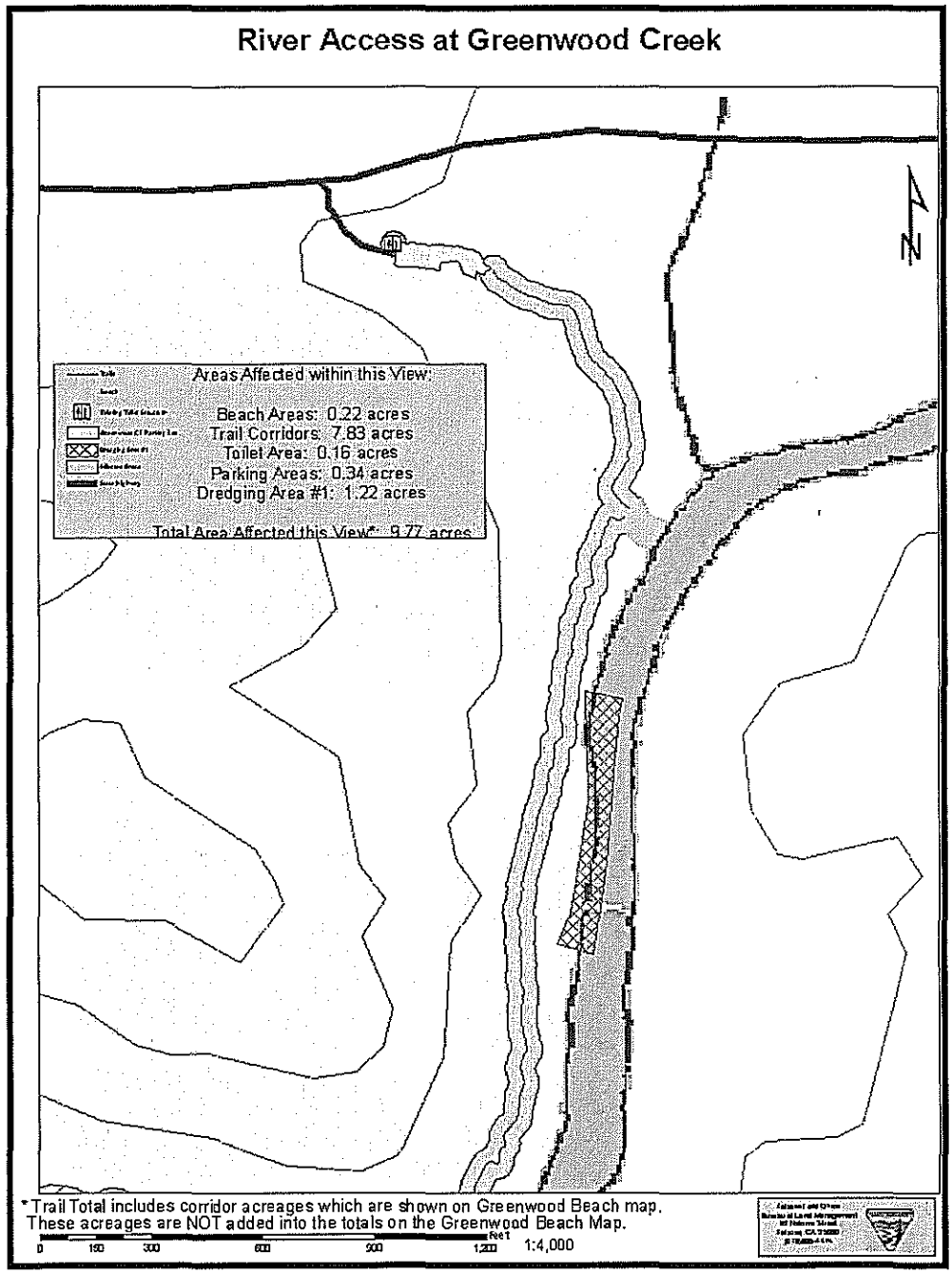
8. Salmon Falls River Access, Folsom Lake SRA.

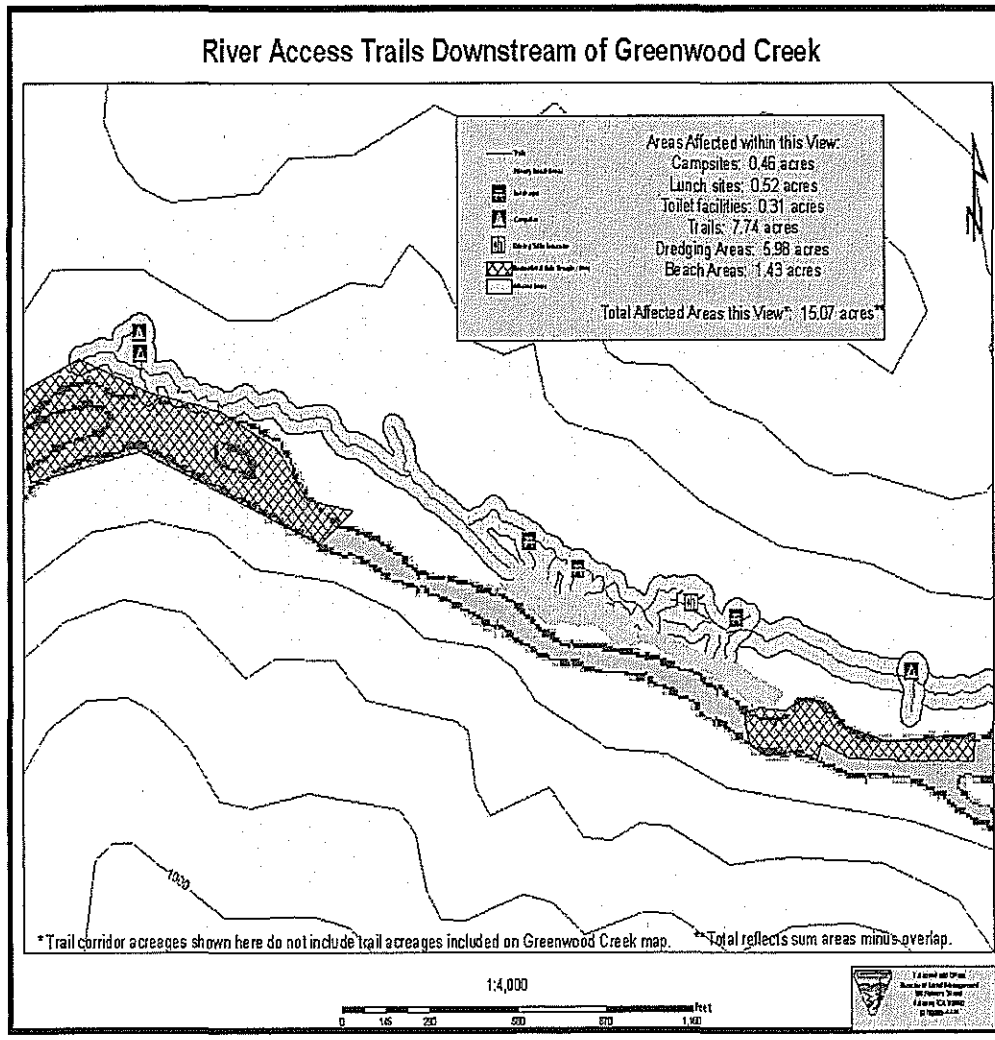
9. Skunk Hollow River Access, Folsom Lake SRA.

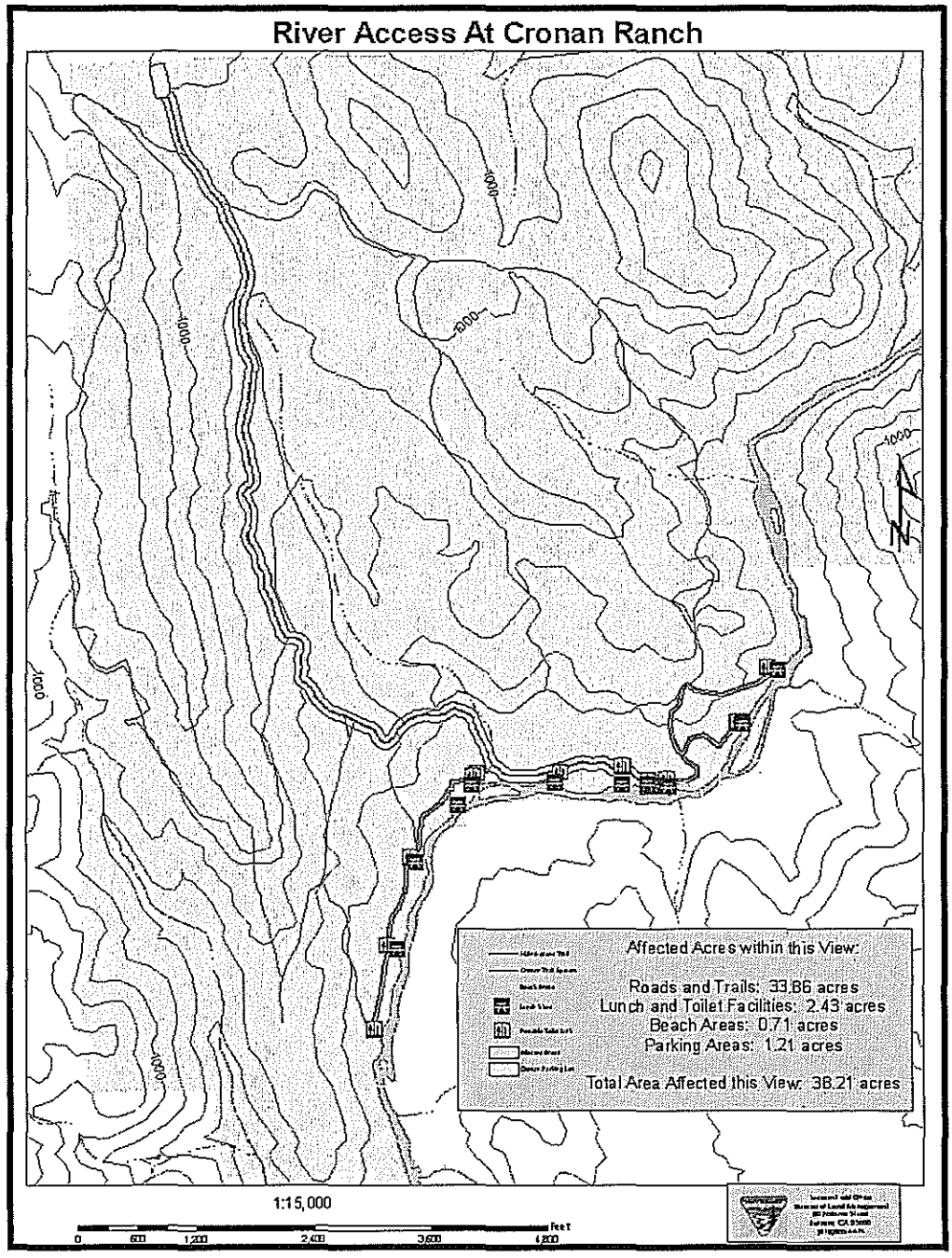
Section 18. FERC Boundary Changes

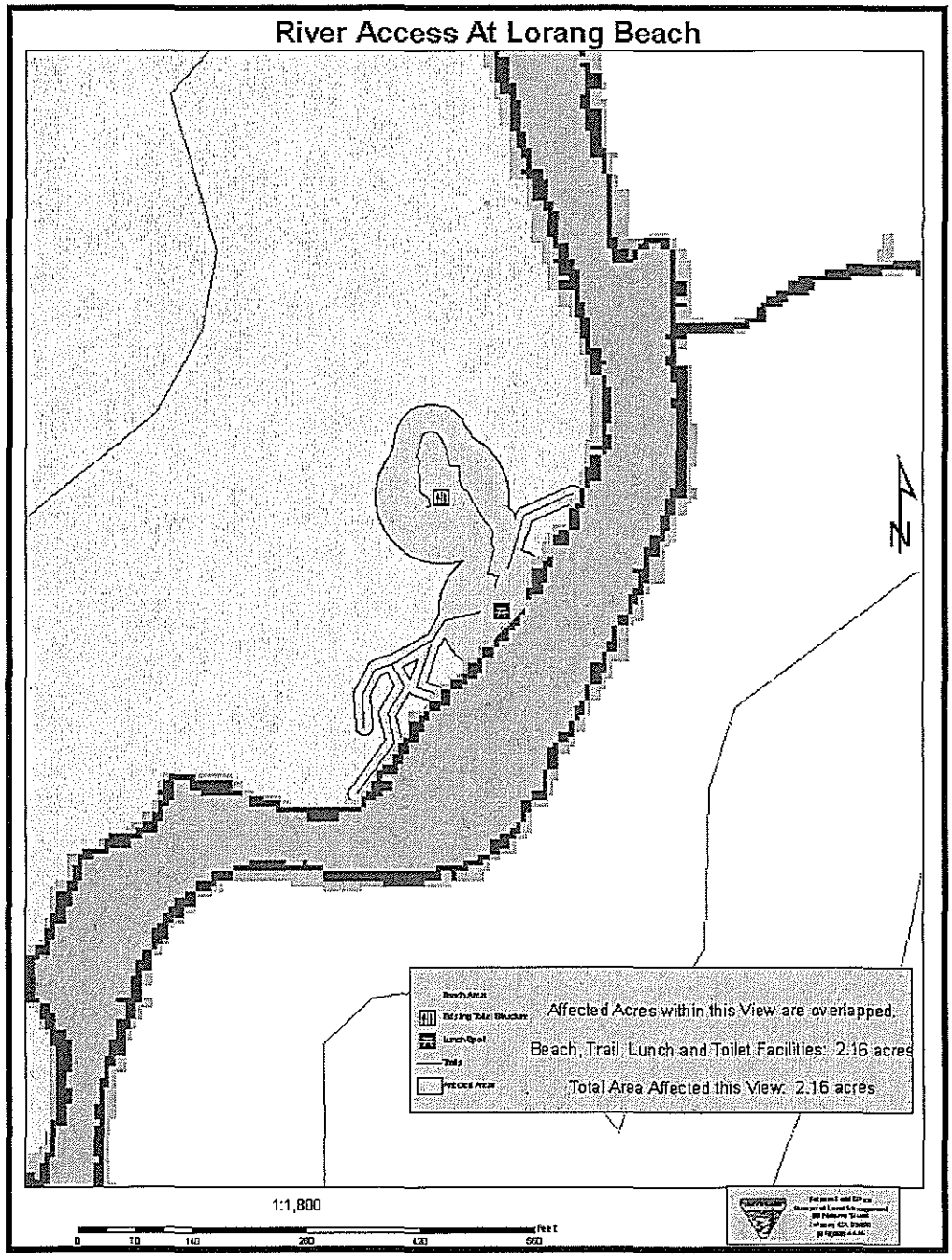
The FERC boundary shall be adjusted to include the following BLM lands that are Project-related. These FERC boundary adjustments are necessary to encompass whitewater boating facilities on public lands. The FERC boundary adjustments are as follows:




River Access at Greenwood Creek
Areas Affected within this View:
Beach Areas: 0.22 acres
Trail Corridors: 7.83 acres
Toilet Area: 0.16 acres
Parking Areas: 0.34 acres
Dredging Area #1: 1.22 acres
Total Area Affected this View*: 9.77 acres
*Trail Total includes corridor acreages which are shown on Greenwood Beach map.
These acreages are NOT added into the totals on the Greenwood Beach Map.
0 150 300 600 900 1,200 Feet
1:4,000


River Access Trails Downstream of Greenwood Creek
Areas Affected within this View:
Campsites: 0.46 acres
Lunch sites: 0.52 acres
Toilet facilities: 0.31 acres
Trails: 7.74 acres
Dredging Areas: 5.98 acres
Beach Areas: 1.43 acres
Total Affected Areas this View*: 15.07 acres**
N
1000
*Trail corridor acreages shown here do not include trail acreages included on Greenwood Creek map.
**Total reflects sum areas minus overlap.
1:4,000
0
145
290
580
870
1,160
Feet


River Access At Cronan Ranch
1000
800
1000
1000
1000
1000
Affected Acres within this View:
Roads and Trails: 33.86 acres
Lunch and Toilet Facilities: 2.43 acres
Beach Areas: 0.71 acres
Parking Areas: 1.21 acres
Total Area Affected this View: 38.21 acres
1:15,000
Feet
0
600
1,200
2,400
3,600
4,800



Section 18. Public Information Services

1. Streamflow and Reservoir Level Information

The licensee shall make recreation streamflow and reservoir level information available to the public year-round via toll-free telephone and internet. The licensee shall, within 6 months of license issuance, submit a plan to FERC that addresses, at a minimum, (1) information on lake stage height and storage for Chili Bar Reservoir, (2) inflow to Chili Bar Reservoir from Whiterock Powerhouse, (3) inflow to Chili Bar Reservoir from SFAR, and (4) realtime streamflows for SFAR below Chili Bar Reservoir Dam, simple staff gages, forecasting, and operations projections. The licensee shall provide realtime boating flows for the Chili Bar Reach (using gage MG 48) on a daily basis as well as provide a website that addresses realtime (15-minute increments) and historical releases from the past 7 days. Forecasts shall be as accurate as reasonably feasible, recognizing that the forecasts and streamflows cannot be guaranteed and are subject to change. The plan shall be approved by the BLM and SWRCB prior to filing with FERC. Following approval, the minimum streamflow schedules from Appendix B, Section 1, and current water year type information shall be published on the licensee's website.

2. Project Recreation Brochure/Map

The licensee shall develop and print a brochure and map that describes the recreation opportunities, recreation facilities, rules, and responsibilities for the area of the Project. The brochure will be provided to the BLM for review and approval prior to completion. The licensee shall make the brochure/map available to the public free of charge. The brochure/map shall be made available continuously and shall be updated as conditions change.

3. Interpretive, Education, and Public Information Plan

Within 2 years of license issuance, the licensee, in consultation with the BLM, CDPR, and FS and other appropriate agencies and interested parties, shall complete an Interpretive, Education, and Public Information Plan that shall be approved by the FS, BLM, and CDPR and filed with FERC. At a minimum, the plan shall include themes, design, audience, delivery methods, and schedule for implementation for providing up-to-date information such as sightseeing, hiking, observing wildlife, and using facilities such as boat ramps, campgrounds, and beaches. The licensee shall coordinate this plan with the licensee for the Upper American River Hydroelectric Project, FERC No. 2101.

Section 19. Recreational Streamflows

The licensee shall, beginning as early as reasonably practicable within 3 months after license issuance, maintain minimum recreational streamflows in SFAR below Chili Bar Reservoir Dam. All specified recreational streamflows are in cubic feet per second (cfs). The schedule specifies minimum streamflows, by season, day of week, and water year type. Specific times are as follows:

1. Recreational streamflow releases scheduled for 3 hours shall meet or exceed the minimum boating flow from at least 9:00 am until at least noon.

2. Recreational streamflow releases scheduled for 4 hours shall meet or exceed the minimum boating flow from at least 8:00 am until at least noon.

3. Recreational streamflow releases scheduled for 5 hours shall meet or exceed the minimum boating flow from at least 7:00 am until at least noon on Saturdays and 8:00 am until at least 1:00 pm on Sundays.

4. Recreational streamflow releases scheduled for 6 hours shall meet or exceed the minimum boating flow from at least 7:00 am until at least 1:00 pm.

If CDFG, SWRCB, CDPR, and BLM determine there should be changes to the release times listed above, the licensee will adjust the minimum whitewater boating releases accordingly.

The minimum recreational streamflows specified in the schedules may be temporarily modified if required by equipment malfunction or operating emergencies reasonably beyond the control of the licensee. If the recreational streamflow is so modified, the licensee shall provide Notice to FERC, BLM, CDFG, and the SWRCB as soon as possible, but no later than 10 days after such incident. The minimum recreational streamflows specified may also be temporarily modified for short periods in non-emergency situations 5 days after Notice to FERC, and upon approval of the BLM, CDFG, and SWRCB.

Where facility modification is required to maintain the specified minimum recreational streamflows, the licensee shall complete such modifications as soon as reasonably practicable and no later than 3 years after license issuance. Prior to such required facility modifications, the licensee shall make a good-faith effort to provide the specified minimum recreational streamflows within the capabilities of the existing facilities.

Water Year Types. The minimum streamflow schedules have been separated into six water year types: Wet, Above Normal (AN), Below Normal (BN), Dry, Critically Dry (CD), and Super Dry (SD). The licensee shall determine water year type based on the predicted unimpaired inflow to Folsom Reservoir and spring forecasting information provided by the California Department of Water Resources Bulletin 120 report of water conditions in California each month from February through May. The water year types are defined as follows:

Wet = greater than or equal to 3.5 MAF
AN = greater than or equal to 2.6 MAF but less than 3.5 MAF
BN = greater than 1.7 MAF or equal to but less than 2.6 MAF
Dry = greater than 0.9 MAF or equal to but less than 1.7 MAF
CD = less than 0.9 MAF

SD = any CD year that is immediately preceded by a Dry or CD year or any Dry year that is immediately preceded by any combination of two Dry or CD years.

Each February through May the licensee shall make a monthly forecast of the water year type and operate for that month based on that forecast. The May forecast shall be used to establish the final water year type for the remaining months of the water year. The water year type for the months of October through January shall be based on the Department of Water Resources' Full Natural Flow record for the American River at Folsom for the preceding water year. The licensee shall provide Notice to FERC, CDFG, BLM, and SWRCB of the final water year type determination within 30 days of making the determination.

South Fork American River Below Chili Bar Reservoir Dam Minimum Recreational Flow by Water Year (cfs)

WATER YEAR TYPE	PERIOD	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
Super Dry	April - Memorial Day	3 Hrs @ 1300					3 Hrs @ 1300	3 Hrs @ 1300
	Memorial Day - Labor Day	3 Hrs @ 1300	3 Hrs @ 1300		3 Hrs @ 1300	3 Hrs @ 1300	5 Hrs @ 1300	5 Hrs @ 1300
	Labor Day - September						3 Hrs @ 1300	3 Hrs @ 1300
	October - March						3 Hrs @ 1300	
Critically Dry	March - Memorial Day	3 Hrs @ 1300					3 Hrs @ 1300	3 Hrs @ 1300
	Memorial Day - Labor Day	3 Hrs @ 1300	3 Hrs @ 1300		3 Hrs @ 1300	3 Hrs @ 1300	5 Hrs @ 1500	5 Hrs @ 1500
	Labor Day - September					3 Hrs @ 1300	3 Hrs @ 1300	3 Hrs @ 1300
	October - February						3 Hrs @ 1300	
Dry	March - Memorial Day	3 Hrs @ 1300	3 Hrs @ 1300			3 Hrs @ 1300	3 Hrs @ 1500	3 Hrs @ 1500
	Memorial Day - Labor Day	3 Hrs @ 1300	3 Hrs @ 1300		3 Hrs @ 1300	3 Hrs @ 1300	5 Hrs @ 1500	5 Hrs @ 1500
	Labor Day - September					3 Hrs @ 1300	3 Hrs @ 1300	3 Hrs @ 1300
	October - February						3 Hrs @ 1300	3 Hrs @ 1300
Below Normal	March - Memorial Day	3 Hrs @ 1300	3 Hrs @ 1300		3 Hrs @ 1300	3 Hrs @ 1300	3 Hrs @ 1500	3 Hrs @ 1500
	Memorial Day - Labor Day	3 Hrs @ 1300	3 Hrs @ 1300		3 Hrs @ 1300	3 Hrs @ 1300	6 Hrs @ 1500	6 Hrs @ 1500
	Labor Day - October	3 Hrs @ 1300				3 Hrs @ 1300	3 Hrs @ 1500	3 Hrs @ 1500
	November - February						3 Hrs @ 1300	3 Hrs @ 1300
Above Normal	March - Memorial Day	3 Hrs @ 1300	3 Hrs @ 1300	3 Hrs @ 1300	3 Hrs @ 1300	3 Hrs @ 1300	4 Hrs @ 1750	4 Hrs @ 1750
	Memorial Day - Labor Day	3 Hrs @ 1500	3 Hrs @ 1500	3 Hrs @ 1500	3 Hrs @ 1500	3 Hrs @ 1500	6 Hrs @ 1750	6 Hrs @ 1750
	Labor Day - October	3 Hrs @ 1300				3 Hrs @ 1300	3 Hrs @ 1500	3 Hrs @ 1500
	November - February						3 Hrs @ 1500	3 Hrs @ 1500
Wet	March - Memorial Day	3 Hrs @ 1500	3 Hrs @ 1500	3 Hrs @ 1500	3 Hrs @ 1500	3 Hrs @ 1500	6 Hrs @ 1750	6 Hrs @ 1750
	Memorial Day - Labor Day	4 Hrs @ 1500	4 Hrs @ 1500	4 Hrs @ 1500	4 Hrs @ 1500	4 Hrs @ 1500	6 Hrs @ 1750	6 Hrs @ 1750
	Labor Day - October	3 Hrs @ 1300				3 Hrs @ 1300	3 Hrs @ 1500	3 Hrs @ 1500
	November - February						3 Hrs @ 1500	3 Hrs @ 1500

Section 20. Visual Resource Protection

1. The BLM and licensee(s) shall meet every 5 years to review opportunities to improve how well Project facilities blend in with the surrounding landscape. The type of rehabilitation/reconstruction work needed will be dependent on current policies, technologies, condition of facilities, impacts to surrounding areas, and other factors.

2. During planning and prior to any new construction or maintenance of facilities that have the potential to affect visual resources of BLM lands (including but not limited to the recreation-related construction), the licensee shall file with FERC, a plan approved by BLM for the protection and rehabilitation of BLM visual

resources affected by the Project. At a minimum, the plan shall address clearings, spoil piles, and Project facilities like diversion structures, penstocks, pipes, ditches, powerhouses, other buildings, transmission lines, corridors, and access roads. The plan shall address facility configurations, alignments, building materials, colors, landscaping, and screening. The Plan shall provide a proposed mitigation and implementation schedule to bring the Project facilities affecting visual resources on BLM lands into compliance with visual resource standards and guidelines in the South Fork American River: A Management Plan (USDI 2004).

Mitigation measures identified for either the visual resource plan for new construction or the measures identified for existing facilities shall include, but are not limited to: (1) surface treatments with BLM-approved colors and natural appearing materials that will be in harmony with the surrounding landscape, (2) use of non-specular conductors for the transmission lines, (3) use of native plant species to screen facilities from view, (4) reshaping and revegetating disturbed areas to blend with surrounding visual characteristics, and, (5) locating transmission facilities to minimize visual impacts.

3. The following mitigation measures to existing facilities will be performed to improve visual quality reductions within 2 years of license issuance: All pipeline facilities shall be painted to blend with the surrounding visual characteristics.

Section 21. Heritage Resources

Within 6 months after license issuance, the licensee shall complete a Heritage Properties Management Plan (HPMP) for BLM approval. The HPMP will be incorporated into the Programmatic Agreement (PA) by reference. The HPMP will take into account Project effects on prehistoric and historic resources, Native American traditional cultural values, direct and indirect effects to heritage resources within the area of potential effect, ethnographic studies, historic archaeological studies, and Project-related recreation impacts to archaeological properties affecting BLM lands. The HPMP shall also provide measures to mitigate the identified impacts, a monitoring program, and management protocols for the ongoing protection of archaeological properties. The plan shall be filed with FERC. The licensee shall implement the plan upon approval.

Section 21. Heritage 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 BLM lands and licensee adjoining property, the licensee shall immediately cease work in the area so affected. The licensee shall then notify the BLM and shall not resume work on ground disturbing activities until it receives written approval from the BLM.

If it deems it necessary, the BLM 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 the BLM.

Section 22. License Term

The Chili Bar license should be the same term as the license for the Upper American River Project, FERC No. 2101.

Appendix C

Protection, Mitigation, and Enhancement Measures for the Proposed Iowa Hill Pump Storage Project of the Upper American River Project, FERC No. 2101

Section 1. Requirement to Obtain a Forest Service Special-Use Authorization for Additional National Forest System lands and for Certain Activities on National Forest System Lands

Prior to undertaking activities on National Forest System lands, the licensee shall obtain a special-use authorization from the FS for the occupancy and use of National Forest System lands added to the license by the amendment and for certain other activities on National Forest System lands. The special-use authorization shall be filed with FERC.

Notwithstanding the authorizations granted under the Federal Power Act, National Forest System lands added to the project boundaries shall be managed by the Forest Service under the laws, rules, and regulations application to the National Forest System. The terms and conditions of the Forest Service special-use authorization are enforceable by the Forest Service under the laws, rules, and regulations applicable to the National Forest System. The violation of such terms and conditions also shall be subject to applicable sanctions and enforcement procedures of the Commission at the request of the Forest Service. In the event there is a conflict between any provisions of the license and the Forest Service special-use authorization, the special-use authorization shall prevail on matters which the Forest Service deems to affect National Forest System resources.

Section 2. Compliance with Appendices A, B, D, and E

The licensee shall ensure that all Sections of Appendices A, B, D, and E of this alternative are met if the Iowa Hill Pumped Storage Project is constructed.

Section 3. Aquatic Resources

1. For 2 years prior to and 2 years after the Iowa Hill Pumped Storage Project begins to operate, monitor hardhead during all four seasons of the year to establish the locations of all life stages in Slab Creek Reservoir (including edgewater locations) and in the water fluctuation zone upstream on SFAR above and below the Iowa Hill Pumped Storage Project..

2. Demonstrate that temperatures in shallow water areas of the Slab Creek Reservoir are not affecting hardhead distribution by pump discharge by monitoring edgewater temperatures of Slab Creek Reservoir between May and September in locations approved by the FS, CDFG, and SWRCB.

3. In the SFAR Slab Creek Reservoir Dam reach below Mosquito Bridge, maintain at least 12°C during the months of June (after the descending limb of the hydrograph), July, and August.

4. The licensee shall ensure that flow fluctuations in the SFAR below Slab Creek Reservoir Dam do not occur as a result of the Iowa Hill Pumped Storage Project.

5. The licensee shall monitor hardhead using a method approved by FS, CDFG, FWS, and SWRCB to determine whether entrainment is occurring as a result of the Iowa Hill Pumped Storage Project. If entrainment is occurring, FS, CDFG, FWS, and SWRCB reserve the right to establish appropriate mitigation measures.

Section 4. Terrestrial Resources

Tto mitigate the loss of wildlife habitat associated with the Iowa Hill Development, prior to initiating construction of the development, the licensee shall purchase an equivalent acreage of land (or a conservation easement for an equivalent acreage of land) to be managed as wildlife habitat over the term of the license. The FS and CDFG will determine the in-kind value of lands proposed for this purpose.

Section 5. Water Quality and Water Pollution

The licensee shall consult with FS, SWRCB, RWQCB, CDFG, FWS, US Army Corps of Engineers, BLM, and other resource agencies with authority over public trust resources within the area of potential affects from construction and operation of facilities of the Iowa Hill Pumped Storage Project. Prior to initiating any construction activities, the licensee shall provide to appropriate state and federal regulatory agencies, detailed design plans and a proposed timeline for construction, and must obtain all necessary permits including but not limited to National Pollutant Discharge Elimination System Permit, Waste Discharge Requirements, Section 404 Permit, Section 401 Certification, Streambed Alteration Permit and/or other authorizations or certifications as determined necessary under State or Federal Law.

Prior to undertaking activities on National Forest System lands, the licensee shall file with FERC a Storm Water Pollution Prevention Plan that is approved by the FS, SWRCB, and CDFG. During construction, and during operation and maintenance of the project, the licensee shall prevent water pollution by implementing management practices identified in the Storm Water Pollution Prevention Plan and other requirements identified by the FS, SWRCB, and RWQCB.

No equipment for construction of the tunnel shall be staged within 100 feet of the SFAR.

Any material that is used within the river bed must be removed, including siltation fabric, after construction activities are completed.

Section 6. Groundwater

The tunnel shall be constructed in a manner that allows for no seepage of groundwater into or out of the tunnel once construction is completed. Prior to undertaking activities on National Forest System lands, the licensee shall file with FERC a plan approved by the

FS for managing groundwater inflows during construction and for groundwater monitoring. The plan shall include the following: (1) a completed survey that encompasses the portion of the project area that would be potentially affected by the proposed tunnel and canal restoration; (2) monitoring of the springs and creeks for 5 years after the tunneling operation is completed with monitoring data submitted to the FS monthly and written monitoring reports submitted to the FS biannually by June 1 and December 1 of each year; (3) a method for accurate quantification of groundwater encountered during tunnel boring operations; (4) a method for verifying that groundwater seepage is not occurring after tunnel construction; (5) identification of corrective measures that will be taken if the tunnel boring operation encounters more groundwater than originally predicted in the environmental assessment for the project or the completed tunnel seeps; and (6) the monitoring program must also include mitigation of any and all identified impacts. The licensee shall consult with the RWQCB and SWRCB to establish water quality and soils characterization treatment measures.

Section 7. Compliance with Visual Quality Standards

The Iowa Hill Pumped Storage Project as proposed does not comply with the visual quality standards in the Eldorado National Forest Land and Resource Management Plan. Specifically, the views of the berm around the Iowa Hill Reservoir do not meet the visual quality standards. The licensee shall develop an alternative that meets the visual quality standards of the Eldorado National Forest Land and Resource Management Plan to ensure adequate protection during utilization of the Forest. The licensee shall provide the FS plan specifications and simulated views of the new alternative so the FS may determine whether it meets Eldorado National Forest Land and Resource Management Plan standards.

Section 8. Heritage Resources Protection

Section 106 requirements of the National Historic Preservation Act and its implementing regulations, found at 36 CFR 800, must be met prior to the licensee undertaking activities on National Forest System lands.

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, the licensee shall immediately cease work in the area so affected. The licensee shall then notify the FS and shall not resume work on ground disturbing activities until it receives written approval from the FS.

Section 9. Road Use Permit

Prior to undertaking activities on National Forest System lands, the licensee shall file with FERC a road use permit approved by the FS for all National Forest System roads that will be used for project construction activities. The licensee shall confine all project

vehicles, including but not limited to administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes. The FS reserves the right to close any and all such routes during project operations where damage is occurring to the roadbed or adjacent soil, water, or vegetation resources as a result of project activities. The FS may require reconstruction/construction by the licensee to the extent needed to accommodate the licensee's use or repair damage from project activities.

Section 10. Spoils Disposal

The licensee shall consult with FS, SWRCB, and RWQCB to obtain Waste Discharge Requirements or other permitting approvals, as necessary, for discharge of spoils to land.

Spoils shall not be deposited on National Forest System lands without prior review and approval by the FS.

Section 11. Construction Noise

The licensee shall implement the following measures to address construction noise: (1) during materials transport and construction activity periods, no vehicle shall idle with the engine running for more than 5 minutes, (2) notify homeowners' at least 2 weeks in advance of any materials transport and construction activities within 0.5 mile of the tract, (3) post a notice to residents indicating the nature, timing, and duration of all materials transport and construction activities occurring within 0.5 mile of their residences.

The licensee shall monitor compliance with the measures listed above once a month. This includes inspection of posted notices and consultation with residents. Monitoring reports will be filed with the FS on a monthly basis throughout the project construction activity. Monitoring reports will also list any noise disturbance complaints received.

The licensee shall maintain a "Noise Hot Line" telephone system used by residents and recreationists for reporting construction noise disturbances associated with the construction activities.

If these measures are not adhered to, the licensee shall take immediate action to implement the mitigation measures. If this cannot occur, the construction activity that is not adhering to the measure will be stopped immediately until mitigation measures are in place and operational.

If notification is made through the "Noise Hot Line" or other communication, the licensee shall verify that the mitigation measures are being adhered to. If measures are not being adhered to, the construction activity that is not adhering to the measure will be stopped immediately until mitigation measures are in place and operational. If the measures are in place and the disturbance continues, the licensee shall work with the FS to develop additional mitigation measures to limit noise disturbance.

Section 12. Bonds, Performance

The licensee shall maintain a surety bond in an amount to be specified by the FS to guarantee National Forest System resources related to the Iowa Hill Pumped Storage Project and associated restoration work are protected in the event the license is surrendered or the licensee otherwise fails to carry out the measures of the license. The licensee shall secure the bond prior to the commencement of activities on National Forest System lands and shall maintain the bond until 1 calendar year after the construction of the Iowa Hill Pumped Storage Project and associated restoration work are complete and accepted by the FS. In the event license conditions are not carried out, an authorized FS officer shall issue written instructions to the licensee, setting forth the work required to comply and the timeframe in which the work is to be completed.

Failure to initiate the license conditions related to resource protection of National Forest System lands within the timeframes established by the authorized FS officer is cause for the FS to issue a demand letter to the surety for the amount due under the bond. Payment by the surety of the amount required in the bond is due upon receipt of the demand letter. In lieu of payment, the surety may perform the work required under the written instructions from the authorized FS officer within the timeframe set forth in the instructions.

Pursuant to the Debt Collection Act, as amended (31 U.S.C. 3701, et seq.), if the FS does not receive payment within 30 days of issuance of the demand letter, the surety shall pay:

- Simple interest on the delinquent amount due at a fixed rate equal to the Current Value of Funds Rate published annually by the Secretary of the Treasury in the Federal Register, or the Prompt Payment interest rate established by the Secretary of the Treasury under Section 12 of the Contract Disputes Act of 1978, whichever is higher. Interest shall accrue from the date the FS issues the initial written demand to the surety.

- The surety is liable for administrative charges in addition to the delinquent amount due. Administrative charges are those additional costs incurred by the Government in processing, handling, and collecting delinquent debts.

- A penalty charge of 6 percent per annum shall be assessed on any portion of the debt that is delinquent more than 90 days. This penalty charge will be in addition to the interest and administrative charges in the preceding two paragraphs. Such penalty charge shall accrue from the date indicated on the demand letter issued to the surety and shall be assessed on all outstanding amounts, including interest and administrative charges assessed in the previous two paragraphs.

The payment of interest, administrative costs, and penalty is in addition to the principal amount due and is not limited by the stated penal sum of the bond.

All monies described herein may, upon failure of the licensee to fulfill all and singular requirements herein set forth or made a part hereof, be retained by the United States to be applied to the satisfaction of the licensee's obligations assumed hereunder, without prejudice whatever to any other rights and remedies of the United States.

Appendix D

Other Forest Service Protection, Mitigation, and Enhancement Measures

Introduction

This appendix is included strictly for information for the licensee. This appendix includes measures that are typically included in most FERC licenses by the FS as mandatory Section 4(e) conditions. They are included in this alternative so that the licensee has the full array of potential conditions to review, not because the FS is submitting them as proposed Section 4(e) conditions at this time. These conditions were previously shared in the Plenary Group of the UARP ALP.

Section 1. Forest Service Approval of Final Design

Before any new construction of the Project occurs on National Forest System lands, the licensee shall obtain prior written approval of the FS for all final design plans for Project components, which the FS deems as affecting or potentially affecting National Forest System resources. The licensee shall follow the schedules and procedures for design review and approval specified in the conditions herein. As part of such written approval, the FS may require adjustments to the final plans and facility locations to preclude or mitigate impacts and to insure that the Project is compatible with on-the-ground conditions. Should such necessary adjustments be deemed by the FS, FERC, or the licensee to be a substantial change, the licensee shall follow the procedures of Article 2 of the license. Any changes to the license made for any reason pursuant to Article 2 or Article 3 shall be made subject to any new terms and conditions of the Secretary of Agriculture made pursuant to Section 4(e) of the Federal Power Act.

Section 2. Approval of Changes

Notwithstanding any FERC approval or license provisions to make changes to the Project, the licensee shall get written approval from the FS prior to making any changes in the location of 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 at least 60 days prior to initiating any such changes or departure, 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 article does not relieve the licensee from the amendment or other requirements of Article 2 or Article 3 of this license.

Section 3. Consultation

Each year during the 60 days preceding the anniversary date of the license, the licensee shall consult with the FS with regard to measures needed to ensure protection and utilization of the National Forest resources affected by the Project. Within 60 days following such consultation, the licensee shall file with the FERC evidence of the consultation with any recommendations made by the FS. The FS reserves the right, after notice and opportunity for comment, to require changes in the Project and its operation through revision of the 4(e) conditions that require measures necessary to accomplish protection and utilization of National Forest resources.

Section 4. Modification 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 United States Fish and Wildlife Service or any Certification issued for this Project by the State Water Resources Control Board.

Section 5. Surrender of License or Transfer of Ownership

The licensee shall guarantee or ensure that, in a manner satisfactory to the FS, the costs of license surrender and restoration of Project-affected National Forest System lands will be provided for by the licensee. The licensee shall conduct an analysis, using experts approved by the FS, to estimate the potential costs associated with surrender and restoration of National Forest System lands to FS specifications. In addition, the licensee shall pay for an independent audit to assist the FS in determining whether the licensee has the financial ability to fund the surrender and restoration work specified in the analysis.

As a condition of any transfer of the license or sale of the Project, the licensee shall guarantee or ensure that, in a manner satisfactory to the FS, the costs of surrender and restoration of Project-affected National Forest System lands will be provided for by the licensee or transferee. 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 the Project area 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.

Section 6. Valid Claims and Existing Rights

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

Section 7. Compliance with Regulations

The licensee shall comply with the regulations of the Department of Agriculture and all federal, state, county, and municipal laws, ordinances, or regulations in regards to the

area or operations covered by this license, to the extent those laws, ordinances, or regulations are not preempted by federal law.

Section 8. Protection of United States Property

The licensee shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with the license.

Section 9. Liability for Damage to Life or Property

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

Section 10. 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 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.

Section 11. Hazardous Substances Plan

Within 1 year of license issuance or prior to undertaking activities on National Forest System lands , the licensee shall file with FERC a plan approved by the FS, SWRCB, CDFG, and RWQCB for oil and hazardous substances storage and spill prevention and cleanup. In addition, during planning and prior to any new construction or maintenance

not addressed in an existing plan, the licensee shall notify the FS, SWRCB, CDFG, and RWQCB, and these entities shall make a determination whether a plan approved by the FS for oil and hazardous substances storage and spill prevention and cleanup is needed. Any such plan shall be filed with FERC.

At a minimum, the plan must require the licensee to (1) maintain in the project area, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) to periodically inform the FS, SWRCB, CDFG, and RWQCB of the location of the spill cleanup equipment on National Forest System lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; and (3) to inform the FS, SWRCB, CDFG, and RWQCB immediately of the magnitude, nature, time, date, location, and action taken for any spill. The plan shall include a monitoring plan that details corrective measures that will be taken if spills occur. The plan shall include a requirement for a weekly written report during construction documenting the results of the monitoring.

Section 12. Use of Explosives

Use of explosives shall be consistent with state and local requirements.

1. The licensee shall use only electronic detonators for blasting on National Forest System lands and licensee adjoining property, except near high-voltage powerlines. The FS may allow specific exceptions when in the public interest.

2. In the use of explosives, the licensee shall exercise the utmost care not to endanger life or property and shall comply with the requirements of the FS. The licensee shall contact the FS prior to blasting to obtain the requirements from the FS. The licensee shall be responsible for any and all damages resulting from the use of explosives and shall adopt precautions to prevent damage to surrounding objects. The licensee shall furnish and erect special signs to warn the public of the licensee's blasting operations. The licensee shall place and maintain such signs so they are clearly evident to the public during all critical periods of the blasting operations, and shall ensure that they include a warning statement to have radio transmitters turned off.

3. The licensee shall store all explosives on National Forest System lands in a secure manner, in compliance with State and local laws and ordinances, and shall mark all such storage places "DANGEROUS - EXPLOSIVES." Where no local laws or ordinances apply, the licensee shall provide storage that is satisfactory to the FS and in general not closer than 1,000 feet from the road or from any building or camping area.

4. When using explosives on National Forest System lands, the licensee shall adopt precautions to prevent damage to landscape features and other surrounding objects. When directed by the FS, the licensee shall leave trees within an area designated to be cleared as a protective screen for surrounding vegetation during

blasting operations. The licensee shall remove and dispose of trees so left when blasting is complete. When necessary, and at any point of special danger, the licensee shall use suitable mats or some other approved method to smother blasts.

Section 13. Pesticide Use Restrictions

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

The licensee shall use on National Forest System lands only those materials registered by the U. S. Environmental Protection Agency 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.

Section 14. Damage, High Hazards

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

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

Section 15. Risks and Hazards

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

Section 16. Project Access Roads

The licensee shall, in consultation with the FS, take appropriate measures to rehabilitate existing erosion damage and minimize further erosion of the non-public Project access roads on National Forest System lands. Gates or other vehicle control measures will be installed and maintained where necessary to achieve erosion protection or other resource protection needs.

Section 17. Road Use by Government

The United States shall have unrestricted use of any road constructed 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 and shall have the right to extend rights and privileges of use of such road to states and local subdivisions thereof, as well as to other users, including members of the public, except contractors, agents, and employees of the licensee; provided that the agency having jurisdiction shall control such use so as not unreasonably to interfere with the safety or security uses, or cause the licensee to bear a share of the costs of maintenance greater than the licensee's use bears to all use of the road.

Section 18. Traffic Safety

When construction is in progress adjacent to or on FS Service-controlled roads open to public travel, the licensee shall furnish, install, and maintain temporary traffic controls to provide the public with adequate warning and protection from hazardous or potentially hazardous conditions associated with the licensee's operations. Devices must be appropriate to current conditions and must be covered or removed when not needed. Except as otherwise agreed, flagmen and devices must be as specified in the "Manual on Uniform Traffic Control Devices."

Section 19. Road Use

The licensee shall confine all Project vehicles, including, but not limited to, administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes. The 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.

Section 20. 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, pipeline).

Section 21. Access

The FS reserves the right to use or permit others to use any part of the licensed area on National Forest System lands for any purpose, provided such use does not interfere with the rights and privileges authorized by this license or the Federal Power Act.

Section 22. Signs

The licensee shall consult with the FS prior to erecting signs related to safety issues on National Forest System lands covered by the license. Prior to the licensee erecting any other signs or advertising devices on National Forest System 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.

The licensee shall participate in joint licensee and FS road and sign surveys to be conducted as frequently as needed, but at least annually. The licensee shall be responsible for replacing or repairing traffic safety and information signs damaged by Project operations.

Section 23. Construction Inspections

Within 60 days of planned ground-disturbing activity, the licensee shall file with FERC a Safety During Construction Plan that identifies potential hazard areas and measures necessary to address public safety. Areas to consider include construction activities near public roads, trails, and recreation areas and facilities.

The licensee shall perform daily (or on a schedule otherwise agreed to by the FS in writing) inspections of licensee's construction operations on National Forest System lands and licensee adjoining property while construction is in progress. The licensee shall document these inspections (informal writing sufficient) and shall deliver such documentation to the FS on a schedule agreed to by the FS. The inspections must specifically include fire plan compliance, public safety, and environmental protection. The licensee shall act immediately to correct any items found to need correction.

A registered professional engineer of the appropriate specialty shall regularly conduct construction inspections of structural improvements on a schedule approved by the FS.

Section 24. Unattended Construction Equipment

The licensee shall not place construction equipment on National Forest System lands prior to actual use or allow it to remain on National Forest System lands subsequent to actual use, except for a reasonable mobilization and demobilization period agreed to by the FS. The licensee shall remove equipment from National Forest System lands unless a permit is issued for equipment storage.

Section 25. Maintenance of Improvements

The licensee shall maintain the improvements and premises on National Forest System lands and licensee adjoining property to standards of repair, orderliness, neatness, sanitation, and safety. For example, trash, debris, and unusable machinery will be disposed of separately; other materials will be stacked, stored neatly, or placed within buildings. Disposal will be at an approved existing location, except as otherwise agreed to by the FS.

Section 26. Erosion Control Plan For New Construction and Measures For Project Maintenance and Operations

During planning and prior to any new ground-disturbing construction or non-routine maintenance not addressed in an existing plan that may affect National Forest System lands (including, but not limited to, any recreation-related construction), the licensee shall file with FERC a plan approved by the FS for the control of erosion, stream sedimentation, dust, and soil mass movement.

The plan shall be based on actual-site geological, soil, and groundwater conditions and shall include: (1) a description of the actual-site conditions; (2) detailed descriptions, design drawings, and specific topographic locations of all control measures; (3) measures to divert runoff away from disturbed land surfaces; (4) measures to collect and filter runoff over disturbed land surfaces, including sediment ponds at the diversion and powerhouse sites; (5) revegetating disturbed areas outside of the roadbed; (6) measures to dissipate energy and prevent erosion at the tailrace; and (7) a monitoring and maintenance schedule. The FS may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the Project area. This plan must identify requirements for construction, operation, and maintenance measures to meet FS erosion control objectives and standards.

Section 27. Solid Waste and Waste Water Plan, New Construction and Project Operation and Maintenance

During planning and prior to any new construction or maintenance not addressed in an existing plan (including, but not limited to, any recreation-related construction), the licensee shall notify the FS, and the FS shall make a determination whether a plan shall be filed with FERC. At a minimum, the plan must address the estimated quantity of solid waste and waste water generated each day, the location of disposal sites and methods of treatment, the implementation schedule, areas available for disposal of wastes, design of facilities, comparisons between on- and off-site disposal, and maintenance programs.

Section 28. Water Quality and Water Pollution

The licensee shall comply with state water quality standards to ensure compliance with the Clean Water Act, protection of beneficial uses, and adequate protection during utilization of the Forests.

The licensee shall discharge no waste or byproduct on or affecting National Forest System lands if it contains any substances in concentrations that would result in violation of water quality standards set forth by the State; would impair present or future beneficial uses of water; would cause pollution, nuisance, or contamination; or would unreasonably degrade the quality of any waters in violation of any federal or state law. Prior to construction, and during operation and maintenance of the Project, the licensee shall develop a plan approved by the FS and subject to requirements of other federal and state water quality agencies.

Appendix E

Other Bureau of Land Management
Protection, Mitigation, and Enhancement Measures

Introduction

This appendix is included strictly for information for the licensee. This appendix is included in this alternative so that the licensees have the full array of potential conditions to review, not because the BLM is submitting them as proposed Section 4(e) conditions at this time. Similar conditions were previously shared in the Plenary Group of the UARP ALP by the FS.

Section 1. Bureau of Land Management Approval of Final Design

Before any new construction of the Project occurs on public lands, the licensee shall obtain prior written approval of the BLM for all final design plans for Project components, which the BLM deems as affecting or potentially affecting public land resources. The licensee shall follow the schedules and procedures for design review and approval specified in the conditions herein. As part of such written approval, the BLM may require adjustments to the final plans and facility locations to preclude or mitigate impacts and to ensure that the Project is compatible with on-the-ground conditions. Should such necessary adjustments be deemed by the BLM, FERC, or the licensee to be a substantial change, the licensee shall follow the procedures of Article 2 of the license. Any changes to the license made for any reason pursuant to Article 2 or Article 3 shall be made subject to any new terms and conditions of the Secretary of Interior made pursuant to Section 4(e) of the Federal Power Act.

Section 2. Approval of Changes

Notwithstanding any FERC approval or license provisions to make changes to the Project, the licensee shall get written approval from the BLM prior to making any changes in the location of 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 BLM, and at least 60 days prior to initiating any such changes or departure, the licensee shall file a report with FERC describing the changes, the reasons for the changes, and showing the approval of the BLM for such changes. The licensee shall file an exact copy of this report with the BLM at the same time it is filed with FERC. This article does not relieve the licensee from the amendment or other requirements of Article 2 or Article 3 of this license.

Section 3. Consultation

Each year during the 60 days preceding the anniversary date of the license, the licensee shall consult with the BLM with regard to measures needed to ensure protection and utilization of the public land resources affected by the Project. Within 60 days following such consultation, the licensee shall file with the FERC evidence of the consultation with any recommendations made by the BLM. The BLM reserves the right, after notice and opportunity for comment, to require changes in the Project and its operation through revision of the 4(e) conditions that require measures necessary to accomplish protection and utilization of public land resources.

Section 4. Modification of 4(e) Conditions After Biological Opinion or Water Quality Certification

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

Section 5. Surrender of License or Transfer of Ownership

The licensee shall guarantee or ensure that, in a manner satisfactory to the BLM, the costs of license surrender and restoration of Project-affected public lands will be provided for by the licensee. The licensee shall conduct an analysis, using experts approved by the BLM, to estimate the potential costs associated with surrender and restoration of public lands to BLM specifications. In addition, the licensee shall pay for an independent audit to assist the BLM in determining whether the licensee has the financial ability to fund the surrender and restoration work specified in the analysis.

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

Section 6. Valid Claims and Existing Rights

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

Section 7. Compliance with Regulations

The licensee shall comply with the regulations of the Department of the Interior and all federal, state, county, and municipal laws, ordinances, or regulations in regards to the area or operations covered by this license, to the extent those laws, ordinances, or regulations are not preempted by federal law.

Section 8. Protection of United States Property

The licensee shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with the license.

Section 9. Liability for Damage to Life or Property

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

Section 10. Surveys, Land Corners

The licensee shall avoid disturbance to all public land survey monuments, private property corners, and public land boundary markers. In the event that any such land markers or monuments 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 BLM.

Further, the licensee shall ensure that any such official survey records affected are amended as provided by law.

Section 11. Hazardous Substances Plan

Within 1 year of license issuance or prior to undertaking activities on public lands , the licensee shall file with FERC a plan approved by the BLM, SWRCB, CDFG, and RWQCB for oil and hazardous substances storage and spill prevention and cleanup. In addition, during planning and prior to any new construction or maintenance not addressed in an existing plan, the licensee shall notify the BLM, SWRCB, CDFG, and RWQCB, and these entities shall make a determination whether a plan approved by the BLM for oil and hazardous substances storage and spill prevention and cleanup is needed. Any such plan shall be filed with FERC.

At a minimum, the plan must require the licensee to (1) maintain in the project area, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) to periodically inform the BLM, SWRCB, CDFG, and RWQCB of the location of the spill cleanup equipment on public lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; and (3) to inform the BLM, SWRCB, CDFG, and RWQCB immediately of the magnitude, nature, time, date, location, and action taken for any spill. The plan shall include a monitoring plan that details corrective measures that will be taken if spills occur. The plan shall include a requirement for a weekly written report during construction documenting the results of the monitoring.

Section 12. Use of Explosives

Use of explosives shall be consistent with state and local requirements.

1. The licensee shall use only electronic detonators for blasting on public lands and licensee adjoining property, except near high-voltage powerlines. The BLM may allow specific exceptions when in the public interest.

2. In the use of explosives, the licensee shall exercise the utmost care not to endanger life or property and shall comply with the requirements of the BLM. The licensee shall contact the BLM prior to blasting to obtain the requirements from the BLM. The licensee shall be responsible for any and all damages resulting from the use of explosives and shall adopt precautions to prevent damage to surrounding objects. The licensee shall furnish and erect special signs to warn the public of the licensee's blasting operations. The licensee shall place and maintain such signs so they are clearly evident to the public during all critical periods of the blasting operations and shall ensure that they include a warning statement to have radio transmitters turned off.

3. The licensee shall store all explosives on public lands in a secure manner, in compliance with State and local laws and ordinances, and shall mark all such storage places "DANGEROUS - EXPLOSIVES." Where no local laws or ordinances apply, the licensee shall provide storage that is satisfactory to the BLM and in general not closer than 1,000 feet from the road or from any building or camping area.

3. When using explosives on BLM lands, the licensee shall adopt precautions to prevent damage to landscape features and other surrounding objects. When directed by the FBLM, the licensee shall leave trees within an area designated to be cleared as a protective screen for surrounding vegetation during blasting operations. The licensee shall remove and dispose of trees so left when blasting is complete. When necessary, and at any point of special danger, the licensee shall use suitable mats or some other approved method to smother blasts.

Section 13. Pesticide Use Restrictions

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

The licensee shall use on public lands only those materials registered by the U. S. Environmental Protection Agency 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.

Section 14. Damage, High Hazards

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

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

Section 15. Risks and Hazards

The licensee is responsible for inspecting its site, right-of-way, and the immediate adjoining area for dangerous trees, hanging limbs, and other evidence of hazardous conditions and is responsible for removing such hazards, after securing permission from the BLM, except in an emergency where there is an imminent risk of death or injury to

the public or facilities, in which case the licensee shall notify the BLM of the action as soon as possible.

Section 16. Road Use by Government

The United States shall have unrestricted use of any road constructed 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 and shall have the right to extend rights and privileges of use of such road to states and local subdivisions thereof, as well as to other users, including members of the public, except contractors, agents, and employees of the licensee; provided that the agency having jurisdiction shall control such use so as not unreasonably to interfere with the safety or security uses, or cause the licensee to bear a share of the costs of maintenance greater than the licensee's use bears to all use of the road.

Section 17. Road Use

The licensee shall confine all Project vehicles, including, but not limited to, administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes. The BLM 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.

Section 18. Crossings

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

Section 19. Access

The FS reserves the right to use or permit others to use any part of the licensed area on public lands for any purpose, provided such use does not interfere with the rights and privileges authorized by this license or the Federal Power Act.

Section 20. Signs

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

Section 21. Construction Inspections

Within 60 days of planned ground-disturbing activity, the licensee shall file with FERC a Safety During Construction Plan that identifies potential hazard areas and measures necessary to address public safety. Areas to consider include construction activities near public roads, trails, and recreation areas and facilities.

The licensee shall perform daily (or on a schedule otherwise agreed to by the BLM in writing) inspections of licensee's construction operations on public lands and licensee adjoining property while construction is in progress. The licensee shall document these inspections (informal writing sufficient) and shall deliver such documentation to the BLM on a schedule agreed to by the BLM. The inspections must specifically include fire plan compliance, public safety, and environmental protection. The licensee shall act immediately to correct any items found to need correction.

A registered professional engineer of the appropriate specialty shall regularly conduct construction inspections of structural improvements on a schedule approved by the BLM.

Section 22. Unattended Construction Equipment

The licensee shall not place construction equipment on public lands prior to actual use or allow it to remain on public lands subsequent to actual use, except for a reasonable mobilization and demobilization period agreed to by the BLM. The licensee shall remove equipment from public lands unless a permit is issued for equipment storage.

Section 23. Maintenance of Improvements

The licensee shall maintain the improvements and premises on public lands and licensee adjoining property to standards of repair, orderliness, neatness, sanitation, and safety. For example, trash, debris, and unusable machinery will be disposed of separately; other materials will be stacked, stored neatly, or placed within buildings. Disposal will be at an approved existing location, except as otherwise agreed to by the BLM.

Section 24. Erosion Control Plan For New Construction and Measures For Project Maintenance and Operations

During planning and prior to any new ground-disturbing construction or non-routine maintenance not addressed in an existing plan that may affect public lands (including, but not limited to, any recreation-related construction), the licensee shall file with FERC, a plan approved by the BLM for the control of erosion, stream sedimentation, dust, and soil mass movement.

The plan shall be based on actual-site geological, soil, and groundwater conditions and shall include: (1) a description of the actual-site conditions; (2) detailed descriptions,

design drawings, and specific topographic locations of all control measures; (3) measures to divert runoff away from disturbed land surfaces; (4) measures to collect and filter runoff over disturbed land surfaces, including sediment ponds at the diversion and powerhouse sites; (5) revegetating disturbed areas outside of the roadbed; (6) measures to dissipate energy and prevent erosion at the tailrace; and (7) a monitoring and maintenance schedule. The BLM may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the Project area. This plan must identify requirements for construction, operation, and maintenance measures to meet BLM erosion control objectives and standards.

Section 25. Solid Waste and Waste Water Plan, New Construction and Project Operation and Maintenance

During planning and prior to any new construction or maintenance not addressed in an existing plan (including, but not limited to, any recreation-related construction), the licensee shall notify the BLM, and the BLM shall make a determination whether a plan shall be filed with FERC. At a minimum, the plan must address the estimated quantity of solid waste and waste water generated each day; the location of disposal sites and methods of treatment; the implementation schedule; areas available for disposal of wastes; design of facilities; comparisons between on- and off-site disposal; and maintenance programs.

Section 26. Water Quality and Water Pollution

The licensee shall comply with state water quality standards to ensure compliance with the Clean Water Act, protection of beneficial uses, and adequate protection during utilization of the public lands.

The licensee shall discharge no waste or byproduct on or affecting public lands if it contains any substances in concentrations that would result in violation of water quality standards set forth by the State; would impair present or future beneficial uses of water; would cause pollution, nuisance, or contamination; or would unreasonably degrade the quality of any waters in violation of any federal or state law. Prior to construction, and during operation and maintenance of the Project, the licensee shall develop a plan approved by the BLM and subject to requirements of other federal and state water quality agencies.