Initial Study Document, CEQA Checklist, and Proposed Mitigated Negative Declaration

DeSabla-Centerville Hydroelectric Project

Butte Creek and the West Branch Feather River, Butte County

State Water Resources Control Board

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DeSabla-Centerville Hydroelectric Project
FERC Project No. 803, California
Proposed Mitigated Negative Declaration

State Water Resources Control Board
Division of Water Rights
Water Quality Certification Program

April 2013

Proposed Mitigated Negative Declaration

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

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Introduction

The DeSabla-Centerville Hydroelectric Project is an existing hydroelectric project licensed by the Federal Energy Regulatory Commission (FERC) as FERC Project No. 803. The Existing Project is owned and operated by the Pacific Gas and Electric Company (PG&E) and has an installed capacity of 25.8 megawatts (MW) and historically generated 151.5 gigawatt-hours (GWh) annually. The Project is located on Butte Creek and the West Branch Feather River in Butte County, California. PG&E applied to FERC for a new federal license for continued operation of the Project under a new 30- to 50-year FERC license. The purpose of the Proposed Project is to generate power, while meeting water quality standards in Butte Creek and the West Branch Feather River.

For the purposes of this document, "Existing Project" refers to the DeSabla-Centerville Hydroelectric Project facilities, operations and maintenance under current (pre-relicensing) terms and conditions of the existing FERC License; "Proposed Project" refers to new (post-licensing) operations and maintenance as described in PG&E's application for a new FERC license, conditions proposed for inclusion pursuant to other Federal Power Act (FPA) mandatory conditioning authority, including section 4(e) of the FPA (16 U.S.C. § 797(e)), and any conditions required for water quality certification (WQC) pursuant to Section 401 of the federal Clean Water Act (33 U.S.C. § 1341) necessary to balance the beneficial uses as prescribed in the Basin Plan for *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* (Basin Plan) (Basin Plan; CVRWQCB 2011). As used in this document, "Proposed Project" is intended to mean the same thing as "Project" as defined in the California Environmental Quality Act (CEQA) section 21065 (Pub. Resources Code, § 21065) and CEQA Guidelines section 15378 (Cal Code Regs., tit. 14, § 15378.)

To receive a new FERC operating license, PG&E is required to request and receive WQC pursuant to Section 401 of the federal Clean Water Act (33 U.S.C. § 1341) from the State Water Resources Control Board (State Water Board). The State Water Board is the lead agency responsible for complying with CEQA (Cal. Pub. Resources Code § 21000 et seq.). For the State Water Board to issue a WQC, an environmental analysis of the Proposed Project that complies with CEQA must be prepared.

April 2013

Project Description

The Existing Project license was issued on June 11, 1980, and expired October 11, 2009. The Existing Project continues to operate on an annual license issued by FERC. The Existing Project consists of three developments referred to as Toadtown, DeSabla, and Centerville, which include three reservoirs, three powerhouses, 14 diversion and feeder dams, five canals, and associated equipment and transmission facilities.

The Existing Project's Butte Creek drainage basin is an area of 96,012 acres that includes 41.5 miles of Butte Creek. The Existing Project's West Branch Feather River drainage basin is an area of 70,003 acres that includes 39 miles of the West Branch Feather River. The total area of combined Existing Project drainage basins is 166,015 acres. Water in the Existing Project drainage basins is supplied by fall and winter rain in the lower elevations, and spring and early summer snowmelt from the higher elevations of the basins.

Within the Existing Project drainage basins lies the Proposed Project area. The Proposed Project area is defined as the zone of potential, reasonably direct impact, typically extending 0 to 100 feet from the Proposed Project boundary and including Butte Creek from Butte Creek diversion dam down to, but not including, Parrott-Phelan diversion dam, and West Branch Feather River from Round Valley reservoir down to, but not including, Miocene diversion dam. The Existing Project area within the Butte Creek drainage basin is located almost entirely in the Foothill Region. The Existing Project area within the West Branch Feather River drainage basin extends from the Mountain Region down to the Foothill Region.

The Existing Project is operated primarily as run-of-the-river and operates on a continuous basis. During winter and spring, base flows in the West Branch Feather River and Butte Creek typically provide adequate flow for full operation of Existing Project powerhouses, however, during summer months, available base flow water is augmented by water releases from storage at Round Valley and Philbrook Reservoirs. During fall months, Existing Project powerhouses are operated at reduced capacities due to low stream flows.

Seasonal operation of the Existing Project manages basin runoff through the annual hydrologic cycle to best achieve Existing Project purposes/objectives including regulatory requirements, recreation, flood control, irrigation, municipal water supply, and power generation. In 1999, the Central Valley spring-run Chinook salmon (SR Chinook) were designated as a threatened species under the federal Endangered Species Act (ESA) (16 U.S.C. 1531-1544). SR Chinook in the Sacramento River Basin are also listed as threatened under the California ESA (Fish and Game Code, §§ 2050 et seq.). Since the federal ESA listing of SR Chinook, PG&E operates the Project in accordance with FERC's August 21, 1997 Order (FERC 1997) and FERC's August 20, 1998 revised Order (FERC 1998). FERC 1997 and FERC 1998 place temperature restrictions on releases from Round Valley and Philbrook Reservoirs to protect SR Chinook. FERC 1998 allows for modification of releases from Round Valley and Philbrook Reservoirs upon the mutual agreement of the United States Fish and Wildlife Service (FWS), National Marine Fisheries Service (NMFS), and California Department of Fish and Wildlife (CDFW; formerly known as the California Department of Fish and Game), and as subsequently incorporated into the annual Project Operations and Management Plan (Plan) for the Existing Project. The annual Plan is developed each spring in mutual agreement with the CDFW, NMFS, and the FWS. This Plan outlines the operation and maintenance procedures and practices that PG&E follows to enhance and protect this habitat for SR Chinook. This Plan also provides the basis for the reservoir temperature release criteria.

Operational Changes

The Proposed Project includes implementation of the following measures:

1) New minimum streamflows;
2) A water temperature improvement facility in DeSabla Forebay;
3) Annual employee awareness training for cultural and natural resources;
4) Annual consultation with the United States Forest Service regarding measures for ensuring protection and use of National Forest resources affected by the Proposed Project;
5) Annual review of listed special-status plants and wildlife that could potentially be present on National Forest Service land, together with study requirements for newly listed species that includes identifying provisions for protecting listed species during any new construction or maintenance activities;
6) Transportation System Management Plan;
7) Erosion control measures on roads and the Round Valley Reservoir plunge pool;
8) Round Valley Dam Spillway Stabilization Plan;
9) Project Canal Maintenance and Inspection Plan;
10) Canal Fish Rescue Plan;
11) Maintenance of a minimum pool in Philbrook Reservoir for winter trout habitat;
12) New or modified flow measurement equipment to measure flow compliance and provide real-time flow information (locations downstream of Hendricks Diversion Dam, upstream of Butte Creek Diversion Dam and near Lower Centerville Diversion Dam);
13) Water quality monitoring program for receiving streams when canals are returned to service that includes a summary of cleaning and maintenance activities;
14) Hazardous Substances Plan;
15) Agency consultation to discuss operational plans during drought conditions (when such conditions exist);
16) Diversion Facility Removal Plan for five diversion dams (Oro Fino Ravine, Emma Ravine, Coal Claim Ravine, Stevens, and Little Butte Creeks);
17) Long-term Proposed Project Operations Plan that includes preparing annual operations and maintenance plans and holding annual meetings;
18) Inspection and replacement of wildlife facilities (e.g., bridges), as necessary, and monitoring of animal losses in Project canals;
19) Wet Meadow (continued implementation with revisions);
20) Vegetation Management Plan;
21) Invasive Weed Management Plan;

22) Valley Elderberry Longhorn Beetle Conservation Program (continued implementation);

23) Visual Management Plan; and

24) Historic Properties Management Plan to protect cultural resources.

Recreation

The Proposed Project includes implementation of the following recreation measures:

1) Recreation Management Plan that includes constructing, rehabilitating and upgrading facilities at Philbrook Reservoir and DeSabla Forebay;

2) Annual operations and maintenance plan for Proposed Project recreation facilities at Philbrook Reservoir and DeSabla Forebay;

3) Real-time flow information for recreational boating;

4) Limited public access to streams at DeSabla and Centerville powerhouses; and

5) Sign and Information Plan.

PG&E also included measures in its proposed project to ensure that potential impacts associated with construction are less than significant. These measures include those to reduce air quality impacts associated with fugitive dust and impacts to cultural resources associated with the discovery of human remains during construction.

The baseline for evaluating the potential significant environmental impacts of the Proposed Project includes the existing facilities and operations. Therefore, this Initial Study and Mitigated Negative Declaration evaluates the potential impacts from the additional recreational facilities, from changes in Proposed Project operation, and from any current operations that will result in a more severe impact than currently occurs over the lifetime of the Proposed Project.

Findings and Determination

The Initial Study/Environmental Checklist (IS) for the Proposed Project identified less than significant environmental effects for the Proposed Project with mitigation incorporation. CEQA prohibits an agency from approving a project for which significant effects have been identified, unless the agency can make one or more of a set of three findings set forth in Public Resources Code section 21081:

1) Changes or alterations have been required in, or incorporated into the Proposed Project, which mitigate or avoid the significant effects on the environment.

2) Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.

3) Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report. (See also Cal. Code Regs., tit. 14, § 15091.)

CEQA requires public agencies to adopt a program for reporting on or monitoring the changes which it has either required in the project or made a condition of approval to avoid or substantially lessen significant environmental effects. These measures must be fully enforceable through permit conditions, agreements, or other measures. (CEQA Guidelines, §15097.) Mitigation measures necessary to avoid the potentially significant effects on the

environment are included in the attached Initial Study. PG&E has agreed to implement each of the identified mitigation measures, which are adopted as part of the Mitigation Monitoring and Reporting Program.

On the basis of this evaluation with the incorporated mitigation measures, the State Water Board concludes:

1) The Proposed Project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered species, or eliminate important examples of the major periods of California history or prehistory.

2) The Proposed Project would not achieve short-term environmental goals to the disadvantage of long-term environmental goals.

3) The Proposed Project would not have impacts that are individually limited, but cumulatively considerable.

4) The Proposed Project would not have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.

5) No substantial evidence exists to demonstrate that the Proposed Project would have a substantive negative effect on the environment.

Once approved, this Mitigated Negative Declaration will be filed pursuant to the CEQA Guidelines.

DRAFT

Signature Date

Barbara Evoy
Deputy Director for Water Rights
State Water Resources Control Board

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ACOE	United States Army Corps of Engineers
APE	Area of potential effect
Basin Plan	Water Quality Control Plan for the Sacramento and San Joaquin River Basins
BLM	Bureau of Land Management
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
cfs	Cubic feet per second
CO_2	Carbon dioxide
Construction General Permit	Water Quality Order 2009-0009-DWQ and National Permit Discharge Elimination System No. CAS000002, as Amended by Order No. 2010-0014-DWQ)
CWA	Clean Water Act
DO	Dissolved oxygen
EA	Environmental assessment
EIS	Environmental Impact Statement
El.	Elevation
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionary Significant Unit
FERC	Federal Energy Regulatory Commission
Forest Service	United States Forest Service
FONSI	Finding of No Significant Impact
FPA	Federal Power Act
FWS	United States Fish and Wildlife Service
GHG	Greenhouse gas
GWh	Gigawatt-hour
HABS/HAER	Historic American Building Record/Historic American Engineering Record
HPMP	Historic Properties Management Plan
Interior	United States Department of the Interior
IS	Initial Study and Environmental Checklist
kV	Kilovolt
license application	Application for new license
NEPA	National Environmental Policy Act
NMFS	National Oceanic and Atmospheric Administration, National Marine Fisheries Service
msl	Mean sea level
MW	Megawatt
PG&E	Pacific Gas & Electric Company
PM	Particulate matter
PM&E	Protection, mitigation, or enhancement
Project	DeSabla-Centerville Hydroelectric Project
Proposed Project	DeSabla-Centerville Hydroelectric Project with modifications for relicensing

RM	River Mile
RPS	Renewables Portfolio Standard
recreation-day	Any visit by an individual to a project development for recreational purposes for any length of time during a 24-hour period
SHPO	State Historic Preservation Officer
SR Chinook	Spring-run Chinook salmon
State Water Board	State Water Resources Control Board
USGS	United States Geological Survey
VELB	Valley elderberry longhorn beetle
WQC	Water Quality Certification

Section 1.0 Introduction

On October 2, 2007, Pacific Gas and Electric Company (PG&E) filed an application for new license (license application) for the DeSabla-Centerville Hydroelectric Project, FERC No. 803 with the Federal Energy Regulatory Commission (FERC). The current license for the Existing Project expired October 11, 2009. Certain aspects of the Proposed Project modifications may also require authorization from the United States Army Corps of Engineers (ACOE) under section 404 of the federal Clean Water Act (CWA) (33 U.S.C. § 1344).

Before FERC can issue a new license or the ACOE can issue permits under CWA section 404, PG&E must obtain water quality certification (WQC) from the State Water Resources Control Board (State Water Board) under section 401 of the CWA (33 U.S.C. § 1341). Issuance of WQC is a discretionary action that requires the State Water Board to comply with the California Environmental Quality Act (CEQA) (Pub. Resources Code §§ 21000 et seq.). This Initial Study and Environmental Checklist (IS) show that the Proposed Project, with incorporated changes agreed to by the project applicant, that there is no substantial evidence that the Project will result in any significant impacts to the environment. The State Water Board prepared a Mitigated Negative Declaration for the Proposed Project.

The Existing Project, which is located on Butte Creek and the West Branch Feather River in Butte County, California, 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. Figure 1 shows the location of the Proposed Project features.

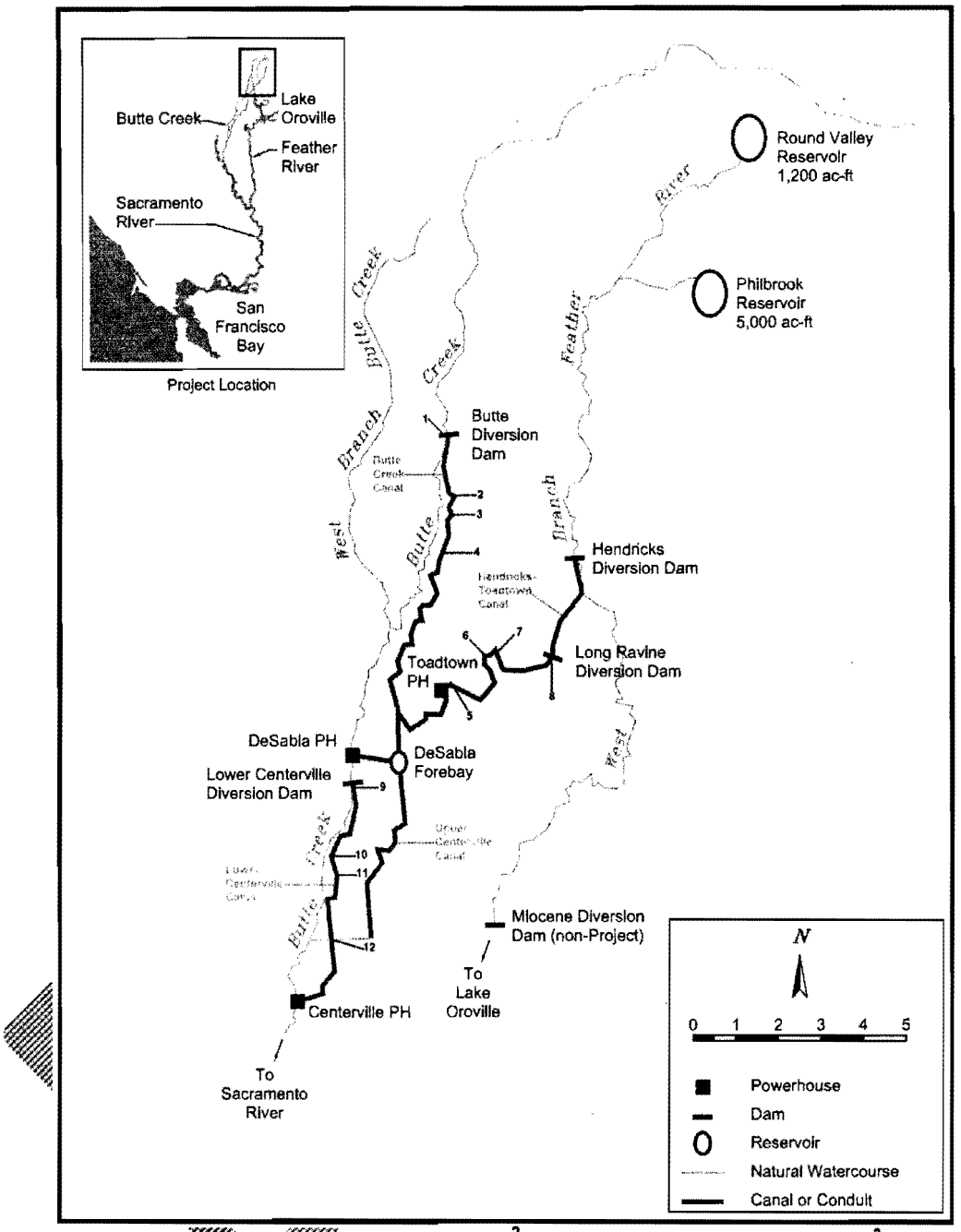
Section 2.0 Compliance

2.1 National Environmental Policy Act

In compliance with the National Environmental Policy Act (NEPA) (42 U.S.C. §§ 4321 et seq.), FERC issued a final environmental assessment (EA) on July 24, 2009, for relicensing the Existing Project as proposed in PG&E's application for a new FERC license.[1] An errata notice was issued in July 27, 2009, with a correct Appendix A of the final EA. The final EA assessed the scope and objectives of PG&E's proposed resource management and monitoring measures. It also assessed the effects of measures recommended by FERC staff and resource agencies, along with mandatory conditions submitted under section 4(e) of the Federal Power Act (FPA) (16 U.S.C. § 797(e)) by the United States Forest Service (Forest Service) and the Bureau of Land Management (BLM). The United States Department of Interior, Fish and Wildlife Service (FWS) and National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) have both reserved authority under Section 18 of the FPA (16 U.S.C. § 811), to prescribe fishways at the Existing Project.

Under the provisions of section 10(j) of the FPA (16 U.S.C. § 803(j), each hydroelectric license issued by FERC shall include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, or enhancement (PM&E) of fish and wildlife resources affected by the Proposed Project. Section 10(j) of the FPA states that,

[1] Unless otherwise indicated, our information is taken from the license application for this Project (PG&E, 2007) or from the final EA (FERC, 2009).



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

Figure 1. Locations of major Proposed Project facilities and diversions (Source: PG&E, 2007, as modified by FERC staff, as cited in FERC, 2009)

[2] Diversions from these tributaries are discontinued.
[3] When in use, flow from Upper Centerville Canal is diverted into Helltown Ravine before being delivered to the Lower Centerville Canal.

whenever FERC believes that any fish and wildlife agency recommendation is inconsistent with the purposes and the requirements of the FPA or other applicable law, FERC and the agency shall attempt to resolve any such inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of such agency.

The FWS, NMFS, and the California Department of Fish and Wildlife (CDFW) filed recommendations under FPA Section 10(j). On January 14, 2009, FERC staff issued letters to NMFS, CDFW, and FWS providing a finding of inconsistency with many of the FPA 10(j) recommendations. In response, these agencies requested a meeting to resolve the inconsistencies. FERC staff held a meeting on April 13, 2009, with the agencies in an attempt to resolve the inconsistencies. Two additional follow-up meetings were held on May 18, 2009, and June 29, 2009. Several of the inconsistent recommendations contained in the draft EA were resolved through the section 10(j) process; the recommendations are reflected in the proposed PM&E measures in the final EA.

2.2 California Environmental Quality Act

As stated above, issuance of WQC is a discretionary action that requires the State Water Board to comply with CEQA. The State Water Board is the lead agency under CEQA. This IS was prepared to comply with CEQA to assess the environmental effects from changes to the Proposed Project required in a WQC issued by the State Water Board. In a CEQA analysis of an existing hydroelectric project, reauthorizing the project would not yield many environmental impacts because most of the impacts have already occurred, and when compared to the current condition, do not register as significant. In contrast, WQC requires an analysis of a project's overall effect on water quality, including whether the designated beneficial uses identified in the water quality control plan are adequately protected. During the process of WQC, the State Water Board may also review a project's effects on public trust resources.

CEQA Guidelines section 15221 states that when a project requires compliance with both CEQA and NEPA, state agencies should use the Environmental Impact Statement (EIS) or Finding of No Significant Impact (FONSI) rather than preparing and EIR or Negative Declaration if the EIS or FONSI complies with the provisions of CEQA. Consistent with this section this IS refers to appropriate sections of the final EA to avoid repetition of information. This IS was prepared in compliance with CEQA and assesses the environmental effects of the Proposed Project as proposed by PG&E in its application for a new FERC license, including FERC staff recommendations, mandatory conditions under Sections 4(e) and 18 of the FPA and conditions that may be required by the State Water Board to ensure that the Proposed Project will be protective of water quality. To the extent that the Proposed Project incorporates conditions to ensure that potential impacts have been mitigated to insignificance, the applicant has agreed to incorporate the conditions into the Proposed Project. The IS includes information necessary to comply with CEQA not included in the final EA.

The State Water Board considered the MND in connection with the issuance of thisWQC. The State Water Board finds that there is no substantial evidence in the record that the Proposed Project will have a significant effect on the environment. The MND reflects the State Water Board's independent judgment and analysis. All documents and other information that constitute the public record for this Proposed Project shall be maintained by the Division of Water Rights and shall be available for public review at the following address: State Water Board, Division of Water Rights, 1001 I Street, 2nd Floor, Sacramento, CA 95814.

2.3 Water Quality Certification

Section 401 of the CWA (33 U.S.C. § 1341) requires that any entity applying for a federal license or permit for the construction or operation of facilities that may result in any discharge to navigable waters must obtain certification from the state in which the discharge originates, and must comply with the applicable water quality requirements under the CWA, as well as other appropriate requirements of State law. In this case, the federal licensing agency is FERC. The state must certify compliance with certain sections of the CWA before issuing a WQC, including Sections 301 and 302 (effluent limitations), Section 303 (water quality standards and implementation plans), Section 306 (national standards of performance for new sources), and Section 307 (pretreatment effluent standards).

Under Section 303 of the CWA and under the Porter-Cologne Water Quality Control Act (Water Code, Division 7), the Central Valley Regional Water Quality Control Board has adopted, and the State Water Board and United States Environmental Protection Agency (EPA) have approved, the Basin Plan. The Basin Plan designates the beneficial uses of waters to be protected, as well as the water quality objectives necessary to protect those uses.

2.4 Section 404 of the Clean Water Act

Section 404 of the CWA regulates the discharge of dredged or fill materials into waters of the United States, including wetlands (33 U.S.C. § 1344). This program applies to activities in United States waters, such as development, water resource projects (e.g., dams and levees), and other projects (EPA, 2010). ACOE administers the program, enforces Section 404 provisions, and issues permits, either as individual permits or as general permits, on a nationwide, regional, or state basis. The general permit eliminates individual review and allows certain activities to proceed with little or no delay if certain general and specific conditions are met. Construction of the temperature reduction device at DeSabla Forebay, construction of the fish screen at the Hendricks Diversion Dam, removal of feeder diversions, construction of a creek crossing on West Branch Feather River below Round Valley, extension of the Philbrook Reservoir boat ramp, removal of feeder creek diversions, and stabilization of the Round Valley Reservoir spillway channel may require a CWA Section 404 permit. As will be discussed below, the Centerville Powerhouse is at the end of its service life and will need to be repaired, replaced or decommissioned at some time in the future. Repair/replacement or decommissioning of the facility may also require a CWA Section 404 permit.

Section 3.0 Existing Project

3.1 Environmental Setting

The Existing Project is located in northern California in the Butte Creek and West Branch Feather River drainage basins. Both drainages are located in Butte County along the western slopes of the Sierra Nevada and Cascade Range geomorphic provinces. Butte Creek originates in the Jonesville Basin, Lassen National Forest, at an elevation of 7,087 feet[4] and flows southwesterly to its confluence with the Sacramento River at Butte Slough and Sacramento Slough near the town of Colusa. The West Branch Feather River originates in an area east of Round Valley Reservoir, at an elevation of just over 6,960 feet, and flows southwesterly before draining into Lake Oroville.

[4] Elevations are USGS datum.

Within the overall Butte Creek and West Branch Feather River drainage basins, two areas are specifically related to the Existing Project. These areas are referred to herein as the Existing Project's "Butte Creek drainage basin" and "West Branch Feather River drainage basin." The Existing Project's Butte Creek drainage basin is defined as the sub-watershed area that includes the headwaters of Butte Creek and all Existing Project-affected reaches from Butte Creek Diversion Dam down to Parrott-Phelan Diversion Dam. The Parrot-Phelan Diversion Dam is located on Butte Creek, approximately 9 miles downstream of the Centerville Powerhouse. The Existing Project's West Branch Feather River drainage basin includes the headwaters of the West Branch Feather River and all Existing Project-affected reaches from the Round Valley Reservoir down to the Miocene Diversion Dam.

The Existing Project's Butte Creek drainage basin is an area of 96,012 acres that includes 41.5 miles of Butte Creek. The Existing Project's West Branch Feather River drainage basin is an area of 70,003 acres that includes 39 miles of the West Branch Feather River. The total drainage area of the combined Existing Project drainage basins is 166,015 acres. Waters in the Existing Project drainage basins are supplied by fall and winter rain in the lower elevations, and spring and early summer snowmelt from the higher elevations of the basins.

Within the Existing Project drainage basins lies the Existing Project area. FERC (2009) defines the Existing Project area as the zone of potential, reasonably direct impact, typically extending 0 to 100 feet from the Existing Project boundary and including Butte Creek from Butte Creek Diversion Dam down to, but not including, Parrott-Phelan Diversion Dam, and West Branch Feather River from Round Valley Reservoir down to, but not including, Miocene Diversion Dam. The Existing Project area within the Butte Creek drainage basin is located almost entirely in the Foothill region. The Existing Project area within the West Branch Feather River drainage basin extends from the Mountain Region down to the Foothill region. The locations of Existing Project facilities are shown in Figure 1.

The Existing Project has three powerhouses supplied by water from three principle diversions within the Existing Project drainage basins, as well as eight smaller feeder diversions situated along the tributaries to Butte Creek (four of which are not in use) and three feeder diversions along the tributaries to the West Branch Feather River. Three non-Existing Project diversions (Forks of Butte, Miocene, and Parrott-Phelan) and one non-Existing Project powerhouse (Forks of Butte) also exist within the Existing Project vicinity.

For a detailed description of the affected environment in the Existing Project region refer to FERC's final EA (FERC, 2009), Section 3.3.

3.1.1 Aesthetics

The visual aesthetic of the Existing Project area ranges from flat-topped buttes that border Butte Creek Canyon to the start of the Sierra Nevada mountain range. The Existing Project provides limited scenic vistas and attractions due to foothills and mountainous terrain dominated by steep canyons and ravines, as well as densely forested areas that obscure any expansive views. Round Valley and Philbrook Reservoirs are located at higher elevations and provide opportunities to view limited scenic vistas that lie within the valley. Unique vistas in the Existing Project region are found along Butte Creek where the river has created steep, narrow canyons with large pools and drops. A detailed description of aesthetic resources in the Existing Project region is provided in FERC's final EA (FERC, 2009), Section 3.3.6.1, *Affected Environmental, Aesthetic Resources*, pages 3-250 through 3-251.

3.1.2 Biological Resources

3.1.2.1 Aquatic Resources

NMFS listed the spring-run Chinook salmon (SR Chinook) Evolutionary Significant Unit (ESU) as threatened on September 16, 1999 (NOAA 1999). SR Chinook in the Sacramento River Basin are also listed as threatened under the California ESA (CDFW 1998). Historically SR Chinook were the dominant run in the Sacramento River Basin. SR Chinook typically occupy the middle and upper elevation reaches of rivers with sufficient adult holding habitat through the summer. Critical habitat for the Central Valley SR Chinook ESU was designated on September 2, 2005. Butte Creek SR Chinook are unique and are genetically distinct from other Chinook salmon populations. After the listing of SR Chinook, PG&E has operated the Existing Project to enhance and protect the habitat for this species. The license application states that a "significant primary benefit" of the Existing 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. Cool water diverted by the Existing Project from the West Branch Feather River provides approximately 40 percent of the entire flow in lower Butte Creek from July through September, which improves habitat conditions for Chinook salmon and steelhead trout. The lower reach of Butte Creek supports the largest known self-sustaining population of the federally and state-listed Central Valley SR Chinook, and smaller numbers of the federally listed Central Valley steelhead. Restoration efforts in lower Butte Creek, initiated in the 1990s under the Central Valley Project Improvement Act, have resulted in large numbers of adult SR Chinook returning to lower Butte Creek in recent years (Table 1).

Table 1. Adult SR Chinook population counts for Sacramento River tributaries, 1995–2003. Data based on snorkel counts, unless otherwise indicated. (Source: CDFG, 2004)

Stream	1995	1996	1997	1998	1999	2000	2001	2002	2003
Antelope Creek	7	1	0	154	40	9	8	46	46
Big Chico Creek	200	2	2	369	27	27	39	0	81
Battle Creek[a]	--	--	--	--	--	40	100	144	94
Butte Creek	7,500	1,413	635	20,259	3,529–3,679	4,118	9,605	8,785	4,398
Clear Creek	--	--	--	--	35	9	0	66	25
Beegum/ Cottonwood Creek	8	6	--	477	102	120	245	125	73
Deer Creek	1,295	614	466	1,879	1,591	637	1,622	2,195	2,759
Mill Creek[b]	320	252	200	424	560	544	1,104	1,594	1,426
Yuba River[c]	--	--	--	--	--	--	108	--	--

Butte Creek SR Chinook populations are estimated by CDFW staff using both snorkel survey data and carcass survey data. Carcass surveys always yield higher population estimates than snorkel surveys. Table 2, shows both snorkel and carcass survey data for years 2001 through 2010. Generally, the population declined between 2001 and 2010 consistent with other Central Valley salmon populations.

Table 2. Butte Creek escapement estimates 2001–2010

Year	Snorkel Survey	Carcass Survey
2001	9,605	18,505
2002	8,785	16,328
2003	4,398	17,294
2004	7,390	10,637
2005	10,625	17,615
2006	4,579	6,547
2007	4,943	6,852
2008	3,935	11,136
2009	2,061	2,687
2010	1,169	1,979

Little data are available on steelhead abundance, but in PG&E's license application, PG&E reported collecting habitat suitability information for eight steelhead redds that were found between River Mile (RM) 53.3 and RM 57.5 in March 2007. A detailed description of the fishery resources in the Existing Project region is provided in FERC's final EA (FERC, 2009), Section 3.3.2.1, *Affected Environment, Fisheries*, pages 3-75 through 3-111.

3.1.2.2 Terrestrial Resources

Vegetation

The Existing Project area is predominantly forested. Douglas fir-ponderosa pine is the dominant vegetation type in the study area, encompassing about 40 percent of the study area. At mid- to upper-elevations, black oak, sugar pine, and incense cedar are found. Tan oak is often present in the shrub and tree layers. Large amounts of canyon live oak (11.5 percent), white fir (10.1 percent), and ponderosa pine (9.6 percent) vegetation types are also found in the study area. A detailed description of vegetation resources in the Existing Project region is provided in FERC's final EA (FERC, 2009), Section 3.3.3.1, *Affected Environment*, *Vegetation*, pages 3-193 through 3-197.

Wildlife Resources

The Existing Project area supports a diverse array of habitats and associated wildlife species. Black-tailed and California mule deer are the most common big game species in the Existing Project area. The deer are part of the East Tehama deer herd that inhabits portions of Tehama, Plumas, Lassen, Shasta, and Butte counties. Migration routes to and from seasonal ranges are the longest in the state, a distance of 50 to 100 miles. Deer migrate from the high elevation forest in Lassen National Park to their winter habitat in eastern Tehama County. Game bird species include California quail, mountain quail, blue grouse, mourning dove, ring-necked pheasant, and wild turkey. Canada geese nest at Round Valley Reservoir. In addition, Pacific tree frogs, long-toed salamanders, bullfrogs, various species of garter snake, California newts, rough-skinned newts, western toads, and rattlesnakes were observed in the Existing Project

area. A detailed description of wildlife resources is provided in FERC's final EA (FERC, 2009), Section 3.3.3.1, *Affected Environment*, *Wildlife Resources*, pages 3-197 through 3-204.

3.1.3 Cultural Resources

The Area of Potential Effects (APE) for the Existing Project includes all the lands within the Existing Project boundary and lands outside the Existing Project boundary that may be affected by Existing Project operations, maintenance, and recreation activities. This expanded APE includes public lands between Philbrook Reservoir and adjacent roads, and public lands along the West Branch of the Feather River between Round Valley Reservoir and Philbrook Creek. Additionally, several Existing Project-related access roads not contained within the Existing Project boundary also were added to the APE. A detailed description of cultural resources in the Existing Project region is provided in FERC's final EA (FERC, 2009), Section 3.3.6.1, *Affected Environment*, pages 3-256 through 3-279.

3.1.4 Geology and Soils

The Existing Project is located on the western slope of the Sierra Nevada, at the northern limit of the Sierra Nevada Geomorphic Province at its interface with the Cascade Geomorphic Province. The general Existing Project area may therefore be considered as the transition between the Sierra Nevada and Cascade Geomorphic provinces. The Cascade Range is composed of a chain of volcanoes extending from northern California to southern British Columbia. The nearest Cascade volcanic center is Lassen Peak, located about 50 miles north of the Existing Project. A detailed description of geology and soils in the Existing Project region is provided in FERC's final EA (FERC, 2009), Section 3.3.1.1, *Affected Environment*, pages 3-5 through 3-11.

3.1.5 Hydrology and Water Quality

3.1.5.1 Hydrology

Rainfall and snowmelt are the major sources of water in the Butte Creek and West Branch Feather River watersheds and over 95 percent of the average annual precipitation in the Existing Project area occurs from October through May. Below 3,500 feet mean sea level (msl), rain is the dominant form of precipitation in the Existing Project area. However, between 3,500 and 5,500 feet msl, winter precipitation is mostly in the form of snow, which below 4,000 feet msl often melts between storms. Above elevations of 5,500 feet msl, the dominant form of precipitation is usually snow, with only occasional rain-on-snow events below 6,500 feet msl. Snowmelt occurs in late spring and early summer months, typically producing the largest stream flows during spring. By late summer, the stream flows are usually at their lowest levels as snowmelt has subsided.

The mean annual natural runoff for the portion of the Butte Creek drainage basin upstream of the Butte Creek Diversion Dam, based on analysis of a 50-year period from 1934 through 1983, is approximately 122,500 acre-feet. This is equivalent to about 38.3 inches/year of water over the drainage area of about 65 square miles. The mean annual natural runoff for the West Branch Feather River drainage basin at the non-Existing Project Miocene diversion dam is approximately 285,000 acre-feet. This is equivalent to about 49.5 inches/year of water over the drainage area.

A detailed description of hydrology of the Existing Project region is provided in FERC's final EA (FERC, 2009), Section 3.3.2.1, *Affected Environment, Hydrology*, pages 3-19 through 3-47.

3.1.5.2 Water Quality

Water quality standards applicable to surface waters in the Existing Project area are defined in three primary documents: the California Regional Water Quality Control Board's Basin Plan (CVRWQCB, 2006), the California Toxics Rule (40 CFR Part 131), and drinking water standards set in California Code of Regulations, title 22.

The water resources of Butte Creek basin are divided into two sub-basins by the Central Valley Region Water Quality Control Board in its Basin Plan. The two sub-basins are defined as upper Butte Creek from its source to Chico, California, and lower Butte Creek from Chico, California, to the Sacramento River. Designated beneficial uses for upper Butte Creek include municipal and domestic supply, irrigation and stock watering, contact recreation, power production, warm and cold freshwater habitat, cold water migration, warm and cold water spawning, and wildlife habitat. Designated beneficial uses for lower Butte Creek include irrigation and stock watering, contact recreation and canoeing and rafting, warm and cold freshwater habitat, cold water migration, warm water spawning, and wildlife habitat.

The West Branch Feather River beneficial uses are listed under Lake Oroville, thus the designated beneficial uses for the West Branch Feather River 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.

A detailed description of water quality in the Existing Project region is provided in FERC's final EA (FERC, 2009), Section 3.3.2.1, *Affected Environment, Water Quality*, pages 3-47 through 3-75.

3.1.6 Land Use and Planning

The Existing Project area is primarily made up of private lands owned by PG&E and Sierra Pacific Industries and federal, state, and county lands. Although Sierra Pacific Industries is the largest private landholder adjacent to the Existing Project, the Forest Service, BLM, CDFW, and Butte County all have lands within or adjacent to the Existing Project.

The Plumas National Forest manages 0.4 mile of lands along Toadtown Canal and 3.5 miles of lands along the West Branch Feather River. These lands are within the Forest Service's Flea Mountain Management Area and are managed for wildlife protection, fire prevention, recreation, and protection of river resources.

Lassen National Forest administers approximately 55 percent of land uses adjacent to Philbrook Reservoir and all the lands adjacent to Round Valley Reservoir. Forest Service has designated lands along Philbrook Reservoir's northern end as Late Successional Prescription, and lands along the southern end near the dam as Riparian/Fish Prescription. Land uses around the northwest shore of Round Valley Reservoir are in accordance with the Lassen Recreation Management Plan View/Timber Prescription. PG&E owns the remaining lands at the upstream end of Philbrook Reservoir and leases land for 42 private summer homes just outside the Existing Project boundary at the north and south eastern shore.

BLM administers lands primarily located in the lower portion of Butte Creek drainage and also a small parcel on the West Branch Feather River roughly 1 mile above the Miocene Diversion. These lands fall within the Ishi Management Area of BLM's Redding Resource Area, which includes the Forks of Butte Creek Recreation Area, which are managed for natural resource values and primitive to semi-primitive recreational opportunities.

CDFW manages the Coon Hollow Wildlife Area and the Butte Creek Canyon and Butte Creek House ecological reserves, which are adjacent to Round Valley Reservoir and the nearby Existing Project-affected reaches. These lands are managed to protect and enhance a wide variety of plant and animal species habitats and provide the public with wildlife-related recreation.

PG&E owns all lands around the DeSabla Forebay. These lands are zoned as Timber Mountain by Butte County and fall within the Paradise-Magalia Watershed Protection Overlay Zone. Skyway Road runs along the forebay's eastern shore. A private recreation group camp, Jones Campground, is located on the forebay's western shore, as well as PG&E's regional hydro office, Camp 1, on the south shore. Butte County manages private land uses in accordance with the Butte County General Plan and the county zoning ordinance. Approximately two-thirds of the lands along the Existing Project's 34 miles of canals are zoned for Timber Preserve or Timber Mountain. These lands are generally located in the upper Existing Project area along the Hendricks, Toadtown, and Butte Canals. A detailed description of land use in the Existing Project region is provided in FERC's final EA (FERC, 2009), Section 3.3.6.1, *Affected Environment*, *Land Ownership*, pages 3-247 through 3-249.

3.1.7 Recreation

The Existing Project is located on lands within the Lassen and Plumas National Forests. The Lassen National Forest provides a variety of recreational opportunities such as camping, fishing, hunting, picnicking, off-road vehicles areas, biking, whitewater boating, and more than 460 miles of hiking trails, including 120 miles of the Pacific Crest National Scenic Trail that passes through the Lassen Volcanic National Park. The Lassen National Forest hosts nearly one million visitors per year.

There are two developed recreation areas within the Existing Project boundary: Philbrook Reservoir recreation area and DeSabla Forebay recreation area. There are dispersed camping and hunting opportunities at a third Existing Project reservoir, Round Valley Reservoir, but no developed facilities. Additionally, fishing and hiking access exists along the Hendricks, Butte, and Lower Centerville Canals; however, these trails are meant to be used by PG&E for Existing Project maintenance purposes.

Recreation use also occurs along several of the river reaches associated with the Existing Project, including the upper and lower reach of the West Branch Feather River, Philbrook Creek, and Butte Creek. These reaches are primarily accessed for fishing; however, other recreation activities, including hunting, hiking, dispersed camping, and whitewater boating, do occur. There are approximately four whitewater boating runs within the Existing Project vicinity.

A detailed description of recreation in the Existing Project region is provided in FERC's final EA (FERC, 2009), Section 3.3.5.1, *Affected Environment*, *Recreation Resources*, pages 3-256 through 3-234.

3.2 Existing Project

3.2.1 Existing Project Facilities

The Existing Project is divided into three developments: Toadtown, DeSabla, and Centerville. The physical characteristics of each development are described below generally following the flow of water through each development. The Toadtown development diverts water from the West Branch Feather River through the Hendricks Canal to generate power at the Toadtown Powerhouse, which discharges into the Toadtown Canal. The DeSabla development diverts water from upper Butte Creek into the Butte Canal, which combines with flow from the Toadtown Canal, to generate power at the DeSabla Powerhouse, which discharges into Butte Creek. The Centerville development diverts the flow of Butte Creek downstream of the DeSabla Powerhouse into the Centerville Canal to generate power at the Centerville Powerhouse, which returns the diverted flow to Butte Creek (see Figure 1). The Centerville Powerhouse has been out of operation since June 2009. While PG&E has initiated some refurbishment of the Centerville Powerhouse, it is currently not operational.

The Toadtown development, which diverts water from the West Branch Feather River basin to the Butte Creek basin, consists of the following constructed facilities:

(1) Round Valley Reservoir, a 98-acre reservoir with a gross storage capacity of 1,700 acre-feet; (2) Round Valley Dam, a 29-foot-high by 810-foot-long earthfill dam; (3) a 40-foot-wide overflow spillway; (4) a 15-inch outlet pipe at the base of Round Valley Dam and manual low level outlet valve; (5) Philbrook Reservoir, a 173-acre reservoir with a gross storage capacity of 4,985 acre-feet; (6) Philbrook main dam (located on Philbrook Creek), an 87-foot-high by 850-foot-long compacted earthfill dam; (7) Philbrook auxiliary dam (170 feet to the right of the main dam), a 24-foot-high by 470-foot-long compacted earthfill dam; (8) a 29.7-foot-wide spillway with 5 flashboard bays; (9) a 10.75-foot-long by 14.75-foot-wide spillway with a single, manual radial gate; (10) a 33-inch-diameter by 460-foot-long outlet conduit from Philbrook Reservoir; (11) a 17-foot-high by 8-foot-diameter submerged vertical concrete intake, controlled by a 30-inch-diameter manual needle valve; (12) Hendricks Diversion Dam, a 15-foot-high concrete gravity dam with an 88-foot-wide overflow spillway section; (13) the 8.66-mile-long Hendricks Canal, composed mostly of earthen ditch with several flume and tunnel sections, with a capacity of 125 cubic feet per second (cfs); (14) feeder diversions from four creeks into Hendricks/Toadtown Canals; (15) a 40-inch-diameter by 1,556-foot-long steel penstock; (16) Toadtown Powerhouse, a 28-foot by 44-foot reinforced concrete building with one turbine-generator unit and a normal operating capacity of 1.5 megawatts (MW); (17) a 1,500-foot-long 12-kilovolt (kV) tap line, connecting Toadtown Powerhouse to a distribution system; and (18) appurtenant facilities.

The DeSabla development, which diverts water from upper Butte Creek and uses the outflow of the Toadtown development, consists of the following constructed facilities: (1) the 2.4-mile-long Toadtown Canal, an earthen canal with a capacity of 125 cfs; (2) Butte Creek Diversion Dam, a 50-foot-high by 100-foot-long concrete arch dam with an overflow spillway; (3) the 11.4-mile-long Butte Canal, composed of earthen berm sections, gunited reinforced sections, tunnel sections, a siphon, and flume sections, with a capacity of 91 cfs; (4) a 0.7-mile-long canal that combines Butte Canal with Toadtown Canal with a capacity of 191 cfs; (5) feeder diversions from four creeks that divert flow into Butte Canal (one of these is not in use); (6) DeSabla Dam, a 50-foot-high by 100-foot-wide earthen embankment with a spillway canal; (7) DeSabla Forebay, a 15-acre reservoir with a gross storage capacity of 163 acre-feet; (8) a 66-inch diameter penstock, which reduces to 42-inch-diameter, 1.3-mile-long steel penstock;

(9) DeSabla Powerhouse, a 26.5-foot by 41-foot reinforced concrete building, with one turbine generator unit and a normal operating capacity of 18.5 MW; (10) a 0.25-mile-long transmission tapline, connecting DeSabla Powerhouse to the 60-kV Oro Fino tap line; and (11) appurtenant facilities.

The Centerville development, which diverts the flow of Butte Creek downstream of the DeSabla Powerhouse, consists of the following constructed facilities: (1) the Upper Centerville Canal, that originates at DeSabla Powerhouse and ends at Helltown Ravine (currently carries a few cfs for local water uses but has not been used for power generation for many years); (2) Lower Centerville Diversion Dam, a 12-foot-high by 72.5-foot-wide concrete arch dam with an overflow spillway; (3) an 8-mile-long Lower Centerville Canal, composed of earthen material and several flume sections, with a capacity of 183 cfs; (4) feeder diversions from three creeks that flow into Lower Centerville Canal (all three are no longer in use); (5) one 30-inch-diameter and one 42-inch-diameter, which reduces to 36-inch-diameter, 2,559-foot-long steel penstocks; (6) Centerville Forebay, a 27-foot by 37-foot concrete header box with a spillway channel; (7) Centerville Powerhouse, a 32-foot by 109-foot reinforced concrete building, with two turbine-generator units and a total normal operating capacity of 6.4 MW; and (8) appurtenant facilities.

The Existing Project includes the following recreational facilities at Philbrook Reservoir: Philbrook Campground; Philbrook Picnic and Camping Overflow Area; and Philbrook Angler Access (boat launch). The Existing Project also includes the DeSabla Group Picnic Area at the DeSabla Forebay. Additionally, PG&E has authorized the installation of 21 private, residential boat docks on the east end of Philbrook Reservoir and a courtesy dock to the Pacific Service Employees Association's Camp DeSabla on the DeSabla Forebay.

3.2.2 Existing Project Operation

The Existing Project is operated primarily in a run-of-the-river mode with continuous operation. During winter and spring, base flows in the West Branch Feather River and Butte Creek typically provide adequate flow for full operation of Existing Project powerhouses. However, during summer months, available base flow water is augmented by water releases from storage at Round Valley and Philbrook reservoirs. During fall months, Existing Project powerhouses are operated at reduced capacities due to low stream flows. Figure 1 shows a schematic diagram of water diversions for Existing Project operation.

Seasonal operation of the Existing Project manages basin runoff through the annual hydrologic cycle to best achieve Existing Project purposes/objectives including regulatory requirements, recreation, flood control, irrigation, municipal water supply, and power generation. Since the federal Endangered Species Act (ESA) listing of SR Chinook in 1999, PG&E has operated the Existing Project under an annual Project Operations and Maintenance Plan developed each spring in consultation with CDFW, NMFS, and FWS. This Project Operations and Maintenance Plan outlines the operation and maintenance procedures and practices PG&E follows to enhance and protect habitat for Chinook salmon and steelhead in Butte Creek by reducing water temperatures downstream of the DeSabla Powerhouse. This Operations and Maintenance Plan also provides the basis for the reservoir temperature release criteria established in the FERC's August 21, 1997, order,[5] as amended August 20, 1998.[6]

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[5] 80 FERC ¶ 62171 (1997).

[6] 84 FERC ¶ 62165 (1998).

Direct precipitation and snowmelt runoff are captured in the Existing Project's storage reservoirs (Philbrook and Round Valley) and diverted at each of the Existing Project's diversion dams. Releases from the storage reservoirs are conveyed by the West Branch Feather River to the Hendricks Diversion Dam.

During normal hydrologic conditions, as determined by snowpack on approximately April 1, the flow through the low level valve at Round Valley Dam is typically reduced to supply only a minimum streamflow requirement of 0.5 cfs to the West Branch Feather River. Once the valve opening is reduced, the reservoir fills and then spills during the spring snowmelt. As spring runoff subsides and the natural stream flow of the West Branch Feather River is no longer adequate to meet the 125-cfs capacity of the downstream Hendricks Canal and the minimum instream flow requirements for downstream of the Hendricks Diversion Dam, the low level valve is again opened and water is released from storage to augment the natural stream flow for diversion at the Hendricks Canal. In normal water years, this typically begins in mid-June, and Round Valley Reservoir is typically completely drained in about one month. The low level valve will remain fully open until it is partially closed the following spring and the cycle is repeated.

During all water year types, Philbrook Reservoir is operated to meet a continuous 2-cfs minimum instream flow requirement in Philbrook Creek. This release is made through the single low level outlet. The reservoir is allowed to fill during the spring months when the radial gate on the newest of the two spillways is closed around April 1. Flashboards are maintained (or installed annually) on the older spillway to maximize storage in Philbrook Reservoir. As the natural stream flow of the West Branch Feather River and flows provided from storage in Round Valley Reservoir are no longer adequate to meet the 125-cfs capacity of the downstream Hendricks Canal and minimum flow requirements for the West Branch Feather River, the stored water is released from Philbrook Reservoir in accordance with the annual Operations and Maintenance Plan. In addition, the annual Operations and Maintenance Plan includes provisions for accelerated releases in July and August to maintain the cool-water habitat for Chinook salmon and steelhead trout in Butte Creek downstream of the DeSabla Powerhouse. Releases from storage in Philbrook Reservoir typically end by mid-September.

At the Hendricks Diversion Dam, up to 125 cfs of the West Branch Feather River's flow is diverted into the Hendricks Canal while the remainder of flow is allowed to pass downstream. However, during low flow periods, the entire flow of the West Branch Feather River is diverted into the Hendricks Canal and an instream flow release of 15 cfs and 7 cfs, during normal and dry years, respectively, are made from the canal back into the river immediately downstream of the Hendricks Diversion Dam. Flows within the Hendricks Canal are augmented by several feeder diversions (Long Ravine, Cunningham Ravine, Little West Fork Feather River, and Little Butte Creek). Ultimately, flows within the Hendricks Canal are passed through the Toadtown Powerhouse and then discharged into Toadtown Canal, which flows into Butte Canal.

Butte Canal originates at the Butte Creek Diversion Dam. Flows are diverted at this structure into Butte Canal, and three feeder diversions (Inskip, Kelsey, and Clear Creeks) augment flows over the length of the canal. The Butte Canal has a capacity of approximately 91 cfs upstream of its confluence with the Toadtown Canal, and 191 cfs from there to the DeSabla Forebay. Water is discharged from the DeSabla Forebay to DeSabla Powerhouse via the 1.3-mile-long steel penstock. Also, approximately 3 cfs is provided from the DeSabla Forebay to the Upper Centerville Canal to satisfy local water rights.

Water used at DeSabla Powerhouse is discharged into Butte Creek upstream of the Lower Centerville Diversion Dam. Roughly, up to 183 cfs is diverted from Butte Creek into the Lower Centerville Canal at the Lower Centerville Diversion Dam. This flow is conveyed by the 8-mile-long Lower Centerville Canal to the Centerville Penstock and Powerhouse, where it is discharged into Butte Creek. The final EA states that the age of the Centerville Powerhouse prevents efficient power production and that PG&E anticipates rebuilding or refurbishing the powerhouse in the next 10 years. In the license application, PG&E states the Centerville Powerhouse has been in service for over 100 years, and it, along with associated facilities, are at the end of their service life. A portion of the facilities and equipment will need to be refurbished or replaced to meet today's industry standards for hydro facilities. At the time of preparation of this IS, Unit 1 had been out of service since June 16, 2009. The purpose of this outage was to overhaul Unit 1 including major mechanical refurbishment, to rebuild the turbine shutoff valve and repair the lining of the tailrace structure. These repairs are expected to extend the life of Centerville Powerhouse for several more years (personal communication, e-mail from T. Jereb to Jim Holeman, December 9, 2010). When Unit 1 is not operating, it is necessary to maintain a sufficient water surface elevation over the penstock intake to prevent air entrainment, which requires the release of water down a spillway on the lower Centerville Canal adjacent to the intake for the Centerville Powerhouse. In addition, because there is no forebay at this location, spills occur as a result of fluctuations in flow in the Lower Centerville Canal. The very lower end of the spillway has been lined with gunite, but the upper end is unlined and unstable. Past use of the spillway channel has resulted in sediment discharges into Butte Creek, especially after a period of non-use. Release of high flows down the spill channel for extended periods increase the chances for spill channel failure and a release of sediment to Butte Creek.

Considering the age of the Centerville Powerhouse and its current state, it is possible it could be decommissioned at some point during the next license term. Although decommissioning would require a license amendment proceeding before FERC and a separate 401 WQC, the effects of decommissioning are briefly addressed in this IS.

The Existing Project includes four in-basin (Butte Creek to Butte Creek) water transfers (Table 3) and six out-of-basin (West Branch Feather River to Butte Creek) water transfers (Table 4), resulting in ten "Existing Project reaches" in which stream flows are affected by Existing Project operations. Each reach is named after the Existing Project facility from which the flow is affected.

Table 3. DeSabla-Centerville Hydroelectric Existing Project in-basin Existing Project reaches for water transfers. (Source: PG&E, 2007, as modified by FERC staff, as cited in FERC, 2009)

Name	Description
Butte Creek Diversion Dam bypassed reach	The 10.1-mile-long (gradient of 162 feet per mile, or 0.031%) section of Butte Creek from the base of the Butte Creek Diversion Dam (elevation [El.] 2,880 feet) to the DeSabla Powerhouse tailrace (El. 1,240 feet). Note that this reach includes the Forks of Butte Diversion Dam (non-Existing Project) and the Forks of Butte Powerhouse tailrace and inflow (non-Existing Project).
DeSabla Powerhouse reach	The 0.1-mile-long (gradient of 400 feet per mile, or 0.076%) section of Butte Creek from the DeSabla Powerhouse tailrace (El. 1,240 feet) to the Lower Centerville Diversion Dam (El. 1,200 feet).

Name	Description
Lower Centerville Diversion Dam bypassed reach	The 6.4-mile-long (gradient of 108 feet per mile, or 0.020%) section of Butte Creek from the base of the Lower Centerville Diversion Dam (El. 1,200 feet) to the Centerville Powerhouse tailrace (El. 510 feet).
Centerville Powerhouse reach	The 9.0-mile-long (gradient of 28 feet per mile, or 0.005%) section of Butte Creek from the Centerville Powerhouse tailrace (El. 510 feet) to the Parrott-Phelan Diversion Dam (El. 260 feet).

Table 4. DeSabla-Centerville Hydroelectric Existing Project out-of-basin reaches for water transfers. (Source: PG&E, 2007, as modified by FERC staff, as cited in FERC, 2009)

Name	Description
Round Valley Dam reach	The 4.9-mile-long (gradient of 169 feet per mile, or 0.032%) section of the West Branch Feather River from the base of Round Valley Dam (El. 5,627.0 feet) to the confluence with Philbrook Creek (El. 4,800 feet).
Philbrook Dam reach	The 2.3-mile-long (gradient of 291 feet per mile, or 0.055%) section of Philbrook Creek from the base of Philbrook Dam (El. 5,469 feet) to the confluence with West Branch Feather River (El. 4,800 feet).
West Branch Feather River and Philbrook Creek confluence reach	The 9.6-mile-long (gradient of 163 feet per mile, or 0.031%) section of the West Branch Feather River from the confluence with Philbrook Creek (El. 4,800 ft.) to Hendricks Diversion Dam (El. 3,240 feet).
Hendricks Diversion Dam bypassed reach	The 14-mile-long (gradient of 121 feet per mile, or 0.023%) section of the West Branch Feather River from the base of Hendricks Diversion Dam (El. 3,240 feet) to the Miocene Diversion Dam (El. 1,540 feet).
Hendricks Canal at Long Ravine confluence reach	The 0.7-mile-long (gradient of 171 feet/mile, or 0.032%) section of Long Ravine from the outlet of the Hendricks Canal (El. 3,230 feet) to the base of Long Ravine Diversion Dam (El. 3,110 feet).
Long Ravine Diversion Dam bypassed reach	The 1.7-mile-long (gradient of 218 feet per mile, or 0.041%) section of Long Ravine from the base of Long Ravine Diversion Dam (El. 3,110 feet) to the confluence with the Little West Fork (El. 2,740 feet).

3.2.3 Existing Environmental Measures

3.2.3.1 Water Quality and Water Quantity

For the protection of water resources, PG&E currently provides the following minimum instream flows for the Existing Project (Table 5).

Table 5. Existing Project minimum instream flows (in cfs) downstream of Existing Project diversions. (Source: PG&E, 2007, as cited in FERC, 2009)

	Volume of Discharge During Normal and Dry Water Year Types (in cfs)		
Point of Diversion	**Normal[1]**	**Dry[1]**	**Period**
Round Valley Reservoir	0.5	0.1	Year-round
Philbrook Reservoir	2	2	Year-round
Hendricks Diversion Dam	15	7	Year-round
Butte Creek Diversion Dam	16	7	Year-round
Lower Centerville Diversion Dam	40	10	September 15–October 31 and December 15–May 31
	30	10	November 11–December 14
	40	40	June 1–September 14
Inskip Creek	0.25	0.1	Year-round
Kelsey Creek	0.25	0.1	Year-round
Stevens Creek	0.25	0.1	Discontinued[2]
Emma Ravine	0.25	0.1	Discontinued[2]
Coal Claim Ravine	0.25	0.1	Discontinued[2]
Oro Fino Ravine	0.25	0.1	Discontinued[2]
Little West Fork	0.25	0.1	Year-round
Cunningham Ravine	0.25	0.1	Year-round
Clear Creek	0.5	0.25	Year-round
Long Ravine	0.5	0.25	Year-round

[1] Water year types defined per Department of Water Resources (DWR) Bulletin 120 for unimpaired runoff for the Feather River at Oroville Dam. "Normal" means a water year type other than Dry or Critically Dry. "Dry" includes both Dry and Critically Dry.

[2] PG&E proposes to remove these stream diversions from the Existing Project boundary, as these diversions have not been used for more than 10 years.

3.2.3.2 Fishery Resources

For the protection of fishery resources, PG&E conducts fish rescues from Existing Project canals, provides minimum instream flows to Existing Project bypassed reaches, and operates the Existing Project for the benefit of the federally listed SR Chinook and steelhead.

3.2.3.3 Terrestrial Resources

For the protection of terrestrial resources, PG&E: maintains wildlife protection facilities on Existing Project canals, including fencing, wooden crossings, and escape ramps; provided partial funding for the purchase of Butte Creek House Ecological Reserve (Butte Creek House), funded meadow restoration Existing Projects at Butte Creek House, and installed five waterfowl

nesting platforms at the Butter Creek House; and implements the March 2003 Valley Elderberry Longhorn Beetle (VELB) Conservation Program.[7,8] The VELB Conservation Program requires PG&E to conduct pre-construction surveys, where necessary, and provide educational training for construction crews responsible for operation and maintenance activities.

Butte Creek House is land acquired by CDFW in accordance with revised Article 39 Section III C of the existing license (expired in 2009, but continues under annual extensions), for the protection and/or mitigation of the existing Existing Project's effects on fish and wildlife resources. Also, in accordance with Article 39, Section III C of the existing license PG&E provided funding to CDFW for the acquisition of the lands located within Butte Creek House and provides annual funding for the development and management of wet meadow habitat at Butte Creek House. Management includes maintenance of existing measures and implementation of measures proposed by CDFW for the protection of wet meadow habitat located in Butte Creek House. Management does not include measures for acquisition or development of additional wet meadow habitat (CDFG 1986).

3.2.3.4 Recreational Resources

For the protection of recreational resources, PG&E provides funding to CDFW for stocking catchable trout for a put-and-take fishery in DeSabla Forebay and Butte Creek, and maintains and operates recreation facilities at Philbrook Reservoir and DeSabla Forebay. PG&E is agreeable to have an equivalent amount of fish stocked at another location in the vicinity of the Existing Project (personal communication, e-mail from T. Jereb to J. Stallman, July 25, 2012). Recreational use of the Existing Project area also includes activities apart from the developed facilities, including: dispersed camping and hunting at Round Valley Reservoir; fishing and hiking along the Hendricks, Butte, and Lower Centerville Canals; and hunting, hiking, dispersed camping, and whitewater boating along the upper and lower reach of the West Branch Feather River, Philbrook Creek, and Butte Creek.

Section 4.0 Proposed Project

A project is defined under CEQA as "the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment" and that requires a discretionary approval from a public agency (Cal. Code Regs., tit. 14, § 15378, subd. (a)(3)). In this IS, the whole of the action is the continued operation of the Existing Project under a new FERC license consistent with a number of PM&E measures (as described in FERC's final EA) and additional measures being considered by the State Water Board to comply with the Basin Plan.

In this case the Proposed Project includes measures proposed by PG&E in its license application, final FPA section 4(e) conditions issued by the Forest Service and BLM, measures proposed by FERC staff in the final EA (issued July 2009), and measures required by the conditions of the WQC. PG&E has agreed to all conditions as set out in its letter dated August 29, 2011.

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[7] The VELB Conservation Program was developed by PG&E and FWS.

[8] The deer protection measures and waterfowl measures are license requirements (original license article 39) and the VELB Conservation Program is voluntary.

4.1 Proposed Project Facilities

PG&E did not propose any new facilities in its license application and proposed to remove five feeder diversions. During the April 13, 2009, Section 10(j) meeting, PG&E proposed to construct a water temperature improvement facility within the DeSabla Forebay. Specifically, the facility would consist of an approximately 1,300-foot-long, 6-foot-diameter pipe that would connect the terminus of Butte Canal with the DeSabla Forebay intake. A small weir just below the intake spillway would be constructed to provide the required head (approximately 4 feet), allowing surges in the pipe to spill into the forebay. An open connection between the pipe and the intake structure would allow positive surges in the pipe to spill into the forebay and allow forebay water to supply transient needs for the hydropower system.

As part of a compromise proposed to resolve inconsistencies with the agencies over several 10(j) measures, FERC staff also proposed to install a fish screen and fishway at the Hendricks Diversion. As described in draft license articles issued by FERC on July 27, 2009, PG&E would develop a plan to install a fish screen at the diversion canal intake and a fish ladder at the diversion dam, including provisions for maintaining a migration corridor between Hendricks Diversion Dam and Big Kimshew Creek year-round in normal and dry water years. The plan could include the installation of stream habitat enhancement structures, increased flows, or other measures to provide the migration corridor. The draft license article also provides that if increased flows are provided, that the Operations Group[9] may, at its discretion, re-allocate the additional stream flows (flows being provided in excess of the required minimum instream flows) to the Hendricks Canal for delivery to Butte Creek if they are needed to protect ESA-listed anadromous fish in lower Butte Creek.

PG&E proposes to remove from the Proposed Project boundary five stream[10] diversions because they have not been used for more than 10 years.

4.2 Proposed Project Operation

PG&E did not propose any change to Existing Project operations, except for minimum instream flows at the following locations:

1. West Branch Feather River below Hendricks Diversion Dam
   a. March 1 to May 31: 30 cfs (normal water year); 20 cfs (dry water year)[11]
   b. June 1 to February 28th/29: 20 cfs (normal water year); 7 cfs (dry water year)
2. Butte Creek below Butte Creek Diversion Dam
   a. March 1 to May 31: 30 cfs (normal water year); 20 cfs (dry water year)

[9] The Operations Group, as defined in the FERC's draft license articles, is composed of NMFS, FWS, Forest Service, CDFW and State Water Board staff.

[10] The five stream diversions are: Oro Fino Ravine, Emma Ravine, Coal Claim Ravine feeder diversions on the Lower Centerville Canal; Stevens Creek feeder on the Butte Canal; and Little Butte Creek feeder on the Hendricks Canal.

[11] A dry water year is any 12-month period beginning May 1 in which the natural runoff of the Feather River at Oroville for the April 1 to July 31 period, as forecast on April 1 by DWR), and as may be adjusted by the DWR on May 1, will be 50 percent or less of the average for such period as computed by the DWR for the 50-year period used at the time.

b. June 1 to February 28/29: 16 cfs (normal water year); 7 cfs (dry water year)

3. Butte Creek below Lower Centerville Diversion Dam

   a. September 15 to January 31: 75 cfs (normal water year); 60 cfs (dry water year)

   b. February 1 to April 30: 80 cfs (normal water year); 75 cfs (dry water year)

   c. May 1 to May 31: 80 cfs (normal water year); 65 cfs (dry water year)

   d. June 1–September 14th: 40 cfs (normal water year); 40 cfs (dry water year)

4.3 Proposed Environmental Measures

In its license application, PG&E proposed that the following measures be included in any new license issued by FERC. Minor modifications to PG&E's proposed measures recommended by FERC staff in its final EA (FERC, 2009), are indicated by *italic* text.

4.3.1 General Measures

1. Employee Training—PG&E proposed to provide annually, to its operations and maintenance staff, awareness training on special-status species, invasive plants, and sensitive areas (special-status plant populations, noxious weed populations, and historic property sites) that are known to occur within the FERC Proposed Project boundary on National Forest System lands.

2. Consultation—PG&E proposed to annually consult with the Forest Service on measures needed to ensure protection and use of the National Forest resources affected by the Proposed Project.

3. Special-Status Species—PG&E proposed to annually review the current lists of special-status plant and wildlife species for those that might occur on National Forest System lands in the Proposed Project area and may be directly affected by Proposed Project operations. For such newly added species, PG&E proposed to develop and implement a study plan in consultation with the Forest Service to reasonably assess the effects of the Proposed Project on the species, if warranted.

4.3.2 Geology and Soils

1. Increased drainage controls (e.g., additional culverts or rolling dips) on several roads to reduce production of fine sediments: replacing a number of damaged and/or temporary culverts, installing velocity dissipaters at culvert outlets; and improved management of side cast materials during annual road grading activities to minimize erosion and sediment transport potential during future Proposed Project operations and management. *File a final report describing the results of these road improvement efforts with CDFW, NMFS, State Water Board, FWS, the Forest Service, and FERC within 30 days of completion of these measures.*

2. Develop a Proposed Project transportation system management plan that includes: (1) measures to rehabilitate existing erosion damage and minimize further erosion of the Proposed Project access roads on National Forest System lands; and (2) installation of gates or other vehicle control measures to achieve erosion protection.

3. Armor the Round Valley Reservoir plunge pool with rip rap and place warning signs to keep visitors away from the steep plunge pool slopes as a means to reduce sediment input to the spillway. *File a final report describing the results of armoring the Round Valley Reservoir plunge pool with CDFW, NMFS, State Water Board, FWS, the Forest Service, and FERC within 30 days of completion of these measures.*

4. Continue best management practices such as *annually* performing regular aerial and ground patrols, performing periodic canal repairs and removal of hazard trees, as necessary.

5. Develop a Round Valley Dam spillway stabilization plan that includes: (1) an assessment of areas to be stabilized; (2) feasibility-level design drawings for stabilization measures; and (3) a schedule for implementation of the measures.

6. Develop a Proposed Project canal maintenance and inspection plan that includes: (1) annual inspections of the Proposed Project water conveyance system to identify potential short-term and long-term hazards and to prioritize maintenance and/or mitigation; (2) protocols for routine (non-emergency) canal operations and the use of canal spillways; and (3) stabilization measures to reduce the likelihood of catastrophic canal failure due to hazard trees and geologic hazards and to mitigate sources of chronic erosion and sediment transport into canals.

4.3.3 Aquatic Resources

1. Develop and implement a canal fish rescue plan *for Butte Canal and Lower Centerville Canal* that: (1) defines activities that would trigger canal fish rescue efforts; (2) provides for prior notification and coordination with *CDFW* and NMFS; and (3) identifies methods implemented.

2. Maintain a minimum pool in Philbrook Reservoir of 250 acre-feet to provide winter habitat for trout.

3. After consultation with the United States Geological Survey (USGS), install and maintain a flow data logger for measuring stream flow downstream of Hendricks Diversion Dam on the West Branch Feather River, a real-time flow gaging station upstream of Butte Creek Diversion Dam, and modify the existing stream gaging station near Lower Centerville Diversion Dam for real-time data access.

4. Complete any needed modifications to the stream flow gaging facilities necessary to measure the new minimum instream flows within 3 years after issuance of any new license.

5. Provide notice and an explanation to FERC as soon as possible, but no later than 10 days after, of any temporary modification to minimum instream flow requirements.

6. Make the following stream flow information available to the public via the Internet: West Branch Feather River at USGS gage no. 11405200 (downstream of Hendricks Diversion Dam); Butte Creek at USGS gage no. 11389720 (downstream of Butte Creek Diversion Dam); and USGS gage no. 111389780 (downstream of Lower Centerville Diversion Dam).

7. Monitor water temperature, dissolved oxygen (DO), turbidity, and herbicides (if in use) in receiving streams, upstream and downstream, of canal discharge within

24 hours prior to, during, and within 24 hours of returning Proposed Project canals to service, and provide a summary of cleaning and maintenance activities as well as the monitoring results to the State Water Board, and file a summary report with FERC within 30 days of completing the monitoring and any associated laboratory analysis.

8. Develop, after consultation with the Forest Service, NMFS, FWS, and CDFW, and file for FERC approval, a hazardous substances plan.

9. Maintain the following minimum instream flows, or inflow, whichever is less (flow values noted with an asterisk and italics have been modified from PG&E's proposal and are now adopted as part of FERC staff alternative):

	Proposed Minimum Instream Flow (cfs)		
Point of Discharge	**Normal Water Year**	**Dry Water Year**	**Period**
Round Valley Dam	0.5	0.1	Year-round
Philbrook Dam	2.0	2.0	Year-round
Hendricks Diversion Dam	*15**	*7**	Year-round
Butte Creek Diversion Dam	30	20	March 1 to May 31
	15	*10**	June 1 to Feb. 28
Lower Centerville Diversion Dam	75	60	Sept. 15 to Jan. 31
	80	75	Feb. 1 to April 30
	80	60	May 1 to May 31
	40	40	June 1 to Sept. 14
Inskip, Kelsey, Little West Fork, and Cunningham Ravine creeks	0.25	*0.2*	Year-round
Clear and Long Ravine creeks	0.5	0.25	Year-round

10. In wet water years, after consultation with the Forest Service, *NMFS, FWS, and CDFW*, release a minimum instream flow of at least 10 cfs to Philbrook Creek April 1 through May 15, *provided there is an ample snow pack and there is safe access for PG&E employees to adjust the flow release valve and provide notification to FERC.*[12]

11. If it is determined that implementing an increased minimum instream flow of 10 cfs during wet water years may compromise Philbrook Reservoir minimum storage, after consultation with the Forest Service, *NMFS, FWS, and CDFW*, reduce minimum instream flows to flows no less than 2 cfs *and provide notification to FERC.*

[12] PG&E did not propose this measure in its license application; however, during the April 13, 2009, Section 10(j) meeting, PG&E agreed to implement this measure.

12. Implement minimum instream flow requirements triggered by water year type within 2 business days of the publication of the California Department of Water Resource's Bulletin 120.

13. Notify the Forest Service, *CDFW*, NMFS, FWS, the State Water Board, and FERC of drought concerns by March 15 of the second or subsequent dry water year and consult with these agencies by May 15 of the same years to discuss operational plans to manage the drought conditions.

14. *Develop, after consultation with the Forest Service, FWS, NMFS, CDFW, and the State Water Board, and file for FERC approval, a feeder creek diversion facility removal plan* for the removal of feeder diversions on Oro Fino Ravine, Emma Ravine, Coal Claim Ravine, Stevens, and Little Butte creeks.

15. Develop, after consultation with the *Forest Service, the State Water Board, Conservation Groups*,[13] NMFS, *CDFW*, and FWS, and file for FERC approval, a DeSabla Forebay water temperature improvement plan that addresses the installation of a pipe to convey water from the terminus of Butte Canal to the DeSabla Forebay intake.[14] *Also, include a provision to monitor water temperatures in Butte Creek and DeSabla Forebay for a period of 5 years after measures have been implemented and submit annual reports on these results to FWS, NMFS, the Forest Service, CDFW, the State Water Board, the Conservation Groups, and FERC.*

16. Develop, after consultation with the Forest Service, the State Water Board, NMFS, *CDFW*, and FWS, and file for FERC approval, a long-term operations plan that includes the development of an annual Project Operations and Maintenance Plan within 1 year of license issuance, the applicant shall file a long-term operations plan with FERC, for approval.

4.3.4 Terrestrial Resources

1. Annually review current list of special-status species.
2. Inspect wildlife bridges and deer escape facilities and replace as necessary.
3. Monitor animal losses in Proposed Project canals.
4. Implement a vegetation management plan.
5. Implement an invasive weed management plan.

4.3.5 Threatened and Endangered Species

1. Continue to implement the VELB Conservation Program.

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[13] The Conservation Groups include the California Sportfishing Protection Alliance, Friends of Butte Creek, American Whitewater, and Friends of the River.

[14] In its license application, PG&E proposed to construct a baffle wall facility to reduce thermal loading within the forebay; however, during the April 13, 2009, Section 10(j) meeting, PG&E agreed to construct a pipe to reduce thermal loading.

4.3.6 Recreation, Land Use, and Aesthetics

1. Develop and implement a recreational facility rehabilitation and Americans with Disabilities Act upgrade plan for capital and rehabilitation improvements to the existing recreational facilities at Philbrook Reservoir and DeSabla Forebay recreation areas.
2. Provide streamflow information on Proposed Project reaches for recreational boating.
3. Provide limited stream access at DeSabla and Centerville Powerhouses.
4. Develop and implement a sign and information plan to determine the type of signs, number, and locations of where the signs will be placed at the Proposed Project.
5. Develop and implement a recreation operation plan for the annual operation and maintenance of the existing recreational facilities at Philbrook Reservoir and the DeSabla Forebay recreation areas.
6. Develop a visual management plan to include painting, revegetating, screening, and repairing facilities as well as disposing of debris piles.[15]
7. Develop a Proposed Project transportation system management plan for the protection and maintenance of roads associated with the Proposed Project.

4.3.7 Cultural Resources

1. *Within 60 days of license issuance, implement the February 2008 Historic Properties Management Plan (HPMP) with the following revisions: (1) update the February 2008 HPMP with the additional historic context information provided by the BLM, the Forest Service, and the Mechoopda Tribe; (2) develop a collection policy for discovery, curation, and disposition of artifacts, noting that all artifacts from National Forest System lands remain the property of the Forest Service; (3) develop a detailed HPMP section addressing identification, restoration, accessibility, and stewardship collaborations for traditional plant gathering/tending in wetlands and riparian habitat communities culturally important to participating Tribes; (4) identify specific management measures to be undertaken and include them within PG&E's best practices or procedural manuals; and (5) include mitigation measures for the Round Valley Reservoir site CA-BUT 1225/H, the Philbrook Lake Tenders Cabin, and other sites as determined necessary during consultation with applicable agencies and participating Tribes.*

4.3.8 Socioeconomic Resources

PG&E did not propose any measures related to socioeconomic resources.

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[15] Debris piles are defined as natural debris such as logs and excess vegetation removed from Proposed Project reservoirs or water courses currently being stockpiled on Forest Service lands in the vicinity of Philbrook Reservoir (personal communication, telephone communication between K. Hogan and S. Murray, and K. Turner, July 22, 2009).

4.3.9 Additional Measures

After preparation of the license application and following discussions with State Water Board staff PG&E proposed adding additional measures to the Proposed Project, as presented below.

4.3.9.1 Air Quality Impacts During Construction

Construction projects could result in temporary air quality effects. During ground disturbing construction projects, PG&E shall implement the following requirements:

1. Construction access roads and the construction site will be sufficiently watered to prevent excessive amounts of dust.
2. All earth materials transported off site on public roads will be either sufficiently watered or securely covered to prevent excessive amounts of dust.
3. After construction is complete, the construction site will be seeded with native grasses or plants.
4. Equipment engines will be maintained in good condition and properly tuned as set forth in the manufacturers' specifications.

4.3.9.2 Historic Properties

The Centerville Powerhouse is individually eligible for listing on the National Register of Historic Places (National Register), and structures associated with the powerhouse are contributing to the significance of the historic district. If PG&E were to decommission and demolish the Centerville Powerhouse and its associated structures, PG&E would be required to take its National Register-eligibility status into account and consult with the California State Historic Preservation Officer (SHPO) prior to any demolition activities. Completion of a Historic American Building Record/Historic American Engineering Record (HABS/HAER) would preserve the information about the structure and its features for future generations and would mitigate the adverse effects on our history and culture of rapidly vanishing architectural and engineering resources. Under the HPMP submitted by PG&E in February 2008, PG&E shall perform any modification and new construction in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (48 CFR 44780) and in consultation with the California SHPO. As required under those standards, prior to beginning construction PG&E will prepare the HABS/HAER documentation necessary to ensure that structures are modified and their features are recorded to mitigate Proposed Project effects resulting from the modifications. PG&E shall consult with the California SHPO and the Advisory Council of Historic Places to ensure the adequacy of the HABS/HAER report. A Memorandum of Agreement must be signed by the California SHPO prior to beginning construction.

4.3.9.3. Historic and Archaeological Sites

Relicensing studies identified 46 archaeological and historic-era sites and four isolated finds. Of these, PG&E evaluated 34 with only historic-era remains, found five eligible for listing in the National Register of Historic Places, and requested concurrence by the California SHPO. PG&E considered the remaining 12 sites containing prehistoric materials to be eligible, pending formal evaluations. Prior to any ground disturbing activities with the potential to adversely impact historic properties, PG&E shall submit a plan to the Deputy Director for documentation of compliance with the provisions in the final HPMP for inadvertent discoveries and monitoring

during ground-disturbing activities. The plan will address any potential impact to previously unidentified cultural materials or new discoveries.

4.4 Modifications to Applicant's Proposal

4.4.1 Section 18 Prescriptions

FWS and NMFS each filed a reservation of authority to prescribe fishways at the Proposed Project on June 27, and June 30, 2008, respectively.

4.4.2 Section 4(e) Land Management Conditions

4.4.2.1 Forest Service

The Forest Service filed 36 final Section 4(e) conditions on April 28, 2009, and modified conditions 18, 19, and 20 on April 19, 2010. Conditions 1 through 17 are standard conditions that are administrative in nature, and include obtaining Forest Service approval on final Proposed Project design and Proposed Project changes, and yearly consultation with the Forest Service to ensure the protection and development of natural resources. The remaining Forest Service Section 4(e) conditions include:

Geology and Soils

1. Condition 21, Develop Designs and Implement Actions to Stabilize the Round Valley Spillway Channel—requires PG&E to consult with the Forest Service and other mandatory conditioning agencies to develop designs and implement actions to stabilize the Round Valley Dam spillway channel to minimize erosion and reduce sediment contributions to the West Branch Feather River.
2. Condition 22, Implement the Philbrook Spillway Channel Stabilization Plan—requires PG&E to stabilize and maintain the Philbrook spillway channel.
3. Condition 23, Develop and Implement a Proposed Project Canal Maintenance, Inspection and Hazard Prevention Plan—requires PG&E to develop and implement a maintenance and inspection plan to minimize the risk of canal failures.

Aquatic Resources

1. Condition 18, Streamflow—requires specific minimum instream flows for Proposed Project bypassed reaches, criteria for determining water year type, a protocol for modifying operations during multiple dry water years, provisions for stream flow measurement, and a ramping rate study.
2. Condition 19, Hendricks Diversion Fish Screen and Plan—requires PG&E to develop and implement a plan to provide a fish screen at the Hendricks Diversion Canal intake and a fish ladder at the Hendricks Diversion Dam, including measures necessary to provide year-round passage of trout over the Hendricks Diversion Dam, as well as migration between Hendricks Diversion Dam and Kimshew Creek in all water years. Any increased stream flows above those specified in condition 18 may be reallocated if the Operations Group determines that additional flow is necessary to protect ESA-listed anadromous fish within lower Butte Creek.

3. Condition 20, Aquatic Biological Monitoring—requires aquatic biota monitoring including fish, foothill yellow-legged frogs, and benthic macroinvertebrates in Proposed Project-affected bypassed reaches.

4. Condition 24, Develop and Implement Long-term Operations Plan—requires PG&E to develop and implement a long-term operations plan that has a primary goal of seeking to provide cold water for holding, spawning, and rearing SR Chinook and steelhead in Butte Creek upstream and downstream of the Centerville Powerhouse.

5. Condition 25, Maintain Minimum Pool in Philbrook Reservoir—sets the minimum pool volume of Philbrook Reservoir at 250 acre-feet.

Terrestrial Resources

1. Condition 26, Special Status Species—requires PG&E to annually review current lists of special status species and if new species are identified to likely be found on National Forest System lands, this condition would require PG&E to develop and implement a study to determine the effects of the Proposed Project on said species.

2. Condition 27, Protection of Forest Service Special Status Species—requires PG&E to prepare a biological evaluation before any ground disturbing activities on National Forest System lands for the continued protection of Forest Service special status species.

3. Condition 28, Canal Wildlife Crossing or Escape Facilities—requires PG&E to consult with the Forest Service and CDFW before retrofitting or replacing wildlife bridge crossings or deer escapement facilities along Proposed Project canals.

4. Condition 29, Monitor Animal Losses in Proposed Project Canals—requires PG&E to monitor and record animal mortality in Proposed Project canals.

5. Condition 31, Vegetation and Invasive Weed Management Plan—requires PG&E to develop and implement a vegetation and invasive weed management plan.

Threatened and Endangered Species

1. Condition 30, VELB Protection—requires PG&E to comply with the VELB Conservation Program.

Recreation, Land Use, and Aesthetics[16]

1. Condition 33, Recreation Facilities on or Affecting National Forest System Land—requires PG&E to develop and implement a recreation management plan, and also requires PG&E to implement measures to prevent dumping and control off-highway vehicle activities on National Forest System lands, provide for a half-time law enforcement position, support reservoir-based recreation, and monitor and report recreation usage.

[16] The Forest Service specified in preliminary Section 4(e) condition 32 that PG&E develop a resolution of encumbrances plan. Since the issuance of the draft EA and with the filing of its modified Section 4(e) conditions, the Forest Service withdrew condition 32.

2. Condition 34, Land Resource Plans for Mitigating Proposed Project Effects to National Forest System Resources—requires PG&E to develop and implement a land resource management plan including a fire management and response plan, visual management actions plan, sign and information plan, and a hazardous substance plan.

3. Condition 36, Proposed Project Transportation System Management Plan—requires the protection and maintenance of roads associated with the Proposed Project through the development and implementation of a Proposed Project transportation system management plan, including traffic and road air quality monitoring.

Cultural Resources

1. Condition 35, Heritage Properties Management Plan—requires PG&E to develop and file a heritage properties management plan for the purpose of protecting and interpreting heritage resources.

4.4.2.2 Bureau of Land Management

The revised preliminary conditions provided by BLM on September 11, 2006, and filed under Section 4(e) of the FPA are as follows: conditions 1 through 17 and 22 are administrative in nature and are standard conditions that would involve obtaining BLM's approval on final Proposed Project design and Proposed Project changes, annual consultation with BLM, prior approval for pesticide use, other various measures to ensure the protection and development of natural resources on BLM lands, a reservation of its Section 4(e) authority, etc. The remaining BLM preliminary Section 4(e) conditions include:

Geology and Soils

1. Condition 21, Control of Erosion—requires PG&E to control erosion at specified locations.

Recreation, Land Use, and Aesthetics

1. Condition 18, Recreation Use Monitoring and Reporting—requires monitoring of recreation use and reporting.

2. Condition 19, Funding to Address Patrol and Maintenance Activities—requires PG&E to pay BLM $30,000 annually for patrol and maintenance activities at the Forks of Butte Creek Recreation Area and other lands as agreed to by PG&E and BLM.

3. Condition 20, Maintenance of Portion of Ditch Creek Road—requires the maintenance of portions of Ditch Creek Road.

4.4.3 Alternative Section 4(e) Conditions Pursuant to Energy Policy Act of 2005 [17]

The Energy Policy Act or EPAct provides parties to this licensing proceeding the opportunity to propose alternatives to preliminary conditions. On July 30, 2008, PG&E filed with FERC a copy

[17] Public Law 109-58 Aug. 8, 2005, SEC. 33. Alternative Conditions and Prescriptions.

of its filing to the Forest Service and BLM proposing alternative 4(e) conditions in response to their preliminary Section 4(e) conditions and seeking a trial-type hearing with respect to both Forest Service and BLM 4(e) conditions. As a result of PG&E's alternative 4(e) conditions, BLM withdrew its preliminary 4(e) conditions filed on June 27, 2008, and filed revised preliminary 4(e) conditions on September 11, 2008. On September 18, 2008, PG&E filed with FERC a withdrawal of its request for a trial-type hearing of BLM's 4(e) conditions. On December 11, 2008, PG&E filed a withdrawal of its alternative 4(e) conditions to BLM's preliminary 4(e) conditions. Additionally, on July 30, 2008, the Conservation Groups filed alternative 4(e) conditions. The Forest Service responded to the Conservation Groups alternative 4(e) conditions on April 27, 2009.

PG&E filed alternatives to the following Forest Service preliminary conditions:

1. Condition 18, Streamflow, Part 1: Minimum Streamflow Requirements and Measurement.
2. Condition 18, Streamflow, Part 5: Ramping Rates.
3. Condition 19, West Branch Feather River Rainbow Trout Population Monitoring Study.
4. Condition 20, Aquatic Biological Monitoring, Part 1: Fish Monitoring Plan.
5. Condition 20, Aquatic Biological Monitoring, Part 2: Amphibian Monitoring Plan.
6. Condition 20, Aquatic Biological Monitoring, Part 3: Benthic Macroinvertebrate Monitoring.

The Conservation Groups filed alternatives to the following Forest Service preliminary conditions:

1. Condition 18, Streamflow.
2. Condition 19, West Branch Feather River Rainbow Trout Population Monitoring Study.

As previously noted, the Forest Service filed modified conditions 18, 19, and 20 on April 19, 2010.

4.5 FERC Staff Alternative

In addition to PG&E's proposed measures listed above, FERC staff alternative would include the following measures:

4.5.1 Aesthetic and Land Use Resources

1. Develop and implement a fire management and response plan to prevent and handle potential fires at the Proposed Project.
2. Develop and implement a plan to monitor the aesthetic value of the DeSabla Forebay for one year following installation of the temperature reduction device.
3. Bring West Branch Feather River road crossing (designated as BW45 road) into the Proposed Project boundary.

4.5.2 Biological Resources

4.5.2.1 Aquatic Resources

1. Promptly resume minimum instream flow requirements after a non-compliance event and notify the Forest Service, FWS, NMFS, CDFW, the State Water Board, and FERC within 48 hours of this interruption.
2. Provide a minimum instream flow of 1 cfs, or inflow, during normal water years, and a minimum instream flow of 0.5 cfs, or inflow, during dry water years downstream of the Helltown Ravine Diversion Dam.
3. Construct and operate a tap off the DeSabla Forebay temperature reduction device (i.e., pipe) to supply any flows to Upper Centerville Canal for local water users and instream flows to Helltown Ravine.
4. Provide a minimum instream flow of at least 1 cfs to Philbrook Creek when inflow into Philbrook Reservoir is less than 0.5 cfs.
5. If sufficient water is not available to hold stream levels constant during periods when foothill yellow-legged frog egg masses are present, ramp flows downstream of Butte Creek Diversion Dam and Lower Centerville Diversion Dam such that:
   a. During downramping, stage changes should not exceed 0.2 foot per second per hour at foothill yellow-legged frog egg mass sites and water levels should not drop so that more than 20 percent of egg masses are de-watered.
   b. During upramping, velocity should not change more than 0.2 foot per second per hour and should not exceed 0.5 foot per second at the most sensitive foothill yellow-legged frog egg mass sites.
   c. When foothill yellow-legged frog tadpoles or juveniles are present, the up- and downramping rate should be 0.4 foot per second per hour or less and should not exceed 1.0 foot per second at the site.
6. Develop, after consultation with the Forest Service, *CDFW*, NMFS, and FWS, and file for FERC approval, an instream flow-ramping rate study with the objective of measuring the change in water velocities, stream width, and river stage during up- and downramping of flows in the West Branch Feather River.
7. Upon completion of the instream flow ramping rate study, file the study results and final Proposed Project operation ramping rates with FERC for approval prior to implementation, along with a description of how any velocity-based ramping rates will be monitored for compliance purposes.
8. Develop, after consultation with the Forest Service, *CDFW*, NMFS, and FWS, and file for FERC approval, a ramping rate plan for flows downstream of the main Proposed Project diversions in Butte Creek. The plan should include, at a minimum, provisions for determining the relationship between Proposed Project operations and downstream water velocities, a description of how compliance with the above specified ramping rates will be achieved, and provisions for determining if ramping rates are protecting foothill yellow-legged frog populations.
9. Schedule the timing of maintenance or other planned Proposed Project outages to avoid negative ecological effects on foothill yellow-legged frogs and spring-run

Chinook salmon and provide written notice, including proposed measures to minimize the magnitude and duration of spills, at least 90 days prior to such outages, to the Forest Service, FWS, NMFS, *CDFW*, the State Water Board, and FERC.

10. Obtain approval from the Forest Service and BLM on the use of pesticides on Forest Service or BLM lands and submit a request for approval of planned uses of pesticides for the upcoming year during annual consultation.

11. Utilize only pesticides registered by the EPA and do not use them within 500 feet of known locations of California red-legged frogs, mountain yellow-legged frogs, foothill yellow-legged frogs, and Yosemite toads.

12. Within 30 days of making the final water year type determination, provide notice of this determination to CDFW, FWS, NMFS, Forest Service, State Water Board, and FERC.

13. If drought conditions are evident, include any potential proposals for modified Proposed Project operations and file these proposals with FERC for approval.

14. Within one year of license issuance, construct, operate, and maintain, after consultation with USGS, a streamflow gage with real-time capability in Philbrook Creek, downstream of the confluence of both the low level release and spill channel in Philbrook Creek.

15. Operate and maintain the existing gaging stations on the West Branch Feather River downstream of Round Valley Reservoir and the Hendricks Diversion Dam.

16. Measure minimum instream flows as the 24-hour average of the flow (mean daily flow) and as an instantaneous flow, with instantaneous 15-minute stream flow as required by USGS standards at all gages.

17. Measure and document all minimum instream flow releases in publicly available and readily accessible formats, and provide these data to USGS in an annual hydrology summary report.

18. Within one year of license issuance, construct, operate, and maintain, after consultation with USGS, a water temperature and reservoir level gage in Philbrook Reservoir with real-time capability.

19. Provided there is safe access for PG&E employees to access Proposed Project facilities at Philbrook Reservoir, PG&E should make any necessary adjustments to the minimum instream flow release valve as quickly as possible, or within 2 hours, in response to heat-related events.

20. As a result of annual consultation and adaptive management, construct, operate, and maintain up to three additional streamflow gages, upon FERC approval, if needed.

21. Weather permitting, provide a roving operator to maintain and monitor the feeder diversions on a weekly basis.

22. Develop, after consultation with Forest Service, CDFW, NMFS, FWS, and the State Water Board, and file for FERC approval, a water temperature monitoring plan, to be incorporated as part of the long-term Proposed Project operations plan.

23. Submit an annual report detailing temperature monitoring results to the Forest Service, CDFW, NMFS, FWS, the State Water Board, and FERC prior to annual consultation.

24. Include the State Water Board and Forest Service as members of the Operations Group.

25. Monitor resident fish populations to evaluate their response to changes in Proposed Project operations such as minimum flows.

26. Monitor benthic macroinvertebrate populations to evaluate their response to changes in Proposed Project operations such as minimum flows.

27. Annually monitor anadromous fish and their designated critical habitats in Butte Creek.

28. Develop and implement an adaptive management program to guide the long-term operations of the Proposed Project to protect the federally listed anadromous fish within Butte Creek that considers the aquatic resources of the West Branch Feather River.

29. Develop and implement a fish screen and passage plan for the Hendricks Diversion Dam that allows for additional flows needed to operate a fish ladder and provide passage to be reallocated to lower Butte Creek to protect listed ESA anadromous fish and designated critical habitat, if deemed appropriate by the Operations Group.

4.5.2.2 Terrestrial Resources

1. Prepare and implement a foothill yellow-legged frog monitoring plan that includes information about substrate, channel morphology, channel shape and slope, water velocities, canopy, water temperature, riparian and aquatic vegetation, and location of oviposition sites.

2. Expand annual review of special-status species and protection measures to apply to all accessible Proposed Project lands and include federally listed species and BLM sensitive/watch list species.

3. Provide a summary report of animal mortality across all Proposed Project canals every five years. If an increasing trend in wildlife mortalities is documented, additional wildlife mortality minimization measures will be prepared.

4. Expand annual review of special status species and protection measures to apply to all accessible Proposed Project lands and include federally listed species and BLM sensitive/watch list species.

5. Expand deer protection measures outlined in Forest Service conditions 26 and 27, as well as the vegetation management plan and invasive weed plan required in Forest Service condition 31 to include all Proposed Project canals.

6. Prepare and implement a bald eagle monitoring plan.

4.5.3 Geological Resources

1. Reconstruct and maintain any areas of the Butte Creek Canal, slope, and road that are detrimentally affected by Proposed Project activities. After consultation with BLM and within one year of license issuance, PG&E should prepare and file a schedule with FERC for completing these measures.
2. Develop and implement a Philbrook spillway channel stabilization plan to mitigate for the current erosion problem below the Philbrook spillway channel. The plan should also include a schedule for filing status reports with FERC on the ongoing monitoring associated with erosion below the Philbrook spillway channel. Implementation of this plan was completed January 28, 2011[18]
3. Because of ongoing erosion monitoring, include lands, starting at the Philbrook spillway channel, extending from the two Philbrook spillways and ending at the confluence with Philbrook Creek, in the Proposed Project boundary.

4.5.4 Recreational Resources

1. Extend concrete boat launch at Philbrook Reservoir.
2. Upgrade and maintain user-created trail and parking along Toadtown Canal.
3. Construct and maintain pathways from three Forest Service public parking areas to the southeast shoreline of Philbrook Reservoir.
4. Develop and implement a fish stocking plan for Proposed Project reservoirs and reaches after consultation with CDFW.
5. Expand the recreation monitoring specified in Forest Service condition 33 to include recreational fishery surveys.
6. Develop recreation use monitoring, reporting, and use triggers to periodically monitor changes in recreation use patterns at the Proposed Project.

4.6 FERC Staff Alternative with Mandatory Conditions

The EA includes Commission staff alternatives which include staff recommended modification or elimination of the mandatory conditions. Commission staff alternatives were considered as part of the Proposed Project. However, only Commission staff alternatives that do not modify or eliminate section 4(e) and 18 mandatory conditions were considered as part of the Proposed Project.

4.7 Additional Measures

The Environmental Checklist considers a range of options from continued operation of the Centerville Powerhouse to full decommissioning when considering the environmental impacts associated with the Centerville Development.

As stated above, the WQC will contain conditions necessary to ensure the operation of the Proposed Project protects the beneficial uses of water. Conditions in the WQC may modify

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[18] Efforts to stabilize the Philbrook spillway channel are being addressed as a separate action that will be completed before the license is issued; therefore, this document considers the stabilized spillway channel as the part of the Existing Project.

conditions recommended by FERC staff or other agencies that are necessary to protect the beneficial uses. A draft WQC is being circulated with this IS. Some of the conditions require development of a plan with specific elements that will be developed in consultation with agencies, and ultimately approved by the Deputy Director for Water Rights. These conditions are referenced in the Environmental Checklist as necessary to ensure the impacts of the Project are less than significant.

Most of the conditions in the WQC will not result in impacts beyond those anticipated in FERC staff alternatives or mandatory conditions with the exception of the operation of the Centerville Development. As discussed above the Centerville Powerhouse is at the end of its service life and will require repair or refurbishment. Ultimately, PG&E will consider a range of factors including economics to make a decision on whether to rebuild the powerhouse. Conditions in the WQC could result in either short term or long term changes in operation of the Centerville Powerhouse that may influence this decision.

The WQC may require the release of full flow below the Lower Centerville Diversion Dam to increase summer holding habitat and reduce water temperature for ESA listed anadromous fish. Conditions in the WQC may include a multiple year testing period during which water will not be available for generation at the Centerville Powerhouse. The amount of water available, and the time of year the water is available, for power production will be used by PG&E to determine the future of the Centerville Powerhouse. The cost of refurbishment or replacement of the powerhouse could exceed the value of the power generated by the facility and PG&E could decide to decommission the facility. Decommissioning could include removal of the Centerville Powerhouse and associated facilities or conversion of the powerhouse to another use such as a museum. In addition to the powerhouse, the Lower Centerville Canal will need to be stabilized and/or restored. The canal could be converted into a trail or restored and allowed to return to a natural state. At a minimum, the canal will need to be stabilized to prevent future water quality impacts.

Certain measures have been identified that are necessary to ensure impacts of the Proposed Project are less than significant. A Mitigation Monitoring and Reporting Plan was developed and will be included in the WQC. While PG&E did not propose mitigation measures and does not agree that certain measures or portions of measures are necessary to reduce impacts to a less-than-significant level, it nevertheless agrees to incorporate the mitigation measures in their entirety into the Proposed Project in order to move forward with permitting (e-mail from Matt Fogelson, August 29, 2011).

Section 5.0 Environmental Checklist and Analysis

5.1 Introduction

1. Proposed Project Title:

DeSabla-Centerville Hydroelectric Project, FERC Project No. 803-087

2. Lead Agency Name and Address:

State Water Resources Control Board
Division of Water Rights
P.O. Box 2000
Sacramento, CA 95812-2000

3. Contact Person, Email Address, and Phone Number:

Amber Villalobos
Environmental Scientist
avillalobos@waterboards.ca.gov
(916) 323-9389

4. Proposed Project Location:

The DeSabla-Centerville Hydroelectric Project is located on Butte Creek and the West Branch Feather River in Butte County, California.

5. Proposed Project Sponsor's Name and Address:

Pacific Gas and Electric Company
Mail Code N 11 C
Post Office Box 770000
San Francisco, CA 94177

6. General Plan Description:

Not applicable.

7. Zoning:

Not applicable.

8. Description of Proposed Project:

The State Water Board will use this IS in its decision making process for issuance or denial of a WQC for the following actions requiring approval by FERC or ACOE:

a. Issuance of a new FERC license for the Proposed Project.

b. Install and operate a new fish ladder and fish screen at the Hendricks Diversion on the West Branch Feather River.

c. Install and operate a cold-water bypass system in DeSabla Forebay to provide cooler water temperatures released from DeSabla Powerhouse for the protection and enhancement of salmonid and steelhead habitat in Butte Creek.

d. Implement provisions to reduce sediment deposition in the West Branch Feather River and Butte Creek from Proposed Project roads and canal spillway channels.

e. Implement other measures required by the new FERC license.

f. Decommissioning or refurbishing of the Centerville Powerhouse is considered a possible future action and is considered as part of the range of Proposed Project effects.

9. Surrounding Land Use and Setting:

Land use in the area of the Proposed Project is forest land owned by PG&E, Sierra Pacific Industries, other private land holders, National Forest System lands administered by the Forest Service, or lands administered by BLM.

10. Other Public Agencies Whose Approval is Required:

Federal Agencies

- Federal Energy Regulatory Commission
- ACOE
- Forest Service
- FWS

State Agencies

- State Water Board
- Department of Water Resources, Division of Safety of Dams
- California Department of Transportation
- State Historic Preservation Office

5.2 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the Proposed Project, involving at least one "Potentially Significant Impact" as indicated by the checklist on the following pages. No environmental factor is identified as a "Potentially Significant Impact."

	Aesthetics		Agricultural Resources		Air Quality
	Biological Resources		Cultural Resources		Geology/Soils
	Hazards & Hazardous Materials		Hydrology/Water Quality		Land Use/Planning
	Mineral Resources		Noise		Population Housing
	Public Services		Recreation		Transportations/Traffic
	Utilities/Service Systems		Mandatory Findings of Significance		

5.3 Determination

	I find that the Proposed Project COULD NOT have a significant effect on the environment and a NEGATIVE DECLARATION will be prepared.
X	I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Proposed Project have been made by or agreed to by the Proposed Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the Proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures in the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable legal standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.

Signature

4/12/13
Date

Barbara Evoy
Deputy Director for Water Rights
State Water Resources Control Board

5.4 Evaluation of Environmental Impacts

5.4.1 Introduction

In a CEQA analysis of an existing hydroelectric project, reauthorizing the project is not likely to yield many environmental impacts because most of the impacts have already occurred, and, when compared to the current condition, do not register as significant. Environmental impacts that may or could occur are usually the result of new conditions necessary to bring the Proposed Project into compliance with existing laws including the CWA and ESA. The following sections present the potential impactsof the Proposed Project on the resources in the Project area. Unless otherwise noted the source of information is FERC's final EA (FERC, 2009).

5.4.2 Aesthetics

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Have a substantial adverse effect on a scenic vista?					X
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?					X
c. Substantially degrade the existing visual character or quality of the site and its surroundings?				X	
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?					X

a. No Impact. The Proposed Project area provides limited scenic vistas because of the foothills, mountainous terrain, and forested areas in which it is located.

b. No Impact. There are no designated scenic highways from which one can view any of the Proposed Project facilities or construction sites.

c. Less Than Significant Impact. There are no new facilities proposed that will degrade the visual character of the site. There may be short term visual impact during certain construction projects including the DeSabla Forebay, campgrounds refurbishment, and reconstruction or decommissioning of the Centerville Development. During the construction activities, construction equipment and construction activities, would be visible depending on viewing area and sight lines. Following construction, the new facilities would improve rather than detract from the view. Installation of the new temperature reduction device at the DeSabla Forebay would require dewatering of the forebay during the two spring construction periods and possibly for the intervening months, which would

adversely affect the appearance of the forebay for those driving by on Skyway Road. Because of the limited viewing area, this would be a less than significant impact. A 12-acre area that would be used to dispose of sediment removed from the forebay would not be visible to the public. This impact is less than significant.

d. No Impact. The Proposed Project would not create a new source of light or glare that would adversely affect day or nighttime views in the area.

5.4.3 Agricultural Resources

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. *Would the Proposed Project:*					
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?					X
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?					X
c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?					X

a. No Impact. There are no lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance in the Proposed Project area.

b. No Impact. The only lands within the Proposed Project area that are zoned Agricultural-Residential are 4.4 miles of the Centerville Canal and 0.1 mile of Proposed Project road, and the Proposed Project would not conflict with that zoning.

c. No Impact. There would be no conversion of farmlands to non-agricultural uses.

5.4.4 Air Quality

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. *Would the Proposed Project:*					
a. Conflict with or obstruct implementation of applicable air quality plan?	Butte County Air Quality Management District (2008) and California Air Pollution Control Officers Association (CAPCOA) (2008)				X
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?				X	
c. Result in cumulatively considerable net increase of any criteria pollutant for which the Proposed Project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?				X	
d. Expose sensitive receptors to substantial pollutant concentrations?					X
e. Create objectionable odors affecting a substantial number of people?					X

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
f. Contribute to greenhouse gas emissions	CARB (2008a & b); Butte County (2008); personal communication, telephone communication between R. Kanz and J. Holeman December 7, 2010; personal communication, telephone communication between T. Jereb and J. Holeman, December 3, 2010; California Energy Commission (CEC), (2009a & b, 2007).			X	

a. No Impact. The Proposed Project, including the DeSabla, Toadtown, and Centerville developments, would not conflict with or obstruct the implementation of applicable air quality plans. These plans include State Implementation Plans for nonattainment air pollutants, policies established in the Model General Plan Air Quality Element by Butte County Air Quality Management District in coordination with the California Air Resources Board (CARB) under CEQA, and the Butte County General Plan. Neither the construction phases nor the operational lifetime of this Proposed Project would result in population growth or criteria air emission increases that would exceed estimates in the applicable plans or require additional measures beyond the local air quality policies.

b. Less Than Significant Impact. PG&E proposes measures to reduce the impact of emissions during construction activities. No significant increase in local air pollutant emissions are expected to occur as a result of the potential construction activities. Consequently, there would be no violation of air quality standards created or contributed by the Proposed Project development during operation. This is a less than significant impact.

c. Less Than Significant Impact. Under federal and state ambient air quality standards, the ozone (volatile organic compounds and nitrogen oxide as precursors) and fine particulate matter (PM) are designated as non-attainment for Butte County in the Chico, California area. Federal standards are established for pollutants as respirable particulate matter less than 10 microns in diameter (PM10) and fine particulate matter less than 2.5 microns in diameter (PM2.5). California list both PM10 and PM2.5 as nonattainment. The Federal listing for PM10 is attainment and PM2.5 as nonattainment. Other areas of Butte County are classified as in attainment. Long-term operation of the Proposed Project is not expected to result in notable emissions of criteria air pollutants, including ozone precursors. Similarly, the potential reservoir decommissioning is not expected to result in notable emissions of these pollutants. Temporary air quality effects due to construction activities would be minimal. Mitigation measures during construction would include sufficiently watering the construction

site, access roads, and all earth materials transferred off site to prevent excessive amounts of dust (PM). Additional mitigation measures include the use of well-maintained construction equipment, tuned to the manufacturers' specifications and seeding the construction site with native grasses or plants once construction is complete. With implementation of these mitigation measures, the impact will be less than significant.

d. No Impact. No sensitive receptors would be exposed to substantial pollutant concentrations from construction, operation, or potential decommissioning activities of the Proposed Project at DeSabla, Toadtown, or Centerville developments.

e. No Impact. Neither operation nor construction of the Proposed Project at the DeSabla, Toadtown, or Centerville developments would create or cause objectionable odors.

f. Less Than Significant Impact. Implementation of proposed minimum flows would decrease hydropower annual generation by 16.3 gigawatt-hours (GWh) (from 155.7 GWh to 139.4 GWh) under the proposed action. Reduced energy generation from hydropower may result in an associated increase in fossil fuel-based energy generation and, consequently, a minor increase in greenhouse gas (GHG) emissions. This increase may be a concern in view of the Climate Change Scoping Plan (CARB, 2008b), as well as the Butte County General Plan 2030 (Butte County, 2008).

California's Renewables Portfolio Standard (RPS), established in 2002, is a tool to help the state reduce its GHG emissions. The RPS requires retail sellers, including PG&E, to increase renewable energy as a percentage of retail sales to 20 percent by 2010. Only small hydroelectric facilities, less than 30 MW, are eligible for the RPS. Small hydroelectric facilities provide about 1.5 percent of California's power generation and about 13.5 percent of total renewable generation. Annual variation in precipitation levels and the timing and rate of snowmelt affects the amount of electricity provided by small hydro facilities and their contribution to the state's renewable goals. The state's hydroelectricity production relies on predictable water reserves. With changes in snow elevations, snowpack, and snowmelt, less water may be available for hydroelectric generation when it is needed most during the summer. During dry years and droughts, reduced snow melt and reservoir storage can reduce hydroelectric power generation.

On October 8, 2008, the CEC adopted an Order Instituting Informational Proceeding to solicit comments on how to satisfy its responsibilities under CEQA related to GHG impacts of proposed new power plants. The CEC's Siting Committee released its *Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts in Power Plant Siting Applications* in May 2009, which outlined the powerplant siting process during the interim period before the Assembly Bill (AB) 32 (Statutes 2006, Chapter 488) regulations take effect. The Siting Committee recommended that the CEC analyze each project according to basic CEQA precepts for determining (1) whether the project has a significant adverse cumulative effect, (2) if so, whether feasible mitigation can be required for the project, and (3) if not, whether the project has overriding benefits that justify licensing the project.

The Proposed Project serves as a source of intermittent renewable electricity generation. The Proposed Project provides this service by: delivering power necessary to integrate the increasing generation from intermittent renewable sources; displacing some less efficient gas-fired facilities in PG&E's service territory; partially replacing out-of-state coal electricity generation; and providing integration of renewable energy, local generation displacement, ancillary services, grid system and emergency support, and general energy support. (personal communication, telephone communication between R. Kanz and J. Holeman, December 7, 2010).

Under the proposed action, with mandatory conditions, implementation of minimum flows would decrease annual hydropower generation by 9.03 GWh (151.5 GWh – 142.47GWh, FERC's Final Environmental Assessment Table 4-2). Assuming that reduced generation at the Proposed Project would be replaced with existing eligible renewable resources producing carbon dioxide (CO_2)

emissions at the rate of 49 kilograms per megawatt hour, it is estimated that annual GHG emissions from power generation facilities providing replacement power to offset a reduction in power generated by the Proposed Project would be 442 metric tons of CO_2 per year (personal communication, telephone conversation between T. Jereb and J. Holeman, December 3, 2010, and e-mail from T. Jereb to J. Holeman, December 20, 2010). Based on PG&E's October 2007 license application, which is the latest year for which this information is available, the annual generation from the Centerville Powerhouse is approximately 31.6 GWh per year. In the event that the Centerville Powerhouse is decommissioned, and assuming an emissions rate of 49 kilograms of CO_2 per megawatt hour of replacement energy, annual GHG emissions for replacement generation are estimated to be 1,548 metric tons of CO_2 per year (e-mail from Tom Jereb to Jim Holeman, December 20, 2010). The CARB (2008a) determined that projects that will emit no more than 7,000 metric tons of CO_2 per year from non-transportation related GHG sources are not significant.

Future energy generation and customer-side resources in California are expected to change to reflect the state's goals for reducing GHG emissions. Although the precise mix of future resources is unknown, it is expected that gas-fired power plants will likely play a larger role because they offer a highly renewable, low-GHG system (CEC, 2009a). As a result, net GHG emissions from the integrated electric system are expected to decline as new gas-fired power plants are developed (CEC, 2009b). In addition, as contracts for coal-fired facilities expire (pursuant to Senate Bill 1368[19]).use of new and existing facilities that comply with greenhouse gas emission performance standards will replace the lost energy and capacity.

To address the uncertainty regarding future energy generation and customer-side resources in California under the state's goals for reducing GHG emissions, the CEC, in its Integrated Energy Resource Plan (CEC, 2007), examined a range of future scenarios to reflect reasonably expected bounding cases in which the state goals are met. Emissions of carbon for each scenario were also quantified. According to the report, impacts on climate change would be significant if the combination of future resources would either contribute substantially to GHG emissions or conflict with the adopted statewide 2020 GHG emissions limit or the plans, programs, and regulations adopted to implement the Global Warming Solutions Act of 2006. Under the various scenarios studied, the CEC determined that the increase in GHG emissions would be minor.

The Proposed Project can be considered within the context of anticipated future resources to meet state goals for reduction of GHG emissions. The Proposed Project's replacement generation sources would be required to comply with CARB programs and mandatory reporting requirements to achieve state-wide goals for GHG emissions. Other future requirements mandating compliance with AB 32 or other laws, such as a cap and trade program proposed by the CARB, passed and signed by the Governor in 2006, will also likely be effective by 2020, and future sources will need to comply with these requirements as well. Based on the estimated GHG emissions that would be produced under the Proposed Project, as well as the need for replacement generation sources to comply with the aforementioned federal and state programs, impacts associated with GHG emissions over the lifetime of the Proposed Project would be less than significant.

[19] Chapter 593, An act to add Chapter 3 (commencing with Section 8340) to Division 4.1 of the Public Utilities Code, relating to electricity. Approved September 29, 2006

5.4.5 Biological Resources

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or FWS?				X	
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or FWS?				X	
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			X		
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?					X
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?					X

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?					X

a. Less Than Significant Impact.

All Special-Status Species: Although there are some potential impacts to special-status species caused by Proposed Project operations and maintenance, potential impacts would be reduced from existing conditions by implementing the general measures outlined below. These measures improve conditions from the baseline condition. (See final EA (FERC, 2009), Sections 3.3.3.2, and 3.3.4.2.)

- Annual awareness training for the licensee's operations and maintenance staff, contractors, subcontractors or other workers on special-status species and populations that are known to occur within the FERC Proposed Project boundary on National Forest System lands.
- Annual consultation with the Forest Service on measures needed to ensure protection of special-status species (state or federally listed rare, candidate, threatened, or endangered species; Forest Service and BLM sensitive and watch list species) on all accessible Proposed Project lands.
- Annual review of the current lists of special-status species with the potential to occur on all Proposed Project lands.
- Preparation of a biological evaluation to protect state or federally listed rare, candidate, threatened, or endangered species, as well as Forest Service and BLM sensitive and watch list species, and their habitats.

Special-Status Plant Species: Potential impacts to special-status plant species would be reduced from existing conditions through the measures described for all special-status species above and the following additional measures. (See final EA (FERC, 2009), Section 3.3.4.2.)

- Development and implementation of a vegetation management plan to cover all accessible Proposed Project lands.
- Development and implementation of an invasive weed management plan to cover all accessible Proposed Project lands.

Valley Elderberry Longhorn Beetle: Any impacts to elderberry shrubs would be offset by that habitat acquired or developed under the March 2003 VELB Conservation Program developed by PG&E and FWS. Training of maintenance workers and implementation of minimization and avoidance measures would reduce the likelihood of potential incidental take of the VELB. (See final EA (FERC, 2009), Section 3.3.4.2.)

Central Valley Spring-run Chinook Salmon and Central Valley Steelhead: Potential impacts on Central Valley SR Chinook and Central Valley steelhead would be reduced from existing conditions. The proposed action includes a wide range of measures that would provide additional benefits to SR Chinook and steelhead in Butte Creek. These include: (1) development of long term and annual operation and maintenance plans with the primary goal of providing cold water for holding, spawning, and rearing SR Chinook and steelhead in lower Butte Creek; (2) provision of real-time streamflow,

reservoir levels, and water temperature information to improve the operational management of water temperatures; (3) increased habitat in Butte Creek downstream of the Lower Centerville Diversion Dam, and development of ramping rates for lower Butte Creek; (4) installation of a temperature reduction device through the DeSabla Forebay to reduce the warming of water as it passes through the forebay; and (5) annual monitoring of anadromous fish and their designated critical habitats in Butte Creek. The Centerville Powerhouse is at the end of its service life and will require major renovations in the foreseeable future. While the Centerville Powerhouse is not currently operational, if the Centerville Powerhouse becomes operational, failure of the generators during the salmon holding and spawning period could result in impacts due to changes in flow/habitat.

The draft WQC conditions require a period of testing full flow releases below the Lower Centerville Diversion Dam. This will increase flows in the 6.4-mile reach between the Lower Centerville Diversion and the current location of Centerville Powerhouse by up to 183 cfs (the hydraulic capacity of the powerhouse). The higher flows would increase the amount of summer holding and fall spawning habitat available to SR Chinook and steelhead in this reach and may also improve passage over the partial barrier at Quartz Bowl pool, located about 1 mile downstream of the diversion. Removal or breaching of the Lower Centerville Diversion Dam could provide access to an additional 0.58 mile of Butte Creek between the diversion dam and an upstream impassable 35-foot falls for any salmon or steelhead able to pass upstream of the partial barrier at Quartz Bowl pool. Water temperatures in the reach upstream of the current site of the Centerville Powerhouse would be marginally cooler than under existing conditions, which would benefit salmon and steelhead spawning and holding in this reach. Conditions in the WQC will improve conditions for SR Chinook and steelhead in the long term. WQC conditions also improve water quality monitoring and data collection to protect salmon and steelhead. Development of monitoring plans will ensure that release of full flow in the bypass reach does not impact populations of SR Chinook and steelhead. With adoption of the conditions in the draft WQC this impact is less than significant.

Foothill Yellow-Legged Frog: Increased minimum flows in most Proposed Project reaches would be likely to improve habitat conditions for foothill yellow-legged frogs, especially in reaches where no minimum flows are released under current operations. However, in some reaches, such as the West Branch Feather River below Hendricks Diversion Dam, Butte Creek below Butte Creek Diversion Dam, and Butte Creek below Lower Centerville Diversion Dam, increased minimum flows have the potential to adversely affect this species by altering habitat availability, water temperature, the availability of riparian habitat, and river morphology (FERC, 2009). Monitoring provisions as proposed in the foothill yellow-legged frog monitoring plan would be implemented in the West Branch Feather River and Butte Creek to allow for evaluation of these potential adverse effects, identification of any additional needed studies, and development of appropriate protective measures, which would minimize any potential negative effects on the species. Other measures that would benefit foothill yellow-legged frogs under the proposed action include: (1) implementing ramping rates downstream of Butte Creek Diversion Dam and Lower Centerville Diversion Dam; (2) conducting a ramping rate study in the West Branch Feather River; (3) scheduling maintenance and other planned Proposed Project outages to avoid negative ecological effects on foothill yellow-legged frogs; (4) using only pesticides registered by EPA; and (5) avoiding the use of pesticides within 500 feet of known locations of California red-legged frogs, mountain yellow-legged frogs, foothill yellow-legged frogs, and Yosemite toads (See final EA (FERC, 2009), Section 3.3.4.2.). With adoption of the conditions in the draft WQC this impact will be less than significant.

Bald Eagle: The proposed action includes a monitoring plan for bald eagles, which would be useful in detecting changes in use and determining the need for and implementation of protective measures. (See final EA (FERC, 2009), Section 3.3.3. 2.) In addition, if monitoring shows that the bald eagle population has increased or it is it is determined that protective measures must be implemented, PG&E will increase monitoring. Therefore, potential future actions would result in no impact under the proposed action.

b. **Less Than Significant Impact.** The Proposed Project would involve a small amount of ground disturbance associated with the installation of the temperature reduction device in the DeSabla Forebay, new flow gages, installation of three pipes in the Hedricks-Toadtown Canals, armoring the Round Valley Reservoir plunge pool, and a fish screen and fish ladder at the Hendricks Diversion Dam. The Proposed Project would also involve ground disturbance associated with the removal of five feeder diversions (Oro Fino Ravine, Emma Ravine, Coal Claim Ravine, Stevens Creek, and Little Butte Creeks)). Development of the proposed feeder creek diversion facility removal plan would help to minimize any potential negative impacts on riparian habitat or other sensitive natural communities. In addition, the Proposed Project would involve increases in minimum flows on the West Branch Feather River below Hendricks Diversion Dam, Butte Creek below Butte Creek Diversion Dam, and Butte Creek below Lower Centerville Diversion Dam, and such increased flows could affect riparian habitat through effects on water levels within existing riparian habitats. If the Centerville Powerhouse were decommissioned, it would increase flows in the 6.4-mile reach between the Lower Centerville Diversion and the current location of Centerville Powerhouse by up to 183 cfs (the hydraulic capacity of the powerhouse). This could affect riparian habitat through effects on water levels within existing riparian habitats. Dewatering and possible removal of the Lower Centerville Canal could also reduce a small amount of riparian habitat along the canal. Changes in vegetation as a result of increased flows could affect habitat suitability for the foothill yellow-legged frog through shading of breeding areas. Changes in flows could influence sediment deposition and channel shape and structure, affecting foothill yellow-legged frog habitat. The extent of these changes cannot be predicted with any certainty at the current time. Implementation of the foothill yellow-legged frog monitoring plan in the draft WQC would detect any changes in breeding habitat allowing for evaluation of potential adverse effects, identification of any additional needed studies, and development of appropriate protective measures, which would minimize any potential negative effects on the species and prevent impacts and reduce the impact to less than significant. (See final EA (FERC, 2009), Section 3.3.3.2.)

c. **Less Than Significant Impact with Mitigation.** The Proposed Project would involve a small amount of ground disturbance that could impact wetland. 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 Hedricks-Toadtown Canals, 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 Creek, and Little Butte Creek), and decommissioning the Centerville Development are projects that could impact small areas of wetlands. To prevent the loss of wetlands, delineation surveys, consistent with 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 and a 401 WQC from the state. If the wetlands are not federally designated wetlands, PG&E shall submit a plan to the Deputy Director to compensate for lost wetlands, or comply with current State Water Board policy, orders, or regulations pertaining to wetlands. This impact is less than significant with mitigation incorporated.

d. **No Impact.**

Fish: Measures included in the Proposed Project will not change the ability of fish species to move or migrate. All of the actions in the Proposed Project and in the draft WQC improve the ability of fish to move or migrate.

Wildlife: There has been a substantial reduction in mortality of the Tehama deer population since deer protection facilities were installed in Proposed Project canals. Measures that would be implemented under the proposed action include: annually inspecting these facilities to ensure that they are functional; complying with current specifications when existing facilities are replaced or retrofitted; monitoring wildlife losses in the canals; and taking corrective actions in the event that mortalities increase. This would ensure that wildlife mortality will remain low during the continued operation of the Proposed Project. (See final EA (FERC, 2009), Section 3.3.3.2.)

e. **No Impact.** There would be no conflict with and no impact on any local policies or ordinances regarding biological resources.

f. **No Impact.** Measures included in the Proposed Project would not conflict with and would have no impact on the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

5.4.6 Cultural Resources

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?				X	
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?				X	
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?					X
d. Disturb any human remains, including those interred outside of formal cemeteries?					X

a. Less Than Significant Impact. The Proposed Project system was determined eligible for listing in the National Register as an historic district in 1986. Changes to the Proposed Project in the future could require modification or removal of historic properties. PG&E proposes to avoid impacts to historic properties by completing HABS/HAER documentation to preserve the information about the structure and its features for future generations. This would also mitigate the adverse effects on our history and culture of rapidly vanishing architectural and engineering resources. PG&E also proposes to mitigate the potential adverse effect of decommissioning the Centerville Powerhouse by refurbishing the building for another use, such as a museum or interpretive center. Either approach would result in a less than significant impact.

b. Less Than Significant Impact. Relicensing studies identified 46 archaeological and historic-era sites and four isolated finds. Compliance with the provisions in the final HPMP for inadvertent discoveries and monitoring during ground-disturbing activities to address any potential impact to previously unidentified cultural materials will ensure this impact is less than significant.

c. No Impact. No paleontological or unique geologic resources were identified in the Proposed Project area.

d. No Impact. No human remains were identified in the Proposed Project area. Strict adherence to the provisions in the final HPMP for treatment of human remains would be followed to address any potential for impact to previously unidentified human remains that may be present.

5.4.7 Geology and Soils

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)					X
ii. Strong seismic ground shaking?					X
iii. Seismic-related ground failure, including liquefaction?					X
iv. Landslides?					X
b. Result in substantial soil erosion or the loss of topsoil?				X	
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Proposed Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?					X
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?					X

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?					X

a.i. **No Impact.** The Aliquist-Priola Earthquake Fault Zoning Act identifies special study zones for areas in which existing active known faults are located. The purpose of the Act is to identify areas that may be limited to development and restrict development on or in proximity to active faults. There are no Aliquist-Priola faults in the immediate Proposed Project area, as delineated on the most recent Aliquist-Priola Earthquake Fault Zoning Map in Geology Special Publication 42, Interim Revision 2007.

a.ii. **No Impact.** The region has a low to moderate risk of seismicity. Nearby, Quaternary-aged faults that are not known to be active include Cohasset Ridge and Beaver Creek, the latter of which crosses Butte Creek and Butte Canal. The California Geological Survey has predicted ground motions (10 percent probability of being exceeded in 50 years) as a fraction of the acceleration due to gravity in the greater Proposed Project area. Based on those predictions, the peak ground acceleration in the Proposed Project area would be 10 to 20 percent of gravity during a seismic event with a recurrence probability of 10 percent in 50 years. The inherent risks associated with seismic shaking are considered minimal, and the Proposed Project does not increase these risks relative to baseline conditions.

a.iii. **No Impact.** The potential for liquefaction depends on potential ground movement during seismic events, soil conditions, and depth of groundwater. The region has a low to moderate risk of seismicity, and the Proposed Project site does not contain soil conditions and groundwater depths conducive to liquefaction.

a.iv. **No Impact.** All three developments of the Proposed Project have portions of their areas located in steep, incised canyons that have been shaped primarily through landslides and mass-wasting processes. Deep-seated landslides that involve bedrock units are primarily ancient features that developed in the Late Pleistocene to Mid-Holocene under different climatic conditions than present day, although more recent shallow landslides have developed on the margins of the ancient slides. Recent, active shallow landslides have occurred within the Proposed Project vicinity over the last several decades, often triggered by intense, prolonged rainfall in areas with weathered bedrock and surficial deposits. The potential for shallow landslides is reduced by Proposed Project measures that would reduce the ongoing risk of road and canal failures, and the overall potential for landsliding is not increased by the Proposed Project relative to baseline conditions.

b. **Less Than Significant Impact.** The Proposed Project would involve a small amount of ground disturbance associated with the installation of the flow pipeline in the DeSabla Forebay, new stream gaging stations, installation of three pipes in the Hedricks/Toadtown Canals, removal of feeder creek diversions, armoring the Round Valley Reservoir plunge pool, and the Hendricks Diversion Dam fish ladder, none of which are expected to cause substantive erosion. Substantive erosion is not expected due to the nature of the construction activities and because work is not occurring on steep, erosive terrain. Although the future of the aging Centerville Powerhouse is undetermined, decommissioning could result in ground disturbance, and erosion impacts would need to be evaluated once a plan (e.g., retrofitting or decommissioning) is developed. It is anticipated that a

decommissioning plan with adequate erosion and sediment control measures would reduce any effects to less significant impacts.

The following actions could result in erosion above the baseline condition: (1) road related impacts that include stream-crossing failures, improper road drainage, erosion at improperly designed culvert outlets, and erosion of side cast materials; and (2) bed and bank erosion in spillway channels (primarily Round Valley Reservoir, Philbrook Reservoir, and Centerville Powerhouse), erosion at canal spillways (there are an approximate 24 canal spillways connected to mainstem river courses), and erosion associated with canal overtopping or catastrophic canal failure. The Proposed Project contains a suite of measures designed to minimize erosion from the above ongoing activities/processes, including: implementing a canal maintenance and inspection plan; continuing best management practices pertaining to canal inspection and maintenance; implementing a road improvement plan, developing a Proposed Project transportation plan; and armoring the Round Valley Reservoir plunge pool. The draft WQC includes a condition requiring installation of turbidity monitors to protect water quality. With adoption of the draft WQC this impact is less than significant.

c. **No Impact.** The Proposed Project is located in steep, mountainous terrain, which is not an area that is prone to lateral spreading, subsidence, liquefaction, or collapse. Although the Proposed Project is generally located in an area that may be prone to landsliding, construction activities associated with the Proposed Project are not expected to occur in areas prone to landslides and best management practices will minimize the risks of erosion and mass-wasting. The overall potential for mass wasting is not increased by the Proposed Project relative to baseline conditions.

d. **No Impact.** The Proposed Project is not located on expansive soil as defined in Table 18-1-B of the Uniform Building Code. Dominant soil types in the Proposed Project area include stony sandy loam, gravelly or cobble sandy loam, coarse sandy loam, and loam to gravelly loam; soil types in the Proposed Project area do not include high clay content.

e. **No Impact.** The Proposed Project would have no effect on on-site wastewater disposal systems.

5.4.8 Hazards and Hazardous Materials

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?					X
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X		
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?					X
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?					X
e. Result in a safety hazard for people residing or working in the Proposed Project area? (Only for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport.)					X
f. Result in a safety hazard for people residing or working in the Proposed Project area? (Only for a project within the vicinity of a private airstrip.)					X

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Butte County (2011 and 2007)				X
h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X	

a. No Impact. The Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

b. Less Than Significant Impact with Mitigation. During construction within the 100 year flood plain, the use of containment facilities, booms, and an environmental inspection program will prevent any significant release of hazardous materials from harming the aquatic environment. All equipment will be stored above the 100-year flood level. Equipment used in contact with a water course will be steam cleaned prior to use and soy-based hydraulic fluid will be used when possible. Any releases will be reported immediately to the Central Valley Regional Water Quality Control Board and CDFW. PG&E and/or its contractors will be required to comply with the Construction General Permit; Water Quality Order 2009-0009-DWQ and NPDES No. CAS000002, as amended by Order No. 2010-0014-DWQ. In addition, a Spill Containment and Counter Measures plan may be required, in addition to filing a hazardous material business plan with Butte County (if required). For all construction activities, including those activities not subject to the General Permit, a water quality monitoring and protection plan will be required. The water quality monitoring and protection plan shall include compliance with the best management practices identified in *Water Quality management for Forest System lands in California – Best management practices* (USFS 2000).

c. No Impact. No hazardous materials would be handled within 0.25 mile of a school.

d. No Impact. No hazardous material storage sites are located in the vicinity of the Proposed Project.

e. No Impact. No airstrips are located within two miles of the Proposed Project.

f. No Impact. See comment *e.* above.

g. No Impact. The Proposed Project would not include any actions or facilities that relate to or potentially affect hazard or evacuation plans for the area.

h. Less Than Significant Impact. A fire prevention plan has been developed and would be in place during all phases of construction.

5.4.9 Hydrology and Water Quality

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Violate any water quality standards or waste discharge requirements?	Ryan (2007)		X		
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (*e.g.*, the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?					X
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?					X
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?					X
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?					X
f. Otherwise substantially degrade water quality?				X	

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map?					X
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X	
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?					X
j. Cause inundation by seiche, tsunami, or mudflow?					X

a. Less Than Significant Impact with Mitigation. Installation of the temperature reduction device in the DeSabla Forebay, new flow gages, installation of three pipes in the Hedricks-Toadtown Canals, 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 Creek, and Little Butte Creek), and decommissioning the Centerville Development are actions that could result in discharges that violate water quality standards.

For construction projects that disturb more than one acre of land, PG&E and/or its contractors will be required to comply with the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit; Water Quality Order 2009-0009-DWQ and National Polutant Discharge Elimination System No. CAS000002, as amended by Order No. 2010-0014-DWQ), and demonstrate submission of Permit Registration Documents prior to the commencement of construction activities. For all construction activities, including those activities not subject to the Construction General Permit, a water quality monitoring and protection plan will be required. The water quality monitoring and protection plan shall include compliance with the best management practices (USFS 2000) related to erosion control measures.

Use of the Centerville Powerhouse spill channel for extended periods of time or with higher flows than historically released could result in discharge of sediment in violation of the water quality standards. The draft WQC requires approval of a plan that includes the removal and/or stabilization of the spill channel. Compliance with these mitigation measures and adoption of the draft WQC will ensure the Proposed Project does not violate water quality standards and that the impacts are less than significant.

The water temperature reduction device in the DeSabla Forebay would be operated during the warmest months of the year, which are normally June, July, and August. Actual operation procedures will be developed after testing and may depend on meteorological conditions in any year. The temperature reduction device will divert water through a pipe in the forebay and increase residency time of water in the forebay. The lack of circulation may result in water quality impacts. PG&E is

required to release a minimum of 2 cfs flow to the Upper Centerville Canal from its current release point in the DeSabla 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, reducing the retention time in the forebay. The draft WQC requires approval of a plan that includes operation of the temperature reduction device. Compliance with these mitigation measures and conditions of the draft WQC will ensure the Proposed Project does not violate water quality standards and that the impacts are less than significant.

b. No Impact. There would be no impact on groundwater.

c. No Impact. There would be no impact on drainages or rerouting of drainages to areas where substantial erosion could occur.

d. No Impact. There would be no impact on existing drainage patterns that would significantly change the watercourse or increase runoff from surfaces.

e. No Impact. There would be no impact on the capacity of existing or planned stormwater drainage systems or substantial additional sources of polluted runoff.

f. Less Than Significant Impact. The Proposed Project will not substantially degrade water quality.

g. No Impact. There would be no impact because no housing construction is planned as part of this Proposed Project.

h. Less Than Significant Impact. Construction of the proposed fish screen and ladder at the Hendricks diversion may have a very minor affect on water levels in the immediate vicinity of the structures due to a minor increase in channel roughness when flows inundate fish passage structures.

i. No Impact. There would be no impact because no new structures would be constructed that could potentially fail or cause damage or risk of loss, injury, or death from flooding.

j. No Impact. There would be no impact because the Proposed Project would not cause a seiche, tsunami, or mudflow.

5.4.10 Land Use and Planning

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Physically divide an established community?					X
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Proposed Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?					X
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?					X

a. No Impact. The Proposed Project would not physically divide any established community.

b. No Impact. The Proposed Project would not conflict with any applicable land use plans or policies.

c. No Impact. The Proposed Project would not conflict with any applicable habitat conservation plans or natural community conservation plans.

5.4.11 Mineral Resources

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?					X
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?					X

a. No Impact. The proposed actions would not affect mineral deposits in the region or the mining of placer gold deposits in the area.

b. No Impact. See comment *a.* above.

5.4.12 Noise

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X		
b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?					X
c. Cause a substantial permanent increase in ambient noise levels in the Proposed Project vicinity above levels existing without the Proposed Project?					X
d. Cause a substantial temporary or periodic increase in ambient noise levels in the Proposed Project vicinity above levels existing without the Proposed Project?					X
e. Expose people residing or working in the Proposed Project area to excessive noise levels? (Only for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport.)					X
f. Expose people residing or working in the Proposed Project area to excessive noise levels? (Only for a project within the vicinity of a private airstrip.)					X

a. **Less than Significant with Mitigation Incorporation.** The Butte County Board of Supervisors Draft Noise Control Ordinance, Exterior Noise Standards acceptable noise levels for Non-Urban noise are 50 decibels Hourly Average (L_{eq}) and 60 decibels Maximum (L_{max}) during daytime hours (7 a.m. to 7 p.m.). Construction activities at DeSabla Forebay would generate noise above 50 decibels during daytime construction, but the sites are not near residential areas and few rural residences are located in the vicinity. Recreationists at the Proposed Project area reservoirs would likely notice construction noise. The activities would take place during the day, and noise exposure would be temporary and

minimized with mitigation incorporated. Mitigation includes only using newer, tuned equipment with mufflers or sound absorbing materials, not allowing equipment to idle, squeal, howl or screech (unnecessary noise). If equipment needs tuning or produces unnecessary noise, the equipment must be removed from service or the Proposed Project area until the cause of the unnecessary noise is corrected. In addition, if necessary, temporary barriers/enclosures (e.g., sound absorbing materials) will be built around noisy equipment. The impacts will be less than significant with mitigation incorporated.

b. No Impact. There would be no exposure to groundborne vibrations or noise levels.

c. No Impact. There would be no permanent increase in the ambient noise level.

d. No Impact. There may be an increase in traffic-related noise associated with the trucking of construction materials and equipment to the DeSabla Forebay for the installation of the temperature reduction device. The traffic, however, would be similar to current forest industry traffic in the area; therefore, there would be no impact.

e. No Impact. No public airports are located within two miles of the proposed Proposed Project.

f. No Impact. No private airstrips are located within two miles of the proposed Proposed Project.

5.4.13 Population and Housing

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?					X
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?					X
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?					X

a. No Impact. There could be a localized increase in the demand for temporary housing during the construction period, but there would be no long-term effect on population.

b. No Impact. No homes would be displaced.

c. No Impact. No people would be displaced.

5.4.14 Public Services

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:					
1. Fire protection?				X	
2. Police protection?				X	
3. Schools?					X
4. Parks?					X
5. Other public facilities?					X

a1. Less Than Significant Impact. Planned Proposed Project construction would occur seasonally and would not establish a permanent resident population that would require additional fire protection. Recreational use of the Proposed Project area is expected to double over the next 40 years as a result of general population growth. The demand for fire protection services in the Proposed Project area is expected to mirror the demand for services elsewhere in the county as a result of that population growth. PG&E's proposed fire management and response plan, which would be prepared in consultation with the Forest Service, would include on-going coordination of wildfire protection and prevention measures that would reduce impacts to less than significant.

a2. Less Than Significant Impact. Planned Proposed Project construction would occur seasonally; it would not establish a permanent resident population that would require additional police protection. The expected doubling of recreational use over the next 40 years would increase the demand for law enforcement services in the Proposed Project area, commensurate with the growth in population.

a3. No Impact. Proposed Project construction and operation would not establish a permanent resident population that would require additional schools.

a4. **No Impact.** Proposed Project construction and operation would not establish a permanent resident population that would require additional parks.

a5. **No Impact.** Proposed Project construction and operation would not establish a permanent resident population that would require other new public facilities.

5.4.15 Recreation

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?					X
b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X	
c. Reduce or eliminate public access to existing recreational facilities?			X		

a. No Impact. Proposed improvements to Proposed Project recreational facilities may increase the use of the facilities, but proposed maintenance plans would ensure that the facilities do not deteriorate.

b. Less Than Significant Impact. The annual visitation of Proposed Project canals is estimated at 7,051 recreation-days. Most recreation users visited the canals during the off-peak season (October through April) (64 percent) compared to visitation during the peak season (May through September). Butte Creek Canal had the greatest estimated use with more than 3,000 recreation-days, followed by Lower Centerville Canal and Hendricks-Toadtown Canals. Although recreation use at the Proposed Project is expected to double, no developed recreation facilities at the Proposed Project will be approaching full capacity by the year 2050 (final EA 3.3.5.1). Decommissioning of the Centerville Development may impact users of the Lower Centerville Canal both during and after remediation of the canal. The Lower Centerville Canal crosses land owned privately and by PG&E. The future of non-Proposed Project PG&E land in the Butte Creek canyon will be determined by the Pacific Forest and Watershed Lands Stewardship Council. If the canal is decommissioned it could remain in the FERC Proposed Project boundary, or be removed from the FERC Proposed Project boundary and either remain in PG&E ownership or be transferred to the Stewardship Council. In either case, public access to the Lower Centerville Canal would be available. PG&E would have responsibility after remediation to ensure best management practices (USFS 2000) are effective and the canal is stable and not eroding. The impact of the Lower Centerville Canal remediation on recreation use is less than significant.

c. Less Than Significant Impact with Mitigation. 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 water temperature reduction device may increase water temperature in the forebay 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 would likely instead fish at the Philbrook Reservoir, Paradise Lake, or at Lake Oroville. If temperatures in the DeSabla Forebay exceed the EPA Temperature Criteria (EPA 2003) for life stage being stocked during a scheduled stocking or within one month of a scheduled stocking, fish will not be stocked in DeSabla Forebay. When multiple life stages are stocked, the most conservative life stage EPA temperature criteria will be used. When fish cannot be stocked in the DeSabla Forebay due to temperatures that exceed the EPA Temperature Criteria, fish shall be stocked in another nearby location, such as Paradise Reservoir. Considering the total angling opportunities in the area, this impact will be less than significant with mitigation measures incorporated.

5.4.16 Transportation/Traffic

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?				X	
b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?					X
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?					X
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?					X
e. Result in inadequate emergency access?					X
f. Result in inadequate parking capacity?					X
g. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?					X

a. Less Than Significant Impact. Construction equipment and materials being delivered along area roadways may cause temporary delays during construction, but the number and spacing of construction vehicles would not be a substantial increase over existing traffic levels. Roads in the Proposed Project area are rural and lightly used. Increases in traffic would not result in traffic delays or create congestion. PG&E would implement temporary traffic controls that would ensure adequate access and public safety during the construction period. This impact is less than significant.

b. **No Impact.** Proposed Project construction would not exceed the level of service standard for any designated roads or highways.

c. **No Impact.** The Proposed Project would not change air traffic patterns.

d. **No Impact.** The Proposed Project would not affect roadway design features or create an incompatible use.

e. **No Impact.** The Proposed Project would not impact emergency access.

f. **No Impact.** The Proposed Project would not affect parking capacity.

g. **No Impact.** The Proposed Project would not affect alternative transportation policies, plans, or programs.

5.4.17 Utilities and Service Systems

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?					X
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?					X
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?					X
d. Have sufficient water supplies available to serve the Proposed Project from existing entitlements and resources, or are new or expanded entitlements needed?					X
e. Result in a determination by the wastewater treatment provider, which serves or may serve the Proposed Project that it has adequate capacity to serve the Proposed Project's projected demand in addition to the provider's existing commitments?					X
f. Be served by a landfill with sufficient permitted capacity to accommodate the Proposed Project's solid waste disposal needs?	personal comm., T. Jereb and J. Stallman, July 19, 2012				X
g. Comply with federal, state, and local statutes and regulations related to solid waste?					X

a. **No Impact.** The Proposed Project would not impact any wastewater treatment facilities.

b. **No Impact.** The Proposed Project would not impact the expansion of or construction of new wastewater or drinking water facilities. See comment *a.* above.

c. **No Impact.** No new storm water drainage facilities are required.

d. **No Impact.** The Proposed Project would use existing water supplies. PG&E holds all necessary water rights to operate the Proposed Project. PG&E will also construct a tap off of the DeSabla forebay temperature reduction device to supply any flows to Upper Centerville canal for local water users.

e. **No Impact.** See comment *a.* above.

f. **No Impact.** About 3 to 4 cubic yards (about one small dump truck load) consisting of wood, concrete, sheet metal and rebar would be generated by removing the small feeder dams. More material of similar type may be generated by removing the Centerville Powerhouse. Some of the concrete from the powerhouse removal may be used onsite for fill but all other material would be recycled or hauled to the Neil Road Recycling and Waste Facility, which has sufficient capacity to receive the material.

g. **No Impact.** The Proposed Project would comply with all regulations relating to disposal of solid waste.

5.4.18 Mandatory Findings of Significance

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the Proposed Project:					
a. Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?					X
b. Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?					X
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?					X

a. **No Impact.** The Proposed Project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. Measures are incorporated into the Proposed Project and WQC to avoid or reduce impacts.

b. **No Impact.** The Proposed Project will not result in cumulative impacts. This Proposed Project, in combination with past, current, and future projects in the area will not result in cumulative impacts.

c. **No Impact.** This Proposed Project will not result in environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

Section 6.0 Environmental Protection Measures

The potential effects on resources in the Proposed Project area were discussed in the FERC's final EA (FERC, 2009) and PG&E's final license application (PG&E, 2007) and are summarized below in Table 6. The *Proposed Measure* column describes applicant-proposed measures, agency 4(e) measures, and staff measures and indicates their sources and where the measure was analyzed in FERC's final EA and/or PG&E's final license application. The *Potential Effect* column describes the expected effect of the measure as assessed by staff.

Table 6. Potential Effects on Resources in the Proposed Project Area

Proposed Measure			Potential Effect
	Source		
Description	FERC EA Pages	PG&E LA Pages	Description
Erosion Control Measures			
Increase drainage controls on several Proposed Project roads	2-11, 3-11 to 3-12, 5-7	E6.1-2 to E6.1-25	Reduce potential for erosion and stream siltation.
Develop a Proposed Project transportation system management plan to achieve erosion protection	2-11, 3-11 to 3-12, 3-251 to 3-253, 5-7	E8-5 to E8-6	Reduce potential for erosion and stream siltation.
Reconstruct and maintain any areas of the Butte Creek Canal, slope, and road that are detrimentally affected by Proposed Project activities	2-21, 3-17 to 3-19, 5-12, 5-18	E6.1-2 to E6.1-25, E6.1-53 to E6.1-54	Reduce potential for erosion and stream siltation.
Develop a Proposed Project canal maintenance and inspection plan and continue best management practices to reduce the adverse effects of canal failures	3-17 to 3-19, 5-7, 5-8, 5-19	E8-7 to E8-8	Reduce potential for erosion and stream siltation.
Armor Round Valley plunge pool	2-11, 3-12 to 3-14, 5-7, Errata page 11	E6.1-37 to E6.1-48	Reduce potential for erosion and siltation.
Stabilize Round Valley spillway	2-11, 2-17, 3-12 to 3-14, 5-8, 5-18	E6.1-37 to E6.1-48, E8-6	Reduce potential for erosion and siltation.
Stabilize Philbrook spillway and include spillway in the Proposed Project boundary	2-17, 2-21, 3-14 to 3-16, 5-12 to 5-13, 5-18 to 5-19, Errata page 10	--	Reduce potential for erosion and siltation.
Reconstruction and maintenance measures along areas of Butte Creek Canal and Ditch Creek Road	Errata page 10	--	Reduce potential for erosion and siltation.

Proposed Measure	Source		Potential Effect
Description	FERC EA Pages	PG&E LA Pages	Description
Control erosion at specified locations	2-20, 3-20	--	Reduce potential for erosion and siltation.
Perform road improvements (e.g., increase drainage controls, replace culverts, install velocity dissipators at culvert outlets, improve management of side cast materials)	Errata page 10-11	--	Reduce potential for erosion and siltation.
Flow-Related Measures			
Increase minimum streamflows below Round Valley Dam, Philbrook Dam, Hendricks Diversion Dam, Butte Creek Diversion Dam, Lower Centerville Diversion Dam, Inskip, Kelsey, Little West Fork, Cunningham Ravine, Clear, Long Ravine, and Helltown Ravine Creeks	3-112 to 3-149, 3-209 to 3-211, 5-9, 5-10, 5-13	E6.3-215 to E6.3-457, E9-18 to E8-22	General benefit to aquatic habitat in all streams and increased spawning habitat for SR Chinook downstream of the Lower Centerville diversion. Potential adverse effects on foothill yellow-legged frog in some reaches due to changes in habitat availability, water temperature, riparian habitat, and/or river morphology. Monitoring of foothill yellow-legged frog would allow an evaluation of potential effects and need for protective measures or additional studies.
Consult with agencies if minimum flows below Philbrook Reservoir need to be reduced to maintain water storage levels, and if operations need to be altered to manage drought conditions	3-112 to 3-149, 5-10, 5-14	--	Improve water temperature management to benefit SR Chinook and steelhead in lower Butte Creek.
Install a flow data logger below the Hendricks Diversion Dam, a real-time flow gage in Butte Creek below the Butte Creek diversion and in Philbrook Creek, modify the gage below Lower Centerville Diversion Dam for real-time access, install up to three additional flow gages, and any other necessary gage modifications	3-157 to 3-164, 5-8, 5-15	E6.2-23 to E6.3-31, E8-8	Improve water temperature management to benefit SR Chinook and steelhead in lower Butte Creek. May cause a temporary increase in turbidity, potential minor disturbance of riparian vegetation, wetlands, and aquatic habitats during construction of new gages.

Proposed Measure			Potential Effect
	Source		
Description	FERC EA Pages	PG&E LA Pages	Description
Implement ramping rates downstream of the Butte Creek Diversion Dam and Lower Centerville Diversion Dam, develop and implement ramping rates in the West Branch Feather River and below the Butte Creek diversions	3-150 to 3-154, 5-13, 5-28 to 5-30, Errata page 3	E7-19 to E7-25, E7-27 to E7-28	Reduce risk of fish stranding and stranding of foothill yellow-legged frog tadpoles.
Schedule maintenance and other planned outages to avoid adverse effects on foothill yellow-legged frog and SR Chinook	2-23, 3-112 to 3-149, 5-14, Errata page 3	--	Reduce risk of fish and foothill yellow-legged frog stranding, impacts to spawning salmon, and adverse effects on foothill yellow-legged frog reproduction.
Develop and file ramping rate plan	Errata page 4	--	Reduce adverse effects on foothill yellow-legged frog populations.
Remove feeder diversions on Oro Fino Ravine, Emma Ravine, Coal Claim Ravine, Stevens Creek, and Little Butte Creek	3-170 to 3-171, 5-10	--	General benefit to aquatic habitat. Temporary increase in turbidity, potential minor disturbance of riparian vegetation, wetlands, and aquatic habitats.
Provide minimum instream flow of 1 cfs (during normal water years) or 0.5 cfs (in dry water years) downstream of Helltown Ravine Diversion Dam	2-22, 3-143 to 3-147, 5-13, 5-25 to 5-26	--	Benefit habitat for amphibians and resident fish species.
Water Quality Measures			
Develop a long-term and annual operations and maintenance plans and a water temperature monitoring plan in consultation with agencies with the primary goal of providing cold water for holding, spawning, and rearing SR Chinook and steelhead in lower Butte Creek	3-165 to 3-167, 3-171 to 3-177, 5-11	--	Improve water temperature management to benefit SR Chinook and steelhead in lower Butte Creek.
Install a real-time water temperature and reservoir level gage in Philbrook Reservoir	3-171 to 3-177, 5-15	--	Improve water temperature management to benefit SR Chinook and steelhead in lower Butte Creek.

Proposed Measure			Potential Effect
	Source		
Description	FERC EA Pages	PG&E LA Pages	Description
Implement DeSabla Forebay water temperature improvement plan (install pipeline to convey flow through the DeSabla Forebay)	3-171 to 3-177, 5-10	E6.2-107 to E6.2-202, Ryan (2007), PG&E (undated)	Improve water temperatures for SR Chinook and steelhead in Butte Creek. Increased water temperatures may adversely affect stocked fishery in DeSabla Forebay. Associated ground disturbance may have a minor impact to riparian vegetation or wetlands.
Implement a water temperature monitoring plan	3-171 to 3-177	--	Improve water temperature management to benefit SR Chinook and steelhead in lower Butte Creek.
Construct a tap off of the DeSabla Forebay temperature reduction device (pipeline) to supply flows into Upper Centerville Canal	3-171 to 3-177, 5-7	--	Improve aquatic habitat in Helltown Ravine by providing cooler water. Reduce cooling benefit to SR Chinook and steelhead in Butte Creek and increases water temperatures in DeSabla Forebay. Adverse effect on stocked fishery in forebay.
Monitor water temperature, DO, turbidity, and herbicides (if in use) in receiving streams, upstream and downstream of canal discharge within 24 hours prior to, during, and within 24 hours of returning Proposed Project canals to service.	3-165,5-8, 5-53	E8-9	Improve detection of water quality effects.
Develop a hazardous substance plan and a fire management and response plan	3-171 to 3-177, 5-9, 5-17	E8-9 to E8-10	Improve protection of water quality, riparian and upland habitat.
Obtain Forest Service and BLM approval before use of pesticides on Forest Service or BLM lands, use only pesticides registered by EPA and do not use within 500 feet of known locations of sensitive amphibian species	3-168 to 3-170, 5-14	--	Improve protection of water quality and biota (including foothill yellow-legged frogs) from adverse effects of pesticides.
Fisheries Measures			
Develop and implement a canal fish rescue plan	3-177 to 3-183, 5-8	E6.3-175 to E6.3-196, E8-10	Reduce potential adverse effects from fish stranding.

Proposed Measure			Potential Effect
	Source		
Description	FERC EA Pages	PG&E LA Pages	Description
Maintain a minimum pool of 250 acre-feet in Philbrook Reservoir	3-191 to 3-192, 5-8	E8-11	Improve overwintering habitat for fisheries resources in Philbrook Reservoir.
Implement a fish screen and passage plan at the Hendricks Diversion Dam	3-177 to 3-183, 5-16	E6.3-191 to E6.3-196	Improve habitat connectivity for resident trout. Temporary increase in turbidity, potential minor disturbance of riparian vegetation, wetlands, and aquatic habitats during construction.
Monitor resident fish, foothill yellow-legged frogs, and macroinvertebrate populations to evaluate response to changes in Proposed Project operations	3-185 to 3-187, 5-16	--	Improve adaptive management of Proposed Project operations.
Monitor anadromous fish and their designated critical habitat in Butte Creek	3-187 to 3-188, 5-16	--	Improve adaptive management of Proposed Project operations.
Develop and implement an adaptive management program to guide long-term operations to protect federally-listed anadromous fish within Butte Creek	3-190 to 3-192, 5-16	--	Improve adaptive management of Proposed Project operations.

Proposed Measure			Potential Effect
	Source		
Description	FERC EA Pages	PG&E LA Pages	Description
Terrestrial Measures			
Develop an adaptive management program	Errata page 9	--	Improve protection of terrestrial resources.
Annually provide employee training to PG&E's operations and maintenance staff on special-status species, invasive plants, and sensitive areas known to occur within FERC Proposed Project boundary on National Forest System lands	2-10, 2-11, 3-207 to 3-208	--	Improve protection of special-status species.
Annually consult with the Forest Service on measures needed to ensure protection of special-status species (federally listed, Forest Service sensitive, and Lassen and Plumas National Forest Watch List species), BLM sensitive/watch list species, and federal and state rare, candidate, threatened, or endangered species on all accessible Proposed Project lands	2-11, 5-41 to 5-42, 3-207 to 3-208, Errata page 11	--	Improve protection of special-status species.
Annually review list of special-status species; for newly added species, develop and implement a study to determine the effect of the Proposed Project on the said species	2-11, 2-15, 2-18, 2-26, 3-207 to 3-208, 5-11, 5-16, 5-47 to 5-48	E8-4	Improve protection of special-status species.
Prepare a biological evaluation for special-status species before any ground disturbing activities on all accessible Proposed Project lands	2-18, 3-207 to 3-208, 5-47 to 5-48, Errata page 11	--	Improve protection of special-status species.
Inspect wildlife bridges and deer escape facilities and replace as necessary (in consultation with Forest Service and CDFW), monitor animal losses in Proposed Project canals, and evaluate need for additional protection measures every 5 years	2-15, 2-18, 3-214 to 3-216, 5-11, 5-16, 5-52, Errata page 11-12	E8-12	Reduce wildlife mortality.

Proposed Measure			Potential Effect
	Source		
Description	FERC EA Pages	PG&E LA Pages	Description
Implement vegetation and weed management plan, including non-Forest lands within the Proposed Project boundary where access is available	2-15, 2-18, 2-25, 3-204 to 3-206, 5-11, 5-16, 5-46 to 5-47, Errata page 12	E8-13 to E8-15	Improve protection of native plant species and wildlife habitat.
Conduct surveys for bald eagle nesting every three years and prepare a management plan if nesting is detected	2-25, 3-213 to 3-214, 5-16, 5-51 to 5-52, Errata page 13	E6.4-3 to E6.4-14	Improve protection of bald eagles.
Continue to implement VELB Conservation Program	2-15, 2-18, 3-223 to 3-224, 5-11, 5-53	E6.7-17 to E6.7-20	Continue conservation benefit to VELB.
Monitor foothill yellow-legged frog populations in the West Fork Feather River and Butte Creek annually for four years and every five years thereafter	2-25, 3-209 to 3-213, 5-16, 5-48 to 5-51, Errata page 12-13	--	Improve adaptive management of Proposed Project operations, protection of special status-species, and protection of riparian vegetation or other sensitive natural communities.
Recreation Measures			
Develop and implement a fish stocking plan	5-17	--	Increase competition with native fish species.
Extend concrete boat launch and construct and maintain pathways from Forest Service parking areas to the southeast shoreline of Philbrook Reservoir	5-17	--	Temporary increase in turbidity during construction of extended boat launch, long-term reduction in turbidity.
Cultural Resources Measures			
HPMP	3-281 to 3-283	--	Improve protection of historic properties.

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San Francisco, CA, regarding DeSabla-Centerville GHG calculation for Centerville Powerhouse, December 20, 2010.

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