148 FERC ¶ 62,070
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Sacramento Municipal Utility District Project No. 2101-084

ORDER ISSUING NEW LICENSE
(Issued July 23, 2014)

INTRODUCTION

1. On July 7, 2005, the Sacramento Municipal Utility District (SMUD) filed, pursuant to sections 4(e) and 15 of the Federal Power Act (FPA),[1] an application[2] for a new license to continue operation and maintenance of its Upper American River Hydroelectric Project (Upper American Project) No. 2101, and to construct, as a part of the project, the proposed Iowa Hill Pumped Storage Development (Iowa Hill Development).[3] The authorized installed capacity under this license for the existing part of the project is 637.3 megawatts (MW),[4] and the proposed installed capacity for the Iowa Hill Development under this license is 400 MW, for a total project installed capacity of 1,037.3 MW.

2. The project currently consists of seven developments located on the Rubicon River, Silver Creek, and South Fork American River in El Dorado and Sacramento Counties in central California. These seven developments occupy 6,190.2 acres of federal land within the Eldorado National Forest, managed by the U.S. Department of Agriculture - Forest Service (Forest Service), and 53.9 acres of federal land administered

[1] 16 U.S.C. §§ 797(e) and 808 (2012), respectively.

[2] The application was prepared using the Commission's Alternative Licensing Process (ALP). As such, it included an applicant-prepared environmental assessment.

[3] On July 15, 2005, Pacific Gas & Electric Company filed an application for a new license for its Chili Bar Hydroelectric Project (Chili Bar Project) No. 2155, located immediately downstream of the Upper American Project on the South Fork American River. Due to their proximity, both projects were the subject of a collaborative proceeding and settlement negotiations.

[4] *See Sacramento Mun. Util. Dist.* (*SMUD*), 122 FERC ¶ 62,017 at ordering para. (C) (2008).

by the U.S. Department of Interior Bureau of Land Management (BLM).[5, 6] The Iowa Hill Development will be located in El Dorado County, and will occupy 185 acres of federal land within the Eldorado National Forest.

3. As discussed below, this order issues a new license for the Upper American River Project, and authorizes the construction of the Iowa Hill Development as part of the project.

BACKGROUND

4. The Commission issued the original license for the Upper American Project on August 28, 1957.[7] The license expired on July 31, 2007. Since then, SMUD has operated the project under an annual license pending the disposition of its new license application.[8]

5. On July 28, 2006, the Commission issued a public notice accepting the application for filing, soliciting motions to intervene, protests, comments, and final recommendations, terms and conditions, and prescriptions.[9] The notice set a deadline of September 26, 2006, later extended to October 18, 2006,[10] for filing motions to intervene

[5] The Commission charges SMUD annually for the use of federal lands under section 10(e) of the FPA, 16 U.S.C. § 803(e) (2012), for 4,553.41 non-transmission line acres and 359.79 transmission line acres, which are fewer than the total federally-owned acres occupied by the project because acreage transferred by SMUD to the Forest Service in the 1960s is not subject to annual charges because SMUD retained occupancy rights on those lands.

[6] Because the project is located on the South Fork American River, a navigable waterway of the United States, *El Dorado Irrigation District*, 29 FERC ¶ 61,375, at 61,792 (1984), and is located on federal lands administered by the US Forest Service, the project is required to be licensed pursuant to section 23(b)(1) of the Federal Power Act, 16 U.S.C. § 817(1) (2012).

[7] 18 FPC 228 (1957). The original license was granted on August 28, 1957, with an effective date of August 1, 1957, for a term of fifty years.

[8] *See* 16 U.S.C. § 808(a)(1) (2012).

[9] *See* 71 *Fed. Reg.* 44,691 (July 28, 2006).

[10] On August 18, 2006, SMUD filed a supplement to its environmental assessment addressing an "Agency/NGO Alternative" that was later superseded by a settlement agreement. By letter filed September 6, 2006, BLM, California Fish and Wildlife,

(continued)

and protests.

6. The El Dorado Parties,[11] Department of Interior (Interior), Pacific Gas and Electric Company (PG&E), California Department of Fish and Game (California Fish and Wildlife),[12] Friends of the River (on behalf of America Outdoors, American River Recreation Association, American Whitewater, California Outdoors, California Sportfishing Protection Alliance, Camp Lotus, Foothill Conservancy, Sierra Club, and Hilde Schweitzer), National Marine Fisheries Service (NMFS), Placer County Water Agency, the El Dorado Hills Community Service District, and the California State Water Resources Control Board (California Water Board) filed timely motions to intervene. Motions to intervene filed after an application has been filed but before notice has been issued are considered to be timely. None of the intervenors opposes issuance of a new license.

7. Timely comments and recommendations were filed by California Fish and Wildlife, California Sportfishing Protection Alliance, NMFS, California Water Board, California Department of Parks and Recreation (California Parks and Recreation), and the Forest Service.

8. On November 16, 2006, a number of the stakeholders in this proceeding filed a request that the Commission extend the deadline for filing comments, recommendations, and terms and conditions to February 1, 2007, to give them time to complete settlement negotiations and for agencies to file revised conditions.[13] The Commission issued a notice granting the request the same day.

California Department of Parks and Recreation, Forest Service, Fish and Wildlife Service, National Park Service, and the California State Water Resources Control Board requested a 60-day extension on filing comments, recommendations, and final terms and conditions. On September 13, 2006, the Commission issued a notice extending the deadline to October 18, 2006, to give the parties 60 days from the date of SMUD's supplemental filing to review the filing and file comments, recommendations, and final terms and conditions.

[11] County of El Dorado, El Dorado County Water Agency, El Dorado Irrigation District, El Dorado Water & Power Authority, and Georgetown Divide Public Utility.

[12] The California Department of Fish and Game was renamed the Department of Fish and Wildlife on January 1, 2013.

[13] *See* letter from Michael A. Swiger (counsel for SMUD) to Magalie R. Salas (Commission Secretary).

9. On February 1, 2007, SMUD and PG&E filed a comprehensive Settlement Agreement (Settlement) related to relicensing both the Upper American and Chili Bar Projects. The Settlement was signed by 15 stakeholders[14] and resolved all issues among the signators related to the relicensing, including ongoing operation of the Upper American and Chili Bar Projects and overlapping resource issues.[15]

10. The Commission issued notice of the Settlement on February 8, 2007. Placer County Water Authority and the California Sportfishing Protection Alliance filed comments on the Settlement. California Parks and Recreation, California Fish and Wildlife, California Sportfishing Alliance, Forest Service, Environmental Council of Sacramento, Interior, NMFS, Sacramento Farm Bureau, and the California Water Board filed comments, recommendations, terms and conditions, and prescriptions based on the Settlement.

11. On September 21, 2007, Commission staff issued a draft environmental impact statement (draft EIS) on the applications for the Upper American and Chili Bar Projects that analyzed the impacts of the measures proposed in the Settlement and additional, staff-recommended measures.[16] American Whitewater (on behalf of American River Recreation Association, California Outdoors, California Sportfishing Protection Alliance, Camp Lotus, Friends of the River, and Hilde Schweitzer), California Fish and Wildlife, the Forest Service, Friends of Slab Creek, Interior, PG&E, SMUD, U.S. Army Corps of Engineers (Corps), U.S. Environmental Protection Agency (EPA), and 18 individuals filed comments on the draft EIS. A final EIS was issued on March 14, 2008.[17] References in this order to the EIS are to the final EIS, unless otherwise noted.

12. The interventions, comments, and recommendations have been fully considered in

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[14] Signators to the Settlement were: American Whitewater, American River Recreation Association, BLM, California Parks and Recreation, California Fish and Wildlife, California Outdoors, California Sportfishing Protection Alliance, Camp Lotus, Foothill Conservancy, Forest Service, Friends of the River, FWS, Interior, U.S. National Park Service, PG&E, Rich Platt, Hilde Schweitzer, Theresa Simsiman, and SMUD.

[15] The full version of the Settlement with appendices is available on the Commission's website from the eLibrary feature at http://www.ferc.gov/docs-filing/eLibrary.asp. Accession number 20070208-4003.

[16] 72 *Fed. Reg*. 55,194 (2007). The Forest Service was a cooperating agency in the preparation of the EIS. *See* Letter of Understanding between the Commission and the Eldorado National Forest, June 7, 2007.

[17] *See* 73 *Fed. Reg.* 15,511 (2008).

determining whether, and under what conditions, to issue this license.

PROJECT DESCRIPTION AND OPERATION

A. Project Area

13. The Upper American Project is located on the Rubicon River, Silver Creek, and South Fork American River. The project uses water from both the South Fork American and Rubicon River watersheds, which drain the western slope of the Sierra Nevada Mountains.

14. From its headwaters, the Rubicon River flows generally north for about 8 miles to the project's Rubicon reservoir, then northwest about 4.8 miles to the mouth of the Little Rubicon River, and about 5 miles further to Placer County Water Agency's Hell Hole reservoir, part of the Middle Fork American River Project (FERC Project No. 2079). Silver Creek originates at the confluence of Tells Creek, Big Silver Creek and Jones Fork Silver Creek at the project's Union Valley reservoir. From there, Silver Creek flows southwesterly to its terminus at the South Fork American River, a distance of 14.6 miles. The South Fork American River headwaters originate above Echo Summit at an elevation of over 9,000 mean sea level (msl) feet in the Crystal Range. The river then flows generally westerly to its terminus at the American River at the Bureau of Reclamation's Folsom Lake, a distance of approximately 75 miles.

15. The project developments span more than 81 river miles and have an elevation change of about 6,000 feet msl from the uppermost Rubicon reservoir to the downstream reach of the Slab Creek/White Rock development.

B. Project Developments

16. The current project includes seven developments with eight powerhouses that have a total authorized installed capacity of 637.3 MW. The project also includes eleven transmission lines with a combined length of about 180 miles, about 28 miles of power tunnels/penstocks, and a canal that is 1.9-miles-long. From upstream to downstream, the seven project developments are: Loon Lake, Robbs Peak, Jones Fork, Union Valley, Jaybird, Camino, and Slab Creek/White Rock (see figure 1[18]).

[18] Final EIS at 1-2.

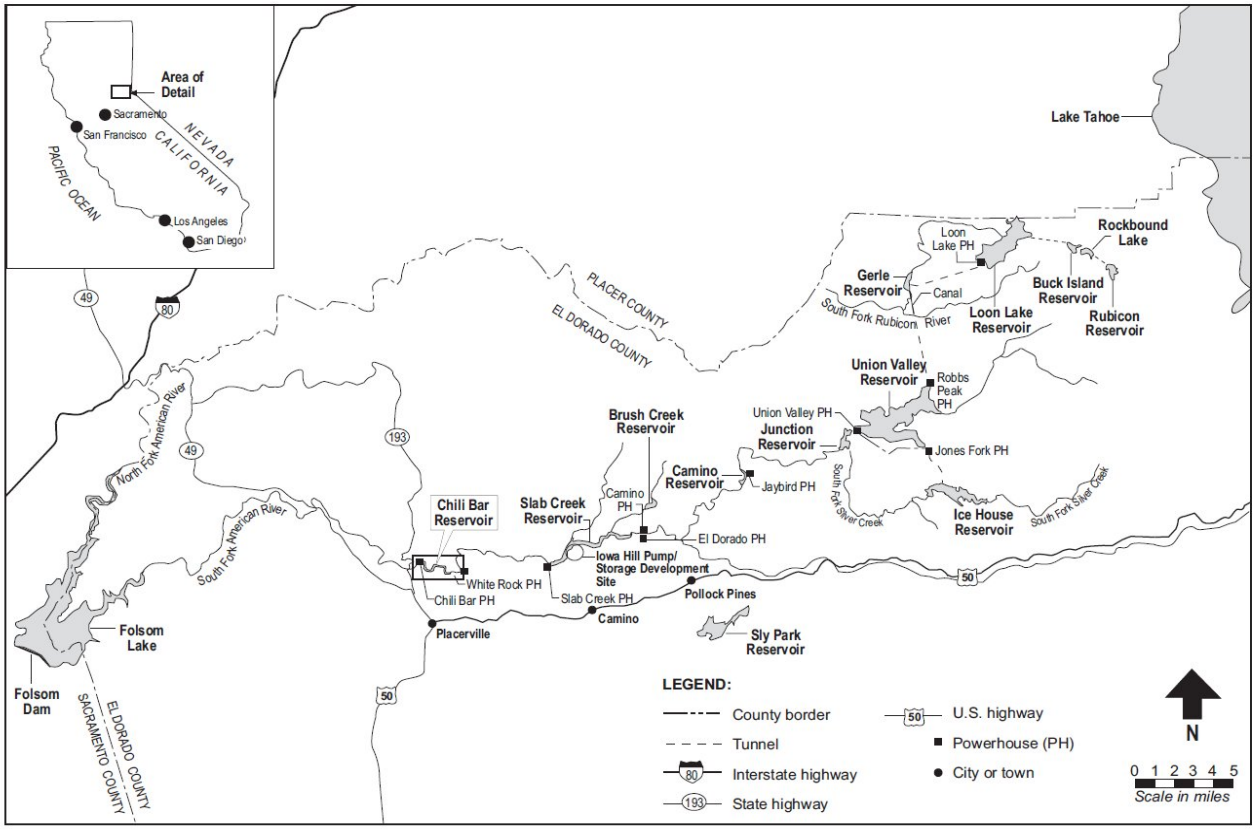

Figure 1. General vicinity of the Upper American and Chili Bar Projects.

Loon Lake

17. The Loon Lake development includes seven dams, three reservoirs, three power tunnels, a penstock, a powerhouse, and two transmission lines. The 36-foot-high by 644-foot-long, Rubicon Dam,[19] and the 29-foot-high by 553-foot-long auxiliary dam create the 108-acre Rubicon reservoir with a storage capacity of 1,450 acre-feet at a maximum surface elevation of 6,545 feet msl. The 0.2-mile-long Rubicon-Rockbound tunnel diverts water from Rubicon reservoir to the project's Buck Island reservoir. The 78-acre Buck Island reservoir is created by Buck Island Dam, a 23-foot-high by 293-foot-long diversion dam located on the Little Rubicon River, and a 15-foot-high by 244-foot-long

[19] Rubicon Dam is located within the federally-designated Desolation Wilderness Area of the Eldorado National Forest. Congress designated the Desolation Wildness Area in 1969, 12 years after the Upper American Project was licensed.

auxiliary dam. The Buck Island reservoir has a storage capacity of 1,070 acre-feet at a maximum water surface elevation of 6,436 feet msl. The 1.6-mile-long Buck Island-Loon Lake tunnel diverts water from Buck Island reservoir to the project's Loon Lake reservoir. Loon Lake reservoir is created by the 108-foot-high by 0.4-mile-long Loon Lake Dam on Gerle Creek, a tributary to the South Fork Rubicon, and a 95-foot-high by 910-foot-long auxiliary dam with earthfill dike. Loon Lake reservoir has a storage capacity of 76,200 acre-feet at a maximum water surface elevation of 6,410 feet msl. The 0.3-mile-long Loon Lake penstock diverts water from Loon Lake reservoir to the 70.5-MW Loon Lake powerhouse. The Loon Lake powerhouse tailrace tunnel extends from the Loon Lake powerhouse to Gerle Creek reservoir (Robbs Peak development). The Loon Lake switchyard is located adjacent to the Loon Lake powerhouse. The Loon Lake development includes two 69-kilovolt (kV) overhead transmission lines: the Loon Lake-Robbs Peak transmission line extending 7.9 miles from the Loon Lake switchyard to the Robbs Peak switchyard, and the Loon Lake-Union Valley transmission line extending 12.4 miles from the Loon lake switchyard to the Union Valley switchyard.

Robbs Peak

18. The Robbs Peak development includes two dams, two reservoirs, a power canal, two tunnels, a penstock and powerhouse, and a transmission line. Gerle Creek Dam, a 58-foot-high, 444-foot-long overflow structure, is located on Gerle Creek upstream of its confluence with the South Fork Rubicon River. This structure creates the 60-acre Gerle Creek reservoir, having 1,260 acre-feet of storage at maximum water surface elevation of 5,231 feet msl, and incorporates the intake of Gerle Creek canal in its left abutment. Gerle Creek canal, an above-ground canal 22-feet-wide and 19-feet-deep, extends 1.9 miles from the Gerle Creek reservoir to the Robbs Peak reservoir. Robbs Peak Dam is a 44-foot-high, 320-foot-long structure located on the South Fork Rubicon River upstream of its confluence with Gerle Creek. This structure forms the 2-acre Robbs Peak reservoir with a storage capacity of 30 acre-feet at a maximum water surface elevation of 5,231 feet msl. The development also includes the Robbs Peak power tunnel, which extends from Robbs Peak reservoir to the 0.4-mile-long Robbs Peak penstock. The Robbs Peak penstock extends from Robbs Peak tunnel to the 28.1-MW Robbs Peak powerhouse, which discharges at the northeast shore of the Union Valley reservoir (Union Valley development), located on Silver Creek, a tributary to the South Fork American River. The Robbs Peak switchyard is adjacent to the powerhouse. The Robbs Peak-Union Valley transmission line is an overhead 69-kV line that extends 6.8 miles from the Robbs Peak switchyard to the Union Valley switchyard.

Jones Fork

19. The Jones Fork development includes three dams, a reservoir, a power tunnel, penstock and powerhouse, and transmission line. Ice House Dam is 150-feet-high and 0.3-mile-long and is located on the South Fork Silver Creek, with two auxiliary earthfill

dikes. These dam and dikes create the 678-acre Ice House reservoir with a storage capacity of 45,960 acre-feet at a maximum water surface elevation of 5,450 feet msl. The Jones Fork tunnel extends from the Ice House reservoir to the 1.6-mile-long Jones Fork penstock. The Jones Fork penstock extends from the tunnel to the 10.4-MW Jones Fork powerhouse which discharges at the southeast shore of the Union Valley reservoir (Union Valley development). The Jones Fork switchyard is located adjacent to the Jones Fork Powerhouse. The Jones Fork-Union Valley transmission line is a 69-kV overhead transmission line that extends 4.0 miles from the Jones Fork switchyard to the Union Valley switchyard.

Union Valley

20. The Union Valley development includes a dam, a reservoir, power tunnel, penstock and powerhouse, and two transmission lines. The 453-foot-high, 0.3-mile–long Union Valley Dam on Silver Creek creates the 2,860-acre Union Valley reservoir with a storage capacity of 277,290 acre-feet at a maximum water surface elevation 4,870 feet msl. The Union Valley tunnel connects the reservoir with the 40-MW Union Valley powerhouse, which discharges into Junction reservoir (Jaybird development). The Union Valley switchyard is located adjacent to the powerhouse. The development includes two 230-kV overhead transmission lines, the Union Valley-Camino transmission line that extends from the Union Valley switchyard 11.8 miles to the Camino switchyard and the Union Valley-Jaybird transmission line that extends from Union Valley switchyard 5.9 miles to the Jaybird switchyard.

Jaybird

21. The Jaybird development includes a dam, a reservoir, power tunnel, penstock and powerhouse, and transmission line. Junction Dam, located on Silver Creek, creates the 64-acre Junction reservoir with a storage capacity of 3,250 acre-feet at a maximum water surface elevation of 4,450 feet msl. The 4.4-mile-long Jaybird tunnel connects Junction reservoir and the Jaybird penstock. The 0.5-mile-long Jaybird penstock connects Jaybird tunnel and the 123-MW Jaybird powerhouse which discharges into Camino reservoir (Camino development). The Jaybird switchyard is integral with the powerhouse. The Jaybird-White Rock transmission line is a 230-kV overhead transmission line that extends 15.9 miles to connect the Jaybird and White Rock switchyards.

Camino

22. The Camino development includes two dams, two reservoirs, tunnels that feed water from the reservoirs into a single penstock and powerhouse, and two transmission lines. Camino Dam, located on Silver Creek, creates the 20-acre Camino reservoir with a storage capacity of 825 acre-feet at a maximum water surface elevation of 2,915 feet msl. The 5.0-mile-long Camino tunnel connects Camino reservoir with the Camino penstock. Brush Creek Dam, located on Bush Creek, a tributary to the South Fork American River,

is a 213-foot-high and 780-foot-long concrete arch dam that creates the 20-acre Brush Creek reservoir with a storage capacity of 1,530 acre-feet at a maximum water surface elevation of 2,915 feet. The Brush Creek tunnel extends from the Brush Creek reservoir to the lower end of the Camino tunnel. The 0.3-mile-long Camino penstock conveys water from the tunnel to the 144-MW Camino powerhouse, which discharges into the Slab Creek reservoir (Slab Creek/White Rock development) located on the South Fork American River. The Camino switchyard is located on top of Camino powerhouse. Two 230-kV overhead transmission lines originate at the Camino switchyard. The Camino-Lake transmission line extends 31.7 miles and connects to SMUD's Lake substation, and the Camino-White Rock transmission line extends 10 miles and connects to the White Rock switchyard.

Slab Creek/White Rock

23. The Slab Creek/White Rock development includes a dam, a reservoir, two penstocks and powerhouses, and three transmission lines. Slab Creek Dam stretches across the South Fork American River and is 250-feet-high and 817-feet-long, creating the 280-acre Slab Creek reservoir with a storage capacity of 16,600 acre-feet at a maximum water surface elevation of 1,850 feet msl. The Slab Creek penstock passes through the dam and connects the Slab Creek reservoir with the 450-kW Slab Creek powerhouse located at the base of Slab Creek Dam. The 4.9-mile-long White Rock tunnel connects the Slab Creek reservoir with the White Rock penstock. The 0.3-mile-long White Rock penstock connects the White Rock tunnel to the 224-MW White Rock powerhouse. The Slab Creek/White Rock development is the most downstream project facility (excluding transmission lines) and the discharges from its two powerhouses flow into the Chili Bar reservoir, part of PG&E's Chili Bar Project. The Slab Creek Switchyard and the White Rock switchyard are located adjacent to the respective powerhouses. The Slab Creek/White Rock development includes two 230-kV overhead transmission lines and one 12-kV distribution line. The two transmission lines, both 21.8 miles long, connect the White Rock switchyard to SMUD's Folsom Junction. The 12-kV, 600-foot-long Slab Creek tap line connects the Slab Creek switchyard to the junction with PG&E's 12-kV distribution line.

24. A more detailed description of the project facilities in contained in Ordering Paragraph (B)(2).

C. Project Recreation Facilities

25. In addition to its generation-related facilities, the project includes 47 recreation areas that include campgrounds, day use facilities, boat launches, trails, and a scenic

overlook.[20]

D. Project Boundary

26. The current project boundary encloses a total of 9,432 acres; 5,904 acres of which are federal land, and 130 acres being privately owned. All of the project's generation-related features, including linear corridors ranging from 50 to 100 feet for the transmission lines and tunnels at each development, are within the project boundary.

27. However, several project access roads are not entirely located within the existing boundary. These include access roads at Wolf Creek, Northern Ice House, Jones Fork, and Northern Union Valley. Six campgrounds, including Gerle Creek, Pleasant, Deer Crossing, Loon Lake Equestrian, Jones Fork, and Big Silver are also only partially within the existing project boundary.

28. SMUD proposes to remove 29 miles of transmission line from the project boundary because the lines are no longer used solely for project purposes and are now part of the interconnected transmission system. In addition, the new Iowa Hill Development will occupy 282.9 acres, including 185 acres of federal lands.

E. Current Project Operation

29. Operation of the project follows an annual cycle of reservoir filling and release that coincides with the rain and snowmelt runoff pattern characteristic of the Sierra Nevada Mountains. The project's reservoirs manage water for power production in ways that differ. The two uppermost reservoirs (Rubicon and Buck Island) provide limited storage and are operated primarily run-of-river to capture and divert water from the Rubicon River and the Highland Creek drainages. SMUD does not generate power at these two uppermost reservoirs.

30. The Loon Lake, Ice House, and Union Valley reservoirs account for 94 percent of the project's total gross storage capacity and are operated primarily as seasonal storage reservoirs, capturing as much of the winter/spring rain and snowmelt runoff as practicable, consistent with various regulatory constraints. Typically, from about mid-summer to winter, the elevations of these three primary storage reservoirs are gradually lowered to generate electricity and provide adequate space to capture runoff and minimize the frequency and amount of spill. During this period, project powerhouses are operated in a peaking mode, following the daily demand cycle. In winter, as rainstorms and snowmelt begin to increase streamflow in the basin, the process is reversed, with more water stored than released through the powerhouses. Thus, from winter to early

[20] *See* Figures 3-22 through 3-35 in the final EIS at 3-247.

summer, the water elevations of Loon Lake, Ice House, and Union Valley reservoirs gradually increase.

31. The five downstream project reservoirs (Gerle Creek, Robbs Peak, Junction, Camino, and Slab Creek) operate primarily as re-regulating forebays/afterbays for the various powerhouses. The remaining reservoir (Brush Creek) is operated to provide either spinning reserve or peaking power for system reliability purposes. SMUD's water rights do not allow the storage of water in these five reservoirs. Thus, retention time in these reservoirs is short, and water levels can fluctuate daily as they provide the re-regulating functions for which they were designed.

32. Six existing powerhouses (Loon Lake, Jones Fork, Union Valley, Jaybird, Camino, and White Rock) account for 95 percent of the total 688-MW maximum capability of the project. SMUD can generally operate these powerhouses with flexibility, with limited constraints on flows and sufficient storage to meet daily peaking cycles. Of the two remaining powerhouses, Robbs Peak powerhouse is operated run-of-river due to the lack of storage capacity in Robbs Peak reservoir. Robbs Peak powerhouse does, however, contribute to peaking power capability because the primary inflow during most of the year is from the Loon Lake powerhouse, a peaking facility. Finally, the Slab Creek powerhouse is typically operated to meet baseloads using the continuous minimum flow from the Camino tunnel and the South Fork American River for power generation.

F. Proposed Iowa Hill Development

33. The Iowa Hill Development will be an off-stream pumped storage facility that pumps water from the existing Slab Creek reservoir (lower reservoir) during off-peak hours to a new upper reservoir (Iowa Hill reservoir) to be constructed atop Iowa Hill. Water will be released from the upper reservoir for generation through a tunnel system and powerhouse during peak-load hours. The difference in elevation between the two reservoirs will be about 1,200 feet, providing a generating capacity of 400 MW via three 133-MW pump turbines. Power from the development will run through a switchyard and then to the Camino-White Rock Transmission Line over a 2-mile-long 230-kV transmission line.

G. Proposed Operation and Environmental Measures

34. SMUD's proposes to operate and maintain the project in accordance with the terms of the Settlement, which includes draft license articles.[21]

[21] The following parentheticals reference the articles in the Settlement.

Aquatic Resources

35. SMUD proposes to provide increased minimum flows in several of the stream reaches downstream of the project dams (proposed Article 1-1). In most cases, these proposed minimum flows vary by season and water year type. The increased minimum flows are designed to increase suitable habitat for native fish species and decrease suitable habitat for competing species.

36. SMUD proposes to release pulse flows (proposed Article 1-2) to mobilize and flush sediments downstream and to coordinate the pulse flows with natural high flow events in three reaches: (1) the Rubicon River below Rubicon Dam; (2) Gerle Creek below Loon Lake Dam; and (3) South Fork Silver Creek below Ice House Dam.

37. Under Proposed Article 1-3, SMUD proposes ramping rates for: (1) the pulse flows in Gerle Creek below Loon Lake Dam and South Fork Silver Creek below Ice House Dam; (2) the release of minimum flows in Silver Creek below Junction Dam, Silver Creek below Camino Dam, and South Fork American River below Slab Creek Dam; and (3) recreational flow releases in the South Fork Silver Creek below Ice House Dam and the South Fork American River below Slab Creek to Chili Bar reservoir.

38. Under Proposed Article 1-9, SMUD proposes to transport woody debris that collects in the project reservoirs downriver to reduce interference with recreational boating in the reservoirs and to prevent debris jams at project dams.

39. SMUD proposes to coordinate operation of the Upper American Project with PG&E's Chili Bar Project (proposed Article 1-4) to allow PG&E to anticipate and manage Upper American Project releases.

40. Under Proposed Article 1-12, SMUD proposes to: implement wildlife safety measures at project canals and transmission lines; implement rare plant protection measures within the Pine Hill Preserve; annually review lists of sensitive species; notify agencies of any occurrences of sensitive plant or wildlife species; and evaluate potential effects on special status species.

41. SMUD proposes (proposed Article 1-12) to consult with BLM, FWS, and California Fish and Wildlife before conducting transmission line maintenance activities within the Pine Hill Preserve to ensure that these activities minimize effects on rare plant species.

42. SMUD proposes annual employee awareness programs (proposed Article 1-13) to protect special-status species, such as the valley elderberry longhorn beetle and elderberry shrubs, within the project boundary, from any transmission line maintenance activities by clearly delineating these areas to be excluded from maintenance.

43. To allow brown trout to access spawning areas in the Gerle Creek tributary, SMUD proposes (proposed Article 1-8) to regulate the elevation of Gerle Creek reservoir at a level sufficient to provide fish passage from August to October. To stabilize the banks and fine sediment deposits in Gerle Creek channel, SMUD proposes (proposed Article 1-7) to develop and implement a plan to stabilize the channel.

44. Under Proposed Article 1-5, SMUD proposes to monitor entrainment at the Robbs Peak powerhouse and develop protective measures if monitoring indicates that fish are entrained.

45. SMUD proposes to evaluate ways to minimize the potential adverse effects on water quality (proposed Article 1-11) associated with draining canals/penstocks during maintenance.

Monitoring Programs

46. To provide information indicating whether or not the implemented environmental measures (increased minimum flows, pulse flows, and ramping rates) are protecting targeted resources, SMUD proposes to implement a comprehensive monitoring program (proposed Article 1-5) for native fish populations, aquatic macroinvertebrates, amphibians and reptiles, riparian habitat, algae, geomorphology, water temperature, and numerous water quality parameters in the reservoirs and stream reaches. Under proposed Article 1-10, to monitor streamflows and reservoir elevations, SMUD proposes to develop a streamflow and reservoir elevation gaging plan.

47. Proposed Article 1-6 provides specific steps that SMUD would implement if its proposed monitoring program and other scientific information indicate that the fish and wildlife measures are not likely to achieve the intended results. The specific adaptive management steps identified in the Settlement represent a balancing of interests among the protection of native fish, amphibian and reptile populations, and recreational boating use within the framework of maintaining good water quality in several reaches.

Vegetation and Invasive Weed Management

48. SMUD proposes to prepare a plan (proposed Article 1-13) to control noxious weeds and manage vegetation within the project boundary on Forest Service lands related to soil and erosion control, re-vegetation, and transmission line maintenance.

Recreation Enhancements

49. Under proposed Articles 1-15 through 1-26, and 1-31 SMUD proposes to develop a recreation plan for upgrading and expanding existing recreation facilities, operating and maintaining the facilities, and monitoring future use. The plan would also provide for additional whitewater boating opportunities, information on recreation opportunities, fish

stocking, and managing the trails system.

50. Under Proposed Article 1-24, SMUD proposes to provide whitewater flow releases below Slab Creek reservoir in the spring.

51. SMUD proposes (proposed Article 1-24) more extensive whitewater releases if the Iowa Hill Development is built. If SMUD does not build the Iowa Hill Development, the Settlement calls for SMUD to monitor whitewater use during the first 10 years after license issuance to determine the appropriate releases. If, after 5 years of monitoring, the data show that releasing the whitewater flows would have significant effects on environmental resources, SMUD proposes to eliminate October flow releases.

52. To improve upon existing public education and interpretation information, SMUD proposes (proposed Article 1-25) to provide brochures and maps, and implement the "Interpretive, Education, and Public Information Plan."

53. SMUD proposes to enhance California Fish and Wildlife's fish stocking efforts (proposed Article 1-26) to ensure that the Loon Lake, Union Valley, and Ice House recreational fisheries are maintained.

54. Under proposed Article 1-30, SMUD proposes to implement a transportation system management plan for roads on or affecting National Forest System lands. Under proposed Article 1-31, SMUD would develop and implement a trails system management plan for continued access to the project developments at the higher elevations where there are no access roads.

55. To enhance the visual experience and support boat launch facilities at the project reservoirs, SMUD proposes (proposed Articles 1-8 and 1-23) to provide specific reservoir water level elevations in July, August, and September.

Visual Resource Protection

56. Under proposed Article 1-27, SMUD will develop and implement a visual management plan consistent with the Forest Service's visual resource standards. The plan provides for meetings with the land managing agencies every 5 years to review opportunities to improve the way facilities blend with the surrounding landscapes.

Cultural Resources

57. SMUD proposes (proposed Article 1-28) continued protection of cultural resources through finalization of a Historic Properties Management Plan (HPMP) to ensure that adverse effects on historic properties arising from either project operations or project-related activities would be avoided or satisfactorily resolved. Proposed Article 1-29 provides protocols for unanticipated discoveries over the license term.

58. Finally, under proposed Article 1-45, SMUD proposes specific steps to protect cultural resources as a result of discoveries prior to or during ground disturbing activities, or as a result of project operations, associated with the Iowa Hill Development.

Iowa Hill Development

59. The Settlement includes a series of measures, proposed Articles 1-38 through 1-50, that set forth SMUD's proposals for, among other things, recreational access to Slab Creek, visual quality enhancements, mitigation for construction noise, and erosion and sediment control during the construction and operation of the Iowa Hill Development. These proposals also include monitoring native fish in Slab Creek reservoir and other environmental resources of the Eldorado National Forest and surrounding landscape and mitigating for lost wildlife habitat.

SUMMARY OF LICENSE REQUIREMENTS

60. The 50 proposed articles of the Settlement, which include the 44 proposed articles discussed above that relate to environmental resources,[22] are incorporated into this license through license articles and/or conditions found in the California State Water Resources Control Board's WQC (Appendix A), the Forest Service's section 4(e) conditions (Appendix B), the BLM's section 4(e) conditions (Appendix C), and the FWS's Biological Opinion (Appendix D). While the proposed articles are not included verbatim, this order includes requirements consistent with the Settlement, except as noted.

61. To protect native vegetation from the spread of invasive weeds, the license requires an invasive weed management plan and a vegetative management plan on SMUD-owned lands affected by project operation or by maintenance activities within the project boundary.

62. To ensure that operation of the Gerle Creek development does not adversely affect the upstream passage of brown trout, the license requires a Gerle Creek fish passage plan.

63. To mitigate for the loss of wildlife habitat from construction of the Iowa Hill Development, the license requires SMUD to purchase and manage lands for wildlife management, and to file a wildlife land mitigation plan.

64. To address traffic safety and road improvements during the construction of the

[22] The Settlement also proposes Article 1-32. Facility Management, Article 1-33. Vegetation Management Plan, Article 1-34. Fire Management and Response Plan, Article 1-35. Reservation of Authority Under FPA Section 18, Article 1-36. BLM Reservation of FPA Section 4(e) Authority, and Article 1-37. Implementation Schedule.

Iowa Hill Development, the license requires SMUD to finalize a Transportation Management Plan.

WATER QUALITY CERTIFICATION

65. Under section 401(a)(1) of the Clean Water Act,[23] the Commission may not issue a license authorizing the construction or operation of a hydroelectric project unless the state water quality certifying agency has either issued a Water Quality Certification for the project or has waived certification by failing to act on a request for certification within a reasonable period of time, not to exceed one year. Section 401(d) of the Clean Water Act provides that the certification shall become a condition of any federal license that authorizes construction or operation of the project.[24]

66. SMUD originally applied to the California Water Board for certification on September 22, 2006. On March 30, 2007, the California Water Board requested that SMUD amend its application for certification to be consistent with the provisions of the Settlement. In response, SMUD withdrew its application for certification on September 6, 2007, and re-filed the application on October 23, 2007. Since that date, SMUD has annually withdrawn and refiled its application.

67. On October 4, 2013, the California Water Board issued a certification for the project that includes 23 general conditions and 27 project-specific conditions which are set forth in Appendix A of this order and are incorporated into the license by Ordering Paragraph (D). The certification includes conditions for minimum flows, pulse flows, ramping rates, recreational flows, adaptive management, monitoring, and Iowa Hill Development construction. These project-specific conditions are consistent with the Settlement.

COASTAL ZONE MANAGEMENT ACT

68. Under section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA),[25] the Commission cannot issue a license for a project within or affecting a state's coastal zone unless the state's CZMA agency concurs with the license applicant's certification of consistency with the state's CZMA management program. The agency's concurrence is conclusively presumed by its failure to act within 6 months of its receipt of the applicant's certification.

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[23] 33 U.S.C. § 1341(a)(1) (2012).

[24] 33 U.S.C. § 1341(d) (2012).

[25] 16 U.S.C. § 1456(3)(A) (2012).

69. In California, the CZMA is administered by the California Coastal Commission. The coastal zone extends inland a maximum of 5 miles.[26] The project is located about 100 miles east of the coastal zone.

70. Pursuant to the National Oceanic and Atmospheric Administration's regulations implementing the CZMA, 15 C.F.R. § 930.53 (2013), if a state chooses to review activities, with reasonably foreseeable effects, outside of its coastal zone, it must generally describe the geographic location of such activities. If a state wishes to review activities outside of the coastal zone, and for which it has not generally described the geographic location for review, the state must follow the procedures established in 15 C.F.R. § 930.54 (2013). That section requires the state to notify the federal agency, the applicant, and the National Oceanic and Atmospheric Administration of unlisted activities affecting the coastal zone (that the state wishes to review) within 30 days from notice of the license application.[27]

71. The Upper American Project is located well outside of California's coastal zone, and California has not described a geographic location for federal license activities outside the coastal zone that it wishes to review. Notice of the license application was published in the Federal Register on August 5, 2005.[28] The California Coastal Commission did not notify the Commission or the applicant that it wished to review the application. Therefore, CZMA certification is not required.

SECTION 4(e) OF THE FPA

72. Section 4(e) of the FPA[29] provides that the Commission can issue a license for a project located within any federal reservation only if it finds that the license will not interfere or be inconsistent with the purpose for which the reservation was created or acquired. FPA section 4(e) further requires that Commission licenses for projects located

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[26] *See* CAL. PUB. RES. CODE § 30103 (West 2014). California defines its "coastal zone" to extend seaward to the outer limit of California's jurisdiction and to extend inland 1,000 yards from the mean high tide line. In "significant coastal estuarine, habitat, and recreational areas," the coastal zone can extend inland a maximum of 5 miles from the mean high tide line.

[27] Notice may be constructive, if it is published in the Federal Register. 15 C.F.R. § 930.54(a)(2) (2011).

[28] 70 *Fed. Reg*. 45,384. Notice accepting the application was published in the Federal Register on August 7, 2006. 71 *Fed. Reg*. 44,691

[29] 16 U.S.C. § 797(e) (2012).

within federal reservations must include all conditions that the Secretary of the department under whose supervision the reservation falls shall deem necessary for the adequate protection and utilization of such reservation. Both the Forest Service and the BLM filed 4(e) conditions for the project.

73. Staff has reviewed the Organic Administration Act of 1897,[30] which established the purposes for forest reservations, and the presidential proclamations that created and expanded the Eldorado National Forest.[31] There is no evidence or allegation in this proceeding to show that relicensing the Upper American Project or building the Iowa Hill Development would interfere with the purposes of the Eldorado National Forest, within which the project is located. Therefore this license, as conditioned, will not interfere with or be inconsistent with the purposes for which the Eldorado National Forest was created.

74. No evidence or allegation exists in this proceeding to show that relicensing that relicensing the Upper American Project or building the Iowa Hill Development would interfere with the purposes of the BLM-administered land. We therefore find that this license, as conditioned, will not interfere with or be inconsistent with the purposes for which the BLM-administered land was created.

A. Forest Service Conditions

75. The Upper American Project, including the Iowa Hill Development, will occupy 6,375.2 acres of federal land within the Eldorado National Forest. On June 11, 2008, the Forest Service filed 77 final 4(e) conditions. The final conditions are included in Appendix B of this order and are required as conditions of this license by Ordering Paragraph (E).

76. The first 26 standard conditions are administrative or general in nature. Conditions 27 through 77 are specific to the existing project and the proposed construction of the Iowa Hill Development. The specific conditions are identical to the Settlement's proposed license articles.

77. In its final 4(e) conditions for the project, the Forest Service italicized the portions of its conditions that it determined to be outside its jurisdiction, but indicated that it fully

[30] 16 U.S.C. §§ 473–478, 479–482, 551. (2012).

[31] The Eldorado National Forest was originally established by Presidential Proclamation on July 28, 1910, from parts of the Tahoe National Forest and other lands. 36 Stat. 2729. At that time, the Organic Administration Act of 1897 stipulated that all national forest lands were established and administered only for watershed protection and timber production. 16 U.S.C. § 475 (2012).

supports these measures and recommends the Commission consider them under Section 10(a) of the FPA. The measures pertain generally to references to consultation with other agencies and specifically to locations that are not within or adjacent to the Eldorado National Forest or to issues that are under the purview of other agencies. The recommendations have been removed from the Forest Service's 4(e) conditions in Appendix B. The portions of the Forest Service's recommendations that are not included in Appendix B are evaluated below pursuant to the public interest standard of FPA Section 10(a).

78. Although Commission staff supported almost all of the 4(e) conditions in the final EIS, staff did not recommend the following two conditions: (1) requiring SMUD to pay $1,000,000 annually to the Forest Service (Forest Service 4(e) condition 47) for the operation, maintenance, and administration of the developed recreational sites, facilities, or uses that are adjacent to or in the vicinity of the project reservoirs and facilities; and (2) implementing a transportation system management plan for roads on or affecting National Forest System lands as described in Forest Service 4(e) condition 56.

79. The first condition includes a cost cap that limits SMUD's responsibility for implementing the specified measure. Consistent with Commission policy, although we must include the cap language in the license we are not bound by its limits in enforcing compliance with the measure.[32] The second provision includes a plan for determining the licensee's responsibility for the maintenance of project roads on or affecting National Forest System lands. In the final EIS, Commission staff concluded that the transportation management plan should clearly identify roads either already within the project boundary or proposed to be included in the project boundary that are necessary to access the project's recreational facilities and limit the licensee's responsibility to those access roads or portions of roads that are primarily used for project purposes Nevertheless, all of the Forest Service's final conditions are included in this license because they are mandatory under section 4(e) of the FPA.

B. BLM Conditions

80. Under the new license, the existing developments of the Upper American Project will occupy 53.9 acres of federal land under the supervision of the BLM. Interior, on behalf of BLM, filed preliminary 4(e) conditions for the Upper American Project on October 17, 2006, and revised preliminary 4(e) conditions on January 31, 2007. Ordering Paragraph (G) incorporates the BLM conditions, which are included in Appendix C.

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[32] *See Va. Elec. Power Co.*, 110 FERC ¶ 61,241 (2005) and *Portland Gen. Elec. Co. and Confederated Tribes of the Warm Springs Reservation of Or.*, 111 FERC ¶ 61,450 (2005).

81. BLM's conditions include a single project-specific condition, reserving its authority under section 4(e), and 24 standard conditions, which are administrative or general in nature.

SECTION 18 FISHWAY PRESCRIPTIONS

82. Section 18 of the FPA[33] provides that the Commission shall require the construction, maintenance, and operation by a licensee of such fishways as may be prescribed by the Secretary of Commerce or of the Interior, as appropriate.

83. By letters filed on October 17 and 18, 2006, respectively, the Secretary of Commerce and the Secretary of the Interior both requested that the Commission reserve authority to prescribe fishways. Consistent with Commission policy, Article 403 of the license reserves the Commission's authority to require fishways that may be prescribed by Commerce and Interior for the Upper American Project.

THREATENED AND ENDANGERED SPECIES

84. Section 7(a)(2) of the Endangered Species Act (ESA) of 1973[34] requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species or result in the destruction or adverse modification of their designated critical habitat.

85. Federally listed species that may occur in the project area include: (1) the endangered Pine Hill ceanothus; (2) the endangered Pine Hill flannelbush; (3) the threatened Layne's butterweed; (4) the threatened valley elderberry longhorn beetle; and (5) the threatened California red-legged frog.

86. Commission staff found that with the staff-recommended measures, relicensing the Upper American Project is not likely to adversely affect the California red-legged frog.[35] In its letter filed on October 2, 2009, FWS concurred with this finding.

87. Staff also concluded that maintenance of the project's transmission line rights-of-way is likely to adversely affect the endangered Pine Hill ceanothus, the Pine Hill flannelbush, the threatened Layne's butterweed, and the valley elderberry longhorn

[33] 16 U.S.C. § 811 (2012).

[34] 16 U.S.C. § 1536(a)(2) (2012).

[35] Draft EIS at 3-245.

beetle.[36] Formal ESA consultation was initiated with FWS by letter dated September 25, 2007.[37]

88. On September 28, 2009, FWS issued a Biological Opinion (BO). It concluded that issuing a license for the project, as recommended by Commission staff, is not likely to jeopardize the continued existence of the Pine Hill ceanothus, Pine Hill flannelbush, the Layne's butterweed, or the valley elderberry longhorn beetle. FWS included an incidental take statement with a reasonable and prudent measure to minimize incidental take of valley elderberry longhorn beetles, along with terms and conditions to implement the measure.

89. The terms and conditions of FWS's BO are attached to this order in Appendix D and incorporated into the license by Ordering Paragraph (F). These three terms and conditions require SMUD to: (1) comply with 1999 Conservation Guidelines for the valley elderberry longhorn beetle; (2) comply with the Reporting Requirements section of the BO; and (3) implement the conservation measures in the Project Description of the BO. These conservation measures require SMUD to: (a) notify the resource agencies if occurrences of sensitive plants and wildlife species are detected; (b) annually review the current list of special status plants and wildlife species with the agencies; (c) consult with BLM, FWS, and California Fish and Wildlife prior to undertaking maintenance under transmission lines in the Pine Hill Rare Plant Preserve; (d) implement an invasive weed management plan; (e) implement a vegetation management plan; (f) prepare a biological assessment prior to any new construction; (g) provide an annual employee environmental awareness program; and (h) compensate for the loss of elderberry shrubs in accordance with the guidelines.

90. The Sierra Nevada yellow-legged frog (*Rana sierrae*)[38] was federally listed as endangered on April 29, 2014.[39] Proposed critical habitat was designated on April 25, 2013.[40]

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[36] *Id*. at 3-240 to 3-243.

[37] FWS requested additional information on October 23, 2007. Commission staff provided the additional information on December 12, 2007.

[38] The mountain yellow-legged frog was recently split into two species--the Sierra Nevada yellow-legged frog and the southern mountain yellow-legged frog (*Rana muscosa*).

[39] 79 *Fed. Reg.* 24,255-24,310 (2014).

[40] 78 *Fed. Reg.* 24,515-24,574 (2013).

91. During its pre-filing biological surveys, SMUD did not find the Sierra Nevada yellow-legged frog in the vicinity of any project-affected river reaches and reservoirs and none of these frogs have been historically recorded in reaches or reservoirs associated with the project. The presence of predators, such as brown trout and bullfrogs, and the location of the project in the lower elevation of the frog's range, likely contribute to the lack of Sierra Nevada yellow-legged frog populations in the project's vicinity.[41]

92. Forest Service condition 31.3 and WQC condition 8.C.6-8 require development of a yellow-legged frog monitoring plan, focusing on Rubicon reservoir, Rockbound Lake, and Buck Island reservoir. This monitoring will help determine future presence/absence of the frog in project reservoirs. If the frog is found during monitoring, ESA consultation with FWS may be needed in the future.

93. Based on the absence of the Sierra Nevada yellow-legged frog in project-affected stream reaches and reservoirs, staff concludes that continued operation of the project will not affect this federally listed frog.

94. Numerous project facilities, including Gerle reservoir, Loon Lake reservoir, Buck Island reservoir, Rockbound Lake, Rubicon reservoir, and associated river reaches, are located within proposed critical habitat for the Sierra Nevada yellow-legged frog. However, measures required by the license including increased minimum flow releases in upper elevation project reaches (Rubicon and Buck Island dam reaches, Loon Lake Dam reach, and Gerle Creek dam and Robbs Peak Dam reaches) are expected to provide cooler and more stable conditions, thus increasing potential habitat for the frog. Therefore, staff concludes that continued operation of the project would not destroy or adversely modify proposed critical habitat.

NATIONAL HISTORIC PRESERVATION ACT

95. Under section 106 of the National Historic Preservation Act (NHPA)[42] and its implementing regulations,[43] federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing in the National Register of Historic Places (defined as historic properties) and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. This generally requires the Commission to consult with the State Historic Preservation Officer to determine whether and how a proposed action may affect historic properties and to

[41] Final EIS at 3-193 to 3-194.

[42] 16 U.S.C. § 470f (2012); *see generally* 16 U.S.C. §§ 470 to 470w-8 (2012).

[43] 36 C.F.R. Part 800 (2013).

seek ways to avoid or minimize any adverse effects.

96. To satisfy these responsibilities, the Commission executed a Programmatic Agreement (PA) with the California State Historic Preservation Officer (SHPO) on November 30, 2009, and invited SMUD, BLM, Forest Service, Washoe Tribe, Shingle Springs Band of Miwok Indians, and El Dorado Indian Council to concur with the stipulations of the PA. SMUD and Shingle Springs Band of Miwok Indians concurred. The PA requires SMUD to implement the HPMP for the term of any new license issued for this project. Execution of the PA demonstrates the Commission's compliance with section 106 of the NHPA. Article 410 requires SMUD to implement the PA.

RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES PURSUANT TO SECTION 10(j) OF THE FPA

97. Section 10(j)(1) of the FPA,[44] requires the Commission, when issuing a license, to include conditions based on recommendations submitted by federal and state fish and wildlife agencies pursuant to the Fish and Wildlife Coordination Act,[45] to "adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat)" affected by the project.

98. In response to the July 28, 2006 public notice soliciting final recommendations and terms and conditions, Interior, California Fish and Wildlife, and NMFS filed recommendations pursuant to section 10(j) on October 17, 2006, October 18, 2006, and October 18, 2006, respectively. In response to the Settlement, both Interior and California Fish and Wildlife filed revised recommendations on January 31, 2007. These recommendations are consistent with the Settlement.

99. This license includes conditions consistent with 11 of both Interior's and California Fish and Wildlife's revised recommendations that are within the scope of section 10(j): Article 1-1. Minimum Streamflows, Article 1-2. Pulse Flows, Article 1-3. Ramping Rates, Article 1-5. Monitoring, Article 1-6. Adaptive Management Program, Article 1-8. Fish Passage at Gerle Creek, Article 1-9. Large Woody Debris, Article 1-12. Wildlife and Plant Protection Measures, Article 1-14. Annual Review of Ecological Conditions, Article 1-40. Aquatic Resources, and Article 1-41. Terrestrial Resources. California Fish and Wildlife made six additional recommendations that are within the scope of 10(j): Article 1-19. Specific Recreation Measures (Bear-Proof Food Lockers and Trash Receptacles), Article 1-23. Reservoir Levels, Article 1-26. Fish Stocking, Article 1-41. Terrestrial Resources, Article 3-11. Hazardous Substances Plan, and Article

[44] 16 U.S.C. § 803(j)(1) (2012).

[45] 16 U.S.C. § 661–667c (2012).

3-24. Erosion Control Plan. NMFS' recommendation to include the provisions of the *Comprehensive Resource Agency/NGO Alternative for NEPA Review* and one of California Fish and Wildlife's recommendations (Article 1-19, Specific Recreation Measures) was determined to be outside of the scope of section 10(j) and is discussed in the next section.

SECTION 10(a)(1) OF THE FPA

100. Section 10(a)(1) of the FPA[46] requires that any project for which the Commission issues a license be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce; for the improvement and utilization of waterpower development; for the adequate protection, mitigation, and enhancement of fish and wildlife; and for other beneficial public uses, including irrigation, flood control, water supply, recreation, and other purposes.

A. Vegetation and Invasive Weed Management

101. The Settlement includes measures for controlling noxious weeds and for vegetation management within the project boundary on Forest Service lands. Given that noxious weed infestations also occur on non-federal lands, the EIS concluded that expanding the invasive weed and vegetation management plans to all lands that are affected by project operations or maintenance within the project boundary would control current populations and minimize future infestations.[47] SMUD, however, in its comments on the final EIS, notes that since the lower 30 miles of its transmission line right-of-way crosses private lands (from the proposed Iowa Hill Development downstream to Folsom Junction), it would be difficult to determine which infestations are project-related as opposed to landowner-related and such effects would substantially add to the cost of weed control.

102. Given SMUD's lack of control over the activities conducted on private lands within its transmission line right-of-way that may result in spread of noxious weed species, it is more appropriate to focus weed control on SMUD-owned lands where invasive species may spread, particularly recreation sites, sensitive habitats, and lands disturbed by future construction, recreational use, and maintenance activities. Therefore, Articles 404 and 405 of this license limit the scope of the invasive weed and vegetation management plans required on federal lands to include only SMUD-owned lands so affected.

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[46] 16 U.S.C. § 803(a)(1) (2012).

[47] *See* final EIS at 5-30.

B. El Dorado County Consumptive Use

103. On December 13, 2007,[48] FWS requested a full assessment of the potential impacts of future growth in El Dorado County that could be stimulated by the increased availability of water as a result of the El Dorado-SMUD Cooperative Agreement of 2005.[49] FWS expressed concern that as part of the agreement, SMUD will store and possibly supply water to El Dorado County for consumptive use that could lead to future development by the county and potential harm to listed species. Following a meeting on July 18, 2008, among Commission staff, FWS, and SMUD, FWS requested on October 28, 2008, that the standard land use article included by the Commission in all licenses be deleted or modified to reduce the amount of water withdrawals that could occur without Commission approval from 1,000,000 gallons per day to 100,000 gallons per day and that SMUD be required to file a license amendment upon implementation of the water delivery and storage portions of the El Dorado-SMUD Cooperative Agreement. In reply, SMUD said that it would not object to modifications to the standard land use article to exclude activities under the El Dorado-SMUD Cooperative Agreement.

104. By letter issued January 14, 2009, Commission staff supported the changes to the standard land use article recommended by SMUD but stated that it did not believe an article requiring an amendment of license was necessary. Consequently, Article 411, part (c) excludes from the standard land use article water diversion facilities associated with the El Dorado-SMUD Cooperative Agreement. The license does not include a special article requiring SMUD to file an amendment as recommended by FWS because our regulations already stipulate that changes needed to accommodate the water withdrawals above the minimum set by the standard land use article would require an application for amendment of license or a request for approval of a non-project use of project lands and waters.

C. Iowa Hill Development Transportation Management Plan

105. To address traffic safety and road improvements during construction, SMUD included a draft Transportation Management Plan for the Iowa Hill Development with its license application and proposes to submit a final transportation plan at least 90 days before any land-disturbing activities. During public meetings and in comment letters on the draft EIS, many local residents expressed concerns about public safety related to

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[48] FWS supplemented its request on February 7, 2008.

[49] The Agreement settles Upper American Project relicensing issues among SMUD and the County of El Dorado, the El Dorado County Water Agency, Georgetown Divide Public Utility District, El Dorado Irrigation District, and El Dorado Water and Power Authority.

construction of the Iowa Hill Development, despite the protection measures outlined in SMUD's plan. To address these concerns, SMUD filed a Transportation Route Technical Report[50] that includes consideration of 11 alternative routes to the lower and upper construction sites, including a route that would use a southwest connector to access the upper construction site. The EIS concluded that although SMUD's preferred route to the upper construction site would avoid use of subpar and narrow roads, some of which traverse private property, the preferred route crosses very steep terrain, the feasibility of which has not been demonstrated. The EIS recommended that the feasibility of the preferred route using the southwest connector be addressed in the final Transportation Management Plan and that SMUD select a final route in consultation with the Iowa Hill Joint Advisory Committee, established under the SMUD-El Dorado Cooperative Agreement.[51] Article 407 requires a final Transportation Management Plan that includes the EIS-recommended provisions.

D. Iowa Hill Wildlife Lands Mitigation

106. SMUD proposes to purchase land to mitigate for the loss of habitat resulting from the construction of the proposed Iowa Hill Development, and Forest Service 4(e) condition 67 requires SMUD to purchase wildlife mitigation lands with an equivalent habitat value (or a conservation easement for an equivalent habitat value) to that affected by the Iowa Hill Development to be managed as wildlife habitat over the term of the license. The EIS noted that SMUD has not identified the specific parcels of land to be purchased, the habitat types, or the wildlife management goals that would apply to the purchased lands.[52] The EIS recommended that SMUD develop a wildlife land mitigation plan that includes this information and measures it would implement to ensure that the management goals are met. Article 409 requires SMUD to file a wildlife land mitigation plan for the proposed Iowa Hill Development with the aforementioned provisions recommended in the EIS, and consistent with Forest Service 4(e) condition 67.

E. Gerle Creek Reservoir

107. In proposed Article 1.8, SMUD proposes to maintain the reservoir at a level sufficient to provide fish passage from August to October. However, the EIS concluded that fish passage from Gerle Creek reservoir to Gerle Creek seems to be more a function of streambed geometry than of reservoir level, and that reservoir levels do not substantially affect fish passage to Gerle Creek. Therefore, Article 402 requires SMUD

[50] Filed Feb. 11, 2008.

[51] Final EIS at 3-294 to 3-295.

[52] *Id*. at 5-41.

to develop a plan to ensure fish passage at Gerle Creek including measures to modify the stream channel within the Gerle Creek delta if needed.

F. NMFS Recommendations

108. NMFS recommends that the Commission include provisions of the *Comprehensive Resource Agency/NGO Alternative for NEPA Review* (Agency Alternative) filed November 15, 2005, in the project license. The agency alternative proposed measures to benefit aquatic habit, enhance recreation, and monitor project operation similar to those in the settlement. NMFS also states that its recommendation would apply to any revisions to the Agency Alternative. Because the Agency Alternative has been effectively replaced by the Settlement, we infer, in the absence of any filing by NMFS in response to the Settlement, that NMFS' recommendation is satisfied by the incorporation of the majority of the Settlement in this license.[53]

G. Forest Service Recommendations

109. As noted above, the Forest Service recommended implementation of several environmental measures along with its section 4(e) conditions. These recommendations included: (1) monitoring the foothill yellow-legged frog in Rock Creek; (2) maintenance measures for transmission lines within the Pine Hill Rare Plant Preserve; (3) water temperature monitoring; (4) water quality monitoring and (5) fish stocking in Loon Lake, Union Valley, and Ice House reservoirs.

110. The WQC, incorporated into this license by Ordering Paragraph (D), includes conditions consistent with the Forest Service recommendations including water temperature monitoring (condition 8.I), water quality monitoring (condition 8.J), fish stocking (condition 16), and foothill yellow-legged frog monitoring (condition 8.C). FWS's BO, incorporated into this license by Ordering Paragraph (F), includes term and condition 3, which is consistent with the Forest Service recommendation for maintenance measures for transmission lines within the Pine Hill Rare Plant Preserve.

H. Recreation Use Data

111. Forest Service condition 48 requires SMUD to provide data to support the determination of carrying capacity on lands affected by the project. To provide additional information on use patterns and whether or not resource damage is occurring,

[53] NMFS also recommended that the Commission include a reopener provision in the license for any future NMFS recommendations for the protection and enhancement of fish and wildlife resources. Standard Article 15 of this license includes such a provision after granting the licensee notice and opportunity for hearing.

Article 406 requires the licensee to file recreation use data on carrying capacity as a component of the recreational resource report Form 80.

OTHER ISSUES

Project Boundary

112. Most of the existing project recreational facilities are within the existing project boundary. However, three of the sites, the Airport Flat Campground, the Big Hill Communication Site, and the Cleveland Coral are not enclosed by the current boundary.

113. Because these facilities provide access to project lands for recreation, Article 203 requires SMUD to revise the Exhibit G drawings to include them within the project boundary. In addition, to ensure that these project recreation facilities are operated and maintained for the term of the license, Article 408 requires SMUD to operate and maintain all them as part of the recreation plan for the project.

114. SMUD proposes to remove 29 miles of transmission lines from the project including: (1) a 9.3-mile-long section of 230-kV line from Folsom Junction to Orangevale Substation; (2) a 17.8-mile-long section of 230-kV line from Folsom Junction to Hedge Substation; and (3) a 1.9-mile-long section of 230-kV line from Folsom Junction to Lake Substation. The EIS concluded these lines are no longer primary transmission lines used exclusively to transmit project power and now function as part of the interconnected system.[54] Accordingly, the lines are not are not included in the license.

ADMINISTRATIVE PROVISIONS

A. Annual Charges

115. The Commission collects annual charges from licensees for administration of the FPA and to compensate for the use and occupancy of federal lands.[55] Article 201 provides for the collection of funds for administration of the FPA and for use and occupancy of federal lands.

B. Exhibits F and G Drawings

116. The Commission requires licensees to file sets of approved project drawings on

[54] *See* final EIS at 2-31.

[55] 16 U.S.C. § 803(e) (2012).

electronic file format. Ordering Paragraph (C) approves the Exhibit F drawings filed on July 7, 2005. Article 202 requires the filing of the approved Exhibit F drawings.

117. As discussed, the Exhibit G drawings filed with the application do not include all lands necessary for project purposes. Article 203 requires SMUD to file revised Exhibit G drawings for Commission approval along with a final statement of the amount of federal land occupied by the project.

C. Headwater Benefits

118. Some projects directly benefit from headwater improvements that were constructed by other licensees, the United States, or permittees. Article 204 requires the licensee to reimburse such entities for these benefits if they were not previously assessed and reimbursed.

D. Use and Occupancy of Project Lands and Waters

119. Requiring a licensee to obtain prior Commission approval for every use or occupancy of project land would be unduly burdensome. Therefore, Article 411 allows the licensee to grant permission, without prior Commission approval, for the use and occupancy of project lands for such minor activities as landscape planting. Such uses must be consistent with the purposes of protecting and enhancing the scenic, recreational, and environmental values of the project.

120. As noted above, Article 411(c) excludes from the standard land use article any water diversion facilities associated with the El Dorado-SMUD Cooperative Agreement.

E. Start of Construction

121. Article 301 requires the licensee to commence construction of the Iowa Hill Development project works within five years from the issuance date of the license and to complete construction of the project works within ten years from the issuance date of the license. SMUD anticipates that ten years would be required to complete the engineering, procurement, and construction of the Iowa Hill Development. Based on Commission staff's review of SMUD's schedule, including its planned geotechnical investigation of the Iowa Hill site, and considering the time required for SMUD to comply with the consultant board requirements in Articles 305 and 306 (discussed below) and to prepare final design drawings and specifications, we conclude that SMUD's proposed date to commence construction of the Iowa Hill Development is reasonable.

122. If SMUD fails to commence construction of the Iowa Hill Development within the time prescribed, the Commission may rescind the authorization for the construction of the Iowa Hill Development and any associated license requirements.

123. To ensure that there are sufficient funds available for project construction, operation, and maintenance, Article 302 requires the licensee to file for Commission approval documentation of project financing for the construction, operation, and maintenance of the Iowa Hill Development at least 90 days before starting any construction associated with this development.

F. Consultant Board and Review of Final Plans and Specifications

124. Article 303 requires SMUD to provide the Commission's Division of Dam Safety and Inspections San Francisco Regional Office (D2SI-SFRO) with final contract drawings and specifications for the Iowa Hill Development—together with a supporting design report consistent with the Commission's engineering guidelines.

125. Article 304 requires SMUD to provide the Commission's D2SI-SFRO with cofferdam construction drawings for the Iowa Hill Development.

126. Article 305 requires SMUD to retain a Board of three or more qualified independent consultants to review the Iowa Hill Development design and file meeting reports and a final report with D2SI-SFRO.

127. Article 306 requires SMUD to provide the Commission with an independent consultant's inspection report for the Iowa Hill Development.

128. Article 307 requires SMUD to file with the Commission's D2SI-SFRO an updated public safety plan for the Iowa Hill Development reservoir.

129. Article 308 requires SMUD to file revised Exhibits A, F, and G upon completion of construction of the Iowa Hill Development.

130. Article 309 requires SMUD to file with the Commission's D2SI-SFRO an inflow design flood and hazard classification study for the Iowa Hill Development reservoir.

131. Article 310 requires SMUD to coordinate any modifications that would affect project operation or construction resulting from environmental requirements with the Commission's D2SI-SFRO.

G. Commission Approval of Resource Plans, Reports, Notification, and Filing of Amendments

132. In Appendices A and B there are certain certification conditions and 4(e) conditions that either do not require SMUD to file plans and reports with the Commission or do not provide for consultation with the appropriate agencies during plan development. Article 401, therefore, requires SMUD to consult with the other agencies during plan development and to file plans with the Commission for approval, to file

reports, to notify the Commission of planned and unplanned deviations from license requirements, and to file amendment applications, as appropriate.

STATE AND FEDERAL COMPREHENSIVE PLANS

133. Section 10(a)(2)(A) of the FPA[56] requires the Commission to consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.[57] Under section 10(a)(2)(A), federal and state agencies filed 56 comprehensive plans that address various resources in California. Of these, Commission staff identified and reviewed 23 plans that are relevant to this project.[58] No conflicts were found.

APPLICANT'S PLANS AND CAPABILITIES

134. In accordance with sections 10(a)(2)(C) and 15(a) of the FPA,[59] Commission staff evaluated SMUD's record as a licensee for these areas: (1) conservation efforts; (2) compliance history and ability to comply with the new license; (3) safe management, operation, and maintenance of the project; (4) ability to provide efficient and reliable electric service; (5) need for power; (6) transmission services; (7) cost-effectiveness of plans; and (8) actions affecting the public. Staff's findings in each area are accepted.

A. Conservation Efforts

135. Section 10(a)(2)(C) of the FPA requires the Commission to consider the electricity consumption improvement program in the case of license applicants primarily engaged in the generation or sale of electric power, like SMUD. SMUD has an extensive record of encouraging and assisting its customers in the efficient use of electricity. In recognition of its efforts, SMUD won the 2004 American Council for an Energy Efficient Economy's Champion of Energy Efficiency Award, the National Energy Resources Organization's Award for Energy Efficiency, and the U.S. Department of Energy's Energy Star Partner of the Year. These programs and awards show that SMUD is making an effort to conserve electricity and has made a satisfactory good faith effort to comply with section 10(a)(2)(C) of the FPA.

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[56] 16 U.S.C. § 803(a)(2)(A) (2012).

[57] Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19 (2013).

[58] *See* final EIS at 5-45 to 5-47.

[59] 16 U.S.C. §§ 803(a)(2)(C) and 808(a) (2012).

B. Compliance History and Ability to Comply with New License

136. Based on a review of SMUD's compliance with the terms and conditions of the existing license, staff finds that SMUD's overall record of making timely filings and complying with its license is satisfactory. Therefore, staff concludes that SMUD can satisfy the conditions of a new license.

C. Safe Management, Operation, and Maintenance of the Project

137. Staff has reviewed SMUD's management, operation, and maintenance of the project pursuant to the requirements of 18 C.F.R. Part 12 and the Commission's Engineering Guidelines and has reviewed periodic Independent Consultant's Safety Inspection Reports. Staff concludes that the dams and other project works are safe, and that there is no reason to believe that SMUD cannot continue to safely manage, operate, and maintain these facilities under a new license.

D. Ability to Provide Efficient and Reliable Electric Service

138. Staff has reviewed SMUD's plans and SMUD's ability to operate and maintain the project in a manner most likely to provide efficient and reliable electric service. Staff's review indicates that SMUD will operate the project in an efficient manner within the constraints of the license and that the project, with the added flexibility of a pumped storage facility, will continue to provide efficient and reliable electric service in the future.

E. Need for Power

139. The project, with an authorized installed capacity of 637.3 MW and an average annual generation of 1,835,000 megawatt-hours (MWh) per year of energy, plays an important part in meeting the power needs of SMUD. The Iowa Hill Development will add another 400 MW of peaking power to the SMUD system. The project is a significant power resource to the state of California and within the Western Electricity Coordinating Council (WECC), which includes the states west of the Rockies; portions of Texas, Nebraska, and Kansas; Alberta and British Columbia, Canada; and a portion of North Baja California, Mexico.

140. The project is located within the Northern California Assessment Area of the WECC, a regional entity of the North American Electric Reliability Corporation (NERC). This assessment area has a significant summer peak demand. To see how the demand for electricity is expected to change in the region, Commission staff reviewed the projected `regional need for power as reported by the NERC in *2013 Long-Term Reliability*

Assessment.[60] For the period from 2013 through 2023, the NERC forecasts that the broader U.S. portion of the WECC is planning to install an additional 20,000 MW of capacity to meet projected load growth.[61] The project can continue to meet part of the existing load requirements within a system in need of resources, and the proposed Iowa Hill Development will provide up to 400 MW of capacity during peak load hours.

F. Transmission Services

141. The project includes three 230-kV transmission lines connecting the Upper American Project to SMUD's integrated transmission grid. SMUD plans to tie the Iowa Hill Development into its existing transmission system using the existing Camino-White Rock transmission line. SMUD is not proposing any other changes that would affect its own or other transmission services in the region.

G. Cost Effectiveness of Plans

142. SMUD is proposing to make a number of facility and operational modifications to improve its delivery of electricity and to enhance fish and wildlife, recreation, and cultural resources affected by the project. Based on SMUD's record as an existing licensee, staff concludes that these plans are likely to be carried out in a cost-effective manner.

H. Actions Affecting the Public

143. SMUD provided extensive opportunities for public involvement in the development of its application for a new license. In addition to the power and employment opportunities the project provides, during the previous license period, SMUD maintained numerous recreational facilities including campgrounds, boat launches, picnic areas, and trails, which enhanced public use of project lands. SMUD has also operated the project with consideration for the environmental resources associated with its eleven reservoirs and downstream reaches.

PROJECT ECONOMICS

144. In determining whether to issue a new license for an existing hydroelectric project, the Commission considers a number of public interest factors, including the economic benefits of project power. Under the Commission's approach to evaluating the

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[60] (Dec. 2013), *available at* http://www.nerc.com/pa/RAPA/ra/Reliability Assessments DL/2013_LTRA_FINAL.pdf.

[61] *Id*. at 159.

economics of hydropower projects, as articulated in Mead Corporation,[62] the Commission uses current costs to compare the costs of the project and of likely alternative power without forecasting potential future inflation, escalation, or deflation beyond the license issuance date. The basic purpose of the Commission's economic analysis is to provide a general estimate of the potential power benefits and the costs of a project and of reasonable alternatives to project power. The estimate helps to support an informed decision concerning what is in the public interest with respect to a proposed license.

145. In applying this analysis to the project, we have considered three options: the no-action alternative, SMUD's proposal, and the project as licensed herein. Under the no-action alternative, the project would continue to operate as it does now. The project has an authorized installed capacity of 637.3 MW, a dependable capacity of 400 MW, and generates an average of 1,835,000 MWh of electricity annually. The average annual project cost is about $40,749,000, or $22.21/MWh. When we multiply the on-peak and off-peak energy components by corresponding alternative energy cost[63] and add the value of the project's 400 MW of dependable capacity,[64] we calculate a total value of the project's power of $163,943,000, or $89.34/MWh in 2013 dollars. To determine whether the proposed project is currently economically beneficial, we subtract the project's cost from the value of the project's power. Therefore, the project costs $123,194,000, or $67.13/MWh, less to produce power than the likely alternative.

146. As proposed by SMUD, the project would have an installed capacity of 1,088 MW, a dependable capacity of 800 MW, and generates an average of 2,673,000 MWh of electricity annually. The levelized annual cost of operating the project as proposed by SMUD would be $176,451,000 or $66.01/MWh. When staff's estimate of average generation is multiplied by the alternative power cost of $104.13, the result is a total value of the project's power of $278,339,490 in 2013 dollars. To determine whether the proposed project is currently economically beneficial, staff subtracts the project's cost from the total value of the project's power. The outcome is that in the first year of continued operation, the project would cost $101,888,400 or $38.12/MWh less than the likely alternative cost of power.

147. As licensed herein with the mandatory conditions and staff measures, the project

[62] 72 FERC ¶ 61,027, at 61,068–070 (1995).

[63] The alternative power cost is based on information from Exhibit D of SMUD's July 7, 2005 license application adjusted to 2013 dollars, and includes on-peak and off-peak energy components.

[64] Commission staff's economic assumptions are presented in Table 4-1 of the final EIS at pages 4-1 and 4-2.

will have an installed capacity of 1,088 MW, a dependable capacity of 800 MW, and generates an average of 2,673,000 MWh of electricity annually. The levelized annual cost of operating the project would slightly increase to about $176,464,000 or $66.02/MWh. When staff's estimate of average annual generation is multiplied by the alternative power cost of $104.13, the result is a total value of the project's power of $278,339,490 in 2013 dollars. Thus, in the first year of operation, the project would cost $101,875,490 or $38.11/MWh less than the likely alternative cost of power.

148. In considering public interest factors, the Commission takes into account that hydroelectric projects offer unique operational benefits to the electric utility system (ancillary service benefits). These benefits include the ability to help maintain the stability of a power system, such as by quickly adjusting power output to respond to rapid changes in system load; and to respond rapidly to a major utility system or regional blackout by providing a source of power to help restart fossil fuel-based generating stations and put them back on line.

COMPREHENSIVE DEVELOPMENT

149. Sections 4(e) and 10(a)(1) of the FPA[65] require the Commission to give equal consideration to power development purposes and to the purposes of energy conservation; the protection, mitigation of damage to, and enhancement of fish and wildlife; the protection of recreational opportunities; and the preservation of other aspects of environmental quality. Any license issued shall, in the Commission's judgment, be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

150. The final EIS for the project contains background information, analysis of effects, and support for related license articles.

151. Based on an independent review and evaluation of the project, of recommendations from the resource agencies and other entities, and of the no-action alternative, as documented in the final EIS, the proposed Upper American Project with the staff-recommended measures along with mandatory conditions is selected, and found to be best adapted to a comprehensive plan for improving or developing the Rubicon River, Silver Creek, and the South Fork American River.

152. This alternative is selected because: (1) issuance of a new license will serve to maintain a beneficial and dependable, source of electric energy; (2) the required environmental measures will protect and enhance fish and wildlife resources, water

[65] 16 U.S.C. §§ 797(e) and 803(a)(1) (2012).

quality, recreational resources, and historic properties; and (3) 637.3 MW of the project's electric capacity comes from a renewable resource that does not contribute to atmospheric pollution.

LICENSE TERM

153. Section 15(e) of the FPA,[66] provides that any new license issued shall be for a term that the Commission determines to be in the public interest, but not less than 30 years or more than 50 years. The Commission's general policy is to establish 30-year terms for projects with little or no redevelopment, new construction, new capacity, or environmental protection and enhancement measures; 40-year terms for projects with a moderate amount of such activities; and 50-year terms for projects with extensive measures.[67]

154. This license orders extensive new construction of a pumped storage facility that adds considerable new capacity and extensive long-term environmental measures, including enhanced minimum flows, pulse flows, and ramping rates to support and protect native fish, amphibian, and reptile populations; comprehensive monitoring to determine the effects of implementing the increased flows, pulse flows, and ramping rates; and multiple measures to upgrade, expand, operate, and maintain more than 30 recreational facilities. The annualized capital cost of constructing the pumped storage facility is in excess of $50 million, and the capital cost for the environmental measures also exceeds $50 million. Consequently, a 50-year license term for the Upper American Project is appropriate.

The Director orders:

(A) This license is issued to Sacramento Municipal Utility District (licensee) for a period of 50 years, effective on the first day of the month in which this order is issued, to operate and maintain the Upper American River Hydroelectric Project No. 2101. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project works consist of:

(1) All lands, to the extent of the licensee's interests in these lands, described in the project description and the project boundary discussion of this order.

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[66] 16 U.S.C. § 808(e) (2012).

[67] *See Consumers Power Co.*, 68 FERC ¶ 61,077 at 61,383–84 (1994).

(2) The project works consisting of eight developments: Loon Lake, Robbs Peak, Jones Fork, Union Valley, Jaybird, Camino, Slab Creek/White Rock, and Iowa Hill.

Loon Lake development includes:

(1) Rubicon Dam, a 36-foot-high by 644-foot-long concrete gravity diversion dam located on the Rubicon River, and a concrete gravity auxiliary dam that is 29 feet high by 553 feet long together creating the 108-acre Rubicon reservoir with a storage capacity of 1,450 acre-feet;

(2) Rubicon-Rockbound tunnel, a 13-foot-diameter, 0.2-mile-long unlined horseshoe tunnel which diverts water from Rubicon reservoir to Buck Island reservoir via Rockbound Lake (a non-project facility) located on Highland Creek;

(3) Buck Island Dam, a concrete gravity diversion dam located on the Little Rubicon River that is 23 feet high by 293 feet long, and a 15-foot-high by 244-foot-long concrete gravity auxiliary dam together creating 78-acre Buck Island reservoir with a storage capacity of 1,070 acre-feet;

(4) Buck Island-Loon Lake tunnel, a 13-foot-diameter, 1.6-mile-long unlined modified horseshoe tunnel which diverts water from Buck Island reservoir to Loon Lake reservoir;

(5) Loon Lake Dam, a rockfill dam on Gerle Creek that is 108 feet high by 0.4 mile long with a 250-foot-long side channel spillway on the right bank, a 95-foot-high by 910-foot-long rockfill auxiliary dam, and an earthfill dike. These structures create the 1,450-acre Loon Lake reservoir with a storage capacity of 76,200 acre-feet;

(6) Loon Lake penstock—a 14-foot-diameter, 0.3-mile-long concrete-lined horseshoe tunnel, 10-foot-diameter concrete-lined vertical shaft, and 8.5-foot-diameter steel-lined tunnel—which extends from Loon Lake reservoir to Loon Lake powerhouse;

(7) Loon Lake powerhouse, an underground powerhouse located over 1,100 feet below the surface of the Loon Lake reservoir which consists of one generating unit with an authorized installed capacity of 70,479 kW;

(8) Loon Lake tailrace tunnel, an 18-foot-diameter, 3.8-mile-long unlined horseshoe tunnel which runs from Loon Lake powerhouse and discharges into Gerle Creek reservoir; and

(9) Two 69-kV overhead transmission lines: one (Loon Lake-Robbs Peak) extends 7.9 miles to the Robbs Peak switchyard, and the other (Loon Lake-Union Valley) extends 12.4 miles to the Union Valley switchyard.

The Robbs Peak development includes:

(1) Gerle Creek Dam, a 58-foot-high, 444-foot-long concrete gravity overflow structure located on Gerle Creek upstream of its confluence with the South Fork Rubicon River. This structure creates the 60-acre Gerle Creek reservoir with a storage capacity of 1,260 acre-feet and incorporates the intake of Gerle Creek canal in its left abutment;

(2) Gerle Creek canal, an above-ground canal, 22 feet wide and 19 feet deep, which extends 1.9 miles from Gerle Creek reservoir to Robbs Peak reservoir;

(3) Robbs Peak Dam, a 44-foot-high, 320-foot-long concrete gravity overflow structure located on the South Fork Rubicon River upstream of its confluence with Gerle Creek, with twelve 6.2-foot-high steel bulkhead gates on the spillway crest. This structure forms the 2-acre Robbs Peak reservoir with a storage capacity of 30 acre-feet;

(4) Robbs Peak tunnel, a 13-foot-diameter, 3.2-mile-long unlined horseshoe tunnel and 10-foot-diameter lined diversion tunnel, which extends from Robbs Peak reservoir to Robbs Peak penstock;

(5) Robbs Peak penstock, a 9.75- to 8.5-foot-diameter, 0.4-mile-long steel penstock from Robbs Peak tunnel to Robbs Peak powerhouse;

(6) Robbs Peak powerhouse, located on the northeast shore of Union Valley reservoir, equipped with one generating unit with an authorized installed capacity of 28,125 kW; and

(7) Robbs Peak-Union Valley Transmission Line, a 69-kV, 6.8-mile-long overhead line which connects the Robbs Peak switchyard to the Union Valley switchyard.

The Jones Fork development includes:

(1) Ice House Dam, a rockfill dam located on the South Fork Silver Creek, 150-feet-high and 0.3-mile-long, which incorporates one concrete ogee spillway with radial gates and two auxiliary earthfill dikes. These structures create the 678-acre Ice House reservoir with a storage capacity of 45,960 acre-feet;

(2) Jones Fork tunnel, an 8-foot-diameter, 0.3-mile-long steel-lined concrete horseshoe tunnel from Ice House reservoir to the Jones Fork penstock;

(3) Jones Fork penstock, a 6-foot-diameter, 1.6-mile-long steel and concrete penstock from Jones Fork tunnel to the Jones Fork powerhouse;

(4) Jones Fork powerhouse, located on the southeast shore of Union Valley reservoir, with one generating unit with an authorized installed capacity of 10,400 kW; and

(5) Jones Fork-Union Valley Transmission Line, a 69-kV, 4.0-mile-long overhead transmission line from the Jones Fork switchyard to the Union Valley

switchyard.

The Union Valley development includes:

(1) Union Valley Dam, an earthfill dam located on Silver Creek, 453 feet high and 0.3 mile long, which incorporates a concrete ogee spillway with radial gates. This structure creates the 2,860-acre Union Valley reservoir with a storage capacity of 277,290 acre-feet;

(2) Union Valley tunnel, an 11-foot-diameter, 268-foot-long concrete-lined tunnel, with an approximately 10-foot-diameter steel penstock in part of the tunnel, which connects Union Valley reservoir with Union Valley powerhouse;

(3) Union Valley penstock, a 10-foot-diameter, 0.3-mile-long steel penstock which conveys water from the outlet of the Union Valley tunnel to the Union Valley powerhouse;

(4) Union Valley powerhouse, equipped with one generating unit with an authorized installed capacity of 40,074 kW; and

(5) Two 230-kV overhead transmission lines: one (Union Valley-Camino) extending 11.8 miles to the Camino switchyard, and the other (Union Valley-Jaybird) extending 5.9 miles to the Jaybird switchyard.

The Jaybird development includes:

(1) Junction Dam, a concrete double curvature overflow arch dam located on Silver Creek that is 168 feet high and 525 feet long. This structure creates the 64-acre Junction reservoir with a storage capacity of 3,250 acre-feet;

(2) Jaybird tunnel, an 11- to 14-foot-diameter, 4.4-mile-long modified horseshoe tunnel which connects Junction reservoir and the Jaybird penstock;

(3) Jaybird penstock, a 6- to 10-foot-diameter steel penstock with a surge tank that is 0.5-mile-long, connecting Jaybird tunnel and Jaybird powerhouse;

(4) Jaybird powerhouse, equipped with two Pelton turbines, one with an authorized installed capacity of 55,871 kW and the other 56,841 kW; and

(5) Jaybird-White Rock Transmission Line, a 230-kV, 15.9-mile-long overhead transmission line connecting the Jaybird and White Rock switchyards.

The Camino development includes:

(1) Camino Dam, a concrete double-curvature arch dam located on Silver Creek which is 133 feet high and 470 feet long with 3 integral bulkhead gates. These structures create the 20-acre Camino reservoir with a storage capacity of 825 acre-feet;

(2) Camino tunnel, a 13- to 14-foot-diameter, 5-mile-long tunnel, including a surge tank, which connects Camino reservoir with the Camino penstock;

(3) Brush Creek Dam, a double curvature arch dam located on Brush Creek, 213 feet high and 780 feet long. This structure creates the 20-acre Brush Creek reservoir with a storage capacity of 1,530 acre-feet;

(4) Brush Creek tunnel, an approximately 14-foot-diameter modified horseshoe tunnel which extends 0.8 mile from Brush Creek reservoir to the lower end of Camino tunnel;

(5) Camino penstock, a 5- to 12-foot-diameter, 0.3-mile-long above-ground steel penstock connecting the combined flow in Camino tunnel to Camino powerhouse;

(6) Camino powerhouse, located on the South Fork American River and equipped with two generating units, one with an authorized installed capacity of 73,760 kW and the other with an authorized installed capacity of 70,769 kW; and

(7) Two 230-kV overhead transmission lines originate at the Camino switchyard, one (Camino-Lake) extends 31.7 miles to the licensee's Lake Substation and the other (Camino-White Rock) extends 10.0 miles to the White Rock switchyard.

The Slab Creek/White Rock development includes:

(1) Slab Creek Dam, a double curvature, variable radius concrete arch dam which stretches across the South Fork American River and is 250 feet high and 817 feet long with a central uncontrolled overflow spillway. The structure creates the 280-acre Slab Creek reservoir with a storage capacity of 16,600 acre-feet;

(2) Slab Creek penstock, a 24-inch-diameter, 40-foot-long steel penstock which passes through the dam and connects Slab Creek reservoir with Slab Creek powerhouse;

(3) Slab Creek powerhouse, which is located at the base of Slab Creek Dam and uses minimum flow releases, has one generating unit with an authorized installed capacity of 450 kW;

(4) White Rock tunnel, an approximately 20- to 24-foot-diameter, 4.9-mile-long modified horseshoe tunnel, with a surge shaft, which connects Slab Creek reservoir with White Rock penstock;

(5) White Rock penstock, a 9- to 15-foot-diameter, 0.3-mile-long above-ground steel penstock that connects White Rock Tunnel to White Rock powerhouse;

(6) White Rock powerhouse, which is equipped with two generating units, one with an authorized installed capacity of 97,664 kW and the other at 132,824 kW; and

(7) Two 230-kV overhead transmission lines and one 12 kV distribution line. The

two transmission lines, both 21.8 miles long, connect the White Rock switchyard to the licensee's Folsom Junction. The 12-kV, 600-foot-long Slab Creek tap line connects the Slab Creek powerhouse to the junction with Pacific Gas and Electric Company's 12-kV distribution line.

The Iowa Hill Development will include:

(1) The 100-acre Iowa Hill reservoir with a storage capacity of 6,400-acre-feet, created by an off-stream, rock-filled earthen dike of varying height depending on natural terrain (maximum height 280 feet) and 5,900 feet in circumference with a geotextile liner on the reservoir floor and the inside surface of the dike;

(2) Iowa Hill tunnel, an underground water conduit extending from Iowa Hill reservoir to Slab Creek reservoir. The tunnel is composed of: a 19.02-foot-diameter, 1,120-foot-long concrete-lined vertical shaft; a 19.02-foot-diameter, 1,110-foot-long concrete-lined high pressure tunnel; a 15.74-foot-diameter, 250-foot-long steel-lined high pressure tunnel; a 12.45-foot-diameter, 150-foot-long steel manifold; three 7.87-foot-diameter, 180-foot-long steel penstocks; three 12.46-foot-diameter, 450-foot-long draft tube extensions; a 17.22-foot-diameter, 150-foot-long steel manifold; and a 12.5- to 19-foot-diameter, 1,230-foot-long concrete-lined low pressure tunnel;

(3) Iowa Hill powerhouse, an underground powerhouse along the Iowa Hill tunnel that includes three variable speed turbines each with a nominal rating of 133 MW and three generators each rated at 170 MW as a pump motor. The total powerhouse authorized installed capacity is 400 MW;

(4) Iowa Hill Switchyard; and

(5) A 230-kV transmission line connecting the Iowa Hill Switchyard to the Camino-White Rock Transmission Line.

The project works generally described above are more specifically shown and described by those parts of Exhibits A and F shown below:

Exhibit A: The following sections of Exhibit A filed on July 15, 2005 and July 31, 2013:

Page A-7 to Page A-58 filed July 15, 2005, and the table titled "Revised As-Built Exhibit A," filed July 31, 2013, superseding the July 15, 2005 capacities of the turbine and generator units.

Exhibit F: The following sections of Exhibit F filed on July 15, 2005:

FERC No.

Exhibit F Drawing	*2101-*	*Description*
Loon Lake		
F-1	1001	Rubicon Main Dam - General Arrangement, Plan and Profile
F-2	1002	Rubicon Auxiliary Dam - General Arrangement Sections
F-3	1003	Rubicon Auxiliary Dam - General Arrangement Plan and Profile
F-4	1004	Rockbound Tunnel Intake Structure - General Arrangement
F-5	1005	Rockbound Tunnel - General Arrangement Plan and Profile
F-6	1006	Rockbound Tunnel Outlet Channel - Plan & Profile
F-7	1007	Buck Island Dams – General Arrangement Plan and Profile
F-8	1008	Buck Island Dams - General Arrangement Sections
F-9	1009	Buck-Loon Tunnel – Intake Structure Plans and Sections
F-10	1010	Buck-Loon Tunnel – General Arrangement Plan and Profile
F-12	1012	Buck-Loon Tunnel - Details of 2' - 0" Fixed Gate Extension - Sheet 1 of 2
F-13	1013	Buck-Loon Tunnel - Details of 2' - 0" Fixed Gate Extension - Sheet 2 of 2
F-14	1014	Rockbound and Buck-Loon Tunnels Tunnel Intake Structure Concrete Outline
F-15	1015	Rockbound and Buck-Loon Tunnels – Tunnel Intake Structure Sections and Details
F-16	1016	Rockbound and Buck-Loon Tunnels Typical Sections
F-17	1017	Loon Lake Main Dam - General Arrangement Plan & Profile
F-18	1018	Loon Lake Main Dam – General Arrangement Sections & Details
F-19	1019	Loon Lake Spillway - Excavation Plan, Profile & Sections
F-20	1020	Loon Lake - Outlet Works General Arrangement Plan, Profile & Sections
F-21	1021	Loon Lake Auxiliary Dam – General Arrangement Plan, Profile & Sections

F-22	1022	Loon Lake Dike - General Arrangement Plan, Profile & Sections
F-23	1023	Loon Lake Development - General Arrangement Plan & Profile (This only illustrates the Loon Lake Penstock/Tunnel, from Loon Lake Reservoir to Gerle Creek Reservoir.)
F-24	1024	Loon Lake Penstock - Intake Gate Shaft General Arrangement
F-25	1025	Loon Lake Penstock - General Arrangement
F-26	1026	Loon Lake Penstock - Sections and Details
F-27	1027	Loon Lake Access Building - General Arrangement-Sheet 1 of 2
F-28	1028	Loon Lake Access Building - General Arrangement-Sheet 2 of 2
F-29	1029	Loon Lake Access Shaft - Excavation Plan and Profile
F-30	1030	Loon Lake Machine Hall - General Arrangement Plans-Mezzanine & Generator Floor
F-31	1031	Loon Lake Machine Hall - General Arrangement Plan-Turbine Floor
F-32	1032	Loon Lake Machine Hall - General Arrangement Longitudinal Section
F-33	1033	Loon Lake Tailrace Tunnel - General Arrangement Plan and Profile
F-34	1034	Loon Lake Tailrace Tunnel - Excavation Sections and Details
F-35	1035	Loon Lake Tailrace Outlet -Excavation Plan and Sections
F-36	1036	Loon Lake Tailrace Outline - Concrete Outline
Robbs Peak		
F-37	1037	Gerle Creek Dam - Profile to Robbs Peak Powerhouse
F-38	1038	Gerle Diversion - General Arrangement Plan & Profile
F-39	1039	Gerle Diversion –Gerle Dam - General Arrangement Plan
F-40	1040	Gerle Diversion – Gerle Dam - General Arrangement Elevations & Sections
F-41	1041	Gerle Diversion – Canal Intake - Concrete Outline Plan, Sections &Details

F-42	1042	Gerle Diversion –Gerle Canal - Typical Sections and Details
F-43	1043	Gerle Diversion-Robbs Peak Dam - General Arrangement Plan
F-44	1044	Gerle Diversion-Robbs Peak Dam - General Arrangement Elevation & Sections
F-45	1045	Gerle Diversion-Robbs Peak Dam - Bulkheads General Arrangement
F-46	1046	Gerle Diversion-Robbs Peak Dam - Bulkheads Details
F-47	1047	Gerle Diversion-Robbs Peak Dam - Bulkheads Supporting Frame - Sht. 1 of 2
F-48	1048	Gerle Diversion-Robbs Peak Dam - Bulkheads Supporting Frame - Sht. 2 of 2
F-49	1049	Gerle Diversion-Robbs Peak Dam - Outlet Works General Arrangement
F-50	1050	Robbs Peak Tunnel - General Arrangement Plan and Profile
F-51	1051	Robbs Peak Tunnel- Intake Structure - General Arrangement Elevation & Sections
F-52	1052	Robbs Peak Tunnel - Typical Sections
F-53	1053	Robbs Peak Intake - Trash Rack Bridge, Structure, Plan, & Sections
F-54	1054	Robbs Peak – Intake Structure - Steel Trash Rack Elevation & Sections
F-55	1055	Robbs Peak Tunnel - Surge Shaft, Excavation, Concrete Outline & Reinforcement
F-56	1056	Robbs Peak Penstock - Plan and Profile Sheet 1 of 2
F-57	1057	Robbs Peak Penstock - Plan & Profile Sheet 2 of 2
F-58	1058	Robbs Peak Powerhouse - General Arrangement, Plans-Generator, Turbine & Valve Floors
F-59	1059	Robbs Peak Powerhouse - General Arrangement, Sections Thru Unit
Jones Fork		
F-60	1060	Ice House Dam - Main Dam-General Plan & Elevation
F-61	1061	Ice House Dam - Main Dam-Embankment Details

F-62	1062	Ice House Dam - Main Dam Embankment Sections
F-63	1063	Ice House Dam - Dike No. 1-General Plan and Profile
F-64	1064	Ice House Dam - Dike No. 1-Sections and Crest Detail
F-65	1065	Ice House - Dike No. 2 - General Plan and Sections
F-66	1066	Ice House Dam - Spillway Plan and Excavation
F-67	1067	Ice House Dam - Spillway Dam General Arrangement
F-68	1068	Ice House Dam - Outlet Works General Arrangement
F-69	1069	Ice House Dam Outlet Works - Intake Structure General Arrangement
F-70	1070	Ice House Dam Outlet Works - Outlet Structure General Arrangement
F-71	1071	Jones Fork Development - General Arrangement Plan and Profile
F-72	1072	Jones Fork Development - Intake and Gate Shaft Plan and Sections
F-73	1073	Jones Fork Development - Tunnel Plan, Profile and Details
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(3) All of the structures, fixtures, equipment, and facilities used to operate or maintain the project and located within the project boundary, all portable property that may be employed in connection with the project and located within or outside the project boundary, and all riparian and other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) Exhibit A and the Exhibit F drawings described in ordering paragraph (B) are approved and made part of this license. The Exhibit G drawings filed as part of the application for license do not include all lands necessary for project operations and are not approved.

(D) This license is subject to the conditions of the Water Quality Certification (WQC) submitted by the California State Water Resources Control Board under section 401(a)(1) of the Clean Water Act, 33 U.S.C. § 1341(a)(1) (2012), as those conditions are set forth in Appendix A to this order.

(E) This license is subject to the conditions submitted by the U.S. Department of Agriculture - Forest Service under section 4(e) of the FPA, as those conditions are set forth in Appendix B to this order.

(F) This license is subject to the terms and conditions and reporting requirements of the biological opinion submitted by the U.S. Fish and Wildlife Service (FWS) under section 7 of the Endangered Species Act, as those conditions are set forth in Appendix D to this order.

(G) This license is subject to the conditions submitted by the U.S. Department of Interior – Bureau of Land Management under section 4(e) of the FPA, as those conditions are set forth in Appendix C to this order.

(H) This license is also subject to the articles set forth in Form L-6 (October 1975), entitled " Terms and Conditions of License for Unconstructed Major Project Affecting Lands of the United States" (*see* 54 FPC 1799 *et seq*.), as reproduced at the end of this order, and the following additional articles:

Article 201. *Annual Charges*. The licensee shall pay the United States annual charges, effective as of the first day of the month in which the license is issued, and as determined from time to time in accordance with provisions of the Commission's regulations, for the purpose of:

(1) Reimbursing the United States for the cost of administering Part I of the Federal Power Act. The authorized installed capacity for that purpose is 637,683 kilowatts, until the start of operation of the new capacity authorized by this license, after which time the authorized capacity is 1,037,683 kilowatts.

(2) Recompensing the United States for the use, occupancy, and enjoyment of its lands based on the final statement of federal land occupied by the project as required by Article 203.

Article 202. *Exhibit F Drawings*. Within 45 days of the date of issuance of the license/order, as directed below, the licensee shall file the approved exhibit drawings in electronic file format on CD disks.

Digital images of the approved exhibit drawings shall be prepared in electronic format. Prior to preparing each digital image, the FERC Project-Drawing Number (i.e., P-2101-1001 through P-2101-1165) shall be shown in the margin below the title block of the approved drawing. Exhibit F drawings must be identified as (CEII) material under 18 CFR §388.113(c). Each drawing must be a separate electronic file, and the file name shall include: FERC Project-Drawing Number, FERC Exhibit, Drawing Title, date of this

license, and file extension in the following format [P-2101-1001, F-1, Rubicon Main Dam - General Arrangement, Plan and Profile Project Boundary, MM-DD-YYYY.TIF].

Article 203. *Exhibit G Drawings*. Within 90 days of license issuance, the licensee shall file with the Commission for approval, revised Exhibit G drawings enclosing within the project boundary all project works necessary for operation and maintenance of the project, including the Airport Flat Campground, the Big Hill Communication Site, the Cleveland Coral Information Center, the Deer Crossing Campground, the Loon Lake Equestrian Campground, the Gerle Creek Campground, the Pleasant Campground, all trails associated with the Jones Fork penstock, and the access roads at the Wolf Creek, Northern Ice House, Jones Fork, and Northern Union Valley developments. The Exhibit G drawings must comply with sections 4.39 and 4.41(h) of the Commission's regulations.

Along with the revised Exhibit G drawings submitted for Commission approval, the licensee shall file a final statement verifying the amount of federal land occupied by the project under this license.

Article 204. *Headwater Benefits.* If the licensee is directly benefited by the construction work of another licensee, a permittee, or the United States of a storage reservoir or other headwater improvement, the licensee shall reimburse the owner of the headwater improvement for such part of the annual charges for interest, maintenance, and depreciation thereon, as is assessed in accordance with Part 11, Subpart B, of the Commission's regulations. If the licensee received such benefits during the term of a prior license (including extensions of that term by annual license), and if those benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed, in the same manner as for benefits received during the term of this new license.

Article 301. *Start of Construction*. The licensee shall commence construction of the Iowa Hill Development within five years from the date of the license and shall complete the construction within ten years from license issuance. Within 30 days of the start of construction, the licensee shall file with the Commission notification of the construction commencement date. The Commission will use the commencement of construction date to revise the project's annual charges under license Article 201(1).

Article 302. *Documentation of Project Financing.* At least 90 days before starting construction of the Iowa Hill Development, the licensee shall file with the Commission for approval, the licensee's documentation for the project financing. The documentation must show that the licensee has acquired the funds, or commitment for funds, necessary to construct the project in accordance with this license. The documentation must include, at a minimum, financial statements, including a balance

sheet, income statement, and a statement of actual or estimated cash flows over the license term which provide evidence that the licensee has sufficient assets, credit, and projected revenues to cover project construction, operation, and maintenance expenses, and any other estimated project liabilities and expenses. The financial statements must be prepared in accordance with generally accepted accounting principles and signed by an independent certified public accountant. The licensee may not begin project construction until the documentation is approved by the Commission's Division of Hydropower Administration and Compliance.

Article 303. *Contract Plans and Specifications*. At least 60 days prior to start of construction of the Iowa Hill Development, the licensee shall submit one copy of its final contract plans and specifications and supporting design report to the Commission's Division of Dam Safety and Inspections (D2SI)–San Francisco Regional Engineer, and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI). The submittal must also include as part of preconstruction requirements: a Quality Control and Inspection Program; Temporary Construction Emergency Action Plan; and Soil Erosion and Sediment Control Plan. The licensee may not begin construction until the D2SI–San Francisco Regional Engineer has reviewed and commented on the plans and specifications, determined that all preconstruction requirements have been satisfied, and authorized start of construction.

Article 304. *Cofferdam and Deep Excavation Construction Drawings*. Should construction require cofferdams or deep excavations for the Iowa Hill Development, the licensee shall: (1) review and approve the design of contractor-designed cofferdams and deep excavations prior to the start of construction; and (2) ensure that construction of cofferdams and deep excavations is consistent with the approved design. At least 30 days before starting construction of any cofferdams or deep excavations, the licensee shall submit one copy to the Commission's Division of Dam Safety and Inspections (D2SI) – San Francisco Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Commission's Director, D2SI), of the approved cofferdam and deep excavation construction drawings and specifications, and the letters of approval.

Article 305. *Board of Consultants*. The licensee shall retain a Board comprised of at least three qualified independent engineering consultants with experience that covers engineering geology, geotechnical, structural, hydrology, hydraulics, seismic, electrical, and mechanical engineering with extensive experience in dam design and construction to review the final design, specifications, and construction of the Iowa Hill Development for safety and adequacy. The names and qualifications of the Board members shall be submitted to the Director, Division of Dam Safety and Inspections (D2SI), for approval, with a copy to the Commission's D2SI-San Francisco Regional Engineer.

Among other things, the Board shall assess: (1) the geology of the project site and surroundings; (2) the design, plans and specifications, and construction of the dams,

intakes/outlets, tunnels, penstocks, powerhouse, electrical and mechanical equipment; (3) over-pumping protection of the upper reservoir; (4) instrumentation; (5) the construction quality control inspection program; (6) construction procedures and progress; and (7) project operations.

Before each Board meeting, allowing sufficient time for review, the licensee shall furnish the following items to the Board: (1) a statement showing the specific level of review to be performed by the Board; (2) an agenda; (3) a list of items for discussion; (4) significant events in the design and construction that have occurred since the last Board meeting; (5) drawings; and (6) documentation showing details and analyses of the design and construction features to be discussed. At the same time, the licensee shall submit one copy of these items to the D2SI –San Francisco Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Director, D2SI).

Within 30 days after each Board meeting, the licensee shall file with the Commission copies of the Board's report and a statement of intent to comply with the Board's recommendations or a statement identifying a plan to resolve the issue(s). The Board's review comments shall be submitted prior to or simultaneously with the submission of the final contract drawings, specifications, and supporting design report.

The licensee shall also file with the Commission copies of the Board's final report within one year of completing construction. The final report shall contain a statement indicating the Board's satisfaction with the construction, safety, and adequacy of the project structures and that all Potential Failure Modes have been identified and fully developed.

Article 306. *Inspection by Independent Consultant*. In accordance with Part 12, *Safety of Water Power Projects and Project Works*, of the Commission's Regulations, the initial independent consultant's inspection of the Iowa Hill Development must be completed and the report on it filed no later than five years from the date of first commercial operation or the date on which the impoundment first reaches its normal maximum surface elevation, whichever comes first.

Article 307. *Public Safety Plan.* At least 60 days prior to start of construction of the Iowa Hill Development, the licensee shall submit one copy to the Commission's Division of Dam Safety and Inspections (D2SI) – San Francisco Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Commission's Director, D2SI) an updated Public Safety Plan. The plan shall include an evaluation of public safety concerns at the project site and assess the need for the installation of safety devices or other safety measures, as well as a map showing the location of all public safety measures. For guidance on preparing public safety plans, the licensee can review the *Guidelines for Public Safety at Hydropower Projects* on the

Commission's website.

Article 308. *As-Built Drawings*. Within 90 days of completion of construction activities authorized by this license, including construction of any trails required by the trails system management plan (4(e) condition 57), the licensee shall file with the Commission for approval, revised Exhibits A, F, and G, as applicable, to describe and show those project facilities as built. Any revised Exhibit G drawings shall include any wildlife mitigation lands purchased pursuant to Article 409. Copies shall also be filed with the Commission's Division of Dam Safety and Inspections (D2SI), San Francisco Regional Office; the Director, D2SI; and the Director, Division of Hydropower Administration and Compliance.

Article 309. *Inflow Design Flood and Hazard Classification Study.* At least two years before starting construction of the Iowa Hill Development, the licensee shall submit one copy to the Commission's Division of Dam Safety and Inspections (D2SI)—San Francisco Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Commission's Director, D2SI) of an Inflow Design Flood and Hazard Classification study for the Iowa Hill Development. The study should be performed according to Chapter 2 of the Commission's Engineering Guidelines. The study should include: (1) an incremental hazard evaluation to determine the effects on downstream structures in the event of a dam failure; (2) a recommendation for the dam's hazard potential classification; and (3) an assessment of the adequacy of the dam's spillway capacity.

Article 310. *Project Modification Resulting From Environmental Requirements*. Any permanent or temporary modification which may affect the project works or operations shall be coordinated with the Commission's Division Dam Safety and Inspections (D2SI) – San Francisco Regional Engineer at the beginning of the planning and design phase. This includes those modifications resulting from license environmental requirements. This schedule is to allow sufficient review time for the Commission to insure that the proposed work does not adversely affect the project works, dam safety or project operation.

Article 401. *Commission Approval, Reporting, and Filing of Amendments*.

(a) Requirement to File Plans for Commission Approval

Various conditions of this license found in the State Water Resources Control Board's (California Water Board's) final section 401 Water Quality Certification (WQC) conditions (Appendix A) and the U.S. Forest Service's (Forest Service's or USFS's) final section 4(e) conditions (Appendix B) require the licensee to prepare plans for approval by the Forest Service or California Water Board and to implement specific measures without prior Commission approval. Each such plan or proposed measure shall also be

submitted to the Commission, and may not be implemented prior to Commission approval. The licensee shall include documentation that the licensee developed the plan or measure in consultation with the agencies identified and has received approval from the California Water Board and/or Forest Service, as appropriate. The Commission reserves the right to make changes to any plan or measure submitted. Upon Commission approval, a plan or measure will become a requirement of the license, and the licensee shall implement the plan or measure, or changes in project operations or facilities, including any changes required by the Commission. The plans and measures are listed below.

WQC condition no.	Forest Service condition no.	Description	Consult With	Due Date
1.I	27	Plan for water block releases into Silver Creek below Junction reservoir dam and Camino reservoir dam	Cal. Dep't of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Serv. (FWS), USFS, Cal. State Water Res. Control Bd. (California Water Board).	Within 16 months of license issuance.
6	36	Gaging Plan	U.S. Bureau of Land Mgmt. (BLM), CDFW, FWS, California Water Board, U.S. Geological Survey	Within 1 year of license issuance.
7	51.1	Streamflow and reservoir level information plan	USFS, California Water Board, Consultation Group (per Forest Service's 4(e) condition 50)	Within 1 year of license issuance.
8.A	31.1	Fish population monitoring plan	USFS, CDFW, FWS, California Water Board, Chili Bar Project Licensee (FERC No. 2155)	Within 28 months of license issuance.

WQC condition no.	Forest Service condition no.	Description	Consult With	Due Date
8.B	31.2	Aquatic macroinvertebrate monitoring plan	USFS, CDFW, FWS, California Water Board	Within 28 months of license issuance.
8.C	31.3	Amphibian and reptile habitat evaluation and species presence monitoring plan	USFS, CDFW, FWS, California Water Board	Within 16 months of license issuance.
8.C.6–8	31.3	Mountain yellow-legged frog monitoring plan	USFS, CDFW, FWS, California Water Board	Within 28 months of license issuance.
8.D	31.4	Amphibian flow fluctuation monitoring plan	USFS, CDFW, FWS, California Water Board	Within 16 months of license issuance.
8.E	31.5	Riparian vegetation monitoring plan	USFS, CDFW, FWS, California Water Board	Within 28 months of license issuance.
8.F	31.6	Algal species identification and monitoring plan	USFS, CDFW, FWS, California Water Board	Within 16 months of license issuance.
8.G	31.7	Geomorphology sensitive site investigation and mitigation monitoring plan	USFS, CDFW, FWS, California Water Board	Within 10 months of license issuance.
8.G	33	Gerle Creek channel stabilization plan	USFS, CDFW, FWS, California Water Board	Within 28 months of license issuance.
8.H	31.8	Geomorphology monitoring plan (continuing evaluation of representative channel areas)	USFS, CDFW, FWS, California Water Board	Within 28 months of license issuance.
8.I	31.9	Water Temperature Monitoring Plan	USFS, CDFW, FWS, California Water Board	Within one year of license issuance.

WQC condition no.	Forest Service condition no.	Description	Consult With	Due Date
8.J	31.10	Water Quality Monitoring Plan	USFS, BLM, FWS, CDFW, California Water Board, Central Valley California Water Board	Within 10 months of license issuance.
8.K	31.12	Robbs Peak powerhouse entrainment monitoring plan	USFS, CDFW, FWS, California Water Board	Within 10 months of license issuance.
8.L[68]	31.13	Bear management monitoring plan and bald eagle monitoring plan	USFS, CDFW, FWS, California Water Board	Within 10 months of license issuance.
11	37	Plan to evaluate water quality impacts of canal and penstock release points	USFS, California Water Board	Within 1 year of license issuance.
21.A	66(5)	Methods for Hardhead Monitoring in Slab Creek reservoir	USFS, CDFW, FWS, California Water Board	Within 5 months of license issuance.
21.B	66(2)	Methods and Locations for Monitoring Edgewater Temperature Conditions in Slab Creek reservoir	USFS, CDFW, FWS, California Water Board	Within 5 months of license issuance.
25	30	Coordination Plan with licensee for the Chili Bar Project	Chili Bar Project Licensee (FERC No. 2155)	Within 4 months of license issuance.
	38.1	Wildlife exclusion plan	USFS, CDFW, FWS	If needed based on monitoring results.

[68] WQC condition 8.L addresses only the bald eagle monitoring plan.

WQC condition no.	Forest Service condition no.	Description	Consult With	Due Date
	38.2, 38.3	Development of measures to protect federally listed species or designated critical habitat or sensitive plant and wildlife species	USFS, CDFW, FWS	As needed.
	38.4	Plan to protect newly listed special status plant and wildlife species	USFS, CDFW, FWS	As needed.
	38.6	Avian protection plan	FWS	Within 1 year of license issuance.
26	39.1	Invasive Weed Management Plan and Vegetation Management Plan	USFS, FWS, the appropriate County Agricultural Commissioner, and California Department of Food and Agriculture	Within 2 years of license issuance.
	40	Operations and maintenance plan	USFS, CDFW, FWS, California Water Board	Annually by April 1.
14	41	Recreation implementation plan	USFS	Within 6 months of license issuance.
	45	Plan for the installation of bear-proof food storage lockers and bear-proof trash receptacles	USFS, CDFG	Within 2 years of license issuance.
4.A	50.1	Plan to monitor recreational boating use below Slab Creek Dam	USFS, BLM, California Water Board, boating community (per WQC), Consultation Group (per Forest Service's 4(e) condition no. 50)	Within 6 months of license issuance.

WQC condition no.	Forest Service condition no.	Description	Consult With	Due Date
	50.1	Whitewater boating recreation plan for the South Fork American River below Slab Creek Dam	USFS, California Water Board, BLM, boating community (per WQC condition no. 4), Consultation Group (per Forest Service's 4(e) condition no. 50)	At the end of year 5 if Iowa Hill Pump Storage Project construction has not commenced.
	50.1	Access and Parking Plan for White Rock powerhouse	USFS, California Water Board, BLM, boating community (per WQC condition no. 4), Consultation Group (per Forest Service's 4(e) condition no. 50)	Within 18 months of license issuance.
4.B	50.2	Whitewater Recreation management plan for the South Fork Silver Creek below Ice House Dam	Boating community (per WQC condition no. 4), Consultation Group (per Forest Service's 4(e) condition no. 50)	Within 2 years of license issuance.
	51.2	Development of Project Recreation brochure and map	USFS	Within 2 years of license issuance and updated as conditions change.
	51.3	Interpretive, Education, and Public Information Plan	USFS	Within 2 years of license issuance.
	57	Plan for identification of all trails for project use	USFS	Within 1 year of license issuance

WQC condition no.	Forest Service condition no.	Description	Consult With	Due Date
	70	Plans and simulated views of Iowa Hill Development		6 months prior to Iowa Hill construction.
	74	Iowa Hill construction noise mitigation plan		6 months prior to Iowa Hill construction.
22	75	Recreation access plan for Slab Creek reservoir		6 months prior to Iowa Hill construction.

(b) Requirement to File Reports

Certain of the WQC conditions and Forest Service section 4(e) conditions require the licensee to file reports with other entities. These reports document compliance with requirements of this license and may have bearing on future actions. Each such report shall also be submitted to the Commission. The licensee shall submit to the Commission documentation of any consultation, and copies of any comments and recommendations made by any consulted entity in connection with each report. The Commission reserves the right to require changes to project operations or facilities based on the information contained in the report and any other available information.

These reports are listed in the following table:

WQC condition no.	Forest Service condition no.	Description	Consult With	Due Date
1	27 and 50	Notification of Water Year Type	USFS, CDFW, FWS, California Water Board	Within 30 days of California Department of Water Rights' May forecast.
2.B	28	Results of pulse flow studies in Gerle Creek below Loon Lake Dam	USFS, CDFW, FWS, California Water Board, Consultation Group	Within 2 years of license issuance.
	38.2	Biological Evaluations and Assessments		6 months before any construction activities.

WQC condition no.	Forest Service condition no.	Description	Consult With	Due Date
4.B	50.2	Reports on whitewater recreation on the South Fork Silver Creek below Ice House Dam	USFS	Within 5 years of license issuance and every 5 years thereafter.
5.I	49.9	Results of conference for management of reservoir levels during abnormal precipitation patterns	USFS, CDFW, FWS, California Water Board, Consultation Group	Within 60 days of the conference.
5.J	49.10	Reservoir level monitoring and adjustment report	USFS, CDFW, FWS, California Water Board, Consultation Group	Within 5 years of license issuance and every 5 years thereafter.
8 and 10	31	Annual report of monitoring for multiple requirements	USFS, CDFW, FWS, California Water Board	June 30 of the year following the year in which monitoring is conducted.
	38.0	Annual report of wildlife monitoring in project canals	USFS, CDFW, FWS	July 1 of each year.

c) Requirement to Notify Commission of Planned and Unplanned Deviations from License Requirements

Certain WQC conditions and Forest Service section 4(e) conditions allow the licensee to temporarily modify operations and license requirements under certain conditions. The Commission shall be notified prior to implementing such modifications, if possible, or in the event of an emergency, as soon as possible, but no later than 10 days after each such incident. These requirements are listed below

WQC condition no.	Forest Service condition no.	License Requirement
1	27	Flow modifications.
1.I	27	Exceedance of the 20° C temperature criterion for reaches of Silver

		Creek below Junction reservoir and Camino reservoir dams.
1.K, 9.A, 9.B	32.1, 32.2	Exceedance in the specified reaches of South Fork Silver Creek and South Fork American River of the 12° C temperature presumed to indicate initial yellow foothill frog breeding.
2	28	Pulse flow requirements.
3	29	Ramping rate requirements.
5.H	49.8	Maintain reservoir levels.
4.B	50.2	Recreational flows.

(d) Requirement to File Amendment Applications

Certain elements found in the WQC conditions in Appendix A and in the Forest Service 4(e) conditions in Appendix B contemplate unspecified long-term changes to project operations or facilities for the purpose of mitigating environmental impacts. These changes may not be implemented without prior Commission authorization granted after the filing of an application to amend the license. These conditions are listed below.

WQC condition no.	**Forest Service condition no.**	**Modification**
1.H and 1.K	27	Addition of minimum flow turbine(s).
2.A	28	Tunnel gate operation plan.
4.A, 9.B	32.4, 50.1	Additional measures to mitigate effects on amphibians of recreational stream flows below the Slab Creek Dam.
3	29	Modification to facilities to meet ramp rate requirements.
4.B	50	Modifications to whitewater recreation flow release volumes and schedule determined during consultation for 5-year reports.
5.E	49.5	Modification to minimum reservoir elevation and maximum daily fluctuation of Slab Creek reservoir.
5.I, 8, and 9	49.9, 31, and 32	Modifications to project operations, facilities, flows based on monitoring, and approved plans.

Article 402. *Fish Passage in Gerle Creek.* Within 1 year of license issuance, the licensee shall file with the Commission for approval, a Gerle Creek fish passage plan. In addition to the requirements in Water Quality Certification condition 5 (Appendix A) and U.S. Forest Service (Forest Service) 4(e) condition 49 (Appendix B) for maintaining Gerle Creek reservoir at a level sufficient to provide fish passage from August to October, the plan shall, to the extent needed, include provisions to modify the stream channel within the Gerle Creek Delta to maintain passage for brown trout.

The licensee shall develop the plan after consultation with the Forest Service, the California Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service.

With the final plan, the licensee shall include documentation of consultation, copies of agency comments and recommendations, and a description of how the agency comments are accommodated by the plan. Before filing the plan with the Commission, the licensee shall provide copies of the plan to the agencies, and allow a minimum of 30 days for the agencies to comment and make recommendations. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. The plan shall not be implemented until the licensee is notified that the plan is approved by the Commission. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 403. *Reservation of Authority to Prescribe Fishways.* Authority is reserved to the Commission to require the licensee to construct and maintain, or to provide for the construction, operation, and maintenance of, such fishways, as may be prescribed by the Secretary of Commerce or the Secretary of the Interior pursuant to section 18 of the Federal Power Act.

Article 404. *Invasive Weed Management Plan*. The licensee shall expand the geographic scope of the invasive weed management plan required by Water Quality Certification condition 26 (Appendix A) and U.S. Forest Service condition 39 (Appendix B) to encompass licensee-owned lands within the project boundary, particularly recreation sites and sensitive habitats and lands disturbed by future construction, recreational use, and project maintenance.

Article 405. *Vegetation Management Plan.* The vegetation management plan required by U.S. Forest Service conditions 39 and 59 (Appendix B) shall include the following additional provisions: (1) encompass all licensee-owned lands within the project boundary; and (2) specify compliance with the U.S. Fish and Wildlife Service's 1999 Conservation Guidelines for the Valley Elderberry Longhorn Beetles.

Article 406. *Recreational Carrying Capacity on Lands Affected by the Project*. The licensee shall file recreation use data on carrying capacity on lands specified by the U.S. Forest Service (Forest Service) condition 44 (Appendix B) as a component of the recreational resource report Form 80 prepared and submitted to the Commission every 6 years.

Article 407. *Transportation Management Plan for the Iowa Hill Development.* No later than one year before the commencement of construction of the Iowa Hill Development, the licensee shall file with the Commission for approval a final transportation management plan for the Iowa Hill Development. The plan shall identify preferred access routes for construction traffic and heavy equipment to access the upper and lower reservoir construction sites. The identification of the preferred routes shall use the criteria employed in the preparation of the Transportation Route Technical Report, or similar criteria.

The licensee shall develop the plan after consultation with the Iowa Hill Joint Advisory Committee (see section 3.4.2 of the El-Dorado-SMUD Cooperation Agreement) and the U.S. Forest Service. With the final plan the licensee shall include documentation of consultation, copies of agency comments and recommendations, and a description of how the agency comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission for approval. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Iowa Hill Development construction activities shall not commence until the licensee is notified that the plan is approved by the Commission. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 408. *Recreation Implementation Plan*. The Recreation Implementation Plan required by U.S. Forest Service condition 41 (Appendix B), shall be expanded to include the operation and maintenance for the term of the license of the following existing recreation areas and associated facilities: Loon Lake Area, Gerle reservoir Area, Union Valley reservoir Area, Ice House reservoir Area, Junction reservoir Boat Launch, Brush Creek Reservoir Boat Launch, Slab Creek reservoir Area, and Big Hill Overlook, as identified in Tables 5.3.8-1 through 5.3.8-5 in the licensee's final license application.

Article 409. *Wildlife Lands Mitigation Plan for the Iowa Hill Development.* No later than one year before the commencement of Iowa Hill Development construction, the licensee shall file with the Commission for approval a wildlife lands mitigation plan for permanently disturbed vegetation associated with construction of the Iowa Hill Development. The plan shall include the following: (a) identification of the location of wildlife lands to be purchased for mitigation of effects related to the Iowa Hill Development (as required by U.S. Forest Service condition 67 (Appendix B)); (b) the management goals and objectives for the mitigation lands; (c) the management activities that would be implemented to meet the management goals; (d) the measures that would be used to determine whether management goals are met; and (e) inclusion of the mitigation lands within the project boundary in the revised Exhibit G drawings required by Article 308.

The wildlife lands mitigation plan shall be developed after consultation with the Forest Service, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife. With the plan the licensee shall include an implementation schedule, documentation of consultation, copies of agency comments and recommendations, and a description of how the agency comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not

adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. The plan shall not be implemented until the licensee is notified that the plan is approved by the Commission. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 410. *Programmatic Agreement and Historic Properties Management Plan.* The licensee shall implement the "Programmatic Agreement Between the Federal Energy Regulatory Commission and the California State Historic Preservation Officer for Managing Historic Properties that May Be Affected by Issuing a License to the Sacramento Municipal Utility District for the Operation of the Upper American Project, in El Dorado County, California (FERC No. 2101-084)," executed on November 30, 2009, including but not limited to the Historic Properties Management Plan (HPMP) for the project. Pursuant to the requirements of this Programmatic Agreement, the licensee shall implement the HPMP upon issuance of this order. In the event that the Programmatic Agreement is terminated, the licensee shall continue to implement the provisions of its approved HPMP. The Commission reserves the authority to require changes to the HPMP at any time during the term of the license.

Article 411. *Use and Occupancy.* (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee also shall have continuing responsibility to supervise and control the use and occupancies for which it grants permission and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed on the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant or a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The types of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline;

and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure to the satisfaction of the Commission's authorized representative that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine if the proposed construction is needed and would not change the basic contour of the impoundment shoreline. To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69 kV or less); and (8) water intake or pumping facilities, except for any such facilities associated with the El Dorado-SMUD Cooperative Agreement of 2005, that do not extract more than one million gallons per day from a project impoundment. No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year: the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary for which all necessary federal and state approvals have been obtained; (5) private or

public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is 5 acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Energy Projects, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved report on recreational resources of an Exhibit E; or if the project does not have an approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G drawings

(project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised Exhibit G drawings would be filed for approval for other purposes.

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(I) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(J) This order constitutes the final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the FPA, 16 U.S.C. § 825*l* (2012), and Rule 713 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.713 (2013). The filing of a request for rehearing does not operate as a stay of the effective date of this license or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing shall constitute acceptance of this license.

Jeff C. Wright
Director
Office of Energy Projects

Form L-6
(October, 1975)

FEDERAL ENERGY REGULATORY COMMISSION
TERMS AND CONDITIONS OF LICENSE FOR UNCONSTRUCTED
MAJOR PROJECT AFFECTING NAVIGABLE WATERS
AND LANDS OF THE UNITED STATES

Article 1. The entire project, as described in this order of the Commission, shall be subject to all of the provisions, terms, and conditions of the license.

Article 2. No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license until such change shall have been approved by the Commission: Provided, however, That if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval a revised, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

Article 3. The project works shall be constructed in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except when emergency shall require for the protection of navigation, life, health, or property, there shall not be made without prior approval of the Commission any substantial alteration or addition not in conformity with the approved plans to any dam or other project works under the license or any substantial use of project lands and waters not authorized herein; and any emergency alteration, addition, or use so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in project works, or in uses of project lands and waters, or divergence from such approved exhibits may be made if such changes will not result in a decrease in efficiency, in a material increase in cost, in an adverse environmental impact, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its judgment have produced or will produce any of such results, shall be subject to such alteration as the Commission may direct.

Upon the completion of the project, or at such other time as the Commission may direct, the Licensee shall submit to the Commission for approval revised exhibits insofar as necessary to show any divergence from or variations in the project area and project boundary as finally located or in the project works as actually constructed when compared with the area and boundary shown and the works described in the license or in the exhibits approved by the Commission, together with a statement in writing setting forth the reasons which in the opinion of the Licensee necessitated or justified variation in or divergence from the approved exhibits. Such revised exhibits shall, if and when approved by the Commission, be made a

part of the license under the provisions of Article 2 hereof.

Article 4. The construction, operation, and maintenance of the project and any work incidental to additions or alterations shall be subject to the inspection and supervision of the Regional Engineer, Federal Energy Regulatory Commission, in the region wherein the project is located, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall cooperate fully with said representative and shall furnish him a detailed program of inspection by the Licensee that will provide for an adequate and qualified inspection force for construction of the project and for any subsequent alterations to the project. Construction of the project works or any features or alteration thereof shall not be initiated until the program of inspection for the project works or any such feature thereof has been approved by said representative. The Licensee shall also furnish to said representative such further information as he may require concerning the construction, operation, and maintenance of the project, and of any alteration thereof, and shall notify him of the date upon which work will begin, as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The Licensee shall allow said representative and other officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and across the project lands and project works in the performance of their official duties. The Licensee shall comply with such rules and regulations of general or special applicability as the Commission may prescribe from time to time for the protection of life, health, or property.

Article 5. The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction, maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights of occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the Licensee may lease or otherwise dispose of interests in project lands or property without specific written approval of the Commission pursuant to the then current regulations of the Commission. The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

Article 6. In the event the project is taken over by the United States upon the termination of the license as provided in Section 14 of the Federal Power Act, or is transferred to a new licensee or to a nonpower licensee under the provisions of Section 15 of said Act, the Licensee, its successors and assigns shall be responsible for, and shall make good any defect of title to, or of right of occupancy and use in, any of such project property that is necessary or

appropriate or valuable and serviceable in the maintenance and operation of the project, and shall pay and discharge, or shall assume responsibility for payment and discharge of, all liens or encumbrances upon the project or project property created by the Licensee or created or incurred after the issuance of the license: Provided, That the provisions of this article are not intended to require the Licensee, for the purpose of transferring the project to the United States or to a new licensee, to acquire any different title to, or right of occupancy and use in, any of such project property than was necessary to acquire for its own purposes as the Licensee.

Article 7. The actual legitimate original cost of the project, and of any addition thereto or betterment thereof, shall be determined by the Commission in accordance with the Federal Power Act and the Commission's Rules and Regulations thereunder.

Article 8. The Licensee shall install and thereafter maintain gages and stream-gaging stations for the purpose of determining the state and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gages and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission or its authorized representative. The Commission reserves the right, after notice and opportunity for hearing, to require such alterations in the number, character and locations of gages, meters, or other measuring devices, and the method of operation thereof, as are necessary to secure adequate determinations. The installation of gages, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of the project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision, or cooperation for such periods as may be mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

Article 9. The Licensee shall, after notice and opportunity for hearing, install additional capacity or make other changes in the project as directed by the Commission, to the extent that it is economically sound and in the public interest to do so.

Article 10. The Licensee shall, after notice and opportunity for hearing, coordinate the operation of the project, electrically and hydraulically, with such other projects or power systems and in such manner as the Commission may direct in the interest of power and other beneficial public uses of water resources, and on such conditions concerning the equitable sharing of benefits by the Licensee as the Commission may order.

Article 11. Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater

improvement, the Licensee shall reimburse the owner of the headwater improvement for such part of the annual charges for interest, maintenance, and depreciation thereof as the Commission shall determine to be equitable, and shall pay to the United States the cost of making such determination as fixed by the Commission. For benefits provided by a storage reservoir or other headwater improvement of the United States, the Licensee shall pay to the Commission the amounts for which it is billed from time to time for such headwater benefits and for the cost of making the determinations pursuant to the then current regulations of the Commission under the Federal Power Act.

Article 12. The United States specifically retains and safeguards the right to use water in such amount, to be determined by the Secretary of the Army, as may be necessary for the purposes of navigation on the navigable waterway affected; and the operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Secretary of the Army may prescribe in the interest of navigation, and as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes, and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Secretary of the Army may prescribe in the interest of navigation, or as the Commission may prescribe for the other purposes hereinbefore mentioned.

Article 13. On the application of any person, association, corporation, Federal Agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The Licensee shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensee to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

Article 14. In the construction or maintenance of the project works, the Licensee shall place and maintain suitable structures and devices to reduce to a reasonable degree the liability of contact between its transmission lines and telegraph, telephone and other signal wires or power transmission lines constructed prior to its transmission lines and not owned by the

Licensee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures and devices to reduce to a reasonable degree the liability of any structures or wires falling or obstructing traffic or endangering life. None of the provisions of this article are intended to relieve the Licensee from any responsibility or requirement which may be imposed by any other lawful authority for avoiding or eliminating inductive interference.

Article 15. The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing.

Article 16. Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

Article 17. The Licensee shall construct, maintain, and operate, or shall arrange for the construction, maintenance, and operation of such reasonable recreational facilities, including modifications thereto, such as access roads, wharves, launching ramps, beaches, picnic and camping areas, sanitary facilities, and utilities, giving consideration to the needs of the physically handicapped, and shall comply with such reasonable modifications of the project, as may be prescribed hereafter by the Commission during the term of this license upon its own motion or upon the recommendation of the Secretary of the Interior or other interested Federal or State agencies, after notice and opportunity for hearing.

Article 18. So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting: Provided, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

Article 19. In the construction, maintenance, or operation of the project, the Licensee

shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon request or upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

Article 20. The Licensee shall consult with the appropriate State and Federal agencies and, within one year of the date of issuance of this license, shall submit for Commission approval a plan for clearing the reservoir area. Further, the Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. Upon approval of the clearing plan all clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statues and regulations.

Article 21. Material may be dredged or excavated from, or placed as fill in, project lands and/or waters only in the prosecution of work specifically authorized under the license; in the maintenance of the project; or after obtaining Commission approval, as appropriate. Any such material shall be removed and/or deposited in such manner as to reasonably preserve the environmental values of the project and so as not to interfere with traffic on land or water. Dredging and filling in a navigable water of the United States shall also be done to the satisfaction of the District Engineer, Department of the Army, in charge of the locality.

Article 22. Whenever the United States shall desire to construct, complete, or improve navigation facilities in connection with the project, the Licensee shall convey to the United States, free of cost, such of its lands and rights-of-way and such rights of passage through its dams or other structures, and shall permit such control of its pools, as may be required to complete and maintain such navigation facilities.

Article 23. The operation of any navigation facilities which may be constructed as a part of, or in connection with, any dam or diversion structure constituting a part of the project works shall at all times be controlled by such reasonable rules and regulations in the interest of navigation, including control of the level of the pool caused by such dam or diversion structure, as may be made from time to time by the Secretary of the Army.

Article 24. The Licensee shall furnish power free of cost to the United States for the operation and maintenance of navigation facilities in the vicinity of the project at the voltage and frequency required by such facilities and at a point adjacent thereto, whether said facilities are constructed by the Licensee or by the United States.

Article 25. The Licensee shall construct, maintain, and operate at its own expense such

lights and other signals for the protection of navigation as may be directed by the Secretary of the Department in which the Coast Guard is operating.

Article 26. Timber on lands of the United States cut, used, or destroyed in the construction and maintenance of the project works, or in the clearing of said lands, shall be paid for, and the resulting slash and debris disposed of, in accordance with the requirements of the agency of the United States having jurisdiction over said lands. Payment for merchantable timber shall be at current stumpage rates, and payment for young growth timber below merchantable size shall be at current damage appraisal values. However, the agency of the United States having jurisdiction may sell or dispose of the merchantable timber to others than the Licensee: Provided, That timber so sold or disposed of shall be cut and removed from the area prior to, or without undue interference with, clearing operations of the Licensee and in coordination with the Licensee's project construction schedules. Such sale or disposal to others shall not relieve the Licensee of responsibility for the clearing and disposal of all slash and debris from project lands.

Article 27. The Licensee shall do everything reasonably within its power, and shall require its employees, contractors, and employees of contractors to do everything reasonably within their power, both independently and upon the request of officers of the agency concerned, to prevent, to make advance preparations for suppression of, and to suppress fires on the lands to be occupied or used under the license. The Licensee shall be liable for and shall pay the costs incurred by the United States in suppressing fires caused from the construction, operation, or maintenance of the project works or of the works appurtenant or accessory thereto under the license.

Article 28. The Licensee shall interpose no objection to, and shall in no way prevent, the use by the agency of the United States having jurisdiction over the lands of the United States affected, or by persons or corporations occupying lands of the United States under permit, of water for fire suppression from any stream, conduit, or body of water, natural or artificial, used by the Licensee in the operation of the project works covered by the license, or the use by said parties of water for sanitary and domestic purposes from any stream, conduit, or body of water, natural or artificial, used by the Licensee in the operation of the project works covered by the license.

Article 29. The Licensee shall be liable for injury to, or destruction of, any buildings, bridges, roads, trails, lands, or other property of the United States, occasioned by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license. Arrangements to meet such liability, either by compensation for such injury or destruction, or by reconstruction or repair of damaged property, or otherwise, shall be made with the appropriate department or agency of the United States.

Article 30. The Licensee shall allow any agency of the United States, without charge, to construct or permit to be constructed on, through, and across those project lands which are lands of the United States such conduits, chutes, ditches, railroads, roads, trails,

telephone and power lines, and other routes or means of transportation and communication as are not inconsistent with the enjoyment of said lands by the Licensee for the purposes of the license. This license shall not be construed as conferring upon the Licensee any right of use, occupancy, or enjoyment of the lands of the United States other than for the construction, operation, and maintenance of the project as stated in the license.

Article 31. In the construction and maintenance of the project, the location and standards of roads and trails on lands of the United States and other uses of lands of the United States, including the location and condition of quarries, borrow pits, and spoil disposal areas, shall be subject to the approval of the department or agency of the United States having supervision over the lands involved.

Article 32. The Licensee shall make provision, or shall bear the reasonable cost, as determined by the agency of the United States affected, of making provision for avoiding inductive interference between any project transmission line or other project facility constructed, operated, or maintained under the license, and any radio installation, telephone line, or other communication facility installed or constructed before or after construction of such project transmission line or other project facility and owned, operated, or used by such agency of the United States in administering the lands under its jurisdiction.

Article 33. The Licensee shall make use of the Commission's guidelines and other recognized guidelines for treatment of transmission line rights-of-way, and shall clear such portions of transmission line rights-of-way across lands of the United States as are designated by the officer of the United States in charge of the lands; shall keep the areas so designated clear of new growth, all refuse, and inflammable material to the satisfaction of such officer; shall trim all branches of trees in contact with or liable to contact the transmission lines; shall cut and remove all dead or leaning trees which might fall in contact with the transmission lines; and shall take such other precautions against fire as may be required by such officer. No fires for the burning of waste material shall be set except with the prior written consent of the officer of the United States in charge of the lands as to time and place.

Article 34. The Licensee shall cooperate with the United States in the disposal by the United States, under the Act of July 31, 1947, 61 Stat. 681, as amended (30 U.S.C. sec. 601, et seq.), of mineral and vegetative materials from lands of the United States occupied by the project or any part thereof: Provided, That such disposal has been authorized by the Commission and that it does not unreasonably interfere with the occupancy of such lands by the Licensee for the purposes of the license: Provided further, That in the event of disagreement, any question of unreasonable interference shall be determined by the Commission after notice and opportunity for hearing.

Article 35. If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address

of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may also agree to the surrender of the license when the Commission, for the reasons recited herein, deems it to be the intent of the Licensee to surrender the license.

Article 36. The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

Article 37. The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

APPENDIX A

Water Quality Certificate Conditions for the Upper American Project issued by the California State Water Resources Control Board on October 4, 2013

CONDITION 1. MINIMUM INSTREAM FLOWS

General Information

The Licensee shall, beginning as early as reasonably practicable and not later than three months after license issuance, maintain minimum streamflows as specified in this condition 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, SF Rubicon River below Robbs Peak Reservoir Dam, SF 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 SF American River below Slab Creek Reservoir Dam.

For compliance purposes, the point of measurement for each required minimum streamflow is described in the introduction to the minimum streamflow schedule, set out below, for that particular stream reach. All specified streamflows are in cfs. The schedules specify minimum streamflows, by month and water year type, for each of the specified stream reaches. The Licensee shall report any deviation from the required minimum flows to the State Water Board and furnish electronic streamflow records upon request.

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 the Commission, USFS, USFWS, CDFW, and the Deputy Director 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 five days after notice to the Commission, and upon approval by the Deputy Director.

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 three years after license issuance. Prior to such required facility modifications, the Licensee shall 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 where facility modification is required, the Licensee shall have a three-year period after the license is issued or three years after completion of necessary facility modifications, whichever occurs 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 streamflow 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, AN, BN, Dry, and CD. In addition, a SD water year is defined for the purpose of reservoir level management. The Licensee shall determine the water year type based on the water year forecast of unimpaired runoff in the American River below Folsom Lake published near the beginning of each month from February through May in the California Department of Water Resources (DWR) Bulletin 120 "Report of Water Conditions in California." Specifically, the "American River Below Folsom Lake" forecast is currently shown in the "Water Year Forecast" column of the "Water Year Unimpaired Runoff" table in DWR Bulletin 120. The water year types are defined as follows:

Year Type	American River Water Year Forecast
Wet	greater than or equal to 3.500 Million Acre-Feet (MAF)
AN	greater than or equal to 2.600 MAF but less than 3.500 MAF
BN	greater than or equal to 1.700 MAF but less than 2.600 MAF
Dry	greater than or equal to 0.900 MAF but less than 1.700 MAF
CD	less than 0.900 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 month from 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 beginning three days after issuance of the forecast and continuing until two days after issuance of a subsequent monthly forecast. The May forecast shall be used to establish the final water year type for the remaining months of the water year and the month of October. The water year type for the months of November through January shall be based on DWR's Full Natural Flow record for the American River at Folsom (California Data Exchange Center American River at Folsom [AMF] Station, sensor 65) for the preceding water year, and the Licensee shall operate based on that record beginning November 1. The Licensee shall provide notice to the Commission, USFS, USFWS, CDFW, and the Deputy Director of the final water year type determination within 30 days of the May forecast.

1.A. Rubicon River below Rubicon Reservoir Dam

The Licensee shall maintain the minimum streamflow specified in Table 3 based on month and water year type. If inclement weather conditions prevent access to the minimum streamflow release valve during the months of March, April, and May, required modifications to minimum streamflows may occur within a 14-calendar-day window beginning seven days prior to the first day of the month. However, the May minimum streamflow shall be no less than 30 days in duration, even if this requires extension of the May minimum streamflows into June. Minimum streamflows shall be measured at either United States Geological Survey (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 (Condition 6).

Table 3. Rubicon River below Rubicon Reservoir Dam					
Minimum Streamflow by Water Year Type (cfs)					
Month	**CD**	**DRY**	**BN**	**AN**	**WET**
October	6 or NF*	6 or NF*	6 or NF*	6 or NF*	6 or NF*
November	6 or NF*	6 or NF*	6 or NF*	6 or NF*	6 or NF*
December	6 or NF*	6 or NF*	6 or NF*	6 or NF*	6 or NF*
January	6 or NF*	6 or NF*	6 or NF*	6 or NF*	6 or NF*
February	6 or NF*	6 or NF*	6 or NF*	6 or NF*	6 or NF*
March	6 or NF*	8	15	15	15
April	8	12	20	20	20
May	10	15	35	35	35
June	6 or NF*	8	15	15	15
July	6 or NF*	6 or NF*	6 or NF*	6 or NF*	6 or NF*
August	6 or NF*	6 or NF*	6 or NF*	6 or NF*	6 or NF*
September	6 or NF*	6 or NF*	6 or NF*	6 or NF*	6 or NF*

* The minimum streamflow shall be 6 cfs or the NF, whichever is less. NF as used here is natural flow, subject to the following condition: If natural flow measured in the Rubicon River above Rubicon Reservoir is below 1 cfs, the minimum streamflow shall be 1 cfs. In CD water years, if the useable storage in Rubicon Reservoir is less than 60 ac-ft and the Licensee cannot maintain 1 cfs due to lack of natural flow into and storage in Rubicon Reservoir, after notification of USFS, USFWS, CDFW, and the State Water Board, the Licensee may reduce minimum flows below 1 cfs until sufficient water is available to resume prescribed minimum streamflow releases; however, at no time shall the minimum streamflow be less than the natural flow into Rubicon Reservoir. The Licensee shall make every effort to notify USFS, USFWS, CDFW, and the State Water Board at least 30 days prior to the date upon which the Licensee will not meet the streamflow, or as much in advance as possible.

For the protection of aquatic species, the Licensee shall maintain an over-wintering minimum pool elevation of 6,527 feet in Rubicon Reservoir once the reservoir begins to freeze. When the reservoir elevation drops below an elevation of 6,527 feet, streamflow releases from Rubicon Reservoir shall equal the lesser of either the applicable flow listed in Table 3 or the natural flow into Rubicon Reservoir.

1.B. Little Rubicon River below Buck Island Reservoir Dam

The Licensee shall maintain the minimum streamflow specified in Table 4 based on month and water year type. If inclement weather conditions prevent access to the minimum streamflow release valve during the months of March, April and May, required modifications to minimum streamflows may occur within a 14-day-window beginning seven calendar days before or after the first day of the month. However, the May minimum streamflow shall be no less than 30 days in duration, even if this requires extension of the May minimum streamflows into June. Minimum streamflows shall be measured at USGS gage 11428400, located at the outlet structure on Buck Island Reservoir Dam.

Table 4. Little Rubicon River below Buck Island Reservoir Dam					
Minimum Streamflow by Water Year Type (cfs)					
Month	**CD**	**DRY**	**BN**	**AN**	**WET**
October	1*	1*	1*	1*	1*
November	1*	1*	1*	1*	1*
December	1*	1*	1*	1*	1*
January	1*	1*	1*	1*	1*
February	1*	1*	1*	1*	1*
March	1*	2	3	3	3
April	2	3	5	5	5
May	2	3	8	8	8
June	1*	2	3	3	3
July	1*	1*	1*	1*	1*
August	1*	1*	1*	1*	1*
September	1*	1*	1*	1*	1*

* If natural flow measured in Highland/Rockbound Creek above Buck Island Reservoir is below 1 cfs, the minimum flow shall be 1 cfs. In CD water years, if the useable storage in Buck Island Reservoir is less than 60 ac-ft and the Licensee cannot maintain 1 cfs due to lack of natural flow into and storage in Buck Island Reservoir, the Licensee, after notification of USFS, CDFW, USFWS, and the State Water Board, may reduce minimum flows below 1 cfs until sufficient water is available to resume prescribed minimum streamflow releases; however, at no time shall the minimum streamflow be less than the natural flow into Buck Island Reservoir. The Licensee shall make every effort to notify USFS, USFWS, CDFW, and the State Water Board at least 30 days prior to the date upon which the Licensee will not meet the streamflow, or as much in advance as possible.

1.C. Gerle Creek below Loon Lake Reservoir Dam

The Licensee shall maintain the minimum streamflow specified in Table 5 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.

Table 5. Gerle Creek below Loon Lake Reservoir Dam					
Minimum Streamflow by Water Year Type (cfs)					
Month	**CD**	**DRY**	**BN**	**AN**	**WET**
October	7	11	16	20	23
November	7	11	16	20	23
December	8	13	18	22	26
January	12	15	19	23	28
February	14	18	22	27	32
March	19	24	30	37	44
April	23	32	40	49	58
May	25	32	40	49	58
June	10	16	22	27	32
July	5	14	22	27	32
August	5	10	14	17	20
September	5	10	14	17	20

1.D. Gerle Creek below Gerle Creek Reservoir Dam

The Licensee shall maintain the minimum streamflow specified in Table 6 based on month and water year type. Minimum streamflow shall be measured at a gaging device located immediately downstream of Gerle Creek Reservoir Dam.

Table 6. Gerle Creek below Gerle Creek Reservoir Dam					
Minimum Streamflow by Water Year Type (cfs)					
Month	**CD**	**DRY**	**BN**	**AN**	**WET**
October	5	9	10	10	10
November	4	4	6	6	6
December	4	5	6	6	6
January	5	6	6	6	6
February	5	6	6	6	6
March	7	10	12	9	9
April	9	12	15	9	9
May	9	12	15	15	15
June	9	12	15	15	15
July	7	10	13	15	15
August	5	9	12	12	12
September	5	9	10	10	10

1.E. South Fork Rubicon River below Robbs Peak Reservoir Dam

The Licensee shall maintain the minimum streamflow specified in Table 7 based on month and water year type. Minimum streamflow shall be measured at a gaging device located immediately downstream of Robbs Peak Reservoir Dam.

Table 7. South Fork Rubicon River below Robbs Peak Reservoir Dam					
Minimum Streamflow by Water Year Type (cfs)					
Month	**CD**	**DRY**	**BN**	**AN**	**WET**
October	3	3	3	3	3
November	1	2	3	3	3
December	1	3	4	4	4
January	2	5	7	7	7
February	2	5	8	8	8
March	3	7	11	9	9
April	4	9	13	10	10
May	4	9	13	13	13
June	4	9	13	13	13
July	3	5	6	13	13
August	3	5	6	11	11
September	3	5	6	6	6

1.F. South Fork Silver Creek below Ice House Reservoir Dam

The Licensee shall maintain the minimum streamflow specified in Table 8 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.

Table 8. South Fork Silver Creek below Ice House Reservoir Dam					
Minimum Streamflow by Water Year Type (cfs)					
Month	**CD**	**DRY**	**BN**	**AN**	**WET**
October	5	10	15	15	15
November	5	7	8	8	8
December	5	8	11	11	11
January	6	12	18	18	18
February	6	12	18	18	18
March	8	16	24	24	24
April	15	28	41	41	41
May	30	46	68	68	68
June	25	31	46	46	46
July	21	21	30	30	30
August	14	14	15	15	15
September	10	10	15	15	15

1.G. Silver Creek below Junction Reservoir Dam

The Licensee shall maintain the minimum streamflow specified in Table 9 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.

Table 9. Silver Creek below Junction Reservoir Dam					
Minimum Streamflow by Water Year Type (cfs)					
Month	**CD**	**DRY**	**BN**	**AN**	**WET**
October	5	10	15	15	15
November	5	7	20	20	20
December	5	8	20	20	20
January	6	12	20	20	20
February	6	12	20	20	20
March	8	16	25	25	25
April	15	28	42	42	42
May	30	46	68	68	68
June	25	31	50	59	59
July	21	21	30	35	35*
August	14	14	15	18	18*
September	10	10	15	18	18*

* The Licensee may be required to release additional water below Junction Reservoir Dam in Wet years (see Condition 1.I. – Adaptive Water Temperature Management in Silver Creek below Junction and Camino Reservoir Dams).

1.H. Silver Creek below Camino Reservoir Dam

The Licensee shall maintain the minimum streamflow specified in Table 10 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. Facilities improvements to provide these flows may include new release valves and/or installation of a new minimum flow turbine.

Table 10. Silver Creek below Camino Reservoir Dam

Minimum Streamflow by Water Year Type (cfs)

Month	CD	DRY	BN	AN	WET
October	5	10	15	15	15
November	5	7	20	20	20
December	5	8	20	20	20
January	6	12	20	20	20
February	6	12	20	20	20
March	8	16	25	25	25
April	15	28	42	42	42
May	30	46	68	68	68
June	25	31	50	59	59
July	21	21	30	35	35*
August	14	14	15	18	18*
September	10	10	15	18	18*

* The Licensee may be required to release additional water below Camino Reservoir Dam in Wet years (see Condition 1.I. – Adaptive Water Temperature Management in Silver Creek below Junction and Camino Reservoir Dams).

1.I. Adaptive Water Temperature Management in Silver Creek below Junction and Camino Reservoir Dams

To assist the Licensee in maintaining required temperature control in the river reaches below Camino and Junction Reservoirs, the Licensee shall release up to two blocks of water per month in Wet years during July, August and/or September, for a potential total of six water blocks annually. The volume of water constituting a water block varies depending on the month of release. Upon approval of the Deputy Director, in accordance with the plan described below, one block of water per month shall be released into Silver Creek below Junction Reservoir Dam (Table 11.A.), or one block of water per month shall be released into Silver Creek below Camino Reservoir Dam (Table 11.B.), or both, as needed for temperature control. No block of water shall exceed the monthly quantity described in Tables 11.A. and 11.B.

Table 11.A. Adaptive Management Water Block Release Volumes for Water Temperature Management in Silver Creek below Junction Reservoir Dam (Wet Years Only)

Month	Maximum Water Quantity Released (acre-feet)
July	1,044
August	491
September	475

Table 11.B. Adaptive Management Water Block Release Volumes for Water Temperature Management in Silver Creek below Camino Reservoir Dam (Wet Years Only)	
Month	**Maximum Water Quantity Released (acre-feet)**
July	1,044
August	491
September	475

Within one year of license issuance, the Licensee shall, in consultation with CDFW, USFWS, USFS, and State Water Board staff, develop a plan for each block of water that addresses, at a minimum: notification protocols for temperature exceedances, emergency temperature operation contingencies, and ecological monitoring associated with the use of each block of water. The Licensee shall submit the plan to the Deputy Director[10] for review and approval after agency consultation but prior to submission to the Commission, if applicable. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

Each block of water released shall be equivalent to the total amount of water available for release in the month specified for that reach. The amount of water for each monthly block shall be released as needed to achieve the desired mean daily water temperature described below. The Licensee is not required to release the block of water in its entirety in one release event. Each block of water shall be made available during the first Wet year that occurs once the initial minimum streamflows are implemented and for all subsequent Wet years.

The Licensee shall release each block of water as directed by the approved plan to maintain mean daily water temperatures of 20ºC or below in the Junction Dam and Camino Dam Reaches. One block of water shall be made available to the Junction Dam Reach if water temperature exceeds a daily mean water temperature of 20ºC in Silver Creek below Junction Reservoir Dam, as measured in Silver Creek immediately upstream of Camino Reservoir. A second block of water shall be made available to the Camino Dam Reach if water temperature exceeds a daily mean water temperature of 20ºC in Silver Creek below Camino Reservoir Dam, as measured in Silver Creek immediately upstream of the confluence with the SF American River (at or near discontinued USGS gage 11442000, Licensee station SC1).

The Licensee shall install and maintain a temperature gage on Silver Creek immediately upstream of Camino Reservoir to measure water temperature in Silver Creek below Junction Reservoir Dam. The Licensee shall also install and maintain a temperature gage on Silver Creek upstream of the SF American River at or near the site of discontinued USGS gage 11442000 (Licensee station SC1[11]). Within two years of license issuance, the Licensee shall develop and install a telemetry system on Silver Creek upstream of the confluence with the SF American River that provides daily access to hourly temperature monitoring data. The Licensee shall, promptly but not later than

[10] Throughout this water quality certification, the Deputy Director's or State Water Board's approval authority includes the authority to withhold approval or to require modification of a proposal or plan prior to approval. The State Water Board may also take enforcement action if the Licensee fails to provide and implement a required plan in a timely manner.

[11] Study site designations and locations are described in the Water Temperature Technical Report (May 2005) prepared for the relicensing proceeding.

within 24 hours, notify the State Water Board, CDFW, USFWS, and USFS if the water temperatures in Silver Creek below Junction Reservoir Dam or below Camino Reservoir Dam exceed the 20ºC water temperature objective.

If the water temperature objective is exceeded, the Licensee may be required to monitor for the presence of FYL frogs prior to and after the release of the water block according to the approved plan described above.

1.J. Brush Creek below Brush Creek Reservoir Dam

The Licensee shall maintain the minimum streamflow specified in Table 12 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.

Table 12. Brush Creek below Brush Creek Reservoir Dam

Minimum Streamflow by Water Year Type (cfs)

Month	CD	DRY	BN	AN	WET
October	4 or NF*	4 or NF*	4 or NF*	4 or NF*	4 or NF*
November	6 or NF*	7 or NF*	8 or NF*	9 or NF*	9 or NF*
December	6 or NF*	7 or NF*	8 or NF*	9 or NF*	10 or NF*
January	6 or NF*	7 or NF*	8 or NF*	9 or NF*	10 or NF*
February	6 or NF*	7 or NF*	8 or NF*	9 or NF*	10 or NF*
March	6 or NF*	7 or NF*	8 or NF*	9 or NF*	10 or NF*
April	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*
August	4 or NF*	4 or NF*	4 or NF*	4 or NF*	4 or NF*
September	3 or NF*	3 or NF*	3 or NF*	3 or NF*	3 or NF*

* The minimum streamflow shall be the value specified in Table 12 or the NF, whichever is less. NF as used here is natural flow subject to the following condition: If natural flow as measured in Brush Creek above Brush Creek Reservoir is less than 1 cfs, the minimum flow shall be 1 cfs.

1.K. South Fork American River below Slab Creek Reservoir Dam

The Licensee shall maintain the minimum streamflow specified in Table 13, based on month and water year type, for Years 1 through 3 of the new license in order to allow facility modifications to be completed at this location. In some months, minimum streamflows change weekly. In months with more than one minimum streamflow, the Licensee shall maintain each minimum streamflow listed for one week (seven days) prior to implementing the next weekly minimum streamflow for that month[12]. Minimum streamflow shall be measured at USGS gage 11443500, located approximately 500 feet upstream from Iowa Canyon Creek.

[86] The last weekly minimum flow for each month with four flows (e.g., 180 cfs in March) shall be maintained for more than seven days, through the remainder of that month.

Table 13. South Fork American River below Slab Creek Reservoir Dam					
Minimum Streamflow by Water Year Type (cfs): Years 1 through 3					
Month	**CD**	**DRY**	**BN**	**AN**	**WET**
October	63	63	70	80	90
November	63	63	70	80	90
December	63	63	70	80	90
January	63	63	70	80	90
February	63	63	70	80	90
March	63	101	110-130-150-180	110-130-150-180	110-130-150-180
April	100	101-132-156-183	188-197-213-222	188-197-213-222	188-197-213-222
May	109	164-145-126-107	229-236-247-263*	229-236-247-263*	229-236-247-263*
June	90	90	228-193-158-123	228-193-158-123	228-193-158-123
July	77	90	90	90	90
August	63	70	70	70	70
September	63	63	70	70	70

* Or maximum capacity of the existing valve, whichever is less. The theoretical maximum capacity of the existing valve is 263 cfs.

The Licensee shall maintain the minimum streamflow specified in Table 14 based on month and water year type, for Years 4 through the term of the new license and any extensions. In months with more than one minimum streamflow, the Licensee shall maintain each minimum streamflow listed for one week (seven days) prior to implementing the next weekly minimum streamflow for that month[13]. Minimum streamflow shall be measured at USGS gage 11443500, located approximately 500 feet upstream from Iowa Canyon Creek. Facilities improvements may include new release valves and/or higher capacity minimum flow turbine upgrades to current facilities.

Table 14. South Fork American River below Slab Creek Reservoir Dam					
Minimum Streamflow by Water Year Type (cfs): Years 4 through the Term of New License and Any Extensions					
Month	**CD**	**DRY**	**BN**	**AN**	**WET**
October	63	63	70	80	90
November	63	63	70	80	90
December	63	63	70	80	90
January	63	63	70	80	90
February	63	63	70	80	90
March	63	101	110-130-150-180	110-130-150-180	110-130-150-180
April	100	110-130-150-183	222-236-247-263	222-236-247-263	222-236-247-263
May	109	164-145-126-107	272-286-297-303	272-316-367-395	272-337-387-415
June	90	90	255-210-165-120	324-256-188-120	352-274-197-120
July	77	90	90	90	90
August	63	70	70	70	70
September	63	63	70	70	70

[87] The last weekly minimum flow for each month with four flows (e.g., 180 cfs in March) shall be maintained for more than seven days, through the remainder of that month.

CONDITION 2. PULSE FLOWS

General Background

The Licensee shall, beginning as early as reasonably practicable and within three 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 Reservoir Dam, Gerle Creek below Loon Lake Reservoir Dam, and SF Silver Creek below Ice House Reservoir Dam as specified in the following pulse flow schedule.

For compliance purposes, the point of measurement for each required pulse flow is provided in this condition. All specified pulse flows are in cfs. Pulse flows do not need to be implemented in water years where natural spill events provide flows of equivalent magnitude and duration during either: (1) spring snowmelt runoff; or (2) a natural storm event that occurs in the months of January through May. The Licensee shall furnish the streamflow records that show compliance with the pulse flow requirements to the State Water Board upon request.

Pulse flows may be temporarily modified if equipment malfunction or operating emergencies reasonably beyond the control of the Licensee require it. If a pulse flow is so modified, the Licensee shall provide notice to the Commission, USFS, USFWS, CDFW, and the State Water Board as soon as possible but no later than 10 days after each such incident commences. The pulse flows specified may also be temporarily modified for short periods in non-emergency situations upon approval of the Deputy Director.

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 three years after license issuance. Prior to such required facility modifications, the Licensee shall provide evidence (such as flow records) to the Deputy Director by July 1 of each year that shows whether the specified pulse flows have been delivered within the capabilities of the existing facilities.

2.A. Rubicon River below Rubicon Reservoir Dam

The Licensee shall provide a pulse flow in Rubicon River below Rubicon Reservoir Dam in BN, AN, and Wet water years to coincide with winter storm events or spring snowmelt runoff in the Rubicon River watershed. The objective is to provide at least 600 cfs of flow for three days during this time period. A natural spill of 3,600 acre-feet or more within three consecutive days that coincides with a winter storm event or spring snowmelt runoff satisfies the pulse flow requirement for the water year.

If a pulse flow does not occur naturally, the pulse flow shall be provided by using the existing flashboards at the Rubicon tunnel headworks. Prior to pulse flow events, the Licensee shall meet with USFS, CDFW, State Water Board, and USFWS to evaluate snowpack conditions in the Rubicon River watershed and determine the appropriate gate elevation (at or above 6,539 feet) and timing for tunnel gate installation. Upon agreement of the agencies and approval of the USFS for action within the Desolation Valley Wilderness Area, the Licensee shall install and lower the tunnel gates as agreed to by the agencies.

The tunnel gates may be removed after one of the following events occurs: (1) the April or May DWR Bulletin 120 indicates a Dry or CD water year type; (2) the flashboards have been installed for a minimum of 60 days; (3) a pulse flow event of 3,600 acre-feet occurs for three consecutive

days; or (4) at least 3,600 acre-feet of water has spilled over the main and auxiliary dams over a 10-day period.

Subsequent to removal of the tunnel gates, the Licensee shall meet with the USFS, CDFW, State Water Board, and USFWS to evaluate whether or not the pulse flow objective was met and how tunnel gate operations might be changed to meet the pulse flow objective in future years. The quantity and/or duration threshold in item 4 in the preceding paragraph may also be re-evaluated during said meeting.

The pre- and/or post-pulse flow meetings described above may be discontinued if the Licensee, CDFW, State Water Board, and USFWS agree upon a tunnel gate operation plan, which is approved by the USFS, to govern future tunnel gate operations for pulse flow events. However, such meetings may be reinstated at the request of the Licensee, CDFW, USFS, State Water Board or USFWS if the pulse flow objectives are not being met.

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 dam.

2.B. Gerle Creek below Loon Lake Reservoir Dam

The Licensee shall provide pulse flows timed to coincide with spring snowmelt runoff as specified in the five-day schedule outlined in Table 15 or as modified by the USFS with concurrence from the Deputy Director.

Table 15. Gerle Creek below Loon Lake Reservoir Dam Pulse Flows (cfs)

	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.

Within two years of license issuance and prior to implementing the pulse flows in Gerle Creek below Loon Lake Reservoir Dam, the Licensee shall complete the following items to develop the information necessary to determine the appropriate magnitude of pulse flows:

1. A sensitive site investigation to address the potential for stream bank erosion resulting from pulse flows, which includes additional permanent cross-sections to characterize the upper and middle geomorphology study sites LL-G1 and LL-G2.[14] Areas of unstable banks and downed logs 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

[14] Study site designations and locations are described in the Channel Morphology Technical Report (January 2005) prepared during the relicensing proceeding.

determine the appropriate pulse flows for the desired channel conditions. The desired outcomes from the pulse flows are to redefine the stream channel, sort the spawning gravel and transport the bedload and fine material downstream.

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

Once items 1 through 3 are complete, USFS, with the concurrence of the Deputy Director, may adjust the prescribed pulse flows if the results indicate adjustment is necessary to reach the 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 (Table 15). The pulse flows shall be measured at USGS gage 11429500, located approximately 0.3 miles downstream from Loon Lake Reservoir Dam.

2.C. South Fork Silver Creek below Ice House Reservoir Dam

The Licensee shall provide pulse flows as specified in Table 16. Pulse flows may be timed to coincide with winter storm events in the period between December 15 and April 10. Pulse flow events timed with winter storm events prior to April 10 shall be based on the prior water year type and shall be deemed complete regardless of revisions in water year type occurring after the pulse flow event takes place. The Licensee shall notify USFS, CDFW, USFWS, and the State Water Board prior to or immediately after the pulse flow event.

Pulse flows after April 10 shall be timed to coincide with spring snowmelt runoff. The Licensee shall notify the Deputy Director regarding the specific timing of such pulse flow events prior to the pulse flow event. The pulse flows shall be measured at USGS gage 11441500, located approximately 0.4 mile downstream from Ice House Reservoir Dam.

Table 16. South Fork Silver Creek below Ice House Reservoir Dam Pulse Flows (cfs)

	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.

CONDITION 3. RAMPING RATES

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

A. Pulse flow releases in Gerle Creek below Loon Lake Reservoir Dam and SF Silver Creek below Ice House Reservoir Dam.

B. Minimum streamflow releases in Silver Creek below Junction Reservoir Dam, Silver Creek below Camino Reservoir Dam, and SF American River below Slab Creek Reservoir Dam.

C. Recreational streamflow releases in SF Silver Creek below Ice House Reservoir Dam and SF American River 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 three years after license issuance[15]. 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. When recreational streamflow releases are made during the time period prior to facility modification at Slab Creek Reservoir Dam, the Licensee shall provide flow records or other information to the Deputy Director by December 1 of each year that show whether the ramping rates specified above have been achieved.

Upon request, the Licensee shall make available to the State Water Board the streamflow records related to ramping rates. 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 the Licensee's ability to control. The Licensee shall provide notice to USFS, CDFW, USFWS, and the State Water Board within 10 days after such an event occurs and shall provide a report within one month after such an event occurs documenting the reason that ramping rates were not followed.

CONDITION 4. RECREATION STREAMFLOWS[16]

4.A. South Fork American River below Slab Creek Reservoir Dam

Initial Period

Within three months of license issuance, the Licensee shall provide recreational streamflows in the SF American River below Slab Creek Reservoir Dam as follows. In BN, AN, and Wet water years, the Licensee shall spill water from Slab Creek Reservoir to provide streamflows between 850 and 1,500 cfs between the hours of 10:00 am and 4:00 pm for six days in no less than three events in the period beginning March 1 and ending May 31. One of the events may be replaced with a three-day event on the Memorial Day weekend, in which case the total number of days for the year will be increased to seven days.

These recreational streamflows shall be provided until Iowa Hill is constructed, or if Iowa Hill is not constructed, until Year 15 after license issuance. If Iowa Hill is not constructed and the boating usage triggers (see the section "Following Year 5 of License Issuance" below) for increasing the number of recreational streamflow days and facility modification have not been met by Year 15 after license issuance, the initial recreational streamflows defined above shall continue to be

[15] SMUD has the ability with its current infrastructure to monitor and report on ramping rates at the five facilities where ramping rates are specified (Loon Lake, Ice House, Junction, Camino, and Slab Creek dams). Recreational streamflow releases from Slab Creek Dam may require facility modification depending upon future boating use (see Condition 4). Recreational streamflow releases will be made by spilling at Slab Creek Dam during the time period prior to any future facility modification.

[16] The provisions for determining the water year type and the notification requirements regarding water year type are the same as those described above in Condition 1 – Minimum Instream Flows.

provided through the term of the license and any extensions unless and until the Deputy Director, after consultation with the Licensee and BLM, subsequently determines that the usage triggers for increasing the number of recreational streamflow days and facility modification are met.

Consultation and Monitoring

Directly following License Issuance:

Consultation shall take place among the Licensee, USFS, BLM, State Water Board and members of the boating community, no later than February 15 of each year to determine a preliminary recreational flow schedule based on the water year types identified in this certification. Additional consultation shall take place as necessary, and final notification of the number of recreational flow days for that year shall be provided to the agencies no less than three days in advance of the first recreational flow releases. At the time of final notification, the Licensee shall provide the Deputy Director with any comments provided during the consultation process.

Within three-months of license issuance and continuing at least through Year 5, the Licensee shall monitor all boating use taking place on days when recreational streamflows are provided. A recreational boating use monitoring plan shall be developed within 90 days of license issuance, in consultation with USFS, State Water Board, BLM, and members of the boating community. The monitoring plan shall clearly define the monitoring objectives and identify metrics to be used for analysis of the data collected. The data collected shall include, but are not limited to: a complete accounting of all boating users entering the SF American River in the ½ mile below Slab Creek Reservoir Dam; a description of the type of watercraft being used; and, to the extent possible, a determination of the location where the boaters are ending their trip.

Following Year 5 of License Issuance:

If Iowa Hill construction has not commenced at the end of Year 5 after license issuance, monitoring shall continue and the Licensee shall, in cooperation with USFS, State Water Board, BLM, and members of the boating community, prepare a Whitewater Boating Recreation Plan (Boating Plan) that describes whitewater recreation use and impacts, and establishes triggers based on actual boating use that would determine if the Licensee shall install a valve or make other facility modifications in order to deliver the recreational streamflows described in Table 17 in a controlled fashion. The boating usage triggers will also determine when the recreational flows outlined in Table 17 become effective. If preparation of the Boating Plan is required, the Licensee shall submit the Boating Plan to the Deputy Director for approval no later than five and a half years following license issuance. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required modifications, with the Commission. The Licensee shall implement the Boating Plan upon approval by the Deputy Director and upon receipt of any other necessary regulatory approvals.

Following Year 10 of License Issuance:

If construction of Iowa Hill has not commenced at the end of Year 10 after license issuance, the Licensee shall, in cooperation with USFS, State Water Board, BLM, and members of the boating community, based on data and triggers identified in the Boating Plan, determine

if the facility must be modified to provide the flows in Table 17. Based on the determination of whether the facility shall be modified, the Licensee shall do one of the following:

- If Iowa Hill is not constructed and the boating usage triggers in the Boating Plan are met by Year 10, the facilities shall be modified and functional within 15 years of license issuance. Once the facilities are modified and functional, the recreational streamflows in Table 17 shall be implemented through the term of the license and any extensions. The plan for facility modification shall be submitted to the Deputy Director for approval. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan for modification prior to submittal to the Commission, if applicable. The Deputy Director may require modification of the plan as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required determination of facility modification, with the Commission.

- If the boating usage triggers specified in the Boating Plan are not met by Year 10, boating use will continue to be monitored and a new determination will be made every 5 years thereafter as to whether the triggers are met. If a determination is made that the triggers are met, the facilities shall be modified. Once the facilities are modified and functional, the recreational streamflows described in Table 17 shall be implemented through the term of the license and any extensions. The plan for facility modification shall be submitted to the Deputy Director for approval as described in the bullet above.

If the Licensee cannot provide recreational streamflows due to construction activities associated with Iowa Hill or other facility modifications, the Licensee shall meet with USFS, BLM, State Water Board and members of the boating community to develop an interim plan to address recreation streamflows. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The interim plan shall be submitted to the Deputy Director for review and approval. The Deputy Director may require modifications of the interim plan as part of the approval. The Licensee shall implement the interim plan and any required modifications upon Deputy Director approval and any other necessary regulatory approvals.

Future Recreational Streamflows

The Licensee shall provide recreational streamflows in the SF American River below Slab Creek Reservoir Dam as shown in Table 17 either: (1) after Iowa Hill is constructed; or (2) if the boating usage triggers identified in the Boating Plan are met.

Table 17. Recreation Flows: South Fork American River below Slab Creek Dam					
Water Year Type	**Month**	**Flow (cfs)**	**Time**	**Duration**	**Purpose**
CD	April	850-950 **Plus*** 1400-1500 850-950	10 am-1 pm **Plus*** 10 am-1 pm 1:30 pm-4 pm	4 weekend days **Plus*** 2 weekend days	Kayak **Plus*** Rafting Kayak
D	March/April	850-950 **Plus*** 1400-1500 850-950	10 am-1 pm **Plus*** 10 am-1 pm 1:30 pm-4 pm	4 weekend days **Plus*** 6 weekend days	Kayak **Plus*** Rafting Kayak
	October**	850-950	10 am-1 pm	2 weekend days	Kayak
BN	April/May	850-950 **Plus*** 1400-1500 850-950	10 am-1 pm **Plus*** 10 am-1 pm 1:30 pm-4 pm	3 weekend days*/holidays **Plus*** 9 weekend days***/holidays	Kayak **Plus*** Rafting Kayak
	October**	850-950	10 am-1 pm	6 weekend days	Kayak
AN	April/May	1400-1500 850-950	10 am-1 pm 1:30 pm-4 pm	12 weekend days***/holidays	Rafting Kayak
	October**	850-950	10 am-1 pm	6 weekend days	Kayak
W	March/April/ May	1400-1500 850-950	10 am-1 pm 1:30 pm-4 pm	12 days, weekend days***/holidays	Rafting Kayak
	October**	850-950	10 am-1 pm	6 weekend days	Kayak

* During CD, D and BN water years, a split flow schedule is required to allow the preferred rafting flow and kayaking flow to occur during the same day, which is in addition to the requirement to provide the specified kayak flows.

** Refer to October Flows section below.

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

October Flows

The Licensee shall only provide the October recreation streamflows specified above in Table 17 upon a determination by the Deputy Director that such streamflows can be provided in compliance with water quality standards and without unacceptable environmental impact. The determination made by the Deputy Director shall be based on an investigation of the potential for ecologically suitable recreational streamflow based on monitoring identified in Condition 8.C. – Amphibian and Reptile Monitoring. The initial evaluation and determination shall be made within five years of license issuance. Absent a determination that such streamflows can be provided without harm, the Licensee shall annually request that the subject be re-evaluated by USFS, USFWS, CDFW, and the State Water Board for the first ten years after the initial determination.

If October flows specified in Table 17 cannot be provided for operational, environmental, or other reasons, the equivalent flow volume will be provided in addition to the specified recreational streamflows for the following spring upon Deputy Director approval. Scheduled boating days shall not exceed the total displayed in Table 17. However, if October flows are provided the following spring, the boating days in the spring may exceed those displayed in Table 17. In addition, the frequency and magnitude of the boating flows may be adjusted within the total volume of water displayed in Table 17 after consultation with USFS, CDFW, USFWS, BLM, State Water Board staff and members of the boating community and upon Deputy Director approval. The Licensee shall provide the Deputy Director with any comments provided during the consultation process.

Modification of Recreational Flows

Recreational streamflows may be modified or suspended in response to the following events:

- State or federal electrical emergencies where specific orders are issued or specific actions are mandated by an appropriate authority, requiring the Licensee to produce electricity outside normal planned operations;
- System events that cause SMUD's Operating Reserves to drop below the Western Energy Coordinating Council Minimum Operating Reliability Criteria;
- Equipment malfunction, public safety emergency, or law enforcement activity;
- Control of spill events at Slab Creek Reservoir Dam that may cause the Licensee to spill Loon Lake, Union Valley, or Ice House Reservoirs within seven days of the recreational spill event; or
- The Licensee determines expected inflows from SF American River into Slab Creek Reservoir are not controllable to 1,500 cfs.

In the event boating days are modified or suspended, the Licensee shall reschedule days as soon as practicable. However, the Licensee shall not be obligated to provide such days if weather or other operational conditions do not permit such days to be rescheduled by May 31. Preference for rescheduled days shall be weekend days; however, weekdays may be substituted if there are not sufficient weekend days prior to May 31.

4.B. South Fork Silver Creek below Ice House Reservoir Dam

Initial Period

Within three months after license issuance and continuing through the first five years after license issuance, the Licensee shall provide the recreation streamflows displayed in Table 18:

Table 18. Recreation Flows: South Fork Silver Creek below Ice House Reservoir Dam (First Five Years After License Issuance)

Water Year Type	Month	Flow (cfs)	Time	Duration
CD	May	300	10 am-3 pm	1 weekend day
D	May	300	10 am- 3 pm	3 weekend days
BN	May/June	400 **Plus*** 500	10 am- 3 pm	2 weekend days/holidays **Plus*** 2 weekend days/holidays
AN	May/June	400 **Plus*** 500	10 am- 3 pm	2 weekend days/holidays **Plus*** 4 weekend days/holidays
W	May/June	400 **Plus*** 500	10 am- 3 pm	4 weekend days/holidays or Fridays **Plus*** 5 weekend days/holidays or Fridays

* Two different flow levels are required for the specified number of days.

Consultation and Monitoring

Prior to the end of the first five-year period, the Licensee shall prepare a Recreation Plan for approval by the Deputy Director to determine triggers, based on actual boating use, for establishing when the Licensee shall increase the number of days of recreation streamflows to be provided. Boating days shall not exceed the total amount displayed in Table 19. Table 19 contains the required recreation flows for Silver Creek below Ice House Reservoir Dam for years subsequent to the initial five-year period following license issuance if the triggers in the Recreation Plan are met. The frequency and magnitude of the boating flows may be adjusted within the total volume of water displayed in the tables upon approval of the Deputy Director. The Licensee shall file the Deputy Director's approval, together with any required modifications, with the Commission.

Within five years of license issuance and every five years thereafter, the Licensee shall, in cooperation with USFS, prepare a report that: (1) describes whitewater recreation use and impacts; (2) notes whether use has exceeded the triggers defined in the Recreation Plan; and (3) makes a recommendation whether the streamflow days should be increased based on the triggers in the Recreation Plan. Boating days shall not exceed the total amount displayed in Table 19. This report shall be provided to the Deputy Director, who shall determine whether the streamflow days should be increased and/or the frequency and magnitude of the boating flows should be adjusted within the total volume of water displayed in the tables based on the triggers in the Recreation Plan. The Deputy Director may require modifications as part of the approval. The Licensee shall implement any changes to the streamflow days upon receiving Deputy Director and all other

necessary approvals. The Licensee shall file the Deputy Director's approval, together with any required modifications, with the Commission.

Table19. Recreation Flows: South Fork Silver Creek below Ice House Reservoir Dam (Year 6 through the License Term and Any Extensions)

Water Year Type	Month	Flow (cfs)	Time	Duration
CD	May	300	10 am-3 pm	2 weekend days
D	May	300	10 am- 3 pm	6 weekend days
BN	May/June	400 **Plus*** 500	10 am- 3 pm	5 weekend days/holidays **Plus*** 2 weekend days/holidays
AN	May/June	400 **Plus*** 500	10 am- 3 pm	5 weekend days/holidays **Plus*** 6 weekend days/holidays
W	May/June	400 **Plus*** 500	10 am- 3 pm	7 weekend days/holidays or Fridays **Plus*** 9 weekend days/holidays or Fridays

* Two different flow levels are required for the specified number of days.

Modification of Recreational Streamflows

All provisions for recreational streamflows are subject to the safe operation of the UARP facilities and equipment necessary to provide such streamflows. The Licensee shall maintain all UARP facilities and equipment in good working order. The Licensee shall not schedule discretionary UARP facility or equipment outages in conflict with providing the recreation streamflows described in Tables 18 and 19. The Licensee shall provide scheduled recreation streamflows on the days when such releases are forecast to occur, except as described below.

The recreation streamflows described above may be temporarily modified for:

- State or federal electrical emergencies where specific orders are issued or specific actions are mandated by an appropriate authority, requiring the Licensee to produce electricity outside normal planned operations;
- System events that cause the Operating Reserves to drop below the Western Energy Coordinating Council Minimum Operating Reliability Criteria; or
- Equipment malfunction, public safety emergency, or law enforcement activity.

If the described recreation streamflows are so modified, the Licensee shall provide notice to the Commission, State Water Board, USFS, and members of the boating community 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 Deputy Director. If the described recreation streamflows are so modified, the Licensee shall provide notice to the Commission, State Water Board, USFS, and members of the boating community as soon as possible.

CONDITION 5. RESERVOIR LEVELS

The Licensee shall, beginning as early as reasonably practicable and no later than six months after license issuance, meet or exceed the end-of-month reservoir elevations for Loon Lake, Union Valley and Ice House Reservoirs as shown in Tables 20, 21 and 22, respectively. Compliance will be measured at the Licensee's reservoir elevation gages as published by the USGS.

5.A. Loon Lake Reservoir

The Licensee shall maintain the reservoir level to meet the end-of-month reservoir storage elevation shown in Table 20.

Table 20. Loon Lake Reservoir Level by Water Year

Month	End-of-Month Elevation (feet)				
	CD	DRY	BN	AN	WET
July	6,388	6,395	6,399	6,400	6,400
August	6,382	6,389	6,394	6,393	6,393
September	6,379	6,385	6,390	6,390	6,390

5.B. Union Valley Reservoir

The Licensee shall maintain the reservoir level to meet the end-of-month reservoir storage elevation shown in Table 21.

Table 21. Union Valley Reservoir Level by Water Year

Month	End-of-Month Elevation (feet)				
	CD	DRY	BN	AN	WET
July	4,816	4,836	4,856	4,856	4,856
August	4,803	4,827	4,835	4,841	4,842
September	4,796	4,818	4,830	4,830	4,830

5.C. Ice House Reservoir

The Licensee shall maintain the reservoir level to meet the end-of-month reservoir storage elevation shown in Table 22.

Table 22. Ice House Reservoir Level by Water Year (feet)

Month	End-of-Month Elevation				
	CD	DRY	BN	AN	WET
July	5,435	5,437	5,440	5,441	5,441
August	5,430	5,433	5,434	5,435	5,434
September	5,420	5,429	5,430	5,431	5,430

5.D. 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, including accessibility and the ability to fish from the fishing pier. If the Licensee anticipates the reservoir will be drawn down below 5,225 feet during this time period, the Licensee shall consult with USFS, State Water Board, USFWS, and CDFW following the direction in Condition 5.H. (Interim Modifications).

In addition, the reservoir level at Gerle Creek Reservoir shall be maintained at an elevation that provides fish passage into Gerle Creek from August through October.

5.E. Slab Creek Reservoir

From July 1 through September 30, during daylight hours between 10:00 am and 8:00 pm, the Licensee shall: (1) maintain the reservoir level above 1,830 feet in elevation; and (2) limit fluctuations to less than seven feet per day.

The minimum reservoir elevation and maximum daily fluctuation shall be reassessed and modified if necessary to accommodate: (1) operation of Iowa Hill, should it be constructed; (2) recreational use at Slab Creek Reservoir; and (3) other appropriate factors. The Licensee shall consult with the USFS regarding any modification to the minimum reservoir elevation and maximum daily fluctuation as described in SA Article 1-23.5. Any such modifications must be submitted to the Deputy Director for review and approval prior to implementation. The Deputy Director may require modifications as part of the approval. The Licensee shall implement the proposal upon receiving all necessary approvals.

5.F. Other Reservoirs

The Licensee shall maintain the seasonal reservoir levels at Junction and Brush Creek Reservoirs within the range of elevations measured between the years 1975 through 2000. This equates to maintaining a water surface elevation of no lower than 4,398 feet for Junction Reservoir and no lower than 2,853.6 feet for Brush Creek Reservoir[17]. The Licensee shall 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 Condition 1.A. (Minimum Instream Flows, Rubicon River below Rubicon Reservoir Dam), the Licensee shall maintain an overwintering minimum pool of 6,527 feet in elevation in Rubicon Reservoir for the protection of aquatic species.

5.G. Super Dry Water Year

A SD water year is defined as any year that meets the criteria for a 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 USFS, CDFW, and the State Water Board of the Licensee's concerns related to reservoir levels. By

[17] It is not practical to specify an upper water level elevation because flood conditions can lead to water surface elevations that exceed the level of the spillway, and under flood conditions it is not possible to control the water surface elevation.

June 1 of a SD year, the Licensee shall confer with USFS, CDFW, and the State Water Board to discuss reservoir operations plans and reservoir levels during the SD water year. The Licensee shall provide the Deputy Director with any comments provided by the other agencies during the consultation process. The Licensee may implement the revised operations for a SD year upon receiving Deputy Director and all other necessary regulatory approvals. The Licensee shall file the Deputy Director's approval, together with any required modifications, with the Commission.

5.H. Interim Modifications

Reservoir elevations may be modified upon the occurrence of the following events:

- State or federal electrical emergencies where specific orders are issued or specific actions are mandated by an appropriate authority, requiring the Licensee to produce electricity outside normal planned operations;
- System events that cause SMUD's Operating Reserves to drop below the Western Energy Coordinating Council Minimum Operating Reliability Criteria; or
- Equipment malfunction, public safety emergency, or law enforcement activity.

In the event of such an interim modification during July, August, or September, the Licensee shall notify USFS, State Water Board, CDFW, USFWS and the Commission within three days of determining that reservoir level requirements were not or will not be met. Each notification shall include:

1. A description of the incident, including the reason the reservoir level was not or will not be met;
2. The Licensee's analysis of the implication of the incident on meeting future reservoir levels for that water year; and
3. The Licensee's proposal to manage reservoir levels to minimize recreational impacts and address energy and operational requirements for any months in which reservoir levels will not be achieved. The Licensee's proposal shall address:
   (a) Prioritizing reservoir levels among Loon Lake, Union Valley and Ice House Reservoirs;
   (b) Developing measures as they relate to impacts on recreational resources, if necessary; and
   (c) Developing other measures as appropriate.

The measures in the Licensee's proposal shall be commensurate with the severity and time period during which reservoir levels are not met, and may include actions to be taken by the Licensee or others, such as increased patrols, extension of boat ramps, or development of/contribution to a mitigation fund. Once the UARP is no longer subject to the event and if the end-of-month reservoir elevations for Loon Lake, Union Valley, and/or Ice House Reservoirs cannot be achieved for that month, the Licensee shall confer with the State Water Board, USFS, CDFW, USFWS and the Commission (Conference) within 10 business days. The purpose of the Conference shall be to review the Licensee's proposal to manage reservoir elevations for the remainder of the recreation season. Within 10 business days of the Conference, the Licensee shall file with the Commission and State Water Board a letter summarizing the Conference and proposal. The Licensee shall obtain Deputy Director approval of the proposal prior to its implementation. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required proposal modifications, with the Commission.

5.I. Conferences for Abnormal Precipitation Patterns

The Licensee may request a Conference with USFS, State Water Board, CDFW, and USFWS by June 1 in water years: (1) which either have a forecast April – July unimpaired runoff[18] less than 40 percent of the forecasted total water year unimpaired runoff[19] or that follow a SD water year; and (2) when the Licensee determines that the end-of-month reservoir elevations may not be achievable for that year. At least 10 business days prior to the Conference, the Licensee shall provide to USFS, State Water Board, CDFW, and USFWS the Licensee's proposal to manage reservoir levels to minimize recreational impacts and address energy and operational requirements for any months in which reservoir levels will not be achieved. The Licensee's proposal shall address:

a. Prioritizing reservoir levels among Loon Lake, Union Valley and Ice House Reservoirs;
b. Developing measures as they relate to impacts on recreational resources, if necessary; and c. Developing other measures as appropriate.

The measures in the Licensee's proposal will be commensurate with the severity and time period during which reservoir levels would potentially not be met, and may include actions to be taken by the Licensee or others, such as increased patrols, extension of boat ramps, or development of/contribution to a mitigation fund. The purpose of the Conference shall be to review the Licensee's proposed measures to manage reservoir elevations for the remainder of the recreation season. Within 10 business days of the Conference, the Licensee shall file with the Commission and State Water Board a letter summarizing the Conference and proposal. The Licensee shall obtain Deputy Director approval of the proposal prior to implementation. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required proposal modifications, with the Commission.

5.J Reservoir Level Monitoring and Adjustment

Within five years of license issuance, and every five years thereafter, the Licensee shall prepare a report describing whether the target reservoir levels as identified in Conditions 5.A., 5.B., and 5.C. 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 USFS, CDFW, State Water Board, USFWS, and the Commission.

CONDITION 6. STREAMFLOW AND RESERVOIR GAGING

The Licensee shall, within one year of license issuance, develop and file for Commission approval a Streamflow and Reservoir Elevation Gaging Plan (Gaging Plan) that meets USGS standards. The Licensee shall provide copies of the Gaging Plan and USGS review results to BLM, CDFW, USFWS, the Commission, and State Water Board staff for review and comment. Following agency consultation, the Gaging Plan and any comments received from the agencies shall be submitted to the Deputy Director for review and approval prior to filing the Gaging Plan with the Commission. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the

[18] Department of Water Resources, May Bulletin 120 "Report of Water Conditions in California," table "April-July Unimpaired Runoff," row "American River below Folsom Lake," column "Apr-Jul Forecasts."

[19] Department of Water Resources, May Bulletin 120 "Report of Water Conditions in California," table "Water Year Unimpaired Runoff," row "American River below Folsom Lake," column "Water Year Forecast."

Gaging Plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required Gaging Plan modifications, with the Commission. The Licensee shall implement the Gaging Plan upon receiving all necessary regulatory approvals.

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

Streamflow gaging locations:

6.a. Rubicon River below Rubicon Reservoir Dam
6.b. Little Rubicon River below Buck Island Reservoir Dam
6.c. Gerle Creek below Loon Lake Reservoir Dam
6.d. Gerle Creek below Gerle Creek Reservoir Dam
6.e. SF Rubicon River below Robbs Peak Reservoir Dam
6.f. SF Silver Creek below Ice House Reservoir Dam
6.g. Silver Creek below Junction Reservoir Dam
6.h. Silver Creek below Camino Reservoir Dam
6.i. Brush Creek below Brush Creek Reservoir Dam
6.j. SF American River below Slab Creek Reservoir Dam (sufficient to record spills)

Reservoir elevation gaging locations (using Licensee's reservoir elevation gages as published by USGS):

6.k. Rubicon Reservoir
6.l. Loon Lake Reservoir
6.m. Gerle Creek Reservoir
6.n. Ice House Reservoir
6.o. Union Valley Reservoir
6.p. Junction Reservoir
6.q. Camino Reservoir
6.r. Brush Creek Reservoir
6.s. Slab Creek Reservoir

Within two 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 USFS and the Licensee 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 agency approvals for such installation and shall install this equipment if the necessary approvals are received.

CONDITION 7. STREAMFLOW AND RESERVOIR LEVEL INFORMATION

The Licensee shall, within one year of license issuance and after consultation and coordination with USFS and State Water Board staff, submit a Streamflow and Reservoir Level Information Plan to the Commission for providing, at a minimum, the following:

A) Real-time (15-minute increments and refresh rates or at the capacity of the reporting technology) lake stage height and storage information for each of the following reservoirs:

Rubicon Reservoir, Loon Lake Reservoir, Ice House Reservoir, Union Valley Reservoir, Gerle Creek Reservoir, Brush Creek Reservoir, Junction Reservoir, and Slab Creek Reservoir.

B) Installation of up to two simple staff gages for use by the public on each of the following stream reaches: SF Silver Creek below Ice House Reservoir Dam, and SF American River below Slab Creek Reservoir Dam.

C) Real-time (15-minute increments at refresh rates or at the capacity of the reporting technology) streamflow and reservoir level information that is available to the public year-round via toll-free telephone number or other appropriate technology approved by USFS.

D) Streamflow information in cfs on a website for the following UARP-related stream reaches:

- 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
- SF Rubicon River below Robbs Peak Reservoir Dam
- SF 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
- SF American River below Slab Creek Reservoir Dam

The Licensee shall submit the Streamflow and Reservoir Level Information Plan to the Deputy Director for review and approval, after consultation with USFS and State Water Board staff, and prior to filing with the Commission. The Licensee shall provide the Deputy Director with any comments provided by the USFS during the consultation process. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the Streamflow and Reservoir Level Information Plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required Streamflow and Reservoir Level Information Plan modifications, with the Commission. Following Commission and Deputy Director approval of the plan, the minimum streamflow, recreational streamflow, and reservoir level schedules from Conditions 1 (Minimum Instream Flows), 4 (Recreation Streamflows), and 5, (Reservoir Levels) as well as the current water year type designation, shall also be published on the streamflow and reservoir information website.

CONDITION 8. MONITORING PROGRAM

Background Information

The Licensee shall implement the following Monitoring Program after license issuance and through the term of the new license and any extensions, in coordination with USFS, CDFW, USFWS, and the State Water Board. The Licensee shall ensure that the final monitoring plan for each element of the Monitoring Program (as described below) is reviewed by USFS, CDFW, USFWS, and the Deputy Director. The Licensee shall also receive approval by the Deputy Director prior to implementation of each monitoring element described below. The Licensee shall consult and coordinate with the Chili Bar Project Licensee (PG&E) as appropriate.

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. Where years are specified, Year 1 is the first year during which all initial minimum streamflows required by the license are implemented by May 1.

USFS, CDFW, USFWS, and the State Water Board may 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 individual elements of the Monitoring Program; or (b) monitoring may be reduced or terminated because the relevant ecological resource objectives have been met or no change in resource response is expected. Within the scope of the specified Monitoring Program, USFS, CDFW, USFWS, and the State Water Board may select an equal number of alternative years to ensure that surveys occur during a range of water year types. Modifications made to the monitoring plans must be approved by the Deputy Director prior to implementing the modified monitoring plan.

The Licensee shall submit a revised monitoring plan to the Deputy Director for approval based on the Deputy Director's or another agency's recommendations. The Licensee may also submit a revised monitoring plan to the Deputy Director for approval based on its own recommendation. The Licensee shall file the Deputy Director's approval, together with any required modifications to the revised monitoring plan, with the Commission.

The Licensee shall prepare an annual report that fully describes the monitoring efforts of the previous calendar year, including the data collected and analysis of that data. The report shall be filed with the Commission by June 30 of each year for the preceding year. USFS, CDFW, USFWS, and the State Water Board shall have at least 30 days to review and comment on the draft report prior to filing with the Commission. The Licensee shall provide copies of the final annual report to USFS, CDFW, USFWS, and the Deputy Director.

The following guidelines shall be used in implementing the Monitoring Program: (a) monitoring and studies shall be relevant to the UARP; (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.

8.A. Fish Populations

Within two years of license issuance, the Licensee shall develop a fish population monitoring plan in consultation with USFS, CDFW, USFWS, and the State Water Board that incorporates, at a minimum, the elements detailed below. The Licensee shall submit the plan to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

Method: The Licensee shall conduct electro-fishing and/or snorkeling surveys (in the same manner as the studies conducted in 2002-2003 by the Licensee) during late summer/fall for: 1) brown trout in Gerle Creek below Loon Lake Reservoir Dam

Reach only; 2) hardhead sampling in SF American River below Slab Creek Reservoir Dam Reach only; and 3) rainbow trout at all stations listed below[20]:

Locations: The sampling locations are as follows:

8.A.1. Rubicon River below Rubicon Reservoir Dam (upper and lower sample section of sites RRD-F1 and RRD-F2).
8.A.2. Little Rubicon River below Buck Island Reservoir Dam (upper sample section of site BID-F1).
8.A.3. Gerle Creek below Loon Lake Reservoir Dam (upper and lower sample section of sites LLD-F1 and LLD-F2).
8.A.4. Gerle Creek below Gerle Creek Reservoir Dam (upper and lower sample section of site GCD-F1).
8.A.5. SF Rubicon River below Robbs Peak Reservoir Dam (upper and lower sample section of site RPD-F1).
8.A.6. SF Silver Creek below Ice House Reservoir Dam (upper and lower sample section of sites IHD-F1 and IHD-F2).
8.A.7. Silver Creek below Junction Reservoir Dam (upper and lower sample section of site JD-F1).
8.A.8. Silver Creek below Camino Reservoir Dam (upper and lower sample section of site CD-F1).
8.A.9. Brush Creek below Brush Creek Reservoir Dam (site BCD-F1). (This site shall be surveyed once every 10 years after license issuance.)
8.A.10. SF American River below Slab Creek Reservoir Dam (electro-fishing at upper and lower sample section of site SCD-F2). Hardhead snorkeling shall be conducted from immediately downstream of Mosquito Road Bridge up to and including site SCD-F2.

Timing: Rainbow trout and brown trout: Years 5, 6, 10, 11, 15, 16, and thereafter for two consecutive years every 10 years for the term of the license and any extensions. Hardhead: Years 2, 3, 5, 6, 10, 11, 15, 16 and thereafter for two consecutive years every 10 years for the term of the license and any extensions.

8.B. Aquatic Macroinvertebrates

Within two years of license issuance, the Licensee shall develop an aquatic macroinvertebrate monitoring plan in consultation with USFS, CDFW, USFWS, and the State Water Board. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall submit the plan to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

Method: The Licensee shall use a method developed in consultation with USFS, CDFW, USFWS, and the State Water Board. The results shall be compared to an aquatic health index approved by the Deputy Director.

[20] More details on the sampling locations can be found in the Stream Fisheries Technical Report dated January 2005.

Locations: At a minimum, the following sites shall be included:

8.B.1. Rubicon River below Rubicon Reservoir Dam (RR-I3).
8.B.2. Gerle Creek below Loon Lake Reservoir Dam (LL-I2).
8.B.3. Gerle Creek below Gerle Reservoir Dam (impaired reach) (GC-I2).
8.B.4. SF Rubicon River below Robbs Peak Reservoir Dam (RPD-I2).
8.B.5. SF Silver Creek below Ice House Reservoir Dam (impaired reach) (IH-I2).
8.B.6. Silver Creek below Junction Reservoir Dam (JD-I1 and JD-I2).
8.B.7. Silver Creek below Camino Reservoir Dam (CD-I2 and CD-I3).
8.B.8. SF American River 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 Deputy Director so determines. Reference sites may be substituted upon approval by the Deputy Director.

Timing: Years 5, 6, 10, 11, 15, 16, and thereafter for two consecutive years every 10 years for the term of the license and extensions.

8.C. Amphibian and Reptile Monitoring

Foothill Yellow-legged Frog

Within one year of license issuance, and in consultation with USFS, CDFW, USFWS, and the State Water Board, the Licensee shall develop an amphibian and reptile habitat evaluation and species presence monitoring plan with a primary focus on FYL frogs. The Licensee shall submit the plan to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

Methods: The Licensee shall conduct protocol surveys for sensitive species, with an emphasis on FYL frogs, using the procedures of PG&E[21] or the most current standard (as determined jointly by CDFW, USFWS and USFS) in a sub-sample of appropriate habitat types to document species presence and distribution. The Licensee shall identify amphibian breeding and larval periods in UARP-affected reaches by periodically surveying reaches of known presence during spring/summer. The Licensee shall also, if encountered, record each incidence of western pond turtles and California red-legged frogs during the 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.

[21] Seltenrich, C. P. and A. C. Pool. 2002. A standardized approach for habitat assessments and visual encounter surveys for the foothill yellow-legged frog (Rana boylii). Pacific Gas and Electric Company.

For Years 1-5, the monitoring shall also include the placement of thermographs in stream margin habitats associated with known or suitable breeding sites in the reach below Camino Reservoir Dam and the reach below Slab Creek Reservoir Dam. A minimum of six recorders shall be deployed to ensure that an adequate sample size is attained. After monitoring during Year 1, the Deputy Director, after consultation with USFS, USFWS, and CDFW, may approve a subset of survey sites or a less intensive program, based on review of the first year's data. In the future, USFS, USFWS, CDFW, and/or the Deputy Director may request additional breeding site habitat data to assess the cause of unexpected or chronic reproductive failures that may be related to UARP operations.

Foothill Yellow-legged Frog Monitoring Sites:

8.C.1. Silver Creek below Junction Reservoir Dam (site associated with site JDF2).
8.C.2. Silver Creek below Camino Reservoir Dam (C-A3 and SFA-A4).
8.C.3. SF American River below Slab Creek Reservoir (entire reach between and including SCA-6a and SCA-4).
8.C.4. Rock Creek, a tributary located upstream of the White Rock Powerhouse from the confluence with the SF American River to a point one mile upstream. This distance may be shortened if it is determined that there is a barrier to movement of FYL frogs.
8.C.5. SF Rubicon River from downstream of confluence with Gerle Creek to the confluence with the Rubicon River.

Timing: 1. Silver Creek below Junction Reservoir Dam: Years 2, 3, 5, 10, 15 and thereafter every five years for the term of the license and any extensions.
2. Spill flows in SF American River below Slab Creek Reservoir Dam and Silver Creek below Camino Reservoir Dam: as soon as possible after the decline of the spill.
3. Silver Creek below Camino Reservoir Dam: Years 1, 2, 3, 5, 6, 10, 11, 15, 16, and thereafter for two consecutive years every five years for the term of the license and any extensions.
4. SF American River below Slab Creek Reservoir Dam: Years 1, 2, 3, 4, 5, 6, 10, 11, 15, 16, and thereafter for two consecutive years every five years for the term of the license and any extensions.
5. Rock Creek: Years 1, 2, and 3.
6. SF Rubicon River: Year 1; requirements for subsequent monitoring will depend on results of first year of monitoring.

Spill flows at Slab Creek Dam that occur after water temperatures rise above 12°C mean daily temperature for a seven-day running average[22] at Water Temperature Monitoring Site 8.I.18 (½ - mile upstream of White Rock Powerhouse) shall be monitored for effects to aquatic species (amphibians, fish, and aquatic reptiles) as soon as possible after the decline of the spill at FYL Frog Monitoring Site 8.C.3 in the SF American River below Rock Creek.

Spill flows at Camino Dam that occur after water temperatures rise above 12°C mean daily temperature for a seven-day running average at the Water Temperature Monitoring Site 8.I.14 (Silver Creek immediately upstream of the SF American River) shall be monitored for effects to

[22] The temperature trigger may be modified as defined in Condition 9.A – Cancellation of Pulse and Recreational Streamflows in South Fork Silver Creek.

aquatic species (amphibians, fish and aquatic reptiles) as soon as possible after the decline of the spill at FYL Frog Monitoring Site 8.C.2 in the reach below Camino Reservoir Dam.

If California red-legged frogs are encountered during the amphibian surveys described above, the Licensee shall consult with the State Water Board, USFS, USFWS and CDFW and submit a proposal to the Deputy Director for approval to either: (1) continue the measures undertaken for the FYL frogs; or (2) propose additional conservation measures that may be required to ensure that UARP impacts to California red-legged frogs are minimized. The Licensee's proposal must be approved by the Deputy Director prior to implementation. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the proposal prior to submittal to the Commission, if applicable. The Deputy Director may require modifications of the proposal as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required proposal modifications, with the Commission.

Mountain Yellow-legged Frog

Within two years of license issuance, the Licensee shall develop a Mountain Yellow-legged Frog monitoring plan in consultation with USFS, CDFW, USFWS, and the State Water Board. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall submit the plan to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

Method: The Licensee shall conduct protocol surveys for sensitive species using the procedures of CDFW (2001)[23] 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. If CDFW or USFS collects data associated with Rubicon Reservoir, Rockbound Lake, and Buck Island Reservoir, that information can be used to satisfy this requirement after the Deputy Director, in consultation with USFS, CDFW and USFWS, reviews the results and approves the use of these data.

Mountain Yellow-legged Frog Monitoring Sites:

8.C.6.	Rubicon Reservoir
8.C.7.	Rockbound Lake
8.C.8.	Buck Island Reservoir

Timing: Years 5, 10, 15 and thereafter every 10 years for the term of the license and any extensions.

[23] CDFW (formerly California Department of Fish and Game) 2001. Fish and Amphibian Inventory Data Sheet Instructions. California Department of Fish & Game Fish/Amphibian Survey Protocols - Version 1.1, July 17, 2001.

8.D. Foothill Yellow-legged Frog Flow Fluctuations (Also refer to 8.C above, related to spill flows.)

Within one year of license issuance, the Licensee shall develop an amphibian flow fluctuation monitoring plan in consultation with USFS, CDFW, USFWS, and the State Water Board. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall submit the plan to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

Method: The Licensee shall conduct visual surveys for FYL frog. Water velocities and streamflow shall be recorded.

Location: Silver Creek below Camino Reservoir Dam

Timing: Any time from June through September when: (1) the streamflows are 100 cfs or less; and (2) the flows fluctuate more than 40 cfs over one week's time. The Licensee shall provide advance notification to USFS, the State Water Board, USFWS, and CDFW if such fluctuations are going to occur and shall conduct visual surveys as referenced above prior to and after the fluctuations.

The visual surveys can be discontinued if USFS, USFWS, CDFW, and the Deputy Director determine that the flow fluctuations can occur without resulting in egg mass or tadpole displacement.

8.E. Riparian Vegetation Monitoring

Within two years of license issuance, the Licensee shall develop a riparian vegetation monitoring plan in consultation with USFS, CDFW, USFWS, and the State Water Board. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall submit the plan to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

Method: The Licensee shall conduct analysis using aerial photo flights and the greenline method[24]. Data collected at each site shall include transects to document species composition, percent cover, and quantification of length and width of riparian community.

Location: Monitoring shall be conducted at the 15 Intensive Field Study Sites (riparian) that were surveyed in the Riparian Study filed with the Commission as part of the License Application on July 15, 2005.

[24] The Riparian Vegetation and Wetlands Technical Report (October 2004) defines the greenline as "…the first perennial vegetation that forms a lineal grouping of community types on or near the water's edge…" As described in the Riparian Vegetation and Wetlands Technical Report, each greenline is described by the cumulative distance in feet occupied by each community type.

Timing: Years 5, 10, 15, and thereafter every 10 years for the term of the license and any extensions.

8.F. Algae Species Identification and Monitoring

Within one year of license issuance, the Licensee shall develop an algal species identification and monitoring plan in consultation with USFS, CDFW, USFWS, and State Water Board. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall submit the plan to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

Method: The Licensee shall collect, identify, and archive samples of the species of algae inhabiting the stream channel using a laboratory approved by the Deputy Director after consultation with USFS, CDFW and USFWS.

Location: Samples shall be collected from the following stream channels:

- Silver Creek below Junction Reservoir Dam
- SF Rubicon River below Robbs Peak Reservoir Dam
- Silver Creek below Camino Reservoir Dam
- SF American River 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.

Timing: Sampling shall take place within one year of approval of the plan to obtain enough material for a positive identification of species. If the Deputy Director, in consultation with USFS, CDFW, and USFWS, determines that additional sampling for algal species identification is needed, the Licensee shall repeat the approved sampling plan, or submit a new plan for approval by the Deputy Director.

8.G. Geomorphology: Sensitive Site Investigation and Mitigation Plan

Within six months of license issuance, the Licensee shall develop a geomorphology sensitive site investigation and mitigation monitoring plan in consultation with USFS, CDFW, USFWS, and the State Water Board. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

Method: A detailed investigation of fluvial geomorphic properties will be carried out. The focus of the investigation shall be to determine the most effective method of stabilization for the Gerle Creek channel downstream of Loon Lake.

Location: Gerle Creek below Loon Lake Reservoir Dam, at LL-DG1 and LL-G2. (Refer to Condition 2.B. – Gerle Creek below Loon Lake Reservoir Dam).

Timing: Years 1 and 2.

Within two years of license issuance, the Licensee shall develop and submit to the Deputy Director for approval a stabilization plan for the Gerle Creek channel below Loon Lake Reservoir Dam. The Licensee will consult with appropriate staff from USFS, USFWS, CDFW, and the State Water Board in the development of the stabilization plan. The Licensee shall provide the Deputy Director with any comments provided by agencies during the consultation process. The Deputy Director may require modifications as part of approval. The Licensee shall implement the plan upon receiving Deputy Director and all other necessary regulatory approvals.

8.H. Geomorphology: Continuing Evaluation of Representative Channel Areas

Within two years of license issuance, the Licensee, in consultation with USFS, CDFW, USFWS, and the State Water Board, shall develop a geomorphology monitoring plan that provides for the continuing evaluation of representative channel areas. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall submit the plan to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

Method: Establishment and monitoring of permanent cross-section transects, longitudinal profiles, and channel properties in representative channel areas. Cross-section profiles shall be measured and substrate composition examined at each transect. Sites shall be evaluated as described in the Channel Morphology Technical Report[25].

Location: The following sites[26] shall be evaluated:

8.H.1. Rubicon River below Rubicon Reservoir Dam (RD-G1).
8.H.2. Gerle Creek below Loon Lake Reservoir Dam (LLD-G1 and LL-G2).
8.H.3. SF Rubicon River below Robbs Peak Reservoir Dam (RPD-G1).
8.H.4. SF Silver Creek below Ice House Reservoir Dam (IH-G1 and IH-G2).
8.H.5. Silver Creek below Camino Reservoir Dam (CD-G1).
8.H.6. SF American River 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 Deputy Director after consultation with USFS, CDFW, and USFWS.

[25] Monitoring shall be equivalent to a Rosgen Level III Channel Condition Assessment as described in the Channel Morphology Technical Report (January 2005) prepared as part of the relicensing proceeding.

[26] Study site designations and locations are described in the Channel Morphology Technical Report (January 2005) prepared for the relicensing proceeding.

Timing: Years 5, 10, 15 and thereafter every 10 years for the term of the license and any extensions.

8.I. Water Temperature

Within one year following license issuance, the Licensee shall develop and file with the Commission a Water Temperature Monitoring Plan (Temperature Plan) that has been approved by the Deputy Director. Within three months of license issuance, the Licensee shall consult with USFS, State Water Board, USFWS, and CDFW on the development of a Temperature Plan consistent with the requirements described below. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall submit the Temperature Plan to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required Temperature Plan modifications, with the Commission.

Modifications to the Temperature Plan and the determination of final monitoring sites shall be made by the Deputy Director. Some locations may eventually be removed if the Deputy Director determines that sufficient data has been collected to show that temperatures are adequate at a given location. The FYL frog monitoring program (Condition 8.C. – Amphibian and Reptile Monitoring) contains additional water temperature monitoring requirements. Reservoir temperature profiles may be added if stream temperature problems are identified and the Deputy Director determines that reservoir temperatures are a controllable factor.

Method: Continuous water temperature recording devices shall be installed and maintained each year that monitoring is required at a minimum of 19 stream temperature stations as designated below, as soon as weather and flow conditions allow safe installation of these devices.

Location: At a minimum, the Temperature Plan shall include temperature stations at the following locations:

8.I.1. Rubicon River immediately below Rubicon Reservoir Dam.
8.I.2. Little Rubicon River immediately below Buck Island Reservoir Dam.
8.I.3. Rubicon River below confluence of Little Rubicon River at the UARP boundary.
8.I.4. Gerle Creek immediately below Loon Lake Reservoir Dam.
8.I.5. Gerle Creek immediately below Gerle Creek Reservoir Dam.
8.I.6. SF Rubicon River immediately below Robbs Peak Reservoir Dam.
8.I.7. SF Rubicon River below confluence of Gerle Creek at the UARP boundary.
8.I.8. SF Rubicon River immediately upstream of the confluence with the Rubicon River.
8.I.9. SF Silver Creek immediately below Ice House Reservoir Dam.
8.I.10. SF Silver Creek immediately upstream of Junction Reservoir.
8.I.11. Silver Creek immediately below Junction Reservoir Dam.
8.I.12. Silver Creek immediately above Camino Reservoir Dam.
8.I.13. Silver Creek immediately below Camino Reservoir Dam.
8.I.14. Silver Creek immediately upstream of SF American River.
8.I.15. Brush Creek immediately below Brush Creek Reservoir Dam.

8.I.16. SF American River immediately below Slab Creek Reservoir Dam.
8.I.17. SF American River at or downstream of Mosquito Bridge.
8.I.18. SF American River approximately ½ mile upstream of White Rock Powerhouse.
8.I.19. A location downstream of White Rock Powerhouse that records the water temperature of discharges from White Rock Powerhouse.

The recorders located in SF Silver Creek below Ice House Reservoir Dam and SF American River below Slab Creek Reservoir Dam shall be installed prior to implementation of the applicable recreational and pulse flow releases in these reaches. Recorders in Silver Creek above Camino Reservoir and immediately upstream of SF American River shall be installed within six months of license issuance.

Up to five additional monitoring sites may be added to the water temperature program by the Deputy Director, if determined necessary through review of the monitoring data and the annual consultation with USFS, CDFW, USFWS, and the State Water Board as described in Condition 13 (Annual Review of Ecological Conditions).

Timing: All water bodies identified in the approved Temperature Plan shall be monitored from March 15 to September 30 in all years after license issuance through the term of the license and any extensions or until the Licensee can demonstrate to the satisfaction of the Deputy Director that operation of the UARP reasonably protects the "cold freshwater" beneficial use at any site for which the Licensee seeks modification to the temperature monitoring requirement. For reservoirs, before a determination as described above may be made by the Deputy Director, seasonal temperature profiles shall be monitored in applicable reservoir(s) during multiple water year types to develop data necessary for decision-making.

8.J Other Water Quality Parameters

Within three months of license issuance, the Licensee shall consult with USFS, BLM, USFWS, CDFW, State Water Board and Central Valley Water Board on the development of a draft Water Quality Monitoring Program Plan (WQ Plan). The WQ Plan shall include the water quality monitoring elements listed below, and must: (1) provide detail on field sampling locations, sampling frequency, handling methods and quality assurance/quality control protocols; and (2) define the laboratory methods and associated reporting and 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 issuance, the Licensee shall submit the WQ Plan to the Deputy Director for review and approval. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall provide the Deputy Director with at least 60 days to review and approve the WQ Plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required WQ Plan modifications, with the Commission. The approved WQ Plan shall be implemented by the Licensee as described, through the life of the license and any extensions. The WQ Plan may be modified pursuant to adaptive management program needs as recommended by USFS, BLM, USFWS, CDFW, State Water Board, and/or Central Valley Water Board, and the new WQ Plan shall be implemented upon receiving all necessary approvals.

Method: The Licensee shall conduct a water quality sampling program designed to demonstrate seasonal conditions at all reservoir and stream locations affected by operation of the UARP, as described in the UARP Relicensing Water Quality Study Plan (Plenary approval, January 8, 2003) contained in the Water Quality Technical Report (May 2005). Laboratory analyses shall be conducted using USEPA analytical methods and/or standard methods adequately sensitive to detect constituent levels for determination of compliance with recognized state and federal criteria.

In Situ: In situ physical parameters (pH, water temperature, dissolved oxygen, electrical conductivity, and turbidity) shall be measured at representative locations on diverted stream reaches below all UARP reservoirs. In situ physical parameters shall be monitored at reservoir profiles collected at 1-meter depth intervals in Loon Lake, Gerle Reservoir, Ice House Reservoir, Union Valley Reservoir, Junction Reservoir, Camino Reservoir, and Slab Creek Reservoir.

Frequency: Riverine reaches: once seasonally in spring (April-May), summer (August), fall (November) and winter (January-February, as accessible) each year after license issuance through the term of the license and any extensions.

Reservoirs: once in spring (April-May) and once in fall (October-November) each year through the term of the license and any extensions. When possible, in situ water quality and water temperature monitoring may be completed coincident with amphibian, fisheries, and macroinvertebrate monitoring.

General Chemistry Monitoring

The Licensee shall monitor in situ parameters, standard minerals, hardness, nutrients, metals (total and dissolved fractions), oil and grease, and other chemical constituents.

Method: Water chemistry samples shall be collected and analyzed for the set of constituents shown in Table 23. Water samples shall be collected from all UARP reservoirs and riverine locations, dam release points from reservoirs, and representative sites along all bypassed stream reaches[27] greater than one mile in length. Reservoir samples shall be collected at the surface and near the bottom at multiple,
representative locations within each impoundment. Secchi disk measurements shall be collected at Loon Lake, Ice House Reservoir, Union Valley Reservoir, and Slab Creek Reservoir.

Frequency: Water samples for chemical analysis shall be collected seasonally in spring, summer, fall, and immediately following either the second or third measurable rain event of the fall-winter period, once every five years beginning in Year 3 after license issuance. Secchi disk measurements shall be collected in summer and fall seasons once every five years after license issuance. After a minimum of three data sets are collected, if it is demonstrated that exceedances are not occurring at
specific locations, the collection frequency may be reviewed to determine if it can be

[27] Bypassed stream reaches are those where water is diverted out of the stream for the purpose of power generation.

modified. The Licensee, CDFW, USFS or the Deputy Director may propose modifications to the sampling frequency contained in the WQ Plan. The Deputy Director must approve any revised plan prior to its implementation.

Table 23. List of Water Quality Constituents

Trace Elements*		**Standard Minerals**		**Nutrients**	
Aluminum	Manganese	Calcium	Potassium	Nitrate-Nitrite	Orthophosphate
Arsenic	Lead	Magnesium	Sodium	Ammonia as N	Total Phosphorus
Barium	Nickel	Chloride	Sulfate	TKN as N	
Cadmium	Selenium				
Copper	Silver		**Miscellaneous**		
Iron	Zinc		Oil and Grease	MTBE	TPH
Mercury	Methyl mercury		Total Organic Carbon	Total Suspended Solids	Total Dissolved Solids
* For metals, the analysis shall include quantification of both total and dissolved constituents.			Hardness	Total Alkalinity	Cyanide

Bacterial Monitoring

Method: The Licensee shall conduct bacterial monitoring for fecal coliform and *E.coli* for protection of the recreational water contact (REC-1) beneficial use[28]. 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 any other future protocol in an amended Basin Plan.

Location: Monitoring shall be conducted at a minimum of 15 shoreline recreational locations within the UARP boundary. Sampling locations shall be selected based on criteria that include: (1) where swimming and other water contact recreation activities are known to occur in the area; and (2) the existence of sources for potential introduction of pathogens to the water column in the immediate vicinity. Candidate sites for annual REC-1 bacterial monitoring will include developed recreation sites and frequently used 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. The Licensee, in consultation with USFS, CDFW, State Water Board, USFWS, and Central Valley Water Board shall determine sampling locations for each upcoming field season.
The Licensee shall consult with USFS, State Water Board, USFWS, and other listed parties to determine the locations to be sampled and shall submit the list of sampling locations to the Deputy Director for approval no later than May 31 of each designated sampling year. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Deputy Director may require modification as part of the approval.

Frequency: Bacterial monitoring shall be conducted annually for the first five years after license issuance, after which it may be decreased in frequency to every other year at reservoir or riverine locations where no exceedances of Basin Plan objectives for

[28] As defined in the Basin Plan.

protection of REC-1 designated waters have been identified during Years 1-5. The Licensee shall notify the Central Valley Water Board if monitoring data demonstrate bacterial concentrations that present risks to human health at specific reservoir(s) or riverine sites. The Licensee shall also continue annual monitoring at those sites until the Licensee consults with the State Water Board and USFS (and any other interested parties) and agreement is reached that the monitoring frequency can be reduced. The Deputy Director must approve any change in monitoring frequency prior to implementation.

Metals Bioaccumulation Monitoring

Method: The Licensee shall monitor for potential uptake of mercury, copper, lead, and silver through the aquatic food chain in UARP-affected impoundments. Resident fish species 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 State Water Board, Surface Water Ambient Monitoring Program (or any future water quality monitoring program) requirements, and shall be defined prior to each sampling event through Licensee consultation with USFS, CDFW, State Water Board, Central Valley Water Board, USFWS, and the Office of Environmental Health Hazard Assessment (OEHHA). Deputy Director approval is required prior to implementation of the metals bioaccumulation monitoring plan. The Licensee shall submit the
metals bioaccumulation monitoring plan to the Deputy Director for approval, including any comments provided by the agencies during the consultation process. The Deputy Director may require modifications as part of the approval.

Location: Loon Lake Reservoir, Gerle Reservoir, Ice House Reservoir, Union Valley Reservoir, Camino Reservoir, and Slab Creek Reservoir.

Frequency: Metals bioaccumulation monitoring shall begin in Year 2 following license issuance and be performed once every five years through the term of the license and any extensions.

8.K. Robbs Peak Powerhouse Entrainment

Within six months of license issuance, the Licensee shall develop a Robbs Peak Powerhouse Entrainment monitoring plan in consultation with USFS, CDFW, USFWS, and the State Water Board to determine if operations of the Robbs Peak Powerhouse are causing fish entrainment. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall submit the plan to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

Method: Fish population monitoring shall be conducted to determine when and at what flow fish migration is occurring, and at what flow entrainment, if any, is occurring, using a method approved by the Deputy Director, in consultation with USFS, USFWS, and CDFW.

Frequency: Years 1 and 2 following license issuance.

8.L. Bald Eagle Monitoring

Within six months of license issuance, the Licensee shall develop a bald eagle monitoring plan in consultation with USFS, CDFW, USFWS, and State Water Board. The bald eagle is listed as a fully protected endangered species under the California Endangered Species Act (CESA). Further, the Rationale Report directs that measures be taken to maintain, protect and enhance populations of sensitive, threatened and endangered plant and wildlife species. The bald eagle monitoring plan will at a minimum include: (i) a statement of goals and objectives; (ii) a description of all proposed monitoring and monitoring methods; and (iii) specific, measureable criteria to be used to evaluate the data collected and objectively assess the continued viability of this resource. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall submit the plan to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with at least 60 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

Method: Use a method approved by the Deputy Director, developed in consultation with USFS, CDFW and USFWS, to continue monitoring bald eagle nest sites to determine if bald eagles are being affected by UARP-related activities.

Frequency: Annually for the term of the license and any extensions.

CONDITION 9. ADAPTIVE MANAGEMENT CONDITIONS

The Licensee shall, beginning as early as reasonably practicable and within three months after license issuance, in consultation and coordination with the Chili Bar Licensee (PG&E), implement an adaptive management program as described below. The program generally consists of: (a) implementation of a monitoring program as described in Condition 8 (Monitoring Program); (b) analysis of data for trends to identify and address UARP-related impacts or effects on beneficial uses and/or water quality; and (c) 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[29] will likely not be met without adjustment.

Analysis of the monitoring results shall be used to determine the need for adaptive management measures. Adaptive management decisions shall be made in consultation with the USFS, BLM, CDFW, and State Water Board staff as part of the Annual Review of Ecological Conditions (Condition 13). Decisions shall be made based on monitoring results, 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.

[29] *Rationale Report for Relicensing Settlement Agreement* submitted by CDFW to the Commission on January 29, 2007.

9.A. Cancellation of Pulse and Recreational Streamflows in South Fork Silver Creek

If FYL frogs are found on SF Silver Creek and water temperatures at SFSC 1 (SF Silver Creek immediately upstream of Junction Reservoir) rises above 12°C mean daily temperature for a seven-day running average (refer to Condition 8.I – Water Temperature), the Licensee shall cancel the pulse and recreational flow events in SF Silver Creek unless the Deputy Director, in consultation with USFS and CDFW, determines that such events are compatible with protection of FYL frogs and other biological resources. The Licensee shall provide notice to the Commission, USFS, State Water Board, USFWS and CDFW within 10 days of determining that the temperature trigger has been met, causing cancellation of the pulse and recreational flow events.

If the Deputy Director, in consultation with USFS, USFWS and CDFW, determines that the water temperature that is an indicator of FYL frog breeding initiation (12°C mean daily temperature for a seven-day running average) should be increased or decreased based on aquatic species and water temperature monitoring (as described in Conditions 8.C. – Amphibian and Reptile Monitoring), the Deputy Director may increase or decrease the water temperature indicator identified in Conditions 8.C. (Amphibian and Reptile Monitoring), 9.A. (Cancellation of Pulse and Recreational Streamflows in SF Silver Creek), and 9.B. (Cancellation of Recreational Streamflows in SF American River). The Licensee shall provide Notice to the Commission if the Deputy Director, in consultation with USFS, USFWS and CDFW approves a modification to the water temperature trigger.

The State Water Board will not allow the pulse flows to continue nor will it change the water temperature indicator as contemplated under this subsection if the wildlife agencies advise that doing so would constitute a take of a listed species.

9.B. Cancellation of Recreational Streamflows in South Fork American River

If water temperatures rise above 12°C mean daily temperature for a seven-day running average (refer to Condition 8.I. – Water Temperature) at SFAR 6 (in the SF American River approximately ½-mile upstream of White Rock Powerhouse water temperature monitoring location 8.I.18), the Licensee shall cancel the recreational flow events in the SF American River below Slab Creek Reservoir Dam unless the Deputy Director, in consultation with USFS, USFWS and CDFW, determines that such events are compatible with protection of FYL frogs and other biological resources. The Licensee shall provide notice to the Commission, USFS, State Water Board, USFWS and CDFW within 10 days of determining that the above temperature trigger has been met, causing cancellation of the recreational flow events.

If the Deputy Director, in consultation with USFS, USFWS and CDFW, determines that the water temperature that is an indicator of FYL frog breeding initiation (12°C mean daily temperature for a seven-day running average) should be increased or decreased based on aquatic species and water temperature monitoring (as described in Conditions 8.C. – Amphibian and Reptile Monitoring), the Deputy Director may increase or decrease the water temperature indicator identified in Conditions 8.C. (Amphibian and Reptile Monitoring), 9.A. (Cancellation of Pulse and Recreational Streamflows in SF Silver Creek), and 9.B. (Cancellation of Recreational Streamflows in SF American River). The Licensee shall provide Notice to the Commission if the State Water Board approves a modification to the water temperature trigger.

The State Water Board will not allow the recreational flow events to continue as contemplated under this subsection if the wildlife agencies advise that doing so would constitute a take of a listed species.

9.C. Untimely Spill Events below Slab Creek and Camino Reservoir Dams

The Licensee shall make every reasonable effort to avoid spilling at Slab Creek Reservoir Dam and Camino Reservoir Dam once FYL frog breeding is deemed to have been initiated based on a water temperature trigger that is determined through the Monitoring Program described in Condition 8 (Monitoring Program). If a spill does occur, the Licensee shall make every reasonable effort to manage the spill to minimize flow fluctuations in the SF American River. If the Deputy Director determines that spills below Slab Creek Reservoir Dam and/or Camino Reservoir Dam are resulting in unacceptable environmental impacts based on aquatic species and temperature monitoring described in Conditions 8.B., 8.C., and 8.I. (Aquatic Macroinvertebrates, Amphibian and Reptile Monitoring, and Water Temperature, respectively), appropriate adaptive management measures shall be developed in consultation with USFS, CDFW, USFWS, and State Water Board staff and approved by the Deputy Director. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission. The Licensee shall implement the appropriate adaptive management measures upon approval of the Deputy Director and any other necessary regulatory approvals.

9.D. Recreational Streamflows below Slab Creek Reservoir Dam

If the Deputy Director, in consultation with USFS, CDFW and USFWS, determines, based on amphibian monitoring described in Condition 8.C. (Amphibian and Reptile Monitoring), that unacceptable environmental impacts are occurring below Slab Creek Reservoir Dam due to October recreational streamflows, adaptive management measures to address the unacceptable impacts may be proposed by the Licensee or the agencies. Such measures may include, but are not limited to, cancellation of the October recreational streamflows (described in Condition 4). The adaptive management measures must be approved by the Deputy Director prior to implementation by the Licensee. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission. The Licensee shall implement the adaptive management measures upon approval of the Deputy Director and any other necessary regulatory approvals.

9.E. Fish Entrainment in South Fork Rubicon River

If monitoring indicates that fish are being entrained in Robbs Peak Powerhouse during fish migration, and USFS, USFWS, Deputy Director or CDFW determine that the entrainment is having a substantial negative impact on the South Fork Rubicon fishery, the Licensee shall develop adaptive management measures, in consultation with USFS, CDFW, and USFWS, that shall be submitted to the Deputy Director for review and approval. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission. The Licensee shall implement the appropriate adaptive management measures upon approval of the Deputy Director, and any other necessary regulatory agency approvals.

9.F. Sediment Management

Based on results of geomorphology monitoring, if the Deputy Director, after consultation with USFS, BLM, USFWS, and CDFW, determines there is a need to place sediment downstream, and if there is a need to dredge reservoirs associated with the UARP, sediment that results from the dredging shall be placed downstream after the Licensee receives Deputy Director and any other necessary regulatory agency approvals. In the event it is necessary to conduct dredging activities, the Licensee shall also notify the State Water Board and Army Corps of Engineers (ACOE) to determine if a Clean Water Act Section 404 Permit (404 Permit) is required. If a 404 Permit is required, the Licensee shall apply to the State Water Board for water quality certification pursuant to Section 401 of the Clean Water Act.

9.G. Algae Growth in Project-affected Water Bodies

If the new streamflow regime does not control algal growth in Silver Creek below Junction Reservoir Dam and SF Rubicon River below Robbs Peak Reservoir Dam within two years of license issuance, the Licensee shall control or eliminate the algae using a method approved by the Deputy Director, after consultation with USFS, USFWS, and CDFW. The Licensee shall implement the adaptive management measures upon approval of the Deputy Director, and any other necessary regulatory agency approvals.

If future pervasive algal blooms are identified on UARP-affected stream reaches, and if the Deputy Director, after consultation with USFS, USFWS, and CDFW, determines the algae needs to be controlled or eliminated, the Licensee shall control or eliminate the algae using a method approved by the Deputy Director. The method will be approved after consultation with USFS, USFWS, and CDFW. The Licensee shall file the Deputy Director's approval, together with any required adaptive management modifications, with the Commission. The Licensee shall implement the adaptive management measures upon approval of the Deputy Director, and any other necessary regulatory agency approvals.

9.H. Metals Bioaccumulation

The Licensee shall notify the Deputy Director within 30 days if the results of metals bioaccumulation monitoring indicate concentration of metals in fish tissue exceed OEHHA consumption guidelines, or other public health safety targets. The Deputy Director may require a plan pursuant to Condition 23 (Mercury Management Plan).

If the results of the metals bioaccumulation monitoring indicate metals may be adversely affecting the health of aquatic species, then additional studies may be requested by the Deputy Director, in consultation with USFS, USFWS, and CDFW. The studies may include an examination of adaptive management measures for reducing impacts to aquatic species from metals bioaccumulation. If required by the Deputy Director, the Licensee shall implement the identified measures upon receiving all necessary regulatory approvals.

9.I. Adaptive Resource Monitoring

If the relevant ecological resource objectives have been met for resources for which monitoring is required as described in Condition 8 (Monitoring Program) or no change in resource response due to UARP operations is expected, monitoring for that resource may be reduced or terminated. Changes to the monitoring required in Condition 8 must be approved by the Deputy Director, in

consultation with the USFS, USFWS and CDFW. The Licensee shall file the Deputy Director's approval, together with any required adaptive management modifications, with the Commission.

CONDITION 10. LARGE WOODY DEBRIS

The Licensee shall ensure that mobile instream large woody debris continues downstream beyond Robbs Peak Reservoir Dam, Junction Reservoir Dam, Camino Reservoir Dam, and Slab Creek Reservoir Dam. This requirement will not be in effect when access and working conditions are dangerous or unsafe. At a minimum, all sizes greater than both 20 centimeters wide and 12 meters in length shall be allowed to continue downstream beyond Robbs Peak Reservoir Dam, Junction Reservoir Dam, Camino Reservoir Dam, and Slab Creek Reservoir Dam. Smaller sizes are also allowed but are not required to be moved beyond these dams. To demonstrate compliance with this condition, the Licensee shall include in the annual monitoring report that is required in Condition 8 (Monitoring Program) a summary of the efforts made during the year to pass large woody debris below the dams.

CONDITION 11. CANAL AND PENSTOCK EMERGENCY AND MAINTENANCE RELEASE POINTS

The Licensee shall, within one year after license issuance, file with the Commission a plan, approved by the Deputy Director, 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 consult with USFS, CDFW, USFWS, and the State Water Board in the development of the plan. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process.
The Licensee shall submit the plan to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

CONDITION 12. REINTRODUCTION OF ANADROMOUS FISH

It is possible that anadromous fish passage will be restored at Nimbus and/or Folsom Dams on the American River downstream of the UARP during the course of the Commission license term. Per Long-Term Fish Passage Action (LF) 2 of the NMFS Biological Opinion (BO), the "[Bureau of] Reclamation and partner agencies shall submit a plan to NMFS on or before December 31, 2016, which shall describe planned long-term upstream and downstream fish passage facilities and operations, based on the best available information at that time."

Within 90 days of submittal of the plan referenced in LF 2, or an equivalent plan to restore anadromous fish passage to the waters above Folsom Dam, the Licensee shall consult with CDFW, USFWS, NMFS and State Water Board to determine whether changes are needed in the certification conditions to protect beneficial uses associated with anadromous fish.

Federal regulations (50 CFR § 402.16) recognize that reinitiation of formal Endangered Species Act (ESA) consultation may be necessary if new information reveals that a federally licensed project may affect listed species or critical habitat in a manner or to an extent not previously considered. It is anticipated that submittal of the plan referenced in LF 2 or an equivalent plan would trigger either formal or informal ESA consultation. It is further anticipated that consultation will result in issuance of a UARP-specific BO.

To the extent possible, the State Water Board will consider any BO issued by NMFS specifically for the UARP in adding or modifying conditions of this certification pursuant to this condition. In any determination of whether changes are needed in the certification to address anadromous fish, consideration will be given to the need for operational flexibility for Iowa Hill, should it be constructed.

The State Water Board recognizes that the timelines associated with the NMFS BO and the NMFS BO provisions may change over the term of the license. The State Water Board reserves authority to modify or add conditions to this certification based on the outcome of the consultation process or to clarify the trigger for consultation based on new or updated BOs or determinations by state or federal agencies which would have a bearing on anadromous fish reintroduction.

CONDITION 13. ANNUAL REVIEW OF ECOLOGICAL CONDITIONS

Each calendar year, by April 1, the Licensee shall schedule and facilitate a meeting with USFS, CDFW, USFWS, and State Water Board staff to review and discuss the results of implementing the conditions in this certification, as well as to discuss other issues related to preserving and protecting ecological values affected by the UARP. At least two weeks prior to the meeting, the Licensee shall make available to USFS, CDFW, USFWS, and State Water Board an operations and maintenance plan for the year in which the meeting occurs.

CONDITION 14. RECREATION IMPLEMENTATION PLAN

The Licensee shall develop a Recreation Implementation Plan in coordination with USFS within six months of license issuance. The Recreation Implementation Plan shall include a construction schedule for the recreation facilities specified in SA Article 1-19, and shall be periodically updated in conjunction with the review of recreation developments required in the SA Article 1-18. The plan shall include a provision to consult with the State Water Board and Central Valley Water Board regarding water quality permitting and approvals necessary for the construction or rehabilitation of recreation facilities and to obtain the required permits or approvals before initiating construction activities. Permits that may be required include, but are not limited to, individual waste discharge requirements or coverage under the Construction General Permit and/or Water Quality Order 97-10. Construction plans for projects identified in the Recreation Implementation Plan that have the potential to affect water quality shall be submitted to the Deputy Director for review and approval. Plans shall at a minimum include proposed BMPs, and erosion and turbidity control measures. The Deputy Director may require modification as part of approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission. Projects with the potential to affect water quality shall not be constructed until after receipt of Deputy Director approval and any other necessary regulatory approvals.

CONDITION 15. TRANSPORATION SYSTEM MANAGEMENT PLAN

Within one year of license issuance, the Licensee shall file with the Commission a Transportation System Management Plan (Transportation Plan) that is approved by USFS for roads on or affecting National Forest System lands. The Transportation Plan shall be updated every five years. The Transportation Plan shall identify: (1) the maintenance and reconstruction needs for roads associated with the UARP; and (2) those linear transportation projects for which the Licensee is responsible that are part of or support the UARP and that have the potential to cause a discharge to waters of the state or disturb the streambed. The Licensee shall consult with the State Water Board and Central Valley Water Board to determine whether a water quality

certification or other permits or approvals are necessary, and shall obtain such certification, permit(s), or approval(s) before initiating construction activities.

All road maintenance and construction shall meet USFS and ACOE specifications and BMPs. The Licensee shall construct, operate, and maintain UARP facilities, including roads, parking and storage lots, reservoir shorelines, bridges, and culverts to maintain natural fluvial and colluvial sediment transport to the UARP reaches.

Within 30 days of USFS approval and prior to submission to the Commission, the Licensee shall submit the most current Transportation Plan to the Deputy Director for approval. The Licensee shall provide the Deputy Director with at least 60 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director shall have the authority to make changes to the Transportation Plan to protect water quality, if reasonably necessary, beyond the requirements that maintenance and construction shall meet USFS and ACOE specifications and BMPs. The Licensee shall file the Deputy Director's approval, together with any required Transportation Plan modifications, with the Commission. The Licensee shall implement the Transportation Plan and any subsequent updates upon receiving all necessary approvals.

CONDITION 16. FISH STOCKING REQUIREMENTS

The Licensee shall match the type and amount of fish stocked by CDFW at Loon Lake, Union Valley, and Ice House Reservoirs, with up to a total of 50,000 pounds of fish provided by the Licensee per year, to be distributed as determined by CDFW. However, in no case shall the amount of fish provided by the Licensee be less than 25,000 pounds per year. The Licensee shall notify the Deputy Director annually by July 1 regarding the arrangements that have been made to stock fish at Loon Lake, Union Valley, and Ice House Reservoirs.

CONDITION 17. CONSULTATION ON IOWA HILL DESIGN, CONSTRUCTION AND OPERATION

The Licensee shall consult with the State Water Board, USFWS and CDFW during the design process for Iowa Hill to ensure that the final design, construction, and operation of Iowa Hill complies with water quality standards. The Iowa Hill design shall incorporate features that achieve the following: operational compliance with water quality standards; minimize or prevent sediment mobilization and/or increased turbidity in Slab Creek Reservoir and the SF American River downstream of the reservoir; minimize or prevent fish entrainment into the intake/outlet structure; and prevent the creation of dangerous hydraulic conditions within Slab Creek Reservoir that may affect recreational activity. Iowa Hill shall also be designed and operated to prevent the current populations of fish present in Slab Creek Reservoir from falling below self-sustaining levels due to Iowa Hill operations.

The design shall clearly identify the assumptions for the expected water velocities and hydraulic conditions in the vicinity of the intake/outlet structure, sediment characteristics within Slab Creek Reservoir, swimming speeds and behavior of various life stages of resident fish, and the expected distribution of resident fish within Slab Creek Reservoir. The design must include safety features, including boat restraining barriers, warning signs, and other guidance to the public as needed. The design must also follow the Commission *Guidelines for Public Safety at Hydropower Projects*.

The Licensee shall submit the design, construction and operation plan(s) for Deputy Director approval after consultation with the agencies, but prior to submission to the Commission. The elements of the construction portion of this plan are more fully described in Condition 18 below.

The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The design, construction and operation plan(s) shall include monitoring and other appropriate provisions, including those described in Conditions 18 and 22. Monitoring shall be implemented to determine if the intake/outlet structure is adversely affecting the beneficial uses of the water. The design, construction and operation plan(s) shall include information on the design, operations, monitoring and management practices that will be taken to protect water quality and beneficial uses. At a minimum plan(s) must include: (i) a statement of goals and objectives; (ii) a description of all proposed monitoring and actions (as appropriate); (iii) specific, measureable success criteria that can be used in combination with monitoring data to objectively evaluate the effects of the intake/outlet structures on aquatic life, and/or the success of any implemented actions to address adverse effects on aquatic life; (iv) a monitoring, maintenance, and reporting schedule; and (v) information on how the Licensee will operate Iowa Hill in compliance with all applicable conditions of this certification including Conditions 18 through 22.
The Deputy Director may reject or require modification of the design, construction and operation plan(s) if the plan(s) do not adequately address water quality, sediment mobilization, turbidity, fish entrainment risk and the creation of dangerous hydraulic conditions within Slab Creek Reservoir. The Licensee shall file the Deputy Director's approval together with any required modifications to the design, construction and operation plan(s), with the Commission.

Water quality monitoring shall be required during and after the construction of Iowa Hill as specified in the Deputy Director approvals related to the design, construction and operation of Iowa Hill. The State Water Board reserves the authority to require additional water quality monitoring in the future to ensure that the construction and on-going operation of Iowa Hill meets applicable water quality standards and other appropriate requirements. If monitoring data indicate that water quality objectives are not being met, the Licensee shall consult with State Water Board staff regarding potential changes to Iowa Hill operations that would result in compliance with water quality standards or other appropriate requirements, and shall implement any necessary changes that the Deputy Director requires after such consultation. If operation of Iowa Hill requires modifications to any of the terms or conditions of this certification, the Licensee shall request an amendment of the certification from the State Water Board.

CONDITION 18. IOWA HILL CONSTRUCTION WASTE DISCHARGE AND BEST MANAGEMENT PRACTICES ASSOCIATED WITH IOWA HILL

The Licensee shall consult with State Water Board staff and other state and federal agencies, regarding any additional conditions that may be required before the construction and operation of Iowa Hill can commence. Prior to initiating any Iowa Hill construction-related activities, the Licensee shall provide the Iowa Hill Construction Plan to the Deputy Director for review and approval. The Iowa Hill Construction Plan shall include: (1) the final design plans for construction of Iowa Hill; (2) a detailed construction plan; (3) a proposed timeline for construction; and (4) identification of BMPs and permits that will be implemented to protect water quality and beneficial uses. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission. The Licensee must obtain all necessary permits including but not limited to an ACOE Clean Water Act Section 404 Permit, coverage under the Construction General Permit and/or other authorizations or certifications as determined to be necessary under state and federal law. The Licensee will consult with the Central Valley Water Board to determine the need for waste discharge requirements for the disposal of construction spoils to land. Construction activities associated with Iowa Hill cannot begin without approval from the Deputy Director. This plan may be submitted concurrently with, or may be included in, any plans submitted pursuant to Condition 17.

Best Management Practices

BMPs for the control of potential discharges from construction activities shall be implemented including, but not limited to, measures for:

- Drainage control
- Sediment runoff and slope stabilization
- Wind erosion control
- Concrete preparation and finishing
- Vehicle and equipment refueling and maintenance
- Material delivery and storage
- Stockpile management
- Solid waste management
- Hazardous waste management
- Spill prevention and control
- Contaminated soil management
- Concrete waste management
- Sanitary/septic waste management

Stormwater Pollution Prevention

The Licensee shall develop a SWPPP for construction of Iowa Hill in consultation with USFS, CDFW, and the State Water Board. The SWPPP shall be in conformance with the Construction General Permit and amendments thereto. The Licensee shall submit the SWPPP to the Deputy Director for review and approval after agency consultation as part of the Iowa Hill Construction Plan. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required modifications, with the Commission. The Licensee shall implement the Iowa Hill Construction Plan upon receiving all necessary approvals. During construction, operation and maintenance of Iowa Hill, the Licensee shall prevent water pollution by implementing BMPs identified in the SWPPP and any other requirements identified by USFS, State Water Board, and Central Valley Water Board.

Construction of Iowa Hill shall not commence until the Licensee receives all necessary approvals, including, but not limited to, approvals required in Conditions 17-22 of this certification.

CONDITION 19. IOWA HILL WATER RIGHTS

The Licensee shall consult with State Water Board staff regarding potential modifications to SMUD's State-issued water right permits and licenses that may be required if Iowa Hill is constructed. The Licensee shall follow the procedures for any such modification described in the California Water Code and in California Code of Regulations, title 23.

CONDITION 20. GROUNDWATER RELATED TO IOWA HILL

Prior to undertaking any construction activities related to Iowa Hill, the Licensee shall prepare a plan for managing groundwater inflows and/or discharge during construction and for groundwater monitoring and management once construction is completed. The plan shall be developed in consultation with USFS and Central Valley Water Board staff. The Licensee shall submit the plan

to the Deputy Director for review and approval after agency consultation. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission. The Licensee shall implement the plan upon receiving all necessary regulatory approvals. The plan shall include the following:

a. A completed survey that encompasses the portion of the Iowa Hill area that would be potentially affected by the proposed tunnel;
b. Monitoring of the springs and creeks for five years after the tunneling operation is completed with monitoring data submitted monthly and written monitoring reports submitted to the State Water Board, Central Valley Water Board, and USFS biannually by June 1 and December 1 of each year, or as specified in individual or general permits administered by the Central Valley Water Board;
c. A method for accurate quantification of groundwater encountered during tunnel boring operations;
d. A method for verifying that groundwater seepage is controlled after tunnel construction;
e. Identification of corrective measures that would be taken if the tunnel boring operation encounters more groundwater than originally predicted in the environmental assessment for Iowa Hill or the completed tunnel seeps; and
f. Potential mitigation measures for all identifiable impacts.

The Licensee shall consult with the Central Valley Water Board regarding the need to obtain individual waste discharge requirements or coverage under Order R5-2013-0074/NPDES No. CAG995001 (Waste Discharge Requirements for Dewatering and Other Low Threat Discharges to Surface Waters) and amendments thereto to address discharges associated with dewatering and other low threat discharges to surface waters.

CONDITION 21. IOWA HILL AQUATIC RESOURCES

21.A. Hardhead Monitoring in Slab Creek Reservoir

Prior to initiating construction of Iowa Hill, the Licensee shall develop a Slab Creek Reservoir Hardhead Monitoring Plan (Hardhead Plan) in consultation with USFS, CDFW, USFWS, and the State Water Board. The Licensee shall submit the Hardhead Plan to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

The Hardhead Plan shall provide for hardhead monitoring during all four seasons of the year to establish the locations of all life stages (including edgewater locations) within Slab Creek Reservoir and in the water fluctuation zone upstream on the SF American River above and below the Iowa Hill intake/outlet structure. Monitoring for the location of hardhead life stages shall take place during, at least, the two years immediately prior to and two years immediately after Iowa Hill operations begin. The Hardhead Plan shall also describe a method to monitor hardhead in Slab Creek Reservoir to determine whether entrainment is occurring due to the operation of Iowa Hill. Monitoring for entrainment shall be implemented during the first two years after Iowa Hill begins to operate, and may be extended if required by the Deputy Director.

An annual report that describes the results of the Slab Creek Reservoir hardhead monitoring activities shall be provided to USFS, CDFW, USFWS, and the Deputy Director for the prior calendar year's monitoring by May 1 of each subsequent year. If monitoring indicates that entrainment is occurring, the Deputy Director will consult with CDFW and the Licensee, and if appropriate, will require the Licensee to develop appropriate mitigation measures. The Licensee will submit the suggested mitigation measures to the Deputy Director for approval. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the measures prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any mitigation measure modifications, with the Commission. The Licensee shall implement the approved mitigation measures upon receiving all necessary regulatory approvals.

21.B. Temperature Conditions in Slab Creek Reservoir

The Licensee shall develop a plan to monitor edgewater temperatures between May and September in Slab Creek Reservoir during, at least, the two years immediately prior to and two years immediately after Iowa Hill operations begin to document how temperatures in shallow water areas are affected by Iowa Hill operations. The monitoring locations shall be selected in consultation with USFS, CDFW, USFWS, and State Water Board staff. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall submit the plan (which may be combined with the Hardhead Plan described in 21.A) to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

An annual report that describes the results of the edgewater temperature monitoring activities for the prior calendar year's monitoring (which may be combined with the annual report described in 21.A), shall be provided to USFS, CDFW, USFWS, and the State Water Board by May 1 of each subsequent year.

21.C. Impacts to Hardhead in Slab Creek Reservoir

Results from the monitoring required in Conditions 21.A and 21.B shall be used to determine whether Iowa Hill operations are adversely affecting hardhead distribution due to changes in edgewater temperatures in Slab Creek Reservoir. The Licensee, after consultation with the State Water Board, CDFW and USFWS, may submit suggested mitigation measures, if needed, to the Deputy Director for approval. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall provide the Deputy Director with at least 90 days to review and approve any mitigation measures prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any mitigation measure modifications, with the Commission. The Licensee shall implement the approved mitigation measures upon receiving all necessary approvals.

21.D. Prohibitions Related to Impacts to FYL Frog

To support existing FYL frog populations in the SF American River downstream of Slab Creek Reservoir, operation of Iowa Hill shall not further reduce water temperature below 12°C during the

months of June (after the descending limb of the hydrograph), July, and August in the SF American River below Slab Creek Reservoir Dam downstream of Mosquito Bridge. Compliance with this provision shall be determined based on water temperature monitoring specified in Condition 8.I. (Water Temperature).

The Licensee shall ensure that flow fluctuations in the SF American River below Slab Creek Reservoir Dam do not occur as a result of operation of Iowa Hill, with the exception of flow fluctuations that result from specific requirements of the license, such as recreation streamflows.

CONDITION 22. RECREATION ACCESS PLAN FOR SLAB CREEK RESERVOIR

Prior to initiation of Iowa Hill construction, the Licensee shall develop a Recreation Access Plan that addresses recreation access to the Slab Creek Reservoir: (1) during the time of construction of Iowa Hill Reservoir and the tunnel connecting to Slab Creek Reservoir; and (2) when Iowa Hill Reservoir and associated powerhouse are operational. The Licensee shall submit the plan to the Deputy Director for approval. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any plan modifications, with the Commission.

CONDITION 23. MERCURY MANAGEMENT PLAN

The State Water Board reserves the authority to require the Licensee to develop a mercury management plan if future research and/or water quality and metals bioaccumulation monitoring specified in Conditions 8.J. (Other Water Quality Parameters) and 9.H. (Metals Bioaccumulation) indicate that reservoirs, operations of Iowa Hill or other aspects of UARP operations increase the mobilization or methylation of mercury. The plan should include a review of potential measures to reduce the amount of methyl mercury or rate of mercury methylation in the watershed (such as changes to power operations, reservoir management, sediment dredging, and/or sediment capping), and an examination of the feasibility of implementing those measures. The plan should also describe any necessary measures to protect human health from exposure through fish consumption (such as posting health warnings at reservoirs, operating recreational fishing as catch-and-release only, or ceasing to stock reservoirs). If, based on the information contained in the plan or other information, the Deputy Director determines there are appropriate and feasible measures the Licensee could implement to reduce the amount of methyl mercury, reduce the mobilization or methylation of mercury and/or protect human health, the Licensee shall develop an implementation plan and submit it to the Deputy Director for approval. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission. Upon receiving all necessary regulatory approvals, the Licensee shall implement the measures identified in the implementation plan.

CONDITION 24. HAZARDOUS SUBSTANCES PLAN

Within one year of license issuance or prior to undertaking activities on USFS lands, whichever is earliest, the Licensee shall file with the Commission a Hazardous Substances Plan, approved by USFS and the Deputy Director, for hazardous substances storage and spill prevention and cleanup. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may

require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

At a minimum, the Hazardous Substances Plan must require the Licensee to: (1) maintain a contact list of names and numbers for the Licensee, federal, state and local officials responsible for responding to hazardous waste spills; (2) maintain in the UARP area a cache of spill cleanup equipment suitable to contain any spill from the UARP; (3) periodically inform USFS of the location of the spill cleanup equipment on USFS lands and of the location, type, and quantity of oil and hazardous substances stored in the UARP area; and (4) immediately inform the California Emergency Management Agency, USFS, CDFW, Central Valley Water Board and the State Water Board of the magnitude, nature, time, date, location, and action taken for any spill. The Hazardous Substances Plan shall identify the potential corrective actions and monitoring that will be implemented if a spill occurs.

In addition, during planning and prior to any new construction or maintenance/repair activities not addressed in an existing plan approved by the Deputy Director, the Licensee shall notify the USFS and the State Water Board so that the USFS and the Deputy Director can determine if an additional plan for hazardous substances storage and spill prevention and cleanup is needed. If the Deputy Director determines an additional plan or requirements are needed to address hazardous substance storage and spill prevention cleanup for new construction or maintenance/repair activities, the Licensee shall submit a plan for Deputy Director approval describing the measures that will be implemented. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required modifications, with the Commission. The Licensee shall implement the plan upon receiving all necessary regulatory approvals.

CONDITION 25. COORDINATION WITH CHILI BAR PROJECT LICENSEE

The Licensee shall coordinate operations of the UARP with the Licensee of the Chili Bar Project (PG&E), FERC Project No. 2155, to enable the Chili Bar Project Licensee to comply with Condition 1 (Minimum Instream Flows), Condition 2 (Ramping Rates), and Condition 3 (Recreational Streamflows) in the Chili Bar water quality certification. Each licensee's (SMUD and PG&E) responsibilities for achieving coordinated operations of the two projects (UARP and Chili Bar Project) are described in the Cooperation Agreement[30].

As specified in the SA, the Licensees of the UARP (SMUD) and the Chili Bar Project (PG&E) must jointly prepare and file with the Commission within 120 days after license issuance, a plan for coordinated operations of the two projects as described in the Cooperation Agreement. To provide the opportunity for review and approval of the plan by the Deputy Director prior to submittal to the Commission, PG&E shall submit the plan to the Deputy Director within 90 days after issuance of the UARP and Chili Bar Project licenses, or if the licenses are issued separately, the latter of the two. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

[30] As stated in the Cooperation Agreement, "SMUD agrees to provide to Company *[PG&E]* Operational Guidance and sufficient water inflows into Chili Bar Reservoir to enable Company to comply with the conditions of the Chili Bar license, and Company agrees to follow such Operational Guidance in a manner that will comply with the flow-related Chili Bar license conditions."

In addition to the coordination described above related to compliance with streamflow conditions, the Licensee shall consult and coordinate with the Licensee of the Chili Bar Project (PG&E) as described in the Cooperation Agreement in implementation of Condition 5 (Adaptive Management Program), Condition 6 (Monitoring Program), Condition 7 (Sediment Management Plan), and Condition 11 (Streamflow and Reservoir Level Public Information Services) of the Chili Bar Project water quality certification.

CONDITION 26. VEGETATION AND INVASIVE WEED MANAGEMENT PLAN

Within two years of license issuance, the Licensee shall prepare a Vegetation and Invasive Weed Management Plan (Vegetation Plan) in consultation with USFS, USFWS, the appropriate County Agricultural Commissioner, and the California Department of Food and Agriculture. Invasive weeds will be those weeds defined in the California Food and Agriculture code, and other species identified by USFS. The Vegetation Plan must address both aquatic and terrestrial weeds within the UARP boundary and adjacent to UARP features directly affecting National Forest System lands including, roads, and distribution and transmission lines. The Vegetation Plan must include the implementation of the USFWS Valley Elderberry Longhorn Beetle Conservation Guidelines[31]. The Licensee shall submit the Vegetation Plan to the Deputy Director for approval of those elements of the plan that deal with Valley Elderberry Longhorn Beetle conservation and aquatic invasive weeds prior to submitting the plan to the Commission. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the Vegetation Plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required modifications, with the Commission.

The portion of the Vegetation Plan for which approval by the Deputy Director is required must include an adaptive management element for prevention of aquatic invasive weeds. If USFS, the State Water Board or the Licensee determines that aquatic invasive weeds are present in the UARP area, the Licensee shall prepare a subsequent plan or amendment to the Vegetation Plan that describes measures designed to address the infestation, as necessary. These actions may include, but are not be limited to: (1) public education and signage at public boat access locations; (2) preparation of an Aquatic Plant Management Plan approved by the Deputy Director, and developed in consultation with other agencies; and (3) boat cleaning stations at boat ramps for the removal of aquatic invasive weeds.

CONDITION 27. FIRE-RELATED WATER QUALITY IMPACTS

In the event of a major fire in the UARP watershed, SMUD shall work cooperatively with the Central Valley Water Board, CDFW, other appropriate state and federal agencies, and landowners to identify measures that will protect water quality in the UARP watershed.

[31] U.S. Department of the Interior Fish and Wildlife Service, Sacramento Fish and Wildlife Office Conservation Guidelines for the Valley Elderberry Longhorn Beetle, July 1999.

The following conditions also apply to the UARP in order to ensure compliance with water quality standards over the term of the UARP's license and any extensions.

CONDITION 28. Unless otherwise specified in this water quality certification or at the request of the Deputy Director, data and/or reports must be submitted electronically in a format accepted by the State Water Board to facilitate the incorporation of this information into public reports and the State Water Board's water quality database systems in compliance with California Water Code section 13167.

CONDITION 29. No construction shall commence until all necessary federal, state and local approvals are obtained.

CONDITION 30. The State Water Board reserves the authority to add to or modify the conditions of this water quality certification to incorporate load allocations developed in a total maximum daily load developed by the State Water Board or the Central Valley Water Board.

CONDITION 31. The State Water Board's approval authority includes the authority to withhold approval or to require modification of a proposal or plan prior to approval. The State Water Board may take enforcement action if the Licensee fails to provide or implement a required plan in a timely manner.

CONDITION 32. Notwithstanding any more specific conditions in this certification, the UARP shall be operated in a manner consistent with all water quality standards and implementation plans adopted or approved pursuant to the Porter Cologne Water Quality Act or section 303 of the Clean Water Act. The Licensee shall take all reasonable measures to protect the beneficial uses of the SF American River, and Middle Fork American River watersheds.

CONDITION 33. This certification requires compliance with all applicable requirements of the Basin Plan.

CONDITION 34. This certification does not authorize any act which results in the taking of a threatened, endangered or candidate species or any act which is now prohibited, or becomes prohibited in the future, under either the CESA (Fish and Game Code sections 2050 to 2097) or the federal ESA (16 U.S.C. sections 1531 to 1544). If a "take" will result from any act authorized under this certification or associated water rights held by the Licensee, the Licensee shall obtain authorization for the take prior to any construction or operation of the portion of UARP that may result in take. The Licensee shall be responsible for meeting all requirements of the applicable ESAs for UARP authorized under this certification.

CONDITION 35. The authorization to operate the UARP pursuant to this certification requires payment of all applicable fees owed for review and processing of the application for water quality certification and administering the State's water quality certification program, including but not limited to the timely payment of any annual fees or similar charges that may be imposed by future statutes or regulations for the State's reasonable costs of a program to monitor and oversee compliance with conditions of the water quality certification. Certification is conditioned upon total payment of any certification fee required and owed by the applicant.

CONDITION 36. When Commission approval is required for a plan, if Deputy Director approval is not received 14 calendar days prior to an applicable Commission deadline, the Licensee may file the plan with the Commission; however, Deputy Director approval is required prior to plan

implementation. The Licensee must amend its filing with the Commission if modifications are made as part of the Deputy Director's subsequent approval.

CONDITION 37. In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions provided under any State or federal law. For the purposes of section 401(d) of the Clean Water Act, the applicability of any State law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to ensure compliance with the water quality standards and other pertinent requirements incorporated into this certification.

CONDITION 38. In response to a suspected violation of any condition of this certification, the State Water Board may require the holder of any federal permit or license subject to this certification to furnish, under penalty of perjury, any technical or monitoring reports the State Water Board deems appropriate, provided that the burden, including costs of reports, shall bear a reasonable relationship to the need for reports and the benefits to be obtained from the reports.

CONDITION 39. In response to any violation of the conditions of this certification, the State Water Board may add to or modify the conditions of this certification as appropriate to ensure compliance in the future.

CONDITION 40. This certification is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330 and California Code of Regulations, title 23, division 3, chapter 28, article 6 (commencing the section 3867).

CONDITION 41. The Licensee must submit to the Deputy Director for review and approval any change to the UARP facilities, including UARP operations or maintenance, which may have a material effect on the findings, conclusions, or conditions of this certification.

CONDITION 42. The State Water Board may add to or modify the conditions of this certification, as appropriate, to implement any new or revised water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act.

CONDITION 43. The State Water Board may add to or modify the conditions of this certification, as appropriate, to coordinate the operations of UARP and other hydrologically connected water development projects, where coordination of operations is reasonably necessary to achieve water quality standards or protect beneficial uses of water.

CONDITION 44. Certification is not intended and shall not be construed to apply to any activity involving a hydroelectric facility and requiring a Commission license or an amendment to a Commission license unless the pertinent certification application was filed pursuant to California Code of Regulations, title 23, section 3855, subdivision (b) and that application specifically identified that a Commission license or amendment to a Commission license for a hydroelectric facility was being sought.

CONDITION 45. Future changes in climate projected to occur during the period in which this certification is effective may significantly alter the baseline assumptions used to develop the conditions in this certification. The State Water Board reserves authority to modify or add

conditions in this certification to require additional monitoring and/or other measures, as needed, to verify that UARP operations meet water quality objectives and protect the beneficial uses assigned to the UARP-affected stream reaches.

CONDITION 46. When exercising its reserved authority as described in this certification the State
Water Board shall provide notice and an opportunity to be heard.

CONDITION 47. Nothing in this certification shall be construed as State Water Board approval of the validity of any water rights, including pre-1914 claims. The State Water Board has separate authority under the Water Code to investigate and take enforcement action if necessary to prevent any unauthorized or threatened unauthorized diversions of water.

CONDITION 48. If the parties to the SA modify or clarify the measures contained therein, and approval is granted by the Deputy Director, the conditions of this water quality certification will be updated accordingly.

CONDITION 49. When Deputy Director approval is required, the Licensee shall implement the terms and conditions of this certification, including but not limited to plans, plan updates, proposals and mitigation measures, upon Deputy Director approval and receipt of any other necessary regulatory approvals.

CONDITION 50. Any requirement in this water quality certification that refers to an agency whose authorities and responsibilities are transferred to or subsumed by another state or federal agency, will apply equally to the successor agency.

APPENDIX B

Conditions filed by the U.S. Forest Service on June 11, 2008, pursuant to section 4(e) of the Federal Power Act, for the Upper American Project No. 2101

STANDARD FOREST SERVICE CONDITIONS

Condition No. 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 FS for all final design plans for Project components, which 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 and in the Special Use Permit. As part of such written approval, FS may require adjustments to the final plans and facility locations to preclude or mitigate impacts and to insure that the Project is either compatible with on-the-ground conditions or approved by FS based on agreed upon compensation or mitigation measures to address compatibility issues. Should such necessary adjustments be deemed by FS, FERC, or the licensee to be a substantial change, the licensee shall follow the procedures of FERC Standard Article 2 of the license. Any changes to the license made for any reason pursuant to FERC Standard 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.

Condition No. 2 - Approval of Changes

Notwithstanding any license authorization to make changes to the project, when such changes directly affect National Forest System lands the licensee shall obtain written approval from FS prior to making any changes in any constructed Project features or facilities, or in the uses of Project lands and waters or any departure from the requirements of any approved exhibits filed with FERC. Following receipt of such approval from FS, and a minimum of 60-days prior to initiating any such changes, the licensee shall file a report with FERC describing the changes, the reasons for the changes, and showing the approval of FS for such changes. The licensee shall file an exact copy of this report with FS at the same time it is filed with FERC. This article does not relieve the licensee from the amendment or other requirements of FERC Standard Article 2 or Article 3 of this license.

Condition No. 3 - Consultation

Each year between February 15 and April 15, the licensee shall consult with 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 FERC evidence of the consultation with any recommendations made by FS. 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.

OTHER FOREST SERVICE CONDITIONS

Condition No. 4 - Modification of 4(e) Conditions After Biological Opinion or Water Quality Certification

FS reserves the right, after notice and opportunity for comment, 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, NOAA Fisheries, or any Certification or permit issued for this Project by the State Water Resources Control Board or Army Corps of Engineers.

Condition No. 5 - Surrender of License or Transfer of Ownership

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

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

Condition No. 6 - Valid Claims and Existing Rights

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

Condition No. 7 - Compliance with Regulations on National Forest System Lands

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

Condition No. 8 - Damage to Land, Property, and Interests of the United States

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

Condition No. 9 - Indemnification

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

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

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

Condition No. 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 on National Forest System lands are destroyed by an act or omission of the licensee, in connection with the use and/or occupancy authorized by this license, depending on the type of monument destroyed, the licensee shall reestablish or reference same in accordance with (1) the procedures

outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the County Surveyor, or (3) the specifications of FS. Further, the licensee shall ensure that any such official survey records affected are amended as provided by law.

Condition No. 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 FS, *SWRCB, CDFG, and Regional Water Quality Control Board, Central Valley Region* (*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 FS, *SWRCB, CDFG, and RWQCB*, and these entities shall make a determination whether a plan approved by 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 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 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.

Condition No. 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. FS may allow specific exceptions when in the public interest.

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 FS. The licensee shall contact FS prior to blasting to obtain the requirements from 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 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 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.

Condition No. 13 - Pesticide Use Restrictions

Pesticides may not be used to control undesirable woody and herbaceous vegetation, aquatic plants, fish, insects, and rodents on National Forest System lands without the prior written approval of FS. The licensee shall submit a request for approval of planned uses of pesticides on National Forest System lands. The request must cover annual planned use and be updated as required by FS. The licensee shall provide information essential for review, including a forest-specific pesticide risk assessment, 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.

Condition No. 14 - Risks and Hazards on National Forest System Lands

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

Condition No. 15 - Project Access Roads

The licensee shall, in consultation with 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.

Condition No. 16 - Traffic Safety

When construction for Project purposes 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."

Condition No. 17 – Access and Road Use by Licensee

The licensee shall confine all vehicles being used for Project purposes including, but not limited to, administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes, as identified in the Transportation System Management Plan (refer to Condition No. 61, Transportation System Management Plan). FS reserves the right to close any and all such routes where damage is occurring to the soil or vegetation or, if requested by the licensee, to require reconstruction/construction by the licensee to the extent needed to accommodate the licensee’s use. FS agrees to provide notice to the licensee and FERC prior to road closures, except in an emergency, in which case notice will be provided as soon as practicable.

Condition No. 18 - Crossings

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

Condition No. 19 – Access and Road Use by Government

The United States shall have unrestricted use of any road over which the licensee has control within the Project area for all purposes deemed necessary and desirable in connection with the protection, administration, management, and utilization of Federal lands or resources. When needed for the protection, administration, and management of Federal lands or resources, the United States shall have the right to extend rights and privileges for use of the right-of-way and

road thereon to States and local subdivisions thereof, as well as to other users. The United States shall control such use so as not to unreasonably interfere with the safety or security uses, or cause the licensee to bear a share of costs disproportionate to the licensee's use in comparison to the use of the road by others.

Condition No. 20 - Signs

The licensee shall consult with 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 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.

Condition No. 21 - Construction Inspections

Within 60 days of planned ground-disturbing activity on or affecting National Forest System lands, 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 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 FS on a schedule agreed to by 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 FS.
Within 60 days of planned ground-disturbing activity on or affecting National Forest System lands, 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 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 FS on a schedule agreed to by 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 FS.

Condition No. 22 - 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 FS. The licensee shall remove equipment from National Forest System lands unless a permit is issued for equipment storage.

Condition No. 23 - 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 FS.

Condition No. 24 - Erosion Control Plan

During planning and before any new construction or non-routine maintenance projects with the potential for causing erosion and/or stream sedimentation on or affecting National Forest System lands, the licensee shall file with FERC an Erosion Control Measures Plan that is approved by FS. The Plan shall include measures to control erosion, stream sedimentation, dust, and soil mass movement attributable to the Project.

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 in accordance with current direction on use of native plants and locality of plant and seed sources.

6. Measures to dissipate energy and prevent erosion.

7. A monitoring and maintenance schedule.

Upon FERC approval, the licensee shall implement the plan.

Condition No. 25 - Solid Waste and Waste Water Plan, New Construction and Project Operation and Maintenance

During planning and prior to any new construction or maintenance on or affecting National Forest System lands not addressed in an existing plan (including, but not limited to, any recreation-related construction), the licensee shall notify FS, and 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.

Condition No. 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 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 on or affecting National Forest System lands, and during operation and maintenance of the Project if such operation and maintenance would affect National Forest System lands, the licensee shall develop a plan approved by FS and subject to requirements of other federal and state water quality agencies.

FOREST SERVICE CONDITIONS SPECIFIC TO UPPER AMERICAN RIVER PROJECT

Condition No. 27 – 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 introduction to the minimum streamflow schedule for that particular stream reach. All specified streamflows are in cubic feet per second (cfs). The

schedules specify minimum streamflows, by month and water year type, for each of the specified stream reaches.

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, *CDFG, FWS, 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 FS, *CDFG, FWS, 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 streamflow 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 the water year type based on the water year forecast of unimpaired runoff in the American River below Folsom Lake published, near beginning of each month from February through May, in the California Department of Water Resources (DWR) Bulletin 120 "Report of Water Conditions in California." Specifically, the "American River Below Folsom Lake" forecast is currently shown in the "Water Year Forecast" column of the "Water Year Unimpaired Runoff" table in Bulletin 120. The water year types are defined as follows:

Year Type	American River Water Year Forecast
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 beginning 3 days after issuance of the forecast and continuing until 2 days after issuance of a subsequent monthly forecast. The May forecast shall be used to establish the final water year type for the remaining months of the water year and the month of October. The water year type for the months of November through January shall be based on the Department of Water Resources' Full Natural Flow record for the American River at Folsom (California Data Exchange Center site AMF sensor 65) for the preceding water year, and the licensee shall operate based on that record

beginning November 1. The licensee shall provide Notice to FS, *FERC, CDFG, FWS, and SWRCB* of the final water year type determination within 30 days of the May forecast.

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. During the months of March, April, and May, required modifications to minimum streamflows may occur within a 14-calendar day window beginning 7 calendar days prior to the first day of the month, if inclement weather conditions prevent access to the minimum streamflow release valve. However, the May minimum streamflow shall be no less than 30 days in duration. Minimum 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 (Condition No. 36).

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 or NF*	6 or NF*	6 or NF*
	FEB	6 or NF*	6 or NF*	6 or NF*	6 or NF*	6 or NF*
	MAR	6 or NF*	8	15	15	15
	APR	8	12	20	20	20
	MAY	10	15	35	35	35
	JUNE	6 or NF*	8	15	15	15
	JULY	6 or NF*	6 or NF*	6 or NF*	6 or NF*	6 or NF*
	AUG	6 or NF*	6 or NF*	6 or NF*	6 or NF*	6 or NF*
	SEPT	6 or NF*	6 or NF*	6 or NF*	6 or NF*	6 or NF*

*If Natural Flow (NF) measured in the Rubicon River above Rubicon Reservoir is below 1 cfs, the minimum streamflow shall be 1 cfs. In CD water year types, if the useable storage in Rubicon Reservoir is less than 60 acre-feet and the licensee cannot maintain 1 cfs due to lack of NF into and storage in Rubicon Reservoir, the licensee shall notify FS, *CDFG, FWS, and SWRCB* at least 30 days prior to not meeting the streamflow. After notification of FS, *CDFG, FWS, and SWRCB*, the licensee may reduce minimum flows below 1 cfs, but at no time shall the minimum streamflow be less than the NF into Rubicon Reservoir, until sufficient water is available to resume prescribed minimum streamflow releases.

The licensee shall maintain an over-wintering 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 NF into Rubicon Reservoir.

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. During the months of March, April, and May, required modifications to minimum streamflows may occur within a 14-calendar day window beginning 7 calendar days prior to the first day of the month, if inclement weather conditions prevent access to the minimum streamflow release valve. However, the May minimum streamflow shall be no less than 30 days in duration. Minimum streamflows 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*

*If Natural Flow (NF) measured in Highland/Rockbound Creek above Buck Island Reservoir is below 1 cfs, the minimum flow shall be 1 cfs. In CD water year types, if the useable storage in Buck Island Reservoir is less than 60 acre-feet and the licensee cannot maintain 1 cfs due to lack of NF into and storage in Buck Island Reservoir, the licensee shall notify FS, *CDFG, FWS, and SWRCB* at least 30 days prior to not meeting the streamflow. After notification of FS, *CDFG, FWS, and SWRCB*, the licensee may reduce minimum flows below 1 cfs, but at no time shall the minimum streamflow be less than the NF into the Buck Island Reservoir, until sufficient water is available to resume prescribed minimum streamflow releases.

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 device 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 device 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	15	15
NOV	5	7	20	20	20
DEC	5	8	20	20	20
JAN	6	12	20	20	20
FEB	6	12	20	20	20
MAR	8	16	25	25	25
APR	15	28	42	42	42
MAY	30	46	68	68	68
JUNE	25	31	50	59	59
JULY	21	21	30	35	35*
AUG	14	14	15	18	18*
SEPT	10	10	15	18	18*

*The licensee shall be required to release additional water into Silver Creek below Junction Reservoir Dam annually in the months of July, August, and/or September in Wet water year types for temperature control upon approval of the *SWRCB, CDFG, FWS, and* FS. A block of water shall not exceed the acre-feet of water described in the table below. Within 1 year of license issuance, the licensee shall, in consultation with *SWRCB, CDFG, FWS, and* FS, develop a plan for the block of water that addresses, at a minimum: notification protocols for temperature exceedances, emergency temperature operation contingencies, and ecological monitoring needs associated with use of the block of water. The plan shall be approved by *SWRCB, CDFG, FWS, and* FS.

The licensee shall release the block of water as directed by *SWRCB, CDFG, FWS, and* FS to maintain mean daily water temperatures of 20ºC or below in this reach. The Block of Water shall become available if water temperature in Silver Creek below Junction Reservoir Dam exceeds a mean daily water temperature of 20ºC, as measured at Silver Creek immediately upstream of Camino Reservoir. The licensee shall install and maintain a temperature gage on Silver Creek immediately upstream of Camino Reservoir to measure water temperature in Silver Creek below Junction Reservoir Dam. The licensee shall, promptly but not later than within 24 hours, notify the *SWRCB, CDFG, FWS, and* FS if the water temperatures in Silver Creek below Junction Reservoir Dam exceed the water temperature criteria above.

If the water temperature criterion is exceeded, the licensee may be required to monitor for presence of foothill yellow-legged frog life prior to and after the release of the Block of Water.

The Block of Water specified shall be the total amount of additional water available for release in the specified time periods. The Block of Water shall be made available concurrent with implementation of the initial minimum streamflows and through the remainder of the license term.

Adaptive Management Block of Water for Water Temperature Moderation Silver Creek Below Junction Reservoir Dam	
Month	
JULY	1044*
AUG	491*
SEPT	475*

*All values referenced above are in acre-feet.

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. Facilities improvements to provide these flows may include new release valves and/or installation of a new minimum flow turbine.

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

*The licensee shall be required to release additional water into Silver Creek below Camino Reservoir Dam annually in the months of July, August, and/or September in Wet water year types for temperature control upon approval of the *SWRCB, CDFG, FWS, and* FS. A block of water shall not exceed the acre-feet of water described in the table below. Within 1 year of license issuance, the licensee shall, in consultation with *SWRCB, CDFG, FWS, and* FS, develop a plan for the block of water that addresses, at a minimum: notification protocols for temperature exceedances, emergency temperature operation contingencies, and ecological monitoring needs associated with use of the block of water. The plan shall be approved by *SWRCB, CDFG, FWS, and* FS.

The licensee shall release the block of water as directed by *SWRCB, CDFG, FWS, and* FS to maintain mean daily water temperatures of 20ºC or below in this reach. The Block of Water shall become available if water temperature in Silver Creek below Camino Reservoir Dam exceeds a mean daily water temperature of 20ºC, as measured at Silver Creek immediately

upstream of SFAR (at or near discontinued USGS gage 11442000, licensee station SC1). The licensee shall install and maintain a temperature gage on Silver Creek upstream of SFAR at or near the site of discontinued USGS gage 11442000 (licensee station SC1). Within 2 years of license issuance, the licensee shall develop and install a telemetry system that provides daily access to hourly temperature monitoring data. The licensee shall, promptly but not later than within 24 hours, notify *SWRCB, CDFG, FWS, and* FS if the water temperatures in Silver Creek below Camino Reservoir Dam exceed the water temperature criteria above.

If the water temperature criterion is exceeded, the licensee may be required to monitor for presence of foothill yellow-legged frog life prior to and after the release of the Block of Water.

The Block of Water specified shall be the total amount of additional water available for release in the specified time periods. The Block of Water shall be made available concurrent with implementation of the initial minimum streamflows and through the remainder of the license term.

Adaptive Management Block of Water for Water Temperature Moderation Silver Creek Below Camino Reservoir Dam	
Month	
JULY	1044*
AUG	491*
SEPT	475*

*All values referenced above are in acre-feet.

Facilities improvements to provide these flows may include new release valves and/or installation of a new minimum flow turbine.

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*

*If Natural Flow (NF) measured in Brush Creek above Brush Creek Reservoir is below 1 cfs, the minimum flow shall be 1 cfs.

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 through 3 of the new license in order to allow facility modifications to be completed at this location. In months with more than one minimum streamflow, the licensee shall maintain each minimum streamflow listed for 1 week prior to reducing to the next minimum streamflow for the month. 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 1-3							
	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	110-130-150-180	110-130-150-180	110-130-150-180
	APR		100	101-132-156-183	188-197-213-222	188-197-213-222	188-197-213-222
	MAY		109	164-145-126-107	229-236-247-263*	229-236-247-263*	229-236-247-263*
	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

*Or maximum capacity of the existing valve, whichever is less.

The licensee shall maintain the minimum streamflow specified in the following schedule based on month and water year type for years 4 through the new license term. Facilities improvements

may include new release valves and/or higher capacity minimum flow turbine upgrade to current facilities.

South Fork American River Below Slab Creek Reservoir Dam						
Years 4 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	110-130-150-180	110-130-150-180	110-130-150-180
	APR	100	110-130-150-183	222-236-247-263	222-236-247-263	222-236-247-263
	MAY	109	164-145-126-107	272-286-297-303	272-316-367-395*	272-337-287-415*
	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

*Or maximum capacity of the new retrofit valve, whichever is less.

Condition No. 28 - 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 either (1) spring snowmelt runoff or (2) a natural storm event that occurs in the months of January through May in the specific watershed in which a pulse flow is required.

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*, *FWS, 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, FWS, 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 in Rubicon River below Rubicon Reservoir Dam in BN, AN, and Wet water years to coincide with winter storm events or spring snowmelt runoff in the Rubicon River watershed. The objective is to provide at least 600 cfs of flow for 3 days during this time period. A natural spill of 3,600 acre-feet or more within 3 consecutive days that coincides with a winter storm event or spring snowmelt runoff satisfies the pulse flow requirement for the water year.

If a pulse flow does not occur naturally, the pulse flow shall be provided by using the existing flashboards at the Rubicon Tunnel headworks. Prior to pulse flow events, the licensee shall meet with FS, *CDFG, SWRCB, FWS, and the Consultation Group provided under Section 4.12.1 of the Relicensing Agreement* to evaluate snowpack conditions in the Rubicon River watershed and determine the appropriate gate elevation (at or above 6,539 feet) and/or timing for tunnel gate installation. Upon *agreement of the parties and* approval of the FS, the licensee shall install and lower the tunnel gates as agreed to in the meeting.

The tunnel gates may be removed after one of the following events occurs: (1) the April or May DWR Bulletin 120 indicates a Dry or CD water year type, (2) the flashboards have been installed for a minimum of 60 days, (3) a pulse flow event of 3,600 acre-feet occurs within 3 consecutive days, or (4) at least 3,600 acre-feet of water has spilled over the main and auxiliary dams over a 10-day period.

Subsequent to removal of the tunnel gates, the licensee shall meet with the FS, *CDFG, SWRCB, FWS, and the Consultation Group* to evaluate whether or not the pulse flow objective was met and how tunnel gate operations might be changed to meet the pulse flow objective in future years. The quantity and/or duration threshold in item 4, above, may also be re-evaluated during this meeting.

The pre- and/or post- pulse flow meetings described above may be discontinued if *the licensee, CDFG, SWRCB, FWS, and the Consultation Group agree* upon a tunnel gate operation plan that is approved by the FS that governs future tunnel gate operations for pulse flow events.

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 dam.

Gerle Creek Below Loon Lake Reservoir Dam

The licensee shall provide pulse flows timed to coincide with spring snowmelt runoff 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:

A sensitive site investigation that includes additional permanent cross-sections that characterize 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.

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.

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

Once these items are completed, 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.

Pulse flows may be timed to coincide with winter storm events in the period between December 15 and April 10. Pulse flow events timed with winter storm events prior to April 10 shall be based on the prior water year type and shall be deemed complete regardless of water year type revisions after the pulse flow event has taken place. The licensee shall notify FS, *CDFG, FWS, and SWRCB* prior to or immediately after the pulse flow event.

Pulse flows after April 10 shall be timed to coincide with spring snowmelt runoff. The specific timing of such pulse flow events shall be approved by FS, *CDFG, FWS, and SWRCB.*

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.

Condition No. 29 - 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:

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

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

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 FS, *CDFG, FWS, and SWRCB* the streamflow records related to ramping rates upon request. The licensee shall be excused from complying with the ramping rate requirements in the event of law enforcement or search and rescue activities, Division of Safety of Dams compliance requirements, equipment malfunction or failure that is directly related to providing the specified ramping rates, or a large storm event that is beyond its ability to control. The licensee shall provide notice to FS, *CDFG, FWS, 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.

Condition No. 30 - Coordination with Chili Bar License

Coordination of Operations

The licensee shall coordinate operation of the Project with the licensee of the Chili Bar Project, FERC No. 2155 (Chili Bar) in order to enable the Chili Bar licensee to comply with the following articles in the Chili Bar license: Article 2-1 (minimum streamflows), Article 2-2 (ramping rates), and Article 2-15 (recreational streamflows). The licensee's responsibilities for achieving coordinated operations of the two projects are described in Exhibit 1 of the **[date]** Cooperation Agreement Between Sacramento Municipal Utility District and Pacific Gas and Electric Company Regarding Upper American River Project and Chili Bar Project. Within 120 days after license issuance, the licensee shall, jointly with the Chili Bar licensee, prepare and file with FERC for approval a plan for coordinated operations of the two projects as described in Exhibit 1. Upon FERC approval, the licensee shall implement the plan, including any changes required by FERC.

Coordination in Implementing Certain License Conditions

The licensee shall consult and coordinate with the licensee of the Chili Bar Project, FERC No. 2155 (Chili Bar), as described in Exhibit 2 of the **[date]** Cooperation Agreement Between Sacramento Municipal Utility District and Pacific Gas and Electric Company Regarding Upper American River Project and Chili Bar Project in implementation of the following articles in the Chili Bar license: Article 2-1 (minimum streamflows), Article 2-2 (ramping rates), Article 2-4 (monitoring program), Article 2-5 (adaptive management program), Article 2-6 (sediment management plan), Article 2-13 (BLM recreation improvements), Article 2-14 (public information services), and Article 2-15 (recreational streamflows).

Condition No. 31 - Monitoring Program

The licensee shall implement the following Monitoring Program after license issuance and through the term of the new license and any annual licenses, in coordination with FS, *CDFG, FWS, and SWRCB.*

The licensee shall ensure that the final monitoring plan for each element of the Monitoring Program is reviewed and approved by FS, *CDFG, FWS, and SWRCB* prior to implementation of the monitoring element, as described under each monitoring element.

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 individual elements of the monitoring program 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. Within the scope of the specified monitoring program, 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.

The licensee shall file with FERC by June 30 of each year an annual report fully describing the monitoring efforts of the previous calendar year. FS, *CDFG, 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 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.

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. Where years are specified, Year 1 is the first year during which all initial minimum streamflows required by the license are implemented by May 1.

Fish Populations

Within 2 years of license issuance, the licensee shall develop a fish population monitoring plan in consultation with FS, *CDFG, FWS, and SWRCB.* The licensee shall provide FS, *CDFG, FWS, and SWRCB* a 90-day review and approval period for the monitoring plan prior to implementation. The licensee shall implement the plan upon approval.

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:

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

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

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

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

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

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

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

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

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

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, and thereafter for 2 consecutive years during every 10 years for the term of the license. Hardhead: Years 2, 3, 5, 6, 10, 11, 15, 16 and thereafter for 2 consecutive years during every 10 years for the term of the license.

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 biomass objectives and reduces electroshocking effects to individuals, with sufficient response time to the new streamflow regimes. Hardhead sampling in years 2 and 3 will provide evaluation of initial response to the new flow regime.

Aquatic Macroinvertebrates

Within 2 years of license issuance, the licensee shall develop an aquatic macroinvertebrate monitoring plan in consultation with FS, *CDFG, FWS, and SWRCB.* The licensee shall provide FS, *CDFG, FWS, and SWRCB* a 90-day review and approval period for the monitoring plan prior to implementation. The licensee shall implement the plan upon approval.

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

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

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

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

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

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

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

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

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 FS, *CDFG, FWS, and SWRCB* determine they are necessary. Reference sites may be substituted upon approval by FS, *CDFG, FWS, and SWRCB.*

Frequency: Years 5, 6, 10, 11, 15, 16, and thereafter for 2 consecutive years during every 10 years for the term of the license.

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

Amphibians & Reptiles (Habitat Evaluation & Determination of Species Presence/Distribution for Foothill Yellow-Legged Frog (FYLF), and Western Pond Turtle (WPT))

Foothill Yellow-legged Frog

Within 1 year of license issuance, the licensee shall develop an amphibian and reptile habitat evaluation and species presence monitoring plan in consultation with FS, *CDFG, FWS, and SWRCB.* The licensee shall provide FS, *CDFG, FWS, and SWRCB* a 90-day review and approval period for the monitoring plan prior to implementation. The licensee shall implement the plan upon approval.

Methods: Conduct protocol surveys for sensitive species using the procedures of Pacific Gas and Electric Company (2002) or the most current standard 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 FS, *FWS, and CDFG* prior to commencing work. The licensee shall also survey for WPT 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. The monitoring shall also include the placement of micro hydrothermographs for years 1 – 5 in the stream margin habitats associated with known or suitable breeding sites in the reach below Camino Reservoir Dam and the reach below Slab Creek Reservoir

Dam. A minimum of six recorders shall be deployed to ensure that an adequate sample size is attained. For subsequent years, FS, *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, FS, *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. Licensee shall also survey for western pond turtles during FYLF surveys.

Foothill yellow-legged frog Monitoring Sites:

a. Silver Creek below Junction Reservoir Dam (site associated with site JDF2).

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).

d. Rock Creek, a tributary located upstream of the White Rock Powerhouse from the confluence with the SFAR to a point 1 mile upstream. This distance may be shortened if it is determined that there is a barrier to movement of FYLF.

Spill flows that occur after water temperatures rise above 12°C mean daily temperature for a 7-day running average (refer to Condition No. 32, number 9) at SFAR 6 *shall be monitored in the reach below Rock Creek* and CA-3 in the reach below Camino Reservoir Dam for effects to aquatic species (amphibians, fish, and aquatic reptiles) as soon as possible after the decline of the spill.

Frequency: (1) Silver Creek below Junction Reservoir Dam: Years 2, 3, 5, 10, 15 and thereafter for every 5 years for the term of the license; (2) SFAR below Slab Creek Reservoir Dam and Silver Creek below Camino Reservoir Dam, spill flows as soon as possible after the decline of this spill; (3) Silver Creek below Camino Reservoir Dam: Years 1, 2, 3, 5, 6, 10, 11, 15, 16 and thereafter for 2 consecutive years during every 5 years for the term of the license; and (4) SFAR below Slab Creek Reservoir Dam: Years 1, 2, 3, 4, 5, 6, 10, 11, 15, 16 and thereafter for 2 consecutive years during every 5 years for the term of the license; *and Rock Creek: Years 1, 2, 3.*

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 and the proposed October recreational boating flows in the SFAR below Slab Creek Reservoir). FYLF monitoring shall determine if any threshold is reached from Project streamflow 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 and Silver Creek below Camino Reservoir Dam spill flows will assist in determining if there are effects to aquatic species (amphibians, fish, and aquatic reptiles) from untimely spills. Monitoring in the stream margin habitats associated with known or suitable breeding sites in the reach below Camino Reservoir Dam and the reach below Slab Creek Reservoir Dam (years 1 – 5) will establish the mean water temperature trigger for FYLF breeding for these rivers. Suitable water temperatures to initiate FYLF breeding are suspected to be site-specific to the river system (Kupferberg, personal comm. 2006), thus water temperatures suitable for breeding on one river cannot be extrapolated to another. Monitoring on Rock Creek will provide information on whether FYLFs are using this main primary tributary of the reach below Slab Creek Dam, which will assist in determining whether FYLF movement is possible between Rock Creek (1mile distance) to the SFAR.

Mountain Yellow-legged Frog

Within 2 years of license issuance, the licensee shall develop a mountain yellow-legged frog monitoring plan in consultation with FS, *CDFG, FWS, and SWRCB.* The licensee shall provide FS, *CDFG, FWS, and SWRCB* a 90-day review and approval period for the monitoring plan prior to implementation. The licensee shall implement the plan upon approval.

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 FS, *FWS, and CDFG* prior to commencing work. If *CDFG or* FS collect data associated with Rubicon Reservoir, Rockbound Lake, and Buck Island Reservoir, that information can be used to satisfy this requirement after FS, *CDFG, FWS, and SWRCB* review results and approve use of these data.

Mountain yellow-legged frog Monitoring Sites:

Rubicon Reservoir

Rockbound Lake

Buck Island Reservoir

Frequency: Years 5, 10, 15 and thereafter for every 10 years for the term of the license.

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.

Amphibians (Foothill Yellow-Legged Frog Flow Fluctuations) (Also refer to number 3, above, related to spill flows.)

Within 1 year of license issuance, the licensee shall develop an amphibian flow fluctuation monitoring plan in consultation with FS, *CDFG, FWS, and SWRCB.* The licensee shall provide FS, *CDFG, FWS, and SWRCB* a 90-day review and approval period for the monitoring plan prior to implementation. The licensee shall implement the plan upon approval.

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 FS, *SWRCB, FWS, 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 FS, *SWRCB, FWS, 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.

Riparian Vegetation Monitoring

Within 2 years of license issuance, the licensee shall develop a riparian vegetation monitoring plan in consultation with FS, *CDFG, FWS, and SWRCB.* The licensee shall provide FS, *CDFG, FWS, and SWRCB* a 90-day review and approval period for the monitoring plan prior to implementation. The licensee shall implement the plan upon approval.

Method: Aerial photo flights and Greenline method at the 15 Intensive Field Study Sites (riparian) that were surveyed in the Riparian Study filed at FERC as part of the licensee's application for new license on July 15, 2005. Data collected at each site will include transects to document species composition, percent cover, and quantification of length and width of riparian community.

Frequency: Years, 5, 10, 15, and thereafter for every 10 years for the term of the license.

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) to determine if riparian areas are in proper functioning condition and if riparian areas are being maintained or in need of restoration.

Algae Species Identification and Monitoring

Within 1 year of license issuance, the licensee shall develop an algae species identification and monitoring plan in consultation with FS, *CDFG, FWS, and SWRCB.* The licensee shall provide FS, *CDFG, FWS, and SWRCB* a 90-day review and approval period for the monitoring plan prior to implementation. The licensee shall implement the plan upon approval.

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 FS, *CDFG, FWS, 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.

Geomorphology (Sensitive Site Investigation and Mitigation Plan Development)

Within 6 months of license issuance, the licensee shall develop a geomorphology sensitive site investigation and mitigation monitoring plan in consultation with FS, *CDFG, FWS, and SWRCB.* The licensee shall provide FS, *CDFG, FWS, and SWRCB* a 90-day review and approval period for the monitoring plan prior to implementation. The licensee shall implement the plan upon approval.

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 Condition No. 28, 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.

Geomorphology (Continuing Evaluation of Representative Channel Areas)

Within 2 years of license issuance, the licensee shall develop a geomorphology continuing evaluation of representative channel areas monitoring plan in consultation with FS, *CDFG, FWS, and SWRCB.* The licensee shall provide BLM, *CDFG, FWS, and SWRCB* a 90-day review and approval period for the monitoring plan prior to implementation. The licensee shall implement the plan upon approval.

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:

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

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

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

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

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

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 FS, *CDFG, FWS, and SWRCB.*

Frequency: Years 5, 10, 15 and thereafter for every 10 years for the term of the license.

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.

Recreation Survey

Monitoring associated with the recreation survey is described in Condition No. 42.

Robbs Peak Powerhouse Entrainment

Within 6 months of license issuance, the licensee shall develop a Robbs Peak Powerhouse Entrainment monitoring plan in consultation with FS, *CDFG, FWS, and*

SWRCB. The licensee shall provide FS, *CDFG, FWS, and SWRCB* a 90-day review and approval period for the monitoring plan prior to implementation. The licensee shall implement the plan upon approval.

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 FS*, FWS, and CDFG.*

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 minimize this entrainment.

Terrestrial Wildlife Monitoring

Bear Management

Within 6 months of license issuance, the licensee shall develop a bear management monitoring plan in consultation with FS, *CDFG, FWS, and SWRCB.* The licensee shall provide FS, *CDFG, FWS, and SWRCB* a 90-day review and approval period for the monitoring plan prior to implementation. The licensee shall implement the plan upon approval.

Method: Monitor effectiveness of measures related to bear management using a method acceptable to FS, *FWS, 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

Within 6 months of license issuance, the licensee shall develop a bald eagle monitoring plan in consultation with FS, *CDFG, FWS, and SWRCB.* The licensee shall provide FS, *CDFG, FWS, and SWRCB* a 90-day review and approval period for the monitoring plan prior to implementation. The licensee shall implement the plan upon approval.

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

Frequency: Annually.

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

Heritage Resource Monitoring

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

Review of Recreation Developments

Monitoring associated with the review of recreation developments is described in Condition No. 44.

Reservoir Levels Evaluation

Monitoring associated with lake levels is described in Condition No. 49.

Condition No. 32 - 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 described in Condition No. 31 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 the need for 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.

Cancellation of Pulse and Recreational Streamflows in South Fork Silver Creek Due to Water Temperature

If foothill yellow-legged frogs (FYLF) 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 (refer to Condition No. 32, number 9) at USGS gage 11441500, the licensee shall cancel the pulse and recreational flow events in South Fork Silver Creek unless FS, *SWRCB, and CDFG* determine that such events are compatible with protection of FYLF

and other biological resources. The licensee shall provide Notice to *FERC*, FS, *SWRCB, and CDFG* within 10 days of determining that the above temperature trigger has been met, causing cancellation of the pulse and recreational flow events. *The licensee shall provide Notice to FERC* if FS, *SWRCB, and CDFG* approve a modification to the water temperature trigger.

Cancellation 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 (refer to Condition No. 32, number 9) at SFAR 6, the licensee shall cancel the recreational flow events in SFAR below Slab Creek Reservoir Dam unless FS, *SWRCB, FWS, and CDFG* determine that such events are compatible with protection of FYLF and other biological resources. The licensee shall provide Notice to *FERC*, FS, *SWRCB, FWS, and CDFG* within 10 days of determining that the above temperature trigger has been met, causing cancellation of the recreational flow events. *The licensee shall provide Notice to FERC* if FS, *SWRCB, FWS, and CDFG* approve a modification to the water temperature trigger.

Untimely Spill Events Below Slab Creek Reservoir Dam and Camino Reservoir Dam

The licensee shall make a good faith effort to avoid spilling at Slab Creek Reservoir Dam and Camino Reservoir Dam once FYLF breeding has been initiated based on a water temperature trigger that is determined through the monitoring program. If a spill does occur, the licensee shall make a good faith effort to manage the spill to minimize flow fluctuations in the SFAR. If FS, *SWRCB, FWS, and CDFG* determine that spills below Slab Creek Reservoir Dam and/or Camino Reservoir Dam are resulting in unacceptable environmental impacts based on aquatic species and temperature monitoring described in Condition No. 31, appropriate mitigation measures that are approved by FS, *CDFG, FWS, and SWRCB* shall be developed. The licensee shall implement the appropriate adaptive management measures upon approval of FS, *CDFG, FWS, and SWRCB.*

Recreational Streamflows Below Slab Creek Reservoir Dam

If FS, *CDFG, FWS, and SWRCB* determine that unacceptable environmental impacts are occurring below Slab Creek Reservoir Dam due to October recreational streamflows based on amphibian monitoring described in Condition No. 31, adaptive management measures may include but are not limited to cancellation of the October recreational streamflows.

Fish Entrainment in South Fork Rubicon River

If monitoring indicates that fish are being entrained in Robbs Peak Powerhouse during fish migration, and FS, *FWS, and CDFG* determine that the entrainment is having a substantial negative impact on the South Fork Rubicon fishery, the licensee shall develop appropriate adaptive management measures that are approved by FS, *CDFG, FWS, and SWRCB.* The licensee shall implement the appropriate adaptive management measures upon approval of FS, *CDFG, FWS, and SWRCB.*

Sediment Management

Based on results of geomorphology monitoring, if FS, *BLM, SWRCB, FWS, and CDFG* determine there is a need to place sediment downstream, 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 in consultation with FS, *SWRCB, BLM, FWS, and CDFG*, after approval by FS, *BLM, SWRCB, FWS, and CDFG*.

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 FS, *SWRCB, FWS, 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 FS, *SWRCB, FWS, and CDFG* if FS, *SWRCB, FWS, and CDFG* determine the algae needs to be reduced or eliminated.

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 FS, *SWRCB, FWS, and CDFG*.

Water Temperature for Foothill Yellow-Legged Frogs

If FS, *SWRCB, FWS, and CDFG* determine that the water temperature that is an indicator of breeding initiation (12°C mean daily temperature for a 7-day running average) should be increased or decreased based on aquatic species and water temperature monitoring (as described in Sec.5 (3)), FS, *SWRCB, FWS, and CDFG* may increase or decrease the water temperature indicator. Suitable water temperatures to initiate foothill yellow-legged frog breeding are suspected to be site-specific to the river system (Kupferberg, personal comm. 2006), thus water temperatures suitable for breeding on one river cannot be extrapolated to another.

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 FS, *FWS, and CDFG* to identify and implement additional measures necessary to reduce such problems.

Coordinated Operations

Coordinated operations, described in Condition No. 30, shall 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 effective, other measures shall be investigated to achieve the streamflow requirements and implemented upon approval of FS, *BLM, CDFG, FWS, and SWRCB.*

Condition No. 33 - 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 FS, *FWS, CDFG, and the Consultation Group provided under Section 4.12.1 of the Relicensing Settlement Agreement* in the development of the stabilization plan. The licensee shall implement the plan once it is approved by FS and shall involve FS in implementing the plan if they desire.

Condition No. 34 - Fish Passage at Gerle Creek

The reservoir level at Gerle Creek Reservoir shall be maintained at an elevation that provides fish passage into Gerle Creek from August through October.

Condition No. 35 - Large Woody Debris

The licensee shall ensure, provided conditions permit safe and reasonable access and working conditions, 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 12 meters 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.

Condition No. 36 - 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 FS, *SWRCB, CDFG, FWS, 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:

Streamflow Gaging Locations

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

SFAR below Slab Creek Reservoir Dam (sufficient to record spills)

Reservoir Elevation Gaging Locations

Rubicon Reservoir

Loon Lake Reservoir

Gerle Creek Reservoir

Ice House Reservoir

Union Valley Reservoir

Junction Reservoir

Camino Reservoir

Brush Creek Reservoir

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 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.

Condition No. 37 - Canal and Penstock Emergency and Maintenance Release Points

The licensee shall, within 1 year after license issuance, file with FERC a plan approved by 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 CDFG and FWS in the development of the plan. The licensee shall implement the recommendations contained in the plan upon approval.

Condition No. 38 - 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 FS, *FWS, and CDFG*. The licensee shall provide FS, *FWS, 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 by FS, *FWS, 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 Condition No. 40.

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, *FWS, or CDFG* 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 FS. The biological evaluation must be approved by FS. In consultation with *FERC*, FS, *FWS, or CDFG* 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 for 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, *FWS, or CDFG* 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 FS, *CDFG, and FWS*. If FS, *FWS, or CDFG* determine that the Project-related activities are adversely affecting the sensitive species, the licensee shall, in consultation with FS, *CDFG, and FWS*, develop and implement appropriate protection measures.

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

5. .

6. 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 develop an Avian Protection Plan, as described above, *that is approved by the FWS* that addresses retrofitting transmission lines to meet the design and sighting standards established by APLIC for minimization of bird electrocutions and collisions.

Condition No. 39 – Vegetation and Invasive Weed Management Plan

Within 2 years of license issuance, the licensee shall file with FERC an Invasive Weed Management Plan developed in consultation with FS, *FWS, the appropriate County Agricultural Commissioner*, and California Department of Food and Agriculture. Invasive weeds will be those weeds defined in the California Food and Agriculture code, and other species identified by FS. The plan will address both aquatic and terrestrial weeds within the project boundary and adjacent to project features directly affecting National Forest System lands including, roads, and distribution and transmission lines.

The Invasive Weed Plan will include and address the following elements:

Inventory and mapping of new populations of invasive weeds using a FS compatible database and GIS software. The invasive weed GIS data layer will be updated periodically and shared with resource agencies.

Action and/or strategies to prevent and control spread of known populations or introductions of new populations, such as vehicle/equipment wash stations. Noxious weeds presently identified include**:** Aegilops triuncialis, Carduus pycnocephalus, Centaurea solstitialis, Chondrilla juncea, Cytisus scoparius, Genistia monspessulana, Lythrum salicaria, Bromus tectorum, Bromus diandrus, and Taeniatherum caput-medusae. Where these populations are: (1) contiguous and extend outside the Project boundary or (2) downstream of populations inside the project boundary and have a reasonable nexus to the project, the licensee shall make reasonable efforts to control the entire population unit.

Development of a schedule for control of all known A, B, Q and selected other rated invasive weed species, designated by resource agencies.

On-going annual monitoring of known populations of invasive weeds for the life of the license in locations tied to project actions or effects, such as road maintenance, at project facilities, O&M activities, , new construction sites, etc. to evaluate the effectiveness of re-vegetation and invasive weed control measures.

The plan will include an adaptive management element to implement methods for prevention of aquatic invasive weeds, as necessary. These actions may include, but may not be limited to: (1) public

education and signing of public boat access, (2) preparation of an Aquatic Plant Management Plan approved by FS, and in consultation with other agencies, and (3) boat cleaning stations at boat ramps for the removal of aquatic Invasive weeds.

New infestations of A& B rated weeds shall be controlled within 12 months of detection or as soon as is practical and feasible (A, B, C, & Q ratings refer to the California Department of Food & Agriculture Action Oriented Pest Rating System). At specific sites where other objectives need to be met all classes of invasive weeds may be required to be treated.

Monitoring will be done in conjunction with other project maintenance and resource surveys, so as not to require separate travel and personnel. Monitoring information, in database and GIS formats, will be provided to FS as part of the annual consultation on affected FS resources (Condition No. 40). To assist with this monitoring requirement, training in invasive plant identification will be provided to project employees and contractors by FS.

Licensee shall restore/revegetate areas where treatment has eliminated invasive weeds in an effort to eliminate the reintroduction of invasive weed species. Project-induced ground disturbing activities shall be monitored annually for the first 3 years after disturbance to detect and map new populations of invasive weeds.

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

Hazard tree removal and trimming.

Powerline/transmission line clearing.

Vegetation management for habitat improvement.

Revegetation of disturbed sites.

Soil protection and erosion control, including use of certified weed free straw.

Establishment of and/or revegetation with culturally important plant populations.

Use of clean, weed free seed with a preference for locally collected seed.

The licensee shall comply with the Eldorado National Forest prescriptions for seed, mulch, and fertilizer for restoration or erosion control purposes. Upon FERC approval, the licensee shall implement the plan.

Condition No. 40 - Annual Review of Ecological Conditions

Each calendar year, by April 1, the licensee shall schedule and facilitate a meeting with 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 FS, *CDFG, FWS, and SWRCB* 2 weeks prior to the meeting, an operations and maintenance plan for the year in which the meeting occurs.

Condition No. 41 - Recreation Implementation Plan

A recreation implementation plan shall be developed by the licensee in coordination with FS within 6 months of license issuance. The implementation plan shall include a construction schedule for the recreation facilities specified in Condition No. 45, as well as other details related to recreation resources, including, but not limited to, signing and sign placement, public information dissemination, and a schedule for design of facilities to be reconstructed. The implementation plan shall be maintained and updated in conjunction with the review of recreation developments required in Condition No. 44.

Condition No. 42 - Recreation Survey

The licensee shall conduct a Recreational Survey and prepare a Report on Recreational Resources that is approved by 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 FS for review and comment prior to being filed with FERC. Within 1 year of submission of the Report on Recreation Resources, FS *and the Consultation Group provided under Section 4.12.1 of the Relicensing Settlement Agreement* will meet to discuss the results of the Report and make recommendations to address the findings. In accordance with Condition No. 3, 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.

Condition No. 43 - Forest Service Liaison

The licensee shall provide an individual for liaison with FS, 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 FS through this individual in contract review and work inspection.

Condition No. 44 - Review of Recreation Developments

The licensee shall schedule a meeting with FS at least every 6 years to review all Project-related recreation facilities described in Condition Nos. 44 and 45 and to agree upon necessary maintenance, rehabilitation, construction, and reconstruction work needed and its timing, as described in Condition Nos. 45 and 46. 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 FS prior to being filed with FERC.

Condition No. 45 - 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 licensee will be responsible for funding the actual capital costs of the below-listed measures. All improvements will become property of FS upon completion, final inspection, and acceptance by FS.

With regard to the bear-proof food storage and trash receptacle facilities described in this section, within 2 years of license issuance, the licensee shall develop a plan to install bear-proof food storage lockers and bear-proof trash receptacles at all recreation facilities identified as lacking such equipment. The plan shall include a schedule for installing the bear-proof equipment within 5 years of plan approval by the FS *and CDFG*. The licensee shall implement the plan according to the schedule.

Buck Island Reservoir Area

North Shoreline

Within 4 years of license issuance, construct new vault toilet.

West Shoreline

Within 4 years of license issuance, improve or relocate existing non-motorized trails connecting to the Rubicon Hiking Trail.

High Country Area Trails

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.

Crystal Basin

Loon Lake Area

Loon Lake Recreation Plan

Within 2 years of license issuance, the licensee shall prepare a development plan, to be approved by FS, which 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. Ellis Staging Area

Within 2 years of license issuance, construct a 2-unit vault toilet

c. 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 and 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 (within 2 years).

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.

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.

d. 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 and requirements of the Americans with Disabilities Act (ADA), 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.

e. Loon Lake Campground (including Equestrian Loop)

Within 12 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 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.

f. Loon Lake Group Campgrounds

Within 12 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 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.

g. Loon Lake Group Equestrian Campground

Within 12 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 and 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 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.

h. 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 and 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 accessibility and bear resistance.

i. 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 and 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 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.

Install bear proof food lockers.

j. Loon Lake Chalet

Within 8 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards and 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).
- 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 through the SMUD/PG&E Fringe Area Service Agreement.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for accessibility and bear resistance.

k. Loon Lake (Schlein) Sanitation Station

Within 20 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards and 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.

l. Loon Lake Trailhead

Within 8 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards and 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 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.

m. 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 FS that addresses impacts to the Gerle Creek 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 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 and 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 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.

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 and 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 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. Angel Creek Day Use Area

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

e. Airport Flat Campground

Within 10 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards and 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 accessibility and bear resistance 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.

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 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 manmade 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.

Install bear-proof food lockers.

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.

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 water).
- 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 accessibility and bear resistance.
- 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 10 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards and 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,.

Install bear-proof food lockers at each camp site.

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.

g. Fashoda Day Use Area

Within 10 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards and 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 and 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 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.

i. Lone Rock Campground

Within 20 years of issuance of license, the licensee shall upgrade the facilities to meet the current FS design standards and 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 and 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 sidesand 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 accessibility and bear resistance.

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.

k. Sunset Boat Launch

Within 10 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards and 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 accessibility and bear resistance.

l. Wench Creek Campground

Within 18 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 and 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 accessibility and bear resistance.
- 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.
- Install bear proof food lockers at each camp site.

m. Wench Creek Group Campground

Within 18 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 and 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.

Install bear-proof food lockers at each camp site.

Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for accessibility and bear resistance.

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 and 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.

Install bear-proof food lockers at each camp site.

Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for accessibility and bear resistance.

o. West Point Boat Launch

Within 5 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards and 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-inchhigh seats and install the required accessible toilet signs.
- Construct trash bin pads with paved approaches, and purchase or retrofit refuse containers for accessibility and bear resistance.
- 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 18 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards and 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 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.

q. Wolf Creek Group Campground

Within 18 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards and requirements of the ADA.

Pave all roads.
Construct one eight-stall shower facility with toilets (including septic system).
Install bear-proof food lockers.
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.

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 and 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 accessibility and bear resistance.

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.

Install bear proof food lockers.

s. Yellowjacket Boat Launch

Within 5 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards and 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 accessibility and bear resistance.

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 Yellowjacket 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 nonmotorized 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 (double chip-sealed) turnouts and/or parking pockets along the road to the shore. The licensee shall also restore damaged sites between road and shoreline. (see also Condition No. 59).

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 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).
Vehicle and foot access to the reservoir.
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.
Redesign and reconstruct Silver Creek Campground, if necessary.• Make a good faith effort to purchase at fair market value suitable real property as such property becomes available, or to obtain a long-term lease or easement for use of such property, 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 8 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 and 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.
- 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 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.
- Install bear proof food lockers.

c. Ice House Day Use Area

Within 8 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 and 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 accessibility and bear resistance.

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 and 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 accessibility and bear resistance.
- 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 and 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 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.

f. Ice House Boat Launch

Within 8 years of license issuance, the licensee shall upgrade the facilities to meet the current FS design standards and 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 accessibility and bear resistance.

g. Ice House Sanitation Station

Within 8 years of license issuance, the licensee shall redesign and reconstruct the facility, 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, 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 (double chip-seaked) turnouts and/or parking pockets along the road to the shore.

The licensee shall also restore damaged sites between road and shoreline. (see also Condition No. 59).

i. Highland Point Day Use Area

Within 12 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 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.

j. Upper Silver Creek Ice House Day Use

Within 12 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. The licensee shall make a good faith effort to purchase at fair market value suitable real property as such property becomes available, or to obtain a long-term lease or easement for use of such property, if necessary for these facilities.

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

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 purchase or retrofit refuse containers for accessibility and bear resistance.

Canyonlands

Junction Reservoir

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).

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 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:

Sanitation and garbage.

User conflicts.

Carrying capacity.

Informational and directional signage.

Day use and overnight use.

Vehicle control.

Boating access.

Emergency resource protection measures.

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

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

Slab Creek Reservoir

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 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:

Foot access that extends to the minimum reservoir level.
Sanitation and garbage.
Parking and 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.

Boat launch at Slab Creek Reservoir near Dam

Within 2 years of license issuance, licensee shall prepare a development plan, to be approved by 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 or at the completion of the Iowa Hill Development. 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.

Condition No. 46 - 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 Condition No. 44) 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 fire rings, 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 Condition No. 44), heavy maintenance projects may be deferred that would otherwise be timely under FS frequency standards, if FS determines that actual conditions indicate that the project is not yet necessary.

Condition No. 47 - Recreation Operation, Maintenance, and Administration

Beginning the first full year after license issuance, the licensee shall annually pay to FS $1,000,000.00 (year 2007 cost basis) The cost shall be escalated annually based on the U.S. Gross Domestic Product – Implicit Price Deflator (GDP-IDP) in accordance with a collection agreement with the FS. These funds are for FS to provide for operation, maintenance, and administration of those developed recreation sites, facilities, or uses that are adjacent to or in the vicinity of Project reservoirs and facilities listed in Condition Nos. 44 and 45 (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.

Condition No. 48 - Carrying Capacity on Lands Affected by the Project

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. FS reserves the right to make changes to Condition No. 45, once these data are made available.

Condition No. 49 - Reservoir Levels

The licensee shall, beginning as early as reasonably practicable within 6 months after license issuance, meet or exceed the end-of-month reservoir elevations for Loon Lake, Union Valley, and Ice House reservoirs as shown in the attached tables. Compliance will be measured at the licensee's reservoir elevation gages as published by the USGS.

Loon Lake Reservoir

Maintain the reservoir level to meet the end-of-month reservoir storage elevation shown in the table below.

Loon Lake Reservoir Level by Water Year						
	Month	End-of-Month Elevation				
		CD	DRY	BN	AN	WET
	JULY	6388	6395	6399	6400	6400
	AUGUST	6382	6389	6394	6393	6393
	SEPTEMBER	6379	6385	6390	6390	6390

Union Valley Reservoir

Maintain the reservoir level to meet the end-of-month reservoir storage elevation shown in the table below.

Union Valley Reservoir Level by Water Year						
	Month		End-of-Month Elevation			
		CD	DRY	BN	AN	WET
	JULY	4816	4836	4856	4856	4856
	AUGUST	4803	4827	4835	4841	4842
	SEPTEMBER	4796	4818	4830	4830	4830

Ice House Reservoir

Maintain the reservoir level to meet the end-of-month reservoir storage elevation shown in the table below.

Ice House Reservoir Level by Water Year						
	Month		End-of-Month Elevation			
		CD	DRY	BN	AN	WET
	JULY	5435	5437	5440	5441	5441
	AUGUST	5430	5433	5434	5435	5434
	SEPTEMBER	5420	5429	5430	5431	5430

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, including accessibility and the ability to fish from the fishing pier. If the licensee anticipates the reservoir will be drawn down below 5,225 feet during this time period, the licensee shall consult with FS, *SWRCB, FWS, and CDFG* following the direction in number 8 (Interim Modification) below.

Slab Creek Reservoir

The licensee shall make a good faith effort to maintain the reservoir level above 1,830 feet in elevation during daylight hours between10:00 AM and 8:00 PM during the period between July 1 through September 30. The licensee shall also make a good faith effort to limit daily fluctuations to less than 7 feet per day during daylight hours between 10:00 AM and 8:00 PM during the period between July 1 through September 30.

The minimal reservoir elevation and maximum daily fluctuation shall be reassessed and modified if necessary to accommodate (1) the operation of the proposed Iowa Hill Pump Storage Project, should it be constructed, (2) the recreational use at Slab Creek Reservoir,

and (3) other applicable factors. Any modifications shall be approved by the FS prior to implementation. See Condition No. 75.

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 Condition No. 27, the licensee shall maintain an overwintering minimum pool of 6,527 feet in elevation in Rubicon Reservoir for the protection of aquatic species.

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 FS, *CDFG, SWRCB, and the Consultation Group provided under Section 4.12.1 of the Relicensing Settlement Agreement* of the licensee's concerns related to reservoir levels. By June 1 of a SD year, the licensee shall confer with FS, *CDFG, SWRCB, and the Consultation Group* 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 FS, *FERC, SWRCB and CDFG.*

Interim Modifications

These reservoir elevations may be modified upon the occurrence of the following events: (1) State or Federal electrical emergencies declared by an appropriate authority where specific orders are issued or specific actions are mandated by said authority that require the licensee to produce electricity outside normal planned operations; (2) system events that cause SMUD's Operating Reserves to drop below the Western Energy Coordinating Council Minimum Operating Reliability Criteria; or (3) equipment malfunction, public safety emergency, or law enforcement activity. In the event of such an interim modification during July, August, or September, the licensee shall promptly notify FS, *SWRCB, CDFG, FWS, and the Consultation Group* (collectively, Interested Parties) *and FERC*. Each notification shall include: (1) a description of the incident, including the reason the reservoir level was not or will not be met; (2) the licensee's analysis of the implication of the incident on meeting future reservoir levels for that water year; and (3) the licensee's proposal to manage reservoir levels to minimize recreational impacts and address energy and operational requirements for any months in which reservoir levels will not be achieved. In addition, the licensee's proposal shall address: (a) Prioritizing reservoir levels among the three reservoirs; (b) Developing measures as they relate to impacts on recreational resources, if necessary; and (c) Developing other measures as appropriate. The measures in licensee's proposal will be commensurate with the degree

and time period during which reservoir levels are not met, and may include actions to be taken by licensee or others, such as increased patrols, extension of boat ramps, or development of/contribution to a mitigation fund. Once the Project is no longer subject to the event and if the end-of-month reservoir elevations for Loon Lake, Union Valley, and/or Ice House Reservoirs cannot be achieved for that month, within 10 business days the licensee shall confer with Interested Parties (Conference). The purpose of the Conference shall be to review the licensee's proposal to manage reservoir elevations for the remainder of the recreation season. The licensee will implement the proposal upon approval by *FERC,* FS, *and SWRCB.* Within 10 business days following this conference, the licensee shall file with FERC a letter summarizing the Conference.

Conferences for Abnormal Precipitation Patterns

In (1) water years in which the forecast April – July unimpaired runoff[69] is less than 40 percent of the forecasted total water year unimpaired runoff[70] or water years that follow a Super Dry water year; and (2) the licensee determines that the end of month elevations may not be achievable for that year, the licensee may request a Conference with Interested Parties by June 1. At least 10 business days prior to the Conference, the licensee shall provide to Interested Parties the licensee's proposal to manage reservoir levels to minimize recreational impacts and address energy and operational requirements for any months in which reservoir levels will not be achieved. The licensee's proposal shall address: (a) Prioritizing reservoir levels among the three reservoirs; (b) Developing measures as they relate to impacts on recreational resources, if necessary; and (c) Developing other measures as appropriate. The measures in licensee's proposal will be commensurate with the degree and time period during which reservoir levels are not met, and may include actions to be taken by licensee or others, such as increased patrols, extension of boat ramps, or development of/contribution to a mitigation fund. The purpose of the Conference shall be to review the licensee's proposal measures to manage reservoir elevations for the remainder of the recreation season. The licensee will implement the plan upon approval by *FERC,* FS *and SWRCB.* Within 10 business days following this Conference, the licensee shall file with FERC a letter summarizing the Conference.

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[69] Department of Water Resources May Bulletin 120 "Report of Water Conditions in California," table "April-July Unimpaired Runoff," row "American River below Folsom Lake," column "Apr-Jul Forecasts."

[70] Department of Water Resources May 120 Bulletin "Report of Water Conditions in California," table "Water Year Unimpaired Runoff," row "American River Below Folsom Lake," column "water Year Forecast."

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 FS, *CDFG, SWRCB, FWS, and FERC.*

Condition No. 50 - Recreation Streamflows

Water Year Types. The minimum streamflow schedule has been separated into five water year types: Wet, Above Normal (AN), Below Normal (BN), Dry, and Critically Dry (CD). The licensee shall determine the water year type based on the water year forecast of unimpaired runoff in the American River below Folsom Lake published, near beginning of each month from February through May, in the California Department of Water Resources Bulletin 120 "Report of Water Conditions in California." Specifically, the "American River Below Folsom Lake" forecast is currently shown in the "Water Year Forecast" column of the "Water Year Unimpaired Runoff" table in Bulletin 120. The water year types are defined as follows:

Year Type	American River Water Year Forecast
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 beginning 3 days after issuance of the forecast and continuing until 2 days after issuance of a subsequent monthly forecast. The May forecast shall be used to establish the final water year type for the remaining months of the water year and the month of October. The water year type for the months of November through January shall be based on the Department of Water Resources' Full Natural Flow record for the American River at Folsom (California Data Exchange Center site AMF sensor 65) for the preceding water year, and the licensee shall operate based on that record beginning November 1. The licensee shall provide Notice to FS, *FERC, CDFG, FWS, and SWRCB* of the final water year type determination within 30 days of the May forecast.

1. SFAR Below Slab Creek Reservoir Dam

Within 3 months of license issuance, the licensee shall provide recreational streamflows in the SFAR below Slab Creek Reservoir Dam as follows. In BN, AN, and Wet water years, the licensee shall spill water from Slab Creek Reservoir to provide streamflows between 850 and 1,500 cfs between the hours of 10:00 am and 4:00 pm for 6 days in no less than three events in the period beginning March 1 and ending May 31. If conditions permit, one of the events will be replaced with a 3-day event on the Memorial Day weekend, in which case the total number of days for the year will be increased to 7 days.

These recreational streamflows shall be provided until the Iowa Hill Pumped Storage Project is constructed, or if the Iowa Hill Pumped Storage Project is not constructed, until year 15 after license issuance. If the Iowa Hill Pumped Storage Project is not constructed, and the triggers described below for increase in recreational streamflow days have not been met by year 15 after license issuance, these recreational streamflows shall continue to be provided after year 15.

After either (1) the Iowa Hill Pumped Storage Project is constructed or (2) in year 15 of license issuance if the triggers described below for increase in recreational streamflow days have been met, the licensee shall provide recreational streamflows in the SFAR below Slab Creek Reservoir Dam as follows.

Water Year Type	March	April	May	June - September	October
CD		850 cfs - 950 cfs kayak flows from 10am to 1pm for 4 weekend days **PLUS** 1400 cfs – 1500 cfs rafting flows from 10am to 1pm and 850 – 950 cfs kayak flows from 1:30pm to 4pm for 2 weekend days			
D	850 cfs - 950 cfs kayak flows from 10am to 1pm for 4 weekend days **PLUS** 1400 cfs - 1500 cfs rafting flows from 10am to 1pm and 850 – 950 cfs kayak flows from 1:30pm to 4pm for 6 weekend days				850 cfs - 950 cfs kayak flows from 10am to 1pm for 2 weekend days
BN		850 cfs - 950 cfs kayak flows from 10am to 1pm for 3 weekend days[1]/holidays **PLUS** 1400 cfs – 1500 cfs rafting flows from 10am to 1pm and 850 – 950 cfs kayak flows from 1:30pm to 4pm for 9 weekend days[1]/holidays			850 cfs - 950 cfs kayak flows from 10am to 1pm for 6 weekend days
AN		1400 cfs - 1500 cfs rafting flows from 10am to 1pm and 850 – 950 cfs kayak flows from 1:30pm to 4pm for 12 weekend days[1]/holidays			850 cfs - 950 cfs kayak flows from 10am to 1pm for 6 weekend

				days
W		March 1 through May 31 1400 cfs - 1500 cfs rafting flows from 10am to 1pm and 850 – 950 cfs kayak flows from 1:30pm to 4pm for 12 days, weekend days[1]/holidays		850 cfs - 950 cfs kayak flows from 10am to 1pm for 6 weekend days

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

The licensee shall only provide the October recreation streamflows specified above upon a determination by the FS, *SWRCB, FWS, and CDFG* that such streamflows can be provided without unacceptable environmental impact. The determination made by FS, *SWRCB, FWS, and CDFG* shall be based on an investigation of the potential for ecologically suitable recreational streamflow based on monitoring identified in Condition No. 31. The initial evaluation and determination shall be made within 5 years of license issuance. Absent a determination that such streamflows can be provided, the licensee shall annually request that the subject be reconsidered by the FS, *SWRCB, FWS, and CDFG* for 10 years after the initial determination.

If October flows cannot be provided for operational, aquatic, or other reasons, the equivalent flow volume will be provided in addition to the specified recreational streamflows for the following spring upon approval of FS, *SWRCB, FWS, BLM, and CDFG*. Scheduled boating days shall not exceed the total displayed in the table above; however, if October flows are provided the following spring, the boating days in the spring may exceed those displayed in the table. In addition, the frequency and magnitude of the boating flows may be adjusted within the total volume of water displayed in the table after consultation with FS, *SWRCB, CDFG, FWS, BLM, and the Consultation Group provided under Section 4.12.1 of the Relicensing Settlement Agreement* and upon approval of FS, *SWRCB, CDFG, BLM, and FWS.*

Recreational streamflows may be modified or suspended in the event: (1) State or Federal electrical emergencies declared by an appropriate authority where specific orders are issued or specific actions are mandated by said authority that require the licensee to produce electricity outside normal planned operations; (2) of system events that cause SMUD's Operating Reserves to drop below the Western Energy Coordinating Council Minimum Operating Reliability Criteria; (3) of equipment malfunction, public safety emergency, or law enforcement activity; (4) control of spill events at Slab Creek Reservoir Dam may cause the licensee to spill Loon Lake, Union Valley, or Ice House Reservoirs within 7 days of the recreational spill event; or (5) the licensee determines expected inflows from SFAR into Slab Creek Reservoir are not controllable to 1,500 cfs. In the event boating days are modified or suspended, the licensee shall reschedule days as soon as practicable; however, the licensee shall not be obligated to provide such days if weather or other operational conditions do not permit such days to be rescheduled by May 31. Preference for rescheduled days shall be weekend days; however, weekdays may be substituted if there are not sufficient weekend days prior to May 31.

Consultation shall take place among licensee, FS, *BLM and the Consultation Group* no later than February 15 each year to determine a preliminary flow schedule, if any. Additional consultation shall take place as necessary and final notification of days of flow will be made no less than 3 days in advance.

Within 3 months of license issuance and continuing at least through year 5, the licensee shall monitor all boating use taking place on days provided for recreational streamflows. The monitoring plan shall include but is not limited to a complete accounting of all boating users entering the SFAR in the 1/2 mile below Slab Creek Reservoir Dam, a description of the type of watercraft being used, and to the extent possible, a determination of where the boaters are ending their trip.

At the end of year 5 after license issuance, if the Iowa Hill Pumped Storage Project construction has not commenced, monitoring shall continue and the licensee shall, in cooperation with FS, *SWRCB, BLM, and the Consultation Group*, prepare a Whitewater Boating Recreation Plan describing whitewater recreation use and impacts and establishing triggers that would determine if the licensee shall install a valve or make other facility modifications sufficient to deliver the recreational streamflows described in the table above.

At the end of year 10 after license issuance, if construction of the Iowa Hill Pumped Storage Project has not commenced, the licensee shall, in cooperation with FS, *SWRCB, BLM, and the Consultation Group*, based on the information collected as a result of the Whitewater Boating Recreation Plan, determine if the facility shall be modified. This determination shall be filed with FERC, following FS approval.

If the Iowa Hill Pumped Storage Project is not constructed, and the triggers specified in the Whitewater Boating Recreation Plan have been met, the facilities shall be modified and functional within 15 years of license issuance. If the triggers have not been met by year 10, use will continue to be monitored and a new determination will be made every 5 years as to whether the triggers have been met. Once they are met, the facilities will be modified and the recreational streamflows described in the table above shall be implemented through the term of the license.

If the licensee cannot provide recreation streamflows due to construction activities associated with the Iowa Hill Pumped Storage Project or other facility modifications, the licensee shall meet with FS, *SWRCB, BLM, and the Consultation Group* to develop an interim plan to address recreation streamflows. The licensee shall implement the interim plan upon approval of FS, *SWRCB, and BLM.*

The licensee shall, in cooperation with FS, *SWRCB, BLM, and the Consultation Group*, prepare, implement, and update as necessary, a plan that will provide easement for access and parking in the immediate vicinity of White Rock Powerhouse for recreational streamflows described above. The licensee shall make a good faith effort to purchase at fair market value suitable real property as such property becomes available, or to obtain a

long-term lease or easement for use of such property, if necessary for these facilities. If easements cannot be obtained, licensee shall consult with FS, *SWRCB, BLM, and the Consultation Group* to determine an alternate location for access. The plan shall be approved by FS, *SWRCB, BLM, and the Consultation Group* and implemented no later than year 2 after license issuance.

Within 2 years of license issuance, the licensee shall prepare a recreation management plan, to be approved by FS *and BLM* that addresses the whitewater recreation needs in the Slab Creek Dam to White Rock Powerhouse. The licensee shall be responsible for the development of sites and/or implementation of measures identified in this plan after approval of the plan on a schedule that is developed in the plan. The following elements shall be addressed:

a. Use levels and projected future use levels.

b. Carrying capacity.

c. Sanitation and garbage.

d. User conflicts.

e. Resource effects along the river and including effects to private land.

f. Necessary put-ins, take-outs and parking for whitewater activities.

g. Emergency resource protection measures.

h. Public safety, search and rescue needs and other emergency response needs.

i. Information and educational signing needs.

j. Demand for commercial services or outfitting, including shuttle services and guiding.

k. On-river boat patrol.

2. South Fork Silver Creek Below Ice House Reservoir Dam

Within 3 months after license issuance, the licensee shall provide the recreation streamflows displayed in the following tables for the first 5 years after license issuance:

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 1		

		weekend days[1]		
D		300 cfs for 3 weekend days		
BN		400 cfs for 2 weekend days/holidays **PLUS** 500 cfs for 2 weekend days/holidays		
AN		400 cfs for 2 weekend days/holidays **PLUS** 500 cfs for 4 weekend days/holidays		
W		400 cfs for 4 weekend days/holidays or Fridays **PLUS** 500 cfs for 5 weekend days/holidays or Fridays		

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

Prior to the end of the 5-year period, the licensee shall, *in cooperation with the Consultation Group*, prepare a recreation plan that is approved by FS, to determine triggers for establishing when the licensee shall increase the number of days of recreation streamflows to be provided. Within 5 years of license issuance and every 5 years thereafter, the licensee shall, in cooperation with FS *and the Consultation Group*, prepare a report describing whitewater recreation use and impacts, whether use has exceeded predetermined triggers such that recreation streamflow days should be adjusted. Boating days shall not exceed the total amount displayed in the table below; however, the frequency and magnitude of the boating flows may be adjusted within the total volume of water displayed in the tables upon approval of the FS. This report shall be filed with FERC, following FS approval.

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		400 cfs for 5 weekend		

		days/holidays **PLUS** 500 cfs for 2 weekend days/holidays	
AN		400 cfs for 5 weekend days/holidays **PLUS** 500 cfs for 6 weekend days/holidays	
W		400 cfs for 7 weekend days/holidays or Fridays **PLUS** 500 cfs for 9 weekend days/holidays or Fridays	

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

The licensee shall annually, in cooperation with the FS, *CDFG, and the Consultation Group,* identify large woody debris that is hazardous to recreation streamflow users. The licensee shall relocate within the channel the large woody debris upon approval of the FS.

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 provide scheduled recreation streamflows on the days when such releases are forecast to occur.

The recreation streamflows described above may be temporarily modified for: (1) state or Federal electrical emergencies declared by an appropriate authority where specific orders are issued or specific actions are mandated by said authority that require the licensee to produce electricity outside normal planned operations; (2) system events that cause the Operating Reserves to drop below the Western Energy Coordinating Council Minimum Operating Reliability Criteria; or (3) equipment malfunction, public safety emergency, or law enforcement activity. If the described recreation streamflows are so modified, the licensee shall provide Notice to *FERC and* FS 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 FS for areas within their jurisdiction. If the described recreation streamflows are so modified, the licensee shall provide Notice to *FERC and* FS.

Condition No. 51 - Public Information Services

The licensee shall be responsible for the following public information measures:

Streamflow and Reservoir Level Information

The licensee shall, within 1 year of license issuance, in consultation and coordination with FS, *SWRCB, and the Consultation Group provided under Section 4.12.1 of the Relicensing Settlement Agreement*, submit a plan to FERC for providing, at a minimum, the following:

Real-time (15-minute increments and refresh rates or at the capacity of the reporting technology) lake stage height and storage information for each of the following reservoirs: Rubicon Reservoir, Loon Lake Reservoir, Ice House Reservoir, Union Valley Reservoir, Gerle Creek Reservoir, Brush Creek Reservoir, and Junction Reservoir.

Installation of up to two simple staff gages for use by the public on each of the following stream reaches: South Fork Silver Creek below Ice House Reservoir Dam, and South Fork American River below Slab Creek Reservoir Dam.

Real-time (15-minute increments at refresh rates or at the capacity of the reporting technology) streamflow and reservoir level information that is available to the public year-round via toll-free telephone number or other appropriate technology approved by FS.

Streamflow information, in cfs, on a website, for the following Project-related stream reaches:

- 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
- SFAR Below Slab Creek Reservoir Dam

The plan shall be approved by FS and SWRCB prior to filing with FERC. Following approval, the minimum streamflow and recreational streamflow schedules from Condition Nos. 27 and 50, as well as current water year type designation, shall also be published via website.

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 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.

Interpretive, Education, and Public Information Plan

Within 2 years of license issuance, the licensee, in consultation with FS *and other appropriate agencies and the Consultation Group*, shall complete an Interpretive, Education, and Public Information Plan that shall be approved by 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.

Condition No. 53 - Visual Resource Protection

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 FS for the protection and rehabilitation of National Forest System visual resources affected by such construction or maintenance. At a minimum, the plan shall address clearings, spoil piles, and Project facilities involved in such construction or maintenance, 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 involved in such construction and maintenance 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 maintenance 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 as follows for improvements that have not already been completed:

a. Rubicon Reservoir. Within 2 years of license issuance paint the metal components of the gaging station, intake booms, telemetry facilities and cable crossing and bucket a nonreflective 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. Within 2 years of license issuance 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 FS.

c. Robbs Powerhouse Facilities. Within 8 years of license issuance paint all paintable surfaces the same color as the Robbs Penstock.

d. Union Valley Dam and Sub-station. Within 13 years of license issuance 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. Within 2 years of license issuance paint doors on building dark gray.

f. Loon Lake Passive Reflector (Wentworth Peak). Within 2 years of license issuance 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. Within 2 years of license issuance paint roof and building colors approved by FS.

h. Gerle Reservoir Dam. Within 2 years of license issuance paint handrail and guardrail non-reflective black.

i. Licensee-owned Weather Stations. Within 4 years of license issuance paint all reflective components with non-reflective black paint, except for meteorological sensors.

Jones Fork Penstock. Within 3 years of license issuance paint the same color as the Robbs Penstock.

Condition No. 54 - 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.

Condition No. 55 - 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 FS and shall not resume work on ground disturbing activities until it receives written approval from FS. If it deems it necessary, FS may require the licensee to perform recovery, excavation, and preservation of the site and its artifacts at the licensee's expense through provisions of an Archaeological Resources Protection Act permit issued by FS.

Condition No. 56 - Transportation System Management

1. Transportation System Management Plan

a. Within 1 year of license issuance, the licensee shall file with FERC a Transportation System Management Plan that is approved by 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. 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:

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

c. 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.

d. 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 FS to complete the roads use permit Exhibit A and to complete any required Roads Analysis.

e. 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).

f. 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.

g. 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.

h. 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.

i. 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 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.

2. Specific Transportation Needs

a. Within 5 years of license issuance, the licensee shall, in accordance with the USFS cooperative road use plan for road use, funding and maintenance, improve, by reconstructing and surfacing with a double chip-seal overlay, 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 Yellowjacket Campground access road westerly to the West Point boat ramp access road). The work shall be meet design and construction standards approved by FS. The licensee shall make a good faith effort to purchase at fair market value suitable real property as such property becomes available, or to obtain a long-term lease or easement for use of such property, if necessary. 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.
- 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 Condition No. 45).

b. 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.

c. Within 5 years of license issuance, the licensee shall, in accordance with the USFS cooperative road use plan for road use, funding and maintenance, 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.

d. Within 5 years of license issuance, the licensee shall improve, by reconstructing with a double chip-seal overlay, 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 FS. The licensee shall

make a good faith effort to purchase at fair market value suitable real property as such property becomes available, or to obtain a long-term lease or easement for use of such property, if necessary. 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.
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 Condition No. 45).

3. Snow Plowing

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

Condition No. 57 - 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 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 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 FS. All trail maintenance and construction shall meet FS specifications and best management practices.

2. Specific Trail System Needs

See Condition No. 45.

Condition No. 58 - Facility Management

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

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.

Identify the type and season of use of each structure.

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 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.

Condition No. 59 - 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 FS, *FWS, and CDFG*. 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.

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

Condition No. 60 - Fire Prevention, Response, and Investigation Plan

Within one year of license issuance, the licensee shall file with FERC a Fire Prevention and Response Plan that is approved by FS *and developed in consultation with appropriate State and local fire agencies*. The plan shall set forth in detail the licensee's responsibility for the prevention (excluding vegetation treatment as described in Condition No. 59), cost sharing,

coordination with other agencies, reporting, control, and extinguishing of fires in the vicinity of the Project resulting from Project operations. At a minimum the plan shall address the following categories:

Fuels Treatment/Vegetation Management

Identification of fire hazard reduction measures to prevent the escape of Project-induced fires.

Prevention

Availability of fire access roads, community road escape routes, helispots to allow aerial firefighting assistance in the steep canyon, water drafting sites and other fire suppression strategies.

Address fire danger and public safety associated with project induced recreation, including fire danger associated with dispersed camping, existing and proposed developed recreation sites, trails, and vehicle access.

Emergency Response Preparedness

Analyze fire prevention needs including equipment and personnel availability.

Reporting

Licensee shall report any project related fires to FS within 24 hours.

Fire Control/Extinguishing

Provide FS a list of the locations of available fire suppression equipment and the location and availability of fire suppression personnel.

Assure fire prevention measures will conform to water quality protection practices as enumerated in USDA, Forest Service, Pacific Southwest Region, Water Quality Management for National Forest System Lands in California-Best Management Practices.

Investigation of Project-Related Fires

The licensee agrees to fully cooperate with FS on all fire Investigations. The licensee shall produce upon request all materials and witnesses not subject to the attorney-client or attorney work product privileges, over which the licensee has control, related to the fire and its investigation including:

All investigation reports.

All witness statements.

All photographs.

All drawings.

All analysis of cause and origin.

All other, similar materials and documents regardless of how collected or maintained.

The licensee shall preserve all physical evidence, and give custody to FS of all physical evidence requested. FS shall provide the licensee with reasonable access to the physical evidence and documents the licensee requires in order to defend any and all claims, which may arise from a fire resulting from Project operations, to the extent such access is not precluded by ongoing criminal or civil litigation.

Condition No. 63 - Implementation Schedule

The licensee shall prepare a Project implementation plan that sets forth a schedule for implementing the articles in this license.

The licensee shall develop a schedule for filing the plans and related documents set forth in Condition Nos. 1-76. The schedule shall be filed for FERC approval no later than six months from the date of license issuance.

The licensee shall include, with the proposed schedule, documentation of consultation with the Consultation Group provided under Section 4.12.1 of the Relicensing Settlement Agreement, copies of comments and recommendations on the proposed schedule after it has been prepared and specific descriptions of how the Consultation Group's comments are accommodated by the proposed schedule. The licensee shall allow a minimum of 30 days for the Consultation Group to comment and to make recommendations before filing the plan with FERC. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

Upon FERC approval, the licensee shall implement the schedule, including any changes required by FERC.

VI. FOREST SERVICE CONDITIONS SPECIFIC TO IOWA HILL PUMPED STORAGE PROJECT

Condition No. 64 - Requirement to Obtain a Forest Service Special-Use Authorization for Additional National Forest System Lands and for Certain Activities on National Forest System Lands

The licensee shall secure a special-use authorization from FS for the occupancy and use of National Forest System lands. The licensee shall obtain the executed authorization before beginning ground-disturbing activities on National Forest System lands. The licensee may

commence ground-disturbing activities authorized by the license and special-use authorization no sooner than 60 days following the date the licensee files FS special-use authorization with FERC, unless FERC prescribes a different commencement schedule. In the event there is a conflict between any provision of the license and Forest Service special-use authorization, the special-use authorization shall prevail to the extent that FS, in consultation with FERC, deems necessary to protect and utilize National Forest System resources. Notwithstanding the authorizations granted under the Federal Power Act, National Forest System lands added to the project boundaries shall be managed by FS under the laws, rules, and regulations application to the National Forest System. The terms and conditions of FS special-use authorization are enforceable by FS 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 FERC at the request of FS. In the event there is a conflict between any provisions of the license and FS special-use authorization, the special-use authorization shall prevail on matters which FS deems to affect National Forest System resources. The licensee shall secure a special-use authorization from FS for the occupancy and use of National Forest System lands. The licensee shall obtain the executed authorization before beginning ground-disturbing activities on National Forest System lands. The licensee may commence ground-disturbing activities authorized by the license and special-use authorization no sooner than 60 days following the date the licensee files FS special-use authorization with FERC, unless FERC prescribes a different commencement schedule. In the event there is a conflict between any provision of the license and Forest Service special-use authorization, the special-use authorization shall prevail to the extent that FS, in consultation with FERC, deems necessary to protect and utilize National Forest System resources. Notwithstanding the authorizations granted under the Federal Power Act, National Forest System lands added to the project boundaries shall be managed by FS under the laws, rules, and regulations application to the National Forest System. The terms and conditions of FS special-use authorization are enforceable by FS 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 FERC at the request of FS. In the event there is a conflict between any provisions of the license and FS special-use authorization, the special-use authorization shall prevail on matters which FS deems to affect National Forest System resources.

Condition No. 65 - Compliance with Non-Iowa Hill Measures in This License

The licensee shall ensure that Condition Nos. 27-64 of this license, with the exception of those that specifically reference changes once the Iowa Hill Pumped Storage Project is constructed, shall be met through the license term.

Condition No. 66 - Aquatic Resources

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..

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 FS, *CDFG, and SWRCB.*

In the SFAR Slab Creek Reservoir Dam reach below Mosquito Bridge, the operation of Iowa Hill will not further reduce water temperature below 12°C during the months of June (after the descending limb of the hydrograph), July, and August.

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, with the exception of flow fluctuations that occur as a result of specific requirements of the license, that is, recreation streamflows.

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.

Condition No. 67 - Terrestrial Resources

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

Condition No. 68 - Water Quality and Water Pollution

The licensee shall consult with FS, *SWRCB, RWQCB, CDFG, FWS, US Army Corps of Engineers, 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 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 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.

Condition No. 69 - Groundwater

Prior to undertaking activities on National Forest System lands, the licensee shall file with FERC a plan that has been approved by FS for managing groundwater inflows during construction and for groundwater monitoring and management once construction is completed. 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; (2) monitoring of the springs and creeks for 5 years after the tunneling operation is completed with monitoring data submitted to FS monthly and written monitoring reports submitted to 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 or has been minimized 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.*

Condition No. 70 - Compliance with Visual Quality Standards

The licensee shall develop a design for the Iowa Hill Development 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 FS plan specifications and simulated views of the design so FS may determine whether it meets Eldorado National Forest Land and Resource Management Plan standards.

Condition No. 71 - 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 FS and shall not resume work on ground disturbing activities until it receives written approval from FS.

Condition No. 72 - Road Use Permit

Prior to undertaking activities on National Forest System lands, the licensee shall file with FERC a road use permit approved by 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. 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. FS may require reconstruction/construction by the licensee to the extent needed to accommodate the licensee's use or repair damage from Project activities.

Condition No. 73 - 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 FS.

Condition No. 74 - Construction Noise

Prior to undertaking construction activities affecting National Forest System lands, the licensee shall prepare a plan to address construction noise. The licensee shall implement the plan upon approval by FS. The following measures to address construction noise shall be addressed in the plan:

1. Vehicle idling.

2. Advance notification of any materials transport and construction activities within 0.5 mile of the tract.

3. Notices for residents indicating the nature, timing, and duration of all materials transport and construction activities occurring within 0.5 mile of their residences.

4. Noise Hot Line telephone system for reporting construction noise disturbances.

5. Monitoring to address compliance with the above measures.

6. Actions to mitigation violation of the above measures.

Monitoring reports will be filed with FS on a monthly basis throughout the Project construction activity. Monitoring reports will also list any noise disturbance complaints received.

Condition No. 75 - Recreation Access Plan for Slab Creek Reservoir

The licensee shall develop a Recreation Access Plan that addresses recreation access to the reservoir. This plan shall address recreation access (1) during the time of construction of Iowa Hill Reservoir and the tunnel connecting to Slab Creek Reservoir, and (2) when Iowa Hill Reservoir and associated powerhouse are operational.

Condition No. 76- Future Revisions to the Iowa Hill Pumped Storage Development

In the event that the licensee seeks a revision or amendment to the description and/or proposed operation of the Iowa Hill Pumped Storage Project as approved in this license, and such revision would affect resources under their jurisdiction, *CDFG, SWRCB,* FS, *BLM, and/or FWS* each reserves the right to seek modification of Condition Nos. 64-76 (related to the Iowa Hill Project) in consultation with the licensee.

Abbreviations

4WD	Four-Wheel Drive
ALP	Alternative License Process
ALTERNATIVE	Agency/NGO 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 Regional Water Quality Control Board 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 Invertebrates
BN	Below Normal Water Year Type
CD	Critically 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 Reliability 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 Company
PHABSIM	Physical Habitat Simulation Models
PM&E	Protection Mitigation & Enhancement
ROS	Recreation Opportunity Spectrum
RWQCB	Regional Water Quality Control Board, Central Valley Region
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 Level
WSR	Wild and Scenic River
WUA	Weighted Us

APPENDIX C

Conditions filed by the U.S. Bureau of Land Management on January 31, 2007, pursuant to section 4(e) of the Federal Power Act, for the Upper American Project No. 2101

Article 1-36. BLM Reservation of FPA Section 4(e) Authority
BLM reserves its authority under Section 4(e) of the Federal Power Act consistent with the Recreation Payment Agreement (RPA) dated February I, 2007, to provide for the protection and utilization of BLM lands to require inclusion of conditions in the license for Project No. 2101, unopposed by the licensee and the licensee of Project No. 2155, as provided in Section 6 of the RPA. These conditions shall require that licensee shall make a one-time payment to BLM of $270,000 and make annual payments to BLM of $270,000, as annually adjusted, on or before October I of each year during the term of the license, and all annual renewals thereof. The payment shall be by the method established under Section 4 of the RPA and the amount of payment shall be adjusted annually based on the U.S. Gross Domestic Product-Implicit Price Deflator (GDP-IDP) with 2007 as the base year.

USDOI BLM "Standard" Section 4(e) conditions
Filed on January 31, 2007

Condition 4-1. Bureau of Land Management Approval of Final Design

Before any new construction of the Project occurs on Bureau of Land Management lands, the Licensee shall obtain prior written approval of BLM for all final design plans for Project components, which BLM deems as affecting or potentially affecting Bureau of Land Management lands within the Project boundary. The Licensee shall follow the schedules and procedures for design review and approval specified in the conditions herein. As part of such written approval, BLM may require adjustments to the final plans and facility locations to preclude or mitigate impacts and to insure that the Project is either compatible with on-the-ground conditions or approved by BLM based on agreed upon compensation or mitigation measures to address compatibility issues. Should such necessary adjustments be deemed by BLM, FERC, or the Licensee to be a substantial change, the Licensee shall follow the procedures of FERC Standard Article 2 of the license. Any changes to the license made for any reason pursuant to FERC Standard 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 to address Project effects within the Project boundary.

Condition 4-2. Approval of Changes

Notwithstanding any license authorization to make changes to the Project, when such changes directly affect BLM lands within the Project boundary, the Licensee shall obtain written approval from BLM prior to making any changes in any constructed project features or facilities, or in the

uses of project lands and waters or any departure from the requirements of any approved exhibits filed with FERC. Following receipt of such approval from BLM, and a minimum of 60 days prior to initiating any such changes, the Licensee shall file a report with FERC describing the changes, the reasons for the changes, and showing the approval of the BLM for such changes. The Licensee shall file an exact copy of this report with BLM at the same time it is filed with FERC. This article does not relieve the applicant from the amendment or other requirements of FERC Standard Article 2 or Article 3 of this license.

Condition 4-3. Consultation

Each year between February 15 and April 15, the Licensee shall consult with BLM with regard to measures needed to ensure protection and utilization of BLM resources within the Project boundary affected by the Project. Within 60 days following such consultation, the Licensee shall file with FERC evidence of the consultation with any recommendations made by BLM. 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 BLM resources within the Project boundary.

Condition 4-4. Modification of 4(e) Conditions After Biological Opinion or Water Quality Certification

BLM reserves the right, after notice and opportunity for comment, to modify these conditions for BLM lands within the Project boundary, if necessary, to respond to any Final Biological Opinion issued for this Project by the United States Fish and Wildlife Service, NOAA Fisheries, or any Certification or permit issued for this Project by the State Water Resources Control Board or Army Corps of Engineers.

Condition 4-5. Surrender of License or Transfer of Ownership

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

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

Condition 4-6. Valid Claims and Existing Rights

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

Condition 4-7. Compliance with Regulations on Bureau of Land Management Lands

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

Condition 4-8. Damage to Land, Property, and Interests of the United States

The Licensee has an affirmative duty to protect the land, property, and interests of the United States from damage arising from the Licensee's construction, maintenance, or operation of the Project works or of the works appurtenant or accessory thereto under the license. The Licensee's liability for fire and other damages to BLM lands shall be determined in accordance with the Federal Power Act and FERC Standard Form L-1 Articles 22 and 24. The Licensee's liability under this condition shall not extend to acts or omissions of third parties outside of the Licensee's control. The Licensee's contractors or employees of contractors are not considered third parties.

Condition 4-9. Indemnification

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

- any violations incurred under any laws and regulations applicable to, or
- judgments, claims, penalties, fees, or demands assessed against the United States caused by, or
- costs, damages, and expenses incurred by the United States caused by, or
- the releases or threatened release of any solid waste, hazardous substances, pollutant, contaminant, or oil in any form in the environment related to the construction, maintenance, or operation of the Project works or of the works appurtenant or accessory thereto under the license; provided, however, that the provisions of this condition do not apply to any damages, judgments, claims, or demands arising out of the negligence, recklessness, or willful misconduct of the United States, its agencies, bureaus, departments, contractors, or concessionaires, or other third parties, or to damages, judgments, claims, or demands arising out of any activity initially occurring outside the project boundary or outside BLM lands.

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

Condition 4-10. Surveys, Land Corners

The Licensee shall avoid disturbance to all BLM land survey monuments, private property corners, and forest boundary markers within the Project boundary. In the event that any such land markers or monuments on BLM lands are destroyed by an act or omission of the Licensee,

in connection with the use and/or occupancy authorized by this license, depending on the type of monument destroyed, the Licensee shall reestablish or reference same in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the County Surveyor, or (3) the specifications of BLM. Further, the Licensee shall ensure that any such official survey records affected are amended as provided by law.

Condition 4-11. Hazardous Substances Plan

Prior to undertaking activities on BLM lands the Licensee shall file with FERC a plan approved by BLM 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 BLM and these entities shall make a determination whether a plan approved by 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 BLM of the location of the spill cleanup equipment on BLM lands and of the location, type, and quantity of oil and hazardous substances stored in the Project area; and (3) to inform BLM 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.

Condition 4-12. 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 BLM lands and Licensee adjoining property, except near high-voltage powerlines. 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 BLM. The Licensee shall contact BLM prior to blasting to obtain the requirements from 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 BLM 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 BLM and in general not closer than 1,000 feet from the road or from any building or camping area.
4. 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 BLM, 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.

Condition 4-13. Pesticide Use Restrictions

Pesticides may not be used to control undesirable woody and herbaceous vegetation, aquatic plants, fish, insects, and rodents on BLM lands without the prior written approval of BLM. The Licensee shall submit a request for approval of planned uses of pesticides on BLM lands. The request must cover annual planned use and be updated as required by BLM. The Licensee shall provide information essential for review, including a forest-specific pesticide risk assessment. 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 BLM 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.

Condition 4-14. Risks and Hazards on BLM Lands

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

Condition 4-15. Access and Road Use by Government

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

Condition 4-16. Access and Road Use By Licensee

The Licensee shall confine all Project vehicles on BLM lands, including, but not limited to, administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes. 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. BLM agrees to provide notice to the Licensee and FERC prior to road closures, except in an emergency, in which case notice will be provided as soon as possible.

Condition 4-17. Crossings

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

Condition 4-18. Signs

The Licensee shall consult with BLM prior to erecting signs related to safety issues on BLM lands within the Project boundary. Prior to the Licensee erecting any other signs or advertising devices on BLM lands covered by the license, the Licensee must obtain the approval of 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.

Condition 4-19. Construction Inspections

Within 60 days of planned ground-disturbing activity on BLM lands within the Project boundary, 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 BLM in writing) inspections of Licensee's construction operations on BLM lands within the Project boundary and Licensee adjoining property while construction is in progress. The Licensee shall document these inspections (informal writing sufficient) and shall deliver such documentation to BLM on a schedule agreed to by 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 BLM.

Condition 4-20. Unattended Construction Equipment

The Licensee shall not place construction equipment on BLM lands prior to actual use or allow it to remain on BLM lands subsequent to actual use, except for a reasonable mobilization and demobilization period agreed to by BLM. The Licensee shall remove equipment from BLM lands unless a permit is issued for equipment storage.

Condition 4-21. Maintenance of Improvements

The Licensee shall maintain the improvements and premises on BLM lands within the Project boundary 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 BLM.

Condition 4-22. Erosion Control Plan

During planning and before any new construction or non-routine maintenance projects with the potential for causing erosion and/or stream sedimentation on or affecting BLM lands, the Licensee shall file with FERC an Erosion Control Measures Plan that is approved by BLM. The Plan shall include measures to control erosion, stream sedimentation, dust, and soil mass movement attributable to the Project.

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 in accordance with current direction on use of native plants and locality of plant and seed sources.
6. Measures to dissipate energy and prevent erosion.
7. A monitoring and maintenance schedule.

Upon FERC approval, the Licensee shall implement the plan.

Condition 4-23. Solid Waste and Waste Water Plan, New Construction and Project Operation and Maintenance

During planning and prior to any new construction or maintenance potentially producing solid waste or waste water on or affecting BLM lands not addressed in an existing plan (including, but not limited to, any recreation-related construction), the Licensee shall notify BLM, and 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.

Condition 4-24. 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 BLM lands.

The Licensee shall discharge no waste or byproduct on or affecting BLM 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, on or affecting BLM lands and during operation and maintenance of the Project if such operation and maintenance would affect BLM lands, the Licensee shall develop a plan approved by BLM and subject to requirements of other federal and state water quality agencies.

APPENDIX D
Filed September 29, 2009

Reasonable and Prudent Measures and Terms and Conditions included in the U.S. Fish and Wildlife Service's September 29, 2009 Biological Opinion for the Upper American Project No. 2101

Reasonable and Prudent Measures

The following reasonable and prudent measure is necessary and appropriate to minimize the adverse effects of the Project on the valley elderberry longhorn beetle:

The effects to the valley elderberry longhorn beetle resulting from Project implementation shall be minimized.

Terms and Conditions

The following terms and conditions implement the reasonable and prudent measure:

1. SMUD shall implement the following conservation measures described in the Project Description of the biological opinion:

> 1. Immediately notify agencies if occurrences of sensitive plants or wildlife species are detected prior to or during ongoing construction, operation, or maintenance of the Project. If the Forest Service, California Department of Fish and Game (CDFG), or the Service determines that the project-related activities are adversely affecting the sensitive species, then SMUD will develop and implement appropriate protection measures.
>
> 2. Annually review the current list of special status plant and wildlife species (Federal Endangered Species Act or Eldorado National Forest Watch List) and if species are added, determine if the species or unsurveyed habitat for the species might occur on
>
> National Forest Systems lands and if so, develop and implement a study plan to assess the effects of the Project on the species.
>
> 3. Consult with the Bureau of Land Management, the Service, and CDFG prior to undertaking maintenance under transmission lines within the Pine Hill Rare Plant Preserve.

4. Develop and file an invasive weed management plan that provides for inventory and mapping of new populations and actions and/or strategies to prevent and control known populations or introductions of new populations.

5. Develop and implement a vegetation management plan that addresses hazard tree removal and trimming; transmission line clearing; habitat improvement; revegetation of disturbed sites; soil protection and erosion control; revegetation with culturally important plant populations; and use of clean, weed free, and preferably locally collected seed.

6. 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 for the relevant Service agency (Service or NOAA Fisheries) for consultation or conference in accordance with the Endangered Species Act.

7. SMUD shall provide an annual employee environmental awareness program workshop for employees and key contractors directly involved in the day-to-day operation of the Project. The workshop will provide specific information on local resource issues, including but not limited to: known occurrences of special-status species, sensitive habitats, and noxious weeds; SMUD's requirements for protection of special-status species and habitats; procedures for reporting observations of special-status species to appropriate state and federal resource agencies.

8. Prior to conducting any ground or vegetation disturbing actions within the Action Area, SMUD will comply fully with the Service's 1999 *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (Guidelines). Specifically, survey the area to be disturbed for the presence of the beetle and its elderberry host plant and implement avoidance and protection measures.

9. If trimming or removal of elderberry shrubs is necessary, SMUD will compensate for the loss of elderberry shrubs with stems measuring 1.0 inch or greater in diameter at ground level in accordance with the Service's 1999 Guidelines. Compensation will occur either through the establishment of a Service-approved conservation area or through the purchase of Valley elderberry longhorn beetle credits at a Service-approved conservation bank.

2. SMUD shall follow the Service's 1999, or most current, *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*.

3. SMUD shall complete the reporting requirements identified below.

Reporting Requirements

The Sacramento Fish and Wildlife Office of FWS will be provided documentation upon the removal or trimming of any elderberry shrubs with stems greater than 1.0 inch in diameter at ground level.

The documentation shall include information regarding the shrub location, clearly indicated on a USGS 7.5 minute quadrangle or other maps of finer scale, a description of the shrub, including the number of stems greater than 1.0 inch in diameter at ground, and a description of the compensation provided for the loss of habitat. This documentation shall be submitted within sixty (60) calendar days of shrubs being trimmed or removed.

The Service must be notified within twenty-four (24) hours of the finding of any injured or dead valley elderberry longhorn beetle, or any unanticipated damage to their habitat associated with the proposed Project.

Notification must include date, time, and location of the incident or of the finding of an injured or dead animal clearly indicated on a USGS 7.5 minute quadrangle or other maps of finer scale, as requested by the Service, and any other pertinent information. The Service contacts are Chris Nagano, Division Chief, Endangered Species Program at Sacramento Fish and Wildlife Office, 2800 Cottage Way, Room W-2605, Sacramento, California 95825-1846 telephone (916) 414-6600 and Dan Cram, Resident Agent-in-Charge of the Service's Law Enforcement Division at (916) 414-6660.

Document Content(s)