STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of Water Quality Certification for

PACIFIC GAS AND ELECTRIC COMPANY
UPPER DRUM-SPAULDING HYDROELECTRIC PROJECT
AND
LOWER DRUM HYDROELECTRIC PROJECT

FEDERAL ENERGY REGULATORY COMMISSION PROJECT NOS. 2310 AND 14531

SOURCES: South Yuba River, Bear River, and North Fork of the North Fork American River and Tributaries

COUNTIES: Nevada and Placer

WATER QUALITY CERTIFICATION FOR FEDERAL PERMIT OR LICENSE

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Acronyms and Abbreviations

Aquatic Invasive Species Plan	*Aquatic Invasive Species Management Plan*
Aquatic Weed Control Permit	*Statewide National Pollutant Discharge Elimination System Permit for Residual Aquatic Pesticide Discharges to Water of the United States from Algae and Aquatic Weed Control Applications*
Bay-Delta	*San Francisco Bay/Sacramento-San Joaquin Delta Estuary*
Bay-Delta Plan	*Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*
BLM	*United States Bureau of Land Management*
BMI	*benthic macroinvertebrates*
BMI Plan	*Aquatic Benthic Macroinvertebrates Management Plan*
BMPs	*best management practices*
CDEC	*California Data Exchange Center*
CDFW	*California Department of Fish and Wildlife*
Central Valley Regional Water Board	*Central Valley Regional Water Quality Control Board*
CEQA	*California Environmental Quality Act*
certification	*water quality certification*
CESA	*California Endangered Species Act*
cfs	*cubic feet per second*
Construction General Permit	*National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities*
Deer Creek Project	*Deer Creek Hydroelectric Project*
Deputy Director	*Deputy Director of the Division of Water Rights*
Draft EIS	*Draft Environmental Impact Statement for Hydropower Licenses Drum-Spaulding Hydroelectric Project—FERC Project No. 2310-193 and Yuba-Bear Hydroelectric Project—FERC Project No. 2266-102*
DSOD	*California Division of Safety of Dams*
DWR	*California Department of Water Resources*
ELAP	*California's Environmental Laboratory Accreditation Program*
Erosion and Sediment Plan	*Erosion Control and Sediment Management Plan*
ESA	*Endangered Species Act*
Final EIS	*Final Environmental Impact Statement for Hydropower Licenses, Upper Drum-Spaulding Hydroelectric Project—FERC Project No. 2310-193; Lower Drum Hydroelectric Project—FERC Project No. 14531-000; Deer Creek Hydroelectric Project—FERC Project No. 14530-000; and Yuba-Bear Hydroelectric Project—FERC Project No. 2266-102*

FERC	*Federal Energy Regulatory Commission*
FLA	*Final License Application*
IS/MND	*Initial study/mitigated negative declaration*
ISWEBE	*Tribal Subsistence Beneficial Uses and Mercury Provisions of the Inland Surface Waters, Enclosed Bays, and Estuaries*
Jordan Creek Plan	*Jordan Creek Diversion Dam Removal Plan*
LWMM Plan	*Large Woody Material Management Plan*
Lower Drum Project	*Lower Drum Hydroelectric Project*
MIF	*minimum instream flow*
MW	*megawatts*
NID	*Nevada Irrigation District*
NMFS	*National Marine Fisheries Service*
NPDES	*National Pollutant Discharge Elimination System*
Procedures	*State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*
Projects	*Upper Drum–Spaulding Hydroelectric Project and Lower Drum Hydroelectric Project*
Pacific Gas and Electric Company	*PG&E*
PCWA	*Placer County Water Agency*
Reclamation	*United States Bureau of Reclamation*
Regional Water Boards	*Regional Water Quality Control Boards*
SR/SJR Basin Plan	*Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin*
State Water Board	*State Water Resources Control Board*
Stranding Avoidance Plan	*Auburn Ravine Stranding and Dewatering Avoidance Plan*
Stranding Survey Plan	*Auburn Ravine Stranding and Dewatering Survey Plan*
Supplemental Flow Plan	*South Yuba River Supplemental Flow Plan*
SWAMP	*Surface Water Ambient Monitoring Program*
TAF	thousands of acre-feet
TMDLs	*Total maximum daily loads*
TRG	*Technical Review Group*
Upper Drum Project	*Upper Drum–Spaulding Hydroelectric Project*
USEPA	*United States Environmental Protection Agency*
USFS	*United States Forest Service*
USFWS	*United States Fish and Wildlife Service*
USGS	*United States Geological Survey*
WQMP Plans	*Water Quality Monitoring and Protection Plans*

1.0 Project Description

Pacific Gas and Electric Company (PG&E) owns and operates the Upper Drum–Spaulding Hydroelectric Project (Upper Drum Project) and Lower Drum Hydroelectric Project (Lower Drum Project) (collectively Projects). The Upper Drum Project and Lower Drum Project are referred to as Federal Energy Regulatory Commission (FERC) Project Nos. 2310 and 14531, respectively. The Projects are located on the South Yuba River, Bear River, and North Fork of the North Fork American River in Nevada and Placer counties. The Yuba and Bear Rivers are tributaries to the Feather River, and the North Fork of the North Fork American River is a tributary to the American River, which is tributary to the Sacramento River (see Figure 1). The Feather River and Sacramento River are part of the Sacramento River Basin, which drains to the San Francisco Bay through the Sacramento-San Joaquin Delta Estuary. The Projects were initially licensed to operate by the Federal Power Commission, predecessor to FERC, on June 24, 1963.

The Projects consist of nine developments: 1) Spaulding No. 1 and No. 2; 2) Spaulding No. 3; 3) Alta; 4) Drum No. 1 and No. 2; 5) Dutch Flat No. 1; 6) Halsey; 7) Wise; 8) Wise No. 2; and 9) Newcastle. In the nine developments there are: 29 reservoirs/ impoundments with an approximate combined gross storage capacity of 151,355 acre-feet of water; 10 water conduits; 11 powerhouses, with associated switchyards, with a combined installed capacity of 186.8 megawatts (MW); five transmission lines and one distribution line; and appurtenant facilities and structures, including recreation facilities.

The total area of the Projects encompasses 5,253 acres. The Upper Drum Project's Fordyce Lake is within 15 miles of Truckee and the Lower Drum Project's Wise Forebay runs within Auburn city limits. The majority of the land in the Projects are owned by PG&E (3,410 acres). There are approximately 1,140 acres of federal land, of which 1,129 acres are managed by the United States Forest Service (USFS); five acres are managed by the United States Bureau of Reclamation (Reclamation); and approximately six acres are managed by the United States Bureau of Land Management (BLM). USFS manages land in the Projects area as part of the Tahoe National Forest. The Projects are also located on a small amount of land (approximately 20 acres) that is administered by the California Department of Fish and Wildlife (CDFW). The remaining lands in the Projects area are privately owned.

In addition to continued operations, PG&E proposes: 1) retirement of the Upper Drum Project's Alta Powerhouse Unit 2, which has not been operating since 2007; 2) removal of the Upper Drum-Spaulding Hydroelectric Project Jordan Creek Diversion Dam; and 3) construction of additional recreational facilities. Removal of the Alta Powerhouse Unit 2 will decrease the collective installed capacity of the Projects from 186.8 MW to 185.8 MW.

Additional information on the Projects facilities, current operations, and proposed operations can be found in Attachment A (Project Description) of this document as well as Exhibits A and B of PG&E's April 14, 2011 Final License Application (FLA) (PG&E, 2011a), as updated by subsequent filings including but not limited to:

1) June 18, 2012 filing, amending the FLA to update the Projects description, financial information and economic analysis, cumulative effects, proposed measures, implementation plans, operations model, hydrology information, technical memoranda, general design drawings, and maps (PG&E, 2012a); 2) August 30, 2012 filings, submitting alternative conditions developed in collaboration with USFS, Reclamation, and BLM (PG&E, 2012b, PG&E, 2012c, and PG&E, 2012d); and 3) May 12, 2014 *Response to the USFS and BLM Revised Final Federal Power Act Section 4(e) Terms and Conditions for the Proposed Drum-Spaulding Project* (PG&E, 2014b).

1.1 Water Rights

Table A[1] below lists the water rights held by PG&E for the Projects.

Table A. Water Rights Held by PG&E for the Projects

Application or Statement No.	Source	Priority Date[2]	Place of Storage or Diversion	Purpose of Use
A004851	Six Mile Valley	11/20/1926	North Fork of the North Fork of the American River, Canyon Creek	Irrigation, Domestic
A002753	Bear River	2/09/1922	Bear River Canal Intake	Power
A003550	Fordyce Creek	7/26/1923	Lake Fordyce	Industrial, Municipal, Irrigation
S000935	Lower Rock Lake	1855	Lower Rock Reservoir	Domestic, Irrigation, Power
S000936	Texas Creek	1852	Culbertson Reservoir	Domestic, Irrigation, Power
S009978	Texas Creek	1870	Bowman-Spaulding Canal	Domestic, Irrigation, Power
S009032	Jordan Creek	1870	Jordan Creek Diversion Conduit	Power
S000948	Unnamed stream; tributary to South Yuba River	1855	Kidd Lake	Domestic, Irrigation, Power
S000965	Unnamed spring; tributary to South Yuba River	1853	South Yuba Canal feeders	Power

[1] Information is from the State Water Resource Control Board's electronic Water Rights Information Management System.
[2] For priority dates listed prior to 1914, PG&E claims a pre-1914 water right with these years identified as first year of use.

Application or Statement No.	Source	Priority Date[2]	Place of Storage or Diversion	Purpose of Use
S000970	Unnamed creek; tributary to Bear River	1853	South Yuba Canal Sta.	Power
S000957	Bear River	1852	Bear River Canal	Domestic, Irrigation, Power
S000960	Canyon Creek	1863	Towle Canal	Power, Irrigation
S000961	Little Bear River	1864	Boardman Canal	Irrigation, Domestic
A006332	Bear River (imported water)	06/19/1929	Halsey Power Plant, Wise Power Plant	Power
S000938	Lindsey Creek	1870	Middle Lindsey Reservoir	Domestic, Irrigation, Power
S000939	Texas Creek	1870	Lower Lindsey Reservoir	Domestic, Irrigation, Power
S000940	Lake Creek	1875	Upper Feeley Reservoir	Domestic, Irrigation, Power
S000941	Lake Creek	1875	Lower Feeley Reservoir	Domestic, Irrigation, Power
S009979	Lindsey Creek	1870	Lindsey Creek Diversion	Irrigation, Industrial, Municipal, Power
S010396	Trap Creek	1870	Trap Creek Diversion	Power
S009982	Rucker Creek	1870	Rucker Creek Diversion	Irrigation, Industrial, Municipal, Power
S000949	Unnamed stream; tributary to South Yuba River	1855	Upper Peak Lake	Domestic, Irrigation, Power
S000954	South Yuba River	1853	South Yuba Canal	Domestic, Irrigation, Power
S000953	South Yuba River	1865	Drums Canal	Power
S000964	Unnamed creek; tributary to Bear River	1865	Drum Canal	Power
S000968	Rock Creek	1917	Rock Creek Reservoir	Domestic, Irrigation, Power
A002750	Fordyce Creek	2/09/1922	Lake Fordyce	Power
A005970	Bear River	1928	Dutch Flat Power House	Power

Application or Statement No.	Source	Priority Date[2]	Place of Storage or Diversion	Purpose of Use
A026517	North Fork of the North Fork American River	1980	Lake Valley Canal Diversion Dam; Drum Afterbay; Bear River Canal Diversion Dam; Halsey Afterbay	Power
S000934	Rock Lake	1855	Upper Rock Reservoir	Domestic, Irrigation, Power
S000937	Lindsey Creek	1870	Upper Lindsey Reservoir	Domestic, Irrigation, Power
S009980	Clear Creek	1870	Clear Creek Diversion to Bowman Spaulding Conduit	Irrigation, Industrial, Municipal, Power
S009981	Fall Creek	1870	Fall Creek Diversion to Bowman Spaulding Conduit	Irrigation, Industrial, Municipal, Power
S000942	Rucker Creek	1870	Blue Lake Reservoir	Domestic, Irrigation, Power
S000943	Rucker Creek	1870	Rucker Lake Reservoir	Domestic, Irrigation, Power
S000950	Unnamed stream; tributary to South Yuba River	1860	Lower Peak Lake	Domestic, Irrigation, Power
S000944	South Yuba River	1892	Lake Spaulding	Domestic, Irrigation, Power
S000952	Lake Valley Creek	1887	Lake Valley Reservoir	Domestic, Irrigation, Power
S000955	North Fork of the North Fork of the American River	1853	Lake Valley Canal	Power
S000969	Dry Creek	1917	Halsey Afterbay	Domestic, Irrigation, Power
S009033	Fordyce Creek	1873	Lake Fordyce	Domestic, Irrigation, Power

2.0 Federal Energy Regulatory Commission Proceedings

On April 12, 2011, PG&E filed a license application with FERC proposing to relicense the Drum-Spaulding Hydroelectric Project. On January 19, 2012, FERC noticed the

Drum-Spaulding Hydroelectric Project license application and provided an opportunity for comment. On July 31, 2012, the State Water Resources Control Board (State Water Board) submitted a comment letter to FERC that included a discussion of the water quality certification (certification) process.

On May 31, 2013, PG&E filed a license application amendment that proposed to split the Drum-Spaulding Hydroelectric Project into three new licensed projects: (1) Upper Drum Project, (2) Lower Drum Project, and (3) Deer Creek Hydroelectric Project (Deer Creek Project)[3]. On July 3, 2013, FERC issued an order that assigned filing numbers to divide the Drum-Spaulding Hydroelectric Project into the three projects, as requested by PG&E. This was only an administrative action and no final decision on the separation of the three projects has occurred. Additionally, on January 22, 2019, PG&E and Nevada Irrigation District (NID) filed a joint application with FERC to transfer the Deer Creek Project's facilities and FERC license from PG&E to NID. FERC has not yet acted on transfer of the Deer Creek Project from PG&E to NID.

On May 24, 2013, FERC issued a *Draft Environmental Impact Statement for Hydropower Licenses Drum-Spaulding Hydroelectric Project—FERC Project No. 2310-193 and Yuba-Bear Hydroelectric Project—FERC Project No. 2266-102* (Draft EIS) (FERC, 2013). On August 22, 2013, the State Water Board submitted timely[4] comments on the Draft EIS. On December 19, 2014, FERC issued the *Final Environmental Impact Statement for Hydropower Licenses, Upper Drum-Spaulding Hydroelectric Project—FERC Project No. 2310-193; Lower Drum Hydroelectric Project—FERC Project No. 14531-000; Deer Creek Hydroelectric Project—FERC Project No. 14530-000; and Yuba-Bear Hydroelectric Project—FERC Project No. 2266-102* (Final EIS) (FERC, 2014).

3.0 Regulatory Authority

3.1 Water Quality Certification and Related Authorities

The federal Clean Water Act (33 U.S.C. §§ 1251-1388) was enacted "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." (33 U.S.C. § 1251(a).) The Clean Water Act relies significantly on state participation and support in light of "the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution" and "plan the development and use" of water resources. (33 U.S.C. § 1251(b).) Section 101 of the Clean Water Act 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." (33 U.S.C. § 1251(g).)

[3] The Deer Creek Project was assigned FERC Project No. 14530.
[4] The original deadline for comments on the DEIS was July 23, 2013; however, FERC extended the deadline to August 22, 2013, following a request from PG&E and NID.

Section 401 of the Clean Water Act (33 U.S.C. § 1341) requires any 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). Clean Water Act section 401 directs the agency responsible for certification to prescribe effluent limitations and other conditions necessary to ensure compliance with the Clean Water Act and with any other appropriate requirements of state law. Section 401 further provides that certification conditions shall become conditions of any federal license or permit for the project.

The State Water Board is the state agency responsible for such certification in California. (Wat. Code, § 13160.) The State Water Board has delegated authority to act on applications for certification to the Executive Director of the State Water Board. (Cal. Code Regs., tit. 23, § 3838, subd. (a).)

Water Code section 13383 authorizes the State Water Board to "establish monitoring, inspection, entry, reporting, and recordkeeping requirements" and obtain "other information as may be reasonably required" for activities subject to certification under section 401 of the Clean Water Act. For activities that involve the diversion of water for beneficial use, the State Water Board delegated this authority to the Deputy Director of the Division of Water Rights (Deputy Director), as provided for in State Water Board Resolution No. 2012-0029 (State Water Board, 2012). In the *Redelegation of Authorities Pursuant to Resolution No. 2012-0029* memo issued by the Deputy Director on October 19, 2017, this authority is redelegated to the Assistant Deputy Directors of the Division of Water Rights (State Water Board, 2017).

On February 4, 2020, PG&E filed an application for certification with the State Water Board under section 401 of the Clean Water Act for the Projects. On October 16, 2020, the State Water Board provided public notice of the application, pursuant to California Code of Regulations, title 23, section 3858, by posting information describing the Projects on the State Water Board's website. On October 20, 2020, the State Water Board provided notice of the application on its "Water Rights Water Quality Email Subscription List." The State Water Board received one comment letter regarding the notice from Yuba County Water Agency, which was considered in the development of this certification.

The submission of the application predates the effective date of the new Clean Water Act Section 401 Certification Rule (40 C.F.R. part 121), which took effect on September 11, 2020. Thus, this certification is not subject to the requirements of the new regulations.

On January 22, 2021, State Water Board staff requested comments from the Central Valley Regional Water Quality Control Board (Central Valley Regional Water Board) on the certification. (See Cal. Code Regs., tit. 23, § 3855, subd. (b)(2)(B).) Central Valley Regional Water Board staff responded on January 28, 2021 with no comments.

3.2 Water Quality Control Plans and Related Authorities

The State Water Board's certification for the Projects must ensure compliance with the water quality standards in the Central Valley Regional Water Board's *Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin* (SR/SJR Basin Plan) (Central Valley Regional Water Board, 2018) and the *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) (State Water Board, 2018). Water quality control plans designate the beneficial uses of water that are to be protected (e.g., municipal and industrial, agricultural, and fish and wildlife beneficial uses), water quality objectives for the reasonable protection of the beneficial uses and the prevention of nuisance, and a program of implementation to achieve the water quality objectives. (Wat. Code, §§ 13241, 13050, subds. (h), (j).) The beneficial uses, together with the water quality objectives contained in the water quality control plans, and applicable federal anti-degradation requirements, constitute California's water quality standards for purposes of the Clean Water Act. In issuing certification for a project, the State Water Board must ensure consistency with the designated beneficial uses of waters affected by the project, the water quality objectives developed to protect those uses, and anti-degradation requirements. (*PUD No. 1 of Jefferson County v. Washington Dept. of Ecology* (1994) 511 U.S. 700, 714-719.)

The nine Regional Water Quality Control Boards (Regional Water Boards) have primary responsibility for the formulation and adoption of water quality control plans for their respective regions, subject to State Water Board and United States Environmental Protection Agency (USEPA) approval, as appropriate. (Wat. Code, § 13240 et seq.) As noted above, the State Water Board may also adopt water quality control plans, which will supersede regional water quality control plans for the same waters to the extent of any conflict. (*Id*., § 13170.)

In March 2019, the State Water Board submitted to FERC the plans and policies included in the State's comprehensive plan for orderly and coordinated control, protection, conservation, development, and utilization of the water resources of the State. The submission includes the SR/SJR Basin Plan and the Bay-Delta Plan.

Sacramento and San Joaquin Rivers Basin Plan

The Central Valley Regional Water Board adopted, and the State Water Board and USEPA approved, the SR/SJR Basin Plan. The SR/SJR Basin Plan designates the beneficial uses of water to be protected along with the water quality objectives necessary to protect those uses. The SR/SJR Basin Plan identifies beneficial uses for surface waters in the Yuba River, for sources to Englebright Reservoir, as: municipal and domestic supply; irrigation; stock watering; power; contact recreation; canoeing and rafting; other noncontact recreation; cold freshwater habitat; cold spawning habitat; and wildlife habitat. The SR/SJR Basin Plan identifies beneficial uses for surface waters in the Bear River as: municipal and domestic supply; irrigation; stock watering; power; contact recreation; canoeing and rafting; other noncontact recreation; warm freshwater habitat; cold freshwater habitat; warm migration; and cold migration. Additionally, identified potential beneficial uses for the Bear River include warm migration; cold

migration; warm spawning habitat; cold spawning habitat; and wildlife habitat. The SR/SJR Basin Plan identifies beneficial uses for surface waters in the North Fork American River, source to Folsom Lake, as: municipal and domestic supply; irrigation; contact recreation; canoeing and rafting; other noncontact recreation; cold freshwater habitat; cold spawning habitat; and wildlife habitat. Additionally, identified potential beneficial uses for the North Fork American River include warm freshwater habitat.

The Projects do not divert water from Auburn Ravine, however the Lower Drum Project releases water into Auburn Ravine via South Canal. Auburn Ravine is a tributary to the Sacramento River below the Colusa Basin Drain and above its confluence with the American River. The SR/SJR Basin Plan identifies beneficial uses for surface waters in the Sacramento River from the Colusa Basin Drain to Eye ("I") Street Bridge, as: municipal and domestic supply; irrigation; contact recreation; canoeing and rafting; other noncontact recreation; warm freshwater habitat; cold freshwater habitat; warm migration habitat; cold migration habitat; warm spawning habitat; cold spawning habitat; wildlife habitat; and navigation.

Bay-Delta Plan

The Bay-Delta Plan establishes water quality objectives to protect beneficial uses of water in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta) and tributary watersheds, including drinking water supply, irrigation supply, and fish and wildlife. The State Water Board adopts the Bay-Delta Plan pursuant to its authorities under the Porter-Cologne Water Quality Control Act (Wat. Code, § 13000 et seq.) and the federal Clean Water Act (33 U.S.C. § 1313).

The State Water Board has historically developed the water quality control plan for the Bay-Delta for several reasons. The Bay-Delta is a critically important natural resource that is both the hub of California's water supply system and the most valuable estuary and wetlands system on the West Coast. As diversions of water within and upstream of the Bay-Delta Estuary are a driver of water quality in the Bay-Delta watershed, much implementation of the Bay-Delta Plan relies on the combined water quality and water right authority of the State Water Board. In addition, the Bay-Delta falls within the boundaries of two Regional Water Boards. Having the State Water Board develop and adopt a water quality control plan that crosses Regional Water Board boundaries ensures a coordinated approach.

The beneficial uses in the Bay-Delta Plan are: municipal and domestic supply; industrial service supply; industrial process supply; agricultural supply; groundwater recharge; navigation; water contact recreation; non-contact water recreation; shellfish harvesting; commercial and sport fishing; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; estuarine habitat; wildlife habitat; and rare, threatened, or endangered species.

The existing Bay-Delta Plan does not allocate responsibility for meeting the existing flow objectives to water diverters in the Yuba, Bear, and American River watersheds. The

State Water Board is developing amendments to the Bay-Delta that are focused on the Sacramento River and its tributaries (including the Yuba River, Bear River, and American River), Delta eastside tributaries, Delta outflows, and interior Delta flows. This effort is referred to as the Sacramento/Delta Update to the Bay-Delta Plan. Future flow objectives adopted through this process will be implemented by assigning responsibility to water diverters and users through water right and water quality actions, including certification.

Protection of the Bay-Delta ecosystem and its native aquatic species requires an integrated approach to effectively connect upstream suitable cold water nursery habitat, floodplains, tidal marshland, and turbid open water habitats in the Delta and Bay – and to connect those environments to the ocean. Accordingly, the Sacramento/Delta Update to the Bay-Delta Plan would provide for a flow regime that supports a connected and functioning ecosystem linking and integrating inflow, cold water habitat, Delta outflow, and interior Delta flow measures with complementary physical habitat restoration and other nonflow measures. Changes are proposed to the water quality objectives, including narrative and numeric flow objectives, and a program of implementation for those objectives, as well as changes to monitoring, reporting, and assessment requirements. All water users on Bay-Delta tributaries would bear responsibility for achieving the tributary flow objectives and for contributing to the Delta outflow objectives, including diverters upstream and in the Delta. The State Water Board is aware of, and encourages, the ongoing negotiations between interested stakeholders and various other state agencies to achieve voluntary solutions that may implement an updated Bay-Delta Plan. The State Water Board anticipates that, if PG&E desires, it will file a request to amend this certification, as necessary, in order to implement any voluntary solution to meet updated Bay-Delta Plan requirements.

Clean Water Act Section 303(d) Listing

The State Water Board listed portions of the Projects in the *California's 2014 and 2016 California Integrated Report (Clean Water Act Section 303(d) List / 505(b) Report)* (State Water Board, 2017c) as follows:

- South Yuba River (Lake Spaulding to Englebright Reservoir) is listed for mercury, chromium, copper, iron, and water temperature; and
- Bear River (from Rollins Lake to Camp Far West Reservoir) is listed for mercury.

Section 303(d) of the Clean Water Act requires total maximum daily loads (TMDLs) to be developed for impaired water bodies. TMDLs are written plans that define the maximum amount of a pollutant that a water body can receive without exceeding water quality standards and establish load allocations for point and nonpoint sources of pollution.

3.3 Construction General Permit

PG&E will need to obtain coverage under the State Water Board's *National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges*

Associated with Construction and Land Disturbance Activities (***Construction General Permit***)[5] (State Water Board, 2009) for activities that disturb one or more acres of soil, or that disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres. Construction activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation, but do not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

3.4 State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State

On April 2, 2019, the State Water Board adopted the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (***Procedures***)[6] (State Water Board, 2019). The Procedures provide California's definition of wetland, wetland delineation procedures, and procedures for submitting applications for activities that could result in discharges of dredged or fill material to waters of the state. The Procedures ensure that State Water Board regulatory activities will result in no net loss of wetland quantity, quality, or permanence, compliant with the *California Wetlands Conservation Policy*, Executive Order W-59-93. PG&E must comply with the Procedures when conducting Projects-related dredge or fill activities that may impact waters of the state, including wetlands.

3.5 Aquatic Weed Control General Permit

The *Statewide National Pollutant Discharge Elimination System Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications* (***Aquatic Weed Control General Permit***)[7] (State Water Board, 2013) applies to projects that require aquatic weed management activities. The Aquatic Weed Control General Permit sets forth detailed management practices to protect water quality from pesticide and herbicide use associated with aquatic weed control.

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[5] Water Quality Order No. 2009-0009-DWQ and NPDES No. CAS000002, as amended by Order No. 2010-0014-DWQ, Order No. 2012-0006-DWQ, and any amendments thereto. Available at: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html Last accessed January 29, 2021.

[6] The Procedures and any amendments thereto. Available at: https://www.waterboards.ca.gov/water_issues/programs/cwa401/wrapp.html. Last accessed January 29, 2021.

[7] Water Quality Order No. 2013-0002-DWQ and NPDES No. CAG990005, as amended by Order No. 2014-0078-DWQ, Order No. 2015-0029-DWQ, Order No. 2016-0073-EXEC, and any amendments thereto. Available at: https://www.waterboards.ca.gov/water_issues/programs/npdes/pesticides/weed_control.html. Last accessed January 29, 2021.

3.6 Statewide Mercury Provisions

On May 2, 2017, the State Water Board adopted Resolution No. 2017-0027, which approved *Part 2 of the* ***Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California —Tribal and Subsistence Fishing Beneficial Uses and Mercury Provisions*** (State Water Board, 2017b).[8] Resolution No. 2017-0027 provides a consistent regulatory approach throughout the state by setting mercury limits to protect the beneficial uses associated with the consumption of fish by people and wildlife. The State Water Board also established definitions for three new beneficial uses (tribal traditional culture, tribal subsistence fishing, and subsistence fishing) for use by the State Water Board and Regional Water Boards. The State Water Board also approved one narrative and four numeric mercury objectives to apply to inland surface waters, enclosed bays, and estuaries of the state that have any of the following beneficial use definitions: commercial and sport fishing, tribal traditional culture, tribal subsistence fishing, wildlife habitat, marine habitat, preservation of rare and endangered species, warm freshwater habitat, cold freshwater habitat, estuarine habitat, or inland saline water habitat, with the exception of waterbodies or waterbody segments with site-specific mercury objectives. These provisions will be implemented through NPDES permits, certifications, waste discharge requirements, and waivers of waste discharge requirements.

3.7 California Environmental Quality Act

The State Water Board is the lead agency for the purposes of the California Environmental Quality Act (CEQA). (Pub. Resources Code, § 21000 et seq; Cal. Code Regs., tit. 14, § 15000 et seq.)

On December 18, 2020, the State Water Board released a draft initial study/mitigated negative declaration (IS/MND) for public review and comment. During the comment period, the State Water Board received five comment letters from: CDFW, Foothill Water Network, PG&E, Yuba County Water Agency, and Friends of the North Fork American River. The State Water Board considered comments received on the draft IS/MND in development of the final IS/MND (State Water Board, 2021).

On February 3, 2021, the State Water Board released a final IS/MND for the Projects. The final IS/MND includes mitigation measures to avoid or substantially reduce significant environmental impacts of the Projects. Mitigation measures and associated mitigation, monitoring, and reporting requirements are incorporated as conditions of this certification (Attachment B). The final IS/MND is available at the State Water Board's office (1001 I Street, Sacramento, California) and on the **Projects webpage** at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/drum_spaulding_ferc2310.html.

[8] Available online at: https://www.waterboards.ca.gov/water_issues/programs/mercury/. Last accessed: January 29, 2021.

The State Water Board, through its Executive Director, adopts the final IS/MND and has determined it is adequate to support approval of the Projects, with incorporation of the Mitigation, Monitoring, and Reporting Program (Attachment B). In accordance with CEQA Guidelines section 15074, the State Water Board, through the Executive Director, further finds that: the final IS/MND has been completed in compliance with CEQA; the final IS/MND was presented to, reviewed by, and considered by the State Water Board prior to approving the Projects; and the final IS/MND represents the State Water Board's independent judgment and analysis. The State Water Board will file a Notice of Determination for the Projects with the Office of Research and Planning within five working days of issuing the certification.

4.0 Rationale for Water Quality Certification Conditions

Water development projects in the Yuba, Bear, and American River watersheds, including the Projects, have resulted in reductions in flows and alterations in the flow regime that adversely affect water quality. Similarly, water development projects throughout the Sacramento River Basin, including the Projects, have adversely altered flows in the larger stream system and the Sacramento/San Joaquin River Delta. The certification conditions were developed to ensure that the Projects comply with water quality requirements and other appropriate requirements of state law, including protecting beneficial uses of California's waters by complying with water quality objectives in water quality control plans and other applicable water quality requirements. Section 401 of the federal Clean Water Act (33 U.S.C. § 1341) provides that this certification's conditions shall be incorporated as mandatory conditions of the new license(s) issued by FERC for the Projects.

When preparing the conditions in this certification, the State Water Board reviewed and considered:

- PG&E's applications for certification (PG&E, 2012e; PG&E, 2013a; PG&E, 2014a; PG&E, 2015; PG&E, 2016; PG&E, 2017; PG&E, 2018; PG&E, 2020);
- PG&E's FLA and associated updates and amendments thereto (listed and cited earlier in this certification);
- FERC's Final EIS (FERC, 2014);
- State Water Board's final IS/MND (State Water Board, 2021), which includes consideration of comments received on the draft IS/MND (State Water Board, 2020);
- Recommended license terms and conditions submitted by state and federal agencies pursuant to Federal Power Act sections 4(e), 10(a), 10(j), and Section 18 Fishway Prescriptions:
    - CDFW's Section 10(j) and 10(a) recommendations (CDFW, 2012a; CDFW, 2012b);
    - National Marine Fisheries Service's (NMFS) Section 18 Fishway Prescriptions and Section 10(j) Conditions (NMFS, 2012);

  - USFS's Final and Revised Section 4(e) Conditions and associated updates (USFS, 2012a; USFS, 2012b; USFS, 2013; USFS, 2014);
  - BLM's Final Section 4(e) Conditions and 10(a) recommendations (USDOI, 2012a; USDOI, 2013a; USDOI, 2013b);
  - Reclamation's Final Section 4(e) Conditions and 10(a) recommendations and associated updates (USDOI, 2012a);
- PG&E's December 20, 2013 letter submitting alternative conditions based on USFS's Final Section 4(e) Conditions (PG&E, 2013b);
- PG&E's May 12, 2014 letter responding to USFS and BLM Final 4(e) conditions (PG&E, 2014b);
- Comments and responses associated with the aforementioned documents;
- Beneficial uses and associated water quality objectives in the SR/SJR Basin Plan (State Water Board, 2018);
- Clean Water Act Section 303(d) List/305(b) Report (State Water Board, 2017c);
- Project-related controllable water quality factors; and
- Other information in the record.

The following describes the rationale used to develop the conditions in this certification.

4.1 Rationale for Condition 1: Minimum Instream Flows

Instream flows provide habitat for fish and wildlife, contribute to scenic and aesthetic qualities of natural settings, and help support beneficial uses and water quality objectives for surface waters as established in the SR/SJR Basin Plan. The approach for developing flow requirements, including ramping rates, supplemental flows, and spill cessation and reductions (Conditions 1, 2, and 6), for Projects-affected stream reaches included consideration of the aquatic-dependent biota (primarily fish, amphibians, benthic macroinvertebrates (BMI), and riparian vegetation) that are currently and/or potentially present, hydroelectric energy generation, and water supply, as well as an evaluation of ecosystem conditions under existing and unimpaired streamflow using an operations model[9] and technical information developed during the Projects relicensing. Additionally, potential future changes in precipitation/snowmelt magnitude and timing were also considered as flows were developed.

State Water Board staff participated in relicensing discussions regarding Projects-related minimum instream flows (MIFs). During relicensing, PG&E and most relicensing participants reached agreement on MIFs for the 30 Projects-affected stream reaches listed below for the respective Projects (CDFW, 2012a; USFS, 2014):

[9] The model was run using two water delivery scenarios: one assumed current water demand based on water delivery by Nevada Irrigation District (NID) and Placer County Water Agency (PCWA) for water years 2001-2009; the second used water demand projected 50 years in the future (i.e., 2062). Various operating scenarios were applied to the water year conditions for the period of record (1976-2008).

Upper Drum Project

- Texas Creek below Upper Rock Lake Dam (Table 1);
- Texas Creek below Lower Rock Lake Dam (Table 2);
- Unnamed Tributary below Culbertson Lake Dam (Table 3);
- Lindsey Creek below Middle Lindsey Lake Dam (Table 4);
- Lindsey Creek below Lower Lindsey Lake Dam (Table 5);
- Lake Creek below Feeley Lake Dam (Table 6);
- Lake Creek below Carr Lake Dam (Table 7);
- Rucker Creek below Blue Lake Dam (Table 8);
- Rucker Creek below Rucker Lake Dam (Table 9);
- Unnamed Tributary below Fuller Lake Dam (Table 10);
- Unnamed Tributary below Meadow Lake Dam (Table11);
- White Rock Creek below Water Rock Diversion Dam (Table 12);
- Bloody Creek below Lake Sterling Dam (Table 13);
- Fordyce Creek below Fordyce Lake Dam (Table 14);
- Unnamed Tributary below Kidd Lake Dam (Table 15);
- Cascade Creek below Lower Peak Lake Dam (Table 16);
- South Yuba River below the Confluence of Unnamed Tributary below Kidd Lake and Cascade Creek (Table 17);
- South Yuba River below Lake Spaulding Dam (Table 18);
- North Fork of the North Fork American River below Lake Valley Reservoir Dam (Table 19);
- Sixmile Creek below Kelly Lake Dam (Table 20);
- North Fork of the North Fork American River below Lake Valley Canal Diversion Dam (Table 21);
- Bear River below Drum Canal Spillway Gate (Table 22);
- Bear River at Highway 20 Crossing (Table 23);
- Canyon Creek below Towle Canal Diversion Dam (Table 24);
- Little Bear River below Alta Powerhouse Tailrace (Table 25); and
- Bear River below Drum Afterbay Dam (Table 26).

Lower Drum Project

- Dry Creek below Halsey Afterbay Dam (Table 27);
- Rock Creek below Rock Creek Reservoir Dam (Table 28);
- Auburn Ravine below South Canal Release Point (Table 29); and
- Mormon Ravine below Newcastle Powerhouse Header Box (Table 30).

Condition 1 requires MIFs for the Projects-affected stream reaches (listed above) that are designed to protect and enhance environmental and public resources and are consistent with those proposed by PG&E and agreed to by most relicensing participants for all the stream reaches with the exception of the South Yuba River below Lake Spaulding (Table 18) in consecutive Critically Dry and/or Extremely Critically Dry water years.

PG&E and most relicensing participants proposed to reduce MIFs in the South Yuba River below Lake Spaulding Dam from 20 cubic feet per second (cfs) to 10 cfs in the event of a consecutive Critically Dry or Extremely Critically Dry water years. The State Water Board agrees water management is crucial during drought and extremely dry conditions. However, the same set of management actions may not be appropriate in each set of dry conditions. Condition 15 (Drought Planning) and Condition 18 (Extremely Dry Conditions) are included in the certification to allow for adaptive management of water resources during drought or extremely dry conditions.

As many of the Projects facilities located at higher elevations and/or remote locations are manually operated, Condition 1(E) requires manual adjustments of the low-level outlets of the dams that provide instream flows, on a regular basis, for MIF compliance. In addition, PG&E is required to record and report the measured MIFs and adjustments made to low-level outlet settings for these locations.

Further evaluation of flows during the license(s) term(s) is necessary due to the pending Sacrament/Delta Update to the Bay-Delta Plan at the time of certification issuance and the potential for voluntary settlement agreement(s). To support this assessment, Condition 1(D) requires PG&E to consult on flows with CDFW, United States Fish and Wildlife Service (USFWS), USFS, NMFS, State Water Board staff, and if applicable, BLM and/or Reclamation. Such consultation shall occur no later than 10 years following license issuance, or earlier at the direction of the Deputy Director based on review of environmental monitoring data (Condition 5) and/or amendments to the Bay-Delta Plan that address flows on the Sacramento River and its tributaries. To avoid duplication of effort, Condition 1(D) also includes a provision to forgo this consultation if PG&E enters into a State Water Board-approved comprehensive, long-term, voluntary solution to implement Bay-Delta Plan amendments and the State Water Board updates this certification accordingly. The consultation shall also address what, if any, operational changes must be implemented.

4.2 Rationale for Condition 2: Supplemental Flows

The South Yuba River below Spaulding Dam provides habitat for aquatic species such as rainbow trout and foothill yellow-legged frogs. During summer months (June through September), water temperature in the South Yuba River below Spaulding Dam can exceed 25 degrees Celsius (ºC) for consecutive days, which is above what is considered safe for these aquatic species (CDFW, 2012a). Condition 2 requires PG&E to develop and implement a Supplemental Flow Plan that includes regular consultation with USFS, CDFW, USFWS, and State Water Board staff regarding when supplemental flow releases should occur to ensure protection of aquatic species in the South Yuba River. Supplemental flows and regular consultation required by Condition 2 are consistent with agreements made during relicensing between PG&E and USFS (PG&E, 2014a).

If monitoring conducted pursuant to Condition 5 shows that the supplemental flows are not protective for rainbow trout and frogs (i.e., target temperatures less than 20ºC at the

South Yuba River confluence with Canyon Creek), Condition 2 provides for re-evaluation of the supplemental flow requirements.

4.3 Rationale for Condition 3: Water Year Types

Condition 3 requires implementation of PG&E's proposed water year types, which were developed during the relicensing process and generally agreed upon by most relicensing participants, with one exception. PG&E's water year type proposal included changing a Critically Dry water year to an Extremely Critically Dry water year for specific stream reaches (e.g., South Yuba River below Lake Spaulding Dam) in years that were preceded by a Critically Dry or Extremely Critically Dry water year. This proposal was not included in the certification. Rather, to allow for adaptive management of scarce water resources and competing demands (e.g., water supply, MIFs, etc.) during times of shortage, the certification includes Condition 15 (Drought Management Planning) and Condition 18 (Extremely Dry Conditions). Conditions 15 and 18 provide an increased level of flexibility during drought and dry conditions.

4.4 Rationale for Condition 4: Streamflow Gages

Streamflow gages are required to confirm compliance with MIFs and other flow related conditions of this certification (e.g., supplemental flows, ramping rates). During relicensing, PG&E identified locations where there were no existing streamflow gages to measure flows, or where the current streamflow gages would not be able to measure the higher MIFs proposed for the Projects. USFS's revised 4(e) condition 34 requires PG&E to implement its *Drum-Spaulding Gaging Plan* submitted to FERC on April 11, 2014. On May 12, 2014, PG&E agreed with USFS's revised 4(e) condition 34. Condition 4 of this certification requires PG&E to implement the USFS *Drum-Spaulding Gaging Plan* with minor modifications to require implementation of streamflow gage monitoring within 90 days of FERC license issuance, or within 15 days of any gage modifications needed to comply with the *Drum-Spaulding Gaging Plan.* The streamflow gage condition enacts the measures agreed upon during the relicensing process that would ensure the PG&E properly measures streamflows throughout the term of the new FERC license(s).

4.5 Rationale for Condition 5: Monitoring and Adaptive Management

Monitoring plans are necessary to develop information regarding aquatic resources in the Projects area in response to changes in flow conditions anticipated in the new license. Condition 5 requires the development and implementation of monitoring plans to assess for Projects-related impacts to fish populations, water temperature, bald eagles, amphibians, channel morphology, BMI, riparian vegetation, and water quality. The methods and frequency of monitoring are designed to measure the response of resources to adjustments in streamflow and other Projects-related effects, and to determine whether resource objectives are being met. Condition 5 also requires PG&E, based on reporting and other information, to propose implementation of adaptive management actions and allows PG&E to request Deputy Director approval to alter the methodologies or frequencies of data collection.

Monitoring for fish populations, agreed upon by PG&E and USFS (Condition 5A), will document fish population responses to Projects operations and assist in identifying long-term population trends and any Projects-related impacts.

Water temperature monitoring (Condition 5B), is important for determining compliance with state and federal water quality standards for temperature and examining long-term trends in water temperature as affected by Projects operations. The objective of the water temperature monitoring plan required in Condition 5B, and agreed upon by PG&E and USFS, is to monitor water temperature conditions in Projects reservoirs and impoundments and Projects-affected stream reaches and tributaries of the South Yuba, Bear River, and North Fork of the North Fork American River. Annual water temperature monitoring will provide information needed to determine whether water quality objectives are being met and beneficial uses protected.

The Bald Eagle Monitoring Plan (Condition 5C), which was agreed upon by PG&E and USFS, is designed to ensure that Projects activities, including operations and maintenance as well as Projects-related recreation and construction activities, do not result in “take” of bald eagles, their eggs, or nests. Condition 5C ensures PG&E will monitor and implement measures to protect bald eagles, and their eggs or nests, consistent with federal and state laws and regulations.

Monitoring for foothill yellow-legged frogs (Condition 5D), which was agreed upon by PG&E and USFS, will assess foothill yellow-legged frog response to flow-related changes during the new license(s) (e.g., minimum flows, supplemental flows, ramping rates, spill cessation, water temperatures, and aquatic habitat suitability). Additionally, designated Sierra Nevada yellow-legged frog habitat exists in the Projects area and both Sierra Nevada yellow-legged frogs and California red-legged frogs have the potential to occur in the Projects area (State Water Board, 2021). The foothill yellow - legged frog is a CDFW Species of Special Concern and is listed as threatened under the California Endangered Species Act (CESA). The California red-legged frog is a CDFW Species of Special Concern and is listed as endangered under the federal Endangered Species Act (ESA). The Sierra Nevada yellow-legged frog is listed as threatened under CESA and is listed as endangered under the federal ESA. Condition 5D requires PG&E to monitor for Sierra Nevada yellow-legged frogs and California red-legged frogs, in addition to monitoring for foothill yellow-legged frogs, to assess their response to flow-related changes during the term of the new FERC license(s) and address Projects-related impacts, if needed. Condition 5D also requires PG&E to mitigate for Projects-related impacts to habitat associated with these three frog species (State Water Board, 2021).

The Channel Morphology Monitoring Plan (Condition 5E), agreed upon by PG&E and USFS, is designed to provide information on existing channel morphology and whether and how new license(s) conditions may be affecting channel morphology in Projects-affected stream reaches. Monitoring results will be used to determine whether channels are in proper functioning condition or they require additional monitoring or restoration in response to their existing condition or the new streamflow conditions.

Biological measurements are the most direct indicator of the health and well-being of fish and wildlife populations. Biological monitoring can detect changes, identify additional information needs, and guide adaptive management of Projects operations. Monitoring BMI assemblages (Condition 5F) will allow for the identification of changes in stream health conditions and provide an estimate of available food resources for fish populations and other aquatic species.

Projects dams block sediment recruitment from upstream areas. The depletion of sediment loads can reduce the formation of sediment benches, which in turn affects riparian colonization and succession. The Riparian Vegetation Monitoring Plan (Condition 5G), agreed upon by PG&E and USFS, is designed to provide information on whether riparian areas in Projects-affected stream reaches are in proper functioning condition or whether they require additional monitoring or restoration.

The Water Quality Monitoring Plan (Condition 5H) is important to examine long-term Projects-related impacts on water quality and determine compliance with state and federal water quality standards. The objective of the Water Quality Monitoring Plan is to sample water quality above and below Projects-affected stream reaches after five years of Projects operations under new license(s) conditions and compare the results with pre-licensing water quality results. Additionally, the Water Quality Monitoring Plan will require sampling of water quality in the second year of sequential Dry or drier water year types to monitor the effect of lower flows and less water storage on water quality below and within the Projects. The Water Quality Monitoring Plan includes locations on the Bear River, South Yuba River, tributaries to the South Yuba River and Bear River, and the North Fork of the North Fork American River.

Condition 5I requires PG&E to conduct Auburn Ravine Stranding and Dewatering Surveys to monitor for potential impacts to fish species during PG&E water releases, including implementation of ramping rates (Condition 6C), into Auburn Ravine. The transition between the irrigation season use of Auburn Ravine for water export (usually April 16 through October 15) and the non-irrigation season often results in rapid fluctuation in flows in Auburn Ravine, from as high as 80 cfs down to flows as low as 2 cfs, in a span of days (PG&E, 2011b). This rapid change in flows has caused stranding of fish and dewatering of salmonid redds in Auburn Ravine below the Lower Drum Project facilities. Although multiple parties are responsible for streamflow in Auburn Ravine, this certification is focused on PG&E-controlled flows. Condition 5I requires PG&E to conduct surveys to monitor for stranding and dewatering related to PG&E's South Canal operations. The results of the surveys will be used to inform updates to the Auburn Ravine Stranding and Dewatering Avoidance Plan as well as guide any adaptive management of certification conditions involving Auburn Ravine.

Condition 5I also requires PG&E to develop and implement an interim Auburn Ravine Stranding and Dewatering Avoidance Plan and associated updates to the plan to address how PG&E will use existing data and the results of the Auburn Ravine Stranding and Dewatering Surveys to actively manage Projects operations in Auburn Ravine to avoid the stranding and dewatering of fish habitat. Condition 5I requires PG&E to provide an opportunity for NID and Placer County Water Agency (PCWA) to

participate in PG&E's development and implementation of the plan. During the relicensing process, PG&E studies reviewed the hydrology in Auburn Ravine throughout the year. The resulting hydrology report shows that during the irrigation season (April 16 through October 15) flows in Auburn Ravine range between 50 cfs and 170 cfs, most of which is provided through discharges from PG&E's South Canal (PG&E, 2011b). CDFW has performed a flow study in Auburn Ravine that shows flow-stage relationships associated with anadromous fish habitat (CDFW, 2015). The study was performed in response to reports of anadromous fish stranding and dewatering. The use of Auburn Ravine as a water delivery reach, facilitated by PG&E operations of the Lower Drum Project, have likely contributed to increased anadromous spawning throughout the year in Auburn Ravine. The Auburn Ravine Stranding and Dewatering Surveys, combined with the Auburn Ravine Stranding and Dewatering Avoidance Plan, are intended to reduce impacts to listed anadromous fish species.

4.6 Rationale for Condition 6: Spill Cessation and Reduction, Drawdown, and Ramping Rates

Sudden reductions in flows following spring snow-melt runoff or other major spill events can adversely affect aquatic organisms through stranding as water levels rapidly decrease causing exposure of previously inundated habitat. During the Projects relicensing, studies determined foothill yellow-legged frogs and rainbow trout populations may be impacted by Projects operations in the South Yuba River and Fordyce Creek. To minimize these adverse effects associated with Projects operations, PG&E and relicensing participants agreed on implementation of spill cessation measures following spill events. Condition 6 includes spill cessation measures that better mimic a natural flow recession and provide aquatic organisms natural cues to adjust to the decreasing flows, thereby reducing the potential for stranding. PG&E will also implement these spill cessation measures to reduce rapid flow fluctuations following other major flow events.

Another benefit of the spill cessation measures is that the flow schedule provides an opportunity for recreational whitewater boating. The combination of certification requirements to implement spill cessation flow requirements (Condition 6) and recreation streamflows with the requirement to publicly post such potential recreational streamflow information (Condition 14) will increase available whitewater boating opportunities.

The Auburn Ravine ramping rate in Condition 6(C) addresses the transition of flows at the end of the irrigation season on October 15 each year, where flows delivered into Auburn Ravine through PG&E's South Canal drop from as much as 80 cfs to 2 cfs. There is currently no ramping rate required during this transition. CDFW has performed a flow study in Auburn Ravine that shows flow-stage relationship associated with anadromous fish habitat (CDFW, 2015). The Auburn Ravine ramping rate may be monitored by the Auburn Ravine Stranding and Dewater Surveys in Condition 5(I).

4.7 Rationale for Condition 7: Canal Outages

Canal outages are a necessary part of Projects operations and maintenance and may also occur because of emergency situations. Condition 7 addresses MIF requirements during canal outages and requires notification of canal outage events to the State Water Board, USFS, BLM, USFWS, and CDFW. Additionally, Condition 7 requires implementation of the USFS's Canal Outages Fish Rescue Plan, filed with FERC on November 21, 2013, to address entrainment of rainbow trout and other fish species that may become stranded when canals are dewatered during outages. Condition 7 adds to the Canal Outages Fish Rescue Plan by requiring protection of additional aquatic species, including frogs, turtles, and other aquatic vertebrate species.

4.8 Rationale for Condition 8: Jordan Creek Diversion Removal

As part of relicensing, PG&E proposed the removal of the Jordan Creek Diversion Dam, which is located near Fuller Lake and is part of the Upper Drum Spaulding Project. Condition 8 requires PG&E to develop and implement a Jordan Creek Diversion Dam Removal Plan to ensure the removal activities and post-site conditions protect water quality and beneficial uses.

4.9 Rationale for Condition 9: Erosion and Sediment Control

Condition 9 includes provisions for the protection of water quality and beneficial uses from erosion and sediment related to Projects activities including channel stabilization, canal releases, and construction and maintenance activities.

Condition 9(A) –Erosion and Sediment Control. On April 11, 2014, USFS filed with FERC an Erosion and Sediment Control Management Plan and on May 12, 2014, PG&E submitted a letter agreeing with the USFS-filed Erosion and Sediment Control Management Plan. The plan references BLM and USFS best management practices (BMPs) to control site-specific erosion and sedimentation as well as emergency erosion control measures and protocols to control sedimentation during or after severe storm events with an emphasis on lands managed by USFS and BLM.

The plan does not include: consultation with CDFW, USFWS, and State Water Board staff; initial and periodic assessment and monitoring of erosion sites; criteria for prioritizing erosion sites for treatment; schedule of erosion and sediment control activities; process for documentation and reporting; and plan updates and adaptive management to ensure adequate control of Projects-related erosion. Additionally, the Erosion and Sediment Control Management Plan focuses on lands managed by USFS and BLM rather than the broader Projects areas.

Condition 9(A) requires PG&E to update the Erosion and Sediment Control Management Plan filed with FERC on April 11, 2014 to include the above-identified elements, which are needed for the protection of water quality and beneficial uses due to Projects-related erosion to surface waters during the term of the new FERC license(s).

Condition 9(B) – Bear River Management Plan. USFS's revised 4(e) condition 50 requires PG&E to develop a Bear River Management Plan to address impacts from Projects operations on channel stability in the Bear River. On May 12, 2014, PG&E agreed with USFS's revised 4(e) condition 50.

Condition 9(B) adds to the requirements of USFS 4(e) condition 50 by requiring: consultation with CDFW, BLM, USFWS, and the State Water Board staff; initial and periodic assessment and monitoring of channel stabilization sites affected by Projects operations in the Bear River; criteria for prioritizing channel stabilization sites for treatment; a schedule of stabilization activities; process for documentation and reporting; and plan updates and adaptive management to ensure adequate control of Projects-related erosion associated with channel stabilization activities in the Bear River. The addition of the above-identified elements are needed to protect water quality and beneficial uses related to erosion from Projects-related operations in the Bear River during the term of the new FERC license(s). Condition 9(B) allows PG&E to integrate the Bear River Management Plan, with the additions required by this certification, into the Erosion and Sediment Control Management Plan required in Condition 9(A).

Condition 9(C) – Canal Release Points. On April 11, 2014, USFS filed with FERC a *Canal Release Point Plan* and on May 12, 2014, PG&E submitted a letter agreeing with the USFS-filed *Canal Release Point Plan*. The Canal Release Point Plan provides information on the Projects' canal drainage structures, release points, spill structures, and immediate downstream spillway channel (collectively referred to as "canal release points") and establishes practices to minimize adverse impacts to water quality and associated beneficial uses. The plan includes: an initial assessment and prioritization of potential canal release point treatment sites within two years of license issuance, periodic assessment and prioritization intervals every 10 years, operations and maintenance measures, reporting, and adaptive management to ensure adequate control of Projects-related erosion from canal release points.

The plan does not include: consultation with CDFW, USFWS, and State Water Board staff; initial assessment by a qualified engineering geologist; consultation to determine appropriate treatment measures to implement; a schedule for treatment measure implementation; monitoring during treatment implementation; BMPs to protect water quality and beneficial uses during treatments; details of monitoring effectiveness of treatment measures following implementation; and documentation and reporting of monitoring results.

Condition 9(C) requires PG&E to update the Canal Release Point Plan filed with FERC on April 11, 2014, to include the above-identified elements, which are needed to protect water quality and beneficial uses due to erosion at Projects canal release points during the term of the new FERC license(s).

Condition 9(D) – Water Quality Monitoring and Protection Plans. Protection of instream beneficial uses identified in the SR/SJR Basin Plan requires effluent limitations and other limitations on discharges of pollutants from point and nonpoint sources to the South Yuba River, Bear River, North Fork of the North Fork American River, Auburn

Ravine, and their respective tributaries. Erosion from Projects-related construction and maintenance activities has the potential to result in discharges that violate water quality standards. Condition 9(D) requires PG&E to comply with the Construction General Permit, as applicable, or to develop and implement Water Quality Monitoring and Protection Plans (WQMP Plans) to protect water quality and beneficial uses. WQMP Plans will be developed for construction and maintenance activities with the potential to cause erosion, stream sedimentation, release of hazardous materials, or otherwise impair water quality that are not covered by another condition of the certification.

4.10 Rationale for Condition 10: Large Woody Material Management

Large woody material (LWM) contributes to productive aquatic ecosystems and is an important component of stream channel maintenance and the formation of complex aquatic habitat both along stream margins and in active river channels. LWM provides cover and holding habitat for native resident and migratory fish and organic matter that supports the aquatic food web. LWM in the upper watersheds can be carried downstream during high flow events. Projects facilities inhibit natural movement and recruitment of LWM. Condition 10 requires the development and implementation of a LWM Management Plan to ensure the passage of LWM downstream of applicable Projects facilities as well as monitoring to evaluate the effectiveness of LWM implementation, which will inform LWM adaptive management throughout the term of the new FERC license(s).

4.11 Rationale for Condition 11: Aquatic Invasive Species Management

Aquatic invasive species cause harm to the diversity and abundance of native species through competition for resources, predation, parasitism, interbreeding with native populations, disease transmission, or physical or chemical changes to habitats. The impacts of aquatic invasive species can affect the overall function of aquatic ecosystems. Condition 11 requires PG&E to consult with USFS, BLM, CDFW, and State Water Board staff to develop an Aquatic Invasive Species Management Plan for the Projects. Implementation of an Aquatic Invasive Species Management Plan is needed to minimize and prevent the introduction and establishment of aquatic invasive species, reduce the spread of existing aquatic invasive species, and monitor for aquatic invasive species in Projects reservoirs and stream reaches. Implementation of the plan will also increase awareness and help educate the public on aquatic invasive species impacts, prevention measures, and management approaches.

4.12 Rationale for Condition 12: Fish Stocking

Angling is one of the most popular activities associated with the Projects, and stocking fish in Projects reservoirs will help ensure that the recreational fishery will be maintained for the term of the new FERC license(s). Angling, listed under contact recreation in the SR/SJR Basin Plan, is an existing beneficial use for all of the Projects' waterbodies. Due to the high level of recreational angling that occurs in Projects reservoirs, Condition 12 requires the implementation of a Fish Stocking Plan developed in

consultation with CDFW, USFS, USFWS, and State Water Board staff that will allow adaptive management of the recreational fishery associated with the Projects.

4.13 Rationale for Condition 13: Recreation Facilities

PG&E proposes to improve and expand existing recreation facilities, develop new recreation facilities, and remove some recreation facilities. PG&E has not yet provided a plan for recreation facilities modifications with adequate detail for evaluation by the State Water Board, including information on potential impacts to water quality and beneficial uses. Condition 13 requires the development and implementation of a Recreation Facilities Management Plan to ensure water quality and beneficial uses are protected when recreational facilities are constructed or modified during the term of the new FERC license(s).

4.14 Rationale for Condition 14: Recreation Streamflows and Information

Providing recreational streamflows and information (Condition 14) for reaches in the Projects area will allow boaters and anglers to determine when streamflows are safe for their activities. Streamflow information that is delivered in instantaneous (i.e., 15-minute or more frequent) or hourly intervals will also provide important information that allows boaters and anglers to determine which way flows are trending or if flows are unusually erratic before attempting to boat or fish these reaches.

PG&E has proposed to release streamflow specifically for whitewater boating that coincides with spill cessation flows on the South Yuba River. Real-time flow information will enable boaters to take advantage of the spill cessation flows (Condition 6) on the South Yuba River below Lake Spaulding Dam. Implementation of Condition 14 will allow for incidental whitewater boating opportunities during releases from Projects facilities on Fordyce Creek and the Bear River.

4.15 Rationale for Condition 15: Drought Planning

Developing and implementing a Drought Management Plan (Condition 15) is important for successful management of limited water resources to protect all beneficial uses in California’s extremely variable climate, especially during extended drought. Multiple, successive dry years present difficult choices between releasing reservoir water to meet immediate demands (e.g., deliveries and instream flow requirements) or conserving reservoir water. The Drought Management Plan will identify strategies for managing water during times of extreme shortage.

4.16 Rationale for Condition 16: Hazardous Substances

Development and implementation of a Hazardous Substances Plan (Condition 16) is necessary to ensure hazardous materials are properly stored, used, transported, managed, and disposed of in the Projects area to minimize the impacts of hazardous materials on water quality, as well as sensitive species and their habitats. Condition 16 requires PG&E to develop and implement a Hazardous Substances Plan to address the

storage, use, transportation, spill management, and disposal of hazardous materials and wastes associated with the Projects.

4.17 Rationale for Condition 17: Riparian, Wetlands, and Aquatic Resources Management

Development and implementation of a Riparian, Wetlands, and Aquatic Resources Management Plan (Condition 17) is necessary to ensure riparian areas, wetlands, and aquatic resources are protected and/or properly mitigated in compliance with the Procedures (State Water Board, 2019) and the *California Wetlands Conservation Policy* (Executive Order W-59-93). Wetlands provide environmental and economic benefits to the people of this state, including flood and stormwater control, surface and groundwater supply, fish and wildlife habitat, erosion control, pollution treatment, nutrient cycling, and public enjoyment. Condition 17 requires PG&E to describe avoidance and minimization measures, delineation protocols, and adaptive management measures that will be implemented to minimize impacts to riparian areas and wetlands. The Riparian, Wetlands, and Aquatic Resources Management Plan also requires PG&E to demonstrate how it will ensure no net loss in the quantity, quality, and permanence of wetlands acreage and values throughout the term of the new FERC license(s).

4.18 Rationale for Condition 18: Coordinated Operations

The Projects receive and discharge water that flows through Nevada Irrigation District's (NID) Yuba-Bear Hydroelectric Project, FERC Project No. 2266, and discharges water that flows through PG&E's Deer Creek Hydroelectric Project, FERC Project No. 14530. As the Projects and the Yuba-Bear Hydroelectric Project are operated under separate FERC licenses, and the Deer Creek Hydroelectric Project is not being relicensed with the Projects, coordination is needed to comply with the conditions of this certification. Condition 18 requires PG&E to develop a plan to coordinate operations of its Projects with NID's Yuba-Bear Hydroelectric Project and its Deer Creek Hydroelectric Project to ensure coordination in the implementation of the conditions in the Projects license(s), including maintenance of flow requirements and ramping rates during normal operations, scheduled outages, and unscheduled outages (to the extent feasible).

4.19 Rationale for Condition 19: Extremely Dry Conditions

California's history of drought illustrates the importance of planning for multiple dry years or drought. It is difficult to anticipate the specific impacts of consecutive dry years or a long-term drought and identify where limited water supplies may be best used during times of shortage. Condition 19 allows PG&E to submit and request Deputy Director approval of a Revised Operations Plan to address water shortage issues during consecutive Dry, Critically Dry, or Extremely Critically Dry water year types or drought years. This condition provides flexibility for adaptive implementation during times of extreme water shortage that cannot be addressed through only Drought Planning (Condition 15) and allows for variances to certification conditions to address the extremely dry conditions.

4.20 Rationale for Condition 20: Annual Consultation

The formation of a Technical Review Group (TRG) (Condition 20) comprised of resource agencies, PG&E, Foothills Water Network, and other interested stakeholders will facilitate communication and ensure that interested parties have an opportunity to discuss ongoing implementation of the Projects license(s). This condition requires that PG&E organize and host TRG meetings, with at least one meeting to be held each year in April, unless otherwise agreed to by the TRG. The TRG meetings will provide a platform for communication and coordination between PG&E, resource agencies, nongovernmental organizations, and other interested parties.

4.21 Rationale for Condition 21: Mercury Management

The South Yuba River and Bear River have been affected by historic gold mining activities including the use of mercury in hydrologic gold mining. As noted in Section3.2 of the certification, the South Yuba River and Bear River are listed under Section 303(d) as impaired for mercury. Mercury deposits associated with historic gold mining activities remain in the Yuba River and Bear River systems and may be affected by Projects operations and activities in a manner that causes impacts to water quality and/or human health impacts. Water quality and human health impacts may result from an increased amount or mobilization of methylmercury in the watershed. Additionally, Projects' reservoirs can increase the rate of mercury methylation allowing mercury to bioaccumulate in fish tissue and increase human health risk.

During relicensing, PG&E evaluated methylmercury concentrations in fish tissue samples collected from Fordyce Lake and Spaulding Lake. A total of 23 fish were sampled, of which approximately 52 percent (12 fish) exceeded the California Office of Environmental Health Hazard Assessment's Advisory Tissue Levels for any safe fish consumption for children and women of 0.44 parts per million wet-weight. Condition 21 requires PG&E to evaluate its Projects operations in relation to mercury and methylation of mercury and develop plans to address any Projects-related impacts to mercury in compliance with the *Tribal Subsistence Beneficial Uses and Mercury Provisions of the Inland Surface Waters, Enclosed Bays, and Estuaries (ISWEBE) Plan* (State Water Board, 2017b).

4.22 Rationale for Conditions 22 through 48

In order to ensure that the Projects operate to meet water quality standards as anticipated, to ensure compliance with other relevant state and federal laws, and to ensure that the Projects will continue to meet state water quality standards and other appropriate requirements of state law over their lifetime, this certification imposes conditions regarding monitoring, enforcement, and potential future revisions. Additionally, California Code of Regulations, title 23, section 3860 requires imposition of certain mandatory conditions for all certifications, which are included in this certification.

5.0 Conclusion

The State Water Board finds that, with the conditions and limitations imposed by this certification, the Projects will be protective of the state water quality standards and other appropriate requirements of state law.

6.0 Water Quality Certification Conditions

ACCORDINGLY, BASED ON ITS INDEPENDENT REVIEW OF THE RECORD, THE STATE WATER RESOURCES CONTROL BOARD CERTIFIES THAT OPERATION OF THE UPPER DRUM-SPAULDING HYDROELECTRIC PROJECT AND LOWER DRUM HYDROELECTRIC PROJECT (collectively Projects) (Federal Energy Regulatory Commission [FERC] Project Nos. 2310 and 14531) will comply with sections 301, 302, 303, 306, and 307 of the Clean Water Act, and with applicable provisions of state law, under the following terms and conditions.

CONDITION 1. Minimum Instream Flows

1(A) Minimum Instream Flow in Projects Reaches

The Licensee shall implement the minimum instream flows (MIFs), presented in Table 1 through Table 30 below, as soon as reasonably practicable but no later than 90 days following license issuance, unless an alternative timeline is approved by the State Water Resources Control Board's (State Water Board) Deputy Director for the Division of Water Rights (Deputy Director) due to the need for facility modifications. For facility modifications that are needed to achieve any of the MIFs (including the controlled orifice referenced in Table 22), the Licensee shall submit, no later than 60 days following license issuance, any request for alternative MIF implementation timelines to the Deputy Director for review and consideration for approval. The request shall include: specific information on which facility or facilities require modification, the proposed alternative timeline(s) and MIFs, and support for the alternative timeline(s) and MIFs the Licensee proposes to implement in the interim period between license issuance and completion of facility modifications. The Licensee shall implement the applicable MIFs required by this water quality certification (certification) within 30 days of completing any approved facility modifications. The Deputy Director may require modifications as part of any approval.

The Licensee shall implement MIFs in the following reaches:

<u>Upper Drum-Spaulding Hydroelectric Project (Upper Drum Project)</u>

- Texas Creek below Upper Rock Lake Dam (Table 1);
- Texas Creek below Lower Rock Lake Dam (Table 2);
- Unnamed Tributary below Culbertson Lake Dam (Table 3);
- Lindsey Creek below Middle Lindsey Lake Dam (Table 4);
- Lindsey Creek below Lower Lindsey Lake Dam (Table 5);
- Lake Creek below Feeley Lake Dam (Table 6);
- Lake Creek below Carr Lake Dam (Table 7);
- Rucker Creek below Blue Lake Dam (Table 8);
- Rucker Creek below Rucker Lake Dam (Table 9);
- Unnamed Tributary below Fuller Lake Dam (Table 10);
- Unnamed Tributary below Meadow Lake Dam (Table11);
- White Rock Creek below Water Rock Diversion Dam (Table 12);

- Bloody Creek below Lake Sterling Dam (Table 13);
- Fordyce Creek below Fordyce Lake Dam (Table 14);
- Unnamed Tributary below Kidd Lake Dam (Table 15);
- Cascade Creek below Lower Peak Lake Dam (Table 16);
- South Yuba River below the Confluence of Unnamed Tributary below Kidd Lake and Cascade Creek (Table 17);
- South Yuba River below Lake Spaulding Dam (Table 18);
- North Fork of the North Fork American River below Lake Valley Reservoir Dam (Table 19);
- Sixmile Creek below Kelly Lake Dam (Table 20);
- North Fork of the North Fork American River below Lake Valley Canal Diversion Dam (Table 21);
- Bear River below Drum Canal Spillway Gate (Table 22);
- Bear River at Highway 20 Crossing (Table 23);
- Canyon Creek below Towle Canal Diversion Dam (Table 24);
- Little Bear River below Alta Powerhouse Tailrace (Table 25); and
- Bear River below Drum Afterbay Dam (Table 26).

<u>Lower Drum Hydroelectric Project (Lower Drum Project)</u>

- Dry Creek below Halsey Afterbay Dam (Table 27);
- Rock Creek below Rock Creek Reservoir Dam (Table 28);
- Auburn Ravine below South Canal Release Point (Table 29); and
- Mormon Ravine below Newcastle Powerhouse Header Box (Table 30).

The MIF requirements specify the time period and MIFs in cubic feet per second (cfs) by water year type (Condition 3), as well as the compliance point for the MIFs (e.g., applicable United States Geological Survey [USGS] gage). Except for gaging locations covered by the Flow Setting provisions covered in Condition 1(E), flows shall be measured in two ways: (1) as an instantaneous flow; and (2) as the 24-hour average of the flow (mean daily flow). The instantaneous flow is the value used to construct the mean daily flow value and shall be measured in 15-minute or more frequent increments. Each instantaneous flow measurement shall be equal to or greater than 90 percent of the designated minimum flow value. The mean daily flow is the average of the incremental readings of instantaneous flow from midnight (12:00 AM) of one day to midnight of the next day. The Licensee shall record instantaneous flow readings at all gages, consistent with USGS standards, and ensure the gages are calibrated for the full range of flows that are required, including supplemental and spill cessation flows. The Licensee shall report any deviation from the required flows to the Deputy Director within 24 hours of the deviation, except at locations covered under Condition 1(E) where a separate compliance regimen is explicitly stated.

Flows shall be measured at the specified gage locations unless otherwise approved by the Deputy Director. The Licensee shall comply with applicable California laws and regulations regarding measuring and monitoring water diversions, including California Code of Regulations, title 23, section 933, and amendments thereto, and State Water Board requirements to provide telemetered diversion data on a public website. The

Licensee shall post all flow and other applicable data to the California Data Exchange Center (CDEC) website within 24-hours of flow measurement, unless otherwise approved by the Deputy Director.

For non-telemetered gages associated with the Flow Setting provisions in Condition 1(E), the Licensee shall either add telemetry to the gage or develop and implement an alternative plan for publication of flow data (i.e., non-telemetered flow data publication plan). The non-telemetered flow data publication plan shall be submitted to the Deputy Director for review and consideration for approval no later than six months following issuance of the new FERC license(s). The plan shall be developed in consultation with USFS, BLM, CDFW, and State Water Board staff. The request shall include specific information on which gages are not telemetered and support for the alternative data collection and publication schedule the Licensee proposes to implement. The Deputy Director may require modifications as part of any approval.

The Licensee shall publicly notice at an easily accessible location on the internet, all known events that will affect minimum flow releases (e.g., powerhouse outages, construction, etc.) in reaches (identified below) a minimum of 30 days in advance or as soon as known if less than 30 days in advance. The Licensee shall furnish electronic streamflow records to State Water Board staff upon request. Additionally, any flow data, including supplemental flow (Condition 2) and whitewater flow data (Condition 14), shall be submitted to the State Water Board in a form consistent with the requirements of Condition 30.

Table 1. MIFs at Texas Creek below Upper Rock Lake Dam (as measured in cfs at USGS Gage No. 11416585)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
Year-round	0.1	0.1	0.25	0.25	0.25	0.25

Table 2. MIFs at Texas Creek below Lower Rock Lake Dam (as measured in cfs at USGS Gage No. 11416610)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
Year-round	0.1	0.1	0.25	0.25	0.25	0.25

Table 3. MIFs at Unnamed Tributary below Culbertson Lake Dam (as measured in cfs at USGS Gage No. 11416620)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.3	0.3	0.75	0.75	1.5	1.5
November	0.3	0.3	0.75	0.75	1	1
December	0.3	0.3	0.75	0.75	1	1
January	0.3	0.3	0.75	0.75	1	1
February	0.3	0.3	0.75	0.75	1	1
March	0.3	0.3	0.75	0.75	1	1
April	0.3	0.3	0.75	0.75	1	1
May	0.3	0.3	0.75	0.75	1	1
June	0.3	0.3	0.75	0.75	1.5	1.5
July	0.3	0.3	0.75	0.75	1.5	1.5
August	0.3	0.3	0.75	0.75	1.5	1.5
September	0.3	0.3	0.75	0.75	1.5	1.5

Table 4. MIFs at Lindsey Creek below Middle Lindsey Lake Dam (as measured in cfs at USGS Gage No. 11416670)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
Year-round	0.1	0.1	0.1	0.2	0.2	0.2

Table 5. MIFs at Lindsey Creek below Lower Lindsey Lake Dam (as measured in cfs at USGS Gage No. 11416700)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
Year-round	0.2	0.2	0.5	0.7	0.7	0.7

Table 6. MIFs at Lake Creek below Feeley Lake Dam (as measured in cfs at USGS Gage No. 11414350)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
Year-round	0.2	0.2	0.5	1	1	1

Table 7. MIFs at Lake Creek below Carr Lake Dam (as measured in cfs at USGS Gage No. 11414360)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
Year-round	0.2	0.2	0.5	1	1	1

Table 8. MIFs at Rucker Creek below Blue Lake Dam (as measured in cfs at USGS Gage No. 11414265)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
Year-round	0.2	0.2	0.3	0.5	0.5	0.5

Table 9. MIFs at Rucker Creek below Rucker Lake Dam (as measured in cfs at USGS Gage No. 11414280)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
Year-round	0.2	0.2	0.5	0.75	1	1.5

Table 10. MIFs at Unnamed Tributary below Fuller Lake Dam (as measured in cfs at Licensee[10]Gage No. YB-211)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
Year-round	0.25	0.25	0.25	0.25	0.25	0.25

[10] At the time of certification issuance, gages referred to as "YB" are owned and operated by Pacific Gas and Electric Company and are not associated with a USGS gage location.

Table 11. MIFs at Unnamed Tributary below Meadow Lake Dam (as measured in cfs at Licensee Gage No. YB-217)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1	1	1	1	1	1
November	1	1	1	1	1	1
December	1	1	1	1	1	1
January	1	1	1	1	1	1
February	1	1	1	1	1	1
March	1	1	1	1	1	1
April	1	1	1	1	1	1
May	1	1	1	1	1	1
June	1	1	1	1	1	1
July 1-8	5	5	5	5	5	5
July 9-17	11	11	11	11	11	11
July 18-31	5	5	5	5	5	5
August	1	1	1	1	1	1
September	1	1	1	1	1	1

Table 12. MIFs at White Rock Creek below Water Rock Diversion Dam (as measured in cfs at Licensee Gage No. YB-218)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
Year-round	0.5	0.5	0.5	0.5	1	1

Table 13. MIFs at Bloody Creek below Lake Sterling Dam (as measured in cfs by the outlet settings at Lake Sterling Dam)[1]

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.5	0.5	0.5	0.5	1	1.5
November	0.5	0.5	0.5	0.5	1	1
December	0.5	0.5	0.5	0.5	1	1
January	0.5	0.5	0.5	0.5	1	1
February	0.5	0.5	0.5	0.5	1	1
March	0.5	0.5	0.5	0.5	1	1
April	0.5	0.5	0.5	0.5	1	1
May	0.5	0.5	0.5	0.5	1	1
June	0.5	0.5	0.5	0.5	1	1.5
July	0.5	0.5	0.5	0.5	1	1.5
August	0.5	0.5	0.5	0.5	1	1.5
September	0.5	0.5	0.5	0.5	1	1.5

[1] See Condition 1(E) for flow setting requirements.

Table 14. MIFs at Fordyce Creek below Fordyce Lake Dam (as measured in cfs at USGS Gage No. 11414100)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	20	20	20	25	25	25
November	15	15	15	20	25	25
December	15	15	15	20	25	25
January	15	15	15	20	25	25
February	15	15	15	20	25	25
March	15	15	15	20	25	25
April	15	15	15	20	25	25
May	40	40	40	40	45	45
June	30	30	30	30	45	45
July	25	25	25	25	30	30
August	20	20	20	25	25	25
September	20	20	20	25	25	25

Table 15. MIFs at Unnamed Tributary below Kidd Lake Dam (as measured in cfs at Licensee Gage No. YB-220)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.5	0.5	0.5	0.5	0.5	0.5
November	0.5	0.5	0.5	0.5	0.5	0.5
December	0.5	0.5	0.5	0.5	0.5	0.5
January	0.5	0.5	0.5	0.5	0.5	0.5
February	0.5	0.5	0.5	0.5	0.5	0.5
March	0.5	0.5	0.5	0.5	0.5	0.5
April	0.5	0.5	0.5	0.5	0.5	0.5
May	0.5	0.5	0.5	0.5	0.5	0.5
June	0.5	0.5	0.5	0.75	1	1
July	0.5	0.5	0.5	0.5	0.5	0.5
August	0.5	0.5	0.5	0.5	0.5	0.5
September	0.5	0.5	0.5	0.5	0.5	0.5

Table 16. MIFs at Cascade Creek below Lower Peak Lake Dam (as measured in cfs at Licensee Gage No. YB-222)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.5	0.5	0.5	0.5	0.5	0.5
November	0.5	0.5	0.5	0.5	0.5	0.5
December	0.5	0.5	0.5	0.5	0.5	0.5
January	0.5	0.5	0.5	0.5	0.5	0.5
February	0.5	0.5	0.5	0.5	0.5	0.5
March	0.5	0.5	0.5	0.5	0.5	0.5
April	0.5	0.5	0.5	0.5	0.5	0.5
May	0.5	0.5	0.5	0.5	0.5	0.5
June	0.5	0.5	0.5	0.75	1	1
July	0.5	0.5	0.5	0.5	0.5	0.5
August	0.5	0.5	0.5	0.5	0.5	0.5
September	0.5	0.5	0.5	0.5	0.5	0.5

Table 17. MIFs at South Yuba River below the Confluence of Unnamed Tributary below Kidd Lake and Cascade Creek (as measured in cfs at USGS Gage No. 11414000)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
Year-round	5	5	5	5	5	5

Table 18. MIFs at South Yuba River below Lake Spaulding Dam (as measured in cfs at USGS Gage No. 11414250)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	20	20	20	25	25	30
November	20	20	20	25	25	30
December	20	20	20	25	25	30
January	20	20	20	25	25	30
February	20	25	25	35	40	50
March	20	25	30	40	55	75
April	20	30	40	60	80	90
May	20	40	60	90	90	90
June	20	35	40	50	90	90
July	20	25	30	35	40	40
August	20	20	23	25	40	40
September 1-15	20	20	23	25	40	40
September 16-30	20	20	20	25	28	30

Table 19. MIFs at North Fork of the North Fork American River below Lake Valley Reservoir Dam (as measured in cfs at Licensee Gage No. YB-104)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	2	2	3	3	3	4
November	2	2	3	3	3	4
December	2	2	3	3	3	4
January	2	2	3	3	3	4
February	2	2	3	3	3	4
March	2	2	3	3	3	4
April	2	4	4	6	8	10
May	2	6	6	9	11	15
June	2	5	5	6	8	10
July	2	3	3.5	5	5.5	6
August	2	3	3.5	5	5.5	6
September	2	3	3.5	5	5.5	6

Table 20. MIFs at Sixmile Creek below Kelly Lake Dam (as measured in cfs at Licensee Gage No. YB-226)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
Year-round	0.2	0.2	0.2	0.5	0.5	0.5

Table 21. MIFs at North Fork of the North Fork American River below Lake Valley Canal Diversion Dam (as measured in cfs at Licensee Gage No. YB-236)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	2.2	2.2	3.2	3.5	3.5	4.5
November	2.2	2.2	3.2	3.5	3.5	4.5
December	2.2	2.2	3.2	3.5	3.5	4.5
January	2.2	2.2	3.2	3.5	3.5	4.5
February	2.2	2.2	3.2	3.5	3.5	4.5
March	2.2	2.2	3.2	3.5	3.5	4.5
April	2.2	4.2	4.2	6.5	8.5	10.5
May	2.2	6.2	6.2	9.5	11.5	15.5
June	2.2	5.2	5.2	6.5	8.5	10.5
July	2.2	3.2	3.7	5.5	6	6.5
August	2.2	3.2	3.7	5.5	6	6.5
September	2.2	3.2	3.7	5.5	6	6.5

Table 22. MIFs at Bear River below Drum Canal Spillway Gate (as measured in cfs by the control orifice settings)[1]

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
Year-round	1	1	1	2	2	2

[1] At the time this certification was issued, the control orifice does not exist and facility modifications will be needed to meet the MIF in accordance with the requirements of Condition 1(A).

Table 23. MIFs at Bear River at Highway 20 Crossing (as measured in cfs at USGS Gage No. 11421710)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	5	5	5	5	5	5
November	5	5	5	5	5	5
December	5	5	5	5	5	5
January	5	5	5	5	5	5
February	5	5	5	5	5	5
March	5	5	5	5	5	5
April	13	13	13	13	13	13
May	13	13	13	13	13	13
June	13	13	13	13	13	13
July	8	8	8	8	8	8
August	8	8	8	8	8	8
September	8	8	8	8	8	8

Table 24. MIFs at Canyon Creek below Towle Canal Diversion Dam (as measured in cfs at USGS Gage No. 11426196)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1	1	1	1	1	1
November	1	1	1	1	1	1
December	1	1	1	1	1	1
January	1	1	1	1	1	1
February	1	1	1	1	2	2
March	1	2	2	2 or NF	2 or NF	3 or NF
April	1	2	2	2 or NF	2 or NF	3 or NF
May	1	1	1	2	2	3
June	1	1	1	2	2	2
July	1	1	1	1	2	2
August	1	1	1	1	2	2
September	1	1	1	1	2	2

NF = Natural flow, if the flow above the Towle Canal Diversion Dam is less than the MIF then the natural flow shall be bypassed until such time that the natural flow becomes great enough to return to the MIF.

Table 25. MIFs at Little Bear River below Alta Powerhouse Tailrace (as measured in cfs at Licensee Gage No. YB-98)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.5	1	1	1	1	1
November	0.5	1	1	1	1	1
December	0.5	1	1	1	1	1
January	0.5	1	1	1	1	1
February	0.5	1	1	2	3	3
March	0.5	1	2	3	4	4
April	0.5	1	1	2	3	3
May	0.5	1	1	1	2	2
June	0.5	1	1	1	1	1
July	0.5	1	1	1	1	1
August	0.5	1	1	1	1	1
September	0.5	1	1	1	1	1

Table 26. MIFs at Bear River below Drum Afterbay Dam (as measured in cfs at USGS Gage No. 11421770)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	10	10	12	13	13	13
November	10	10	12	13	13	13
December	10	10	12	13	13	13
January	10	10	12	13	13	13
February	10	10	12	13	13	13
March	14	14	14	14	14	14
April	16	16	16	16	16	16
May	15	15	16	16	16	16
June	10	10	15	16	16	16
July	10	10	12	14	16	16
August	10	10	12	12	12	15
September	10	10	12	12	12	15

Table 27. MIFs at Dry Creek below Halsey Afterbay Dam (as measured in cfs at Licensee Gage No. YB-62A)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1	1	1	1	1	1
November	1	1	1	1	1	1
December	1	1	1	1	1	1
January	1	1	1	1	1	1
February	1	1	1	1	1	1
March	1	1	1	1	1	1
April	1	1	1	1	1	1
May	1	1	1	1	1	1
June	1	1	1	1	1	1
July	1	1	1	1	1	1
August	1	1	1	1	1	1
September	1	1	1	1	1	1

Table 28. MIFs at Rock Creek below Rock Creek Reservoir Dam (as measured in cfs at Licensee Gage No. YB-86)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1	1	1	1	2	3
November	1	1	1	1	2	3
December	1	1	1	1	2	3
January	1	1	1	1	2	3
February	1	1	1	1	2	3
March	3	3	3	3	3	3
April	1	1	1	1	2	3
May	1	1	1	1	2	3
June	1	1	1	1	2	3
July	1	1	1	1	2	3
August	1	1	1	1	2	3
September	1	1	1	1	2	3

Table 29. MIFs at Auburn Ravine below South Canal Release Point (as measured in cfs from new gage or as close to downstream of South Canal Release Point as possible)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	2	2	4	4	4	4
November	2	2	4	4	4	4
December	2	2	4	4	4	4
January	2	2	4	4	4	4
February	2	2	4	4	4	4
March	2	4	6	6	13	18
April	2	4	6	6	13	18
May	2	2	4	4	4	4
June	2	2	4	4	4	4
July	2	2	4	4	4	4
August	2	2	4	4	4	4
September	2	2	4	4	4	4

Table 30. MIFs at Mormon Ravine below Newcastle Powerhouse Header Box (as measured in cfs at USGS Gage No. 11425418)

Month	Extremely Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
Year-round	1 or 5[1]	5	5	5	5	5

[1] MIF is 1 cfs if Newcastle Powerhouse is not operating, 5 cfs if it is operating.

1(B) Planned Temporary Flow Modifications

The Licensee may request temporary flow variances, for flows required per this certification, for non-emergency facility construction, modification, or maintenance. Non-emergency variance requests shall be submitted to the Deputy Director for approval as far in advance as practicable, but no less than four months in advance of the desired effective date. The Licensee shall notify the Forest Service (USFS), California Department of Fish and Wildlife (CDFW), United States Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), Bureau of Reclamation (Reclamation), and the Bureau of Land Management (BLM), as applicable, of the proposed temporary flow variance.

The temporary variance request shall include: a description of the proposed construction, modification, or maintenance; the planned duration and magnitude of the flow variance; documentation of notification to the applicable agencies, and any comments received; measures that will be implemented to protect water quality and beneficial uses; and a schedule for the proposed construction, modification, or

maintenance. The Deputy Director may deny the request or require modifications as part of any approval. Upon Deputy Director approval, the Licensee shall provide public notice of the flow variance. The Licensee shall file with FERC the Deputy Director-approved temporary modifications to flow requirements and any approved amendments thereto.

1(C) Unplanned Temporary Flow Modifications

The flows specified in this certification may be temporarily modified if required by equipment malfunction reasonably beyond the control of the Licensee, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an unforeseen event that is reasonably out of the control of the Licensee and requires the Licensee to take immediate action, either unilaterally or under instruction by law enforcement or other regulatory agency staff, to prevent imminent loss of human life or substantial property damage. An emergency may include but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Projects facilities; recreation accidents; or other public safety incidents. Drought is not considered an emergency for purposes of this condition. The Licensee shall make all reasonable efforts to promptly resume required flows.

When possible, the Licensee shall notify the Deputy Director prior to any unplanned temporary flow modification. In all instances, the Licensee shall notify the Deputy Director within 24 hours of the beginning of any unplanned temporary flow modification. Within 96 hours of the beginning of any unplanned temporary flow modification, the Licensee shall provide the Deputy Director with an update of the conditions associated with the modification and an estimated timeline for returning to the required flows.

Within 30 days of any unplanned temporary flow modification, the Licensee shall provide the Deputy Director with: (1) a written description of the modification and reason(s) for its necessity; (2) photo documentation of the emergency or reason for the flow modification; (3) a timeline for returning to the required flow or timeline when the flow resumed; (4) a description of corrective actions taken in response to an unplanned temporary flow modification; and (5) a plan to prevent the need for modification of flows resulting from a similar emergency or event in the future. The Deputy Director may require modifications to the Licensee's plan to prevent future modifications of flows resulting from similar emergencies or events. The Licensee shall implement its plan and any modifications required by the Deputy Director.

1(D) Evaluation of Flows

After considering monitoring results from Condition 5 (Monitoring and Adaptive Management) and other information associated with conditions in this certification and the FERC license(s), and/or following adoption of any future amendments to the *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) addressing flows in the Sacramento River and its tributaries (including those being developed under the Sacramento/Delta Update to the Bay-Delta Plan at the time of issuance of this certification), the Deputy Director may require the Licensee to

initiate consultation on flows with CDFW, USFWS, USFS, NMFS, State Water Board staff, and, if applicable, BLM and/or Reclamation. Such consultation should determine whether the required flows are reasonably protective of water quality and beneficial uses in the Yuba River, Bear River, American River, and Projects-related tributaries, and whether they meet the requirements of the Bay-Delta Plan. The consultation shall also address what, if any, flow adjustments must be implemented. Consultation under this condition shall not be necessary if the Licensee enters into a State Water Board-approved comprehensive and long-term, watershed-wide voluntary solution implementing such changes to the Sacramento/Delta Update to the Bay-Delta Plan, and any updates to the certification necessary to implement the voluntary solution are incorporated into this certification.

If the above consultation and evaluation of MIFs does not occur within 10 years of license issuance, the Licensee shall initiate consultation with CDFW, USFWS, USFS, NMFS, State Water Board staff, and, if applicable, BLM and/or Reclamation. The consultation shall include discussions of: 1) all monitoring conducted through conditions of this certification that pertain to environmental resources and Projects flow releases, divided by river reaches (i.e., South Yuba River, North Fork of North Fork American River, and Bear River); 2) any adverse effects to environmental resources associated with Projects' flow releases; and 3) proposed updates to the flow schedules and/or identification of management actions to address adverse effects to environmental resources associated with Projects' flow releases.

Within six months of initiating consultation and no later than 11 years following license issuance, the Licensee shall submit to the Deputy Director for review and consideration of approval: documentation of consultation and the consulting agencies' comments and recommendations; any changes to the flows and/or other management actions proposed by the Licensee; and a description of how any changes proposed by the Licensee incorporate or address the agencies' comments and recommendations. The Deputy Director may approve the Licensee's proposal or require other changes to the flows to the extent necessary to ensure reasonable protection of the beneficial uses. If changes to the flows are required, within 10 days of the Deputy Director's approval of the Licensee's proposal or changes to the flows, the Licensee shall file a request with FERC to amend the flow requirements in the license(s). The Licensee shall implement the new flows as soon as reasonably practicable after receiving the Deputy Director's decision and any other required approvals.

1(E) Flow Setting

Non-Winter Flow Setting

Outlet infrastructure at the facilities listed below are manually operated and located in remote areas. As such, the Licensee may configure the outlet setting at each facility using the opening size of the outlet to meet MIFs. With the exception of Lake Sterling Dam (Table 13) and Fuller Lake Dam (Table 10), each of the facilities listed below shall have their low-level outlet settings checked, and reconfigured if necessary, twice each week at regularly spaced intervals to maintain MIFs. Lake Sterling Dam (Table 13) shall

have its low-level outlet setting checked, and reconfigured if necessary, twice each month at regularly spaced intervals. Fuller Lake Dam (Table 10) shall have its low-level outlet set within 14 days following conclusion of the winter flow setting period (described below) and the Licensee shall rely on the continuous flow measurements at Licensee Gage No. YB-211 to determine if adjustments are needed during the non-winter flow setting period. The Licensee shall make such adjustments to the Fuller Lake Dam low-level outlet within 48 hours of when flows at Licensee Gage No. YB-211 do not comply with the MIFs in Table 10.

The Licensee shall record the dates when each facility is checked, the adjustments made to the low-level outlets, and the measured flow. The Licensee shall provide this information in a report to CDFW, USFS, BLM, and the State Water Board a minimum of 60 days prior to the annual meeting required in Condition 20. The Deputy Director reserves the right to modify the flow setting requirements of Condition 1(E) based on monitoring results reported pursuant to this certification.

Flow Setting Facilities:

- Upper Rock Lake Dam (Table 1);
- Lower Rock Lake Dam (Table 2);
- Culbertson Lake Dam (Table 3);
- Middle Lindsey Lake Dam (Table 4);
- Lower Lindsey Lake Dam (Table 5);
- Feeley Lake Dam (Table 6);
- Carr Lake Dam (Table 7);
- Blue Lake Dam (Table 8);
- Rucker Lake Dam (Table 9);
- Fuller Lake Dam (Table 10);
- Meadow Lake Dam (Table11);
- Water Rock Diversion Dam (Table 12);
- Lake Sterling Dam (Table 13);
- Kidd Lake Dam (Table 15);
- Lower Peak Lake Dam (Table 16); and
- Kelly Lake Dam (Table 20);

Winter Flow Setting

On November 1 of each year, the outlets of each facility listed above shall be set to meet the MIF specified in Condition 1(A) with the expectation that the site may not be accessible due to snow until the next calendar year. Once site access is no longer feasible, regular configuration of the low-level outlet may be suspended until the first day in the next calendar year that the location may be safely accessed. The Licensee must resume regular configuration of the low-level outlet within 14 days of determining it is safe to access. Upon request, the Licensee shall provide the State Water Board with documentation that the outlet setting was appropriately adjusted in compliance with this condition.

CONDITION 2. Supplemental Flows

No later than one year following license issuance, the Licensee shall submit a South Yuba River Supplemental Flow Plan (Supplemental Flow Plan) to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The goal of the Supplemental Flow Plan shall be to establish the timing and triggers for supplemental flows, required in Condition 2(A), for modification of instream water temperature in the South Yuba River. The Licensee shall develop the Supplemental Flow Plan in consultation with USFS, CDFW, USFWS, and State Water Board staff. At a minimum, the Supplemental Flow Plan shall include:

- Proposed schedule and frequency of consultation with USFS, CDFW, USFWS, and State Water Board staff to plan supplemental flows each year. Unless otherwise approved by the Deputy Director, a meeting shall be scheduled to coincide with the Annual Meeting (Condition 20), though additional meetings may be necessary;
- Incorporation of the monitoring and consultation measures identified in USFS's final 4(e) condition 32 (USFS, 2014);
- Identification of how the Licensee will coordinate the monitoring required in Condition 5 with the planning of when and how to use supplemental flows each year;
- Format, schedule, and reporting to document, summarize, and analyze supplemental flow results. The Licensee may propose updates or adaptive management measures to the Supplemental Flow Plan based on the monitoring results or new information related to water temperature, fish population, or amphibians that may be impacted by Projects operations. Monitoring reports shall be submitted to USFS, CDFW, USFWS, and State Water Board staff; and
- Documentation of consultation with USFS, CDFW, USFWS, and State Water Board staff in developing the Supplemental Flow Plan, comments and recommendations made in connection with the plan and a description of how the Supplemental Flow Plan incorporates or addresses the comments and recommendations.

In the event that facility modifications are needed to implement supplemental flows, the Licensee shall submit, no later than 60 days following license issuance, any request for alternative supplemental flow implementation timelines to the Deputy Director for review and consideration for approval. The request shall include specific information on which facility or facilities requires modification, the proposed timeline and interim supplemental flows, and support for the alternative timeline(s) and supplemental flows the Licensee proposes to implement in the interim period prior to completion of facility modifications. The Licensee shall implement the applicable supplemental flows required by this certification within 30 days of completing any approved facility modifications. The Deputy Director may require modifications as part of any approval.

The Licensee shall file with FERC the Deputy Director-approved Supplemental Flow Plan and any approved amendments thereto. The Licensee shall implement the

Supplemental Flow Plan and any amendments thereto upon receipt of Deputy Director and any other required approvals.

2(A) Supplemental Flows by Water Year

In each Below Normal, Dry, or Critically Dry water year, consistent with the Deputy Director-approved Supplemental Flow Plan described above, the Licensee shall consult with USFS, CDFW, USFWS, and State Water Board staff on the potential need for supplemental flows below Lake Spaulding Dam for that calendar year. If required after consultation, the Licensee shall implement supplemental flows consistent with Table 31 through Table 33 as applicable to the water year type (Condition 3) and as required by the Supplemental Flow Plan. Unless explicitly modified under Condition 2(B), the Licensee shall not be required to release supplemental flows above those required in Table 31 through Table 33. No later than May 1 of each applicable year the Licensee shall submit a supplemental flow proposal to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. If the Licensee has not received feedback from the Deputy Director regarding the supplemental flow proposal by June 1 of each applicable year, the Licensee need only implement the required MIF consistent with Condition 1(A) Table 18.

Table 31. Supplemental Flows at South Yuba River below Lake Spaulding Dam in Below Normal Water Years (as measured in cfs at USGS Gage No. 11414250)

Period	MIF from Table 18	Supplemental Flow Range	Total Flow
June 15-30	50	-	50
July	35	-	35
August	25	0-5	25-30
September 1-15	25	0-5	25-30

Table 32. Supplemental Flows at South Yuba River below Lake Spaulding Dam in Dry Water Years (as measured in cfs at USGS Gage No. 11414250)

Period	MIF from Table 18	Supplemental Flow Range	Total Flow
June 15-30	40	-	40
July	30	-	30
August	23	0-7	23-30
September 1-15	23	0-7	23-30

Table 33. Supplemental Flows at South Yuba River below Lake Spaulding Dam in Critically Dry Water Years (as measured in cfs at USGS Gage No. 11414250)

Period	MIF from Table 18	Supplemental Flow Range	Total Flow
June 15-30	35	-	35
July	25	0-5	25-30
August	20	0-10	20-30
September 1-15	20	0-10	20-30

2(B) Modification of Supplemental Flows

The Deputy Director reserves the right to modify or approve modifications to the requirements referenced in this condition. Any modifications to this condition require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC any Deputy Director-approved amendments to this condition. The Licensee shall implement any Deputy Director-approved amendments to this condition upon receipt of Deputy Director and any other required approvals.

CONDITION 3. Water Year Types

The Licensee shall classify water year types according to this condition as soon as reasonably practicable but no later than 90 days after license issuance. The Licensee shall determine the water year type based on the criteria in Table 34. The Licensee shall determine the water year type in the months of February, March, April, May, and October based on the California Department of Water Resources (DWR) Bulletin 120[11] forecast.

[11] Bulletin 120 is a publication issued four times a year, in the second week of February, March, April, and May by DWR. It contains forecasts of the volume of seasonal runoff from California's major watersheds, and summaries of precipitation, snowpack, reservoir storage, and runoff in various regions of California.

Table 34. Water Year Types for Upper Drum-Spaulding Hydroelectric Project and Lower Drum Hydroelectric Project

Water Year Type	DWR Forecast of Total Unimpaired Runoff in Yuba River (at Smartsville USGS Gage No. 11418000) or DWR Full Natural Flow Near Smartsville for the Water Year (Thousands of Acre-Feet[1]))
Wet	Greater than 3,240
Above Normal	2,191 to 3,240
Below Normal	1,461 to 2,190
Dry	901 to 1,460
Critically Dry	616 to 900
Extremely Critically Dry	Equal to or Less than 615

[1] DWR rounds the Bulletin 120 forecast to the nearest thousands of acre-feet (TAF) to establish water year types in February, March, April, and May. DWR rounds its Full Natural Flow calculation to establish water year types in October, to the nearest acre-foot; the Licensee shall round DWR's Full Natural Flow calculation in October to the nearest TAF.

In each of the months of February, March, April, and May, the water year type shall be based on DWR's water year forecast of unimpaired runoff in the Yuba River at Smartsville USGS Gage No. 11418000 as established in DWR's Bulletin 120. DWR's Bulletin 120 as published in February, March, and April shall apply from the 16th day of that month through the 15th day of the next month. For example, Bulletin 120 published in the second week of February shall establish the water year type from February 16 through March 15. Additionally, from May 16 through October 15, the water year type shall be based on DWR's Bulletin 120 published in May. If DWR has not released the Bulletin 120 for an affected month by the 15th day of that month then the Licensee shall implement the required MIF within 48 hours of Bulletin 120 being published.

From October 16 through February 15 of the following year, the water year type shall be based on the sum of DWR's monthly (not daily) full natural flow for the full prior water year at the Yuba River at Smartsville USGS Gage No. 11418000. The sum is currently made available by DWR on CDEC in the folder named "FNF Sum".[12]

If DWR does not make the full natural flow available by October 15, the water year type shall be based on DWR's May Bulletin 120 until the full natural flow for the full prior water year is made available. The Licensee shall implement the required water year type determination within three days of the date when DWR makes the full natural flows for the full prior year available through February 15, unless prohibited by site accessibility or unsafe site conditions.

[12] Last accessed January 29, 2021 the CDEC FNF Sum is available at: http://cdec.water.ca.gov/cgi-progs/stages/FNFSUM

CONDITION 4. Streamflow Gages

The Licensee shall implement the *Drum-Spaulding Gaging Plan* filed by USFS with FERC on April 11, 2014. The Licensee shall commence flow monitoring at the streamflow gages referenced in this certification (e.g., Condition 1 – Minimum Instream Flows, Condition 2 – Supplemental Flows, etc.) within 90 days of license issuance unless the streamflow gage must be installed or modified. If a streamflow gage requires modification or installation, the Licensee shall begin monitoring with the modified or new streamflow gage no later than 15 days following completion of the modification or installation. Any streamflow gage(s) that requires modification or installation that is not included in the *Drum-Spaulding Gaging Plan,* including any modifications related to telemetry or data collection requirements in Condition 1, requires approval by the Deputy Director prior to beginning modification or installation.

The Deputy Director reserves the right to modify or approve modifications to the requirements referenced in this condition. Modifications to the *Drum-Spaulding Gaging Plan* require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC any Deputy Director-approved amendments to the *Drum-Spaulding Gaging Plan*. The Licensee shall implement any Deputy Director-approved amendments to the *Drum-Spaulding Gaging Plan* upon receipt of Deputy Director and any other required approvals.

CONDITION 5. Monitoring and Adaptive Management

5(A) Fish Population

No later than six months following license issuance, the Licensee shall implement the *Fish Population Monitoring Plan*, as filed by USFS with FERC on November 21, 2013, and agreed to by PG&E on May 12, 2014, with the following modifications:

If monitoring activities occurred in the previous year, pursuant to this condition, the Licensee shall submit a Fish Population Monitoring Annual Report 30 days prior to the annual meeting (Condition 20) to the Deputy Director for review and consideration of approval. The Licensee shall provide USFS, USFWS, BLM, CDFW, and State Water Board staff a minimum of 45-days to review and comment on the Fish Population Monitoring Report prior to its submission to the Deputy Director. In addition to the items identified in the Fish Population Monitoring Plan, the Fish Population Monitoring Report shall include: 1) identification of any potential Projects-related impacts to fish populations; 2) Licensee-proposed adaptive management actions or monitoring plan modifications to address potential Projects-related impacts to fish populations based on monitoring results; and 3) comments and recommendations made by USFS, USFWS, BLM, CDFW, and State Water Board staff on the Fish Population Monitoring Report along with a description of how the report incorporates or addresses the comments and recommendations. The Licensee shall file the Deputy Director-approved Fish Population Monitoring Report, together with any required Fish Population Monitoring Plan modifications, with FERC.

The Deputy Director reserves the right to modify or approve modifications to the requirements referenced in this condition. Any modifications to the Fish Population Monitoring Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC any Deputy Director-approved amendments to the Fish Population Monitoring Plan. The Licensee shall implement any Deputy Director-approved amendments to the Fish Population Monitoring Plan upon receipt of Deputy Director and any other required approvals.

5(B) Water Temperature

No later than six months following license issuance, the Licensee shall implement the *Water Temperature and Stage Monitoring Plan* as filed by USFS with FERC on April 11, 2014, and agreed to by PG&E on May 12, 2014, with the following modifications:

Each year, at least 30 days prior to the annual meeting (Condition 20), the Licensee shall submit a Water Temperature Monitoring Annual Report to the Deputy Director for review and consideration of approval. The Licensee shall provide USFS, USFWS, BLM, CDFW, Central Valley Regional Water Quality Control Board (Central Valley Regional Water Board), and State Water Board staff a minimum of 45-days to review and comment on the Water Temperature Monitoring Report prior to its submission to the Deputy Director. In addition to the items identified in the Water Temperature and Stage Monitoring Plan, the Water Temperature Monitoring Annual Report shall include: 1) identification of any potential Projects-related impacts to water temperature; 2) Licensee-proposed adaptive management actions or monitoring plan modifications to address potential Projects-related impacts to water temperature based on monitoring results; and 3) comments and recommendations made by USFS, USFWS, BLM, CDFW, Central Valley Regional Water Board, and State Water Board staff on the Water Temperature Monitoring Annual Report along with a description of how the report incorporates or addresses the comments and recommendations. The Licensee shall file with FERC the Deputy Director-approved Water Temperature Monitoring Annual Report, together with any required Water Temperature and Stage Monitoring Plan modifications.

The Deputy Director reserves the right to modify or approve modifications to the requirements referenced in this condition. Any modifications to the Water Temperature and Stage Monitoring Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC any Deputy Director-approved amendments to the Water Temperature and Stage Monitoring Plan. The Licensee shall implement any Deputy Director approved amendments to the Water Temperature and Stage Monitoring Plan upon receipt of Deputy Director and any other required approvals.

5(C) Bald Eagle

No later than six months following license issuance, the Licensee shall implement the *Bald Eagle Management Plan*, as filed by USFS with FERC on November 21, 2013, and agreed to by PG&E on May 12, 2014, with the following modifications:

- Section 5.1 *Annual Consultation Meeting* shall be modified to include consultation with USFWS and State Water Board staff.

- By December 31 of the final year of each five-year survey, the Licensee shall provide USFS, USFWS, BLM, CDFW, and State Water Board staff a Nesting Survey Report, consistent with the Bald Eagle Management Plan, that also includes: 1) items identified in Section 5.2 of the Bald Eagle Management Plan; and 2) any Licensee-proposed adaptive management actions or monitoring plan modifications to address potential Projects-related impacts to bald eagles and/or their nests or eggs.

- No later than six months following submission of the Bald Eagle Nesting Survey Report to agencies, the Licensee shall submit the Nesting Survey Report to the Deputy Director for review and consideration of approval. In addition to the above items identified in the Nesting Survey Report, the Licensee shall provide the Deputy Director comments and recommendations made by USFS, USFWS, BLM, CDFW, and State Water Board staff on the Nesting Survey Report along with a description of how the report incorporates or addresses the comments and recommendations. The Licensee shall file with FERC the Deputy Director-approved Nesting Survey Report, together with any required Bald Eagle Management Plan modifications.

The Deputy Director reserves the right to modify or approve modifications to the requirements referenced in this condition. Any additional modifications to the Bald Eagle Management Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC any Deputy Director-approved amendments to the Bald Eagle Management Plan. The Licensee shall implement any Deputy Director-approved amendments to the Bald Eagle Management Plan upon receipt of Deputy Director and any other required approvals.

5(D) Amphibians

No later than six months following license issuance, the Licensee shall submit an Amphibian Plan to the Deputy Director for review and consideration of approval. The Deputy Director may require modifications as part of approval. The Amphibian Plan shall be developed in consultation with USFS, CDFW, USFWS, and State Water Board staff. The Amphibian Plan shall incorporate the *Foothill Yellow Legged Frog Monitoring Plan*, as filed by USFS with FERC on November 21, 2013, and agreed to by PG&E on May 12, 2014, unless otherwise agreed to by the agencies and Licensee during consultation. At a minimum, the Amphibian Plan shall include the following additional elements:

- Protocols for monitoring all life stages (i.e., egg masses, tadpoles, juveniles, adults) of Sierra Nevada yellow-legged frog and California red-legged frog;
- Identification of critical habitat in the Projects-affected area for Sierra Nevada yellow-legged frog and California red-legged frog;
- Identification of proposed monitoring for Sierra Nevada yellow-legged frogs and California red-legged frogs, including locations, timing, and frequency;
- Adaptive management actions or monitoring plan modifications to address potential Projects-related impacts to foothill yellow-legged frogs, Sierra Nevada yellow-legged frog, and California red-legged frog, or their associated habitat based on monitoring results;
- Additional measures that will be implemented to reduce impacts of Projects operations on amphibians;
- If monitoring activities occurred in the previous year, pursuant to this condition, the Licensee shall, at least 30 days prior to the annual meeting (Condition 20), submit an Amphibian Monitoring Report to the Deputy Director for review and consideration of approval.
- The Licensee shall provide agency staff a minimum of 45-days to review and comment on the Amphibian Monitoring Report prior to its submission to the Deputy Director. If the Deputy Director requires any modification to the Amphibian Monitoring Report as part of approval, the Licensee shall file with FERC the Deputy Director-approved Amphibian Monitoring Report, together with any required Amphibian Plan modifications;
- Format, schedule, and reporting to document, summarize, and analyze monitoring results. The Licensee may propose any updates to monitoring or adaptive management measures for amphibians based on the monitoring results or new information related to amphibians that may be impacted by Projects operations. The Licensee shall submit monitoring results to USFS, State Water Board, CDFW, and USFWS staff; and
- Documentation of consultation with State Water Board, USFS, CDFW, and USFWS staff, consulting agencies' comments and recommendations made in connection with plan modifications, and a description of how the updated plan incorporates or addresses the comments and recommendations.

The Deputy Director may modify or approve modifications to the requirements referenced in this condition. Any modifications to the Amphibian Plan or monitoring of Sierra Nevada yellow-legged frogs or California red-legged frogs require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC any Deputy Director-approved amendments to the Amphibian Plan. The Licensee shall implement any Deputy Director-approved amendments to the Amphibian Plan upon receipt of Deputy Director and any other required approvals.

5(E) Channel Morphology

No later than six months following license issuance, the Licensee shall implement the *Channel Morphology Monitoring Plan*, as filed by USFS with FERC on

November 21, 2013, and agreed to by PG&E on May 12, 2014, with the following modifications:

If monitoring activities occurred in the previous year pursuant to this condition, the Licensee shall, at least 30 days prior to the annual meeting (Condition 20), submit a Channel Morphology Monitoring Report to the Deputy Director for review and consideration for approval. The Licensee shall provide USFS, USFWS, BLM, CDFW, and State Water Board staff a minimum of 45-days to review and comment on the Channel Morphology Monitoring Report prior to its submission to the Deputy Director. In addition to the items identified in the Channel Morphology Monitoring Plan, the Channel Morphology Monitoring Report shall include: 1) identification of any potential Projects-related impacts to channel morphology; 2) Licensee-proposed adaptive management actions or monitoring plan modifications to address potential Projects-related impacts to channel morphology based on monitoring results; and 3) comments and recommendations made by USFS, USFWS, BLM, CDFW, and State Water Board staff on the Channel Morphology Monitoring Report along with a description of how the report incorporates or addresses the comments and recommendations. The Licensee shall file with FERC the Deputy Director-approved Channel Morphology Monitoring Report, together with any required Channel Morphology Monitoring Plan modifications.

The Deputy Director may modify or approve modifications to the requirements referenced in this condition. Any modifications to the Channel Morphology Monitoring Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC any Deputy Director-approved amendments to the Channel Morphology Monitoring Plan. The Licensee shall implement any Deputy Director-approved amendments to the Channel Morphology Monitoring Plan upon receipt of Deputy Director and any other required approvals.

5(F) Aquatic Benthic Macroinvertebrates

No later than one year following license issuance, the Licensee shall submit an *Aquatic Benthic Macroinvertebrates Management Plan* (BMI Plan) to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The BMI Plan shall be developed in consultation with CDFW, USFWS, USFS, BLM, and State Water Board staff. The goal of the BMI Plan shall be to collect information related to the response of the aquatic benthic macroinvertebrate (BMI) community to flow changes and operations modifications in Projects-affected stream reaches and inform potential adaptive management actions. At a minimum, the BMI Plan shall include:

- Identification of monitoring locations, which shall include a minimum of nine monitoring locations in the Projects area;
- Description of BMI sampling protocols using the Surface Water Ambient Monitoring Program (SWAMP) methodology, analytical methods, and quality assurance and quality control procedures, unless otherwise approved by the Deputy Director;
- Proposed schedule and frequency of monitoring;

- Format, schedule, and reporting to document, summarize, and analyze monitoring results. The Licensee may propose any updates or adaptive management measures to the plan based on the monitoring results or new information related to BMI that may be impacted by Projects operations. Monitoring reports shall be submitted to USFS, CDFW, USFWS, and State Water Board staff; and
- Documentation of consultation with USFS, CDFW, USFWS, BLM, and State Water Board staff, comments and recommendations made in connection with the plan, and a description of how the plan incorporates or addresses the comments and recommendations.

Any modifications to the BMI Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director-approved BMI Plan and any amendments thereto. The Licensee shall implement the Deputy Director-approved BMI Plan and any amendments thereto upon receipt of Deputy Director and any other required approvals.

5(G) Riparian Vegetation

No later than six months following license issuance, the Licensee shall implement the *Riparian Vegetation Monitoring Plan*, as filed by USFS with FERC on April 11, 2014, and agreed to by PG&E on May 12, 2014, with the following modifications:

If monitoring activities occurred in the previous year, pursuant to this condition, the Licensee shall submit, at least 30 days prior to the annual meeting (Condition 20), a Riparian Vegetation Monitoring Report to the Deputy Director for review and consideration of approval. The Licensee shall provide USFS, BLM, USFWS, CDFW, and State Water Board staff a minimum of 45 days to review and comment on the Channel Morphology Monitoring Report prior to its submission to the Deputy Director. In addition to the items identified in the Riparian Vegetation Monitoring Plan, the Riparian Vegetation Monitoring Report shall include: 1) identification of any potential Projects-related impacts to riparian vegetation; 2) Licensee-proposed adaptive management actions or monitoring plan modifications to address potential Projects-related impacts to riparian vegetation based on monitoring results; and 3) comments and recommendations made by USFS, BLM, USFWS, CDFW, and State Water Board staff on the Riparian Vegetation Monitoring Report along with a description of how the report incorporates or addresses the comments and recommendations. The Licensee shall file with FERC the Deputy Director-approved Riparian Vegetation Monitoring Report, together with any required Riparian Vegetation Monitoring Plan modifications.

The Deputy Director may modify or approve modifications to the requirements referenced in this condition. Any modifications to the Riparian Vegetation Monitoring Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC any Deputy Director-approved amendments to the Riparian Vegetation Monitoring Plan. The Licensee shall implement any Deputy Director-approved amendments to the Riparian Vegetation Monitoring Plan upon receipt of Deputy Director and any other required approvals.

5(H) Water Quality

No later than one year following license issuance, the Licensee shall submit a Water Quality Monitoring Plan to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The Water Quality Monitoring Plan shall be developed in consultation with CDFW, USFS, BLM, USFWS, Central Valley Regional Water Board, and State Water Board staff. The goal of the Water Quality Monitoring Plan shall be to assess Projects-related impacts to water quality and identify adaptive management actions to reduce Projects' impacts, as necessary. At a minimum, the Water Quality Monitoring Plan shall include:

- Sampling of stream sites at the locations listed in Table 35 in August of the fifth full calendar year following license issuance;
- Sampling of stream sites at the locations listed in Table 35 in August of the second year of consecutive Dry, Critically Dry, or Extremely Critically Dry water years, as defined in Condition 3;
    - Sampling after consecutive Dry, Critically Dry, or Extremely Critically Dry water years is only required during or between the 6th and 14th full calendar years following license issuance;
    - If no consecutive Dry, Critically Dry, or Extremely Critically Dry water years occur during the 6th and 14th full calendar years following license issuance, the Licensee shall repeat the sampling conducted in the fifth full calendar year following license issuance in the 15th full calendar year following license issuance.
- Monitoring consistent with Condition 44 of this certification. A list of water quality parameters that will be analyzed and associated sampling protocols. At a minimum, water quality parameters shall include all parameters sampled as part of the relicensing water quality study for the Projects that was filed with FERC on July 21, 2008 (PG&E, 2008);
- Description of quality assurance and quality control procedures that will be used for collection and handling of samples and data validation;
- Format, schedule, and reporting to document, summarize, and analyze water quality monitoring results. The reporting shall include an evaluation of the results and recommendation regarding whether additional monitoring is needed in future years (i.e., beyond years 6-14 or 15) for some or all constituents. The Licensee may propose any updates or adaptive management measures to the Water Quality Monitoring Plan based on the monitoring results or new information related to water quality that may be impacted by Projects operations. Monitoring reports shall be submitted to USFS, CDFW, USFWS, BLM, Central Valley Regional Water Board, and the State Water Board. The Deputy Director may require monitoring in future years based on monitoring results; and
- Documentation of consultation with USFS, BLM, CDFW, USFWS, Central Valley Regional Water Board, and State Water Board staff, including comments and recommendations made in connection with the plan, and a description of how the plan incorporates or addresses the comments and recommendations.

Table 35. Minimum Water Quality Sampling Locations and Frequency

Sampling Location	Fifth Year Sampling	Consecutive Dry, Critically Dry, or Extremely Critically Dry Year Sampling[1]
Meadow Lake Dam Reach above Fordyce Lake	Yes	No
North Creek above Fordyce Lake	Yes	No
Bloody Creek above Fordyce Lake	Yes	No
Fordyce Creek below Fordyce Lake	Yes	Yes
South Yuba River above Lake Spaulding	Yes	No
South Yuba River below Spaulding Dam	Yes	Yes
Rucker Creek below Blue Lake Dam	Yes	Yes
North Fork of North Fork American River above Lake Valley Canal Diversion	Yes	No
Dry Creek below Halsey Afterbay	Yes	Yes
Auburn Ravine below South Canal Release Point	Yes	Yes
Rock Creek below Rock Creek Reservoir	Yes	Yes

[1] If no consecutive Dry, Critically Dry, or Extremely Critically Dry water years occur during the 6th through 14th full calendar years following license issuance, the Licensee shall repeat the sampling conducted in the fifth full calendar year following license issuance in the 15th full calendar year following license issuance.

The Deputy Director may modify or approve modifications to the requirements referenced in this condition. Any modifications to the Water Quality Monitoring Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director-approved Water Quality Monitoring Plan, any amendments thereto. The Licensee shall implement the Deputy Director-approved Water Quality Monitoring Plan, and any amendments thereto upon receipt of Deputy Director and any other required approvals.

5(l) Auburn Ravine

Auburn Ravine Stranding and Dewatering Surveys

No later than one year following license issuance, the Licensee shall submit an Auburn Ravine Stranding and Dewatering Survey Plan (Stranding Survey Plan) to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The Stranding Survey Plan shall be developed in consultation with CDFW, USFWS, NMFS, and State Water Board staff. The goal of the Stranding Survey Plan shall be to assess Projects-related fish stranding and dewatering, including affects to spawning and rearing, in Auburn Ravine caused by Projects facilities' ramping of flows released into Auburn Ravine and annual outages at Wise Powerhouse. At a minimum, the Stranding Survey Plan shall include:

- Identification of the section of Auburn Ravine that will be surveyed. At least one survey shall be conducted between Nevada Irrigation District's (NID) Lincoln

Gauging Station and the point at which Lower Drum Project flows are released into Auburn Ravine;

- Identification of the timing and frequency of surveys that will be conducted. Surveys shall be conducted each year that ramping rates are used in Auburn Ravine until the Licensee receives Deputy Director approval to suspend surveys. The Deputy Director may require the Licensee to reinitiate implementation of the surveys if dewatering and stranding events occur following suspension of the surveys;
- Identification of other actions on Auburn Ravine that may be contributing to stranding and dewatering, including an evaluation of major flow inputs and diversions from Auburn Ravine that may impact stranding and dewatering events, and recorded flows in Auburn Ravine during the surveys;
- Protocol for a qualified biologist to conduct visual surveys for fish stranding and redd dewatering, including a description of how the qualified biologist will:
    - approach the streambed to visually assess stranding and dewatering,
    - document dewatered redds and the location, species, condition, and estimated life stage of any stranded fish, and
    - notify Licensee operators, CDFW, USFWS, NMFS, and State Water Board staff if stranding or dewatering is observed;
- Performance metrics to assess the effectiveness of the ramping rate implemented in accordance with Condition 6(C) at reducing Projects-related impacts;
- Documentation of consultation with CDFW, USFWS, NMFS, and State Water Board staff, comments and recommendations made in connection with the plan, and a description of how the Stranding Survey Plan incorporates or addresses the comments and recommendations; and
- Format and schedule for reports to document, summarize, and analyze survey results and whether performance metrics are being met. Reports shall include identification of any potential concerns, an assessment of the effectiveness of Condition 6(C) ramping rates, and any modifications proposed by the Licensee to better address Projects-related impacts. Reports shall be submitted to CDFW, USFWS, NMFS, and the State Water Board. The Deputy Director may require implementation of additional surveys or other actions in response to the information provided in the survey reports.

Any modifications to the Stranding Survey Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director-approved Stranding Survey Plan, any approved amendments thereto, and any additional required actions. The Licensee shall implement the Stranding Survey Plan, any amendments thereto, and any additional required actions upon receipt of Deputy Director and any other required approvals, in accordance with the schedule and requirements specified therein.

Auburn Ravine Stranding and Dewatering Avoidance

No later than one year following license issuance and in conjunction with the Stranding Survey Plan, the Licensee shall submit an Auburn Ravine Stranding and Dewatering Avoidance Plan (Stranding Avoidance Plan) to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The Stranding Avoidance Plan shall be developed in consultation with CDFW, USFWS, NMFS, and State Water Board staff. The goal of the Stranding Avoidance Plan shall be to use both existing data and results from implementation of the Stranding Survey Plan described above to coordinate and implement measures to reduce fish stranding and/or dewatering in Auburn Ravine. At a minimum, the Stranding Avoidance Plan shall include:

- Proposed interim stranding and dewatering avoidance measures that will be implemented in advance of completion of the stranding surveys (described in Auburn Ravine Stranding and Dewatering Surveys section above), based on existing data and information related to fish stranding in Auburn Ravine;
- Identification of how the Licensee will consult with the agencies to incorporate the findings of Stranding Survey Plan implementation and submittal of an Updated Stranding Avoidance Plan for Deputy Director review and consideration of approval within five years of license issuance;
- Plan for engagement with NID and Placer County Water Agency (PCWA) on implementation of stranding and dewatering avoidance measures as part of interim and long-term implementation;
- Implementation and effectiveness monitoring;
- Protocol for communication with CDFW, USFWS, NMFS, and the State Water Board to implement stranding and dewatering avoidance measures, if communication is required on a more immediate timeframe and outside of the regular reporting;
- Documentation of consultation with CDFW, USFWS, NMFS, State Water Board, NID, and PCWA staff,, comments and recommendations made in connection with the plan, and a description of how the Stranding Avoidance Plan incorporates or addresses the comments and recommendations; and
- Format and schedule for reports to document, summarize, and analyze monitoring results. Reports shall include identification of any potential concerns, effectiveness of measures implemented under this plan, and any modifications proposed by the Licensee to ramping rates to better address Projects-related impacts. Reports shall be submitted to CDFW, USFWS, NMFS, and the State Water Board, and, if applicable, NID and/or PCWA. The Deputy Director may require implementation of additional monitoring or other actions in response to the information provided in the monitoring reports.

Any modifications to the Stranding Avoidance Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director-approved Stranding Avoidance Plan, any approved amendments thereto, and any additional required actions. The Licensee shall implement the Stranding Avoidance

Plan, any amendments thereto, and any additional required actions upon receipt of Deputy Director and any other required approvals, in accordance with the schedule and requirements specified therein.

CONDITION 6. Spill Cessation and Reduction, Drawdown, and Ramping Rates

The spill cessation and reduction schedules, drawdown, and ramping rate, specified in this condition do not apply to: (a) Projects operations during an emergency or other event as defined in Condition 1(C); (b) releases required by United States Army Corps of Engineers flood control criteria; or (c) instances when the Licensee is directed by FERC or the California Division of Safety of Dams (DSOD) to test or exercise valves at Projects facilities.[13]

The Licensee shall implement the spill cessation schedule, drawdown, and ramping rate, presented in this condition as soon as reasonably practicable but no later than 90 days following license issuance, unless otherwise approved by the Deputy Director. In the event that facility modifications are needed to achieve the spill cessation schedule or ramping rate, the Licensee shall submit, no later than 60 days following license issuance, a request for any alternative timelines for implementation of the spill cessation and reduction schedule, drawdown, and/or ramping rate provision to the Deputy Director for review and consideration of approval. The request shall include: specific information on which facility or facilities requires modification; the proposed alternative timeline; proposed spill cessation and reduction, drawdown, or ramping rates; and support for the alternative timeline(s) and spill cessation and reduction, drawdown, or ramping rates the Licensee proposes to implement in the interim period prior to completion of facility modifications. The Licensee shall implement the spill cessation and reduction schedule, drawdown, and ramping rate required by this certification within 15 days of completing any approved facility modifications. The Deputy Director may require modifications as part of any approval.

6(A) Spill Cessation and Reduction on South Yuba River below Lake Spaulding Dam

The Licensee shall implement the spill cessation schedule in Table 36 after May 1 of each calendar year. In addition, the Licensee shall operate the Projects to avoid short-term spills that would increase instream flows more than 100 percent in a 12-hour period between the end of the spill cessation and September 30 in years when the spill cessation schedule is implemented, or from May 1 through September 30 in years where spill cessation does not occur (i.e., no spills occur).

The mean daily flow referenced in Table 36 is the average of the incremental instantaneous flow readings (from midnight (12:00 AM) of one day to midnight of the next day). The instantaneous flow is the value used to construct the mean daily flow

[13] Whenever possible, the testing of valves should be scheduled to limit impacts to water quality and beneficial uses.

value and shall be measured in 15-minute or more frequent increments, unless otherwise approved by the Deputy Director. When implementation of the spill cessation schedule is underway, as required in Table 36, and a precipitation event increases the instream flow above the mean daily flow requirement, it will not be considered a violation of the schedule to the extent the increase in mean daily flow is associated with the precipitation event. Unless otherwise approved by the Deputy Director, the Licensee shall resume the spill cessation schedule based on the mean daily flow at the time the precipitation event concludes.

Table 36. Spill Cessation Flow Schedule in the South Yuba River below Lake Spaulding Dam after May 1 (as measured in cfs at USGS Gage No. 11414250)[1]

Number of Days to Maintain Flow	Mean Daily Flow (or MIF if greater)
1 day	250 cfs[2]
2 days	200 cfs[2]
2 days	150 cfs[2]
3 days	125 cfs[2]
3 days	100 cfs[2]
4 days	75 cfs[3]
4 days	60 cfs[3]
2 days	50 cfs[3]

[1] If the peak spill flow is greater than or equal to the highest flow on the spill cessation schedule, then the spill flows shall be decreased according to this schedule. If the peak spill flow is less than the highest flow on the schedule, then the spill flows shall be decreased according to the schedule from the observed flow downward (e.g., if peak spill flows were 100 cfs, then the spill cessation would begin with maintaining flows for three days at 100 cfs, and decrease to 75 cfs for an additional four days, etc.). While the table shows the spill cessation schedule continuing until flows are 50 cfs, each spill cessation event shall stop when the applicable MIF shown in Table 18 of Condition 1(A) is reached (i.e., the spill cessation event shall end at the applicable MIF).

[2] During spill cessation, the actual mean daily flow on each day may vary within 20 percent of the flows required in Table 36. In all cases, the MIFs shall be met in accordance with Condition 1.

[3] During spill cessation, the actual mean daily flow on each day may vary within 10 percent of the flows required in Table 36. However, if facility modifications are required to release spill cessation flows, the actual mean daily flow on each day may vary within 20 percent of the flows required in Table 36 until the facility modifications are completed in accordance with Condition 6. In all cases the MIFs shall be met in accordance with Condition 1.

6(B) Drawdown on Fordyce Creek below Fordyce Lake

The Licensee shall implement the drawdown schedule for Fordyce Creek below Fordyce Lake after spills have ceased at both Fordyce Dam and Lake Spaulding Dam. All flows under Condition 6(B) shall be measured at USGS Gage No. 11414100 and all reservoir elevations under Condition 6(B) shall be measured at USGS Gage No. 11414090. The drawdown schedule at Fordyce Lake shall only be implemented when the flow coming from Fordyce Creek into Lake Spaulding does not cause additional spills at Lake Spaulding Dam (i.e., Table 36 spill cessation flows can be implemented at Lake Spaulding Dam during the drawdown as long as the drawdown does not cumulatively add to the spill cessation flows). The reservoir drawdown schedule below is meant to occur in sequence, but if a given level is not available due to a lack of water stored in Fordyce Lake then the next level in sequence shall automatically be triggered. The Licensee shall document all instances of and associated substantiation for skipping a level in the drawdown schedule and provide such information upon request to State Water Board staff.

The highest level of the drawdown schedule at Fordyce Dam shall begin when all of the following conditions are met:

- Flows between 475 cfs and 250 cfs are able to be released from Fordyce Dam;
- There is sufficient storage space available in Lake Spaulding to store the water coming from Fordyce Lake under this drawdown schedule without causing additional spills at Lake Spaulding Dam; and
- Fordyce Lake water storage is above 29,000 acre-feet.

During the highest level of drawdown the Licensee shall release flows between 475 cfs and 250 cfs by leaving the controlling outlets open at the 475 cfs level and letting the flow drop naturally as the water storage in Fordyce Lake drops to 29,000 acre-feet.

The next level of drawdown shall begin when the Fordyce Lake water storage reaches 29,000 acre-feet. The Licensee shall calculate a drawdown schedule that apportions an equal amount of flow between the day that the water storage level reaches 29,000 acre-feet and the end date of Fordyce Lake reaching 10,000 acre-feet of storage on September 30 of that year (i.e., the end of the water year). If this calculation drops the flow level below that required by the MIF in Table 14 of Condition 1(A), then the drawdown schedule shall be recalculated to apportion an equal amount of flow until the date at which the MIF in Table 14 of Condition 1(A) would bring the Fordyce Lake storage level to 10,000 acre feet on September 30 of that year. Implementation of the MIF in Table 14 of Condition 1(A) takes precedence over the spill cessation schedule in Condition 6(B).

Unless otherwise directed by the Deputy Director, the drawdown schedule shall accommodate the USFS off-highway vehicle event[14]. In all instances, the MIFs (Table 14) shall be met.

6(C) Ramping Rate in Auburn Ravine below Wise Powerhouse

Beginning on October 16 and continuing through April 15 of the next calendar year, flows below 80 cfs from South Canal and/or Wise Powerhouse shall be released in a manner that restricts the stage (water depth) change in Auburn Ravine to less than 0.5 feet per hour, as measured at Licensee Gage No. YB 259. This ramping rate shall not apply if a powerhouse relay occurs (trips offline) at either the Wise Powerhouse or Wise No. 2 Powerhouse. The Licensee shall document all instances of and associated substantiation for the occurrence of powerhouse relays that result in the ramping rate not being met and provide such information upon request to State Water Board staff.

For facility modifications that are needed to achieve the ramping rates in Auburn Ravine the Licensee shall submit, no later than 60 days following license issuance, any request for alternative ramping rate implementation timelines to the Deputy Director for review and consideration for approval. The request shall include: specific information on which facility or facilities requires modification; the proposed alternative timeline; alternative ramping rate; and support for the alternative timeline(s) and ramping rates the Licensee proposes to implement in the interim period between license issuance and completion of facility modifications. The Licensee shall implement the ramping rate required by this condition within 30 days of completing any approved facility modifications. The Deputy Director may require modifications as part of any approval.

CONDITION 7. Canal Outages

No later than 30 days following license issuance, the Licensee shall manage outages of the Projects' canals and coordinate Projects operations (Condition 18) for outages of NID's Bowman-Spaulding Conduit as required by this condition.

For the purpose of this condition, there are three types of canal outages:

- Annual planned outages that are defined as outages for routine maintenance and are performed around the same time each year;
- Non-routine planned outages that are defined as outages for high priority/major maintenance that are performed under planned conditions, but do not occur during the annual planned outages for routine maintenance; and
- Emergency outages, which are defined as outages due to emergencies as defined in Condition 1(C).

[14] At the time of certification issuance, there is a USFS off-highway vehicle event that is scheduled for approximately 10 days beginning around the third week of August of each year.

During the Annual Meeting (Condition 20), the Licensee shall inform meeting participants about annual planned outages of the Projects' canals and any coordinated operations for outages of NID's Bowman-Spaulding Conduit (items 1 and 2 in the list above). The Licensee shall include the anticipated timeframe for the annual planned outages and any non-routine planned outages that are already planned, at the time of the annual meeting, for the upcoming year.

The Licensee shall provide USFS, BLM, USFWS, CDFW, and State Water Board staff as much notice as is reasonably possible for: any annual planned outages and any non-routine planned outages of the Projects' canals or coordinated operations (Condition 18), and for outages of NID's Bowman-Spaulding Conduit that were not known prior to the Annual Meeting (Condition 20). The Licensee shall not take the Drum Canal and the Bear River Canal out of service simultaneously unless required by an emergency action or approved by the Deputy Director.

7(A) Canal Outage Minimum Instream Flows

During the first 30 days of an outage of Projects' canals, MIF downstream of the stream reaches affected by the outage shall be at least equal to the flows listed in Table 37.

Table 37. Minimum Instream Flow for Stream Reaches Affected by Canal Outages

Stream Reach Affected (Compliance Gage No.)	MIF During Canal Outage
Bear River at Highway 20 Crossing (USGS Gage No. 11421710)	The total available flow in the Drum Canal and South Yuba Canal shall be released, up to the required MIF in Table 23 of Condition 1(A). If no flow is available in either canal during the outage, then the MIF shall equal the flow in the Bear River above the affected reach compliance location.[1]
Bear River below Drum Afterbay (USGS Gage No. 11421770)	The total available flow in the Drum Canal and South Yuba Canal shall be released, up to the required MIF in Table 26 of Condition 1(A). If the MIF in Table 26 of Condition 1(A) is not being met, then any water entering the Drum Afterbay shall pass into the Bear River below the Drum Afterbay.
Canyon Creek below Towle Canal Diversion Dam (USGS Gage No. 11426196)	When the Drum Canal is out of service, the Licensee shall not divert any water into the Towle Canal Diversion Dam.
Little Bear River below Alta Powerhouse Tailrace (Licensee Gage No. YB-98)	When either the Drum Canal or Towle Canal is offline, the MIF in Little Bear River shall be 0.25 cfs and no natural flow shall be diverted out of Little Bear River.

Stream Reach Affected (Compliance Gage No.)	MIF During Canal Outage
Dry Creek below Halsey Afterbay Dam (Licensee Gage No. YB-62A)	When the Bear River Canal is out of service, the MIF shall consist of the leakage from Halsey Afterbay Dam.
Rock Creek below Rock Creek Reservoir (Licensee Gage No. YB-86)	When the Bear River Canal or the Wise Canal is out of service, the MIF shall be 0.5 cfs.

[1] Within 90 days of license(s) issuance, the Licensee shall submit a method for determining the flow upstream of the compliance location to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval.

The MIFs listed above are required during the first 30 days of annual planned outages and non-routine planned outages of the listed canals. In an emergency outage of any of the listed canals, the Licensee shall implement the MIF in this condition as soon as feasible and shall maintain the MIF for at least 30 days or until the emergency outage concludes and MIFs return to those outlined in Condition 1, whichever occurs first. If an annual planned outage, non-routine planned outage, or emergency outage is anticipated to extend past 30 days or does extend past 30 days and the Licensee is unable to maintain MIFs, the Licensee shall consult with USFS, USFWS, BLM, CDFW, and State Water Board staff to determine an appropriate MIF for the remainder of the outage. Until consultation is concluded, the Licensee shall maintain the MIFs required by this condition. Following conclusion of consultation, the Licensee shall implement the agreed-to MIF as soon as it is feasible to do so for the remainder of the outage. If a MIF cannot be agreed upon based on consultation, the Deputy Director may establish the MIF for the remainder of the outage period.

7(B) Canal Fish Rescue

The Licensee shall implement PG&E's *Canal Outages Fish Rescue Plan* as submitted to FERC by the USFS on November 21, 2013, with the additions outlined below. Condition 7(B) shall apply for all annual non-routine canal outages and, to the extent feasible, emergencies.

The rescue and salvage of aquatic species, including fish, frogs, turtles, and other aquatic vertebrate species, shall include the following practices:

- For aquatic species that require oxygenated water, individuals shall be relocated in carrying mechanisms equipped with aerator devices. Holding time shall be no longer than 45 minutes after capture. Handling of aquatic species shall be minimized to the greatest extent possible;
- Gloves shall always be worn during rescue and salvage efforts to minimize the effects of handling to the greatest extent possible;

- Prior to entering the stream or initiating any rescue and salvage activities, all gear and equipment shall be decontaminated in a designated location and any runoff shall be contained;
- Aquatic species, except for invasive aquatic species (e.g., bullfrogs), shall be relocated to nearby surface waters to minimize the potential for reentry to the work area; and
- Exclusionary devices (e.g., nets, screens, etc.) shall be used on any equipment or materials that have the potential to entrain aquatic species.

CONDITION 8. Jordan Creek Dam Removal

No later than five years following license issuance and at least 18 months in advance of the proposed start of removal activities, the Licensee shall submit a Jordan Creek Diversion Dam Removal Plan (Jordan Creek Plan) to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The Jordan Creek Diversion Dam Removal Plan shall be developed in consultation with CDFW, USFS, USFWS, and State Water Board staff. The goal of the Jordan Creek Plan shall be to describe how Jordan Creek Diversion Dam and associated facilities with be removed in a manner that protects water quality. At a minimum, the Jordan Creek Plan shall include:

- A description of removal activities, including dewatering and diversion activities, and the proposed timeline for the removal;
- Proposed water quality and site condition monitoring, including the schedule, analytical methods, sampling locations, and quality assurance/quality control protocols that will be implemented;
- Proposed best management practices (BMPs) and measures to ensure protection of water quality and beneficial uses;
- Proposed stabilization and restoration actions for disturbed area;
- A list of additional permits and environmental review required for implementation of the plan. The Licensee shall coordinate early with State Water Board staff on the environmental review process, including execution of any memorandum of understanding or other process to ensure an adequate environmental analysis is performed to support review and approval of the plan;
- Information on the water right and proposed disposition of the water right following removal of the diversion;
- Documentation of consultation with CDFW, USFS, USFWS, and State Water Board staff, including comments and recommendations made in connection with the plan, and a description of how the plan incorporates or addresses the comments and recommendations; and
- Format and schedule for reports to document, summarize, and analyze monitoring results. Reporting shall include pre-construction and post-construction photos documenting the existing site condition and the stabilized site condition upon completion of removal activities.

The Deputy Director may require implementation of additional measures or other actions to protect water quality and beneficial uses associated with removal of the Jordan Creek Diversion Dam. Any modifications to the Jordan Creek Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director-approved Jordan Creek Plan, amendments thereto, and any additional measures or actions required by the Deputy Director. The Licensee shall implement the Deputy Director-approved Jordan Creek Plan, amendments thereto, and any additional measures or actions approved by the Deputy Director upon receipt of Deputy Director and any other required approvals.

CONDITION 9. Erosion and Sediment Control

The Licensee shall implement the following provisions related to erosion and sediment control.

9(A) Erosion and Sediment Control

No later than one year following license issuance, the Licensee shall submit an Erosion Control and Sediment Management Plan (Erosion and Sediment Plan) to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The goal of the Erosion and Sediment Plan is to minimize Projects-related erosion and sedimentation impacts for the term of the FERC license(s). The Erosion and Sediment Plan shall be developed in consultation with CDFW, USFS, USFWS, BLM, and State Water Board staff. Unless otherwise updated as part of the consultation process, at a minimum, the Erosion and Sediment Plan shall include the measures in the *Erosion and Sediment Control Management Plan* filed by USFS with FERC on April 11, 2014, with the following additions:

- Initial and periodic inventory and monitoring of potential erosion and sediment control treatment sites. Inventory and monitoring shall include, but is not limited to, assessment of landslide hazard and slope stability by a qualified geologist for slopes above and below sections of open canal and dam abutments that may cause the structure to breach;
- Identification of BMPs that will be implemented to control erosion and sedimentation, which at a minimum shall include the most current USFS ***National Best Management Practices for Water Quality Management on National Forest System Lands***[15] (USFS, 2012c) and other appropriate documents;
- Criteria for prioritizing and ranking erosion sites for treatment, and an associated schedule for each treatment site;

[15] Volume 1: National Core BMP Technical Guide (FS-990a). Issued April 2012. Available online at: https://www.fs.fed.us/naturalresources/watershed/bmp.shtml. Last accessed January 29, 2021.

- Coordination with Condition 9(B) Channel Stabilization and/or Condition 9(C) Canal Release Point. Condition 9(B) provisions may be incorporated into this plan, if desired by the Licensee;
- Performance metrics to assess the effectiveness of erosion and sediment control BMPs at preventing and reducing Projects-related impacts;
- Identification of anticipated maintenance activities, including the timing and frequency of their implementation;
- Implementation and effectiveness monitoring;
- Documentation of consultation with USFS, BLM, CDFW, USFWS, and State Water Board staff, comments and recommendations made as part of consultation, and a description of how the plan incorporates or addresses the comments and recommendations; and
- Format and schedule for reports to document, summarize, and analyze monitoring results and ensure performance metrics are met. Reports shall include identification of any potential concerns, an assessment of the effectiveness of erosion and sediment control measures, and any proposed modifications to erosion control BMPs to better address Projects-related impacts. Reports shall be submitted to USFS, BLM, CDFW, USFWS, and the State Water Board. The Deputy Director may require implementation of additional monitoring or other actions in response to the information provided in the monitoring reports in order to protect water quality and beneficial uses.

Any modifications to the Erosion and Sediment Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director-approved Erosion and Sediment Plan, any approved amendments thereto, and any additional Deputy Director-required actions. The Licensee shall implement the Erosion and Sediment Plan, any amendments thereto, and any additional required actions upon receipt of Deputy Director and any other required approvals, in accordance with the schedule and requirements specified therein.

9(B) Bear River Management Plan

No later than one year following license issuance, the Licensee shall submit a Bear River Management Plan to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The purpose of the Bear River Management Plan is to reduce Projects-related erosion and sedimentation impacts in the Bear River. The Bear River Management Plan shall be developed in consultation with USFS, BLM, CDFW, USFWS, and State Water Board staff. At a minimum, the Bear River Management Plan shall include:

- Schedule and monitoring plan for initial and periodic assessments of areas along the Bear River that may need stabilization treatment;
- Identification of channel stabilization measures that will be implemented in the Bear River;
- Criteria for prioritizing and ranking channel stabilization sites in the Bear River for treatment, and an associated schedule for each treatment site;

- Coordination of Bear River Management Plan activities with Condition 9(A) Erosion and Sediment Control and Condition 9(C) Canal Release Points, as applicable. Condition 9(B) provisions may be incorporated into the Erosion and Sediment Plan required in Condition 9(A), if desired by the Licensee;
- Identification of anticipated maintenance activities, including the timing and frequency of their implementation;
- Implementation and effectiveness monitoring;
- Method for identification and implementation of further actions to maintain the effectiveness of channel stabilization measures based on the monitoring results or new information related to the conditions in the watershed that may be impacted by Projects operations;
- Documentation of consultation with USFS, BLM, CDFW, USFWS, and State Water Board staff, comments and recommendations made as part of consultation, and a description of how the Bear River Management Plan incorporates or addresses the comments and recommendations; and
- Format and schedule for reports to document, summarize, and analyze monitoring results. Reports shall include identification of any potential concerns, an assessment of the effectiveness of channel stabilization measures, and any proposed modifications to the channel stabilization measures to better address Projects-related impacts in the Bear River. Reports shall be submitted to USFS, BLM, CDFW, USFWS and the State Water Board. The Deputy Director may require implementation of additional monitoring or other actions in response to the information provided in the monitoring reports.

Any modifications to the Bear River Management Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director-approved Bear River Management Plan, amendments thereto, and any additional Deputy Director-required actions. The Licensee shall implement the Bear River Management Plan, any amendments thereto, and any additional required actions upon receipt of Deputy Director and any other required approvals, in accordance with the schedule and requirements specified therein.

9(C) Canal Release Points

No later than two years following license issuance, the Licensee shall submit a Canal Release Point Plan to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The goal of the Canal Release Point Plan is to minimize erosion at Projects canal drainage structures, release points, spill structures, and immediately downstream of spillway channels (collectively referred to as “canal release points”). The Canal Release Point Plan shall be developed in consultation with CDFW, USFS, USFWS, BLM, and State Water Board staff. Unless otherwise updated as part of the consultation process, at a minimum, the Canal Release Point Plan shall incorporate the measures in USFS’ *Canal Release Point Plan*, filed with FERC on April 11, 2014, with the following additions:

- Initial and periodic assessment and monitoring of canal release points by a qualified engineering geologist;

- Identification of canal release points that need treatment and the measures that will be implemented;
- Criteria for prioritizing and ranking canal release point sites for treatment, and an associated schedule for each site;
- Coordination of Canal Release Point Plan activities with Condition 9(A) Erosion and Sediment Control and Condition 9(B) Bear River Management Plan;
- Performance metrics to assess the effectiveness of measures on reducing Projects-related impacts at canal release points;
- Anticipated maintenance activities to ensure the long-term and ongoing effectiveness of the measures implemented to address Projects-related impacts from canal release points, including the timing and frequency of such actions;
- Implementation and effectiveness monitoring;
- Documentation of consultation with USFS, BLM, CDFW, USFWS, and State Water Board staff, comments and recommendations made as part of consultation, and a description of how the Canal Release Point Plan incorporates or addresses the comments and recommendations; and
- Format and schedule for reports to document, summarize, and analyze monitoring results and ensure performance metrics are met. Reports shall include identification of any potential concerns, an assessment of the effectiveness of implemented measures, and any proposed modifications to better address Projects-related impacts. Reports shall be submitted to USFS, BLM, CDFW, USFWS and State Water Board staff. The Deputy Director may require implementation of additional monitoring or other actions in response to the information provided in the monitoring reports.

Any modifications to the Canal Release Point Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director-approved Canal Release Point Plan, any approved amendments thereto, and any additional Deputy-Director required actions. The Licensee shall implement the Canal Release Point Plan, any amendment thereto, and any additional required actions upon receipt of Deputy Director and any other required approvals, in accordance with the schedule and requirements specified therein.

9(D) Construction and Maintenance

When applicable, the Licensee shall comply with the State Water Board's *General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit)[16] (State Water Board, 2009), and amendments thereto. For construction and maintenance activities with the potential to impact water quality or beneficial uses that are not subject to the Construction General Permit and/or that are not covered by another condition of this certification,[17] the Licensee shall

[16] Water Quality Order No. 2009-0009-DWQ and NPDES No. CAS000002, as amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ.
[17] For example, channel stabilization activities covered by Condition 8(B) would not be required to have a separate WQMP Plan.

prepare and implement site-specific Water Quality Monitoring and Protection Plans (WQMP Plans) for Deputy Director review and consideration of approval. At a minimum, the WQMP Plans must demonstrate compliance with sediment and turbidity water quality objectives in the *Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin* (SR/SJR Basin Plan) (Central Valley Regional Water Board 2018). The WQMP Plans shall be consistent with the most current USFS *National Best Management Practices for Water Quality Management on National Forest System Lands* (USFS, 2012c) and other appropriate documents.

The Licensee shall submit WQMP Plans to the Deputy Director for review and consideration of approval at least 120 days prior to the desired start date of the applicable construction or maintenance activity. The objective of the WQMP Plans shall be to identify and implement control measures for construction, maintenance, or other activities with the potential to cause erosion, stream sedimentation, fugitive dust, soil mass movement, release of hazardous materials, or other water quality impairment.

WQMP Plans shall be based on actual site geologic, soil, and groundwater conditions, and at a minimum shall include:

- The relevant elements of Erosion and Sediment Plan (Condition 9(A));
- A description of site conditions and the proposed activity;
- Detailed descriptions, design drawings, and specific topographic locations of all control measures in relation to the proposed activity, which may include:
    - Measures to divert runoff away from disturbed land surfaces;
    - Measures to collect and filter runoff from disturbed land surfaces, including sediment ponds; and
    - Measures to dissipate energy and prevent erosion;
- Revegetation measures for disturbed areas, which shall include use of native plants and locally-sourced plants and seeds; and
- A monitoring, maintenance, and reporting schedule.

The Deputy Director may require modifications as part of any approval. The Licensee shall file with FERC the Deputy Director-approved WQMP Plans, and any approved amendments thereto. The Licensee shall implement the WQMP Plans upon receipt of Deputy Director and any other required approvals, in accordance with the schedule and requirements specified therein.

CONDITION 10. Large Woody Material Management

No later than one year following license issuance, the Licensee shall submit a Large Woody Material Management Plan (LWMM Plan) to the Deputy Director for review and consideration for approval. The LWMM Plan shall be developed in consultation with USFS, USFWS, BLM, DSOD, CDFW, and State Water Board staff. The Deputy Director may require modifications as part of any approval. The objective of the LWMM Plan shall be to ensure instream large woody material is available downstream of Projects facilities. At a minimum, the LWMM Plan shall include:

- For applicable Projects locations, a description of: (a) what constitutes large woody material (i.e., size criteria) that will be captured, removed, stored, and placed as part of this condition; and (b) how other woody material will be handled or disposed of as part of the Projects' operations;
- Proposed monitoring to assess the effectiveness of the LWMM Plan (e.g., mobilization and distribution of large woody material);
- Detailed description of the methods, locations, volume, and frequency of large woody material collection, removal, storage, and placement in the Projects stream reaches for applicable Projects locations;
- Method the Licensee will use to determine if root wads present a dam safety risk. At each Projects dam, if the root wad would not present a risk to the safety of the dam, the root wad shall be allowed to continue downstream of the dam;
- A monitoring and reporting program that describes how the Licensee will evaluate and report on the performance of LWMM efforts. The program shall include the criteria that will be used to evaluate the performance of LWMM measures. The Licensee shall propose updates to the LWMM Plan based on the monitoring results. Reports shall be submitted to the Deputy Director, BLM, CDFW, USFWS, DSOD, and USFS. The Deputy Director may require implementation of additional monitoring, LWMM measures, or other actions in response to the information provided in the monitoring reports;
- Removal of large woody material from the dams, dam spillways, or other locations that may pose a safety concern when directed by FERC or DSOD;
- An adaptive management program that describes how the Licensee plans to adjust LWMM and monitoring methods based on evaluation of information and monitoring resulting from implementation of the LWMP Plan; and
- Documentation of consultation with USFS, USFWS, CDFW, DSOD, BLM, and State Water Board staff, including comments and recommendations made in connection with the plan, and a description of how the plan incorporates or addresses the comments and recommendations.

Any modifications to the LWMM Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director-approved LWMM Plan, any approved amendments thereto, and any additional Deputy Director-required action(s). The Licensee shall implement the LWMM Plan, any amendment thereto, and any additional required action(s) upon receipt of Deputy Director and any other required approvals.

CONDITION 11. Aquatic Invasive Species Management

No later than one year following license issuance, the Licensee shall submit an Aquatic Invasive Species Management Plan (Aquatic Invasive Species Plan) to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The Aquatic Invasive Species Plan shall be developed in consultation with USFS, BLM, CDFW, and State Water Board staff. The objectives of the Aquatic Invasive Species Plan are to: (1) identify and implement BMPs to minimize and prevent the introduction and spread of aquatic invasive species

into and throughout Projects-affected waters; (2) provide education and outreach to ensure public awareness of the potential effects of aquatic invasive species throughout Projects-affected waters and actions needed to avoid or address them; (3) develop and implement monitoring programs to ensure early detection of aquatic invasive species; and (4) monitor the spread of established aquatic invasive species. At a minimum, the Aquatic Invasive Species Plan shall include:

- The purpose of the plan;
- Guidance and references the Licensee will use to manage aquatic invasive species that occur or have the potential to occur in Projects-affected waters
- Identification of aquatic invasive species that occur or have the potential to occur in Projects-affected waters. Aquatic invasive species identification shall include consideration of at least dreissenid mussles (*Dreissena bugensis* and *Dreissena* polymorpha), New Zealand mudsnail (*Potamophyrgus antiodarum*), Eurasian milfoil (*Myriophyllum spicatum*), Hydrilla (*Hydrilla verticillata),* Asian clam (*Corbicula flumineal*), and didymo (*Didymosphenia geminata*). For those that occur, include information on where the aquatic invasive species occurs and its density;
- BMPs that will be implemented to manage aquatic invasive species;
- An education and outreach program that will be implemented to ensure public awareness and actions to avoid the introduction and spread of aquatic invasive species. The education program shall include appropriate signage and/or public information pamphlets at designated boat access sites on Lake Spaulding, Fordyce Lake, Fuller Lake, and Lake Valley Reservoir; with additional signage at boat launch areas at Meadow Lake, Lower Lindsey Lake, Carr Lake, Feeley Lake, Rucker Lake, White Rock Lake, Kidd Lake, Upper Peak Lake, Lower Peak Lake, and Kelly Lake. Signage and pamphlets shall include information on procedures for proper boat and equipment cleaning before leaving the waterbody;
- A monitoring and reporting program that will be implemented to ensure early detection of new aquatic invasive species and monitor for the spread or reduction of established aquatic invasive species. The monitoring program shall include the species that will be monitored for, monitoring protocols, frequency, and locations. The program shall describe how the Licensee will evaluate and report on the performance of aquatic invasive species management efforts. The program shall include the criteria that will be used to evaluate the performance of aquatic invasive species BMPs. The reports shall include identification of changes associated with the presence of aquatic invasive species in Projects-affected waters and recommendations to address the presence or change in density of aquatic invasive species;
- An adaptive management program that describes how the Licensee plans to adjust aquatic invasive species monitoring methods or BMPs based on evaluation of information and monitoring resulting from implementation of the plan; and
- Documentation of consultation with USFS, CDFW, BLM, and State Water Board staff, including comments and recommendations made in connection with the

plan, and a description of how the plan incorporates or addresses the comments and recommendations.

The Deputy Director may direct the Licensee to implement additional actions to address aquatic invasive species in Projects-affected waters. The Licensee shall propose any updates to the plan based on the monitoring results or other available information. Reports shall be submitted to USFS, BLM, CDFW, and the Deputy Director. Any modifications to the Aquatic Invasive Species Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director-approved Aquatic Invasive Species Plan, any approved amendments thereto, and any additional Deputy Director-required actions. The Licensee shall implement the Aquatic Invasive Species Plan, any amendments thereto, and any additional required actions upon receipt of Deputy Director approval and any other required approvals, in accordance with the schedule and requirements specified therein.

CONDITION 12. Fish Stocking

No later than one year following license issuance, the Licensee shall submit a Fish Stocking Plan to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The Fish Stocking Plan shall be developed in consultation with USFS, USFWS, CDFW, and State Water Board staff. The Fish Stocking Plan shall outline fish stocking activities in Projects lakes and reservoirs during the term of the FERC license(s). The objectives of the Fish Stocking Plan are to evaluate and monitor the locations where fish stocking occurs and identify the number of fish and species of fish to be stocked at each location. At a minimum, the Fish Stocking Plan shall include:

- The Projects locations where fish stocking will occur and the frequency of stocking at each location including, at a minimum, annual stocking in Blue Lake, Carr Lake, Culbertson Lake, Feeley Lake, Fordyce Lake, Fuller Lake, Halsey Forebay, Rock Creek Reservoir, Lake Valley Reservoir, Lower Lindsey Lake, Upper Lindsey Lake, Meadow Lake, Lower Rock Lake, Upper Rock Lake, White Rock Lake, Sterling Lake, and Spaulding Reservoir;
- The age and number or weight of fish to be stocked at Projects locations;
- Provisions for periodic review of angling use levels at stocked and non-stocked locations and evaluation of adding or removing Projects locations that should be stocked based on that periodic review;
- Provisions for eliminating fish stocking at locations based on consultation with USFS, USFWS, CDFW, and State Water Board staff;
- A schedule for annual consultation with USFS, USFWS, CDFW, and State Water Board staff in advance of the year's fish stocking activities, and distribution of an annual summary report of fish stocking activities to the agencies. The contents of the annual summary report shall be outlined in this plan. The Deputy Director may require implementation of additional monitoring or other actions in response to the information provided in the annual summary reports or as part of consultation; and

- Documentation of consultation with USFS, USFWS, CDFW, and State Water Board staff, including comments and recommendations made in connection with the plan, and a description of how the plan incorporates or addresses the comments and recommendations.

Any modifications to the Fish Stocking Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director-approved Fish Stocking Plan, any approved amendments thereto, and any additional Deputy Director-required actions. The Licensee shall implement the Fish Stocking Plan, any amendments thereto, and any additional required actions upon receipt of Deputy Director and any other required approvals, in accordance with the schedule and requirements specified therein.

CONDITION 13. Recreation Facilities

No later than one year following license issuance, the Licensee shall submit a Recreation Facilities Plan for review and consideration for approval by the Deputy Director. The Deputy Director may require modifications as part of any approval. The Recreation Facilities Plan shall be developed in consultation with staff from the State Water Board, USFS, BLM, CDFW, and USFWS. At a minimum, the Recreation Facilities Plan shall include:

- A comprehensive list and map of recreation facilities associated with the Projects, and any known modifications to existing recreation facilities (including removal) or new facilities to be constructed during the term of the new FERC license(s). This list and map shall be updated throughout the term of the new FERC license(s) as new information becomes available;
- For each recreation facility with proposed activities with the potential to impact water quality or beneficial uses, the Licensee shall identify whether the Licensee plans to cover such activities under this plan, a separate WQMP Plan (Condition 9(D)), or the recreation facilities/activities have no potential to impact water quality and beneficial uses with supporting documentation for no impacts;
- A description of routine recreation facilities maintenance that may have an impact on water quality or beneficial uses, and measures that will be implemented to minimize or avoid impacts. Maintenance activities related to recreation facilities that may impact water quality and beneficial uses shall be submitted for Deputy Director-approval as part of the original or an amended Recreation Facilities Plan or as a separate WQMP Plans (Condition 9(D));
- Water quality monitoring that will be implemented, including the locations, methods, quality assurance/quality control protocols, and frequency for monitoring of, at a minimum: fecal coliform, total petroleum hydrocarbons (gasoline range), and oil/grease;
- Reference to the Aquatic Invasive Species Plan (Condition 11) monitoring for coverage of water quality related items associated with aquatic invasive species;
- Identification of the need for aquatic vegetation management at recreation sites, when applicable, and actions that may be implemented as needed;

- A list of additional permits and environmental review required for implementation of the plan. The Licensee shall coordinate early with State Water Board staff on the environmental review process, including execution of any memorandum of understanding or other process to ensure an adequate environmental analysis is performed to support review and subsequent updates of the plan; and
- Documentation of consultation with USFS, BLM, CDFW, USFWS, and State Water Board staff, comments and recommendations made in connection with the plan, and a description of how the plan incorporates or addresses the comments and recommendations.

Depending on its scope, additional environmental analysis may be needed before the Deputy Director may approve all or part of the Recreation Facilities Plan. Any modifications to the Recreation Facilities Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director-approved Recreation Facilities Plan, and any amendments thereto. The Licensee shall implement the Deputy Director-approved Recreation Facilities Plan, and any amendments thereto upon receipt of Deputy Director and any other required approvals.

Additionally, each year throughout the term of the license(s), the Licensee shall arrange to meet with USFS, CDFW, USFWS, BLM, and State Water Board staff for an annual recreation facilities coordination meeting to discuss issues regarding Projects recreation facilities, use and management, protection of water quality and beneficial uses, and recreation-related resource protection. The Licensee shall target holding the annual recreation coordination meeting with the above listed agencies within the first 90 days of each calendar year. The Licensee shall provide the agencies with an agenda and a draft annual recreation operation and maintenance plan at least 30 days in advance of the meeting.

CONDITION 14. Recreation Streamflows and Information

No later than one year following license issuance, the Licensee shall provide real-time streamflow information, in cfs, for the following Projects-related stream reaches:

- Fordyce Creek below Fordyce Lake Dam (USGS Gage No. 11414100);
- South Yuba River below Lower Peak Lake Dam (USGS Gage No. 11414000);
- South Yuba River below Lake Spaulding Dam (USGS Gage No. 11414250); and
- Bear River at Highway 20 (USGS Gage No. 11421710).

If a gage is not USGS rated above the compliance flow required in this certification, the Licensee shall make a good faith effort to estimate the flow above the USGS rating. No later than one year following license issuance, the Licensee shall provide the Deputy Director with a list such gages and the maximum flow to which the USGS rating applies. The Licensee shall post all flow and other data to the California Data Exchange Center website within 24-hours of flow measurement, unless otherwise approved by the Deputy Director. The Licensee shall publicly notice at an easily accessible location on the internet all known events that will affect recreation streamflow (e.g., powerhouse

outages, construction, etc.) in Projects reaches a minimum of 30 days in advance or as soon as known in instances when less than 30 days is available. The preference is that recreational streamflow data be reported in 15-minute intervals; however, such data shall be reported in no less than hourly intervals.

The recreation streamflows in Table 38 shall be made once each year after May 1 for recreation, including boating, in the South Yuba River below Lake Spaulding Dam during Wet, Above Normal, and Below Normal water years (Condition 3) when the following conditions are met:

- Spill is of sufficient magnitude to release the recreation flows in Table 38 for the duration specified, as measured at USGS Gage No. 11414250;
- Spills occur after May 1 and before September 30; and
- The water surface elevation of Lake Spaulding as measured at USGS Gage No. 11414140 meets or exceeds 5,005.6 feet.

These recreation streamflow releases shall occur immediately prior to those required in Condition 6(A) and are intended to compliment the spill cessation schedule of Table 36.

Table 38. Recreation Streamflow Releases in South Yuba River below Lake Spaulding Dam (as measured in cfs at USGS Gage No. 11414250)

Water Year Type	Number of Days to Hold Flow Releases	Flow Release Range
Wet	No less than six consecutive days	250-420 cfs
Above Normal	No less than four consecutive days	250-420 cfs
Below Normal	No less than two consecutive days	250-420 cfs

CONDITION 15. Drought Planning

No later than two years following license issuance, the Licensee shall submit a Drought Management Plan to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The Drought Management Plan shall be developed in consultation with staff of USFS, CDFW, State Water Board, and, if applicable BLM and/or Reclamation. At a minimum, the Drought Management Plan shall include:

- Consultation on the Drought Management Plan. Consultation shall include determination of multi-year "drought conditions." Such multi-year drought conditions may include several consecutive years in which the Governor of the State of California declares a drought emergency for Nevada or Placer counties, or multiple consecutive Dry, Critically Dry, or Extremely Critically Dry water year types;
- Guidance for operations during multi-year drought conditions, including:
  - Identification of management options that may require a variance to conditions of this certification to address multi-year droughts;

  - Evaluation of different, specific multi-year drought scenarios;
  - Considerations that will be evaluated for different management options, such as an estimate of water to be saved and the alternative beneficial uses for which the water is being conserved; a timeline for the return to regular operations; proposed monitoring for the revised operations, including an estimation of any impacts the revised operations may have on any beneficial uses of water; and
  - Proposed water conservation measures that will be implemented when drought conditions as defined during consultation have been meet/observed;
- Consultation, notification, and regulatory approval procedures that will be implemented during drought conditions, which shall include, at a minimum, USFS, CDFW, USFWS, BLM, and/or Reclamation (if applicable), and State Water Board staff; and
- Comments received during the consultation process and identification of how the Licensee addressed the comments.

Any modifications to the Drought Management Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director-approved Drought Management Plan, and any approved amendments thereto. The Licensee shall implement the Drought Management Plan upon receipt of Deputy Director and any other required approvals, in accordance with the schedule and requirements specified therein. The Drought Management Plan shall be used to avoid, whenever possible, and inform any variance requests submitted to the State Water Board under Condition 19 (Extremely Dry Conditions).

CONDITION 16. Hazardous Substances Plan

No later than one year following license issuance, the Licensee shall submit a Hazardous Substances Plan to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The Hazardous Substances Plan shall address the storage, spill prevention, cleanup, and disposal of oil and hazardous substances associated with Projects activities. The Licensee shall consult with USFS, BLM, Central Valley Regional Water Board, and State Water Board staff in the development of the plan. At a minimum, the Hazardous Substances Plan shall include:

- The Licensee's plan to maintain in the Projects areas a cache of spill cleanup equipment suitable to contain any spill from the Projects;
- Periodic reporting to inform the State Water Board and Central Valley Regional Water Board of the location of the spill cleanup equipment and of the location, type, and quantity of oil and hazardous substances stored in the Projects area;
- Immediate reporting to the State Water Board and Central Valley Regional Water Board and other relevant agencies of the magnitude, nature, time, date, location, and action taken for any spill;
- A monitoring and reporting component that details water quality monitoring and corrective measures to reduce water quality impacts that will be taken if spills

occur, as well as information on how hazardous materials will be properly disposed of once their useful life has past or as part of cleanup activities;
- Evaluation of any release and cleanup of hazardous substances. This evaluation shall be completed with 120 days of the release and include consultation with the agencies and a report submitted to the Deputy Director with any proposed updates to plan; and
- Documentation of consultation with USFS, BLM, Central Valley Regional Water Board and State Water Board staff, including comments and recommendations made in connection with the plan, and a description of how the plan incorporates or addresses the comments and recommendations.

The Deputy Director may require implementation of additional actions in response to the information provided as part of a report following a release or other information indicating a threat to water quality or beneficial uses. Any modifications to the Hazardous Substances Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director-approved Hazardous Substances Plan, any amendments thereto, and any additional Deputy Director-required actions. The Licensee shall implement the Deputy Director-approved Hazardous Substances Plan, any amendments thereto, and any additional required actions upon receipt of Deputy Director and any other required approvals.

CONDITION 17. Riparian, Wetlands, and Aquatic Resources

No later than one year following license issuance, the Licensee shall submit a Riparian, Wetlands, and Aquatic Resources Management Plan to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The Riparian, Wetlands, and Aquatic Resources Management Plan shall be developed in consultation with State Water Board and Central Valley Regional Water Board staff. The purpose of the Riparian, Wetlands, and Aquatic Resources Management Plan shall be to eliminate or minimize the potential for Projects activities to cause permanent, temporary, or temporal impacts on aquatic resources, wetlands, and riparian areas. At a minimum, the Riparian, Wetlands, and Aquatic Resources Management Plan shall include:

- Protocols used to delineate riparian and wetland areas and a description of avoidance and minimization measures that will be implemented;
- Delineation or description of aquatic sensitive communities[18] potentially affected by Projects activities;
- Description of Projects activities with the potential to affect aquatic sensitive communities;
- Adaptive management actions that will be implemented if water quality or beneficial uses are determined to be adversely affected by the Projects activities;

[18] Some aquatic resources and their associated riparian corridors in the Projects area may be considered sensitive communities because of their unique hydrophytic vegetation and ability to support special-status species (State Water Board, 2021).

- Description of how the Licensee shall ensure no net loss of wetland or riparian habitat functions and compliance with the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (State Water Board, 2019) and the *California Wetlands Conservation Policy* (Executive Order W-59-93), and any amendments thereto;
- Format, schedule, and reporting to document, summarize, and analyze monitoring results and adaptive management actions. The Licensee may propose any updates or adaptive management measures to the plan based on the monitoring results or new information related to wetlands and riparian areas that may be impacted by Projects operations. Monitoring reports shall be submitted to State Water Board staff; and
- Documentation of consultation with State Water Board staff, comments and recommendations made in connection with the plan, and a description of how the plan incorporates or addresses the comments and recommendations.

Any modifications to the Riparian, Wetlands, and Aquatic Resources Management Plan require approval by the Deputy Director prior to implementation. The Licensee shall file with FERC the Deputy Director approved Riparian, Wetlands, and Aquatic Resources Management Plan and any amendments thereto. The Licensee shall implement the Deputy Director-approved Riparian, Wetlands, and Aquatic Resources Management Plan and any amendments thereto upon receipt of Deputy Director and any other required approvals.

CONDITION 18. Coordinated Operations Plan

No later than one year following license issuance, the Licensee shall file a Coordinated Operations Plan with the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The Coordinated Operations Plan shall cover coordination of the Projects, the Yuba-Bear Hydroelectric Project (FERC Project No. 2266), and the Deer Creek Hydroelectric Project (FERC Project No. 14530). The Licensee shall consult with the licensee for the Yuba-Bear Hydroelectric Project, the licensee for the Deer Creek Hydroelectric Project, USFWS, USFS, NMFS, CDFW, BLM, Reclamation (if applicable), and State Water Board staff in developing the Coordinated Operations Plan. The purpose of the Coordinated Operations Plan shall be to provide for coordinated operations of the Projects, the Yuba-Bear Hydroelectric Project, and the Deer Creek Hydroelectric Project, to ensure implementation of the flow–related conditions in the Projects, the Yuba-Bear Hydroelectric Project, and the Deer Creek Hydroelectric Project licenses, including, but not limited to: maintenance of flow requirements and ramping rates during normal operations, scheduled outages, and unscheduled outages (to the extent feasible).

The Licensee shall file with FERC the Deputy Director-approved Coordinated Operations Plan, and any approved amendments thereto. The Licensee shall implement the Coordinated Operations Plan and any amendment thereto upon receipt of Deputy Director and any other required approvals, in accordance with the schedule and requirements specified therein.

The State Water Board reserves the right to modify or approve modifications to the requirements referenced in this certification as needed to protect water quality and beneficial uses affected by the Projects in response to issues that arise in coordinating the operations of the Projects, the Yuba-Bear Hydroelectric Project, and the Deer Creek Hydroelectric Project.

CONDITION 19. Extremely Dry Conditions

In the event of extremely dry conditions, which may include a year in which the Governor of the State of California declares a drought emergency for Nevada or Placer counties, or multiple consecutive Dry, Critically Dry, or Extremely Critically Dry water years, the Licensee may request modification of the flow and related requirements of this certification. If the Licensee anticipates that it may request modification pursuant to this condition, the Licensee shall notify CDFW, USFS, USFWS, BLM, NMFS, Reclamation (if applicable), and the Deputy Director of the Licensee's concerns related to flows and related requirements as early as possible and no later than March 15 of the year in which a request may be submitted. If the Licensee requests modification pursuant to this condition, the Licensee shall develop a Revised Operations Plan in consultation with the agencies listed above and State Water Board staff for flows and other related requirements during the extremely dry conditions.

The Licensee shall provide interested parties with notice of the proposed Revised Operations Plan at least seven days prior to submittal to the Deputy Director for review and consideration of approval. Whenever possible, the Licensee shall provide an opportunity for interested parties to comment on the proposed Revised Operations Plan prior to submittal to the Deputy Director. The Licensee's request shall include: an estimate of water to be saved and the alternative beneficial uses for which the water is being conserved; a timeline for the return to regular operations; proposed monitoring for the revised operations, including an estimation of any impacts the revised operations may have on any beneficial uses of water; identification of measures to reasonably protect beneficial uses under the circumstances; and proposed water conservation measures that will be implemented. If conservation measures are not applicable, the Licensee shall describe the circumstances and justification for not implementing water conservation measures. The Revised Operations Plan shall also discuss how the proposal incorporates the Drought Management Plan (Condition 15).

The Licensee shall submit the proposed Revised Operations Plan to the Deputy Director for review and consideration for approval. The Deputy Director may require modifications as part of any approval. The Licensee shall provide copies and a summary of any comments received and how the comments were addressed. The Licensee may implement the Revised Operations Plan upon receipt of Deputy Director and other required approvals, in accordance with the schedule and requirements specified therein. The Licensee shall file with FERC the Deputy Director-approved Revised Operations Plan, and any approved amendments thereto.

CONDITION 20. Annual Meeting and Technical Review Group

No later than one year following license issuance, the Licensee shall establish a Technical Review Group (TRG) and host annual meetings in April, unless otherwise agreed to by the TRG, regarding implementation of the Projects license(s). At a minimum, representatives from the State Water Board, CDFW, USFS, USFWS, BLM, Reclamation (if applicable), NMFS, and the Foothills Water Network shall be invited to participate in the TRG. The annual meeting shall be noticed at least 30 days in advance on the Licensee's Projects' webpage(s) and shall be open to the public. The TRG shall establish communication protocols to facilitate interactions between TRG members that allow for open participation and communication between all parties. The first meeting of the TRG shall be held no later than the first full calendar year after license(s) issuance. At the annual meetings, the TRG shall:

- Review the status of implementing the FERC license(s) and certification conditions;
- Review monitoring data from monitoring conducted the previous year;
- Review elements of current year maintenance plans and any non-routine maintenance;
- Review any actions under the supplemental flows plan from the previous year, if applicable, and for the current year, if applicable;
- Discuss foreseeable changes to Projects facilities or features;
- Discuss the status of any salmonid reintroduction plan(s) that could impacts Projects waterbodies;
- Discuss planned outages of the Bowman-Spaulding Conduit and any coordinated Projects operations for outages;
- Discuss necessary or anticipated revisions or modifications to plans approved as part of this certification;
- Discuss the development and implementation of plans required by this certification, and any proposed revisions thereto; and
- Discuss species listing implications, including:
    - Needed protection measures for species newly listed as threatened, endangered, or sensitive;
    - Changes to existing plans for actions that may no longer be necessary due to delisting of a species; and
    - Changes to existing plans to incorporate new information about species requiring protection.

Materials shall be provided to TRG members and other interested parties at least 30 days prior to the annual meeting. The Licensee shall submit a report to the State Water Board that summarizes the annual consultation meeting no later than 30 days following the annual consultation meeting. The Licensee may integrate the requirements of this condition with elements of its proposed condition DS-GEN1: *Annual Consultation with Forest Service and BLM*, as submitted to FERC on June 18, 2012 (PG&E, 2012a).

CONDITION 21. Mercury Management

Within three years of license issuance, the Licensee shall evaluate the extent to which Projects' operations increase the mobilization or methylation of mercury and submit the evaluation to the Deputy Director for review and consideration for approval. The evaluation may use information collected during monitoring required by conditions of this certification. The Licensee shall consult with State Water Board and Central Valley Regional Water Board staff in development of the evaluation. The evaluation shall include existing water quality and fish tissue data related to mercury and the extent to which Projects' operations contribute to the mobilization or methylation of mercury. The evaluation shall also identify the extent to which the Licensee is implementing measures related to mercury management under its existing Projects' operations (e.g., posting of health warnings, etc.).

After submittal of the evaluation, the Deputy Director may require the Licensee to develop a Mercury Management Plan that addresses, to the extent feasible, Projects' operations and activities that increase the mobilization or methylation of mercury. The Mercury Management Plan shall be developed in consultation with the State Water Board and Central Valley Regional Water Board staff. The Mercury Management Plan shall comply with the *Tribal Subsistence Beneficial Uses and Mercury Provisions of the Inland Surface Waters, Enclosed Bays, and Estuaries (ISWEBE) Plan* (State Water Board, 2017b). The Mercury Management Plan shall include a review of potential measures to reduce the amount of methylmercury or rate of mercury methylation in the watershed as affected by the Projects (such as changes to operations related to power generation, reservoir management, sediment dredging, and/or sediment capping), and an examination of implementation measures feasibility. The Mercury Management Plan shall 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 with fish).

If, based on the information contained in the Mercury Management Plan or other available information, the Deputy Director determines there are appropriate and feasible measures the Licensee should implement to reduce the amount of methylmercury, reduce the mobilization or methylation of mercury, and/or protect human health, the Deputy Director may require the Licensee to develop a Mercury Reduction Implementation Plan, which shall be submitted to the Executive Director of the State Water Board for review and consideration of approval, after notice and opportunity for hearing. The Mercury Reduction Implementation Plan shall be developed in consultation with State Water Board and Central Valley Regional Water Board staff.

The Licensee shall file with FERC the Deputy Director-approved evaluation, Deputy Director-approved Mercury Management Plan, and Executive Director-approved Mercury Reduction Implementation Plan, together with any required modifications. Upon receiving all necessary regulatory approvals, the Licensee shall implement the measures identified in the Mercury Reduction Implementation Plan.

CONDITIONS 22 – 48

CONDITION 22. Notwithstanding any more specific conditions in this certification, the Licensee shall comply with all mitigation measures, monitoring, and reporting requirements described in the Mitigation, Monitoring, and Reporting Program (Attachment B).

CONDITION 23. Notwithstanding any more specific provision of this certification, any plan developed as a condition of this certification requires review and consideration for approval by the Deputy Director. The State Water Board's approval authority, including authority delegated to the Deputy Director or others, includes the authority to withhold approval or to require modification of a proposal, plan, or report prior to approval. The State Water Board may take enforcement action if the Licensee fails to provide or implement a required item in a timely manner. If a time extension is needed to submit an item for Deputy Director approval, the Licensee shall submit a written request for the extension, with justification, to the Deputy Director no later than 30 days prior to the deadline. The Licensee shall file with FERC any Deputy Director-approved time extensions. The Licensee shall not implement any plans or reports until after receiving Deputy Director approval and any other necessary regulatory approvals.

CONDITION 24. The State Water Board reserves the authority to add to or modify the conditions of this certification to incorporate terms of a State Water Board-approved voluntary solution or agreement that helps to meet water quality standards and other appropriate requirements of state law, and that may include, but is not limited to, modifications to requirements for instream flows and non-flow restoration actions (e.g., large woody material management).

CONDITION 25. The State Water Board reserves the authority to add to or modify the conditions of this certification: (1) to incorporate changes in technology, sampling, or methodologies; (2) if monitoring results indicate that continued operation of the Projects could violate water quality objectives or impair beneficial uses; (3) 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 (including those identified under the Sacramento/Delta Update to the Bay-Delta Plan); (4) to coordinate the operations of the Projects and other hydrologically connected water development projects, where coordination of operations is reasonably necessary to meet water quality objectives and protect beneficial uses of water; and (5) to require additional monitoring and/or other measures, as needed, to ensure that continued Projects' operations meet water quality objectives and protect beneficial uses.

CONDITION 26. Future changes in climate projected to occur during the FERC license(s) term(s) may significantly alter the assumptions used to develop the conditions of this certification. The State Water Board reserves authority to add to or modify the conditions of this certification, to require additional monitoring and/or other measures, as needed, to verify that Projects' operations meet water quality objectives and protect the beneficial uses assigned to Projects-affected stream reaches.

CONDITION 27. The State Water Board will provide notice and an opportunity to be heard in exercising its authority to add to or modify the conditions of this certification.

CONDITION 28. In addition to the specific conditions in this quality certification, the Projects shall be operated in a manner consistent with all applicable requirements of the Bay-Delta Plan and SR/SJR Basin Plan.

CONDITION 29. In addition to the specific conditions in this certification, the Projects 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 the South Yuba River, Bear River, North Fork of the North Fork American River, Auburn Ravine, and their tributaries.

CONDITION 30. Unless otherwise specified in this or at the request of the Deputy Director, data and/or reports shall 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 Water Code section 13167.

CONDITION 31. 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 Endangered Species Act (Fish & G. 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(s) of the Projects that may result in a take. The Licensee is responsible for meeting all requirements of the applicable ESAs for the Projects authorized under this certification.

CONDITION 32. The Licensee shall submit to the State Water Board for prior review and written approval any change to the Projects, including operations, facilities, technology changes or upgrades, or methodology, which could have a significant or material effect on the findings, conclusions, or conditions of this certification. The State Water Board shall determine significance and may require consultation with state and/or federal agencies. If the State Water Board is not notified of a change to the Projects, it will be considered a violation of this certification. If such a change would also require submission to FERC, the change must first be submitted and approved by the Executive Director of the State Water Board unless otherwise delegated in this certification or other State Water Board approval.

CONDITION 33. 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 ensure compliance with the water quality standards and other pertinent requirements incorporated into this certification. 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.

CONDITION 34. The Executive Director reserves the authority to modify or add conditions to this certification if the Executive Director determines that it is reasonably foreseeable that state- or federally-listed anadromous fish species will be reintroduced into additional Projects-affected streams to ensure adequate protection of SR/SJR Basin Plan objectives and beneficial uses. For this condition, "reasonably foreseeable" includes, but is not limited to, a comprehensive reintroduction effort or plan that has a reasonable likelihood of implementation within the following 18 months.

The State Water Board also reserves the authority to require the Licensee to develop and conduct studies if it is reasonably foreseeable that listed anadromous fish species will be reintroduced into Projects-affected areas. Such studies shall be designed in consultation with USFS, BLM, USFWS, NMFS, CDFW, Reclamation (if applicable) and State Water Board staff, to develop fish passage, flows, or other measures, as well as determine appropriate modifications to the certification to minimize potential impacts and protect water quality and beneficial uses. Introduction of anadromous fish may require reevaluation of the Projects facilities, flow regimes, fish stocking plans, availability of large woody material, gravel augmentation, and access to Projects-affected tributaries.

CONDITION 35. In response to a suspected violation of any condition of this certification, the State Water Board or Central Valley Regional 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. (Wat. Code, §§ 1051, 13165, 13267, and 13383.)

CONDITION 36. This certification shall not be construed as replacement or substitution for any necessary federal, state, and local approvals. The Licensee is responsible for compliance with all applicable federal, state, or local laws or ordinances and shall obtain authorization from applicable regulatory agencies prior to the commencement of Projects activities.

CONDITION 37. Any requirement in this 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 38. Upon request, a construction or work schedule shall be provided to State Water Board staff for Projects-related activities. The Licensee shall provide State Water Board and Central Valley Regional Water Board staff access to Projects' sites to document compliance with this certification.

CONDITION 39. A copy of this certification shall be provided to any contractor and all subcontractors conducting Projects-related work, and copies shall remain in their possession at the Projects site(s). The Licensee shall be responsible for work conducted by its contractor, subcontractors, or other persons conducting Projects-related work.

CONDITION 40. Onsite containment for storage of chemicals classified as hazardous shall be away from watercourses and include secondary containment and appropriate management as specified in California Code of Regulations, title 27, section 20320.

CONDITION 41. Activities associated with operation and maintenance of the Projects that threaten or potentially threaten water quality shall be subject to further review by the Deputy Director and Executive Officer of the Central Valley Regional Water Board. Any proposal for Projects maintenance or repair work involving Projects-affected waterbodies, including desilting of dam impoundments, impoundment drawdowns to facilitate repair or maintenance work, and tailrace dredging, shall be filed with the Deputy Director for prior review and consideration for approval.

CONDITION 42. The Licensee shall comply with the terms and conditions in the State Water Board's *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; State Water Board Order 2009-0009-DWQ, as amended by State Water Board Orders 2010-0014-DWQ and 2012-0006-DWQ), and ongoing amendments during the life of the FERC license(s).

CONDITION 43. The Licensee shall comply with the terms and conditions in the State Water Board's *Statewide National Pollutant Discharge Elimination System Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications* (Aquatic Weed Control General Permit; State Water Board Order No. 2013-0002-DWQ and NPDES No. CAG990005, as amended by State Water Board Orders 2014-0078-DWQ, 2015-0029-DWQ, and 2016-0073-EXEC), and ongoing amendments during the life of the FERC license(s).

CONDITION 44. The Licensee shall use analytical methods that comply with Code of Federal Regulations, title 40, part 136, or methods approved by California's Environmental Laboratory Accreditation Program (ELAP), where such methods are available. Samples that require laboratory analysis shall be analyzed by ELAP-certified laboratories.

CONDITION 45. 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 46. This certification is subject to modification or revocation upon administrative or judicial review, including but not limited to review and amendment pursuant to Water Code, section 13330 and California Code of Regulations, title 23, division 3, chapter 28, article 6 (commencing with section 3867).

CONDITION 47. This certification is not intended and shall not be construed to apply to any activity involving a hydroelectric facility and requiring a FERC license or an amendment to a FERC license unless the pertinent application for certification was filed pursuant to California Code of Regulations, title 23, section 3855, subdivision (b) and that application for certification specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

CONDITION 48. This certification is conditioned upon total payment of any fee required under California Code of Regulations, title 23, division 3, chapter 28.

Eileen Sobeck
Executive Director

February 3, 2021
Date

Attachments:

Attachment A – Projects Description
Attachment B – Mitigation, Monitoring, and Reporting Program

7.0 References

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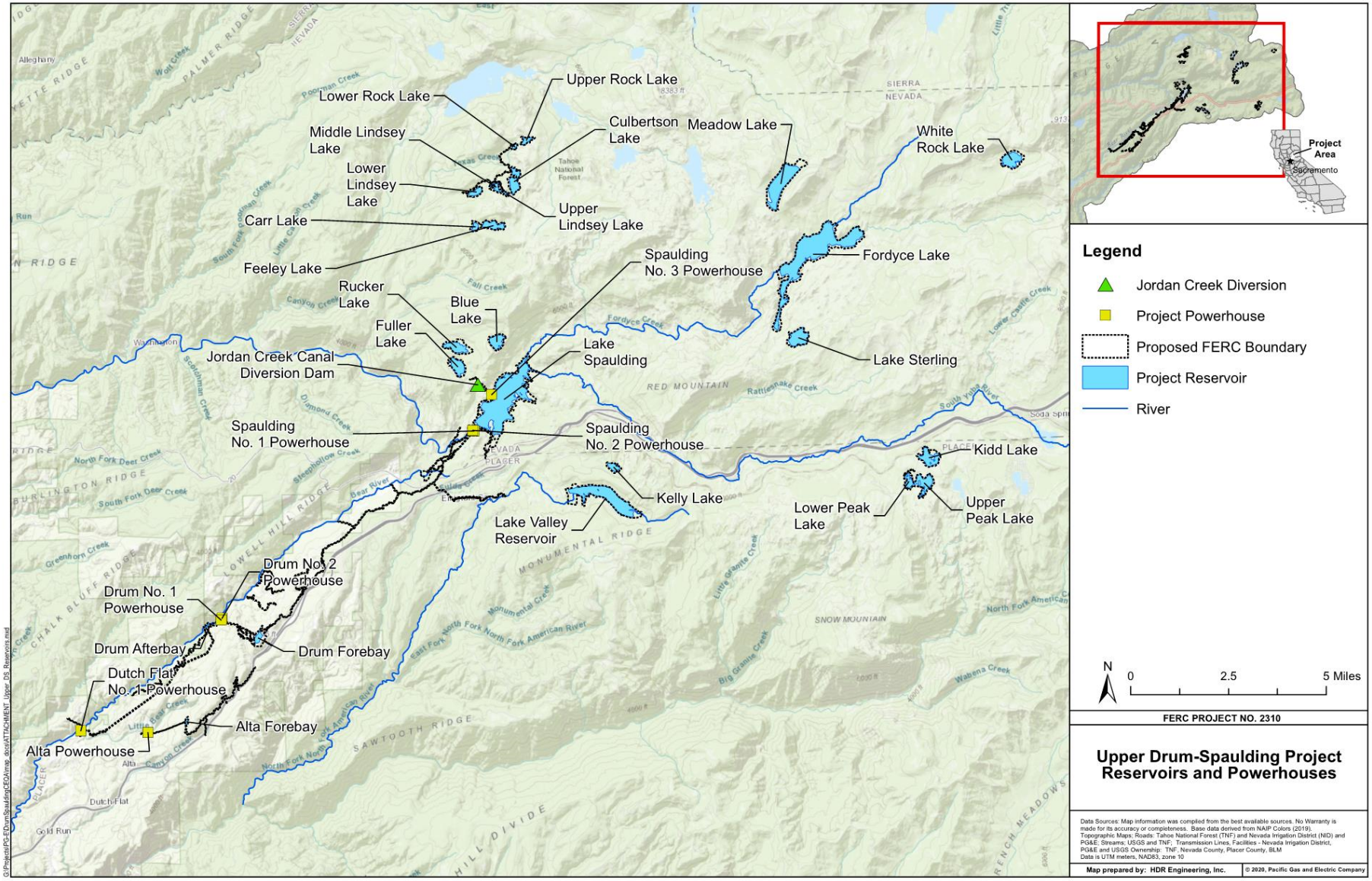

Figure 1. Regional Map of the Upper Drum-Spaulding Hydroelectric Project

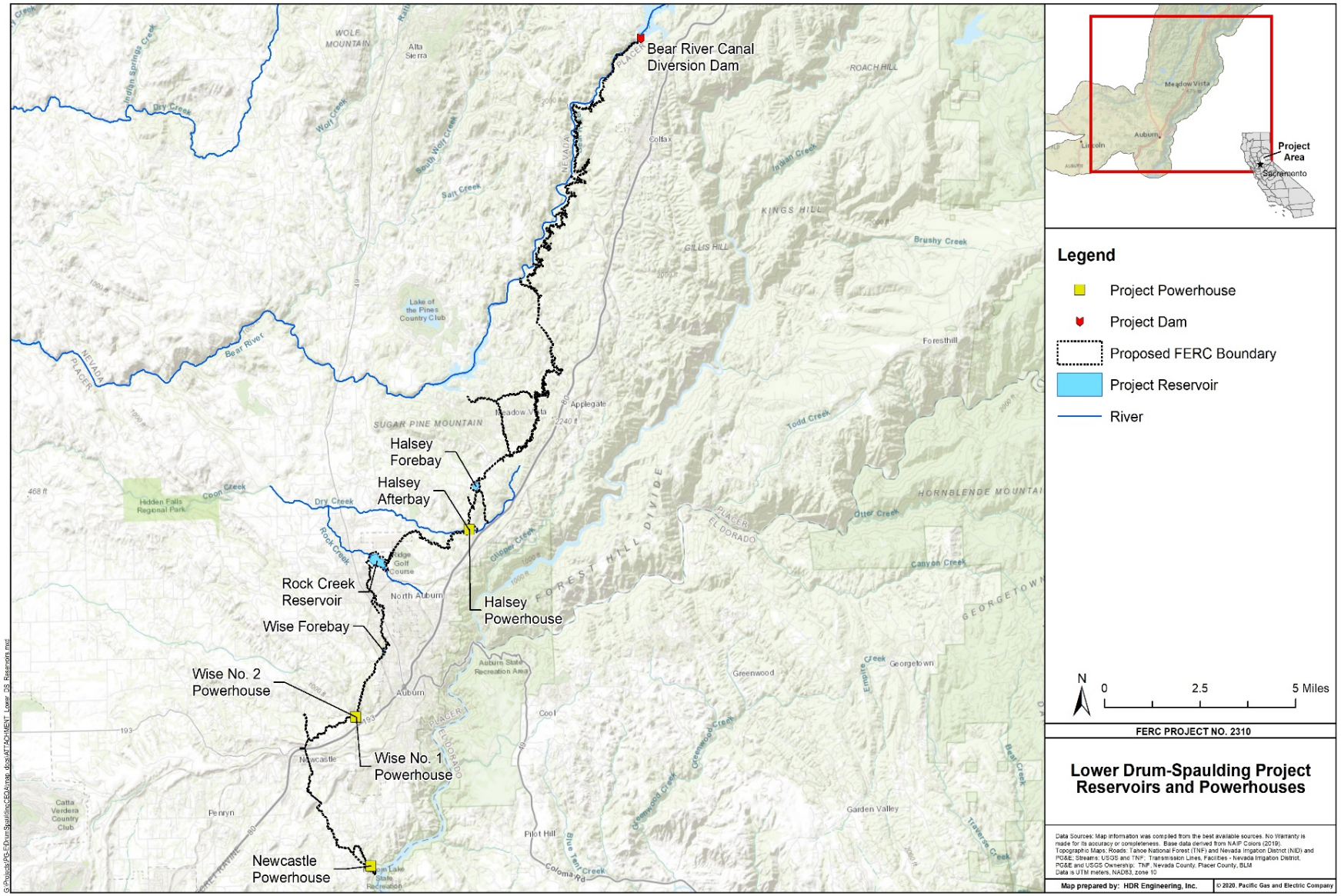

Figure 2. Regional Map of the Lower Drum Hydroelectric Project

ATTACHMENT A:

PROJECTS DESCRIPTION

WATER QUALITY CERTIFICATION
FOR
UPPER DRUM SPAULDING HYDROELECTRIC PROJECT
AND
LOWER DRUM HYDROELECTRIC PROJECT

1.0 Introduction

The Upper Drum-Spaulding Hydroelectric Project (Upper Drum-Spaulding Project) and Lower Drum Hydroelectric Project (Lower Drum Project) (collectively, Projects), Federal Energy Regulatory Commission (FERC) Project Nos. 2310 and 14531, respectively, are located on the South Yuba River, Bear River, Fordyce Creek, North Fork of the North Fork American River, Dry Creek, Rock Creek, Auburn Ravine, Mormon Ravine and associated tributaries. The Projects are owned by Pacific Gas and Electric (PG&E). The Upper Drum-Spaulding Project is located in Nevada and Placer counties and has an authorized installed generation capacity of 147.1 megawatts (MW). The Lower Drum Project located in Placer County and has an authorized installed capacity of 39.7 MW. The Projects facilities are described in further detail below. The descriptions provided in this attachment are for informational purposes only.

2.0 Upper Drum-Spaulding Project

PG&E's Upper Drum-Spaulding Project is located in Nevada and Placer counties, in California, on the South Yuba River, Bear River, Fordyce Creek, and North Fork of the North Fork American River and associated tributaries. The Upper Drum-Spaulding Project consists of 24 dams and reservoirs, seven powerhouses, four overhead transmission lines, one diversion dam, and various water conduits, recreation facilities, and other associated facilities and structures.

The Upper Drum-Spaulding Project includes five developments (that is, facilities linked hydraulically to a common powerhouse) consisting of: 1.) Spaulding No. 3, 2.) Spaulding No. 1 and No. 2, 3.) Alta, 4.) Drum No. 1 and No. 2, and 5.) Dutch Flat No. 1.

The locations of features included in the Upper Drum-Spaulding Project range in elevation from 7,820 feet at White Rock Reservoir (above Fordyce Lake) to 2,755 feet at Dutch Flat No. 1 powerhouse. Major reservoirs of the Upper Drum-Spaulding Project include Lake Spaulding (74,773 acre-feet [ac-ft]) on the South Yuba River, Fordyce Lake (49,903 ac-ft) on Fordyce Creek above Lake Spaulding, Lake Valley Reservoir (7,964 ac-ft) on the North Fork of the North Fork American River, Culbertson Lake (3,150 ac-ft), and Meadow Lake (4,935 ac-ft) on a tributary to Fordyce Creek. All other Upper Drum-Spaulding Project reservoirs are less than 2,000 ac-ft. The seven powerhouses have a combined normal operating capacity of 147.1 MW.

2.1 Spaulding No. 3 Development

The existing Spaulding No. 3 Development consists of 11 dams and reservoirs, one powerhouse with an installed capacity of 5.8 MW and associated penstocks and switchyard, one transmission line, and various recreation facilities. Each existing facility is described below.

Upper Rock Lake Dam is a 16.8-foot-high, 214-foot-long earth-fill dam that impounds Texas Creek to form Upper Rock Lake, which has a gross storage capacity of 275 ac-ft and a surface area of 19.8 acres at its normal maximum water surface elevation

(NMWSE) of 6,714.5 feet. The dam has a crest elevation of 6,717.1 feet[1] and a 17-foot-long uncontrolled overflow spillway with a maximum capacity of 24 cubic feet per second (cfs). The dam is also equipped with an 18-inch by 24-inch rock truck tunnel that serves as the low-level outlet. The low-level outlet has a maximum capacity of 8.4 cfs. Releases from Upper Rock Lake Dam flow into Lower Rock Lake via Texas Creek.

Lower Rock Lake Dam is a 10.5-foot-high, 110-foot-long earth- and rock-fill dam that impounds Texas Creek to form Lower Rock Lake, which has a usable storage capacity of 48 ac-ft and a surface area of 7.6 acres at its NMWSE of 6,625.8 feet. The dam has a crest elevation of 6,627.8 feet and a 30-foot-long uncontrolled overflow spillway with a maximum capacity of 33 cfs. An 8-inch-diameter pipe serves as the low-level outlet for the dam and has a maximum flow capacity of 7.3 cfs. Releases from Lower Rock Lake Dam flow into Texas Creek.

Culbertson Lake Dam is a 20-foot-high, 255-foot-long earth- and rock-fill dam that impounds an unnamed tributary of Texas Creek to form Culbertson Lake, which has a usable storage capacity of 953 ac-ft and a surface area of 70.5 acres at its NMWSE of 6,436.4 feet. The dam has a crest elevation of 6,440.2 feet and a 23-foot-long overflow spillway with a maximum capacity of 165 cfs. A 12- to 24-inch-diameter pipe serves as the low-level outlet and has a flow capacity of 23.1 cfs. Releases from Culbertson Lake dam flow into Texas Creek downstream of the discharges from Lower Rock Lake via an unnamed tributary.

Upper Lindsey Lake Dam is an 8-foot-high, 90-foot-long earth-fill dam that impounds Lindsey Creek to form Upper Lindsey Lake, which has a usable storage capacity of 18 ac-ft and a surface area of 3.9 acres at its NMWSE of 6,482.6 feet. The dam has a crest elevation of 6,485.4 feet and a 5-foot-long overflow spillway with a maximum capacity of 15 cfs. An 8-inch-diameter pipe serves as the low-level outlet and has a maximum flow capacity of 6.5 cfs. Releases from Upper Lindsey Lake Dam flow into Middle Lindsey Lake via Lindsey Creek.

Middle Lindsey Lake Dam is a 9.5-ft-high, 335-foot-long earth-fill dam that impounds Lindsey Creek to form Middle Lindsey Lake, which has a usable storage capacity of 110 ac-ft and a surface area of 21.5 acres at its NMWSE of 6,435.7 feet. The dam has a crest elevation of 6,438.2 feet and a 37-foot-long overflow spillway with a maximum capacity of 40 cfs. A 10-inch-diameter pipe serves as the low-level outlet and has a maximum flow capacity of 11.3 cfs. Releases from Middle Lindsey Dam flow into Lower Lindsey Lake via Lindsey Creek.

Lower Lindsey Lake Dam is a 16.6-foot-high, 335-foot-long earth- and rock-fill dam that impounds Lindsey Creek to form Lower Lindsey Lake, which has a usable storage capacity of 278 ac-ft and a surface area of 29.4 acres at its NMWSE of 6,235.6 feet. The dam has a crest elevation of 6,239.1 feet and a 42-foot-long overflow spillway with

[1] All elevation data in this Project Description are in the National Geodetic Vertical Datum of 1929 (NGVD 29), unless otherwise specified.

a maximum capacity of 240 cfs. A 14-inch-diameter steel pipe serves as the low-level outlet and has a maximum flow capacity of 28.1 cfs. Releases from Lower Lindsey Lake Dam flow into Texas Creek downstream of the discharges from Lower Rock Dam and Culbertson Lake Dam.

Some of the flows currently released from the above-listed existing facilities are diverted by the Nevada Irrigation District's (NID) Texas Creek Diversion Dam into NID's Bowman-Spaulding Conduit. Both facilities are part of NID's Yuba-Bear Hydroelectric Project, FERC Project No. 2266. Undiverted flows continue downstream to Canyon Creek, which drains into the South Yuba River.

Feeley Lake Dam is a 22.6-foot-high, 210-foot-long earth- and rock-fill dam that impounds Lake Creek to form Feeley Lake, which has a usable storage capacity of 739 ac-ft and a surface area of 52 acres at a NMWSE of 6,723.6 feet. The dam has a crest elevation of 6,727.6 feet and a 32-foot-long overflow spillway with a maximum capacity of 280 cfs. A 10- to 24-inch-diameter pipe serves as the low-level outlet and has a maximum flow capacity of 16.8 cfs. Releases from Feely Lake Dam flow into Carr Lake via Lake Creek.

Carr Lake Dam is an 8-foot-high, 185-foot-long earth- and rock-fill dam that impounds Lake Creek to form Carr Lake, which has a usable storage capacity of 150 ac-ft and a surface area of 15.8 acres at its NMWSE of 6,663.7 feet. The dam has a crest elevation of 6,667.7 feet and a 40-foot-long overflow spillway with a maximum capacity of 150 cfs. A 24-inch-diameter concrete-encased pipe serves as the low-level outlet and has a maximum flow capacity of 82.7 cfs. Some releases from Carr Lake Dam continue down Lake Creek into Fall Creek and are diverted by NID's Fall Creek Diversion Dam into NID's Bowman-Spaulding Conduit. Both facilities are part of NID's Yuba-Bear Hydroelectric Project. Undiverted flows continue downstream via Fall Creek, which also receives flows from Clear and Trap Creeks not diverted by NID into its Bowman-Spaulding Conduit, before draining into the South Yuba River.

Blue Lake Dam is a 25-foot-high, 296-foot-long earth- and rock-fill dam that impounds Rucker Creek to form Blue Lake, which has a usable storage capacity of 1,158 ac-ft and a surface area of 59.7 acres at its NMWSE of 5,931.6 feet. The dam has a crest elevation of 5,935.6 feet and a 12-foot-long overflow spillway with a maximum capacity of 253 cfs. An 18-inch-diameter steel pipe serves as the low-level outlet and has a maximum flow capacity of 18 cfs. Releases from Blue Lake Dam flow into Rucker Lake via Rucker Creek.

Rucker Lake Dam is a 22-foot-high, 620-foot-long earth- and rock-fill dam that impounds Rucker Creek to form Rucker Lake, which has a usable storage capacity of 648 ac-ft and a surface area of 78.6 acres at its NMWSE of 5,464.2 feet. The dam has a crest elevation of 5,468.2 feet and a 60-foot-long overflow spillway with a maximum capacity of 525 cfs. A 15- to 24-inch-diameter steel pipe serves as the low-level outlet and has a maximum flow capacity of 15 cfs. Some releases from Rucker Lake Dam continue downstream via Rucker Creek and are diverted by NID into its Bowman-Spaulding

Conduit. Undiverted flows continue down the creek and drain into the South Yuba River.

Fuller Lake Dam is a 39-foot-high, 410-foot-long earth- and rock-fill dam that impounds an unnamed tributary of Jordan Creek to form Fuller Lake, which has a usable storage capacity of 1,109 ac-ft and a surface area of 70.2 acres at its NMWSE of 5,341.8 feet. Fuller Lake receives water from NID's Bowman-Spaulding Conduit, and is used as a re-regulating pool to control the rate at which water enters Spaulding No. 3 Powerhouse for hydropower generation shaping. Fuller Lake Dam has a crest elevation of 5,343.5 feet and has a 15-foot-long siphonic spillway and a 15-foot-long auxiliary spillway with a combined maximum capacity of 425 cfs. A 14- to 24-inch outside diameter steel pipe serves as the low-level outlet and has a maximum flow capacity of 25 cfs. Releases from Fuller Lake Dam flow from an unnamed tributary into Jordan Creek, which drains into the South Yuba River.

Spaulding No. 3 Penstocks are four 1,614.5-foot-long, 66-inch-diameter aboveground steel penstocks that release water from Fuller Lake into Spaulding No. 3 Powerhouse. The penstocks have a maximum flow capacity of 334 cfs.

Spaulding No. 3 Powerhouse is located on the northwest side of Lake Spaulding. PG&E operates this powerhouse semi-automatically in a base-loaded fashion, generating based on flows that are scheduled for consumptive water and power demands. Spaulding No. 3 Powerhouse has an installed capacity of 5.8 MW with a synchronous generator, four Francis turbines with a rated nameplate hydraulic capacity of 270 cfs. The powerhouse discharges into Lake Spaulding.

Spaulding No. 3 Switchyard is located adjacent to the Spaulding No. 3 Powerhouse, is fenced in, and contains four Westinghouse transformers.

Spaulding No. 3 – Spaulding No. 1 Transmission Line is a 60-kilovolt (kV), 1.1-mile-long line that connects the Spaulding No. 3 Switchyard to the Spaulding No. 1 Powerhouse Switchyard.

2.2 Spaulding No. 1 and No. 2 Development

The existing Spaulding No. 1 and No. 2 Development consists of eight dams and reservoirs; two powerhouses with a combined installed capacity of 11.4 MW and associated tunnels, penstocks, and switchyard; one transmission line; one canal; and various recreation facilities. Each facility is described below.

White Rock Lake Dam is a 10-foot-high, 331-foot-long earth-fill and rock-wall dam that impounds White Rock Creek to form White Rock Lake, which has a usable storage capacity of 570 ac-ft and a surface area of 88.9 acres at its NMWSE of 7,820.0 feet. The dam has a crest elevation of 7,824.0 feet and a 40-foot-long overflow spillway with a maximum capacity of 350 cfs. A 12-inch-diameter pipe serves as the low-level outlet and has a maximum flow capacity of 18.6 cfs. Releases from White Rock Dam flow down White Rock Creek into North Creek and enter Fordyce Lake.

Meadow Lake Dam is a 38-foot-high, 940-foot-long earth-fill and rock wall dam that impounds an unnamed tributary to form Meadow Lake, which has a usable storage capacity of 4.841 ac-ft and a surface area of 240 acres at its NMWSE of 7,281.8 feet. The dam has a crest elevation of 7,286.2 feet and a 65-foot-long overflow spillway with a maximum capacity of 1,360 cfs. A 26-inch-diameter steel pipe serves as the low-level outlet and has a maximum flow capacity of 50 cfs. Releases from Meadow Lake Dam flow into Fordyce Lake via an unnamed tributary.

Lake Sterling Dam is a 25-foot-high, 228-foot-long rock-fill dam that impounds Bloody Creek to form Lake Sterling, which has a usable storage capacity of 1,764 ac-ft and a surface area of 104.7 acres at its NMWSE of 6,987.9 feet. The dam has a crest elevation of 6,988.7 feet and an overflow spillway controlled with flashboards during the summer months. A 20-inch-diameter pipe serves as the low-level outlet and has a maximum flow capacity of 31.9 cfs. Releases from Lake Sterling Dam flow into Fordyce Lake via Bloody Creek.

Fordyce Lake Dam is a 156-foot-high, 1,220-foot-long rock-fill dam that impounds Fordyce Creek to form Fordyce Lake, which has a usable storage capacity of 49,426 ac-ft and a surface area of 716.2 acres at its NMWSE of 6,405.1 feet. The dam has a crest elevation of 6,406.6 feet and a 120-foot-long lateral overflow spillway controlled with two 15-foot-by-14-foot radial gates and flashboards during the summer months with a maximum capacity of 17,500 cfs. A 47-inch steel pipe serves as the low-level outlet and has a maximum flow capacity of 590 cfs. Releases from Fordyce Lake Dam flow into Lake Spaulding via Fordyce Creek.

Kidd Lake Dam is a 35-foot-high, 449-foot-long earth- and rock-fill dam that impounds an unnamed tributary to form Kidd Lake, which has a usable storage capacity of 1,505 ac-ft and a surface area of 86.7 acres at its NMWSE of 6,627.6 feet. The dam has a crest elevation of 6,631.4 feet and a 37-foot-long uncontrolled overflow spillway. A 20- to 24-inch-diameter steel pipe serves as the low-level outlet and has a maximum flow capacity of 25 cfs. Releases from Kidd Lake Dam flow down an unnamed tributary and enter Lake Spaulding.

Upper Peak Lake Dam is a 39-foot-high, 316-foot-long earth- and rock-fill dam that impounds Cascade Creek to form Upper Peak Lake, which has a usable storage capacity of 1,736 ac-ft and a surface area of 83.8 acres at its NMWSE of 6,607.4 feet. The dam has a crest elevation of 6,611.4 feet and a 30-foot-long overflow spillway with a maximum capacity of 680 cfs. A 20-inch-diameter steel conduit serves as the low-level outlet and has a maximum discharge of 100 cfs. Releases from Upper Peak Lake Dam flow into Lower Peak Lake via Cascade Creek.

Lower Peak Lake Dam is a 29-foot-high, 200-foot-long earth- and rock-fill dam that impounds Cascade Creek to form Lower Peak Lake, which has a usable storage capacity of 484 ac-ft and a surface area of 33 acres at its NMWSE of 6,581.9 feet. The dam has a crest elevation of 6,583.4 feet and a 55-foot-long overflow spillway with a maximum capacity of 312 cfs. A 21-inch-diameter steel pipe serves as the low-level

outlet and has a maximum discharge of 86.7 cfs. Releases from Lower Peak Lake Dam flow down Cascade Creek and enter Lake Spaulding.

Lake Spaulding Dams No. 1, 2, and 3: Lake Spaulding Dam No. 1 (main dam) is a 276-foot-high, 800-foot-long concrete-arch dam that impounds the South Yuba River to form Lake Spaulding. The dam has a crest elevation of 5,016.1 feet. A 30-inch-diameter pipe serves as the low-level outlet and has a maximum flow capacity of 16 cfs. Lake Spaulding Dam No. 2 is a 42-foot-high, 309-foot-long concrete-gravity dam located on an unnamed tributary to Jordan Creek. The dam has a crest elevation of 5,016.1 feet. The dam has a 271.3-foot-long overflow spillway with elevations ranging from 4,994.6 to 5,014.6 feet. The spillway is controlled by three 14-foot-by-20-foot radial gates, seven 14-foot-by-15-foot radial gates, and 14 flashboards. Lake Spaulding Dam No. 3 is a 91-foot-high, 813-foot-long concrete gravity arch dam on a topographic low point that would otherwise drain to Jordan Creek. The dam has a crest elevation of 5,019.6 feet. The dam has a 21-foot-long overflow spillway controlled by 10 bays with emergency trippable flashboards. Lake Spaulding has a usable storage area of 75,912 ac-ft and a surface area of 682 acres. The NMWSE within the reservoir is 5,014.6 feet. Releases from Lake Spaulding Dam No. 1 flow into the Spaulding No. 1 Powerhouse tunnel and Spaulding No. 2 Penstock, and releases from Lake Spaulding Dam No. 2 flow into a spill channel discharging to an unnamed tributary to Jordan Creek. Releases into the spill channel flow into Jordan Creek and then into the South Yuba River.

Spaulding No. 1 Powerhouse Tunnel is a 963-foot-long, 104-inch-diameter rock tunnel that diverts up to 600 cfs of water from Lake Spaulding to Spaulding No. 1 Powerhouse.

Spaulding No. 1 Powerhouse is located downstream of Lake Spaulding and discharges, along with the Spaulding No. 1 Powerhouse bypass, up to 840 cfs into Drum Canal, which is a part of the Drum No. 1 and No. 2 Development. The powerhouse features semi-automatic operation and is scheduled as base-loaded for downstream water demand. Spaulding No. 1 Powerhouse has an installed capacity of 7.0 MW with a synchronous generator and one Francis turbine with a nameplate hydraulic capacity of 600 cfs.

Spaulding No. 1 Switchyard is located adjacent to the Spaulding No. 1 Powerhouse, is fenced in, and contains one Westinghouse transformer.

Spaulding No. 2 Penstock diverts up to 200 cfs of water from Lake Spaulding to the Spaulding No. 2 Powerhouse.

Spaulding No. 2 Powerhouse is located downstream of Lake Spaulding, adjacent to Spaulding No. 1 Powerhouse. This powerhouse features semi-automatic operation, and PG&E schedules it as base-loaded for downstream water demand. The powerhouse has an installed capacity of 4.4 MW with a synchronous generator and one Francis turbine with a rated nameplate hydraulic capacity of 200 cfs. Spaulding No. 2 Powerhouse discharges into the South Yuba Canal.

Spaulding No. 2 Switchyard is located adjacent to the Spaulding No. 2 Powerhouse, is fenced in, and contains one Westinghouse transformers.

Spaulding No. 2 – Spaulding No. 1 Transmission Line is a 2.3-kV single-circuit, 0.04-mile-long line that connects Spaulding No. 2 Switchyard to Spaulding No. 1 Switchyard.

South Yuba Canal is 1.57 miles long and consists of a 1.3-mile-long pipe section (56 to 60 inches in diameter), a 0.41-mile-long wooden Lennon flume section (156 inches wide), and a 0.13-mile-long concrete bench flume. The canal has a maximum capacity of 146 cfs, and transfers water from the Upper Drum-Spaulding Project's Lake Spaulding Dam No. 1 to the Deer Creek Hydroelectric Project's South Yuba Canal immediately downstream of Bear River Spill at YB-139 gage.

2.3 Alta Development

The Alta Development consists of one diversion dam and canal, a forebay dam and impoundment, and one powerhouse with an installed capacity of 2.0 MW and associated switchyard. No recreation facilities are associated with this development. Each facility is described below:

Towle Canal Diversion Dam is a 5.5-foot-high wooden diversion dam with steel vertical slide gates.

Towle Canal diverts water (up to 42 cfs) from Canyon Creek (primarily consisting of deliveries from Drum Forebay into Canyon Creek upstream via Towle Diversion) to Alta Forebay. The canal consists of open ditch (6.5-foot-wide by 4.5-foot-deep) and flume (96- and 108-inch Lennon flume) sections and has a total length of 3.9 miles.

Alta Forebay Dam is a 13-foot-high, 1,500-foot-long earth-fill dam that forms Alta Forebay, which has a usable storage capacity of 19.4 ac-ft and a surface area of five acres at its NMWSE of 4,240.0 feet. PG&E operates Alta Forebay as a re-regulating reservoir, regulating flow into Alta Powerhouse. Alta Dam has a crest elevation of 4,243.0 foot and an 8.5-foot-long overflow spillway with a maximum capacity of 50 cfs.

Alta Powerhouse is located below Alta Forebay, northeast of Alta, California. PG&E operates the powerhouse semi-automatically based on Placer County Water Agency's (PCWA) downstream water demands. Alta Powerhouse has an installed capacity of 2.0 MW with a synchronous generator, two overhung impulse turbines with a combined rated nameplate hydraulic capacity of 56 cfs. The water that discharges from Alta Powerhouse enters the Alta Powerhouse tailrace area where most of it is immediately re-diverted into PCWA's Lower Boardman Canal, a non-Projects facility, for downstream consumptive water demands. Undiverted flows are released to Dutch Flat Afterbay via the Little Bear River.

Alta Switchyard is located adjacent to the Alta Powerhouse, is fenced in, and contains one Westinghouse transformer.

2.4 Drum No. 1 and No. 2 Development

The Drum No. 1 and No. 2 Development consists of three dams and reservoirs; two powerhouses with a combined installed capacity of 105.9 MW and associated tunnels, penstocks, and switchyard; one transmission line; one canal; and various recreation facilities. Each facility is described below:

Lake Valley Reservoir Dam is a 75-foot-high, 1,035-foot-long earth- and rock-fill dam that impounds the North Fork of the North Fork American River to form Lake Valley Reservoir, which has a usable storage capacity of 7,902 ac-ft and a surface area of 303.9 acres at its NMWSE of 5,784.9 feet. The dam has a crest elevation of 5,789.9 feet and a 525-foot-long overflow spillway controlled with manually hoisted flashboards from April to September. A 30-inch pipe serves as the low-level outlet and has a maximum flow capacity of 50 cfs. Releases from Lake Valley Reservoir Dam flow into the North Fork of the North Fork American River.

Kelly Lake Dam is a 10.5- to 23.5-foot-high, 448-foot-long earth and rock-fill dam that impounds Sixmile Creek to form Kelly Lake, which has a usable storage capacity of 352 ac-ft and a surface area of 28 acres at its NMWSE of 5,908.8 feet. The dam has a crest elevation of 5,911.3 feet and an 18-foot-long overflow spillway controlled with manually hoisted flashboards and a maximum discharge of 490 cfs. A 20-inch-diameter pipe with a flow capacity of 25 cfs serves as the low-level outlet. Releases from Kelly Lake Dam flow into the North Fork of the North Fork American River via Sixmile Creek.

Lake Valley Canal Diversion Dam on the North Fork of the North Fork American River diverts water released upstream from Lake Valley Reservoir and Kelly Lake to Lake Valley Canal, which delivers up to 36 cfs of water to the Drum Canal.

Drum Canal delivers up to 840 cfs from Spaulding No. 1 Powerhouse to Drum Forebay. The canal consists of open ditch (25 to 32 feet wide by 8 to 10 feet deep), flume (13 feet wide by 8 feet deep), and tunnel (14 feet by 14 feet) sections and has a total length of 9.11 miles.

Drum Forebay Dam is a 65-foot-high, 4,107-foot-long earth-fill dam that forms Drum Forebay, which has a usable storage capacity of 436 ac-ft and a surface area of 20 acres at its NMWSE of 4,756.0 feet. PG&E operates the dam for re-regulating purposes, regulating flow into the Drum No. 1 and No. 2 powerhouse penstocks. Drum Forebay Dam has a crest elevation of 4,766.5 feet and an 800-foot-long overflow spillway, which is not in use. A 2-foot-diameter pipe with a flow capacity of 80 cfs serves as the low-level outlet.

Drum No. 1 Powerhouse Penstock and Drum No. 2 Powerhouse Penstock pass flows up to 643 cfs and 505 cfs from Drum Forebay to Drum No. 1 Powerhouse and Drum No. 2 Powerhouse, respectively.

Drum No. 1 Powerhouse and Drum No. 2 Powerhouse are located on Drum Afterbay, which is part of the Dutch Flat No. 1 Development. PG&E operates the powerhouses semi-automatically as peaking plants generating for daily power demands. Drum No. 1

Powerhouse has an installed capacity of 56.4 MW (normal operating capacity is 54.0 MW) with a synchronous generator, three double overhung impulse turbines, and one single overhung impulse turbine with a rated nameplate hydraulic capacity of 643 cfs. Drum No. 2 Powerhouse has an installed capacity of 49.5 MW with a synchronous generator, with one vertical impulse turbine with a rated nameplate hydraulic capacity of 505 cfs. Flows through the powerhouses are discharged into Drum Afterbay.

2.5 Dutch Flat No. 1 Development

The Dutch Flat No. 1 Development consists of one dam and reservoir; one powerhouse with an installed capacity of 22.0 MW and associated tunnels, penstocks, and switchyard; one transmission line; and one tie. No recreation facilities are associated with this development. Each facility is described below:

Drum Afterbay Dam is a 102-foot-high, 356-foot-long concrete arch dam located on the Bear River that forms Drum Afterbay, which has a usable storage capacity of 150.4 ac-ft and a surface area of 10 acres at its NMWSE of 3,383.3 feet. PG&E operates Drum Afterbay Dam for reregulating purposes, regulating flow from the Bear River into Dutch Flat No. 1 Tunnel and Penstock. The dam has a crest elevation of 3,385.0 feet and an 88.6-foot-long gated spillway controlled with one 20-foot by 5.5-foot skimmer gate and four 13-foot-by-6-foot radial gates. A 60-inch-diameter sluice pipe and a 10-inch-diameter release with a combined flow capacity of 1,120 cfs serve as low-level outlets. Releases from Drum Afterbay Dam flow into Dutch Flat Afterbay via the Bear River, Dutch Flat No. 1 Powerhouse Tunnel and Penstock, and Dutch Flat Forebay, which is part of NID's Yuba-Bear Hydroelectric Project via the Dutch Flat No. 2 flume (Yuba-Bear Project, Dutch Flat Development).

Dutch Flat Tunnel is a 12-foot by 12-foot, 4.1-mile-long tunnel that has a maximum capacity of 475 cfs.

Dutch Flat No. 1 Powerhouse Penstock is 78 to 96 inches in diameter and diverts up to 490 cfs from Drum Afterbay to Dutch Flat No. 1 Powerhouse.

Dutch Flat No. 1 Powerhouse is located on Dutch Flat Afterbay. PG&E operates this powerhouse as a semi-automatic plant for limited peaking power demands. The powerhouse has an installed capacity of 22.0 MW with a synchronous generator, one vertical Francis unit with a rated nameplate hydraulic capacity of 490 cfs. The powerhouse discharges into Dutch Flat Afterbay.

Dutch Flat No. 1 Transmission Line is a 115-kV single-circuit line that extends 0.12 mile from Dutch Flat No. 1 Powerhouse to the Drum-Higgins 115-kV transmission line.

Dutch Flat No. 2 Tie is a 115-kV single-circuit line that extends 0.41-mile from Dutch Flat No. 2 Powerhouse to the 115-kV Drum-Rio Oso No. 1 Transmission Line.

3.0 Lower Drum Project

PG&E's Lower Drum Project is located on Bear River, Dry Creek, Rock Creek, Auburn Ravine, and Mormon Ravine. The Lower Drum Project consists of five dams and reservoirs, four powerhouses, and various water conduits, recreation facilities, and other associated facilities and structures. The Lower Drum Project's dams are located on the Bear River, Dry Creek, Rock Creek, Auburn Ravine, Mormon Ravine, and associated tributaries. Capacities of the reservoirs associated with these dams range from 32 to 485 ac-ft at the five reservoirs, including: the Bear River Canal Diversion Dam on the Bear River, the Halsey Forebay (off channel), the Halsey Afterbay on Dry Creek, the Rock Creek Reservoir on Rock Creek, and the Wise Forebay (off channel).

Lower Drum Project facilities range in elevation from 1,960 feet at the Bear River Canal Diversion Dam to 435 feet at Newcastle powerhouse. The four powerhouses have a combined normal operating capacity of 39.7 MW.

3.1 Halsey Development

The Halsey Development includes the Bear River Canal Diversion Dam, Bear River Canal, Halsey Forebay and Dam, Halsey Powerhouse Penstock and Tunnels, and Halsey Powerhouse.

Bear River Canal Diversion Dam is a concrete-fill dam with an unlimited spillway capacity located on the Bear River. Releases from the Bear River Canal Diversion Dam flow into Lake Combie (non-Project facility) via the Bear River.

Bear River Canal diverts up to 490 cfs from the Bear River to Halsey Forebay. The canal has open ditch (10 feet wide by 9 feet deep), flume (10 feet wide by 7.8 feet deep), and tunnel (8 feet wide by 11 feet high) sections and a total length of 22.7 miles.

Halsey Forebay Dam is a 42-foot-high, 850-foot-long earth-fill dam at the downstream end of the Bear River canal that forms Halsey forebay. The dam has a crest elevation of 1,821.4 feet. PG&E operates Halsey Forebay for re-regulating purposes, regulating flow into Halsey Powerhouse. Releases from Halsey Forebay dam flow into the Halsey Powerhouse Penstock.

Halsey Powerhouse Penstock is a 72-inch-diameter, 1,205-foot-long steel penstock that diverts a maximum of 490 cfs from Halsey forebay to Halsey Powerhouse. The Halsey Powerhouse Tunnels consist of two concrete-lined tunnels with a combined flow capacity of 490 cfs.

Halsey Powerhouse is located adjacent to Halsey Afterbay. PG&E operates Halsey Powerhouse semi-automatically based on downstream water demands. Halsey Powerhouse has an installed capacity of 11 MW with a synchronous generator, one Francis double-overhung turbine with a rated nameplate hydraulic capacity of 495 cfs. Halsey Powerhouse discharges into Halsey Afterbay.

3.2 Wise Development

The Wise Development includes Halsey Afterbay Dam and Afterbay, Upper Wise Canal, Rock Creek Dam and Reservoir, Lower Wise Canal, Wise Dam and Forebay, Wise Powerhouse Penstock, Wise Powerhouses, and one distribution line.

Halsey Afterbay Dam is a 38-foot-high, 222-foot-long rock-fill dam that impounds Dry Creek to form Halsey Afterbay, which has a usable storage capacity of 76 ac-ft and a surface area of 10.3 acres. NMWSE within the afterbay is 1,494.0 feet. The dam has a crest elevation of 1,499 feet mean sea level. PG&E operates Halsey Afterbay dam for re-regulating purposes, diverting flows in Dry Creek and from Halsey Powerhouse into Upper Wise Canal. The dam has an overflow spillway, and a controlled 2-foot-diameter pipe serves as the low-level outlet. Releases from Halsey Afterbay Dam flow into Rock Creek Reservoir via Upper Wise Canal; however, some of this flow discharges downstream as spillage or leakage into Dry Creek or is diverted to meet downstream non-Projects consumptive water demands by NID and PCWA.

Upper Wise Canal consists of an open ditch (12 feet wide by 8 feet deep), concrete flume, and natural waterway sections and has a total length 2.18 miles. The canal diverts up to 488 cfs to Rock Creek Reservoir, also operated as a re-regulating reservoir. Upper Wise Canal delivers water to both Rock Creek Reservoir and to downstream areas for consumptive water demands.

Rock Creek Reservoir Dam is a 36-foot-high, 1,020-foot-long earth-fill and multiple-concrete-arch dam that impounds Rock Creek to form Rock Creek Reservoir, which has a usable storage capacity of 482 ac-ft and a surface area of 58 acres. NMWSE within the reservoir is 1,439.6 feet. The dam has a crest elevation of 1,445.1 feet. Rock Creek Reservoir Dam has a 60-foot-long passive overflow spillway. A 2-foot pipe with a maximum capacity of 80 cfs serves as the low-level outlet. PG&E operates the dam for re-regulating purposes. Releases from Rock Creek Dam flow into Wise Forebay via Lower Wise Canal; however, some of this flow is diverted for NID's water delivery point NID-1 or released downstream in Rock Creek.

Lower Wise Canal consists of an open ditch (12 feet wide by 8 feet deep) and tunnel (8.5 feet wide by 11.2 feet deep) sections and has a total length 3.76 miles. The canal diverts up to 488 cfs to Wise Forebay, also operated as a re-regulating reservoir.

Wise Forebay Dam is a 20-foot-high, 1,741-foot-long earth-fill dam that forms Wise Forebay, which has a usable storage capacity of 32 ac-ft and a surface area of 4.5 acres. NMWSE within the forebay is 1,418.0 feet. The dam has a crest elevation of 1,422.0 feet. The dam has a 130-foot-long uncontrolled overflow spillway, which is not currently in use. A 60-inch pipe with a flow capacity of 32 cfs serves as the low-level outlet. PG&E operates Wise Forebay Dam for re-regulating purposes for flows into Wise powerhouse penstock.

Wise Powerhouse Penstock is a 93- to 96-inch-diameter steel pipe with a total length of 8,580 feet. Wise penstock bifurcates into two separate penstocks about 1,000 feet

above the Wise powerhouses, allowing up to 393 cfs to Wise Powerhouse and 80 cfs to Wise No. 2 Powerhouse.

Wise Powerhouse is located 1.8 miles downstream of Wise Forebay. PG&E operates Wise Powerhouse semi-automatically based on downstream consumptive water demand. Wise Powerhouse has an installed capacity of 14 MW with a synchronous generator, one Francis turbine with a rated nameplate hydraulic capacity of 393 cfs. Wise Powerhouse discharges into South Canal, where the flow is either diverted to Auburn Ravine for downstream consumptive water demands or continues to the Newcastle Powerhouse Header Box at the terminus of South Canal.

Wise Powerhouse Distribution Line is a 12-kV single-circuit line extending five feet from Wise Powerhouse to a connection with PG&E's interconnected system adjacent to the powerhouse yard.

3.3 Wise No. 2 Development

The Wise No. 2 Development consists of Wise No. 2 Powerhouse Penstock and Wise No. 2 Powerhouse. No recreational facilities are associated with this development.

Wise No. 2 Powerhouse Penstock is a 1,362-foot-long 30- to 60-inch-diameter steel pipe that delivers up to 80 cfs to Wise No. 2 Powerhouse.

Wise No. 2 Powerhouse has an installed capacity of 3.2 MW (normal operating capacity is 3.1 MW) with a synchronous generator, one Francis turbine with a rated nameplate hydraulic capacity of 80 cfs. PG&E operates Wise No. 2 Powerhouse semi-automatically as a base-loaded plant for downstream water demand. Wise No. 2 Powerhouse discharges into South Canal, where the flow is either diverted to Auburn Ravine for consumptive water demands or continues to the Newcastle Powerhouse Header Box at the terminus of South Canal.

3.4 Drum No. 1 and No. 2 Development

The Newcastle Development consists of South Canal, Newcastle Powerhouse Header Box, Newcastle Penstock, Newcastle Powerhouse, and one transmission line. No recreational facilities are associated with this development.

South Canal consists of an open ditch (6.7 to 10 feet wide by 6 feet deep), flume (9 feet wide by 6 feet deep), and tunnel (6.5 feet wide by 8 feet high) sections with a total length of 5.4 miles. As noted above, South Canal currently diverts up to 375 cfs from the two Wise powerhouses to Newcastle Powerhouse Header Box. South Canal traverses over (or under, in the event of a tunnel crossing) the Dutch, Secret, and Miners ravine watersheds, respectively. No water (outside of minimal leakage) is released or spilled from South Canal into these drainages.

Newcastle Powerhouse Header Box delivers water from South Canal to Newcastle Penstock. The header box delivers a minimum instream flow, as well as periodic spills, from the South Canal into Mormon Ravine.

Newcastle Penstock consists of concrete (84-inch-diameter) and steel (60-to 84-inch-diameter) sections with a total length of 5,649.6 feet. The penstock has a maximum flow capacity of 392 cfs that is delivered to Newcastle Powerhouse.

Newcastle Powerhouse is located 6.0 miles downstream of Wise Powerhouse and Wise No. 2 Powerhouse. PG&E operates the Newcastle Powerhouse automatically from the Wise Switching Center as a base-loaded plant. Newcastle Powerhouse has an installed capacity of 11.5 MW with a synchronous generator, one Francis turbine with a rated nameplate hydraulic capacity of 392 cfs. The water discharged from Newcastle Powerhouse flows into Folsom Lake (non-Projects facility operated by the Bureau of Reclamation) via a 0.3-mile reach of Mormon Ravine.

Newcastle Powerhouse Tap is a 500-foot-long underground 115-kV transmission line that connects Newcastle Powerhouse to the Newcastle Switchyard for the non-Projects Placer-Gold Hill No. 1 and No. 2 115-kV transmission lines.

ATTACHMENT B:

MITIGATION MONITORING AND REPORTING PROGRAM

WATER QUALITY CERTIFICATION
FOR
UPPER DRUM SPAULDING HYDROELECTRIC AND LOWER DRUM HYDROELECTRIC PROJECTS

1.0 Mitigation Monitoring and Reporting Plan

1.1 Introduction

Pacific Gas and Electric Company (PG&E) owns and operates the Upper Drum-Spaulding Hydroelectric Project located in Placer and Nevada Counties in California and the Lower Drum Hydroelectric Project located in Placer County, California. Two proposed projects are addressed in this document: the Proposed Upper Drum-Spaulding Hydroelectric Project (Proposed Upper Drum-Spaulding Project) that consists of the continued operation of the Upper Drum-Spaulding Hydroelectric Project, Federal Energy Regulatory Commission (FERC) Project No. 2310, and the Proposed Lower Drum Hydroelectric Project (Proposed Lower Drum Project) that consists of the continued operation of the Lower Drum Hydroelectric Project, FERC Project No. 14531, pursuant to separate new 30- to 50-year FERC licenses (together, Proposed Projects).

1.2 Environmental Commitments

As part of the license application and in coordination with resource agencies and public stakeholders, management plans for various environmental resources were developed and would be implemented throughout the term of the license during operation and maintenance of the Proposed Projects. Measures included in these plans are considered a commitment of the Proposed Projects and therefore are not included in mitigation measures under CEQA. A full list of management plans associated with the Proposed Projects can be found in Volume II of the Final License Application[1] and in FERC's Final Environmental Impact Statement.[2] In some instances, the license article will direct PG&E to develop a management plan in collaboration with resource agencies and stakeholders once the license is issued. These new plans will become part of the new license and are considered a similar commitment to the management plans already prepared. These management plans have their own detailed reporting and verification procedures.

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[1] Pacific Gas and Electric Company (PG&E). 2011. Application for New License, Drum-Spaulding Project FERC Project No. 2310-173. Accessed November 10, 2020. http://www.eurekasw.com/DS/Final%20License%20Application/Forms/AllItems.aspx.

[2] Federal Energy Regulatory Commission (FERC). 2014. Final Environmental Impact Statement for Hydropower License. Accessed November 10, 2020. https://elibrary.ferc.gov/eLibrary/filelist?document_id=14283202&optimized=false

Specific management plans discussed in the IS/MND for the Proposed Projects include the following:

- Bald Eagle Management Plan
- Erosion and Sediment Control Management Plan
- Fish Protection and Management During Canal Outages Plan
- Foothill Yellow-Legged Frog Monitoring Plan
- Integrated Vegetation Management Plan
- Recreational Facilities Plan
- Riparian Vegetation Monitoring Plan
- Transportation Management Plan
- Valley Elderberry Longhorn Beetle Conservation Program
- Visual Resource Management Plan

1.3 Mitigation Measures

This Mitigation Monitoring and Reporting Plan (MMRP) has been prepared pursuant to the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 *et seq*.) and sections 15074 and 15097 of the CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.). A master copy of this MMRP shall be kept in the office of PG&E and shall be available for viewing upon request.

Mitigation measures under CEQA are shown in Table 1. This program corresponds to the Initial Study/Mitigated Negative Declaration (IS/MND) for the Proposed Projects. For each mitigation measure, the frequency of monitoring and the responsible monitoring entity is identified. Mitigation measures may be shown in submittals and may be checked only once, or they may require monitoring periodically during and/or after routine maintenance and operation activities. Once a mitigation measure or BMP is complete, the responsible monitoring entity shall date and initial the corresponding cell, and indicate how effective the mitigation measure was.

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
Biological Resources						
Biologist Review	MM-BIO-1	Prior to the start of activities associated with the Proposed Projects that have the potential for in-water work or significant ground disturbance and/or vegetation removal (for example, activities other than those listed in Section 3.2 of the IVMP), a qualified biologist shall conduct a desktop or field review, as appropriate, to determine whether any sensitive biological resources (special-status species, sensitive communities, aquatic resources, etc.) have the potential to be affected by the proposed activity. If special-status species and/or sensitive biological resources could be affected by the proposed activity, the biologist shall determine what avoidance, minimization, and mitigation measures are required to avoid impacts and PG&E will implement those measures. If the qualified biologist determines that the proposed activity would have no impact on special-status species or sensitive biological resources, then no further steps will be necessary.	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))	Pre-work report on sensitive biological resources.	Prior to initiation of activities.	Maintain pre-work report for one year after project completion
Biological Monitor	MM-BIO-2	Prior to the start of an activity associated with the Proposed Projects, if deemed necessary during the review in MM-BIO-1, a qualified biologist(s) shall monitor activities that could affect special-status species and/or sensitive biological resources. The amount and duration of monitoring would depend on the activity and would be determined by the qualified biologist, and monitoring reports would be provided as specified in applicable permits. In addition to standard field monitoring, the duties of the qualified biologist shall comply with all conditions contained in permits and licenses associated with the Proposed Projects, but could include activities such as clearance surveys, flagging or	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))	Monitoring Reports	Prior to and during activities.	Maintain monitoring reports for one year after project completion

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
		fencing off environmentally sensitive areas for avoidance, and monitoring. If deemed necessary during the review in MM-BIO-1, the biological monitor shall conduct clearance surveys for special-status species prior to the start of activities associated with the Proposed Projects on the first scheduled day of work, prior to the commencement of any work. In the event that individuals are found within or directly adjacent to the disturbance areas, the area shall be left unaffected until the individual(s) have left the area or a relocation decision has been made in consultation with the appropriate agencies (for example, USFWS, BLM, CDFW, and Forest Service).				
Minimizing Footprint	MM-BIO-3	During all activities associated with the Proposed Projects, the work areas shall be reduced to the smallest possible footprint. All parking, storage areas, laydown and staging sites, and any other surface-disturbing activities shall be limited to previously disturbed areas whenever possible. Any sensitive areas to be avoided during Proposed Project activities shall be fenced and/or flagged as close to work limits as feasible.	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))	Work area flagging and fencing	Prior to and during activities.	Document with photographs and maintain documentation for one year after completion of work.
Special-status Plant Surveys	MM-PLANT-1	Prior to the start of activities associated with the Proposed Projects that have the potential for significant ground disturbance and/or vegetation removal (for example, activities other than those listed in Section 3.2 of the IVMP), a review for the most recent botanical survey data shall be conducted to determine whether any known populations of special-status plants occur within 500 feet of the proposed disturbance footprint. A special-status plant survey conducted by a qualified botanist shall be required if one of the following circumstances applies: • There are known special-status plant populations within 500 feet of the	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))	Pre-work report on special status plants	Surveys shall be scheduled to coincide with known blooming periods, and/or during appropriate developmental periods that are necessary to identify the plant species of concern.	Maintain pre-work survey for one year after project completion

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
		disturbance area and botanical surveys have not been conducted in the proposed disturbance footprint in the last 5 years. The survey would determine whether nearby special-status plant populations have spread into the disturbance area. • There are known special-status plant populations in the proposed disturbance area. The survey would determine the current extent of the special-status plant population that could be directly affected by activities. These surveys shall document whether special-status plants may be affected by the activity and shall be conducted in accordance with CDFW's Protocols for Surveying and Evaluating Effects on Special-Status Native Plant Populations and Sensitive Natural Communities (2018). Surveys shall be scheduled to coincide with known blooming periods, and/or during appropriate developmental periods that are necessary to identify the plant species of concern. If neither of the above circumstances apply, then no surveys are required.				
Special-status Plant Avoidance	MM-PLANT-2	If any state-listed, federally listed, FSS (on Tahoe National Forest land), and/or CNPS List 1 or CNPS List 2 plant species are found within 100 feet of disturbance areas during the surveys, these plant species shall be avoided to the greatest extent possible and the following shall be implemented: • Any special-status plant species that are identified in or adjacent to the proposed disturbance areas, but not proposed to be disturbed, shall be protected by flagging, signage, orange plastic fence, and/or silt fence as appropriate based on site	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))	Pre-work report on FSS, CNPS List 1 and 2 plants. Transplant verification report	Prior to and during activities.	Maintain pre-work survey for one year after project completion And Maintain transplant verification report for three years after transplant

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
		conditions to limit the effects of activities and material stockpiles on any special-status plant species. • If activities would result in the loss of greater than 10 percent of a population identified in the IVMP survey or occupied habitat for a special-status plant species, PG&E will consult with the agency with jurisdiction over the species and, if required, develop in consultation with that agency a mitigation plan that will describe a program to transplant, salvage, cultivate, and reestablish the species at suitable sites (if feasible); payment to an in-lieu fee program, if available; means and methods to propagate affected special-status plants through vegetative or reproductive means (for example, harvesting of seed or seed bank through topsoil collection, salvaging and transplanting or collecting of cuttings), as appropriate for the species, and transplant at suitable receiving sites as close to the existing population as possible. Propagation and transplantation shall occur prior to initiation of the activity. The receiving location shall be evaluated and chosen based on similarity to conditions at the transplant source location. Site conditions to consider when choosing a receiving site shall include aspect, substrate, hydrology, associated species, and canopy cover. The transplanted plants shall be monitored for at least 1 year following transplantation. If the plant is an FSS species, the mitigation plan shall be submitted to the Forest Service				

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
		for review and comment at least 30 days prior to implementation. • The actual level of mitigation may vary depending on the sensitivity of the species, its prevalence in the area, the location of the occurrence, and the current state of knowledge about overall population trends and threats to its survival; however, at a minimum, the species and habitat must be replaced at a 1:1 ratio (individuals or acreage of occupied habitat). • Mitigation as required in applicable regulatory permits obtained by PG&E from USFWS, CDFW, and/or the Forest Service, or through consultation during the annual meeting, will satisfy this measure.				
Western Bumble Bee Nest Avoidance	MM-BEE-1	A qualified biologist shall conduct a site review (MM-BIO-1) prior to activities that could result in significant ground disturbance and, if they determine suitable nesting and foraging habitat for western bumble bee is present in or within 50 feet, or an agreed minimum distance determined through consultation with CDFW, of the disturbance area, then nesting and foraging habitat shall be avoided. Suitable habitat shall be avoided by a minimum of 50 feet, if feasible, or work shall be done between November and February to avoid the nesting season. Western bumble bee, as of the California Fish and Game Commission's June 12, 2019 meeting, is listed as a candidate endangered species under CESA. This measure will be implemented only if western bumble bee remains a candidate or becomes formally listed under CESA.	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))	Pre-work site review	Prior to and during activities	Maintain pre-work site review for one year after work completion

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
Western Bumble Bee Habitat Replacement	MM-BEE-2	Mitigation for permanent impacts on western bumble bee nesting and foraging habitat shall be provided at a minimum 1:1 ratio. Mitigation is to be determined in consultation with CDFW. Mitigation as required in applicable regulatory permits obtained by PG&E from CDFW or during the annual consultation meeting may be applied to satisfy this measure. Western bumble bee, as of the California Fish and Game Commission's June 12, 2019 meeting, is listed as a candidate endangered species under CESA. This measure will be implemented only if the western bumble bee remains a candidate or becomes formally listed under CESA.	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))		After the completion of activities.	
Stranded/Entrained Aquatic Species Rescue and Salvage During Canal Outage Dewatering	MM-AQUATICS-1	During dewatering, and for the duration of any Proposed Projects' activities that involve dewatering of any waterbodies or waterways containing aquatic species, a qualified biologist(s) shall make a good faith effort to remove fish, frogs, turtles, and other aquatic vertebrate species in the manner described in the Fish Protection and Management During Canal Outages Plan (PG&E 2011). This measure does not apply to diversion of water from streams and canals and drawdown of impoundments for purposes of Project operations, as they are described in PG&E's FLA and FERC's Final EIS. Aquatic species rescue and salvage shall include the following, or as defined in applicable resource agency permits obtained by PG&E and approved plans: • All species shall be captured using fine mesh or soft material nets and transported to release locations in a bucket, ice chest, or other carrying mechanism, with aeration devices for species that require oxygenated water. Holding time shall be no longer than 45 minutes after capture.	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))	Dewatering Survey	During dewatering.	Maintain survey for one year after project completion

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
		• Handling of aquatic species shall be minimized to the greatest extent possible. • Gloves shall always be worn during rescue and salvage efforts to minimize effects of handling to the greatest extent possible. • Prior to entering the stream or initiating any rescue and salvage activities, all gear and equipment shall be decontaminated in a designated location where runoff can be contained. • All species, except for invasive aquatic species (for example, bullfrog) shall be relocated to nearby surface waters in low enough numbers to not increase predation, and in appropriate sites to minimize the potential for reentry to the work area. • Exclusionary devices (nets, screens, etc.) shall be used on any equipment or materials that have the potential to entrain aquatic species.				
Wise-Powerhouse Downramping and Stranding Surveys in Auburn Ravine	MM-AQUATICS-2	Beginning on October 16, through April 15, water discharges to Auburn Ravine will not be decreased at a rate exceeding 0.5 foot per hour, when flows are within control of the project and when flow is below 80 cfs. Ramping rates will be measured at gage YB-259. This ramping rate shall not apply if a powerhouse relay occurs (trips offline) at either the Wise or Wise No. 2 powerhouse. If modifications are needed to existing equipment to comply with these releases, PG&E will target compliance with ramping rates until these modifications are completed. If modifications are needed, PG&E will file permits as soon as possible but within 3	PG&E (Lower Drum Hydroelectric Project (FERC No. 14531))	Survey reports.	During project operations.	Maintain survey reports for years after completion

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
		years of license issuance and complete modification within 2 years of receiving final permits and approvals. No ramping rate will apply to Auburn Ravine during the irrigation season, which runs from April 16 through October 15. To ensure that ramping rates perform as assumed, stranding surveys for juvenile and adult salmonids shall be performed. The stranding surveys methods will be designed in consultation with CDFW, USFWS, and the State Water Board and will limited to the area above the Auburn Tunnel to the extent of salmonid anadromy. A qualified biologist will walk either shoreline as flows recede and become reasonably accessible. During the survey, less visible shoreline areas will be directly accessed to be viewed. Any stranded fish will be documented for its condition (alive or desiccated, life stage, visible injuries, etc.). A brief summary communication will be provided after each stranding survey within 15 days of occurrence. Stranding surveys shall be performed in the first year of implementing ramping rates and up to 10 surveys shall occur. If no stranding is observed, surveys may cease and continued implementation of the ramping rates will occur. However, if stranding is documented, the flow conditions and factors surrounding that event will be reviewed and proposed modifications will be included in an Auburn Ravine Stranding Avoidance Plan. The Stranding Avoidance Plan may include physical modification, communication protocols, modified ramping rates, or other potential solutions. An Auburn Ravine Stranding Avoidance Plan will be developed to prevent stranding of juvenile and adult salmonids in the area above the				

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
		Auburn Tunnel to the extent of salmonid anadromy within 1 year of the first documented stranding survey. The Auburn Stranding Avoidance Plan will be developed with consultation with CDFW, USFWS, and the State Water Board and be submitted to the State Water Board for approval. The Auburn Ravine Stranding Avoidance Plan will include, at minimum, protocols for PG&E to communicate with other entities regarding PG&E's releases that affect flows in Auburn Ravine and ramping rates that are protective of juvenile and adult salmonids. PG&E will, within 4 months of documenting stranding, invite, at a minimum by letter, NID and PCWA to participate in the collaborative development of the communication protocols. If NID and PCWA decline to participate in development of the Plan or the parties cannot reach agreement on the Auburn Ravine Stranding Avoidance Plan, PG&E will submit the Auburn Ravine Stranding Avoidance Plan as described above.				
No Net Loss of Listed Frog Habitat	MM-AQUATICS-3	Mitigation for permanent impacts on Sierra Nevada yellow-legged frog, California red-legged frog, or foothill yellow-legged frog aquatic habitat shall be provided at a minimum 1:1 ratio if required in regulatory permits issued through USFWS or CDFW. Mitigation, as required in the applicable regulatory permits obtained by PG&E from USFWS or CDFW, will satisfy this measure. This measure will be in effect as long as these species are protected under ESA, CESA or other similar federal or state laws.	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))		After completion of activities.	
Migratory Bird and Raptor Surveys	MM-BIRDS-1	Vegetation clearing should be conducted outside of the nesting season whenever possible. If activities requiring vegetation clearing or significant ground disturbance occur during the migratory bird nesting season (February 1 to August 31), then surveys to identify active migratory bird and/or raptor nests shall be	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))	Pre-work survey	Prior to initiation of and during activities.	Pre-work survey maintained

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
		conducted by a qualified biologist within 7 days prior to activity initiation. Focused surveys shall be performed by a qualified biologist for the purposes of determining the presence/absence of active nest sites within the disturbance area, including access routes. The qualified biologist will determine the area of the surveys.				
Nest Avoidance	MM-BIRDS-2	If active nest sites are identified in or adjacent to disturbance areas, a no-disturbance buffer shall be established for all active nest sites prior to commencement of the relevant activities. A no-disturbance buffer constitutes a zone in which activities shall not occur. The size of no-disturbance buffers shall be determined by a qualified biologist based on the species, activities proposed in the vicinity of the nest, topographic and other visual barriers, and buffer requirements as defined in the IVMP. No-disturbance buffers will have a minimum size of 50 feet unless a qualified biologist determines site-specific conditions such as topographic or other visual barriers, low disturbance potential, proximity to existing human activity or development, or observed nesting bird behavior deem otherwise. The no-disturbance buffer shall be left in place until a nest is deemed inactive by a qualified biologist or the work is complete, whichever occurs first.	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))		Prior to and during activities	
Bat Surveys and Avoidance	MM-BATS-1	A qualified biologist shall conduct a site review (MM-BIO-1) prior to activities that could result in significant vegetation clearing, and if the biologist determines suitable roosting habitat for special-status bats is present in or within 100 feet of an activity in an undisturbed area, then bats would be protected in a similar manner as described in the Bat Management Plan included in the new license. Unless otherwise specified in the plan, activities shall occur outside of the typical roosting season (April 1 to August 31). If activities associated with the Proposed Projects	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))	Reporting consistent with the Bat Management Plan required by FERC.	Prior to and during activities.	

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
		cannot occur outside the roosting season, daytime reconnaissance surveys shall be completed by a qualified biologist prior to implementation of activities other than continued operation of the Proposed Projects in a manner that does not create any new impacts. The biologist, focused on suitable day roosting habitat such as rocky outcrops and trees, shall look for bats and bat signs including existing roost sites and bat guano deposits, and shall listen for roosting bats. If potential roost sites are identified, an exit nighttime survey shall be conducted to determine the species of roosting bats and relative bat activity, and to estimate the number of individual bats. This nighttime survey may be an active or passive acoustic monitoring survey. If occupied bat roost sites are identified, appropriate spatial and temporal buffers shall be implemented to avoid and minimize impacts on roosting bats during Proposed Project activities by prohibiting activities within the buffer. The size of the buffers (minimum buffer of 50 feet unless a reduced buffer is accepted by CDFW) shall be determined by a qualified biologist based on the species, activities proposed in the vicinity of the nest, and topographic and other visual barriers. The buffers shall be left in place until a nest is deemed inactive by a qualified biologist. The size of the buffers may also be determined during the annual consultation meetings. If the daytime survey does not identify the presence of potential bat roosts, no further mitigation is required.				
Breeding Mammal Surveys	MM-MAMMAL-1	A qualified biologist shall conduct a site review (MM-BIO-1) prior to activities that could result in significant ground disturbance or vegetation clearing and if the biologist determines suitable denning or breeding habitat for special-status mammals is present in or adjacent to an activity, then focused surveys shall be performed by a	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))	Pre-work survey	Prior to initiation of activities.	Maintain pre-work survey for one year following completion of work

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
		qualified biologist for the purposes of determining the presence/absence of active denning or breeding sites in the disturbance area. The disturbance area includes a required buffer of 50 feet around active dens and breeding sites for small mammals (for example, squirrels, rats, mice, rabbits) and 150 feet around active dens and breeding sites for larger mammal dens (for example, foxes and badgers). If active denning or breeding sites are identified within disturbance areas, the applicant shall implement an LOP for all active den/breeding sites prior to commencement of any Proposed Project activities, other than continued operation of the Proposed Projects in a manner that does not create any new impacts, to avoid disturbances to breeding activities and/or habitat for special-status mammal species. An LOP constitutes a period during which activities (that is, vegetation removal, earth moving) shall not occur, and shall be in effect during the breeding season for the given species within the required buffer of any active denning or breeding sites until a qualified biologist deems breeding is inactive and the LOP can be lifted. Survey reports, as required by agencies with jurisdiction over the resource, will be provided.				
Riparian, Wetlands, and Aquatic Resources Management Plan	MM-COMMS-1	A Riparian, Wetlands, and Aquatic Resources Management Plan shall be developed and implemented to mitigate potential impacts attributable to Proposed Project activities, such as activities that have the potential to cause permanent, temporary, or temporal impacts on aquatic resources, wetlands, and riparian areas associated with the Proposed Projects. The Riparian, Wetlands, and Aquatic Resources Management Plan shall, at a minimum, include:	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))	Riparian, Wetlands, and Aquatic Resources Management Plan	Prior to and during activities.	

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
		• Protocols used to delineate riparian and wetland areas and description of avoidance and minimization measures to be implemented; • Delineation or description of aquatic sensitive communities potentially affected by Proposed Project activities; • Description of Proposed Project activities with the potential to affect sensitive communities; • Adaptive management actions that will be implemented if water quality objectives are determined to be adversely affected by the Proposed Project activities; and • Reporting to the State Water Board. Mitigation for permanent impacts on aquatic resources, riparian, and wetland communities shall be provided at a minimum 1:1 ratio as described in the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (State Water Board 2019). Mitigation may include on-site restoration, in-lieu fee payment, or purchase of mitigation credits at an agency-approved mitigation bank. Mitigation as required in applicable regulatory permits obtained by PG&E from CDFW, USACE, or the Forest Service may be applied to satisfy this measure. Alternatively, mitigation coordinated with these agencies during the annual consultation meeting may be applied to satisfy this measure. For this measure, aquatic resources are defined as waters protected under Sections 401 and Section 404 of the Clean Water Act and CDFW,				

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
		Sections 1600–1603 of the California Fish and Game Code.				
No Net Loss of Sensitive Communities	MM-COMMS-2	A qualified biologist shall conduct a site review (MM-BIO-1) prior to activities that could result in significant vegetation removal to determine whether sensitive communities such as sensitive quaking aspen or Rank S1–S3 communities as defined by Manual of California Vegetation, Second Edition (Sawyer et al. 2009) could be affected. If sensitive communities are determined to be present, then impacts would be avoided to the greatest extent possible. Should permanent impacts on sensitive communities be required for maintenance, mitigation shall be provided at a minimum 1:1 ratio. Mitigation may include on-site restoration, in-lieu fee payment, or purchase of mitigation credits at an agency-approved mitigation bank. Mitigation, including a determination that no mitigation is needed, as required through coordination with the Forest Service, or agreed upon during the annual consultation meeting, will satisfy this measure.	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))		After completion of activities.	
Geology and Soils						
Implement Standard Best Management Practices	MM-GEO-1	The following standard BMPs will be implemented during routine maintenance: • All heavy equipment, vehicles, and work activities will be confined to existing roads, road shoulders, and disturbed/developed or designated work areas. Work areas will be limited to what is necessary to complete work to the extent reasonably possible. • Vehicular speeds will be limited to 15 miles per hour on unpaved roads.	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))	Specific resource mitigation plan	During activities.	

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
		• Control measures for erosion, excessive sedimentation, and sources of turbidity will be implemented and in place prior to the commencement of, during, and after any ground clearing activities, excavation, or any other activities that could result in erosion or sediment discharges to surface water. • Caution will be used when handling and/or storing chemicals (for example, fuel, hydraulic fluid) near waterways. The Proposed Projects will comply with any and all applicable laws and regulations related to the handling and storage of chemicals. Appropriate materials will be on site to prevent and manage spills. • When not in use, equipment will be stored in upland areas outside the boundaries of waterways. • All equipment will be inspected for leaks before being brought on site. All equipment will be well-maintained and inspected daily while on site to prevent leaks of fuels, lubricants, or other fluids into waters of the United States or waters of the state. Stationary equipment (for example, generators) within 100 feet of aquatic habitat will be parked over secondary containment. • Service and refueling procedures will be conducted in a designated area where no potential exists for fuel spills to seep or wash into waterways. • Stockpiles will be located outside of riparian habitat and protected with				

Table 1. Mitigation Monitoring and Reporting Plan

Environmental Issue in IS/MND	Mitigation Measure Number	Mitigation Measure Description	Responsible Party and Applicable Project	Reporting Requirements & Verification of Compliance	Timing	Verification of Compliance
		appropriate stockpile management BMPs. If more than 0.25 inch of rain is forecast during work periods, all spoil piles will be covered with plastic and surrounded with sediment control technologies or berms to prevent sediment runoff.				
Paleontological Resources	MM-GEO-2	Before the start of maintenance activities, personnel involved with ground-disturbing activities shall be informed of the proper notification procedures if fossils are encountered. If paleontological resources are encountered during ground-disturbing activities, the work crew shall immediately stop work and a qualified paleontologist shall evaluate the resource and prepare a proposed mitigation plan based on the situation prior to continuation of the activity.	PG&E (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))	Specific resource mitigation plan	Prior to and during activities.	
Tribal Cultural Resources						
Implementation of the Historic Properties Management Plan	MM-TCR-1	In accordance with the provisions provided with Section 5.8 and 5.9 of the HPMP, consultation will occur with Native American tribes on an activity-by-activity basis to ensure no adverse impacts will occur. If a resource is determined to be a TCR as defined by the Public Resources Code, Section 20174, during consultation under Sections 5.8 and 5.9 of the HPMP, appropriate site-specific mitigations will be developed consistent with Public Resources Code Section 21084.3, and impacts will be reduced to a less than significant level pursuant to Section 5.10 of the HPMP.	TBD (Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310) and Lower Drum Hydroelectric Project (FERC No. 14531))	TBD	TBD	TBD