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STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of Water Quality Certification for

**PACIFIC GAS AND ELECTRIC COMPANY'S
CHILI BAR HYDROELECTRIC PROJECT
FEDERAL ENERGY REGULATORY COMMISSION PROJECT NO. 2155**

Sources: South Fork American River

County: El Dorado County

WATER QUALITY CERTIFICATION FOR FEDERAL PERMIT OR LICENSE

BY THE EXECUTIVE DIRECTOR:

I. Project Description

Pacific Gas and Electric Company (PG&E or Licensee) owns and operates the Chili Bar Hydroelectric Project (Project), Federal Energy Regulatory Commission (Commission) Project No. 2155 located on the South Fork American River (SF American River) in El Dorado County near the city of Placerville, as shown in Attachment A.

The Project was constructed in 1964 by the Sacramento Municipal Utility District (SMUD) as compensation for the loss of the Licensee's American River Project (Commission Project No. 78), which is now inundated by SMUD's Upper American River Hydroelectric Project (UARP) due to the construction of Slab Creek Dam. SMUD's interest in the Project was transferred to the Licensee on March 22, 1965. The initial Commission license for the Project was issued on July 31, 1962, for a term ending July 31, 2007, and has operated under annual licenses since that time.

The Project is located in the foothills of the Sierra Nevada mountain range in the SF American River watershed, which drains approximately 598 square miles at a location just downstream of the Project. The 19.1 mile section of the SF American River from the Project downstream to Folsom Lake is one of the most popular whitewater rafting river reaches in the country. The reach ranges in elevation from 960 feet above mean sea level (MSL) at the base of Chili Bar Dam to 470 feet above MSL at the bottom of the reach, which is the normal maximum water surface elevation for Folsom Lake. Folsom Lake is part of the United States Bureau of Reclamation's Central Valley Project.

The current Project boundary encompasses 254.63 acres, of which the Licensee owns 191.76 acres, the United States Bureau of Land Management (BLM) owns 47.81 acres, and other private parties own 15.06 acres. The Licensee proposes to revise the Project boundaries by reducing the Project area to 103.14 acres. The Licensee's license

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application states that the new Project boundaries are consistent with the Commission's regulations and that the proposed boundaries enclose all land and structures necessary for the operation and maintenance of the Project. The proposed changes in land ownership are shown in Table 1 below.

Table 1. Current and Proposed Project Property Ownership		
Ownership	Existing Project Acreage	Proposed Project Acreage
BLM	47.81	15.02
Licensee	191.76	87.04
Private	15.06	1.08
Total	254.63	103.14

The Project facilities consist of:

- A 126-foot (ft) high by 380-ft long concrete gravity dam on the SF American River;
- A 170-ft long dam spillway that has a crest elevation of 997.5 feet (National Geodetic Vertical Datum [NGVD]) located 31 feet below the top of the dam;
- A reservoir with a surface area of 110 acres and a useable storage capacity of 1,339 acre-feet at the spillway crest elevation; and
- An 80-square-ft powerhouse containing a single turbine unit with a normal maximum gross head of 60 feet, a maximum hydraulic capacity of 1,979 cubic feet per second (cfs), and an installed capacity of seven megawatts.

The Licensee first applied for water quality certification for the Project on September 18, 2006. The Licensee subsequently withdrew and simultaneously re-filed its application on May 22, 2007, May 7, 2008, April 23, 2009, April 6, 2010, March 25, 2011, and February 27, 2012. The State Water Resources Control Board (State Water Board) provided public notice of the application pursuant to California Code of Regulations, title 23, section 3858 on June 2, 2009, and posted information describing the Project on the Division of Water Rights' website. No comments were received on the Project application.

II. Project Operations

The Project utilizes water from the SF American River for power generation under a claim of riparian rights filed with the State Water Board, Division of Water Rights under Statement of Water Diversion and Use No. 10399. In addition, SMUD and PG&E are jointly named on two state-issued water rights (License Nos. 11073 and 11074) and the Licensee is partially assigned the use of SMUD's water rights License Nos. 10513, 10495, and 10496, for which Chili Bar Powerhouse is listed as a point of diversion and place of use. Chili Bar Powerhouse is also listed as a point of diversion and place of use on two new water rights permits issued to SMUD in 2011 (Permit Nos. 21261 and 21262). These water rights include water diverted from the Rubicon River watershed that would normally flow into the Middle Fork American River.

Chili Bar Reservoir has no seasonal or long-term storage capability. Operation of the Project is largely controlled by SMUD's UARP facilities via releases from Slab Creek Dam (located 7.5 miles upstream on the SF American River) and White Rock Powerhouse (located at the upstream end of Chili Bar Reservoir), except during winter storms, and

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spring snowmelt flood events that may cause spills upstream of the Project. White Rock Powerhouse has a peak flow capacity almost twice that of the Project's powerhouse; consequently spill events at Chili Bar Dam are common.

Current Commission license conditions do not require formal operational coordination between the Licensee and SMUD; however the two projects have at times been coordinated in response to requests from recreational boating interest groups and agencies. In general, SMUD typically forecasts recreational streamflow availability for the SF American River downstream of the Project in the spring with estimates of minimum streamflow magnitude and days of the week that recreational streamflows can be expected. Without the seasonal storage of water made possible by the UARP, boatable flows (i.e., flows greater than 1,300 cfs) would generally not occur in the SF American River below the Project much beyond early June in dry years and late July in wet years.

In 1982, SMUD became a signatory to an agreement with the California Department of Boating and Waterways (*Agreement for Operation of Slab Creek Reservoir, July 15, 1982*) that calls for SMUD to make good faith efforts to provide sufficient water to the Project to enable the release of recreational rafting flows between April 1 and September 30 when the California Department of Water Resources' (DWR) forecast for total unimpaired runoff into Folsom Reservoir is greater than 50 percent of the long-term average.

III. Commission Proceeding and Settlement Agreement

The Licensee used a modified Traditional Licensing Process for the relicensing proceeding that involved public input and collaboration. Due to the existence of many overlapping relicensing issues that are common to the Project and the UARP proceedings, many studies and technical reports were developed and coordinated through the Licensee's participation in the UARP's Alternative Licensing Process. The Licensee filed an application for a new license with the Commission on July 15, 2005. Settlement negotiations between the Licensee, SMUD and state and federal resources agencies and other interested stakeholders (Settlement Negotiation Group or SNG) began prior to submittal of the Licensee's license application; however, the SNG did not reach settlement prior to the statutory deadline for filing the license application with the Commission.

Following the state and federal agencies filing of recommendations, prescriptions, and terms and conditions with the Commission, the SNG reconvened to continue negotiating a comprehensive settlement in the relicensing of the UARP and the Project, which led to an Agreement in Principle that was filed with the Commission on November 16, 2006. A final *Relicensing Settlement Agreement for the Upper American River Project and Chili Bar Hydroelectric Project (SA)* was filed with the Commission on January 31, 2007. The Settling Parties consist of PG&E, SMUD, California Department of Fish and Wildlife (CDFW; formerly known as the California Department of Fish and Game), California Department of Parks and Recreation (CDPR), United States Forest Service (USFS), BLM, United States Fish and Wildlife Service (USFWS), National Park Service, American River Recreation Association and Camp Lotus, California Outdoors, California Sportfishing Protection Alliance, Friends of the River, American Whitewater, Foothill Conservancy, Theresa Simsiman, Hilde Schweitzer, and Rich Platt. Although not a signatory to the SA,

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State Water Board staff participated in the settlement discussions for the purpose of providing information and guidance.

The SA includes approval by multiple agencies for many of its provisions, including many that affect water quality; however, this water quality certification does not require approvals by agencies outside of the State Water Board. The settlement process and water quality certification are distinct processes, and the State Water Board has an independent responsibility to ultimately ensure that the Licensee implements the certification conditions necessary to protect water quality standards. The State Water Board requires consultation with the agencies with approval authority under the SA, and expects that the parties will fulfill their contractual obligations and go through the approval process when there are multiple agencies with jurisdiction over various measures.

As part of the SA, the Licensee agreed to construct the following recreation improvements at Chili Bar Reservoir within three years of license issuance:

- A gravel parking area for three to four vehicles off Rock Creek Road;
- A 36-inch-wide trail that has a slope of five percent or less from the parking area to Chili Bar Reservoir;
- A kiosk sign along the trail near the beginning of the trail, explaining the rules of the area; and
- One picnic table of coated wire-mesh material in a leveled out area that is outside of the Chili Bar Reservoir floodplain.

In addition to the measures contained in the SA, the Licensee included, as part of the proposed Project, measures to assure that impacts to air quality and cultural resources associated with the construction of the recreation improvements at Chili Bar Reservoir are minimized. The proposed Project includes measures to reduce fugitive dust during the construction period and to address the potential discovery of human remains during construction of the recreation improvements.

IV. Rationale for Water Quality Certification Conditions

In making its decision, the State Water Board reviewed and considered: (a) the SA; (b) the Licensee's Application for New License; (c) BLM Final Section 4(e) Mandatory Conditions¹; (d) the Commission's Environmental Impact Statement (EIS) for UARP and the Project prepared jointly with USFS pursuant to the National Environmental Policy Act; (e) comments on the License Application and draft EIS by agencies and interested parties; (f) the Initial Study and Negative Declaration prepared for the State Water Board; and (g) public comments received on the draft water quality certification and the Initial Study and Draft Negative Declaration. Further, the State Water Board considered the Central Valley Regional Water Quality Control Board's (Central Valley Water Board) *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan)², the existing water quality conditions, and Project-related controllable factors.

¹ The Federal Power Act provides that federal land management agencies can prescribe mandatory conditions on hydroelectric projects that inhabit federal land. (16 USC § 797)

² The Basin Plan can be found on the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/index.shtml (last visited August 22, 2012).

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The Basin Plan identifies the following beneficial uses for the SF American River from the source to Placerville, and from Placerville to Folsom Reservoir (which includes the Project): municipal and domestic supply; irrigation; hydropower generation; water contact recreation; canoeing and rafting; non-contact water recreation; cold freshwater habitat; warm freshwater habitat; and wildlife habitat.

Resource objectives for the SF American River downstream of Chili Bar Dam identified by state and federal agencies during the relicensing proceeding include: maintaining adequate habitat for Foothill Yellow Legged-Frogs (FYL frogs) and Western Pond Turtles; minimizing the negative effect of fluctuating flows associated with fish stranding; maintaining connectivity with tributary streams; reducing or eliminating water quality conditions that encourage algal growth; maintaining adequate quantities of large woody debris in the river channel; and assuring that sediment is adequately distributed throughout the reach. Resource objectives for Chili Bar Reservoir also include maintaining adequate habitat for native hardhead (*Mylopharodon conocephalus*), a fish species of special concern.

The SF American River downstream of the Project is subject to daily flow fluctuations due to UARP operations and streamflow management that is focused on recreational use. These flow fluctuations may limit feeding behavior in fish and increase the risks of stranding during rapid dewatering. Minimum streamflows proposed for the SF American River downstream of the Project were designed to provide access into tributary streams with perennial connectivity to the river, to maintain spawning and nursery habitat, and to maintain refugia for fish and other aquatic species. The minimum streamflows were also developed to increase the wetted perimeter to provide more suitable habitat for benthic macroinvertebrates, the primary food for fish. The ramping rates were developed to preclude abrupt flow fluctuations that may adversely affect aquatic species and lead to stranding.

The recreational streamflow schedule for the Project was developed based on recognition of the regional importance of whitewater recreation on the SF American River downstream of Chili Bar Dam. The flow schedule addresses the need to have reliable, boatable flows of sufficient duration to provide for a quality river experience, to reduce crowding, to address potential safety concerns, and to reduce resource impacts associated with boating activities.

The water quality monitoring program will provide data to assess compliance with state and federal water quality standards. The monitoring data will provide regulatory agencies the ability to identify water quality trends over time, assess risks to human health and wildlife, and assure that measures to intervene are implemented if water quality degradation is observed. Annual water temperature monitoring will provide information to determine whether the cold freshwater habitat beneficial use is adequately protected in the SF American River.

Fish population monitoring will be conducted for two consecutive years at defined intervals during the license term to provide a two-year mean value for comparison to fish biomass objectives. Periodic monitoring for the presence and distribution of special-status amphibian and reptile species and identification of breeding and larval periods provides information to evaluate potential impacts resulting from streamflow modifications

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(particularly short-term fluctuations) and to assess population trends during the license term.

Periodic monitoring of riparian vegetation species composition is important to determine whether riparian areas are in proper functioning condition or if riparian areas need restoration. Monitoring for the presence of *Didymosphenia geminata* (also commonly known as rock snot) will indicate whether this invasive algal species is creating nuisance conditions or causing adverse impacts to the aquatic ecosystem. In addition, the adaptive management program requires the Licensee to develop and implement measures to reduce nuisance algae in the event that monitoring indicates adverse impacts to water quality are occurring.

Reservoirs have the potential to impound sediments and organic materials that may contain heavy metals which can bioaccumulate in resident fish populations. Periodic monitoring for silver, mercury, copper and lead bioaccumulation in fish tissues during the license term will provide updated information regarding health risks to humans and wildlife due to changes in the concentrations of heavy metals.

The Project is located upstream of Nimbus and Folsom Dams, which are part of the federally-operated Central Valley Project. The National Marine Fisheries Service (NMFS) issued its Biological and Conference Opinion on the Long-term Operation of the Central Valley Project and State Water Project (NMFS B.O.) in March 2009. The NMFS B.O. contains measures that are deemed necessary to avoid jeopardizing the continued existence of the Central Valley California Steelhead Evolutionary Significant Unit, which includes the American River. Those measures include a provision to evaluate the feasibility of providing access for steelhead to their historic coldwater habitat above Nimbus and Folsom Dams. Consultation between the Licensee, fisheries agencies, and the State Water Board, prior to any restoration of fish passage, is included as a condition of this certification to determine whether changes in the certification conditions are needed to protect beneficial uses associated with anadromous fish.

V. Regulatory Authority

The Federal Clean Water Act (33 U.S.C. §§ 1251-1387) was enacted “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” (33 U.S.C. § 1251(a).) Section 101 of the Clean Water Act (33 U.S.C. § 1251) requires federal agencies to “co-operate with the state and local agencies to develop comprehensive solutions to prevent, reduce and eliminate pollution in concert with programs for managing water resources.”

Section 401 of the Clean Water Act (33 U.S.C. § 1341) requires every applicant for a federal license or permit which may result in a discharge into navigable waters to provide the licensing or permitting federal agency with certification that the project will be in compliance with specified provisions of the Clean Water Act, including water quality standards and implementation plans promulgated pursuant to section 303 of the Clean Water Act (33 U.S.C. § 1313). Section 401 of the Clean Water Act directs the agency responsible for certification to prescribe effluent limitations and other limitations necessary to ensure compliance with the Clean Water Act and with any other appropriate requirement of state law. Section 401 further provides that certification conditions shall

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ACCORDINGLY, BASED ON ITS INDEPENDENT REVIEW OF THE RECORD, THE STATE WATER RESOURCES CONTROL BOARD CERTIFIES THAT OPERATION OF THE CHILI BAR HYDROELECTRIC PROJECT BY PACIFIC GAS AND ELECTRIC COMPANY will comply with sections 301, 302, 303, 306, and 307 of the Clean Water Act, and with applicable provisions of State law, if the Licensee complies with the following terms and conditions during the Project activities certified herein.

CONDITION 1. Minimum Instream Flows to Protect Aquatic Life Beneficial Uses

Within three months of license issuance, the Licensee, in consultation with the UARP Licensee (SMUD), shall maintain streamflows in the SF American River below Chili Bar Dam as set forth in the schedule in Table 2, provided that inflows to Chili Bar Reservoir and Chili Bar Reservoir elevations are sufficient to maintain these streamflows³. The compliance point for the measurement of the required minimum streamflows shall be United States Geological Survey (USGS) gage 11444500 (PG&E gage A49). All specified streamflows are in cfs. The schedule specifies minimum streamflows by month and six water year types denoted as: Wet, Above Normal (AN), Below Normal (BN), Dry, Critically Dry (CD), and Super Dry (SD). Water year types are described further in the next section.

Table 2. SF American River below Chili Bar Dam						
	Minimum Streamflow by Water Year Type (cfs)*					
Month	SD	CD	DRY	BN	AN	WET
October	150	185	200	250	250	250
November	150	185	200	200	200	250
December	150	185	200	200	200	250
January	150	185	200	200	200	250
February	150	185	200	200	200	250
March	150	185	200	200	200	250
April	150	200	250	250	300	350
May	150	200	250	250	350	500
June	200	200	250	250	350	500
July	150	185	200	250	300	350
August	150	185	200	250	300	300
September	150	185	200	250	250	250

*As measured at USGS gauge 11444500 (PG&E gauge A49)

The minimum streamflows specified in the schedule may be temporarily modified if required by equipment malfunction, operating emergencies or public safety emergencies, which are reasonably beyond the control of the Licensee. If the streamflow is so modified, the Licensee shall provide Notice to the Commission, BLM, CDFW, USFWS, and the State Water Board’s

³ To comply with the flow requirements of the water quality certification (i.e., minimum instream flows, ramping rates, recreational flows), the Project generally must receive adequate inflows of water in a timely manner from SMUD’s UARP. As noted in Condition 4 of this certification (Coordination with UARP Licensee), the Licensee shall develop a plan and coordinate Project operations with the UARP Licensee (SMUD) to enable compliance with Conditions 1-3 of this certification.

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Deputy Director of the Division of Water Rights (Deputy Director) as soon as possible, but no later than 10 days after such an 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 needed 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 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 three-year period after the license is issued or three 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 three-year period, the Licensee shall meet the minimum streamflow requirements specified in the minimum streamflow schedules, provided that inflows to Chili Bar Reservoir and Chili Bar Reservoir elevations are sufficient to maintain these streamflows.

Water Year Types. The Licensee shall determine the water year type based on the water year forecast of unimpaired runoff in the American River below Folsom Lake that is published near the beginning of each month from February through May in DWR's 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:

<u>Year Type</u>	<u>American River Water Year Forecast</u>
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 the most recent forecast beginning three days after issuance of the forecast and continuing until two days after issuance of the 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 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 the Commission, CDFW, USFWS, and the Deputy Director of the final water year type determination within 30 days of the May forecast.

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CONDITION 2. Ramping Rates to Protect Aquatic Life Beneficial Uses

As early as is reasonably practicable and within three months after license issuance the Licensee, in consultation and coordination with the UARP Licensee (SMUD), shall use the ramping rates shown in Table 3 for Licensee-controlled streamflow releases, provided that inflows to Chili Bar Reservoir and Chili Bar Reservoir elevations are sufficient to maintain these ramping rates³:

Table 3. SF American River below Chili Bar Dam Ramping Rates*	
Ramp Up	Ramp Down
Streamflow change of 500 cfs or less per hour for flows between 150 cfs and 1,000 cfs	Stage change of 1 foot or less per hour for flows between 1,950 cfs and 1,000 cfs
Stage change of 1 foot or less per hour for flows above 1,000 cfs and below 1,950 cfs	Streamflow change of 500 cfs or less per hour for flows below 1,000 cfs and above 600 cfs
	Streamflow change of 250 cfs or less per hour for flows between 600 cfs and 150 cfs
* As measured at USGS gauge 11444500 (PG&E gauge A49).	

Where facility modification is needed to provide the specified ramping rates, the Licensee shall complete such modification as soon as reasonably practicable and no later than three years after license issuance. Prior to facility modifications, the Licensee shall make every reasonable effort to provide the specified ramping rates within the capabilities of the existing facilities. The Licensee shall make the streamflow records related to ramping available to BLM, CDFW, USFWS, and the Deputy Director, upon request.

Should the ramping rates specified in Table 3 be infeasible due to equipment malfunction, operating emergencies or public safety emergencies reasonably beyond the control of the Licensee, or whenever water spills occur over Chili Bar Dam, the Licensee shall provide Notice to the Commission, BLM, CDFW, USFWS and the Deputy Director as soon as possible, but no later than 10 days after such incidents. The Licensee may also request short-term modification of the ramping rates in non-emergency situations by providing Notice to the Commission and obtaining approval from the Deputy Director for a temporary deviation from the required ramping rates.

The Licensee shall provide notice of non-spill emergencies to BLM, CDFW, USFWS and the Deputy Director within 10 days after such an event occurs and shall provide a report documenting the reason that ramping rates were not followed within one month after the event occurs.

CONDITION 3. Recreational Streamflows to Protect Recreational Use

As early as is reasonably practicable and within three months after license issuance, the Licensee, in consultation and coordination with the UARP Licensee (SMUD), shall maintain minimum recreational streamflows in SF American River below Chili Bar Reservoir Dam as set forth in Table 4, provided that inflows to Chili Bar Reservoir and Chili Bar Reservoir elevations are sufficient to maintain these flows³. For compliance purposes, the point of measurement for the required minimum streamflows shall be USGS gage 11444500 (PG&E gage A49). All specified recreational streamflows are in cfs. The schedule specifies minimum recreational

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streamflows, by season, day of the week, and water year type. The water year types are the same as those defined in Condition 1 (Minimum Instream Flows). Although the required minimum streamflow duration can extend beyond the times shown below, they must be provided during the specific times as follows:

- A. Minimum recreational streamflows scheduled for three hours shall meet or exceed the specified minimum from 9:00 am until at least noon.
- B. Minimum recreational streamflows scheduled for four hours shall meet or exceed the specified minimum from 8:00 am until at least noon.
- C. Minimum recreational streamflows scheduled for five hours shall meet or exceed the specified minimum from 7:00 am until at least noon on Saturdays and 8:00 am until at least 1:00 pm on Sundays.
- D. Minimum recreational streamflows scheduled for six hours shall meet or exceed the specified minimum from 7:00 am until at least 1:00 pm.

If, as a result of consultation with CDPR and BLM, the Deputy Director determines that changes are needed in the timing of the recreational streamflow releases shown above, the Deputy Director will direct the Licensee to implement a new schedule. The Licensee shall adjust the timing of the recreational streamflow releases to meet the new schedule provided that inflows to Chili Bar Reservoir and Chili Bar Reservoir elevations are sufficient to maintain these flows.

The minimum recreational streamflows specified in the schedules may be temporarily modified upon the occurrence of the following events:

- A state or federal electrical emergency is 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;
- System events 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.

Additionally, recreational streamflows specified at 1,750 cfs may be reduced to 1,500 cfs during scheduled unit outages. However, the Licensee shall make a good faith effort to avoid scheduling unit outages when recreational streamflows of 1,750 cfs are required. If the recreational streamflow is so modified, the Licensee shall provide Notice to the Commission, BLM, CDPR, and the Deputy Director as soon as possible, but no later than 10 days after such incident.

Where facility modification is required to maintain the specified minimum recreational streamflows, the Licensee shall complete such modifications as soon as reasonably practicable and no later than three years after license issuance. Prior to such required facility modifications, the Licensee shall make every reasonable effort to provide the specified minimum recreational streamflows within the capabilities of the existing facilities.

CONDITION 4. Coordination with UARP Licensee (SMUD)

The Licensee shall coordinate operation of the Project with the Licensee of the UARP (SMUD) to enable the Licensee to comply with Condition 1 (Minimum Instream Flows), Condition 2 (Ramping Rates), and Condition 3 (Recreational Streamflows) in this water quality certification.

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Each Licensee's responsibilities for achieving coordinated operations of the two projects are described in the *Cooperation Agreement Between Sacramento Municipal Utility District and Pacific Gas and Electric Company Regarding Upper American River Project and Chili Bar Project* (Cooperation Agreement)⁴.

⁴ As stated in the Coordination 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."

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Table 4. Minimum Recreational Flow for SF American River below Chili Bar Dam by Water Year Type, Duration and Flow in cfs								
Water Year Type	Period	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Super Dry	April 1 - Friday before Memorial Day	3 Hrs @ 1300	---	---	---	---	3 Hrs @ 1300	3 Hrs @ 1300
	Memorial Day - Labor Day ¹	3 Hrs @ 1300	---	---	3 Hrs @ 1300	3 Hrs @ 1300	5 Hrs @ 1300	5 Hrs @ 1300
	Tuesday after Labor Day - September 30	---	---	---	---	---	3 Hrs @ 1300	3 Hrs @ 1300
	October 1 - March 31	---	---	---	---	---	3 Hrs @ 1300	---
Critically Dry	March 1 - Friday before Memorial Day	3 Hrs @ 1300	---	---	---	---	3 Hrs @ 1300	3 Hrs @ 1300
	Memorial Day - Labor Day ¹	3 Hrs @ 1300	---	---	3 Hrs @ 1300	3 Hrs @ 1300	5 Hrs @ 1500	5 Hrs @ 1500
	Tuesday after Labor Day - September 30	---	---	---	---	3 Hrs @ 1300	3 Hrs @ 1300	3 Hrs @ 1300
	October 1 - February 28/29	---	---	---	---	---	3 Hrs @ 1300	---
Dry	March 1 - Friday before Memorial Day	3 Hrs @ 1300	3 Hrs @ 1300	---	---	3 Hrs @ 1300	3 Hrs @ 1500	3 Hrs @ 1500
	Memorial Day - Labor Day ¹	3 Hrs @ 1300	3 Hrs @ 1300	---	3 Hrs @ 1300	3 Hrs @ 1300	5 Hrs @ 1500	5 Hrs @ 1500
	Tuesday after Labor Day - September 30	---	---	---	---	3 Hrs @ 1300	3 Hrs @ 1300	3 Hrs @ 1300
	October 1 - February 28/29	---	---	---	---	---	3 Hrs @ 1300	3 Hrs @ 1300
Below Normal	March 1 - Friday before Memorial Day	3 Hrs @ 1300	3 Hrs @ 1300	---	3 Hrs @ 1300	3 Hrs @ 1300	3 Hrs @ 1500	3 Hrs @ 1500
	Memorial Day - Labor Day ¹	3 Hrs @ 1300	3 Hrs @ 1300	---	3 Hrs @ 1300	3 Hrs @ 1300	6 Hrs @ 1500	6 Hrs @ 1500
	Tuesday after Labor Day - September 30	---	---	---	3 Hrs @ 1300	3 Hrs @ 1300	3 Hrs @ 1500	3 Hrs @ 1500
	October 1 - 31	3 Hrs @ 1300	---	---	---	3 Hrs @ 1300	3 Hrs @ 1500	3 Hrs @ 1500
	November 1 - February 28/29	---	---	---	---	---	3 Hrs @ 1300	3 Hrs @ 1300
Above Normal	March 1 - Friday before Memorial Day	3 Hrs @ 1300	4 Hrs @ 1750	4 Hrs @ 1750				
	Memorial Day - Labor Day ¹	3 Hrs @ 1500	6 Hrs @ 1750	6 Hrs @ 1750				
	Tuesday after Labor Day - September 30	---	---	---	3 Hrs @ 1500			
	October 1 - 31	3 Hrs @ 1300	---	---	---	3 Hrs @ 1300	3 Hrs @ 1500	3 Hrs @ 1500
	November 1 - February 28/29	---	---	---	---	---	3 Hrs @ 1500	3 Hrs @ 1500
Wet	March 1 - Friday before Memorial Day	3 Hrs @ 1500	6 Hrs @ 1750	6 Hrs @ 1750				
	Memorial Day - Labor Day ¹	4 Hrs @ 1500	6 Hrs @ 1750	6 Hrs @ 1750				

**05/07/13 BD MEETING – ITEM #8
CHANGE SHEET #2 (CIRCULATED 04/30/13)**

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	Tuesday after Labor Day - September 30	---	---	---	3 Hrs @ 1500			
	October 1 - 31	3 Hrs @ 1300	---	---	---	3 Hrs @ 1300	3 Hrs @ 1500	3 Hrs @ 1500
	November 1 - February 28/29	---	---	---	---	---	3 Hrs @ 1500	3 Hrs @ 1500

¹ The "Memorial Day – Labor Day" period refers to Saturday of Memorial Day weekend through Monday of Labor Day weekend.

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As specified in the SA, the Licensees of the UARP (SMUD) and the 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 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. 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. The Licensee shall implement the Plan upon receiving all necessary approvals. Amendments or modifications to the approved Plan shall be approved by the Deputy Director prior to implementation.

In addition to the coordination described above related to compliance with streamflow conditions, the Licensee shall consult and coordinate with the Licensee of the UARP 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 this water quality certification.

CONDITION 5. Adaptive Management Program

The Licensee shall, beginning as early as reasonably practicable and within three months after license issuance, in consultation and coordination with the UARP Licensee (SMUD), implement an adaptive management program as described below. The program shall generally consist of: (a) implementation of a monitoring program; (b) analysis of data for trends to identify and address Project-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 Report⁵ will likely not be met without adjustment of the initial conditions. Monitoring shall be conducted to determine if the applicable resource objectives are achievable and being met.

Analysis of the monitoring results shall be used to determine the need for adaptive management measures. Adaptive management decisions shall be made in conjunction with the USFS, BLM, CDFW, and State Water Board staff as part of the Annual Review of Ecological Conditions (Condition 10) based on monitoring results and other scientific information and a determination that the applicable ecological resource objectives identified in the Rationale Report are not being met and will likely not be met without application of the adaptive management measures. For purposes of the adaptive management program, each year is defined on a calendar year basis (i.e., January through December). Year 1 is defined as the first year during which all initial streamflows required by the license are implemented by May 1.

⁵ *Rationale Report for Relicensing Settlement Agreement* submitted by CDFW to the Commission on January 29, 2007.

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A. Coordinated Operations

Coordinated operations, described above in Condition 4 (Coordination with UARP Licensee), shall be reviewed annually to determine if the operations are effective in achieving the ecological and recreational streamflows in the SF American River downstream of Chili Bar Reservoir Dam, as defined previously in Condition 1 (Minimum Instream Flows), Condition 2 (Ramping Rates), and Condition 3 (Recreational Streamflows) of this certification. As outlined in Condition 4, any amendments or modifications to the approved coordination of operations plan shall be approved by the Deputy Director prior to implementation.

B. Invasive Algae

If the monitoring required in Condition 6.H. (Algae) indicates that invasive algae are present and are creating nuisance conditions, the Licensee shall develop adaptive measures to reduce or eliminate the problem, submit them to the Deputy Director for approval, and implement the measures upon approval. The Deputy Director may require modifications as part of the approval.

CONDITION 6. Monitoring Program

The Licensee, in consultation and coordination with the UARP Licensee (SMUD), shall implement the following Monitoring Program after license issuance and throughout the term of the new license and any annual licenses, in coordination with BLM, CDFW, USFWS, and State Water Board staff.

The Licensee shall ensure that the final monitoring plan for each element of the Monitoring Program is provided for review to BLM, CDFW, USFWS, and the Deputy Director. Each element of the final monitoring plan must be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of the approval. Each monitoring element is described below.

BLM, CDFW, USFWS, and the Deputy Director 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, BLM, CDFW, USFWS, and the Deputy Director 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 prepare an annual report that fully describes the monitoring efforts of the previous calendar year, which includes the data collected and associated analysis. BLM, CDFW, USFWS, and State Water Board staff shall have at least 30 days to review and comment on a draft report prior to the filing of the final report with the Commission. The Licensee shall provide copies of the final annual report to BLM, CDFW, USFWS, and the Deputy Director.

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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 for establishing compliance with license conditions; and (c) monitoring and studies shall be as cost-effective as possible.

For purposes of the adaptive management program required in Condition 5, 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 subsequent license is issued. Where years are specified, Year 1 is the first year during which all initial minimum instream flows required by the license are implemented by May 1.

6.A. Fish Populations

The Licensee shall develop a fish population monitoring plan in consultation with BLM, CDFW, USFWS, and the State Water Board. After agency consultation and within two years of license issuance, the Licensee shall submit the 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 Deputy Director shall be provided with a 90-day review and approval period. The Deputy Director may require modifications as part of the approval. The Licensee shall implement the Plan upon receiving all necessary approvals.

Method: Electrofishing and/or snorkeling, as conducted by the Licensee in 2003-2004. Electrofishing shall be conducted along the stream margins at the snorkel survey sites as needed to verify species identifications made during snorkel surveys, to obtain length-weight relationships, and to capture species that are difficult to observe while snorkeling. Any hardhead that are detected shall be noted.

Locations⁶: SF American River below Chili Bar Reservoir Dam at upper and lower sample section of the following two snorkel sites: CB-F1 (approximately 1.7 miles downstream at the “Old Flume” memorial); and CB-F4 (near the confluence with Weber Creek).

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

6.B. Aquatic Macroinvertebrates

The Licensee shall develop an aquatic macroinvertebrate monitoring plan in consultation with BLM, CDFW, USFWS, and State Water Board staff. After agency consultation and within two years of license issuance, the Licensee shall submit the 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 Deputy Director shall be provided with a 90-day review and approval period. The Deputy Director may require modifications as part of the approval. The Licensee shall implement the Plan upon receiving all necessary approvals.

⁶ Sample site designations are the same as those used in the technical reports that were completed and filed with the Commission during the relicensing proceeding.

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Method: A method accepted by BLM, CDFW, USFWS, and State Water Board staff. The results shall be compared to an aquatic health index specified in the Plan approved by the Deputy Director.

Locations⁶: SF American River below Chili Bar Reservoir Dam at CB-11 (downstream of Georgetown Road Bridge) and CBI4 (near Camp Lotus).

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

6.C. Amphibians and Reptiles

The Licensee shall develop an amphibian and reptile habitat evaluation and species presence monitoring plan in consultation with BLM, CDFW, USFWS, and State Water Board staff. After agency consultation and within one year of license issuance, the Licensee shall submit the 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 Deputy Director shall be provided with a 90-day review and approval period. The Deputy Director may require modifications as part of the approval. The Licensee shall implement the plan upon receiving all necessary approvals.

Method: Conduct protocol surveys for FYL frogs (special status, sensitive species); and California Red-Legged Frogs (CRL frogs, a federal Endangered Species Act (ESA)-listed amphibian species) using the procedures of the USFWS⁷ and the Licensee⁸, or the most current survey protocol approved by the Deputy Director. The surveys shall be conducted in a sub-sample of appropriate habitat types to document species presence and distribution. The Licensee shall also survey for Western Pond Turtle during FYL frog surveys.

The Licensee shall identify amphibian breeding and larval periods in the SF American River downstream of the Project by surveying locations where amphibians are known to occur during spring/summer. The first iteration of surveys shall be used to determine the timing and success of the following life stages of any existing known FYL frog populations: egg laying; tadpole rearing; metamorphosis; and size/condition of metamorphs in late September to estimate the probability of overwintering success. Based on review of the first year's data, for subsequent years the Deputy Director, after consultation with BLM, USFWS, and CDFW, may approve a subset of survey sites or a less intensive program. In the future, BLM, USFWS, CDFW, 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 Project operations.

⁷ USFWS. 1997. Guidance on site assessment and field surveys for California red-legged frogs (*Rana aurora draytonii*).

⁸ Seldenrich, C. P. and A. C. Pool. 2002. A standardized approach for habitat assessments and visual encounter surveys for the foothill yellow-legged frog (*Rana boylei*). PG&E.

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Locations⁶: SF American River below Chili Bar Reservoir Dam along the entire reach from CB-A15 (near Scott Road) downstream to Ponderosa Campground (near Highway 49 Bridge) on the right and left banks.

Frequency: Years 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 annual extensions.

6.D. Riparian Vegetation Species Composition

The Licensee shall develop a riparian vegetation monitoring plan in consultation with BLM, CDFW, USFWS, and State Water Board staff. After agency consultation and within two years of license issuance, the Licensee shall submit the 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 Deputy Director shall be provided with a 90-day review and approval period. The Deputy Director may require modifications as part of the approval. The Licensee shall implement the Plan upon receiving all necessary approvals.

Method: Aerial photo flights and greenline method.⁹ The data collected at each site will include transects to document species composition, percent cover, and quantification of length and width of riparian community.

Locations: The five Intensive Field Study Sites (riparian) that were surveyed in the Riparian Report filed with the Commission as part of the Licensee's application for new license on July 15, 2005.

Frequency: Years 5, 10 and 15 after license issuance. Thereafter every 10 years (e.g., Years 25, 35, 45, etc.) for the term of the license and any annual extensions.

⁹ The *Riparian Vegetation and Wetlands Technical Report* (Riparian Report) defines the greenline as "...the first perennial vegetation that forms a lineal grouping of community types on or near the water's edge..." As presented in the Riparian Report, each greenline is described by the cumulative distance in feet occupied by each community type.

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6.E. Water Temperature

Within three months of license issuance, the Licensee shall consult with State Water Board staff, BLM, USFWS, and CDFW on the development of a Water Temperature Monitoring Plan consistent with the method and frequencies described below. After agency consultation and within one year of license issuance, the Licensee shall submit the 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 Deputy Director shall be provided with a 90-day review and approval period. 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. 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. The Licensee shall implement the Plan upon receiving all necessary approvals.

Method: Continuous temperature recording devices shall be installed and maintained at a minimum of four stream temperature stations as designated below. Reservoir temperature profiles may be added if BLM, CDFW, USFWS, and State Water Board staff determine that Chili Bar Reservoir temperatures are a controllable factor in the SF American River downstream of the Project or if water chemistry monitoring in the reservoir indicates a need for additional temperature information.

Locations: Initial monitoring sites shall be determined in consultation with BLM, CDFW, USFWS, and State Water Board staff. Up to two additional stream sites may be added if temperature problems are identified through review of monitoring data and annual consultation with USFS, CDFW, USFWS, and State Water Board staff (Condition 10). The final monitoring sites and any subsequent modifications shall be approved by the Deputy Director. At a minimum, the water temperature plan shall provide for monitoring at the following locations:

- A. SF American River immediately below Chili Bar Dam;
- B. SF American River upstream of Dutch Creek confluence;
- C. SF American River immediately upstream of Camp Lotus; and
- D. SF American River immediately upstream of Greenwood Creek.

Frequency: For the preceding monitoring sites (A – D above), the Licensee shall conduct continuous monitoring from March 15 through October 15 in all years after license issuance until a subsequent license is issued or until it can be demonstrated by the Licensee that operation of the Project reasonably protects the "cold freshwater" beneficial use as determined by BLM, the Deputy Director, USFWS, and CDFW.

If a determination is made that Chili Bar Reservoir temperature profiles are required, seasonal temperature profiles shall be collected at locations specified by the agencies during multiple water year types to develop data necessary for

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decision-making. Some temperature stations may be deleted if the Deputy Director, in consultation with BLM, USFWS, and CDFW, finds that sufficient temperature data have been collected and that no significant issues related to temperature are evident for the relevant area.

6.F. Water Quality

Within three months of license issuance, the Licensee shall consult with BLM, CDFW, State Water Board staff, USFWS, and the Central Valley Water Board on the development of a Water Quality Monitoring Program Plan (WQ Monitoring Plan). The WQ Monitoring 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; and (2) define the laboratory analyses and associated method detection limits for all constituents and parameters to be monitored in the various elements of the monitoring program.

Following consultation and within six months of license issuance, the Licensee shall submit the WQ Monitoring 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 Deputy Director shall be provided with a 90-day review and approval period. 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. 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. The Licensee shall implement the Plan upon receiving all necessary approvals.

The approved WQ Monitoring Plan shall be implemented by the Licensee as described, throughout the term of the license and any annual extensions. The WQ Monitoring Plan may be modified pursuant to adaptive management program needs as recommended by State Water Board staff, BLM, CDFW, USFWS, and the Central Valley Water Board, and after approval by the Deputy Director.

Water Chemistry

The Licensee shall conduct a water chemistry sampling program designed to demonstrate seasonal conditions at Chili Bar Reservoir and stream locations affected by operation of the Project, as described in the relicensing Water Quality Study Plan (Plenary approval, January 8, 2003). Laboratory analyses shall be conducted using USEPA analytical methods or other methods that are sensitive enough for determination of compliance with recognized state and federal water quality criteria.

a. Annual In Situ Monitoring

Method: Monitoring for physical parameters (pH, water temperature, dissolved oxygen, specific conductance, and turbidity) using USEPA analytical methods or other methods sensitive enough to determine compliance with recognized state and federal water quality criteria.

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Locations: SF American River downstream of Chili Bar Reservoir at representative locations as defined in the final WQ Monitoring Plan. In situ physical parameters shall be monitored in Chili Bar Reservoir as vertical profiles collected at one-meter intervals from surface to bottom.

Frequency: For stream reaches, once seasonally in spring (April-May), summer (August), fall (November) and winter (January-February) each year after license issuance for the term of the license and any annual extensions. For Chili Bar Reservoir, spring (April-May) and fall (November) each year after license issuance for the term of the license and any annual extensions. When possible, in situ water quality monitoring should be completed coincident with amphibian, fisheries, and macroinvertebrate monitoring.

b. General Chemistry Monitoring

Method: Measurement of in situ parameters and water sampling for the analysis of minerals, nutrients, metals (total and dissolved fractions), measured hardness, and petroleum products shall be conducted.

Locations: General chemistry samples shall be collected from Chili Bar Reservoir and at a minimum of three representative sites along the SF American River between Chili Bar Dam and the confluence of Greenwood Creek. Reservoir samples shall be collected at the surface and near the bottom at multiple, representative locations, as defined in the final WQ Monitoring Plan.

Frequency: Beginning in Year 3 after license issuance, and every five years thereafter for the term of the license and any annual extensions. Sampling shall be conducted in the spring, summer, fall, and immediately following either the second or third measurable rain event of the fall-winter period. After a minimum of three data sets are collected, if it is demonstrated that constituents of concern do not exceed regulatory criteria at specific locations, the Licensee may request that the Deputy Director approve modifications to the sampling frequency. The Deputy Director may make modifications as part of the approval.

Bacteria

Method: The Licensee shall conduct bacterial monitoring for fecal coliform and/or *E.coli* consistent with Basin Plan objectives for protection of the REC-1 beneficial use. Five near-shore samples shall be collected at each of the eight sampling locations during the 30-day period that spans either the Independence Day Holiday (June-July) or the Labor Day Holiday (August-September), using the five samples in 30-day methodology or other protocol as amended in the Basin Plan.

Locations: Samples shall be collected at a minimum of eight shoreline recreational locations in the SF American River downstream of Chili Bar. Sampling locations shall be selected based on criteria that include: (1) swimming and other water contact recreation activities that are known to occur in the area; and (2) sources for potential introduction of pathogens to the water column in the immediate vicinity.

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Candidate sites for annual REC-1 pathogen monitoring will include developed recreation sites and frequently used white water boating take-out sites along the SF American River downstream of Chili Bar Reservoir Dam. The bacterial monitoring program shall include sampling at a minimum of four swim beach sites, including the Coloma and Camp Lotus areas, along with four other selected stations. The Licensee, in consultation with BLM, CDFW, State Water Board staff, USFWS, and the Central Valley Water Board shall determine sampling locations for each upcoming field season. The Licensee shall consult with State Water Board staff and other listed parties for final determination of the locations to be sampled no later than May 31 of each designated sampling year and shall submit the list of sampling locations to the Deputy Director for approval. The Deputy Director may make modifications as part of the approval.

Frequency: Bacterial monitoring shall be conducted annually for the first five years after license issuance. Upon approval by the Deputy Director, bacterial monitoring may be decreased in frequency to every other year if data demonstrates compliance with the Basin Plan bacteria objective for protection of REC-1 designated waters during Years 1 through 5. Monitoring shall continue through the term of the license and any annual extensions.

If data demonstrate that bacterial concentrations present risks to human health at specific stream sites, the Licensee shall notify the Central Valley Water Board and shall continue annual monitoring at those sites until such time that the Licensee consults with State Water Board staff (and any other interested parties) and agreement is reached that the monitoring frequency can be reduced and the Deputy Director has approved the change in monitoring frequency.

6.G. Metals Bioaccumulation

Method: The Licensee shall monitor for potential uptake of mercury, copper, lead, and silver through the aquatic food chain resident in Chili Bar Reservoir. Target fish species, numbers of individuals to be analyzed, sampling strategy, and analytical methods used shall be consistent with the State Water Board's Surface Water Ambient Monitoring Program (or other water quality monitoring program approved by the Deputy Director). The metals bioaccumulation monitoring plan shall be submitted to the Deputy Director for review and approval prior to each sampling event after Licensee consultation with BLM, CDFW, State Water Board staff, Central Valley Water Board, USFWS, and the state Office of Environmental Health Hazard Assessment. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Deputy Director shall be provided with a 90-day review and approval period. The Deputy Director may require modifications as part of the approval.

Locations: Resident fish species shall be collected from Chili Bar Reservoir.

Frequency: Once every five years beginning in Year 2 following license issuance. Monitoring shall continue through the term of the license and any annual extensions.

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6.H. Algae

- Method: Monitoring for the presence of *Didymosphenia geminata* (invasive diatomaceous algae that is also known as rock snot) through visual observation.
- Locations: At representative sites in the SF American River downstream of Chili Bar Reservoir Dam, in conjunction with the Annual In Situ Monitoring described in the Water Chemistry monitoring portion of Section 6.F. (Water Quality).
- Frequency: The Licensee shall monitor for *Didymosphenia geminata* in stream reaches seasonally in conjunction with Annual In Situ Monitoring as described in the Water Chemistry monitoring portion of this certification (Section 6.F. Water Quality).

CONDITION 7. Sediment Management Plan

Within one year of license issuance, the Licensee shall, in consultation and coordination with the UARP Licensee (SMUD), plan and implement a geomorphology monitoring program to be performed once every five years for the duration of the license term and any annual extensions. The following data will be collected in the SF American River downstream of Chili Bar Reservoir Dam at three sites identified in the *2005 Channel Morphology Technical Report* as: CB-G1 (Upper Canyon Site); CB-G2 (Upper Coloma Site); and CB-G3 (Lower Coloma Site):

- A. Bed profile measurements at three cross-sectional transects.
- B. Longitudinal profile extending through the vicinity of the three cross-sectional transects.
- C. Bed characterization using pebble count to determine substrate composition at the three cross-sectional transects.
- D. Channel stability and bank characterization using Pfankuch characteristics.
- E. Large woody debris characterization within the site.

If the Licensee, in consultation with the UARP Licensee (SMUD), elects to dredge Chili Bar Reservoir, the Licensee will consult with the resource agencies (i.e., BLM, CDFW, USFWS and State Water Board staff) in the development of a Sediment Management Plan including consideration of depositing the material in the SF American River downstream of Chili Bar Reservoir Dam. The Licensee shall submit the plan to the Deputy Director for review and approval, after consultation with the resource agencies. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Deputy Director shall be provided with a 90-day review and approval period. The Deputy Director may require modifications as part of the approval.

The Sediment Management Plan shall be implemented upon and after approval by the Deputy Director. Prior to initiating dredging, the Licensee shall consult with the United States Army Corps of Engineers to determine if a Clean Water Act Section 404 permit is required for the dredging activities, and if so, shall obtain said permit and a Clean Water Act Section 401 Water Quality Certification from the Central Valley Water Board.

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CONDITION 8. Large Woody Debris for Protection of Aquatic Life Beneficial Uses

The Licensee shall ensure that mobile instream large woody debris in Chili Bar Reservoir continues downstream beyond Chili Bar Reservoir Dam. The mobilization of large woody debris shall be performed under circumstances that permit safe access and working conditions using reasonable means, which includes short-term spill flows at the dam. At a minimum, all large woody debris with dimensions greater than both 20 centimeters in width and 12 meters in length shall be allowed to continue downstream beyond the dam. Smaller sizes are also allowed but are not required to be moved beyond the dam. To assure compliance with this measure, the Licensee shall include in the annual monitoring report required in Condition 6 (Monitoring Program) a summary of the efforts made during the year to assure that large woody debris continues downstream beyond Chili Bar Reservoir Dam.

CONDITION 9. Streamflow and Reservoir Elevation 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 develop the initial draft version of the Gaging Plan in consultation with the USGS. The Licensee shall provide copies of the draft 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 plan with the Commission. The Deputy Director shall be provided with a 90-day review and approval period. 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. If Deputy Director approval is not received 14 calendar days prior to an applicable Commission deadline, the Licensee may file the Gaging Plan with the Commission; however, Deputy Director approval is required prior to Gaging Plan implementation. The Licensee must amend its filing with the Commission if modifications are made as part of the Deputy Director's subsequent approval. The Licensee shall implement the Gaging Plan upon receiving all necessary approvals.

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

- A. Streamflow Gaging at SF American River below Chili Bar Reservoir Dam (existing USGS gage number 11444500 or its successor).
- B. Reservoir Elevation Gaging at Chili Bar Reservoir.

CONDITION 10. Annual Review of Ecological Conditions

Each calendar year, by April 1, the Licensee shall schedule and facilitate a meeting with the CDFW, BLM, USFWS, and State Water Board staff to review and discuss the results of implementing the conditions in this certification. The meeting shall also include discussion of other issues related to restoring and protecting ecological values affected by the Project, including implementation of Condition 5 (Adaptive Management Program).

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The Licensee shall provide CDFW, BLM, USFWS, and State Water Board staff with an operations and maintenance plan for the coming year at least two weeks prior to the meeting. The Licensee shall also make every effort to provide the agencies with the annual monitoring report (required per Condition 6) at least 10 days prior to the meeting. If the annual monitoring report is not available, the Licensee shall provide available information and data to the agencies at least 10 days prior to the meeting.

CONDITION 11. Streamflow and Reservoir Level Public Information Services

The Licensee shall, in consultation and coordination with the UARP Licensee (SMUD), BLM, State Water Board staff, and the Consultation Group¹⁰, prepare a plan to provide public information on streamflow and reservoir level. The Licensee shall file the plan with the Commission within six months of license issuance. The plan shall be submitted to the Deputy Director for review and approval prior to filing with the Commission. The Licensee shall provide the Deputy Director with any comments received during the consultation process. The Deputy Director shall be provided with a 60-day review and approval period. The Licensee shall file the Deputy Director's approval, together with any required Plan modifications, with the Commission. 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. The Licensee shall implement the Plan upon receiving all necessary approvals.

The plan shall include at a minimum, the following components:

- A. Real-time lake stage height and storage information for Chili Bar Reservoir.
- B. Installation of up to two simple staff gages for use by the public.
- C. Real-time streamflow and reservoir level information that is available to the public year-round via a toll-free telephone number or other appropriate technology approved by BLM.
- D. Streamflow information on a website, which is collected consistent with standard USGS gaging practices for the existing stream gage facilities downstream of Chili Bar Reservoir Dam (USGS gage 11444500 or its successor) that includes 15-minute increments and stream flows releases from the past seven days.

Following approval of the plan by the Deputy Director, the minimum streamflow and recreational streamflow schedules from Conditions 1 and 3 (Minimum Instream Flows and Recreational Streamflows), as well as the current water year type designation, shall be published via the website.

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 Project during the course of the Commission license term. **Per the LF [Long-Term Fish Passage Action] 2 of the**

¹⁰ The SA defines the Consultation Group as including all parties to the SA with the addition of the State Water Board, the Central Valley Water Board, and El Dorado County.

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NMFS B.O., “[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 ~~a determination by a state or federal agency~~ **submittal of the plan referenced in LF 2 or an equivalent plan** to restore anadromous fish passage to the waters above Folsom Dam,⁴⁴ the Licensee shall consult with CDFW, USFWS, NMFS and State Water Board staff to determine whether changes are needed in the certification conditions to protect beneficial uses associated with anadromous fish. **The State Water Board recognizes that the timelines associated with the NMFS B.O. and the NMFS B.O. 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 biological opinions or determinations by state or federal agencies ~~that~~ **which** would have a bearing on anadromous fish reintroduction.

CONDITION 13. Hazardous Materials Plan

Within one year of license issuance or prior to undertaking activities on BLM lands, whichever occurs first, the Licensee shall file with the Commission a plan approved by BLM and the Deputy Director for hazardous substances storage and spill prevention and cleanup. The plan shall be submitted to the Deputy Director for review and approval prior to filing the plan with the Commission. The Deputy Director shall be provided with a 90-day review and approval period. 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. 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. The Licensee shall implement the Plan upon receiving all necessary approvals.

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 BLM and State Water Board staff. The BLM and the Deputy Director shall determine if an additional plan or updates for hazardous substances storage and spill prevention and cleanup are needed. Any such plan or updates shall be filed with the Commission following approval by the Deputy Director.

⁴⁴ ~~Per the LF [Long-Term Fish Passage Action] 2 of the NMFS B.O., “[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.” The State Water Board recognizes that the timelines associated with the NMFS B.O. and the NMFS B.O. provisions may change over the term of the license. Based on the existing NMFS B.O., identification of passage above Folsom Dam in the plan referenced in LF 2 would serve as a “determination” by a state or federal agency to restore anadromous fish passage, and would be a trigger to initiate consultation as outlined in Condition 12.~~

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

CONDITION 14. Water Quality Protection During Recreation Facility Construction

The Licensee is required to construct new recreation facilities to provide access to Chili Bar Reservoir as part of the SA. These facilities are described above in Section III “Commission Proceeding and Settlement Agreement” of this certification. No later than four months prior to initiating construction activities for the new recreation facilities, the Licensee shall submit to the Deputy Director for review and approval a plan that describes the best management practices that will be taken to minimize impacts to water quality during construction. 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 approvals. These measures should include the following, where applicable:

- Control measures for erosion, excessive sedimentations and turbidity shall be implemented and be in place at commencement of, during and after any ground clearing activities, excavation, or any other project activities that could result in erosion or sediment discharges to surface waters.
- Construction material, debris, spoils, soil, silt, sand, bark, slash, sawdust, rubbish, steel, or other organic or earthen material from any construction activity shall be prevented from entering surface waters.
- All equipment must be washed prior to transport to the project site and must be free of sediment, debris and foreign matter. All equipment using gas, oil, hydraulic fluid or other petroleum products shall be inspected for leaks prior to use and shall be monitored for leakage. Stationary equipment (motors, pumps, generator, etc.) shall be positioned over drip pans or other types of containment. Spill and containment equipment (oil spill booms, sorbent pads, etc.) shall be maintained onsite at all locations where such equipment is used or staged.
- All construction debris and trash shall be contained and regularly removed from the work area to the staging area during construction activities. Upon completion, all project-generated debris, building materials, excess material, waste, and trash shall be removed from all the project sites for disposal at an authorized landfill or other disposal site.
- Erosion control blankets, liners with berms, and/or other erosion control measures shall be used for any stockpile of excavated material to control runoff resulting from precipitation.

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General Conditions

CONDITION 15. Unless otherwise specified in this water quality certification or at the request of the State Water Board, 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 16. 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 17. The State Water Board reserves the authority to 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 a Regional Water Quality Control Board (Regional Water Board).

CONDITION 18. 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 19. The State Water Board may add to or modify the conditions of this certification as appropriate to coordinate the operations of the Project and other hydrologically connected water development projects, where coordination of operations is reasonably necessary to achieve water quality objectives or protect beneficial uses of water.

CONDITION 20. The State Water Board reserves authority to modify this certification if monitoring results indicate that continued operation of the Project could violate water quality objectives or impair the beneficial uses of the SF American River or its tributaries.

CONDITION 21. Future changes in climate projected to occur during the license term 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 Project operations meet water quality objectives and protect the beneficial uses assigned to Project-affected stream reaches.

CONDITION 22. This certification requires compliance with all applicable requirements of the Basin Plan. The Licensee must notify the Deputy Director and Central Valley Water Board's Executive Officer (Executive Officer) within 24 hours of any unauthorized discharge to surface waters.

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- CONDITION 23.** Notwithstanding any more specific conditions in this certification, the Project 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 Control Act or section 303 of the Clean Water Act. The Licensee must take all reasonable measures to protect the beneficial uses of waters of the SF American River and tributaries.
- CONDITION 24.** 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 California ESA (Fish & Game Code §§ 2050-2097) or the federal ESA (16 U.S.C. §§ 1531 - 1544). If a “take” will result from any act authorized under this certification or water rights held by the Licensee, the Licensee must obtain authorization for the take prior to any construction or operation of the portion of the Project that may result in a take. The Licensee is responsible for meeting all requirements of the applicable ESAs for the Project authorized under this certification.
- CONDITION 25.** In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation is subject to any remedies, penalties, process or sanctions as provided for under applicable 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 assure compliance with the water quality standards and other pertinent requirements incorporated into this certification.
- CONDITION 26.** 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 the reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports (California Water Code, §§ 1051, 13165, 13267 and 13383). The State Water Board may add to or modify the conditions of this certification as appropriate to ensure compliance.
- CONDITION 27.** No construction shall commence until all necessary federal, state, and local approvals have been obtained.
- CONDITION 28.** 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.
- CONDITION 29.** The Licensee must submit any change to the Project, including Project operation, which would have a significant or material effect on the findings, conclusions, or conditions of this certification, to the State Water Board for prior review and written approval. If such a change would also require submission to the Commission, the change must first be submitted and approved by the State Water Board, unless otherwise noted in this certification.

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- CONDITION 30.** 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 31.** The Licensee must provide State Water Board staff access to Project sites to document compliance with this certification.
- CONDITION 32.** The State Water Board shall provide notice and an opportunity to be heard in exercising its authority to add or modify any of the conditions of this certification.
- CONDITION 33.** This certification is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to California Water Code Section 13330 and California Code of Regulations, Title 23, Division 3, Chapter 28, Article 6 (commencing with Section 3867).
- CONDITION 34.** 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 Subsection 3855(b) of Article 4, Title 23 of the California Code of Regulations and that application specifically identified that a Commission license or amendment to a Commission license for a hydroelectric facility was being sought.
- CONDITION 35.** Certification is conditioned upon total payment of any fee required under Article 4, Title 23 of the California Code of Regulations.
- CONDITION 36.** Activities associated with operation or maintenance of the Project that threaten or potentially threaten water quality shall be subject to further review by the Deputy Director and the Executive Officer.

Attachment A: Location Map

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ATTACHMENT A - LOCATION MAP