DESABLA-CENTERVILLE HYDROELECTRIC PROJECT
DRAFT WATER QUALITY CERTIFICATION
STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of Water Quality Certification for

PACIFIC GAS AND ELECTRIC COMPANY
DESABLA-CENTERVILLE HYDROELECTRIC PROJECT

FEDERAL ENERGY REGULATORY COMMISSION PROJECT NO. 803

Sources: Butte Creek and West Branch Feather River

County: Butte

WATER QUALITY CERTIFICATION FOR FEDERAL PERMIT OR LICENSE

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Comments due by 12:00 PM (noon) on June 13, 2013 to:

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BY THE EXECUTIVE DIRECTOR:

1.0 Introduction

On October 2, 2007, Pacific Gas and Electric Company (PG&E or Licensee) filed an application for a new license (license application) for the DeSabla-Centerville Hydroelectric Project (DeSabla-Centerville Project or Project) with the Federal Energy Regulatory Commission (FERC). The Project, also known as FERC Project No. 803, was issued a minor-part license for portions of the Project located on Federal lands by the Federal Power Commission (precursor to FERC) in 1929, which expired on October 11, 1979. The current license for the Project was issued on June 11, 1980, and expired October 11, 2009. Certain aspects of the proposed Project modifications may also require authorization from the U.S. Army Corps of Engineers (ACOE) under section 404 of the Clean Water Act (CWA).

The Project has an installed capacity of 25.8 megawatts (MW) and is located on Butte Creek and the West Branch Feather River in Butte County, California. The Project consists of three developments (Toadtown, DeSabla, and Centerville), which collectively include three reservoirs, three powerhouses, 14 diversion and feeder dams, five canals, and associated equipment and transmission facilities.

The flow of water through each development is described below and generally follows the flow of water through the Project (See Figure 1).

1) The Toadtown development diverts water from the West Branch Feather River watershed to the DeSabla Development in the Butte Creek watershed via the Hendricks, Toadtown and Butte Creek Canals.

2) The DeSabla development diverts water from the West Branch Feather River that passed through the Toadtown development and water from Butte Creek. Butte Creek diverts water from upper Butte Creek at the Butte Diversion Dam and water flowing out of the Toadtown development (via Hendricks, Toadtown and Butte Creek Canal) at the DeSabla Powerhouse. Water diverted at the Butte Diversion Dam bypasses approximately 11 river miles of Butte Creek.

3) The Centerville Development diverts a portion of the flow of Butte Creek downstream of the DeSabla development at the Lower Centerville Diversion Dam. Water diverted at the Lower Centerville Diversion Dam bypasses approximately nine river miles of Butte Creek. During non-operation of the Centerville Powerhouse, the water is discharged into Butte Creek roughly 1,000 feet upstream of the Centerville Powerhouse. During operation of the Centerville Powerhouse, water is discharged into Butte Creek at the Centerville Powerhouse.

The diversions in the Project area have reduced flows in the natural channel of Butte Creek and the lower portion of the West Branch Feather River. Diversions into Butte Canal and the Lower Centerville Canal reduce the flows in Butte Creek. Diversions into the Hendricks and Toadtown Canal reduce the flows in the West Branch Feather River.

The Centerville Powerhouse, constructed in 1900, was determined to be near the end of its useful life in a 2005 assessment conducted by the Licensee. The Centerville Powerhouse has been out of service since June 2009. While the Licensee has initiated some refurbishment of the powerhouse, it is currently not operational. The DeSabla Powerhouse was built in 1963.

The National Marine Fisheries Service (NMFS) listed the Central Valley spring-run Chinook salmon (SR Chinook) Evolutionary Significant Unit (ESU) as threatened under the federal Endangered Species Act (ESA) on September 16, 1999 (16 U.S.C. 1531-1544). Also, SR Chinook in the Sacramento River Basin is listed as threatened under the California ESA (Fish and Game Code, §§ 2050 et seq.). Historically, SR Chinook were the dominant run in the Sacramento River Basin. SR Chinook typically occupies the middle and upper elevation reaches of rivers that have sufficient adult holding habitat through the summer. Critical habitat for the SR Chinook ESU was designated on September 2, 2005. Butte Creek contains the largest population in the ESU. Butte Creek SR Chinook are unique and are genetically distinct from other Chinook salmon populations. Since the listing of SR Chinook, PG&E has operated the Project to enhance and protect the habitat for this species.

The license application states that a “significant primary benefit” of the Project is “enhanced cool water habitat for threatened SR Chinook and Central Valley steelhead in Butte Creek”. NMFS rated the conservation value of Butte Creek as high due to the high quality holding and spawning habitat. The Central Valley California ESU of steelhead trout were listed under the federal ESA as threatened in March of 1998. Data on Butte Creek steelhead are restricted to incidental observations by anglers and California Department of Fish and Wildlife (CDFW; formerly known as California Department of Fish and Game) staff.

2.0 Regulatory Authority

2.1 Water Quality Certification

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

Section 401 of the Clean Water Act (33 U.S.C. §1341) requires every applicant for a federal license or permit which may result in a discharge into navigable waters to provide the licensing or permitting federal agency with certification that the project will be in compliance with specified provisions of the Clean Water Act, including water quality standards and implementation plans promulgated pursuant to section 303 of the Clean Water Act (33 U.S.C. § 1313). Clean Water Act section 401 directs the agency responsible for certification to prescribe effluent limitations and other limitations necessary to ensure compliance with the Clean Water Act and with any other appropriate requirement of state law. Section 401 further provides that state certification conditions shall become conditions of any federal license or permit for the project. The State Water Resources Control Board (State Water Board) is designated as the state water pollution control agency for all purposed state in the CWA and any other federal act (Wat. Code section 13160.). The State Water Board has delegated authority to act on applications for water quality certification (WQC) to the Executive Director.

On December 2, 2011, the State Water Board provided public notice of PG&E's application for WQC pursuant to section 3858 of title 23 and section 15072 of title 14 of the California Code of Regulations.

2.2 Water Quality Standards and Water Quality Control Plans

The California Regional Water Quality Control Boards (Regional Water Boards) adopt, and the State Water Board has approved, water quality control plans (basin plans) for each watershed basin in the State. The basin plans designate the beneficial uses of waters within each watershed basin, and water quality objectives designed to protect those uses pursuant to Section 303 of the Clean Water Act. (33 U.S.C. § 1313.) The beneficial uses and water quality objectives that are contained in the basin plans together with state and federal anti-degradation requirements constitute California's water quality standards.

The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (SR/SJR Basin Plan) does not specifically identify the beneficial uses of the West Branch Feather River. The SR/SJR Basin Plan specifies that the beneficial uses of any specifically identified water body generally apply to its tributary streams. Therefore, the West Branch Feather River beneficial uses are listed under the Lake Oroville designation. Designated beneficial uses for the West Branch Feather River (Lake Oroville designation) include municipal and domestic supply, irrigation, power, contact recreation, other non-contact recreation, cold freshwater habitat, warm freshwater habitat, warm freshwater spawning, cold freshwater spawning, and wildlife habitat. The existing beneficial uses listed in the Basin Plan for Butte Creek (sources to Chico), as designated in the SR/SJR Basin Plan, are: municipal and domestic supply, irrigation, stock watering, power, contact recreation, cold freshwater habitat,

warm freshwater habitat, cold freshwater migration, warm freshwater spawning, cold freshwater spawning, and wildlife habitat.

2.3 Water Rights

PG&E holds several state-issued water rights for non-consumptive use of water for power generation, fish and wildlife enhancement, and recreation. These include one License for Diversion and Use of Water (License No. 988) and two Permits for Diversion and Use of Water (Permit Nos. 18068 and 21194). PG&E has also filed Statements of Water Diversion and Use for thirteen active pre-1914 claims of water use.

3.0 Water Quality Certification Conditions

This WQC will become part of the FERC 30-to-50-year operating license for the Project. Certain changes in the physical environment, the regulatory environment, and the state of scientific understanding are anticipated during this time; however, the scope of such changes cannot be determined with sufficient specificity at the present time and therefore it is impossible to determine additional conditions would be required to ensure that the project is protective of water quality standards throughout the license period. For this reason, some terms and conditions include reservations of authority and/or adaptive management provisions to address these future uncertainties.

The State Water Board developed WQC conditions based upon measures recommended by PG&E and FERC staff, and measures prepared to address requirements in the Federal Power Act (FPA), specifically: Section 4(e) (16 USC §§ 797); Section 10(j) (16 USC §§ 803); and Section 18 (16 USC §§ 811) (also known as 4(e), 10(j) and Section 18 conditions). The conditions were developed by different agencies. The United States Forest Service (USFS) and the Bureau of Land Management (BLM) developed the 4(e) conditions, CDFW developed the 10(j) recommendations; and NMFS developed the Section 18 requirements. However, some of these recommended measures are not enforceable, do not include sufficient or specific time lines for completion, will not protect beneficial uses, will not meet water quality standards in a timely manner, or contain conflicting or inconsistent requirements. Though the WQC conditions modify the recommended measures to provide assurance that the beneficial uses will be reasonably protected, the conditions are intended to be consistent with recommended measures and conditions.

4.0 Rationale for the Water Quality Certification Conditions

When preparing the conditions in this certification, State Water Board staff reviewed and considered: (a) PG&E's final FERC license application; (b) comments on the final license application by agencies and interested parties; (c) USFS and BLM Final 4(e) Conditions; (d) FERC Environmental Assessment (EA) prepared pursuant to the National Environmental Policy Act (42 U.S.C sections 4321 et seq.); (e) PG&E's application for WQC; (f) Section 18 conditions and Draft Biological Opinion issued by the NMFS; (g) recommendations under FPA section 10(a) and 10(j) and comments by agencies and interested parties; and (h) recommendation made under Public Resources Code Sections 10001-10002, *Minimum Instream Flow Recommendations: Butte Creek, Butte County* issued by CDFW. Additionally, staff considered the Initial Study/Environmental Checklist prepared pursuant to the California Environmental Quality Act (CEQA) (Cal. Pub. Resources Code section 21000 et seq.), the

SR/SJR Basin Plan, existing water quality conditions, Project-related controllable factors, and other information in the record. Any conditions that require development of a plan will require review, modification (if necessary), and approval by the Deputy Director of the Division of Water Rights (Deputy Director). In addition, other regulatory agencies have specific authorities to approve plans and reports. The following describes the rationale used to develop most of the conditions in the WQC. The conditions for which additional rationale is not provided below (Conditions 29–57) are additional conditions commonly applicable to hydroelectric projects that, in this case, are necessary to ensure the protection of water quality standards over the term of the license and any annual extensions.

4.1 Minimum Instream Flows

A. Butte Creek: PG&E's existing FERC license (expired 2009, but continues under annual extensions) requires minimum flows of 40 cfs for 10.5 months and 30 cfs for 1.5 months in normal water year types and 10 cfs year round in dry water year types at Lower Centerville Diversion Dam, while the remaining flow bypasses Butte Creek via the Lower Centerville Canal (PG&E 2004). Butte Creek minimum instream flows are met, in part, through diversions from the West Branch Feather River. PG&E stores winter runoff in Philbrook and Round Valley Reservoirs for use during the summer to supplement summer flows provided to Butte Creek from the West Branch Feather River. The supplemental summer flows provided from the reservoirs into the West Branch Feather River are limited; the storage capacity of Philbrook and Round Valley Reservoirs is collectively 6,200 acre-feet (United 2006).

Flow in the Lower Centerville Canal is returned to Butte Creek below the Centerville Powerhouse when the Centerville Powerhouse is in operation and approximately 1,000 feet above the Centerville Powerhouse when the Centerville Powerhouse in not in operation. A United States Fish and Wildlife Service (USFWS) study of SR Chinook spawning habitat between Centerville Head Dam and Parrot–Phelan Diversion Dam determined that approximately 85 percent of the spawning habitat is located downstream of the Centerville Powerhouse (USFWS 2003). Meanwhile, the highest number of deep holding pools is located above the Centerville Powerhouse in the three-mile stretch downstream of Quartz Bowl Pool (NMFS 2006). Due to lack of studies on Butte Creek salmon spawner movement from salmon holding stage through spawning, it is unknown how far SR Chinook will migrate from areas with greater holding habitat and less spawning habitat to areas with more spawning habitat. Since data on salmon spawner movement are unavailable, it is speculated that redd superimposition may occur in the portion of Butte Creek above the Centerville Powerhouse.

Current minimum instream flows affect the quantity of holding and spawning habitat for SR Chinook. During the spawning and incubation periods, lower flow releases into Butte Creek at the Lower Centerville Diversion Dam increase temperatures and reduce the amount of submerged spawnable gravels with adequate flows, thus significantly reducing available spawning habitat for SR Chinook in Butte Creek between the Lower Centerville Diversion Dam and the Centerville Powerhouse (USFWS 2003).

In addition, diversions into Lower Centerville Canal create high water temperatures in Butte Creek upstream of the Centerville Powerhouse, which can cause pre-spawn mortality and may create a thermal barrier to fish migration above the Centerville Powerhouse. The Preliminary Biological Opinion (NMFS 2006) for the Project documents how high water temperature and high fish densities in Butte Creek in 2003 led to disease outbreaks in SR Chinook that resulted

in pre-spawn mortality. Surviving fish exposed to high water temperatures may experience reduced fecundity (Lindley et al. 2007). Higher flows into Butte Creek from the Lower Centerville Diversion Dam to the Centerville Powerhouse, will reduce the water temperatures in Butte Creek and will substantially increase the amount of spawning and holding habitat.

During relicensing, CDFW staff recommended flows for spawning and rearing of 100 cfs in wet water years and 75 cfs in dry water years from September 1 through March 31. CDFW staff also recommended flows of 40 cfs from July 1 to August 31. Condition 1 includes minimum flows for Butte Creek below the Lower Centerville Diversion Dam that are similar to those recommended by CDFW's *2008 Minimum Instream Flow Recommendations: Butte Creek, Butte County* (CDFW 2008). The 2008 CDFW report recommended, flows considering current Project operations, to allow for greater dispersal of redds, and to reduce redd superimposition. CDFW and some relicensing participants expect that the existing summer period 40 cfs flow will continue to create a thermal barrier above the Centerville Powerhouse for SR Chinook and steelhead (Shutes et al. 2008). NMFS staff expects the existing summer period 40 cfs flow between the Lower Centerville Diversion Dam and the Centerville Powerhouse will continue to create "take". "Take" is from the Project created thermal barrier, that harms all freshwater life stages of SR Chinook due to the loss of holding, spawning, and rearing habitat, injury, and death from Project-related elevated temperatures (United 2006). Given the similarity of habitat needs for steelhead and resident rainbow trout, "take" also applies to steelhead and resident rainbow trout. While 40 cfs in the summer period creates "take", the available cold water available is limited. Increasing flows for a portion of the summer period in Butte Creek will decrease "take."

Even though higher flows in Butte Creek will reduce the water temperature and will increase the amount of spawning and holding habitat, there is a lack of consensus among the participating agencies regarding instream flows in Butte Creek. Technical disagreement centers on whether it would benefit salmon to increase flows in the reach of Butte Creek between the Lower Centerville Diversion Dam and the Centerville Powerhouse. During relicensing, the agencies consulted with one another regarding various flow scenarios involving Lower Centerville Diversion Dam, Centerville Powerhouse and the DeSabla Forebay Temperature Reduction Device. Two main Butte Creek flow scenarios were favored by agencies involved in the Project relicensing, as outlined below. Both scenarios include the installation of a temperature reduction device in DeSabla Forebay.

Scenario 1

Under the first scenario, operations would continue per the existing license. Up to 180 cfs would continue to be diverted from Butte Creek at the Lower Centerville Diversion Dam, and subsequently be discharged at the Centerville Powerhouse. The minimum release of 40 cfs in the bypass reach upstream of Centerville Powerhouse would continue. According to CDFW data for 2003 through 2005, the semimonthly mean daily temperature of the water that flowed through the Lower Centerville Canal that discharged at the Centerville Powerhouse increased by 0.5 to 0.7 degrees Celsius. Water released into the natural channel of Butte Creek at the Lower Centerville Diversion Dam (i.e., not diverted into the Lower Centerville Canal) increased by 1.5 to 3.2 degrees Celsius. Water temperatures in the Lower Centerville Canal remain suppressed in part due to the speed and reduced thermal exposure of water in the Lower Centerville Canal. The cooler water released from the Lower Centerville Canal benefits the SR Chinook holding in habitat downstream of the Centerville Powerhouse. With the diversions

into the Lower Centerville Canal, water temperatures 0.6 miles below Centerville Powerhouse at Centerville Estates are similar to water temperatures at Pool 4[1]. Water temperatures at Centerville Estates in July through August of 2001-2005 were approximately 1 degree Celsius cooler to 0.8 degree Celsius warmer than the water in Butte Creek at Pool 4 (Ward, McReynolds, and Garmin, 2005).

With cold-water releases in Butte Creek at the Lower Centerville Diversion Dam and at the Centerville Powerhouse, populations of SR Chinook are distributed into two randomly sized groups. One group is distributed in holding habitat in the 5.66 mile stretch between the Centerville Powerhouse and downstream to the Covered Bridge. The other group is distributed in 5.6 river miles of holding habitat between the Quartz Bowl Pool and downstream to the Centerville Powerhouse. SR Chinook segregate by volition and habitat conditions (i.e., temperature) near the Centerville Powerhouse. Habitat conditions change in reaction to Project operations.

CDFW staff consulted with a CDFW fish pathologist on August 4, 2003[2] about the possibility of a disease outbreak in the holding habitat on Butte Creek under Scenario 1. The fish pathologist predicted that if the holding habitat becomes overcrowded during an extended heat event and a disease outbreak occurs, there would be insufficient cold water for flushing flows due to the limited cold water supply in Philbrook Reservoir.

Scenario 2

Under Scenario 2, diversions from Butte Creek at the Lower Centerville Diversion Dam would cease. The water temperature effects of this scenario were analyzed using the water temperature model CE-QUAL-W2 developed by PG&E. The cessation of diversions at the Lower Centerville Diversion Dam is referred to in this document as the release of full flows into Butte Creek (i.e., no flow diverted into the Lower Centerville Canal, and consequently no flows into the bypass reach or the Centerville Powerhouse). The release of full flows into Butte Creek, along with the reduction of thermal loading at the DeSabla Forebay, will benefit adult SR Chinook holding habitat above the Centerville Powerhouse. Full flows at Lower Centerville Diversion Dam will result in lower water temperatures above the Centerville Powerhouse, and temperatures equal to or slightly lower than the base condition below the Centerville Powerhouse. In other words, the release of full flow at Lower Centerville Diversion Dam into Butte Creek will not increase water temperatures below the Centerville Powerhouse. In addition, the lower temperatures will benefit salmonids and will not have a negative effect on salmon holding habitat below the Centerville Powerhouse.

With a lack of agreement between the agencies and relicensing participants, additional information is needed to determine appropriate operations. Implementation of Condition 1 will provide this additional information. Condition 1 requires PG&E to end diversions at Lower Centerville Diversion Dam one year after the DeSabla Forebay water temperature reduction device (required in Condition 9) is operational. Ending diversions at Lower Centerville is intended to benefit cold freshwater habitats that will maintain salmonids and steelhead in good condition. Modeling performed during the NEPA proceedings showed that reduced thermal

[1] Pool 4 is located above the Centerville Powerhouse and 2.73 miles upstream of Centerville Estates.
[2] Email from Tracy McReynolds, Staff Environmental Scientist, CDFW, Chico, California, to Amber Villalobos, dated November 13, 2012.

loading at DeSabla Forebay will result in additional summer holding habitat. Two factors in combination will help reduce the thermal loading: 1) installation of the water temperature reduction device, and 2) higher flows in dry water years below Lower Centerville Diversion Dam (required one year after the device is operational). If the anadromous fish and benthic macroinvertebrate monitoring required in Conditions 16, 17, and 19 indicate that SR Chinook populations are being negatively impacted after full flows are restored to Butte Creek (as required in Condition 1), the Deputy Director may require: diversion into Lower Centerville Canal to resume, implementation of the flows outlined in Condition 1, operation of the Project according to FERC's August 21, 1997 Order (FERC 1997) and FERC's August 20, 1998 amended Order (FERC 1998), and/or annual update of the Project Operations and Management Plan (Condition 18).

Prior to construction and operation of the DeSabla Temperature Reduction Device (Condition 9), Condition 1 requires PG&E to operate the Project according to FERC 1997 and FERC 1998. FERC 1997 and FERC 1998 place temperature restrictions on releases from Round Valley and Philbrook Reservoirs. FERC 1998 allows for modification of releases from Round Valley and Philbrook Reservoirs upon the mutual agreement of USFWS, NMFS, and CDFW, and as subsequently incorporated into the annual Project Operations and Management Plan (Condition 18).

B. West Branch Feather River: In the license application, PG&E recommends a flow of 30 cfs (normal water year) and 20 cfs (dry water year) between March 1 to May 31, and flow of 20 cfs (normal water year) and 7 cfs (dry water year) from June 1 to February 28/29. In the Final EA, FERC staff recommends a flow of 7 cfs below Hendricks Diversion Dam during dry years, while acknowledging that passage between Big Kimshew Creek and Hendricks Diversion Dam may be questionable at a 7 cfs minimum instream flow.

During the June 29, 2009, Section 10(j) resolution meeting, FERC staff recommended that PG&E construct a fish screen and ladder at the Hendricks Diversion Dam, and also provide migration connectivity below the diversion to the confluence with Big Kimshew Creek in lieu of providing dry year flows of 15 cfs below Hendricks Diversion Dam (as recommended by agencies). Various participants at the June 29, 2009, meeting raised the following concerns regarding FERC staff's recommendation to install fish habitat structures or other such means to increase connectivity in dry years in lieu of flow: (1) it may not be cost effective to modify the channel; (2) a reduction in flows below Hendricks Diversion Dam will reduce the amount of habitat available to fish and other aquatic species while increasing water temperature; and (3) the fish ladder may require flows greater than 7 cfs to provide attraction and effective passage (FERC 2009). Beyond the documented concerns at the Section 10(j) resolution meeting, private property in the Project area may limit access to the river to install fish habitat structures.

The flow habitat relationship model (PHABSIM) developed by PG&E (FLA, Volume IIB, Section 6.3.2.8) shows the maximum habitat (weighted usable area), in the West Branch Feather River below Hendricks Diversion Dam, occurs at a flow of 135 to 190 cfs for adult trout, between 10 and 25 cfs for trout fry, and 60 to 105 cfs for juvenile trout. The recommended flows of 15 cfs and 7 cfs by FERC staff are well below the maximum habitat value. Under current flow conditions of 15 cfs in normal years and 7 cfs in dry years, water temperatures in the Lower West Branch Feather River do not support the cold freshwater beneficial use through the entire reach. In 2006, the mean daily water temperature above the Miocene Diversion was greater

than 22° C. According to the United States Environmental Protection Agency (USEPA) Region 10 Guidance, 22° C is at least 2.0° C above the maximum temperature criteria for migrating salmon and trout, 9.0° C above the maximum temperature criteria for spawning, egg incubation, and fry emergence for salmon and trout; and 6.0° C above the maximum temperature criteria for "Core" juvenile rearing (USEPA 2003). Mean daily water temperatures above the Miocene Diversion therefore exceeded temperature targets for the protection of the cold freshwater habitat beneficial use.

Increased flow will result in substantial reductions in water temperature in the approximately three-mile reach of the West Branch Feather River between Hendricks Diversion Dam and Cold Creek. However, water temperature modeling also demonstrates a trade-off between higher flows below Hendricks Diversion Dam and water temperature in Butte Creek. After the installation and operation of the DeSabla Forebay water temperature reduction device, both 1) temperature monitoring (Condition 9), and 2) operation that both attracts fish to the ladder and allows for fish passage over the Hendricks Diversion Dam fish ladder structure, will provide information. The information is necessary to balance the flows needed to reduce temperatures in the three-mile reach between Hendricks Diversion Dam and Cold Creek. In balancing West Branch Feather River instream flow releases at the fish ladder and diversion to Butte Creek, higher flow releases below Hendricks Diversion Dam may result in higher water temperatures in Butte Creek. To provide a level of safety for SR Chinook populations, Condition 1 supports the flows recommended by FERC staff, with a reservation to change the requirement should the fish ladder require higher flows. The condition also requires an analysis of flows below Hendricks Diversion Dam after completion of the DeSabla Forebay water temperature reduction device. Protection of SR Chinook and steelhead is the primary environmental objective of Project operations. Future operation will require a balance between the different resource needs of the West Branch Feather River and Butte Creek. Requirements in Condition 1 provide the best balance for the protection of the cold freshwater and cold spawning beneficial uses.

C. Hendricks/Toadtown Canal: In modified 4(e) Condition 18.1, the USFS specifies that PG&E will install three pipes in the Hendricks-Toadtown Canal to deliver flows to Long Ravine, Cunningham Ravine, and Little West Fork Creek below the Hendricks/Toadtown Canal. Condition 1 includes the requirement that will allow flows to be released into the feeder creeks below the Hendricks/Toadtown Canal. The USFS estimates that flow through the required four-inch pipe will vary between 0.2 to 0.75 cfs, depending upon the quantity of water present in the Hendricks-Toadtown Canal. Condition 1 also requires that PG&E monitor the pipes to ensure the pipes do not become blocked. This condition will protect the beneficial uses of the feeder creeks.

4.2 Water Year Type

Designation of water year types is necessary to balance water supply and instream flow needs. Condition 2 in the certification relies on the Department of Water Resources (DWR) Bulletin 120 as a basis of determining water year type.

It is difficult to anticipate the impact of multiple dry years and develop plans to manage water during drought conditions. This condition provides PG&E an opportunity, after consultation with resources agencies, to request Deputy Director approval of a Revised Operational Plan during

drought conditions. Condition 2 will allow the Deputy Director to balance competing beneficial uses during critically dry water years.

4.3 Stream and Reservoir Gaging

Stream flow and reservoir elevation information is necessary for both monitoring compliance with flow requirements and water management. Accurate monitoring of stream flows in the upper West Branch Feather River will help guide flow releases from Round Valley Reservoir for water temperature management and Project operations in both the West Branch Feather River and lower Butte Creek. In addition, accurate monitoring of flows downstream of Project reservoirs and diversions will allow the State Water Board to document compliance with required minimum instream flows.

Condition 3 requires the continued operation and maintenance of the existing gaging stations on the West Branch Feather River downstream of Round Valley Reservoir and below the Hendricks Diversion Dam. Currently there is no gage in Philbrook Creek downstream of the confluence of both the low-level release and the spill channel. A new real-time gage will allow accurate monitoring of all flows in Philbrook Creek for better management of water temperatures in Butte Creek and the West Branch Feather River. Condition 3 also requires PG&E to convert the existing flow gages downstream of the Hendricks Diversion Dam, upstream of the Butte Creek Diversion Dam, and downstream of Lower Centerville Diversion Dam to provide real time information.

Operation of Philbrook and Round Valley Reservoirs is critical to providing cold water to protect SR Chinook in Butte Creek. Because Round Valley Reservoir is usually lowered first during the early summer, Round Valley Reservoir gage is not necessary. However, the operation of Philbrook Reservoir is critical to temperature control. Condition 3, therefore, requires installation of a reservoir elevation gage in Philbrook Reservoir.

The requirements contained in Condition 3 will allow the State Water Board to confirm compliance with flow requirements and ensure protection of the warm freshwater habitat, cold freshwater habitat, warm freshwater spawning, cold freshwater spawning, and wildlife habitat beneficial uses.

4.4 Philbrook Reservoir Temperature Monitoring

Operation of Philbrook Reservoir is critical to management of water temperature in Butte Creek. Maintaining low water temperature in Butte Creek is important for the protection of SR Chinook and steelhead. Reservoir water temperature information is critical to manage the timing of water releases from Philbrook Reservoir. Real time temperature information can be used in conjunction with reservoir elevation data (as required in Condition 3) to manage water operations in the Project and protect the cold freshwater beneficial uses. Condition 4 requires installation and operation of a water temperature gage in Philbrook Reservoir. This condition is necessary for the protection of the cold freshwater beneficial use.

4.5 Feeder Creek Diversion Removal

The following diversions have been discontinued for more than 10 years and no longer serve a Project purpose:

1) Oro Fino Ravine, Emma Ravine, and Coal Claim Ravine feeders into Lower Centerville Canal;

2) Stevens Creek feeder into Butte Canal; and

3) Little Butte Creek feeder into Hendricks Canal.

These five tributaries (feeder creeks) are likely to support fish populations and other aquatic life both above and below the diversion structures. Removing the five diversion structures would reestablish the habitat connectivity within each of the five feeder creeks (see 1 through 3 above). Condition 5 requires submission of a Plan for removal of the five diversions on the feeder creeks outlined above. The Plan will ensure the diversions are removed and water quality is protected during removal.

4.6 Canal and Powerhouse Operations Water Quality Monitoring

Project maintenance operations and canal failures have caused discharges of sediment into Project streams. Certain Project operations, including canal outages, periods when powerhouse generators are started or stopped, as well as canal and spill channel failures, have caused turbidity increases in receiving streams. Increases in turbidity can result in a variety of negative effects on aquatic organisms, including siltation of spawning and rearing habitat of SR Chinook, steelhead, and foothill yellow-legged frogs. To monitor for potential sediment impacts, Condition 6 requires the development of a Canal and Powerhouse Operations Water Quality Monitoring Plan. The Plan will include requirements to control and monitor turbidity during Project operations that may impact water quality. This Plan should be coordinated with the Long-Term Operations and Maintenance Plan (Condition 18), which will include any scheduled outages or other operations that may result in discharges.

PG&E occasionally uses herbicides to control vegetation along Project canals that could discharge to the water and negatively affect water quality and aquatic resources. PG&E will use only pesticides registered by the United States Environmental Protection Agency and will not use any pesticides within 500 feet of known locations of california red-legged frog, mountain yellow-legged frog, foothill yellow-legged frog, and yosemite toad. PG&E proposed to sample water quality for herbicides in receiving streams when herbicides are used. The Annual Operations and Maintenance Plan (Condition 18) must include any scheduled herbicide treatments and include locations and procedures for water quality sampling. Condition 6 also requires PG&E to annually submit a summary of canal maintenance activities and results of turbidity and herbicide monitoring.

The Canal and Powerhouse Operations Water Quality Monitoring Plan will help to ensure protection of the cold freshwater beneficial uses of Project waters.

4.7 Project Canal Maintenance, Inspection, and Hazard Prevention

Canal failure can result in discharges of sediment and cause increases in turbidity in Project streams. The Water Conveyance Geologic Hazards Risk Assessment conducted by PG&E identified 428 actual and potential geologic hazards in 36.5 miles of water conveyance facilities, for an average of 12 hazards per mile. Out of all the water conveyance facilities, which is collectively 36.5 miles of water conveyance facilities, Butte Creek Canal had the highest

number of total hazards and the highest number of hazards per canal mile, followed by Lower Centerville, Upper Centerville, and Hendricks/Toadtown Canals.

Both the USFS 4(e) Condition No. 23 and BLM 4(e) Condition No. 21 require maintenance and inspection of canals. To avoid or reduce potential water quality impacts associated with canal failure, Condition 7 (consistent with the USFS and BLM conditions) requires the development and implementation of a plan for annual inspections, protocols for canal operations and use of canal spillways, stabilization measures, and preventative measures. The Plan will also include periodic inspection of the Philbrook Spillway Channel remediation and the Round Valley Reservoir Plunge Pool improvements. Implementation of the Plan will avoid or reduce impacts to water quality and ensure protection of beneficial uses.

4.8 Project Operations Ramping Rates

Project operations and maintenance activities can cause out of season flow fluctuations below diversion dams on Butte Creek and the West Branch Feather River. Rapid changes in flow can strand or increase drift of benthic macroinvertebrates, strand fish, and displace or strand foothill yellow-legged frog eggs and tadpoles. Changes in flow outside the natural range of variability can negatively affect aquatic life. Development and implementation of a ramping rate plan will help avoid impacts of flow changes on sensitive life stages of foothill yellow-legged frogs and resident and anadromous fish. Condition 8 requires the development and implementation of a Ramping Rate Plan consistent with USFS 4(e) Condition 18, Part 5. Condition 8 will provide protection for the cold and warm freshwater, cold and warm spawning, and wildlife beneficial uses.

4.9 DeSabla Forebay Water Temperature Improvement

Appropriate water temperatures are critical to the health and survival of federal and state ESA-listed SR Chinook and federally listed steelhead in Butte Creek. The temperature of water increases as much as 2°C as it flows through the DeSabla Forebay. Thermal loading in the forebay results in higher water temperature during the warmer months of the year in Butte Creek.

Water temperature modeling conducted by PG&E during the re-licensing process showed that reducing the thermal loading in the DeSabla Forebay results in lower water temperature in Butte Creek. PG&E proposed installation of a pipe that will deliver water through the forebay from the terminus of Butte Canal to the DeSabla Powerhouse intake, which is referred to in this WQC as a water temperature reduction device.

Condition 9 requires PG&E to submit and implement a plan that includes a final design, a schedule for construction of the new facility, a description of Project operations (during construction, operation, and when the Butte Canal or the pipe is out of service), and measures to mitigate any negative impacts on water quality and beneficial uses within and in the proximity of the DeSabla Forebay during construction and operation. Compliance with this condition will result in reduced water temperatures in Butte Creek and greater protection of the cold freshwater beneficial use.

4.10 Water Temperature Monitoring

Changes in Project operations, including the reduction in thermal loading expected at the DeSabla Forebay, will change the water temperature in Butte Creek compared to current operations. Water temperature management in Butte Creek is critical for the protection of SR Chinook and steelhead. Water temperature management is specifically necessary to avoid pre-spawn mortality, increased rates of disease, and reduced egg viability.

Monitoring of water temperatures is necessary to evaluate the changes in water temperature associated with operation of the water temperature reduction device in DeSabla Forebay and changes in Project operations required in the new license. Condition 10 requires the development of a Water Temperature Monitoring Plan that must be implemented prior to the construction of the DeSabla Forebay water temperature reduction device, and for a period of 10 years after completion and initiation of operation of the device. Data from the from the Plan shall be used in part to develop a new stream flow recommendation, as outlined in Condition 10, that will not adversely affect cold freshwater beneficial uses. This information is necessary to ensure protection of the cold freshwater beneficial use and federal and state ESA-listed species.

4.11 Roving Operators

As stated in 4.1.C above (Hendricks-Toadtown Canal Minimum Instream Flows), new fixed orifice release pipes will be installed in Long Ravine, Cunningham Ravine, and Little West Fork Creek. Existing diversions at Inskip Creek, Kelsey Creek, Helltown Ravine, Clear Creek, Long Ravine, Cunningham Ravine, and Little West Fork Creek also have fixed release structures without gages. PG&E proposes to continue monitoring and maintaining these feeder diversions on a weekly basis using roving operators. Roving monitors can ensure that any required minimum instream flow requirements will be met and release structures do not become blocked with debris. Condition 11 is necessary to ensure continuous water flow in the feeder creeks and to protect the cold and warm freshwater habitat, cold and warm spawning, and wildlife beneficial uses.

4.12 Hendricks Diversion Fish Screen and Passage

Under current operations, 100 percent of the flow of the West Branch Feather River is diverted at the Hendricks Diversion into the Hendricks Canal. Instream flow releases in the West Branch Feather River are released downstream of the Hendricks Diversion Dam from the Hendricks Canal. This method of diversion results in high levels of fish entrainment into the Hendricks Canal and a lack of connectivity in the stream channel.

Installation of a fish screen at the entrance to the Hendricks Canal and a fish ladder at the Hendricks Diversion Dam will reduce the level of entrainment and improve connectivity of the stream. The flow necessary for the ladder to successfully attract fish and allow passage may need to be determined during design and after construction. If the flow necessary for the ladder is higher than the minimum flow required in Condition 1, the minimum flow will be increased as needed to successfully attract and allow fish passage at the ladder. Condition 12 requires construction and operation of a fish ladder and fish screen, which is necessary for protection of the cold freshwater beneficial use.

4.13 Fish Rescue

Both the Butte Head Dam and the Lower Centerville Diversion Dam are designed and operated in a manner that could result in high levels of fish entrainment. Construction of fish screens at these locations is difficult and costly. In lieu of construction of fish exclusion devices at these locations, Condition 13 requires PG&E to develop and implement a Fish Rescue Plan for the Lower Centerville and Butte Canals. Transfer of fish from the canals back to Butte Creek will help protect the cold freshwater beneficial use.

4.14 Resident Fish Population Monitoring

Changes in Project operations after issuance of a new license could cause changes in fish populations. Resident fish populations will serve as an indicator of how effective new Project operations are in protecting the cold freshwater beneficial use. Monitoring of fish populations over the life of the license will provide information on the health of resident fish populations, and provide information on impacts to the fish populations (Project and non-Project related). Condition 14 requires that the Licensee to develop and implement a Resident Fish Monitoring Plan to monitor resident fish at selected locations in the Project vicinity through the term of the new license.

4.15 Fish Stocking

CDFW currently stocks trout in DeSabla Forebay and Philbrook Reservoir. Operation of the DeSabla Forebay water temperature reduction device may result in increased water temperatures in DeSabla Forebay that could be stressful or lethal to stocked trout. It is likely that PG&E will only operate the DeSabla Forebay water temperature reduction device during the warm summer months (e.g., June, July, and August). Anglers displaced from DeSabla Forebay could instead fish at a nearby reservoir in the area such as Philbrook Reservoir, Paradise Lake, or Lake Oroville. If temperatures in DeSabla Forebay exceed the USEPA 2003 temperature criteria, additional fish may be stocked at other nearby reservoirs or Project affected stream reaches to accommodate the displaced anglers. Condition 15 requires the development and implementation of a Fish Stocking Plan that provides for modified stocking of trout in DeSabla Forebay or other nearby locations.

4.16 Federally and State Listed Anadromous Fish Monitoring

As stated above, federally threatened SR Chinook and steelhead are found in Butte Creek, and SR Chinook is also listed as threatened under the California ESA. Management of these species is critical for their recovery. The anadromous fish in lower Butter Creek are dependent on operation of the Project and the inter-watershed transfer of water from the West Branch Feather River into Butte Creek. This dependence on Project operations warrants annual monitoring of anadromous fish and responses to changes in Project operations required by this WQC.

Changes in Project operations after a new license is issued may affect anadromous fish. Information from the annual monitoring, and changes in populations over time, will allow the USFS, NMFS, USFWS, CDFW, and the State Water Board (Agencies) to adaptively manage Project operations to ensure protection of SR Chinook and steelhead in lower Butte Creek. Information resulting from the monitoring will provide information necessary to evaluate

changes in instream flows, and for the development of both annual and long-term operations plans through the adaptive management provisions recommended by CDFW in its 10(j) recommendation No. 5. Condition 16 requires the Licensee to develop and implement an Anadromous Fish Monitoring Plan to monitor specific life stages of SR Chinook and steelhead in lower Butte Creek.

4.17 Spring Run Chinook Salmon Monitoring

Changes in flow below Lower Centerville Diversion Dam as required in Condition 1, together with the structural changes to DeSabla Forebay required in Condition 9, will change the thermal conditions and amount of habitat available in Butte Creek. Increases in flow below Lower Centerville Diversion Dam will result in increased holding habitat and lower water temperatures. Higher flows and lower temperatures will eliminate the thermal barrier that currently exists above the Centerville Powerhouse during the summer. Elimination of the thermal barrier, increased habitat, and lower water temperatures should allow more SR Chinook to hold above the Centerville Powerhouse. However, uncertainty exists regarding whether SR Chinook will move downstream where more spawning habitat is available.

Condition 17 requires the Licensee to develop and implement a SR Chinook Monitoring Plan to determine if the changes in flow below Lower Centerville Diversion Dam negatively impact the SR Chinook population. The flow requirements shown in Table 1 could be triggered if a determination is made that flow is negatively impacting the SR Chinook population. The determination can only be made after consultation with the agencies and approval of the Deputy Director. Development of well-defined objectives and effective monitoring methods and criteria for SR Chinook is critical to determining the impact of the WQC conditions and implementing an appropriate response should impacts occur. Condition 17 will provide assurances that cold freshwater and cold spawning beneficial uses are protected.

4.18 Long-Term and Annual Operations and Maintenance Plans, and Annual Meeting

Since 1999, the Project has operated pursuant to an Annual Operations and Maintenance Plan prepared by PG&E in consultation with CDFW and NMFS. This Plan outlines the operation and maintenance procedures and practices PG&E follows to enhance and protect anadromous fish and their habitat in Butte Creek. The Annual Operations and Maintenance Plan also provided the basis for the reservoir temperature release criteria at Round Valley and Philbrook Reservoirs established in FERC's August 21, 1997 Order, as amended August 20, 1998. The primary goal of the Annual Operations and Maintenance Plan is to provide cold water for holding, spawning, and rearing SR Chinook and steelhead in Butte Creek upstream and downstream of the Centerville Powerhouse.

During relicensing, FERC identified that it would require development of a long-term operations plan designed to serve as the overarching plan to guide the development of annual operations and maintenance plans for the Project. The Long-Term Operations Plan would incorporate current and historical monitoring data as well as document annual Project operations and the associated benefits or impacts on anadromous fish of all life stages and their habitat. A goal of the long-term operations plan is to protect federally listed anadromous fish and their habitat within Butte Creek taking into consideration each year's available water (e.g., DWR bulletin 120, Philbrook, or Round Valley) and potential effects on the aquatic resources of the West Branch Feather River (FERC, EA 2009). Implementation of the Long-Term Operations and

Maintenance Plan (Condition 18) requires that PG&E hold an annual meeting to review existing information along with information developed in compliance with the WQC or FERC license, and seek input from various stakeholders. Stakeholders include, NMFS, USFS, CDFW, USFWS, State Water Board, California Sportfishing Protection Alliance, Friends of Butte Creek, American Whitewater, and Friends of the River (Operations Group).

Condition 18 requires the development of a Long-Term Operations and Maintenance Plan that will be used to guide the development of an updated Annual Operations and Maintenance Plan that meets the requirements outlined in Condition 18. The Annual Operations and Maintenance Plan will determine the operation of Philbrook and Round Valley Reservoirs for the delivery of cold water to Butte Creek in addition to a preferred schedule for maintenance to reduce impacts to SR Chinook in Butte Creek. USFS 4(e) conditions require PG&E to hold an annual consultation meeting. It will be more efficient to combine consultation on the Annual Operations and Maintenance Plan with the USFS required annual meeting. This meeting will provide an opportunity for public participation with a review of surveys conducted during the previous year and planned Project operation and maintenance for the coming year.

FERC staff supports adaptive management consistent with the CDFW's 10(j) recommendation. FERC staff stated the adaptive management could be used to update and modify the Long-Term Operations and Maintenance Plan to incorporate current biotic monitoring data and "lessons learned" from the implementation of the Annual Operations and Maintenance Plans would include adaptive management. The Long-Term Operations and Maintenance Plan would include the preparation of a summary report with provisions that: (1) support long-term changes to Project operations and/or facilities; (2) could be used to evaluate Project operations to ensure required measures are adequately protecting aquatic and terrestrial resources in both the West Branch Feather River and Butte Creek watersheds; and (3) allow for an informed decision-making process for modifying Project operations and/or facilities to better protect aquatic and terrestrial resources.

Adaptive management is incorporated into many of the conditions in this water quality certification including Conditions 38 though 40, 48, and 50.

4.19 Benthic Macroinvertebrate Monitoring

Condition 19 requires PG&E to prepare a Benthic Macroinvertebrate Monitoring Plan to monitor responses of the macroinvertebrate community under new flow regimes and other new license conditions. The Plan will describe methods to monitor benthic macroinvertebrate species composition and relative abundance. Data will be used to determine trends in the macroinvertebrate community structure, as represented by metrics (e.g., taxa richness, EPT index[3], tolerance value) in the California Stream Bioassessment Procedure (or other current USFS protocol), and determine the trends in metrics within reaches, between reaches, and in comparison with previous results. Benthic macroinvertebrates are an important food source for most fish species. Information resulting from the monitoring will provide information necessary to evaluate changes in instream flows, inform the Operations Plan, and help ensure protection of the federal and state ESA-listed species.

[3] "EPT" is an abbreviation for Ephemeroptera, Plecoptera, and Trichoptera, the scientific names of three macroinvertebrate species commonly used to assess stream health: mayflies, stoneflies and caddisflies.

4.20 Foothill Yellow-Legged Frog Monitoring

Increases in minimum flows and continuing flow fluctuations could affect habitat for the foothill yellow-legged frog. Changes in flow and flow fluctuations can cause reduced habitat suitability, increased water temperatures, and changes in aquatic and riparian vegetation and channel morphology. Monitoring will detect any changes in foothill yellow-legged frog populations and help identify additional information needs and guide changes in Project operation should changes become necessary. Condition 20 requires the preparation of a Foothill Yellow-legged Frog Monitoring Plan to monitor populations in Project streams. This condition will monitor attainment and maintenance of protection of cold freshwater, warm freshwater, and wildlife beneficial uses.

4.21 Bald Eagle Monitoring and Nest Management

Project operations and associated recreation use could impact bald eagles. The incidental taking of bald eagles is prohibited by the Bald and Golden Eagle Protection Act. The identification of nesting sites is important for protecting eagles from Project-related activities such as maintenance or recreation. Condition 21 requires PG&E to develop a Bald Eagle Monitoring Plan that includes development and implementation of protective measures when nesting is identified. This condition is necessary to protect the wildlife beneficial use.

4.22 Round Valley Reservoir Plunge Pool

Releases from the Round Valley Reservoir have caused erosion of the plunge pool below the dam. Condition 22 requires the Licensee to submit a plan to the Deputy Director to armor the Round Valley Reservoir plunge pool with riprap. The Plan will be developed in consultation with USFS, CDFW and State Water Board staff. The Plan will include a list of necessary permits and require the placement of warning signs to keep visitors away from the steep plunge pool slopes. The development and implementation of the Plan is necessary to ensure that operation of Round Valley Reservoir does not discharge sediment or cause turbidity to increase in violation of water quality standards.

4.23 Wildlife Protection Measures

PG&E's current deer protection measures have significantly decreased deer mortality over the last 30 years and should continue to keep deer mortality at low levels (average of less than three deer per year). PG&E proposed to monitor the status of the wildlife protection facilities (bridges, escape structures, etc.) and replace them as necessary. The USFS required wildlife protection measures in the 4(e) conditions. Condition 23 requires PG&E to apply the wildlife protection measures in the USFS 4(e) conditions and best available science wildlife protection measures to all Project canals. This action should ensure that mortality remains at or below current levels and protect the wildlife beneficial use.

4.24 Wet Meadow

Since 1986, PG&E has provided funding to CDFW for the management and development of wet meadow habitat at Butte Creek House Ecological Reserve (Butte Creek House) for the protection and/or mitigation of the Project's effects on fish and wildlife resources (CDFG 1986). During Project relicensing, PG&E did not propose to continue to provide funding for

management and development of wet meadow habitat at Butte Creek House. Condition 24 requires PG&E to continue to provide funding to CDFW for ongoing management and maintenance of wet meadow habitat at Butte Creek House. PG&E's continued funding for the management and maintenance of the developed Butte Creek House wet meadow habitat will ensure that the wet meadow habitat persists and thus continues to mitigate for the previous loss of wet meadow habitat.

4.25 Transportation System Management

The USFS 4(e) Condition No. 36 requires development of a Transportation System Management Plan for the protection and maintenance of roads on National Forest Service Lands (NFSL). The BLM 4(e) Condition No. 20 requires PG&E to maintain Ditch Creek Road from the BLM gate to the site where Spillway 9/1 crosses the road. There are roads that are Project-related that are not located on BLM or NFSL lands. Road surveys conducted by PG&E identified a number of localized road-related drainage areas that have erosion issues. These roads can be a source of sediment production due to their geologic and topographic setting. The roads are located in areas with fine-grained native sediments and relatively steep terrain (e.g., Burma Road, Clear Creek Road, Butte Creek Diversion Dam Road). To avoid or reduce the water quality impacts from the roads, Condition 25 requires the development and implementation of a Transportation System Management Plan consistent with the 4(e) conditions. Condition 25 will ensure the Project roads do not cause discharges in violation of water quality standards.

4.26 Centerville Development Long-Term Operations

Condition 1 requires PG&E to cease diversion at the Lower Centerville Diversion Dam after completion of the DeSabla Forebay water temperature reduction device. Condition 26 requires PG&E to submit a plan five years after diversions have ended at the Lower Centerville Diversion Dam that describes the future operation of the Centerville Development. If the monitoring required in Conditions 16 and 17 show that the cessation of diversions at the Lower Centerville Diversion Dam is not harming SR Chinook or steelhead, the Plan will require stabilization and/or decommissioning of the Centerville Powerhouse and Development (if necessary). If, as a result of the monitoring, the Deputy Director requires PG&E to return to the flows in Table 1, the Plan must address the long-term operation, maintenance, and reconstruction (if necessary) of the Centerville Development.

NMFS considers the population of Central Valley steelhead/rainbow trout above Lower Centerville Diversion Dam to be important for the recovery of the Distinct Population Segment (DPS). Steelhead smolts (and perhaps kelts) from this population become entrained into the Lower Centerville Canal. Based on authorities under the FPA Section 10(j) and federal ESA, NMFS recommends construction of a screen at the Lower Centerville Canal. CDFW also recommended the construction of the fish screen. Consistent with these recommendations, Condition 26 requires PG&E develop a plan to prevent entrainment of fish at the Lower Centerville Diversion Dam only if operation of the Centerville Powerhouse will continue through the life of the license. If the operation will not continue, Condition 26 will ensure the Project does not violate water quality standards during removal or stabilization (remediation) of the Centerville Development.

4.27 Philbrook Reservoir Boat Launch

USFS 4(e) Condition No. 33 requires the extension of the boat launch on the Philbrook reservoir to "normal fall" pool level. Currently, the boat launch is operational throughout the primary recreation season (Memorial Day weekend to mid- to late September); however, it does not extend to the low water line. At low pool, the public identified and reported erosion from vehicle traffic and rutting. Extending the boat ramp will reduce the potential for impacts to water quality that currently exist at Philbrook Reservoir. To avoid or reduce the water quality impacts from the construction of the extension, Condition 27 requires the development of a Philbrook Reservoir Boat Launch Construction Plan consistent with the 4(e) conditions. Condition 27 will ensure that construction of the boat ramp extension does not cause discharges in violation of water quality standards.

4.28 Philbrook Reservoir Instream Flow Releases

Maintaining low water temperature in Butte Creek is important for the protection of SR Chinook and steelhead. Swift adjustments to instream flow releases in response to heat-related events are critical to manage water operations in the Project and protect the cold freshwater beneficial uses. Condition 28 requires the Licensee to diligently adjust the instream flow releases. The requirements contained in Condition 28 will allow the State Water Board to confirm compliance with flow requirements and ensure protection of the cold freshwater beneficial use.

5.0 California Environmental Quality Act

The State Water Board is the lead agency under CEQA in connection with the proceeding to issue WQC for the Project. (Pub. Resources Code, §§ 21000-21177.) On April 12, 2013, 2013, the State Water Board provided, for public comment, a draft WQC, and an Initial Study and Notice of Intent to Adopt a Mitigated Negative Declaration (MND) (SCH # _____) for the Project. The MND and Initial Study, together with the CEQA findings and Mitigation Monitoring and Reporting Program contained in Attachment A of this WQC, reflect the State Water Board's independent judgment and analysis. The documents or other material, which constitute the record, are located at the State Water Board, Division of Water Rights, 1001 I Street, Sacramento, California. State Water Board staff will file a Notice of Determination within five days of the issuance of this WQC.

ACCORDINGLY, BASED ON ITS INDEPENDENT REVIEW OF THE RECORD, THE STATE WATER RESOURCES CONTROL BOARD CERTIFIES THAT THE OPERATION OF THE DESABLA-CENTERVILLE HYDROELECTRIC PROJECT BY PACIFIC GAS AND ELECTRIC COMPANY UNDER A LICENSE ISSUED BY THE FEDERAL ENERGY REGULATORY COMMISSION AS DESCRIBED IN THE APPLICATION FOR WQC, will comply with sections 301, 302, 303, 306 and 307 of the Clean Water Act, and with applicable provisions of state law, provided PG&E complies with the following terms and conditions:

Condition 1. Minimum Instream Flows

A. Butte Creek

Upon license issuance, the Licensee shall commence release of the minimum flows specified in Tables 1 and 2 by ramping up 10 cfs per day until the target cfs is reached. Upon license issuance and prior to operation of the DeSabla Forebay water temperature reduction device (required in Condition 9) the Licensee shall operate the Project according to FERC 1997 Order (FERC 1997) and FERC 1998 amended Order (FERC 1998) [4], in conjunction with the Long-Term and Annual Operations and Maintenance Plans.

One full calendar year after initial operation of the DeSabla Forebay water temperature reduction device (Condition 9), the Licensee shall cease diverting water into the Lower Centerville Canal at the Lower Centerville Diversion Dam, thereby allowing full flow of water below Lower Centerville Diversion Dam into Butte Creek. The cessation of diversions at the Lower Centerville Diversion Dam is referred to in this document as the release of full flows into Butte Creek (i.e., no flow diverted into the Lower Centerville Canal, and consequently no flows into the bypass reach or the Centerville Powerhouse). Diversion at Lower Centerville Diversion Dam may be reinstated as shown in Table 1 for Lower Centerville Diversion Dam upon approval by the Deputy Director, following a request by the Licensee or a resource agency that provides substantial evidence demonstrating the need to reinstate diversions into Lower Centerville Canal.

The effects of the increased Butte Creek flows on temperature, anadromous fish and cold water habitat shall be monitored in accordance with Conditions 10, 16, and 17. If substantial evidence (as determined by the monitoring required in Conditions 10, 16 and 17 and consultation with agencies) demonstrates that the cessation of diversion into the Lower Centerville Canal at the Lower Centerville Diversion Dam is having adverse effects on the cold freshwater beneficial use in Butte Creek below the Lower Centerville Diversion Dam, the Licensee or a resource agency may submit a request to the Deputy Director to resume the diversion into Lower Centerville Canal. The request shall include the basis for the requested change in flows and supporting data and information documenting the adverse effects on temperature, anadromous fish, and/or cold water habitat. If the Deputy Director requires the Licensee to resume flows into Lower Centerville Canal, the Licensee shall comply with FERC 1997 and FERC 1998, as well as the flows prescribed in Table 1.

[4] FERC 1997 and FERC 1998 refers to FERC's August 21, 1997 Order and FERC's August 20, 1998 amended Order, respectively.

Additionally, per Condition 26, five years after initiation of full flows below Lower Centerville Diversion Dam, the Licensee must develop a Centerville Development Long-Term Operations Plan (Centerville Plan) that addresses future actions to be taken regarding the Centerville Development. Those actions will depend, in part, upon whether or not diversions into Lower Centerville Canal have resumed at that time.

Table 1. Butte Creek Minimum Flows

Location	Minimum Instream Flow Requirement by Water Year* (in cfs)		Time Period
	Normal	Dry	
Butte Creek Diversion Dam (into Butte Creek)	30	20	March 1-May 31
	16	10	June 1-February 28/29
Lower Centerville Diversion Dam (into Butte Creek)**	100		September 1-March 14
	80		March 15-May 31
	40		June 1-August 31
Lower Centerville Diversion Dam (into Butte Creek)**		75	September 1-April 30
		65	May 1-May 31
		40	June 1-August 31
Inskip Creek	0.25	0.20	Year-round
Kelsey Creek	0.25	0.20	Year-round
Clear Creek	0.5	0.25	Year-round
Helltown Ravine Creek	1.0	0.5	Year-round

* Water year types defined per Condition 2.
** One year following completion and operation of the DeSabla Forebay temperature reduction device, diversion at Lower Centerville Diversion Dam into Lower Centerville Canal shall cease. Diversion at Lower Centerville Diversion Dam may be reinstated upon approval by the Deputy Director, following a request by the Licensee or a resource agency that provides substantial evidence demonstrating the need to reinstate diversions into Lower Centerville Canal.

B. Lower West Branch Feather River below Hendricks Diversion Dam

Within 90 days of license issuance, the Licensee shall release water from Hendricks Diversion Dam sufficient to maintain the minimum mean daily flows in the lower West Branch Feather River below Hendricks Diversion Dam specified in Table 2, as measured at United States Geological Survey (USGS) gage 11405200.

Table 2. Lower West Branch Feather River Minimum Flows

Lower West Branch Feather River Reach	Mean Daily Flow (cfs) by Water Year	
Month	Normal*	Dry*
September	15	7
October	15	7
November	15	7
December	15	7
January	15	7
February	15	7
March	15	15
April	15	15
May	15	15
June	15	15
July	15	15
August	15	15
* Water year types defined per Condition 2.		

The Deputy Director may increase minimum mean daily flows in Table 2 if the design, testing of the fish ladder required in Condition 12 demonstrates that higher flows than listed in Table 2 are required for the attraction and passage of fish over Hendricks Diversion Dam.

Table 2 flows may be increased by the Deputy Director following a recommendation from the Licensee or a resource agency and submission of study data and analysis of the relationship of flow releases at Hendricks Diversion Dam and water temperature in Butte Creek, as required in Condition 10. The analysis shall include new stream flow recommendations below Hendricks Diversion Dam, developed in consultation with the Agencies. This recommendation shall include documentation of consultation with the Agencies, all comments and recommendations made by the Agencies, and a description of how the flow recommendation accommodates the Agencies comments and recommendations.

Within one year of license issuance, the Licensee shall submit a plan to the Deputy Director for approval, developed in consultation with the Agencies, to evaluate the migration corridor between the Hendricks Diversion Dam and Big Kimshew Creek. The Deputy Director may require modifications as part of the approval. The Plan may consider and recommend the installation of a stream habitat enhancement structure, increased stream flows, or other measures for providing the year-round migration corridor in all water year types.

C. Upper West Branch Feather River Reach (Downstream of Round Valley Dam)

The Licensee shall release mean daily flows of 0.5 cfs in normal water year types and 0.1 cfs in dry water year types year-round to the Upper West Branch Feather River reach as measured at USGS gage 11405100. The water year type shall be determined in accordance with Condition 2.

D. Philbrook Creek (below Philbrook Dam to confluence with West Branch Feather River)

The Licensee shall release mean daily flows of 2 cfs year round to Philbrook Creek below Philbrook Dam, as measured at the new gage(s) described in Condition 3. When instantaneous inflows to Philbrook Reservoir are less than 0.5 cfs, the mean daily flow shall be 1 cfs.

In years when the snow water equivalent at the Humbug snow pillow sensor (HMB #823) is at least 40 inches on April 1, minimum instream flow releases to Philbrook Creek below Philbrook Dam shall be 10 cfs between April 1 and May 15. If the Licensee determines that Philbrook Reservoir will not fill to capacity between April 1 and May 15, despite the snow pack conditions, instream flow releases may be altered or reduced to 2 cfs following notification and acknowledgment of receipt of notification by the Deputy Director.

E. Hendricks Canal Feeder Creeks

The Licensee shall install three pipes in the Hendricks/Toadtown Canal to deliver instream flows into Long Ravine, Cunningham Ravine, and Little West Fork Creek past the Hendricks-Toadtown Canal. Each pipe shall have a minimum inside diameter of four inches and be installed such that the bottom of the pipe is within six inches of the bottom of the canal. The Licensee shall ensure the pipes remain operational and free of debris.

F. Helltown Ravine

If diversion continues from Lower Centerville Diversion Dam into Lower Centerville Canal (see Condition 1A), the Licensee shall release 1 cfs during normal water years and 0.5 cfs during dry water years from the Lower Centerville Canal to Helltown Ravine. The water year type shall be determined in accordance with Condition 2.

G. Temporary Stream flow Modification

The minimum instream flow requirements (outlined in Condition 1) are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an event that is reasonably out of the control of the Licensee and requires 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, malfunction or failure of Project works, and recreation accidents. When possible the Licensee shall notify the Deputy Director prior to any temporary stream flow modification. In all instances, the Licensee shall notify the Deputy Director within 24 hours of any temporary stream flow modification.

Condition 2. Water Year Type

The Licensee shall determine the water year type based on the forecast of unimpaired runoff of the Feather River at Oroville for the period of April through July as provided by the DWR Bulletin 120 report of water conditions in California. Each February, March, April, and May, the Licensee shall determine the water year type based on the DWR Bulletin 120 forecast for the period of April through July and shall operate for that month based on that forecast. The May

forecast shall be used to establish the water year type for the remaining months until the next February, when forecasting begins again. Minimum instream flows triggered by the water year type will be implemented within two business days (Monday through Friday) following DWR's posting of the official Bulletin 120 forecast. The Licensee shall provide notice to the Deputy Director of the final water year type determination within 30 days of making the determination. The water year types are defined as follows:

1) Dry: Fifty percent or less of the average April through July unimpaired runoff of the Feather River at Oroville; and

2) Normal: Greater than fifty percent of the average April through July unimpaired runoff of the Feather River at Oroville.

If, during a designated dry year, the February 1 or later water year forecast indicates that dry year conditions no longer prevail, the Licensee shall resume normal year flow releases immediately upon this determination. If during a designated normal year the February 1 or later water year forecast indicates that normal year conditions no longer prevail, the Licensee may apply dry year flow releases immediately upon this determination.

As used in the EA for the Project, "normal" means a water year type other than dry or critically dry. "dry" includes both dry and critically dry.

Multiple Dry Water Years

The Licensee may seek approval for a revised operational plan in the event of multiple consecutive dry years. By March 15 of the second or more consecutive dry water year, the Licensee shall notify the Deputy Director of any drought concerns. After such notification, the Licensee may submit a revised Operational Plan to the Deputy Director for approval after consultation with the Agencies. The Deputy Director may require modifications as part of the approval.

Condition 3. Stream and Reservoir Gaging

The Licensee shall operate and maintain the existing PG&E gages identified in the attached Table 3 (Table B2.6-1 of the license application, see below). The Licensee shall maintain and operate USGS gages 11390000 and 11405300 if the USGS stops maintenance and operation of these gages. The Licensee shall install and initiate operation of the new and modified gates listed below within two years of license issuance and in conformance with the Deputy Director-approved Stream and Reservoir Gaging Plan.

1) Construct, operate, and maintain, real-time flow gages below the confluence of both the low-level release and the spill channel on Philbrook Creek and upstream of the Butte Creek Diversion Dam;

2) Modify the existing stream gages downstream of Hendricks Diversion Dam on the West Branch Feather River and near Lower Centerville Diversion Dam for real-time access; and

3) Install a real-time reservoir elevation gage in Philbrook Reservoir.

Within one year of license issuance, the Licensee shall file a Stream and Reservoir Gaging Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. The Plan shall include plans for the new and modified gages listed above and real-time streamflow and reservoir level information that is available to the public year-round via a toll-free telephone number and internet, or other appropriate easily accessible technology. The Plan shall be developed in consultation with the Agencies.

All data recorded by the above-mentioned equipment shall comply with USGS standards and record flows at a frequency of no greater than 15-minute intervals. The Licensee shall measure and document all instream flow releases in readily accessible formats.

Flow data collected by the Licensee from the stream gages will be reviewed by the Licensee's hydrographers as part of its quality assurance/quality control (QA/QC) protocol. Within 60 days of the last data recordation for the year and upon completion of the QA/QC process, the raw and reviewed data shall be catalogued and made available to USGS in annual hydrology summary reports. Then the USGS may complete its review of the data and publish and post the data within the USGS electronic database that can be accessed via the Internet. The Licensee shall provide notice to State Water Board staff when the data are submitted to USGS. At the request of State Water Board staff, the Licensee shall provide the flow values (generally 15-minute recordings) used to construct the 24-hour average flows.

Condition 4. Philbrook Reservoir Temperature Monitoring

Within one year of license issuance, the Licensee shall file a plan with the Deputy Director for approval, to construct, operate, and maintain, real-time water temperature monitoring in Philbrook Reservoir. The Deputy Director may require modifications as part of the approval. The water-temperature monitoring equipment must be constructed and in operation within two years of license issuance. The Plan shall be developed in consultation with the Agencies, and must include the location of the gage in the Philbrook Reservoir, recording frequency, and method and frequency of data reporting. Upon Deputy Director approval of the Philbrook Reservoir Temperature Monitoring Plan, the Plan and its associated implementation shall become a condition of this WQC.

Condition 5. Feeder Creek Diversion Removal

Within one year of license issuance, the Licensee shall file a Feeder Creek Diversion Facility Removal Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. This Plan shall include schedules, site plans, and mitigation measures for the removal of feeder diversion facilities on Stevens Creek, Oro Fina Ravine, Emma Ravine, Coal Claim Ravine, and Little Butte Creek. The Plan shall identify all necessary permits and permissions needed for implementation and include methods to protect water quality during construction. The Licensee shall develop the Plan after consultation with the Agencies. Upon Deputy Director approval of the Feeder Creek Diversion Removal Plan, the Plan and its implementation shall become a condition of this WQC.

Pacific Gas and Electric Company
DeSabla-Centerville Project
FERC Project No. 803

Table B2.6-1. PG&E and USGS Gaging Stations.

	Watershed	PG&E ID	USGS No.	Station Name	USGS Period (WY)	PG&E Period (WY)	Status
1	Butte	BW97	11389720	Butte Creek below Butte Creek Diversion Dam near Stirling City CA	86 - 04	86 - 05	--
2	Butte	BW13	---	Butte Creek Diversion Dam Spill (estimated)	--	87 - 05	--
3	Butte	BW14	---	Butte Canal at Butte Head Dam	--	70 - 05	--
4	Butte	BW15	---	Butte Canal above Toadtown Canal	--	70 - 05	--
5	Butte	BW82	11389750	DeSabla Powerhouse near Paradise CA	80 - 04	75 - 05	--
7	Butte	BW98	11389780	Butte Creek below Centerville Diversion Dam	86 - 04	86 - 05	--
8	Butte	BW19	---	Centerville Diversion Dam Spill (estimated)	86 - 04	87 - 05	--
9	Butte	BW20	---	Centerville Canal near Diversion Dam	--	70 - 05	--
10	Butte	BW22	---	Centerville Canal near Forebay	--	70 - 05	--
11	Butte	BW80	11389775	Centerville Powerhouse near Paradise CA	80 - 04	75 - 05	--
12	Butte	---	11390000	Butte Creek near Chico CA	30 - 04	--	--
13	WBFR	BW1	11405075	Snag Lake (Round Valley Reservoir) near Jonesville CA	--	80 - 05	--
14	WBFR	BW45	11405085	West Branch Feather River below Snag Lake near Jonesville CA	93 - 03	86 - 05	--
15	WBFR	BW2	11405100	Philbrook Reservoir near Butte Meadows CA	--	80 - 05	--
16	WBFR	BW3	11405120	Philbrook Creek below Philbrook Reservoir near Butte Meadows CA	89 - 04	86 - 05	--
17	WBFR	BW95	11405200	West Branch Feather River below Hendricks Diversion Dam	86 - 04	86 - 05	Site moved
18	WBFR	BW7	---	Hendricks Diversion Dam Spill (estimated)	--	86 - 05	--
19	WBFR	BW8	---	Hendricks Canal at Head Dam	--	70 - 05	--
20	WBFR	BW96	11405220	Long Ravine below Diversion Dam near Stirling City CA	96 - 03	86 - 05	--
21	WBFR	BW12	11389800	Toadtown Canal above Butte Canal near Stirling City CA	84 - 04	70 - 05	--
22	WBFR	---	11405300	West Branch Feather River near Paradise CA	57 - 86	--	Discon.
23	WBFR	BW100	11389775	Toadtown Powerhouse	--	86 - 05	--
24	Combined	BW17	---	DeSabla Forebay	--	94 - 05	--
25	Combined	BW18	---	Upper Centerville Canal - release from DeSabla Forebay	--	70 - 05	--
26	WBFR	BW24	---	Upper Miocene Canal (Non-FERC License facility)	--	70 - 05	--
27	WBFR	BW23	---	WBFR below Miocene Diversion (Non-FERC License facility)	--	76 - 05	--

Table 3. Existing PG&E Gages
(Sources PG&E License Application

Condition 6. Canal and Powerhouse Operation Water Quality Monitoring

Within one year of license issuance, the Licensee shall file a Canal and Powerhouse Operation Water Quality Monitoring Plan (Water Quality Monitoring Plan) with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval.

At a minimum, the Water Quality Monitoring Plan shall include:

1) A statement of the goals and objectives;

2) A list of all canal spill channels or siphons and reservoir overflow channels, describe use of the facilities, and provide recommendations to avoid or reduce water quality impacts from the canals, spill channels, and changes in powerhouse operations;

3) Water quality monitoring prior to, during, and after taking the canals out of service, placing canals back into service, stopping or starting powerhouse generators, and responding to canal failures or spills; including monitoring in the receiving stream upstream and downstream of the canal discharge location, in spill channels, and powerhouse tailraces;

4) Monitoring parameters shall include water temperature, dissolved oxygen, and turbidity, with sampling at defined intervals;

5) QA/QC measures;

6) Monitoring protocol(s)for sampling and analyzing water for herbicides in receiving streams, during or immediately after scheduled herbicide treatments, and at the locations identified in the Annual Operations and Maintenance Plan (Condition 18);

7) Identification of the known locations of california red-legged frog, mountain yellow-legged frog, foothill yellow-legged frog, and yosemite toad;

8) A comprehensive description of drivers that will or may affect water quality. This description shall identify the drivers and whether each driver is external to or associated with the Project and its operation;

9) Details for installation and operation of turbidity monitors upstream of Centerville Powerhouse in the Lower Centerville Canal spill channel and downstream of the Centerville Powerhouse. Turbidity monitoring shall be on-going for the term of the license and any annual extensions. Turbidity data shall be recorded at a minimum of one-hour intervals. The results of the turbidity monitoring shall be provided to the Deputy Director annually by the end of January for the preceding year and to the Operations Group prior to the annual meeting (Condition 18);

10) Specific, measureable criteria to be used in combination with monitoring data and the list of drivers to objectively evaluate if the goals and objectives of the Water Quality Plan are being met or if the Project may be adversely affecting water quality, california red-legged frog, mountain yellow-legged frog, foothill yellow-legged frog, and yosemite toad; and

11) A broad plan for the development of corrective measures and a timetable for action in cases when the Plan's goals and objectives are not being achieved or data indicate the Project may be impacting water quality or wildlife.

Water quality sampling for herbicides, and surveys for california red-legged frog, mountain yellow-legged frog, foothill yellow-legged frog and yosemite toad shall be on-going and data shall be recorded and provided to the Deputy Director annually by the end of January for the preceding year and to participants at the annual meeting.

The Plan shall be developed in consultation with the Agencies and BLM. The Licensee shall include with the Plan documentation of agency consultation, copies of comments and recommendations made in connection with the Plan, and a description of how the Plan accommodates the comments and recommendations of the Agencies and BLM. The Licensee shall allow a minimum of 30 days for the Agencies and BLM to comment and make recommendations before filing the Plan with the Deputy Director. Upon Deputy Director approval of the Canal and Powerhouse Operation Water Quality Monitoring Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 7. Project Canal Maintenance, Inspection, and Hazard Prevention

Within 18 months of license issuance, the Licensee shall file a Project Canal Maintenance, Inspection, and Hazard Prevention Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. The Plan shall set forth in detail the Licensee's plan for regular maintenance and inspection of Project canals to address hazard trees and geologic hazards that may impact the integrity of Project water conveyances. The Plan shall propose specific prevention measures to ensure long-term integrity of the Project canal system. The Plan shall include, at a minimum, the following elements:

1) Annual inspections of the Project water conveyance system to identify potential short-term and long-term hazards (e.g. hazard trees, landslides, etc. as identified in relicensing studies) and to prioritize maintenance and/or mitigation;

2) Protocols for routine (non-emergency) canal operations and the use of canal spillways, including current Licensee standard operating procedures and any new procedures that may be developed, to minimize canal outages, sediment events, winter storm events, etc., that are not currently license requirements;

3) Stabilization measures to: (1) reduce the likelihood of catastrophic canal failure due to hazard trees and geologic hazards; and (2) mitigate, as appropriate, sources of chronic erosion and sediment transport into canals; and

4) Specific preventative measures to address geologic hazards identified in relicensing Study Plan 6.3.1-4 "Water Conveyance Geologic Hazards and Risk Assessment."

The Plan shall be developed in consultation with the Agencies and BLM. The Licensee shall include with the Plan, documentation of agency consultation, copies of comments and recommendations made in connection with the Plan, and a description of how the Plan accommodates the comments and recommendations of the Agencies and BLM. The Licensee shall allow a minimum of 30 days for the Agencies and BLM to comment and to make

recommendations before filing the Plan with the Deputy Director. State Water Board staff may request any maintenance, inspection, hazard reports or other documentation related to implementation of Plan. Upon Deputy Director approval of the Project Canal Maintenance, Inspection, and Hazard Prevention Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 8. Project Operations Ramping Rates

Within one year of license issuance, the Licensee shall implement the *Instream Flow – Ramping Rate Study* described in USFS 4(e) Condition 18, Part 5. A draft Instream Flow-Ramping Rate Study Report (Draft Report) that summarizes the study must be submitted to the Deputy Director within six months following completion of the field study. The Licensee must discuss the study results with staff from the Agencies at the annual consultation meeting required in Condition 18, after which the Agencies will have 60 days to comment on the Draft Report. Within 60 days of the end of the comment period, using information from the Draft Report, the Licensee shall file a proposed Project Operations Ramping Rate Plan with the Deputy Director for approval. The Plan shall include: methodologies for determining the relationship between Project operations at the diversion dams (Butte Creek and Lower Centerville); downstream water velocities at specified locations; operations effects at the specified locations; and how compliance with ramping rates will be achieved. The Deputy Director may require modifications as part of the approval. The Licensee shall include with the Plan, copies of comments and recommendations, and a description of how the plan accommodates the comments and recommendations of the Agencies. Upon Deputy Director approval of the Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 9. DeSabla Forebay Water Temperature Improvements

Within two years of license issuance, the Licensee shall file a DeSabla Forebay Water Temperature Improvement Plan (Temperature Improvement Plan) with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. The Temperature Improvement Plan shall address construction and modeling as described below.

Construction: The Temperature Improvement Plan shall provide the timeline and describe the construction, to be completed within four years of license issuance, of a temperature reduction device to reduce thermal loading of water passing through the DeSabla Forebay. At a minimum, the Temperature Improvement Plan shall include:

1) A detailed design of the proposed facility and a permitting and construction schedule for the new facility. Any design or map shall include a legend and scale;

2) Measures to minimize negative impacts to water quality within the forebay during construction and operation; and

3) A description of how the Project will be operated to continue to provide cold water to lower Butte Creek during construction and when the Butte canal or pipeline is in or out of service.

The Temperature Improvement Plan shall also contain a provision for continued diversions to Upper Centerville Canal during construction.

Model CE-QUAL-W2 Validation, and Validated Model CE-QUAL-W2 Application:

A. Validation

The Temperature Improvement Plan Model Validation shall include and rely upon temperature data (using, at a minimum, data collected in Condition 10), collected for one calendar year after completion of the water temperature reduction device at DeSabla Forebay, to compare and confirm that the water temperature reductions in Butte Creek predicted by the CE-QUAL-W2 water temperature model are achieved. The Plan shall also include the collection and/or use of meteorological data necessary for model calibration. The Licensee shall submit a report on the water temperature reduction and validation of the water temperature model to the Deputy Director by April 1 of the year following data collection.

B. Application

The Plan shall include and rely upon:

1) One year of data collection (after completion of the water temperature reduction device at DeSabla Forebay) including meteorological data, water temperature data (using, at a minimum, data collected in Condition 10), and flow data necessary to support rerunning the CE-QUAL-W2 temperature model from DeSabla Forebay to below Centerville Powerhouse ; and

2) A model run that will compare the predicted versus modeled temperature reductions in DeSabla Forebay and in Butte Creek.

The Licensee shall submit a report on any water temperature reduction device or other temperature testing not listed in this WQC to Deputy Director by April 1 of the year following data collection.

The Licensee shall develop the Temperature Improvement Plan in consultation with the Agencies. The Licensee shall include with the Temperature Improvement Plan documentation of agency consultation, copies of comments and recommendations made in connection with the Temperature Improvement Plan, and a description of how the Plan accommodates the comments and recommendations of the Agencies. The Licensee shall allow a minimum of 30 days for the Agencies to comment and to make recommendations before filing the Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. Upon Deputy Director approval of the Temperature Improvement Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 10. Water Temperature Monitoring

Within one year of license issuance, the Licensee shall file a Water Temperature Monitoring Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. The Water Temperature Monitoring Plan shall include the methods and locations for monitoring water temperature in Project streams prior to, and for a period of 10 years after, construction and initiation of operation of the DeSabla Forebay water temperature reduction device. Water temperature monitoring locations shall include, but not be limited to: DeSabla Forebay; inflow to DeSabla Forebay; Butte Creek upstream of DeSabla

Powerhouse; Butte Creek at Lower Centerville Diversion Dam; Butte Creek at Pool 4; Butte Creek upstream of Centerville Powerhouse; Butte Creek downstream of Centerville Powerhouse; Butte Creek at the covered bridge; West Branch Feather River upstream of Hendricks Diversion Dam; and West Branch Feather River above the Miocene Diversion. The Water Temperature Monitoring Plan shall include information regarding how the Licensee will provide notice and make the data and annual report available online to the State Water Board and other interested parties that request notification. The Licensee shall design the Water Temperature Monitoring Plan to evaluate the relationship between water temperature in Butte Creek and flow releases to the West Branch Feather River below Hendricks Diversion Dam, after completion of the DeSabla Forebay water temperature reduction device. The Licensee shall allow a minimum of 30 days for the Agencies as well as California Sport Fishing Protection Alliance and Friends of Butte Creek (Conservation Groups) to comment and to make recommendations before filing the Water Temperature Monitoring Plan with the Deputy Director for approval. Upon filing the Water Temperature Monitoring Plan with the Deputy Director, the Licensee shall include documentation of agency consultation, copies of comments and recommendations made in connection with the Plan, and a description of how the Plan accommodates the comments and recommendations. The Deputy Director may require modifications as part of the approval. Upon Deputy Director approval of the Water Temperature Monitoring Plan, the Plan and its implementation shall become a condition of this WQC.

Using water temperature monitoring data gathered under the Plan, the Licensee, in consultation with the Agencies, shall develop and propose new stream flows below Hendricks Diversion Dam that will not adversely affect cold freshwater beneficial uses in Butte Creek. Following consultation with the Agencies and within five years of operation of the DeSabla Forebay Temperature Reduction Device, the Licensee shall develop and propose to the Deputy Director new minimum instream flow recommendations below Hendricks Diversion Dam. The Licensee shall provide the Deputy Director with any comments provided by the Agencies during the consultation process, as well as a description of how the recommended stream flows accommodate the Agencies comments. The Deputy Director may require modifications as part of the approval. Upon Deputy Director approval of any new stream flows, the new stream flows shall be filed with FERC and shall become a condition of this WQC.

Condition 11. Roving Operators

Upon license issuance, the Licensee shall provide roving operators to inspect and monitor the feeder creek diversion facilities on Helltown Ravine, Inskip, Clear, and Kelsey Creeks, and also the three pipes to be installed in Hendricks/Toadtown Canal (used to provide minimum instream flows to Long Ravine, Cunningham Ravine, and Little West Fork Creek), as specified by the USFS in modified 4(e) Condition 18. At a minimum, the Licensee shall inspect these diversion facilities and pipes on a weekly basis, weather dependent, to ensure the required minimum instream flows are being released downstream of each respective diversion.

Condition 12. Hendricks Diversion Fish Screen and Passage

Within one year of license issuance, the Licensee shall file a Hendricks Diversion Fish Screen and Passage Plan (Hendricks Fish Plan) for Deputy Director approval. The Deputy Director may require modifications as part of the approval. The Hendricks Fish Plan is a plan to

construct and operate a fish screen at the Hendricks Diversion Canal Intake, and a fish ladder at the Hendricks Diversion Dam. The Hendricks Fish Plan shall include:

1) A statement of the goals and objectives;

2) A description of the proposed monitoring and monitoring protocol(s);

3) A schedule for monitoring, maintenance, and reporting;

4) A comprehensive description of drivers that will or may affect the outcome of the fish ladder and fish screen. This description shall identify the drivers and whether each driver is external to or associated with the Project and its operation;

5) Specific, measureable criteria that will be used in combination with monitoring data and the comprehensive list of drivers to objectively evaluate if construction and operation of the fish screen and fish ladder are successful in meeting the goals and objectives of the Hendricks Fish Plan;

6) A plan for the development of corrective measures and a timetable for action in cases when the Hendricks Fish Plan's goals and objectives are not being achieved or data indicate the fish screen or fish ladder may be impacting water quality or wildlife;

7) Detailed design drawings for the facilities and a schedule for completion of installation within threef years of license issuance; and

8) A recommendation for the minimum flow required for operation of the fish ladder (to provide both attraction and passage). The fish screen shall be designed to comply with NMFS and CDFW fish screen criteria.

The Licensee shall prepare the Hendricks Fish Plan in consultation with the Agencies. The Licensee shall include with the Hendricks Fish Plan documentation of agency consultation, copies of comments and recommendations made in connection with the Plan, and a description of how the Plan accommodates the comments and recommendations of the Agencies. The Licensee shall allow a minimum of 30 days for the Agencies to comment and to make recommendations before filing the Hendricks Fish Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. Upon Deputy Director approval of the Hendricks Fish Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 13. Fish Rescue

Within one year of license issuance, the Licensee shall file a Fish Rescue Plan for rescuing fish from Lower Centerville and Butte Canals with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. The Fish Rescue Plan shall:

1) Provide for up to two fish rescue efforts annually;

2) Define activities that would trigger canal fish rescue efforts;

3) Provide for the prior notification and coordination with the USFWS, NMFS, CDFW, and USFS; and

4) Identify rescue methods to be implemented.

The Licensee shall prepare the Fish Rescue Plan in consultation with the Agencies. The Licensee shall include with the Fish Rescue Plan documentation of agency consultation, copies of comments and recommendations made in connection with the Plan, and a description of how the Plan accommodates the comments and recommendations of the Agencies. The Licensee shall allow a minimum of 30 days for the Agencies to comment and to make recommendations before filing the Fish Rescue Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. Upon Deputy Director approval of the Fish Rescue Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 14. Resident Fish Population Monitoring

Within two years of license issuance, the Licensee shall file a Resident Fish Population Monitoring Plan (Resident Fish Plan) with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. The Resident Fish Plan shall:

1) A statement of the goals and objectives;

2) A description of the proposed monitoring and monitoring protocol(s) consistent with those prescribed by the USFS in its modified 4(e) Condition 20;

3) A comprehensive description of drivers that will or may affect monitoring or resident fish populations. This description shall identify the drivers and whether each driver is external to or associated with the Project and its operation;

4) Specific, measureable criteria that will be used in combination with monitoring data and the comprehensive list of drivers to objectively evaluate if the plan's goals and objectives are being met or if the Project may be adversely affecting the resident fish population;

5) A detailed monitoring and reporting schedule. At a minimum, the schedule for monitoring shall include monitoring during the third year after the license issuance and every five years thereafter for the term of the license and any annual extensions; and

6) A plan for the development of corrective measures and a timetable for action in cases when the Plan's goals and objectives are not being achieved or data indicate the Project may be impacting water quality or wildlife.

At a minimum monitoring shall include:

1) Monitoring of fish species composition, relative abundance, size, age, distribution, health, and condition factors;

2) Physical measurements and observations of stream conditions shall be made at each sampling site;

3) Sampling at the following locations (not limited to): the West Branch Feather River below Philbrook Creek; West Branch Feather River upstream of Hendricks Diversion; West Branch Feather River downstream of Hendricks Diversion; Butte Creek upstream of Butte Dam; Butte Creek downstream of Butte Dam; and Butte Creek upstream of DeSabla Powerhouse; and

The monitoring schedule in the approved Resident Fish Plan may be modified upon request by the Licensee and subsequent approval by the Deputy Director. The Licensee may only request modification of the monitoring schedule after consultation with the Agencies. The Licensee shall allow a minimum of 30 days for the Agencies to comment and make recommendations before submitting the proposed monitoring schedule modifications to the Deputy Director for approval. The Licensee shall provide the Deputy Director with documentation of consultation with the Agencies, any comments provided by the Agencies during the consultation process, as well as a description of how the proposed monitoring schedule modifications accommodate the Agencies comments. The Deputy Director may require modifications as part of the approval.

The Resident Fish Plan shall be developed in consultation with the Agencies. The Licensee shall include with the Resident Fish Plan documentation of agency consultation, copies of comments and recommendations made in connection with the Plan, and a description of how the Plan accommodates the comments and recommendations of the Agencies. The Licensee shall allow a minimum of 30 days for the Agencies to comment and to make recommendations before filing the Resident Fish Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. Upon Deputy Director approval of the Resident Fish Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 15. Fish Stocking

The Licensee shall stock 8,000 pounds of trout annually in years in which CDFW stocks trout within the Project. Within one year of license issuance, the Licensee shall file the first annual Fish Stocking Plan (Stocking Plan) with the Deputy Director for approval. The first and all subsequent annual Stocking Plans shall be submitted to the Deputy Director for approval at least 60 days prior to stocking. The Deputy Director may require modifications as part of the approval. The Fish Stocking Plan shall be developed in consultation with CDFW and USFS and include an implementation schedule, type of fish species to be planted, the quantity of fish to be stocked, and the location. Locations may include DeSabla Forebay (or alternate nearby reservoir), Philbrook Reservoir, or other affected stream reaches. Upon Deputy Director approval of the Stocking Plan, the Plan and its implementation shall become a condition of this WQC. The Deputy Director may increase the quantity of fish that must be stocked or change the location(s) to be stocked based on results of the Recreational Fish Monitoring described in the Project's Environmental Assessment and upon the recommendation of CDFW and USFS after consultation with the Licensee.

Condition 16. Federally- and State-Listed Anadromous Fish Monitoring

Within one year of license issuance, the Licensee shall file a Federally- and State-Listed Anadromous Fish Monitoring Plan (Anadromous Fish Plan) with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. The Anadromous Fish Plan shall describe the annual monitoring for federally-and state-listed fish in

lower Butte Creek and ensure funding for CDFW to continue annual monitoring. The Anadromous Fish Plan shall at a minimum include:

1) A statement of the goals and objectives;

2) A description of the proposed monitoring and monitoring protocol(s);

3) A comprehensive description of drivers that will or may affect federally- or state-listed anadromous fish or the outcome of the monitoring. This description shall identify the drivers and whether each driver is external to or associated with the Project and its operation;

4) Specific, measureable criteria that will be used in combination with monitoring data and the comprehensive list of drivers to objectively evaluate if the goals and objectives of the Anadromous Fish Plan are being met or if the Project may be adversely affecting federally- and state-listed anadromous fish or their habitat;

5) A detailed monitoring and reporting schedule; and

6) A plan for the development of corrective measures and a timetable for action in cases when the Plan's goals and objectives are not being achieved or data indicate the Project may be impacting water quality or wildlife.

At a minimum monitoring shall include:

1) Annual snorkel surveys to monitor adult distribution and abundance, pre-spawn mortality surveys, and carcass surveys;

2) Juvenile emergence and outmigration monitoring; and

3) Monitoring and mapping the changes in adult SR Chinook and steelhead habitats (e.g., undercut banks, spawning gravel locations and quantity) as a result of a change in Project operation (e.g., minimum instream flows) downstream of the Lower Centerville Diversion Dam.

The Anadromous Fish Plan may also include monitoring and mapping the changes in juvenile SR Chinook and steelhead habitats, redd surveys, a video weir, fish trap and marking facility, tagging, or other methods to monitor fish.

The Licensee shall prepare the Anadromous Fish Plan in consultation with the NMFS, CDFW, USFWS, and the State Water Board. The Licensee shall include with the Anadromous Fish Plan documentation of agency consultation, copies of comments and recommendations made in connection with the Plan, and a description of how the Plan accommodates the comments and recommendations of NMFS, CDFW, USFWS, and the State Water Board. The Licensee shall allow a minimum of 30 days for NMFS, CDFW, USFWS, and the State Water Board to comment and to make recommendations before filing the Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. Upon Deputy Director approval of the Anadromous Fish Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 17. Spring Run Chinook Salmon Monitoring

Within two years of license issuance, the Licensee shall file a SR Chinook Monitoring Plan (SR Chinook Plan) with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. Development of the SR Chinook Plan should be coordinated with the Anadromous Fish Plan in Condition 16. The SR Chinook Plan shall identify the monitoring that will be conducted to observe and document the changes in SR Chinook that occur as a result of flow modifications below Lower Centerville Diversion Dam per Condition 1; and structural changes to DeSabla Forebay per Condition 9. At a minimum, the SR Chinook Plan shall include:

1) A statement of the goals and objectives;

2) A description of the proposed monitoring and monitoring protocol(s);

3) A comprehensive description of drivers that will or may affect SR Chinook or the outcome of the monitoring. This description shall identify the drivers and whether each driver is external to or associated with the Project and its operation;

4) Specific, measureable criteria that will be used in combination with monitoring data and the comprehensive list of drivers to objectively evaluate if the goals and objectives of the SR Chinook Plan are being met or if the Project may be adversely affecting SR Chinook;

5) A detailed monitoring and reporting schedule; and

6) A plan for the development of corrective measures and a timetable for action in cases when the Plan's goals and objectives are not being achieved or data indicate the Project may be impacting SR Chinook.

The SR Chinook Plan shall describe the methods and data that will be used to assess the following:

1) Change in the distribution and abundance of SR Chinook holding above and below Centerville Powerhouse;

2) Change in the observed summer mortality above and below Centerville Powerhouse when compared to natural attrition under current operations;

3) Change in the distribution and abundance of SR Chinook above and below Centerville Powerhouse as it relates to available spawning habitat;

4) Change in location of spawning as compared with historic data; and

5) Change in population over time relative to historic population trends.

The SR Chinook Plan shall be developed in consultation with NMFS, CDFW, USFWS, Conservation Groups, and the State Water Board. The Licensee shall include with the SR Chinook Plan documentation of agency and conservation group consultation, copies of comments and recommendations made in connection with the Plan, and a description of how the Plan accommodates the comments and recommendations of NMFS, CDFW, USFWS,

Conservation Groups, and the State Water Board. The Licensee shall allow a minimum of 30 days for NMFS, CDFW, USFWS, Conservation Groups, and the State Water Board to comment and to make recommendations before filing the SR Chinook Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. Upon Deputy Director approval of the SR Chinook Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 18. Long-Term and Annual Operations and Maintenance Plans, and Annual Meeting

Within one year of license issuance, the Licensee shall file a Long-Term Operations and Maintenance Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. The Long-Term Operations and Maintenance Plan shall serve as an overarching plan to guide the development of the Annual Operations and Maintenance Plans, incorporating current and historical monitoring data and data collected during the implementation of previous annual operations and maintenance plans. The objective of the Annual Operations and Maintenance Plans is optimization of cold water deliveries to Butte Creek and the protection of listed anadromous fish. The Annual Operation and Maintenance Plans will establish the protocol for operation of all Project facilities in both the Butte Creek and the West Branch Feather River watersheds, and identify the preferred schedule for maintenance of Project facilities for a given year. The Annual Operations and Maintenance Plans will also include planned hydropower operations, planned canal outages, maintenance and construction, and herbicide treatment (location and sampling).

The Long-Term Operation Plan shall include the Licensee's requirement to hold an annual meeting in April of each year. The Licensee shall provide notification of the meeting at least 30 days in advance, and the meeting shall be open to the public. During the annual meeting, the Licensee shall present the results of any monitoring conducted in the previous year, a summary of the past year's operation and maintenance activities, and the draft Annual Operations and Maintenance Plan for the next twelve months. By May 15, the Licensee shall post the final Annual Operations and Maintenance Plan on a publicly available web site and provide notice to the Agencies.

The Long-Term Operations and Maintenance Plan shall be prepared by the Licensee in consultation with the Agencies (defined in the USFS 4(e) conditions as the Operations Group). The Licensee shall include with the Long-Term Operations and Maintenance Plan documentation of agency consultation, copies of comments and recommendations made in connection with the Plan, and a description of how the Plan accommodates the comments and recommendations of the Agencies. The Licensee shall allow a minimum of 30 days for the Agencies to comment and to make recommendations before filing the Long-Term Operations and Maintenance Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. Upon Deputy Director approval of the Long-Term Operations and Maintenance Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 19. Benthic Macroinvertebrate Monitoring

Within 180 days of license issuance, and after consultation with the Agencies, the Licensee shall file a Benthic Macroinvertebrate Monitoring Plan (Macroinvertebrate Plan) with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. At a minimum, the Macroinvertebrate Plan shall include:

1) A statement of the goals and objectives;

2) A description of the proposed monitoring and monitoring protocol(s);

3) A comprehensive description of drivers that will or may affect benthic macroinvertebrates or the outcome of the monitoring. This description shall identify the drivers and whether each driver is external to or associated with the Project and its operation;

4) Specific, measureable criteria that will be used in combination with monitoring data and the comprehensive list of drivers to objectively evaluate if the goals and objectives are being met or if the Project is adversely affecting benthic macroinvertebrates;

5) A detailed monitoring and reporting schedule. At a minimum, monitoring shall be conducted during the third year of the license and every five years thereafter for the term of the license and any annual extensions consistent with Condition 14. An alternative schedule may be proposed for Deputy Director approval after consultation with State Water Board staff, CDFW, USFS, NMFS, and USFWS. The alternate schedule shall not be implemented until approved by the Deputy Director; and

6) A plan for the development of corrective measures and a timetable for action in cases when the Macroinvertebrate Plan's goals and objectives are not being achieved or data indicate the Project may be impacting benthic macroinvertebrates.

At a minimum monitoring shall include:

1) Monitoring sites should correspond to the fish sampling locations in Condition 14. Sites include, but are not limited to the West Branch Feather River below Philbrook Creek; West Branch Feather River upstream of Hendricks Diversion; West Branch Feather River downstream of Hendricks Diversion; Butte Creek upstream of Butte Dam; Butte Creek downstream of Butte Dam; and Butte Creek upstream of DeSabla Powerhouse. Based on agency consultation, additional sampling locations in Butte Creek upstream and downstream of Centerville Powerhouse may also be required.

The Licensee shall provide results of benthic macroinvertebrate monitoring to the Deputy Director in a technical report following completion of each sampling effort and at least 30 days prior to the annual meeting required in Condition 18. In addition to describing the results, the report shall compare the results with those of previous surveys. Upon Deputy Director approval of the Macroinvertebrate Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 20. Foothill Yellow-Legged Frog Monitoring

Within one year of license issuance, the Licensee shall file a Foothill Yellow-Legged Frog Monitoring Plan (Frog Plan) with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. The Frog Plan shall include monitoring the number of foothill yellow-legged frog egg masses, tadpoles and adults on the West Branch Feather River, Butte Creek, and associated tributaries. Monitoring shall be conducted no later than the first spring following approval of the Frog Plan by the Deputy Director. Monitoring egg masses, tadpoles, and adults will be required for the first four consecutive years of Frog Plan implementation (i.e., monitoring). Following the fourth consecutive year of monitoring, only egg mass data will be required at three-year intervals (i.e., starting Year 7 of monitoring). All monitoring in this Plan shall include monitoring water temperatures in the margins where eggs and tadpoles may be found. The Frog Plan at a shall include:

1) A statement of the goals and objectives;

2) A description of the proposed monitoring and monitoring protocol(s);

3) A comprehensive description of drivers that will or may affect foothill yellow-legged frogs or the outcome of the monitoring. This description shall identify the drivers and whether each driver is external to or associated with the Project and its operation;

4) Specific, measureable criteria that will be used in combination with monitoring data and the comprehensive list of drivers to objectively evaluate if the goals and objectives of the Frog Plan are being met or if the Project may be adversely affecting foothill yellow-legged frogs;

5) A detailed monitoring and reporting schedule; and

6) A plan for the development of corrective measures and a timetable for action in cases when the Plan's goals and objectives are not being achieved or data indicate the Project may be impacting foothill yellow-legged frogs.

Thirty-days from the end of the survey term, PG&E shall submit a monitoring report to the Agencies for a 30-day comment period. If it is found that any life stage of foothill yellow-Legged frog may be impacted, the monitoring report will include mitigation measures and the implementation schedule that PG&E will implement upon approval by the Deputy Director. The Deputy Director may require modifications as part of the approval. The mitigation measures and associated implementation shall become a condition of this WQC upon approval by the Deputy Director.

The Licensee shall prepare the Frog Plan in consultation with the Agencies. The Licensee shall include with the Frog Plan documentation of agency consultation, copies of comments and recommendations made in connection with the Plan, and a description of how the Plan accommodates the comments and recommendations of the Agencies. The Licensee shall allow a minimum of 30 days for the Agencies to comment and to make recommendations before filing the Frog Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. Upon Deputy Director approval of the Frog Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 21. Bald Eagle Monitoring and Nest Management

Within one year of license issuance, the Licensee shall file a Bald Eagle Monitoring and Nest Management Plan (Eagle Plan) with the Deputy Director for approval. The Eagle Plan shall:

1) Be consistent with the most current USFWS *National Bald Eagle Management Guidelines;*

2) A statement of the goals and objectives;

3) A description of the proposed monitoring and monitoring protocol(s);

4) A comprehensive description of drivers that will or may affect bald eagles or bald eagle nests. This description shall identify the drivers and whether each driver is external to or associated with the Project and its operation ;

5) Specific, measureable criteria that will be used in combination with monitoring data and the comprehensive list of drivers to objectively evaluate if the goals and objectives of the Eagle Plan are being met or the Project may be adversely affecting bald eagles and/or bald eagle nests;

6) A detailed monitoring and reporting schedule. At a minimum, reports shall be provided to the Deputy Director each year;

7) A plan for the development of corrective measures and a timetable for action in cases when the Plan's goals and objectives are not being achieved or data indicate the Project may be impacting bald eagles and/or bald eagle nests; and

8) Include documentation of any bald eagle or bald eagle nests discovered during monitoring as well as any incidental bald eagle or bald eagle nest observations.

At a minimum monitoring shall include:

1) One breeding and one wintering survey every three years beginning within three years of license issuance; and

2) Monitoring surveys within 30 days prior to any activity in the Project area listed or similar to the listed activities in the USFWS *National Bald Eagle Management Guidelines.*

Within 60 days of the conclusion of the monitoring cycle, the Licensee will submit the results of the monitoring data with a description of location of eagle(s) or nest(s), date(s) of discovery, timeframe(s) of monitoring and protective measure implementation. Monitoring reports shall also include recommendations for more frequent monitoring based on increased use of the Project area by eagles, changes in Project operation and management activities, information derived from other resource studies or the Agencies, and updates to be consistent with updates to the USFWS *National Bald Eagle Management Guidelines*.

If monitoring or incidental reports confirm the presence of a bald eagle(s) or bald eagle nest(s) in the Project area, protective measures must be implement prior to any Project-associated activity.

The Licensee shall prepare the Eagle Plan in consultation with the USFWS, USFS, CDFW, and the State Water Board. When submitting the Eagle Plan to the Deputy Director for review and approval, the Licensee shall include documentation of agency consultation, copies of comments and recommendations made in connection with the Plan, and a description of how the Plan accommodates the comments and recommendations of USFWS, USFS, CDFW, and the State Water Board. The Licensee shall allow a minimum of 30 days for the USFWS, USFS, CDFW, and the State Water Board to comment and to make recommendations before filing the Eagle Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. Upon Deputy Director approval of the Eagle Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 22. Round Valley Reservoir Plunge Pool Management

Within 10 months of license issuance, the Licensee shall submit a Round Valley Reservoir Plunge Pool Management Plan (Plunge Pool Plan) to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. The Plan shall provide a schedule and describe how the Licensee will:

1) Armor the Round Valley Reservoir plunge pool with riprap;

2) Block motorized vehicles from accessing the West Branch Feather River channel; and

3) Revegetate disturbed areas.

The Plan shall be developed in consultation with USFS, CDFW, and the State Water Board. The Plan shall include a list of necessary permits, and require the placement of warning signs to keep visitors away from the steep plunge pool slopes. The Plan shall include monitoring channel conditions every five years and providing a report during the annual consultation meeting required in Condition 18. The Licensee shall include the use of appropriate management practices and measures to protect water quality during construction. Upon Deputy Director approval of the Plunge Pool Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 23. Wildlife Protection Measures

Five years after license issuance and every five years thereafter, the Licensee shall file a summary wildlife mortality report with the Deputy Director, USFS, and CDFW by December 31, outlining any trends in wildlife mortality at Project canals, and a summary of the best available science wildlife protection measures. In the event of an increasing trend in wildlife mortalities, the Licensee shall include in the report, for Deputy Director approval, additional measures to minimize wildlife mortality, prepared after consultation with the USFWS, USFS and CDFW. The report shall include: comments and recommendations of USFWS, USFS and CDFW; modifications to or new wildlife protection measures the Licensee is proposing to implement; and a schedule for implementing the new or modified measures. The new or modified measures shall be implemented within one year of the Deputy Director approval of the new or modified measures. The wildlife protection measures required in USFS 4(e) Conditions 28 and 29 address the need for adequate wildlife bridge crossings and deer escape facilities; and recordkeeping to quantify wildlife mortality shall apply to all Project canals. The Deputy Director

may require modifications as part of the approval. Upon Deputy Director approval of the additional measures, the measures shall become a condition of this certification.

Condition 24. Wet Meadow

Within six months of license issuance, the Licensee shall submit a Wet Meadow Plan to the Deputy Director for approval. The Plan shall be developed in consultation with USFS, CDFW, and the State Water Board. The Plan shall include: a summary of all annual management and maintenance activities and associated costs available from 1986 to issuance of the new license; and a funding proposal to maintain the wet meadow habitat located within Butte Creek House for the term of the license and any annual extensions. The Plan shall be consistent with existing license revised Article 39 Section lll C, Items 4 through 8. The Licensee shall provide the Deputy Director with any comments provided by the Agencies during the consultation process, as well as a description of how the proposal addresses the Agencies' comments. The Deputy Director may require modification as part of the approval. Upon Deputy Director approval of the Wet Meadow Plan, the Plan and its implementation shall become a condition of this WQC. The approved Plan shall be filed with FERC.

Condition 25. Transportation System Management

Within one year following license issuance, the Licensee shall file a Transportation System Management Plan (Transportation Plan) with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. The Transportation Plan shall describe the protection of, and maintenance and construction on roads associated with the Project. The Transportation Plan shall include measures to rehabilitate existing damage and minimize erosion from Project roads, use of roads and maintenance or construction activities. At a minimum, the Transportation Plan shall include the following components:

1) Map/Inventory. Map and inventory roads associated with the Project, as follows:

   A. Develop a clear and legible map with a scale and topography using a geographic information system (GIS) that includes all roads associated with the Project, appurtenant facilities (e.g., gates, closures, associated infrastructure, etc.), and locations of drainage structures, locations of streams, surface water bodies, ephemeral and intermittent waters, wetlands, and equipment storage and service areas for equipment; and

   B. Develop a road inventory that includes: addressing uses (e.g., recreation, facility access, etc.) or non-use of the roads; condition surveys; associated facilities (e.g., culverts, gates, etc.); improvement needs; road closures; and safety, jurisdiction, and maintenance responsibilities.

2) Road Monitoring and Maintenance. At least annual monitoring and inspection of road conditions for Project roads, as well as inspection of drainage structures and runoff patterns after major storm events. Annual monitoring and maintenance reports shall be submitted to the Deputy Director and USFS, and shall identify any roads or drainage structures not meeting stipulated maintenance levels along with proposed measures comparable to the most current United States Department of Agriculture, Forest Service *National BMP's Road Management Activities* and a schedule for repair. Attachment B outlines inspection, planning, and maintenance and operation guidelines for the Project. Monitoring and

maintenance reports shall also include the condition of all drainage structures associated with Project roads.

3) Road Air Quality Monitoring. Monitor ing of air quality for compliance with particulate matter (PM)-10[5] requirements. Consultation with the local Air Quality Management District and USFS to implement specific PM-10 protocols to detect dust particulate matter levels along public access routes to recreation sites within the Project area and during construction activities. If PM-10 limits are exceeded, commence with consultation with the USFS, the local Air Quality Management District, and Butte County to develop and implement mitigation measures.

4) Road Construction. Develop a design for reconstruction of the North Fork Feather River road crossing, below Round Valley Reservoir to the Licensee's BW45 gage. The design shall include installation of an armored low-water crossing or ford-type structure with road approaches re-graded and rocked with 2-3 rolling dips on each side. If road gating is proposed, gating must be compatible with the USFS road management objectives utilized on USFS lands within the Project area. The design shall be submitted to the Deputy Director for approval and shall include, at a minimum, project activities, project schedule, and measures to be implemented to avoid and/or minimize impacts to the waters of the State, including preservation of habitats, revegetation of areas that are not occupied by a permanent features, erosion control measures and flow diversions, project activities, and project schedule. The Deputy Director may require modifications as part of the approval.

The Transportation Plan shall be developed by the Licensee in consultation with the State Water Board, Central Valley Regional Water Quality Control Board (Central Valley Water Board), BLM, and USFS. When submitting the Plan to the Deputy Director for review and approval, the Licensee shall include documentation of agency consultation, copies of comments and recommendations made in connection with the Plan, and a description of how the Plan accommodates the comments and recommendations of the State Water Board, Central Valley Water Board, BLM, and USFS. The Licensee shall allow a minimum of 30 days for the State Water Board, Central Valley Water Board, BLM, and USFS to comment and to make recommendations before filing the Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. Upon Deputy Director approval of the Plan, the Plan and its implementation shall become a condition of this WQC.

Condition 26. Long-Term Operations of Centerville Development

Five to 5.5 years after implementation of full flow into Butte Creek below the Lower Centerville Diversion Dam, the Licensee shall submit a Centerville Plan for the future operation or decommissioning of the Centerville Powerhouse and Development (if necessary). The Plan shall address the removal and/or stabilization of the Lower Centerville Diversion Dam, Lower Centerville Canal, spill channels, penstock, and the Centerville Powerhouse. The objective of the Plan is to prevent future water quality impacts from Project facilities and allow both upstream and downstream fish passage at Lower Centerville Diversion Dam. The Plan shall include:

[5] PM-10, as defined by the United States Environmental Protection Agency, refers to particles having a diameter greater than 2.5 and less than 10 micrometers.

1) A description of the measures to stabilize the Lower Centerville Canal and Centerville Powerhouse Penstock to prevent erosion and discharges to Butte Creek; and

2) A construction and removal schedule, a list of required permits, and a water quality protection plan that includes appropriate management practices.

The Deputy Director may require the Licensee to resume diversions into Lower Centerville Canal (Table 1). If so required, the Licensee shall provide a plan for Deputy Director approval within six months of the Deputy Director requirement to provide flows into Lower Centerville Canal. At a minimum, the Plan shall include:

1) A description of long-term operation and maintenance schedule for the Centerville Powerhouse through the life of the license and any annual extension, if the Licensee proposes to continue to operate Centerville Powerhouse;

2) A descriptions of measures that will be taken to exclude fish from entering the Lower Centerville Canal with the corresponding schedule for implementation;

3) A description of the measures to stabilize the Lower Centerville Canal spill channel, to prevent water quality impacts from the use of the spill channel;

4) A description of measures that will be implemented at Centerville Powerhouse Penstock to prevent erosion and discharges to Butte Creek; and

5) A construction schedule, list of required permits, and a water quality protection plan that includes appropriate management practices.

The Centerville Plan shall be developed by the Licensee in consultation with CDFW, USFWS, NMFS, and the State Water Board. The Licensee shall include with the Centerville Plan documentation of agency consultation, copies of comments and recommendations made in connection with the Centerville Plan, and a description of how the Plan accommodates the comments and recommendations of CDFW, USFWS, NMFS, and the State Water Board. The Licensee shall allow a minimum of 30 days for the CDFW, USFWS, NMFS, and the State Water Board to comment and to make recommendations before filing the Centerville Plan with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. Upon Deputy Director approval of the Centerville Plan, the Plan and implementation of the Plan shall become a condition of this WQC.

Condition 27. Philbrook Reservoir Boat Launch

Within one year of license issuance, the Licensee shall submit a Philbrook Reservoir Boat Launch Construction Plan to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. The Plan shall include, at a minimum: the design; list of required permits; erosion control measures; project activities and project schedule; and a water quality protection plan that includes appropriate management practices and measures to be implemented to avoid and/or minimize impacts to the waters of the State. Upon Deputy Director approval of the Plan, the Plan, implementation of the Plan, and associated water quality protection plan shall become a condition of this WQC.

Condition 28. Philbrook Reservoir Instream Flow Releases

The Licensee shall make any adjustments to the minimum instream flow release valve as quickly as possible, in response to heat-related events. In any case, these adjustments should be made in less than two hours. The Licensee shall submit a Philbrook Reservoir summary of valve adjustments report that includes response times every three years to the Deputy Director, by December 31. In the event that the Licensee fails to respond within two hours for any reason including unsafe conditions, the Licensee shall submit a report to the Deputy Director within 10 days of the incident. The report will include response time, reason for the delay in response, unsafe conditions and remediation to delay and/or unsafe conditions that will prevent a delay in response time in the future.

The following conditions also apply to this Project in order to protect water quality standards over the term of the Project's license and any annual extensions.

Condition 29. Control measures for erosion, excessive sedimentation and turbidity shall be implemented and in place at the commencement of and throughout any ground clearing activities, excavation, or any other Project activities that could result in erosion or sediment discharges to surface waters. Erosion control blankets, liners with berms, and/or other erosion control measures shall be used for any stockpile of excavated material to control runoff resulting from precipitation, and prevent material from contacting or entering surface waters.

Condition 30. Project activities shall not cause an increase in turbidity downstream of the Project area greater than those identified in the SR/SJR Basin Plan. Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses, and shall comply with the turbidity requirements defined in the SR/SJR Basin Plan. If monitoring shows that turbidity has exceeded the water quality objective, construction will cease and the violation will be reported immediately to the State Water Board's Deputy Director for the Division of Water Rights (Deputy Director) and the Executive Officer for the Central Valley Water Board (Executive Officer). Construction may not re-commence without the permission of the Deputy Director.

Condition 31. All imported riprap, rocks, and gravels used for construction shall be pre-washed. Wash water generated on-site shall not contact or enter surface waters. Wash water shall be contained and disposed of in compliance with state and local laws, ordinances, and regulations.

Condition 32. Construction material, debris, spoils, soil, silt, sand, bark, slash, sawdust, rubbish, steel, or other inorganic, organic, or earthen material, and any other substances from any Project related activity shall be prevented from entering surface waters. All construction debris and trash shall be contained and regularly removed from the work area to the staging area during construction activities. Upon completion, all Project-generated debris, building materials, excess material, waste, and trash shall be removed from all the Project sites for disposal at an authorized landfill or other disposal site in compliance with State and local laws, ordinances, and regulations.

Condition 33. No unset cement, concrete, grout, damaged concrete, concrete spoils, or wash water used to clean concrete surfaces shall contact or enter surface waters. Any area containing wet concrete shall be completely bermed and isolated. The berm shall be

constructed of sandbags or soil and shall be lined with plastic to prevent seepage. No leachate from truck or grout mixer cleaning stations shall percolate into Project area soils. Cleaning of concrete trucks or grout mixers shall be performed in such a manner that affected wash water and associated debris is captured, contained and disposed of in compliance with State and local laws, ordinances and regulations. Washout areas shall be of sufficient size to completely contain all liquid and waste concrete or grout generated during washout procedures. Hardened concrete or grout shall be disposed at an authorized landfill, in compliance with State and local laws, ordinances and regulations.

Condition 34. All equipment must be washed prior to transport to the Project site and must be free of sediment, debris, and foreign matter. Any equipment used in direct contact with surface water shall be steam cleaned prior to use. All equipment using gas, oil, hydraulic fluid, or other petroleum products shall be inspected for leaks prior to use and shall be monitored for leakage. Stationary equipment (e.g., motors, pumps, generator, etc.) shall be positioned over drip pans or other types of containment. Spill and containment equipment (e.g., oil spill booms, sorbent pads, etc.) shall be maintained onsite at all locations where such equipment is used or staged.

Condition 35. 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 36. Unless otherwise specified in this WQC or at the request of the Deputy Director, data and/or reports must be submitted electronically in a format accepted by the State Water Board to facilitate the incorporation of this information into public reports and the State Water Board's water quality database systems in compliance with California Water Code section 13167.

Condition 37. The State Water Board's approval authority includes the authority to withhold approval or to require modification of a proposal or plan prior to approval. The State Water Board may take enforcement action if the Applicant fails to provide or implement a required plan in a timely manner.

Condition 38. The State Water Board reserves the authority to add to or modify the conditions of this WQC to incorporate load allocations developed in a total maximum daily load developed by the State Water Board or the Central Valley Water Board.

Condition 39. The State Water Board reserves the authority to add to or modify the conditions of this WQC: (1) if monitoring results indicate that continued operation of the Project could violate water quality objectives or impair the beneficial uses of Butte Creek and the West Branch of the Feather River or tributaries to both waterways; (2) to coordinate the operations of this Project and other hydrologically connected water development projects, where coordination of operations is reasonably necessary to achieve water quality standards or protect beneficial uses of water; or (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 (Water Code, Division 7), or section 303 of the CWA.

Condition 40. Future changes in climate projected to occur during the license term may significantly alter the baseline assumptions used to develop the conditions of this certification. The State Water Board reserves authority to add to or modify the conditions in this certification

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

Condition 41. This WQC is contingent on compliance with all applicable requirements of the SR/SJR Basin Plan. The Licensee must notify the Deputy Director and Executive Officer within 24 hours of any unauthorized discharge to surface waters.

Condition 42. Notwithstanding any more specific conditions in this WQC, the Project shall be operated in a manner consistent with all water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the CWA. The Licensee must take all reasonable measures to protect the beneficial uses of waters of the Butte Creek and the West Branch of the Feather River and their tributaries.

Condition 43. This WQC does not authorize any act which results in the taking of a threatened, endangered or candidate species or any act, which is now prohibited, or becomes prohibited in the future, under either the California ESA (Fish & Game Code §§ 2050-2097) or the federal ESA (16 U.S.C. §§ 1531 - 1544). If a "take" will result from any act authorized under this WQC or water rights held by the Licensee, the Licensee must obtain authorization for the take prior to any construction or operation of the portion of the Project that may result in a take. The Licensee is responsible for meeting all requirements of the applicable ESAs for the Project authorized under this WQC.

Condition 44. In the event of any violation or threatened violation of the conditions of this WQC, the violation or threatened violation is subject to all remedies, penalties, process, or sanctions as provided for under applicable state or federal law. For the purposes of section 401(d) of the CWA, the applicability of any state law authorizing remedies, penalties, process, or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this WQC.

Condition 45. In response to a suspected violation of any condition of this WQC, the Deputy Director or the Executive Officer may require the holder of any federal permit or license subject to this WQC to furnish, under penalty of perjury, any technical or monitoring reports the Deputy Director 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 & 13383). The State Water Board may add to or modify the conditions of this WQC as appropriate to ensure compliance.

Condition 46. No construction shall commence until all necessary federal, state, and local approvals are obtained.

Condition 47. Any requirement in this WQC 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 48. The Licensee must submit any change to the Project, including changes in Project operation, technology, upgrades, or monitoring, which would have a significant or material effect on the findings, conclusions, or conditions of this WQC, to the State Water

Board for prior review and written approval. The State Water Board shall determine significance and may require consultation with state or federal agencies. If the State Water Board is not notified of a potentially significant change to the Project, it will be considered a violation of this WQC. If such a change would also require submission to FERC, the change must first be submitted and approved by the State Water Board, unless otherwise noted in this certification.

Condition 49. The Deputy Director and the Executive Officer shall be notified one week prior to the commencement of ground disturbing activities. Upon request, a construction schedule shall be provided to agency staff in order for staff to be present onsite to answer any public inquiries during construction and to document compliance with this WQC. The Licensee must provide State Water Board and Central Valley Water Board staff access to Project sites to document compliance with this WQC.

Condition 50. This WQC is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to California Water Code section 13330 and California Code of Regulations, title 23, division 3, chapter 28, article 6 (commencing with section 3867).

Condition 51. The State Water Board shall provide notice and an opportunity to be heard in exercising its authority to add to or modify the conditions of this WQC.

Condition 52. Notwithstanding any more specific conditions in this certification, the Licensee must comply with mitigation measures of the attached Mitigation Monitoring and Reporting Plan.

Condition 53. Activities associated with operation and maintenance of the Project that threaten or potentially threaten water quality shall be subject to further review by the Deputy Director and Executive Officer.

Condition 54. 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 55. This WQC 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 certification application was filed pursuant to California Code of Regulations, title 23, section 3855, subdivision (b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

Condition 56. This WQC is conditioned upon total payment of any fee required under California Code of Regulations, title 23, division 3, chapter 28.

Condition 57. A copy of this WQC shall be provided to any contractor and all subcontractors conducting Project-related work, and copies shall remain in their possession at the Project site. The Licensee shall be responsible for work conducted by its contractor, subcontractors, or other persons conducting Project-related work.

_____DRAFT_____
Thomas Howard
Executive Director

Dated:

Figures and Attachments

Figure 1: DeSabla-Centerville Hydroelectric Project Schematic

Attachment A: Mitigation Monitoring and Reporting Plan

Attachment B: Guidelines for Inspection, Planning, and Maintenance and Operations of Roads for DeSabla-Centerville Hydroelectric Project

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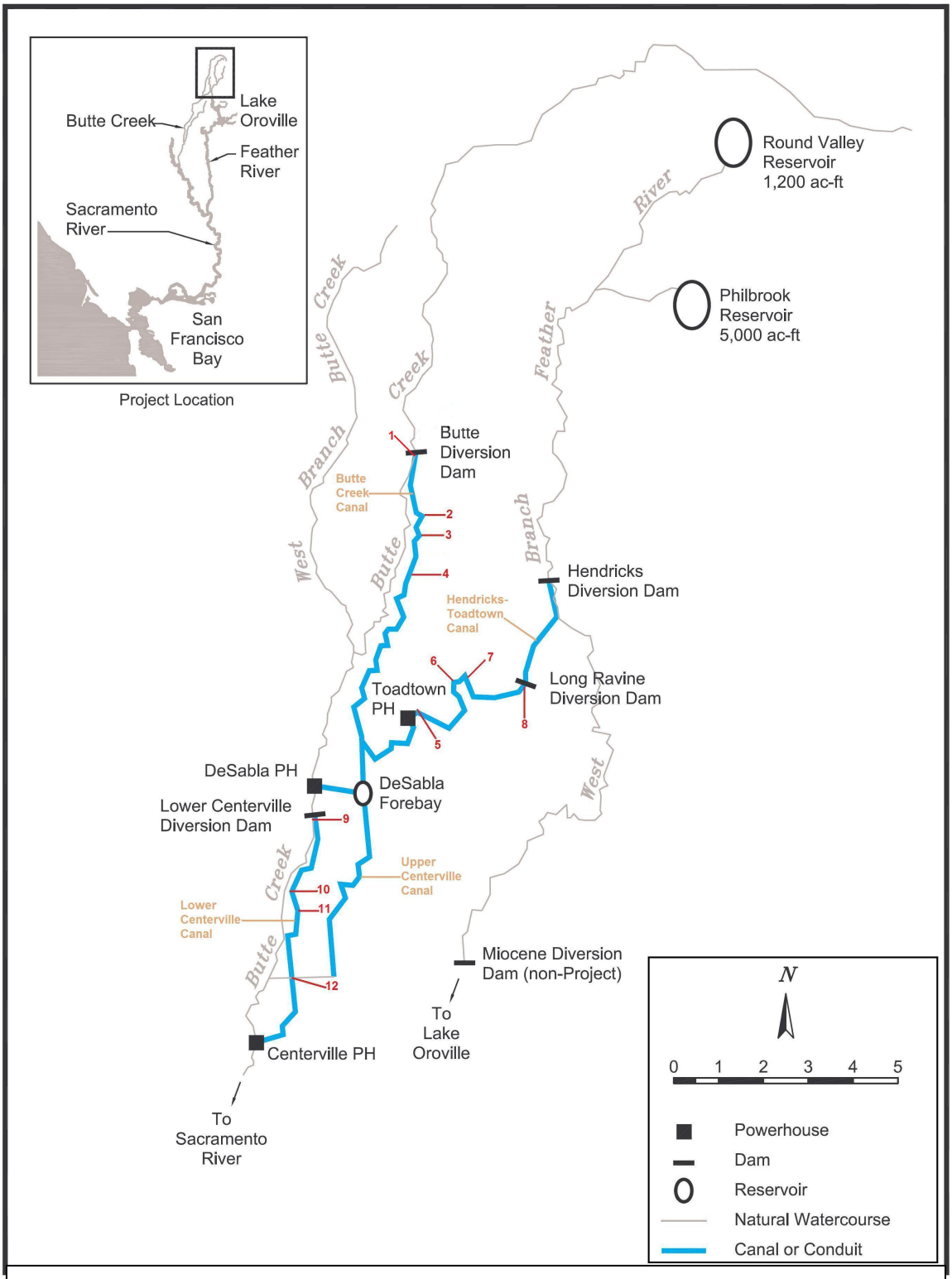

Figure 1: DeSabla-Centerville Hydroelectric Project Schematic

Notes: 1-Inskip Creek, 2-Kelsey Creek, 3-Stevens Creek, 4-Clear Creek, 5-Little Butte Creek,[3] 6-Little West Fork, 7-Cunningham Ravine, 8-Long Ravine, 9-Oro Fino Ravine, 10-Emma Ravine, 11-Coal Claim Ravine, 12-Helltown Ravine.

Figure 1-2. Locations of major project facilities. (Source: PG&E, as modified by staff)

DRAFT DESABLA-CENTERVILLE HYDROELECTRIC PROJECT
WATER QUALITY CERTIFICATION

Attachment A

California Environmental Quality Act
Mitigation Monitoring and Reporting Plan

DeSabla-Centerville Hydroelectric Project

State Water Resources Control Board

Draft released for public comment on April 12, 2013

Comments due by 12:00 PM (noon) on June 13, 2013 to:

Amber Villalobos
State Water Resources Control Board
Division of Water Rights
P.O. Box 2000
Sacramento, CA 98512-2000
or
by email to: avillalobos@waterboards.ca.gov

April 2013

The State Water Resources Control Board (State Water Board) is the California Environmental Quality Act (CEQA) (Cal. Pub. Resources Code section 21000 et seq.), lead agency for the DeSabla Centerville Hydroelectric Project (Project) relicensing. Under Public Resources Code section 21002.1, subdivision (d), the lead agency shall be responsible for considering the effects, both individual and collective, of all activities involved in a project. The State Water Board is charged with issuing water quality certification (WQC) for the relicensing of the Project. The State Water Board has prepared the CEQA findings and Mitigation Monitoring and Reporting Plan to address Project impacts that will have less than significant effects with mitigation incorporation, as identified in the Initial Study.

Mitigation Measure 1: Wetland Impacts from Ground Disturbance
The following Project elements could impact small areas of wetlands: installation of the temperature reduction device in the DeSabla Forebay; a new flow gage downstream of the Butte Creek diversion; installation of three pipes in the Hendricks-Toadtown Canal; armoring the Round Valley Reservoir plunge pool; construction of a fish screen and fish ladder at the Hendricks Diversion Dam; removal of five feeder creeks (Oro Fino Ravine, Emma Ravine, Coal Claim Ravine, Stevens, and Little Butte); and decommissioning the Centerville Development.

To prevent the loss of wetlands, delineation surveys, consistent with United States Army Corps of Engineers (ACOE) procedure, must be conducted prior to beginning construction. PG&E shall obtain a permit from the ACOE under section 404 of the Clean Water Act for federally designated wetlands, as well as the associated 401 WQC from the State Water Board. If the wetlands are not federally designated wetlands, PG&E shall submit a plan to the Deputy Director for the Division of Water Rights (Deputy Director) for approval. The Deputy Director may require modifications as part of the approval. The plan will: include project design(s); describe how PG&E will comply with current State requirements (e.g., policy, orders, or

regulations) pertaining to wetlands; describe management practices that minimize the discharge of sediment into waterways and water bodies; prioritize use of wildlife-friendly, best management practices (BMPs); and comply with the basin plan water quality objectives designed to protect the beneficial uses of waters within the watershed basin.

Implementation of Mitigation Measure 1 and compliance with Conditions 31, 33, 37, 40, 50, 52, and 54 of the WQC will reduce the impacts to a less-than-significant level.

Mitigation Measure 2: Water Quality Monitoring and Protection
Construction within the 100-year flood plain could result in the discharge of hazardous materials. The use of containment facilities, booms, and an environmental inspection program will prevent any significant release of hazardous materials from harming the aquatic environment. PG&E shall submit a water quality monitoring and protection plan to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. Construction shall not begin until the water quality monitoring and protection plan is approved by the Deputy Director. The water quality monitoring and protection plan shall include:

1) For activities that disturb more than one acre, documentation of compliance with: (1) the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, National Pollutant Discharge Elimination System (NPDES) No. CAS0000002, as amended by Order No. 2010-0014-DWQ) (Construction General Permit), and amendments thereto; and (2) submission of Permit Registration Documents prior to the commencement of construction activities.

2) A requirement for storage of equipment above the 100-year floodplain level.

3) Equipment used in contact with a water course will be steam cleaned prior to use and use soy-based hydraulic fluid when possible.

4) Any releases will be reported immediately to the Central Valley Regional Water Quality Control Board (Central Valley Water Board) and California Department of Fish and Wildlife (CDFW, formerly known as California Department of Fish and Game).

5) A Spill Containment and Counter Measures Plan may be required by the Central Valley Water Board or Butte County, in addition to filing a hazardous material business plan with Butte County.

6) Compliance with the best management practices (USFS 2012)[1] as they relate to erosion control measures.

Implementation of Mitigation Measure 2 and compliance with Conditions 33, 37, 40, 50, 54, and 55 of the WQC will reduce the impacts to a less-than-significant level.

Mitigation Measure 3: Construction of the DeSabla Forebay Water Temperature Reduction Device
The water temperature reduction device in the DeSabla Forebay will reduce water circulation and could cause a reduction in water quality. PG&E is required to release a minimum of 2 cubic feet per section (cfs) flow to the Upper Centerville Canal from its current release point in the forebay dam to be consistent with the Butte Creek water rights decree. A bypassed flow of at least 2 cfs would be released at the upstream end of the temperature reduction device, providing some circulation through the forebay and reducing the risk of stagnation in the forebay pool. The circulation through the forebay would be further enhanced by operating the forebay at a lower elevation during the time when the temperature reduction device is operating to reduce retention time in the reservoir.

Implementation of Mitigation Measure 3 and compliance with Condition 37 of the WQC will reduce the impacts to a less-than-significant level.

Mitigation Measure 4: Loss of Recreational Fishing Opportunities at DeSabla Forebay
Construction and operation of the DeSabla Forebay water temperature reduction device is expected to impact fishing opportunities in the forebay. In 2006, there were an estimated 2,868 users of the DeSabla Forebay. During the construction period, fishing access may be limited.

Operation of the temperature reduction device, used to reduce temperatures in Butte Creek downstream of DeSabla Forebay, may increase water temperature in the DeSabla Forebay, thereby reducing the habitat for planted trout. It is likely the temperature reduction device will only be operated during the warm summer months of June, July, and August, although this will be determined after testing. Displaced anglers could fish at the Philbrook Reservoir, Paradise Lake, or Lake Oroville. Fish could be stocked in DeSabla Forebay during the early spring period and fall period, or placed in another nearby location, such as Paradise Lake. PG&E shall submit a plan to the Deputy Director for approval within one year of license issuance, for stocking trout after construction of the DeSabla Forebay temperature reduction device. The Deputy Director may require modifications as part of the approval. The plan shall be developed in consultation with CDFW and shall provide for stocking trout in DeSabla Forebay or an alternate location. The plan should include posting public notification of the alternate stocking/fishing location (if required by CDFW).

Implementation of Mitigation Measure 4 and compliance with Condition 43 of the WQC will reduce the impacts to a less-than-significant level.

[1] United States Forest Service, 2012. National Best Management Practices for Water Quality Management on National Forest System Lands. U.S. Department of Agriculture, Forest Service. April 2012.

DRAFT DESABLA-CENTERVILLE HYDROELECTRIC PROJECT
WATER QUALITY CERTIFICATION

Attachment B

Guidelines for Inspection, Planning, and Maintenance and Operations of Roads for DeSabla-Centerville Hydroelectric Project

Inspection:

A. Prioritize inspections for roads at high risk of failure to reduce risk of diversions and cascading failures first, followed by road segments that are hydrologically connected to the stream network.

B. Inspect system travel routes to assess condition and linkage to water quality to assist in setting maintenance and improvement priorities. Restrict operations if any of the following is occurring: a threat of impact to water quality, or road damage such as surface displacement or rutting is occurring.

C. Inspect to ensure the road design is meeting current transportation and/or resource needs.

D. Inspect drainage structures and runoff patterns after major storm events and perform any necessary maintenance. Determine the extent of hydrologic connectivity during and/or just after major storm events, including the connectivity of disturbed areas directly adjacent to the road network.

Maintenance Planning:

A. Develop and implement annual maintenance plans that prioritize road maintenance work for the Project area. The annual plan shall: define maintenance timing; address timing of use restrictions (e.g., winter period, wet weather, or other); and address appropriate timing for any road decommissioning.

B. Upgrade maintenance requirements, as needed to reduce identified adverse environmental effects.

C. Identify additional road maintenance measures to protect and maintain water quality including: surfacing and resurfacing, outsloping, dips and cross drains, armoring of ditches, spot rocking, culvert replacement and installing new drainage features.

D. Identify diversion potential on roads and prioritize for treatment.

E. Develop proper designs and ensure adequate maintenance.

F. Ensure that drainage features are fully functional before the start of the winter season prior to October 16th or before the start of runoff-inducing precipitation events.

Attachment B

Guidelines for Inspection, Planning, and Maintenance and Operations of Roads for DeSabla-Centerville Hydroelectric Project

Maintenance and Operation Activities:

A. Maintain road surfaces to dissipate intercepted water in a uniform manner along the road by outsloping with rolling dips, insloping with drains or crowning with drains. Where feasible and consistent with protecting public safety, use outsloping and rolling the grade (i.e., rolling dips) as the primary drainage technique. When roads are insloped, use sufficient drainage structures to minimize runoff to inside ditches.

B. Remove or minimize sidecast of construction, maintenance or operation generated debris. Use potential sidecast or other waste materials on the road surface where feasible. Sidecasting is not permitted within the streamside management zone. Particular care shall be taken near streams and channel crossings. Prevent excavated materials from entering waterbodies or riparian areas.

C. Dispose of unusable waste materials in designated disposal sites. Provide adequate surface drainage and erosion protection at disposal sites.

D. Place new drainage structures to minimize hydrologic connectivity by: discharging road runoff to areas of high infiltration and high surface roughness; rock armoring drainage facility outlets to prevent gully initiation; and increasing the number of drainage facilities per unit length of road as distance to stream decreases.

E. Clean ditches and drainage structure inlets as needed to keep them functioning, avoiding creation of inlet pools where debris can be trapped and block structure inlets. Prevent unnecessary or excessive vegetation disturbance and removal on features such as swales, ditches, shoulders, and cut and fill slopes. Immediately clean out, repair or reconstruct waterbars, inside ditches, culverts, and other features that are not functioning.

F. Minimize diversion potential through installation of diversion prevention dips (DPDs) that can accommodate overtopping runoff. Place DPDs downslope of crossing, rather than directly over the crossing fill, and in a location that minimizes fill loss in the event of overtopping. Armor DPDs when the expected volume of fill loss is significant.

G. Address risk and consequence of future failure at the site when repairing road failures. Use vegetation, rock and other native materials to help stabilize failure zones. Ensure that rock sources are not contaminated by mercury (e.g., do not use historic mine tailings).

H. Maintain road surface drainage by removing berms unless specifically designated. Where berms and through-cuts have been created, lead-outs shall be installed, where feasible, to minimize concentrated flow and allow road drainage from waterbars or other structures.

Attachment B

Guidelines for Inspection, Planning, and Maintenance and Operations of Roads for DeSabla-Centerville Hydroelectric Project

I. Do not undercut the toe of the cut slope when grading roads or cleaning drainage structure inlets and ditches.

J. Grade road surfaces only as often as necessary to maintain a stable running surface and adequate surface drainage. Avoid grading of hydrologically connected road surfaces and inside ditches unless to maintain functional drainage along the road.

K. Conduct plowing according to USFS snow plowing and snow removal procedures.

L. Disconnect road sediment sources to watercourses and incorporate erosion control measures through the use of rolling dips, waterbars or other type of cross-drain, filter strips, etc. Increase frequency of cross drains, and/or rolling dips, if needed.

M. Realign existing routes that pose risks to water quality.

N. Treat potential erosion or mass wasting sites (e.g., removal of fill, erosion control implementation, etc.).

O. Strengthen the road base if roads are tending to rut.

P. Upgrade surfacing, particularly for roads used during the winter period (i.e., November 16 through March 31), or as necessitated by increasing use trends, and for resource protection needs.

   a. Remove ineffective temporary culverts, culvert plugs, diversion dams, or elevated stream crossings, leaving a channel at least as wide as before construction and as close to the original grade as possible.

   b. Install temporary culverts, side drains, cross drains, diversion ditches, energy dissipaters, dips, sediment basins, berms, dikes, debris racks, pipe risers or other facilities needed to control erosion.

   c. Remove debris, obstructions and spoil material from channels, floodplains, and riparian areas.

   d. Plant vegetation, mulch, or provide other protective cover for exposed soil surfaces.

   e. Keep erosion control measures sufficiently effective during ground disturbance to allow rapid closure when weather conditions deteriorate.

   f. Complete all necessary stabilization measures prior to predicted precipitation that could result in surface runoff.

   g. Do not leave project areas for the winter with remedial measures incomplete.