STATE WATER RESOURCES CONTROL BOARD
BOARD MEETING SESSION– DIVISION OF WATER RIGHTS
DECEMBER 15, 2010

ITEM 15

SUBJECT

CONSIDERATION OF ISSUANCE OF A WATER QUALITY CERTIFICATION FOR THE RELICENSING OF THE OROVILLE HYDROELECTRIC PROJECT IN BUTTE COUNTY

DISCUSSION

The Department of Water Resources (DWR) has filed for a new license with the Federal Energy Regulatory Commission (Commission) to operate the Oroville Facilities (Project) Commission Project #2100. Before the Commission can issue a new license, DWR must obtain water quality certification under Section 401 of the Clean Water Act (CWA) from the State Water Resources Control Board (State Water Board). The Project was developed as part of the State Water Project (SWP), which includes water storage, water delivery, and hydroelectric systems. As part of the SWP, the Project is operated for flood control, power generation, recreation, fish and wildlife, and to meet regulatory requirements in the Sacramento-San Joaquin Delta. The original license for the Project was issued by the Commission on February 11, 1957, with an effective date of February 1, 1957, expiring on January 31, 2007.

DWR formed a collaborative group composed of interested parties and regulatory agencies to scope issues, design studies, review study reports, identify potential resource actions, and provide guidance to DWR on the application for a new license and documents processing. A settlement group was later formed to negotiate a Settlement Agreement, finalized in March of 2006 for the purpose of resolving all issues that were or could have been raised in connection with a new license.

CWA Section 401 directs the agency responsible for certification to prescribe limitations necessary to ensure compliance with CWA and with any other appropriate requirement of state law. The conditions in the Draft Water Quality Certification (Draft) are largely consistent with the Settlement Agreement, and any changes from it are necessary in order to certify that the Project will protect the beneficial uses designated for the Feather River in the Basin Plan.

The State Water Board provided a Draft to DWR on June 23, 2009. On August 5, 2009, DWR withdrew its application for water quality certification to provide additional time for DWR and State Water Contractors (SWC) staff to meet with State Water Board staff. Staff discussions, both before and after withdrawal of the application, resulted in changes to the Draft.

On January 21, 2010, the State Water Board released a second Draft for public review. This Draft included many changes requested by DWR and SWC. On July 9, 2010, the State Water Board released a response that addressed all of the comments submitted on the January 21, 2010 Draft. On July 2, 2010, the State Water Board issued a third Draft that included changes made after review of the comments received on the January 21, 2010, Draft.

The certification was considered by the State Water Board during the October 5, 2010, Board meeting. The vote was postponed to the December 14, 2010, board meeting. The current draft includes four habitat expansion term options for the Board to consider, only one of which will be included in the certification:

1) The term in the draft certification considered by the Board on October 5, 2010
2) Option 1 appended with a self-extinguishing clause;
3) A term with no explicit reference to the Habitat Expansion Agreement; or
4) A reopener if the final habitat expansion plan developed through the Habitat Expansion Agreement is not implemented.

POLICY ISSUE

Should the State Water Board issue water quality certification for the relicensing of the Oroville Facilities, and if so, which one of the four habitat expansion term options should be included?

FISCAL IMPACT

None.

REGIONAL BOARD IMPACT

None.

STAFF RECOMMENDATION

That the State Water Board:

Issue the proposed water quality certification with option 2.

State Water Board action on this item will assist the Water Boards in reaching Goal 4 of the Strategic Plan Update. Approval of this item will assist in fulfilling Objective 4 to comprehensively address water quality protection and restoration, and the relationship between water supply and water quality, and describe the connections between water quality, water quantity, and climate change, throughout California's water planning processes.

D R A F T December 3, 2010

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of Water Quality Certification for the

DEPARTMENT OF WATER RESOURCES
OROVILLE FACILITIES

FEDERAL ENERGY REGULATORY COMMISSION PROJECT NO. 2100

SOURCES: Feather River

COUNTY: Butte

WATER QUALITY CERTIFICATION FOR FEDERAL PERMIT OR LICENSE

BY THE EXECUTIVE DIRECTOR:

1.0 Introduction

The Department of Water Resources (DWR) has filed with the Federal Energy Regulatory Commission (Commission) for a New License to operate the Oroville Facilities (Commission Project #2100). The Oroville Facilities (Project) were developed as part of the State Water Project (SWP), which includes water storage, water delivery, and hydroelectric systems. As part of the SWP the Project is operated for flood control, power generation, recreation, fish and wildlife, and to meet regulatory requirements in the Sacramento-San Joaquin Delta. The original license for the Project was issued by the Commission on February 11, 1957, with an effective date of February 1, 1957, and expired on January 31, 2007. The Project is currently operating under an annual license which extends the terms of the original license. The Project is located on the Feather River near the City of Oroville in Butte County. The Project includes the following: Oroville Dam and Reservoir with storage of 3.5 million-acre-feet and surface area of 15,180 acres; Hyatt Pumping-Generating Plant with a capacity of 645 megawatts (MW) at a maximum flow of 16,950 cubic feet per second (cfs); Thermalito Diversion Pool and the Thermalito Diversion Pool Power Plant with a capacity of 3 MW at 615 cfs; Thermalito Forebay and Thermalito Pumping and Generating Plant with a capacity of 114 MW at a maximum flow of 17,400 cfs; and the Thermalito Afterbay.

Construction of the Project began in 1961 and was completed in 1968. The Project, along with other water development projects and historic mining activity, has contributed to altered hydrology and geomorphology of the Feather River, and impacted water quality and anadromous fisheries. Oroville Dam blocks access to 66.9 miles of high quality habitat for anadromous fish. Anadromous fish are now restricted to the Lower Feather River and can seasonally experience high water temperatures and unnatural flows. The Lower Feather River is designated as critical habitat for Central Valley spring-run Chinook and steelhead, under the federal Endangered Species Act (ESA). The Feather River Fish Hatchery was opened in 1967 to mitigate for the loss of habitat from the construction of Oroville Dam.

Hatchery operations have impacted the genetics of spring–run Chinook. In 1999 the Central Valley Spring-run Chinook Evolutionary Significant Unit (ESU) was listed as threatened under the federal ESA. National Oceanic and Atmospheric Administration (NOAA) Fisheries concluded that the hatchery produces spring-run Chinook salmon that are genetically more similar to fall-run. In March of 1998, naturally spawned Central Valley steelhead was listed as threatened under the Federal Endangered Species List (ESA). In 1999 the Central Valley spring-run Chinook Evolutionary Significant Unit (ESU) was listed as threatened on the California ESA.

2.0 State Water Quality Standards

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

Section 401 of the Clean Water Act (33 U.S.C. §1341) requires every applicant for a federal license or permit which may result in a discharge into navigable waters to provide the licensing or permitting federal agency with certification that the project will be in compliance with specified provisions of the Clean Water Act, including water quality standards and implementation plans promulgated pursuant to section 303 of the Clean Water Act (33 U.S.C. § 1313). Clean Water Act section 401 directs the agency responsible for certification to prescribe effluent limitations and other limitations necessary to ensure compliance with the Clean Water Act and with any other appropriate requirement of state law. Section 401 further provides that state certification conditions shall become conditions of any federal license or permit for the project. The State Water Resources Control Board (State Water Board) Executive Director may issue a decision on a water quality certification application. (Cal. Code Regs., tit. 23, § 3838, subd. (a).)

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

The Water Quality Control Plan for the Central Valley-Sacramento and San Joaquin River Basins (Basin Plan) lists the existing beneficial uses designated for Lake Oroville as municipal and domestic supply, irrigation, power generation, contact and non-contact recreation, freshwater habitat (cold and warm), spawning habitat (cold and warm), and wildlife habitat. Beneficial uses for the Feather River from the fish barrier dam to the Sacramento River are municipal and domestic supply, irrigation, contact and non-contact recreation, canoeing and rafting, migration (cold and warm), freshwater habitat (cold and warm), spawning habitat (cold and warm), and wildlife habitat. Protection of the instream beneficial uses identified in the Basin Plan requires maintenance of adequate instream flows as well as effluent limitations and other limitations on discharges of pollutants from point and nonpoint sources to the Feather River and its tributaries.

3.0 Settlement Agreement for the Licensing of the Oroville Facilities

After consultation with state and federal resources agencies, tribes, local governments, non-governmental agencies (NGOs), and the public, and upon approval of the Commission, DWR chose to use the Alternative Licensing Process (ALP) for the relicensing of the Project. The reason for using the ALP is to expedite the relicensing process through extensive collaboration and preparation of an Applicant Prepared Environmental Assessment (APEA). A collaborative group composed of interested parties and regulatory agencies, including State Water Board staff, was formed to scope issues, design studies, review study reports, identify potential resource actions, and provide guidance to DWR on the application for new license and process documents. A settlement group was later formed to negotiate a Settlement Agreement (SA). A Settlement Agreement (SA) was finalized in March of 2006 for the purpose of resolving all issues that have or could have been raised in connection with a new license.

Because the State Water Board must exercise its independent authority over any water quality certifications it issues, the State Water Board was not involved with and was not represented at the negotiations that resulted in the SA. While one of the State Water Board members, Arthur G. Baggett, and several State Water Board staff, participated in these negotiations, they acted in an independent capacity, not on behalf of the State Water Board. Mr. Baggett signed the Settlement Agreement as a recommendation to the California State Water Board, and not as a Party to the Settlement Agreement. Neither he nor staff that participated in the collaborative group or the settlement discussions has participated in State Water Board decision-making regarding the Oroville water quality certification, or shared confidential settlement communications with other board members or staff involved with the water quality certification.

The signatories to the SA (Parties) requested that the State Water Board accept and incorporate into the water quality certification, without material modification, the terms of the SA which are within the State Water Board's jurisdiction. However, the SA also contains a process to address water quality certification conditions that are inconsistent with the SA. Appendix A of the SA contains the Protection Mitigation and Enhancement (PM&E) measures recommended for inclusion in the Commission license. Appendix B contains the measures agreed to among the Parties but not recommended for inclusion in a new license. Per the terms of the SA, the Parties request that Appendix A of the SA be included in the water quality certification and a new license, and that Appendix B not be included in a new license issued by the Commission.

4.0 Water Quality Certification Conditions

The State Water Board reviewed the PM&E measures in both Appendices A and B of the SA to determine which of the measures are necessary for the operation of the Project to meet the water quality standards in the Basin Plan. The following measures from Appendices A and B, as amended herein, are necessary for the Project to protect the beneficial uses:

A101 Lower Feather River Habitat Improvement Plan
A102 Gravel Supplementation and Improvement Program
A103 Channel Improvement Program
A104 Structural Habitat Supplementation and Improvement Program Plan
A105 Fish Weir Program
A106 Riparian and Floodplain Improvement Program
A107 Feather River Fish Hatchery Improvement Program
A108 Flow/Temperature to Support Anadromous Fish
A110 Lake Oroville Warm Water Fishery Habitat Improvement Program

A111 Lake Oroville Cold Water Fishery Improvement Program
A112 Comprehensive Water Quality Monitoring Program
A113 Monitoring of Bacteria Levels and Public Education
A114 Public Education Regarding Risks of Fish Consumption
A115 Oroville Wildlife Area Management Plan
A117 Protection of Vernal Pools
A118 Minimization of Disturbances to Nesting Bald Eagles
A119 Protection of Giant Garter Snake
A121 Protection of Red-Legged Frog
B104 Feather River Fish Hatchery Funding
B105 Gravel Supplementation
B108 Flow/Temperature to Support Anadromous Fish

The State Water Board has determined that certain measures as written in the SA are either not enforceable, will not protect the beneficial uses, or will not meet water quality standards in a timely manner. Beneficial uses currently impacted by the Project may not be reasonably protected if the proposed measure has a management plan with unclear or unenforceable standards, an excessively long period prior to implementation, or unspecified implementation dates. The State Water Board modified each measure to provide assurance that the beneficial uses will be reasonably protected.

This water quality certification will become part of the Commission's 30-to-50-year operating license for the Oroville Facilities. Certain changes in the physical environment, the regulatory environment, and the state of scientific understanding are anticipated during this time; however, the scope of such changes cannot be determined with sufficient specificity at the present time to determine that the project will be able to meet water quality standards throughout the license period or to determine what, if any, additional conditions would be required for it to do so. Therefore, some terms and conditions include reservations of authority and/or adaptive management provisions to address these future uncertainties.

Many of the SA measures require consultation with the Ecological Committee (EC). Appendix C of the SA defines the purpose and goal, committee membership, and details of committee decision-making procedures. The State Water Board supports consultation with agencies when developing plans or making decisions affecting resources over which agencies may have jurisdiction or expertise. It is not appropriate, however, to make the terms and conditions of Appendix C an enforceable condition of the water quality certification. The State Water Board recognizes and appreciates the expertise and dedication that the settlement parties can bring to decisions and planning for beneficial use and resource protection. However, only certain governmental entities are formally vested with the authority and responsibility to protect such uses and resources, and are publicly accountable for these duties. The centrality of these responsibilities to those government agencies ensures that they, or successor agencies, will be responsible for consultation throughout the term of a 30-to-50-year license. Each of the conditions in this water quality certification that includes consultation with agencies lists the specific agencies and alternately allows consultation with the EC as long as those agencies are members of the EC. The State Water Board hopes and expects that the parties will fulfill their contractual obligations and use the EC process described in the SA, as this process includes a broad range of parties that can bring valuable expertise to the various planning processes. Some certification conditions require the Licensee to submit plans to the State Water Board for modification and/or approval. Many of these plans will also be submitted to the Commission under the provisions of the SA. Where a condition requires the approval of a plan by both

agencies, Licensee should first submit the plan to the State Water Board and receive approval before submitting the approved plan to the Commission.

5.0 Rationale for the Water Quality Certification Conditions

When preparing the conditions in this certification, the State Water Board reviewed and considered the SA, the Explanatory Statement prepared by the Parties, the Commission's Environmental Impact Statement (EIS), DWR's Environmental Impact Report (EIR), and other information in the record. Each measure in the SA was evaluated as to whether it would protect the beneficial uses. Those measures that protect the beneficial uses are used as conditions with small modifications. Any conditions that require the development of a plan will require the plan to be reviewed, modified if necessary, and approved by the Deputy Director for Water Rights (Deputy Director). In addition, other regulatory agencies have specific authorities to approve plans and reports. The following describes the rationale used to develop each of the conditions in the water quality certification and generally describes how and why the SA measures were modified.

Lower Feather River Habitat Improvement Plan

Implementation of this program will be beneficial to coordinate all of the proposed measures to be implemented in the lower Feather River. The program will include the development of a single, comprehensive monitoring and adaptive management summary report. Considering the number of plans required, and the changes that may occur over time, this approach will be instrumental in ensuring compliance with water quality standards.

Gravel Supplementation and Improvement Program

Oroville Dam blocks 97 percent of sediment from passing downstream to the Lower Feather River, which has reduced spawning habitat. DWR will develop a Spawning Gravel Supplementation and Improvement Program designed to mitigate for the cumulative impacts of the reduced quantity and quality of spawning gravels available for steelhead and Chinook salmon. An increase in the quantity and quality of suitable spawning habitat is expected to reduce rates of redd superimposition and egg mortality, as well as reduce competition for spawning habitat, which should contribute to the reduction of pre-spawn mortality rates. Article B105 of the SA required DWR, upon execution of the SA, to begin obtaining all necessary permits for the supplementation and implement the provision. A102 requires DWR to develop a plan for gravel supplementation and improvement program throughout the term of the license for Commission approval within two years of license issuance. Article A102 of the SA states that "if and when the need arises, but not sooner than 10 years after license issuance, DWR shall prepare a gravel budget for supplementation activities in the High Flow Channel." The SA and the Explanatory Statement do not describe what information will be used to determine "if and when the need arises", nor do they describe when additional gravel supplementation will occur. Because this language is not enforceable, the State Water Board has modified the condition to require the submission of a study on the need for additional gravel to the Deputy Director for review and approval within eight years of license issuance. Consistent with the timeline to complete the initial supplementation of gravel, additional gravel supplementation must be completed within two years following submission of the study.

This measure is necessary to protect the cold freshwater, spawning, and migration beneficial uses of the Feather River.

Channel Improvement Program

The Oroville Facilities prevent passage of migratory fishes to historic spawning and rearing habitat. The quantity and quality of historic steelhead and spring-run Chinook spawning habitat was reduced after construction of the Project. Historic spawning habitat for steelhead would have been small streams or creeks, probably ranging between 5 and 75 cfs flow. Studies conducted by DWR identified small side channels in the lower Feather River as primary rearing habitat for juvenile steelhead. The SA includes a measure establishing a Channel Improvement Program. The Channel Improvement Program includes habitat improvement measures to increase the quality and complexity of salmonid spawning and rearing habitat in two existing side channels, Moe's Ditch and Hatchery Ditch. The SA also includes development of five additional side channel riffle/glide complexes over a five-year period, which will provide a minimum of 2,460 feet in length of new spawning and rearing habitat for Chinook salmon and steelhead. This measure is included in the certification to protect the cold freshwater, spawning, and migration beneficial uses of the Feather River.

Structural Habitat Supplementation and Improvement Program

The Oroville Facilities currently block downstream movement of large woody debris in the Lower Feather River. This has resulted in a reduction in structural habitat and habitat complexity in the lower Feather River, particularly in the Low Flow Channel (LFC). Studies conducted by DWR identified areas within the LFC that lack abundant quantities of large woody debris. The High Flow Channel (HFC) would also benefit from large woody debris. The objective for the Structural Habitat Supplementation and Improvement Program is to support the restoration and improvement of salmonid rearing habitat by providing instream cover and increasing the salmonid rearing habitat quality of shallow-edge habitats within riffles, glides, and pools, where appropriate along the lower Feather River. The primary target for these actions would be steelhead and spring-run Chinook salmon juveniles. This measure is necessary to protect the cold freshwater and spawning beneficial uses of the Feather River.

Fish Weir Program

The presence of Oroville Dam and other upper Feather River dams blocks passage of migratory fishes and causes spring-run and fall-run Chinook salmon to share spawning habitat in the Lower Feather River. Operation of the Project, including the Feather River Hatchery, has impacted the genetics of the federally and state listed threatened spring–run Chinook. Spring-run and fall-run Chinook have been genetically interbred (introgression – movement of genes from one species to another) affecting the genetic integrity of both races. Recent genetic studies have indicated that spring-run Chinook salmon in the Feather River are genetically more similar to fall-run Chinook salmon. Spring-run Chinook salmon are generally considered to begin their spawning a few weeks prior to the fall-run Chinook salmon.

The reduced amount of spawning habitat available in the lower river results in an increase of redd superimposition (subsequent spawning on top of an existing redd) resulting in increased rates of egg and alevin mortality. Early spawning fish, mostly spring-run Chinook, are more impacted by this productivity loss than later spawners. Increased competition for limited spawning habitat also contributes to increased rates of pre-spawn mortality.

The SA Fish Weir Program provides for two fish barrier weirs: Phase 1 will monitor the adult life history behavior of Chinook salmon (spring-run) and steelhead in the LFC (anadromous fish monitoring weir), and Phase 2 will spatially separate spring-run and fall-run in the LFC creating a dedicated spawning preserve to protect the spring-run and fall-run Chinook salmon.

The monitoring weir will be installed first to allow sufficient time to gather more information on the migration timing and abundance of adult spring-run and fall-run Chinook salmon and steelhead adults into the LFC. Counting spring-run, fall-run, and steelhead entering the LFC will provide the baseline data necessary to develop the segregation weir plan. The SA requires submittal of a Phase 2 Anadromous Fish Segregation Weir Plan within eight years of license issuance, and installation of the weir within 12 years of license issuance. In the Draft Biological Opinion (DBO) dated July 2, 2009, National Marine Fisheries Service (NMFS) includes terms and conditions that require DWR to install a fish segregation weir within 5 years of license issuance. NMFS requires DWR to consult on the location of the segregation weir. The weir is expected to reduce the interbreeding of spring and fall-run Chinook salmon and improve the genotype of the spring-run. NMFS requires DWR to minimize hybridization as a reasonable and prudent measure and states that take of spring-run will occur until they are segregated from fall-run in the LFC. To protect the beneficial uses and avoid the take of threatened Central Valley spring-run Chinook salmon, the water quality certification condition requires submittal of an Anadromous Fish Segregation Weir Plan within one year of license issuance. The Plan will include use of the monitoring weir, or an additional separate interim weir, to provide interim spatial and/or temporal segregation of Chinook salmon runs, and will include a timeline and study plan to implement such segregation within five years of license issuance consistent with the DBO. The condition also allows the Deputy Director to approve another implementation time frame consistent with the final Biological Opinion issued by NMFS.

Riparian and Floodplain Improvement Program

The Project has altered the hydrology and natural geomorphic processes along the Feather River and in the Oroville Wildlife Area. Oroville Dam blocks sediment recruitment from the upstream basin and has changed the high flow frequencies, altered peak flows, decreased winter flows, increased summer flows, and changed ramp down rates. Depletion of sediment load by 97 percent has reduced the formation of sediment benches, which affects riparian colonization and succession.

As part of the SA, DWR agreed to investigate and implement projects to improve riparian habitat and habitat for associated terrestrial and aquatic species and connect portions of the Feather River to its floodplain within the Oroville Wildlife Area. The purpose of this program is to improve riparian habitat and connect portions of the Feather River with its floodplain in the LFC and the HFC within the Oroville Wildlife Area. Projects will include excavation of Oroville Wildlife Area dredge tailings to remove or set-back non-flood levees to create vegetative benches along the Feather River channel. Higher priority will be given in the screening level analysis to those projects that maximize benefits for all species and habitats including restoring riparian vegetation and the riparian corridor, restoring habitat for terrestrial species (including special status species), reconnecting the river to its floodplain, and restoring/enhancing riparian and channel habitat for fish and other aquatic species. DWR and the California Department of Fish and Game will work with gravel operators to seek to reduce costs of gravel removal and earthwork components of the program.

Development of the floodplain habitat should result in an improvement in the quantity and quality of juvenile salmonid rearing habitat and high flow event velocity refuge for juvenile

salmonid rearing. This program should result in an incidental improvement in habitat for other wildlife as well. Article A106 in the SA includes the following four phases for implementation of the Riparian and Floodplain Improvement Program:

> Phase 1 – Within one year of license issuance and in consultation with the consultees listed in A106(a) above, the Licensee shall develop, and submit to the Commission a screening level analysis of proposed riparian/floodplain improvement projects, including how flood/pulse flows may contribute to floodplain values and benefit fish and wildlife species. This phase shall include the identification of a Phase 1 recommended alternative. This phase shall also include an assessment of the gravel value and potential extraction processes in order to provide guidance on the scope, timing, and magnitude of the Program.
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> Phase 2 – Within four years of license issuance and in consultation with the consultees listed in A106(a) above, the Licensee shall initiate Phase 2 of the Program. Phase 2 shall begin with conducting a full scope and feasibility evaluation and development of an implementation schedule of the Phase 1 recommended alternative. Within six years of license issuance, the Licensee shall submit the Phase 1 recommended alternative and implementation schedule to the Commission for approval. Within eight years of license issuance, the Licensee shall complete the final design and commence construction and implementation of the approved alternative. Within 15 years of license issuance the Licensee shall fully implement this approved alternative.
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> Phase 3 – Within 15 years of license issuance and in consultation with the consultees listed in A106(a) above, the Licensee shall complete an evaluation of other potentially feasible projects and the identification of a Phase 3 recommended alternative. This phase shall include a reevaluation of how flood/pulse flows may contribute to floodplain values and benefit fish and wildlife species and shall include an assessment of the gravel value and potential extraction processes similar to the one completed in Phase 1.
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> Phase 4 – Upon Commission approval, and within 25 years of license issuance, the Licensee shall complete construction of the Phase 3 recommended alternative.

As described above, the first two phases of the project will be fully implemented within 15 years of license issuance, and the second two phases will be implemented within 25 years of license issuance. The abilities and limitations of gravel extraction will guide the scope, timeframe and magnitude of the program.

Feather River Fish Hatchery Improvement

The proposed measure in the SA includes funding, water temperature requirements, a hatchery management program, a conditional requirement for a water supply disinfection system, and a commitment to conduct a comprehensive facility assessment. The Feather River Fish Hatchery is currently operated by the California Department of Fish and Game in conjunction with DWR. Hatchery operations have been successful in meeting production goals under the current license. The Section B104 of the SA requires DWR to provide all necessary funding to the California Department of Fish and Game to implement the Feather River Fish Hatchery Program in Article 107, for the production of anadromous salmonids.

DWR will also be required to prepare a comprehensive management plan, including production goals, for the Feather River Fish Hatchery within two years of license issuance. The SA also includes a commitment from DWR to expand or improve the existing water disinfection system for the hatchery spawning and rearing area, if anadromous salmonids are passed upstream of the hatchery. The State Water Board has determined the operation of the hatchery is necessary to offset the impacts of reduced spawning habitat, and has included a condition in the water quality certification to require continued operation of the hatchery.

The SA measure includes two water temperature tables: Temperature targets are shown in Table 107A, and maximum temperatures that cannot be exceeded are shown in Table 107B. Table 107B temperatures are higher than temperatures in Table 107A. DWR is allowed 10 years to complete facilities modifications during which time temperatures in Table 107A are not requirements. The baseline temperature requirements in Table 107A are the equivalent to temperatures required by the 1983 Agreement between DWR and the California Department of Fish and Game and currently required by the Oroville license. Table 107A represents the upper limit of the 1983 agreement temperatures for the hatchery. Historic water temperatures have been sufficient for the hatchery to meet its production goals. However, DWR and the Agencies agreed that cooler temperatures would aid in managing disease outbreaks. Consistent with this approach, and understanding that it is supported by the California Department of Fish and Game, the water quality certification contains two sets of water temperature requirements. Upon license issuance DWR will be required to maintain water temperature for the hatchery below those in Table S7, of this certification. After facility modifications, but no later than 10 years after license, DWR will be required to meet the water temperature requirements in Table S7A. The water quality certification condition also includes the commitment in the SA to curtail pump-back operations, remove shutters on the Hyatt intake, and use the river valves (after refurbishment) up to a maximum of 1500 cfs.

In Section B108, DWR committed to begin studies for the refurbishment or replacement of the river valve after signing of the SA. Because implementation of this measure preceded license issuance, it was included in Appendix B of the Settlement Agreement. In the SA, DWR retains the ability to refurbish or replace the river valve as necessary at its sole discretion. In the past, DWR has used the river valve along with other operational measures to meet hatchery temperature requirements. Impacts of water temperature were evaluated in the Draft Environmental Impact Report with a model using Temperature Control Actions that include the use of the river valve. More recently, on July 22, 2009, an accident occurred that injured five personnel who were testing the valve after an April 2009 repair which was intended, at least partially, to increase the amount of water which could flow through the valve. In light of this incident, additional study is necessary to determine the appropriate conditions under which the river valve and supporting infrastructure may be safely used in the future. The SA anticipates that DWR will use the river valve, among other measures, for meeting the hatchery temperature requirements. The river valve also will benefit temperatures in the LFC. Access to cold water during certain years when Oroville water elevations are low is critical to protect listed species and beneficial uses. The accident has created uncertainty around the use of the river valve and the timelines for repair or refurbishment. Because of the importance of the river valve for temperature control a measure has been added to the water quality certification that requires a timeline be submitted within six months of license issuance that includes the steps necessary to finalize the repair or refurbishment of the river valve. The condition also allows DWR to propose an alternative method for meeting temperature requirements should use of the river valve prove unfeasible.

<u>Flow/Temperature to Support Anadromous Fish</u>

DWR's studies showed that water temperatures in the LFC and HFC were contributing stressors for anadromous salmonids. Studies also showed the higher flows would increase the amount of habitat for anadromous fish. Operation of the Oroville Facilities to meet the water temperature objectives and increase minimum flows will lower water temperatures in the LFC and HFC improving the quality and increasing the quantity of available coldwater fisheries habitat in the lower Feather River. The SA includes a measure that sets minimum flows in the LFC and HFC, establishes a process for facility modification to improve water temperatures in the LFC and HFC, requires consultation during dry years, and creates a notification process if DWR is unable to meet temperature requirements due to uncontrollable forces.

Minimum Flows - This measure requires an increased minimum flow from the current 600 cfs to a new minimum flow of 700 cfs in the LFC during most of the year, but increasing flow to 800 cfs during the Chinook salmon spawning season from September 9 through March 31. The volume of increased flows was determined from the results of instream flow investigations and spawning habitat utilization studies. Increasing the minimum instream flow in the LFC will reduce the high levels of redd superimposition. Higher flows should reduce competition for habitat, which potentially contributes to increased rates of Chinook salmon pre-spawn mortality. DWR determined that the maximum weighted usable area for Chinook salmon spawning would occur at approximately 800 cfs. The measure also includes specific requirements for minimum flows in the HFC. During dry years when the April 1 forecast is projected to drop below 733 feet under normal operations, the measure limits reduction of the minimum flow in the HFC to less than 25 percent. Normal operation is the operation of the State Water Project (SWP) based on standard factors such as hydrology, storage, routine maintenance and SWP obligations. Changes in operation that are a result of unusual events such as flood control releases, accidents, project failures, and major or unusual maintenance are not considered normal operation. The State Water Board has determined that these flows are appropriate to protect the beneficial uses.

Water Temperature - The SA agreement contains a complex set of measures that address improvements to water temperature in the Lower Feather River. The SA includes similar requirements as in the hatchery measure to improve water temperature in the LFC. Until facilities modifications are complete DWR will curtail pump-back operations, remove shutters on the Hyatt Intake, and increase flow releases in the LFC up to 1500 cfs to reduce water temperatures if necessary. The measure includes water temperature targets (Table 1) for the LFC at the Robinson Riffle (River Mile 61.6), near where the LFC meets the HFC. The water temperatures in Table 1 meet the terms of the 2004 National Marine Fisheries Service Biological Opinion which specifies that mean daily water temperatures shall not exceed 65ºF from June 1 to September 30. The measure states that prior to facility modification, if DWR is unable to meet the Table 1 water temperature objectives by implementing the water temperature control actions, DWR will not be in violation of the license terms. After facility modification DWR will be required to meet the temperatures in Table 1. The SA does not include temperature targets or objectives for the HFC.

The SA requires DWR to submit a Feasibility Study and Implementation Plan for Facility Modification(s) to improve temperature conditions for spawning, egg incubation, rearing and holding habitat for anadromous fish in the LFC and HFC within three years of license issuance. This plan will recommend a specific alternative for implementation and will be prepared in consultation with the resource agencies.

The SA does not state when the facilities modifications will be completed, although the associated explanatory statements provides a 10-year timeline after license issuance for facilities development. Under the SA, there would be a testing period of at least five years in length to monitor water temperature and develop final water temperature requirements. The water temperatures in SA Table 2 would be modified, and would then become targets during a five-year testing period following completion of Facilities Modification(s). The proposed water temperature objectives for the HFC will be measured at the southern Commission project boundary. The SA identifies two main challenges associated with compliance with Table 2 water temperature objectives: the dynamic water temperatures in both the LFC and at the Thermalito Afterbay outlet and the proportional blending of these and the delay in time from the implementation of a water temperature control action to a water temperature change in the HFC. The parties believe these challenges require the development of final water temperature requirements after project modifications are completed and tested for five years.

Studies have shown it is unlikely that adult Chinook salmon can use the Feather River below the Thermalito Afterbay Outlet except as a migration corridor. Water temperature monitoring in 2002 and 2003 showed that the temperature of water released from Thermalito Afterbay was as much as 11.3°F higher than that of incoming water. DWR concluded that increased incidence of disease, developmental abnormalities, increased in-vivo egg mortality, and temporary cessation of migration could occur due to elevated water temperatures in some areas of the lower Feather River. Operation of the Project currently does not protect the cold-water beneficial uses. Populations of Sacramento/San Joaquin Valley Chinook salmon are at the lowest levels ever recorded. The State Water Board believes it is necessary to require more specific timelines in the water quality certification for completion of measures to improve water temperature so as to demonstrate protection of the cold water beneficial uses of the Feather River.

DWR completed a Reconnaissance Study of Potential Future Facility Modifications in December 2006. The report compares the benefits and costs of all of the potential water temperature improvements. In the EIS, Commission staff support a phased approach to meet water temperature objectives in the LFC and HFC. They state that the water temperature targets would become the license requirements 10 years after license issuance or upon completion of the facilities modifications. Commission staff state that even if DWR does not modify its facilities, the lower water temperatures would become requirements to ensure colder water in the Feather River.

Compliance with the water temperatures in the Tables 1 and 2 in the SA are necessary for the protection of cold freshwater, spawning, and migration beneficial uses of the Feather River. The State Water Board understands the complexities of designing, permitting, and constructing some of the proposed facilities modifications. However, the SA lacks the required level of assurances that the water temperatures will be reduced in a timely manner. To achieve compliance with the water quality standards, the water quality certification includes conditions that will assure water temperature objectives are met.

The water quality certification requires DWR to meet the water temperatures in Table 1 at Robinson Riffle. If DWR cannot meet these water temperature requirements, they must submit a plan within one year of license issuance to the Deputy Director for facility modification(s) that will allow compliance with the temperature requirements.

The plan must: include evidence showing that compliance is impossible or unreasonable using existing facilities; include interim measures to reduce water temperatures; and demonstrate compliance within 10 years of license issuance.

The water quality certification requires DWR to operate the project to protect the COLD beneficial use in the high flow channel, as measured in the Feather River at the downstream Project Boundary, to the extent reasonably achievable. Within one year of license issuance, DWR must submit a plan for project operations to reasonably protect COLD beneficial uses before facility modification. This interim plan must include a table of proposed interim temperature requirements, as well as interim measures to reduce water temperatures. Within five years, DWR must submit a long-term facility modification and operations plan which shall include a table of proposed temperature requirements to protect the COLD beneficial use within 10 years of license issuance.

Conference Year - The purpose of the "conference year" provision which relaxes the water temperature table requirements is to accommodate combinations of water year types and low reservoir storage conditions, when it is not possible to meet the water temperature goals with the available coldwater pool. This allowance is included in the water quality certification.

Habitat Expansion Agreement

Construction of the Oroville Facilities and Pacific Gas and Electric Company's (PG&E) construction of other hydroelectric facilities on the upper Feather River tributaries blocked passage and reduced available habitat for ESA listed anadromous salmonids Central Valley spring-run Chinook salmon (Oncorhynchus tshawytscha) ("spring-run") and Central Valley steelhead (O. mykiss) ("steelhead"). The reduction in spring-run habitat resulted in spatial overlap with fall-run Chinook salmon and has led to increased redd superimposition, competition for limited habitat, and genetic introgression. Relicensing of hydroelectric projects in the Feather River basin has focused attention on the desirability of expanding spawning, rearing and adult holding habitat available for Central Valley spring-run and steelhead. The SA includes a habitat enhancement program to address the loss of habitat associated with both the Project and with upstream hydroelectric facilities owned by PG&E. The SA includes a habitat enhancement program with an approach for identifying, evaluating, selecting and implementing the most promising action(s) to expand such spawning, rearing and adult holding habitat in the Sacramento River Basin as a contribution to the conservation and recovery of these species. The specific goal of the Habitat Expansion Agreement (HEA) is to expand habitat sufficiently to accommodate an estimated net increase of 2,000 to 3,000 spring-run Chinook salmon for spawning.

Within two years of signing the Settlement Agreement, the Licensee will complete identification, evaluation and selection of habitat expansion action(s) using the Evaluation Criteria and Selection Criteria listed in the agreement. Potential habitat actions will occur in the Sacramento River basin and include, but are not limited to, dam removal, dam re-operation, flow and water temperature improvements, fish passage, and physical habitat improvements. Habitat expansion actions would be selected in consultation with National Marine Fisheries Service, U.S. Fish and Wildlife Service, State Water Board, U.S. Forest Service, and California Department of Fish and Game. Prior to approving the final HEA, National Marine Fisheries Service will initiate a 60-day consultation process with the parties to the HEA and the State Water Board.

Section 11.2.2 of the HEA contains specific allowances for withdrawal for all parties should the State Water Board either issue water quality certification that is materially inconsistent with the HEA, exercise any reserved authority relative to fish passage in a manner that is inconsistent with the HEA, or deny water quality certification.

The State Water Board concludes that in order to provide reasonable protection for the cold freshwater, spawning, and migration beneficial uses from the ongoing impacts the Project is having and will continue to have on those uses, expansion of habitat as envisioned in the HEA, to at least partially offset the loss of habitat caused by the Project, is necessary. The process provided for by the HEA is still underway, however, making it impossible for this certification to specify the locations for habitat expansion actions. In addition, while the State Water Board anticipates that DWR is likely to rely on the activities identified pursuant to the HEA to comply with this aspect of the water quality certification, it is preferable to establish a performance goal consistent with the HEA, instead of prescribing the HEA as the manner of compliance. This provides DWR with the flexibility to substitute some actions that are not included in the HEA for actions that are included, for purposes of complying with this water quality certification, without establishing any requirement that is inconsistent with the HEA. Therefore, the water quality certification requires that the Licensee submit a plan to the Deputy Director within two years of issuance of a new license by the Commission that will result in a net increase of spawning habitat for 2,000 to 3,000 spring-run Chinook salmon in the Sacramento River Basin. The water quality certification also reserves the authority to modify the condition if the goals of the habitat expansion plan are not met within the timelines in the plan, if Pacific Gas and Electric Company does not implement or participate in the plan, or if the DWR withdraws from the HEA before the approved, final habitat expansion plan is fully implemented.

Lake Oroville Warm Water Fishery Habitat Improvement Program

Angling for warm water game fish is an important component of the recreation that occurs at Lake Oroville. Through the Lake Oroville Warm Water Fishery Habitat Improvement Program, DWR will improve the warm water fish habitat in Lake Oroville that supports warm water game fish such as black bass and channel catfish. This is an improvement to a similar program that exists under the current license for the Project. This habitat improvement program is intended to increase and/or improve the structural complexity of the Lake Oroville fluctuation zone, which provides benefits to warm water fish that use these areas for spawning and rearing. This measure will protect the warm freshwater and spawning beneficial uses of Lake Oroville.

Lake Oroville Cold Water Fishery Improvement Program

Lake Oroville lacks suitable habitat to support self-sustaining populations of cold water sport fish, such as rainbow trout, brown trout, Chinook salmon, and coho salmon, which require cold, flowing water and clean gravels. Although some of Lake Oroville's tributaries have this habitat, they do not provide enough to support the cold water sport fishery at a level that is desirable to Lake Oroville anglers. Therefore, stocking hatchery fish is necessary to maintain these cold water fish populations.

Through the Lake Oroville Cold Water Fishery Improvement Program, DWR will stock cold water fish in Lake Oroville to improve the cold water sport fishery, which may increase recreational opportunities and tourism at the reservoir. This is an improvement of a similar program that exists under the current license for the Project. The State Water Board has determined this measure will benefit the cold freshwater beneficial uses of Lake Oroville.

Comprehensive Water Quality Monitoring Program

Water quality in Project waters is affected by many factors, including upstream tributaries and Project operations. Physical, chemical, and biological constituents contributed to Lake Oroville from upstream tributaries can settle from the water column in the reservoir arms. Water quality near the dam is indicative of water quality in the main body of the reservoir, and determines the quality of water released to the Feather River. The Comprehensive Water Quality Monitoring Program is intended to expand the program for data collection to document water quality conditions in Project-affected waters, including contributions from upstream sources, limnologic changes occurring within impoundments, pathogen levels at recreation sites, effects of Project operations on Feather River thermal regime, and long-term effects of the Project on water quality from present and future operations. DWR will develop and implement a comprehensive water quality monitoring program for surface waters within the Project area, through which DWR will track potential changes in water quality associated with the Project, and collect data necessary to develop a water quality trend assessment through the life of the license. Water quality monitoring will focus on the identification of those organic and inorganic constituent and physical parameter levels that may affect beneficial uses for surface waters.

The Comprehensive Water Quality Monitoring Program will include components to sample water chemistry, fish tissue bioaccumulation, recreation site pathogens and petroleum product concentrations, water temperatures, bioassays, and aquatic macroinvertebrate monitoring.

The State Water Board agrees that the development of a water quality monitoring plan is important to ensure the water quality affected by the project meets the water quality standards. DWR staff have observed and sampled cyanobacteria in Lake Oroville. The species of cyanobacteria identified can produce cyanotoxins that are harmful to humans, pets, and wildlife. The water quality certification includes conditions that the water quality monitoring plan includes cyanobacteria monitoring, testing for cyanotoxins, and procedures for protecting the public from cyanotoxins. The condition in the water quality certification improves enforceability of the monitoring plan described in the SA.

Pathogen Public Health Protection

DWR conducted monitoring for bacteria at recreation areas during 2002 and 2003. Samples from the North Forebay Recreation Area beach had consistently high fecal coliform levels that exceeded Department of Health Services (DHS) guidance and Basin Plan objectives. Results also showed that nearly every sample from two sites in the North Forebay, and many sites in the South Forebay, exceeded DHS and USEPA criteria for enterococcus bacteria (Department of Water Resources, September 2004).

The measure in the SA requires DWR, in coordination with the appropriate public agencies, to perform monitoring of bacteria levels at swim areas. DWR will also be required, upon input from appropriate agencies, to notify the public if unsafe levels of bacteria are present in the water. DWR, in coordination with Parks and Recreation, will also place notices educating the public on sanitary measures to prevent contamination of the water. In addition, DWR, in consultation with the relevant public heath agencies and state and regional water boards, will determine if a companion public education program designed to inform the public about potential sources of bacteria in the water is necessary.

The Comprehensive Water Quality Monitoring Program and Monitoring of Bacterial Levels and Public Education measures in the SA contained similar but conflicting requirements. The

monitoring elements have been combined in Condition S12. Condition S13 contains measures necessary to protect public health from exposure to pathogens in swimming areas.

The North Thermalito Forebay Recreation Area was developed to mitigate for the loss of recreational opportunities from the construction and operation of the Project. The design of the facility contributes to the high coliform levels. Condition S13 includes a requirement to assess the risk to swimmers at the North Forebay Recreation Area, and if necessary, to develop a plan to reduce the risk to swimmers.

Public Education Regarding Risks of Fish Consumption

Operation of the Project may contribute to the methylation of mercury resulting in an increase in the levels of mercury in fish tissue. The SA includes a measure that requires DWR, in consultation with the Office of Environmental Health Hazard Assessment (OEHHA), State Water Board, and Central Valley Regional Water Quality Control Board, to post notices at all boat ramps and other locations within the Project boundary notifying the public about health issues associated with consuming fish taken from within the Project waters.

Condition S14 requires DWR to provide funding to OEHHA for the development of additional fish tissue consumption advisories, should this be necessary based on additional data collection. The Condition also includes a reservation of authority to develop a methyl mercury management plan should research or data indicate the Project increases methylation rates.

Oroville Wildlife Area Management Plan

DWR will develop, in conjunction with the Departments of Fish and Game and Parks and Recreation, and in consultation with the U.S. Fish and Wildlife Service, a Management Plan for the Oroville Wildlife Area for Commission approval. The Proposed License Article identifies a number of required Plan elements. The Plan will be reevaluated every five years.

Protection of Vernal Pools

Vernal pools are seasonal wetlands that support a range of sensitive plant and insect species. Approximately 49 acres of vernal pools and ephemeral swales were mapped within the project area. Protection of these pools is necessary to protect the beneficial uses and prevent the take of threatened and engendered species.

Minimization of Disturbances to Nesting Bald Eagles

On August 9, 2007, the bald eagle was removed from the federal list of threatened and endangered species. Even though they are delisted, bald eagles are still protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. These Acts require some measures to continue to prevent bald eagle "take" resulting from human activities. Bald eagles are a water dependant species that feed on fish and waterfowl. Bald eagles may be sensitive to human disturbance. U.S. Fish and Wildlife Service may require conservation measures to protect Bald Eagles that include use restrictions in bald eagle territories. Measures to protect this species may require modification of other measures in this certification. This measure is included to allow the State Water Board to adequately balance all of the beneficial uses, minimize conflicts between uses, and prevent take.

Protection of Giant Garter Snake

Giant garter snake is a threatened species under both the federal and state Endangered Species Acts. The giant garter snake is endemic to the wetlands of California's Central Valley. Habitat for the giant garter snake primarily occurs in the Thermalito Forebay and Thermalito Afterbay and the Oroville Wildlife Area. Water level fluctuations at the Thermalito Afterbay, maintenance activities, and recreational development and use can adversely affect the habitat of the highly aquatic giant garter snake. Accordingly, DWR will implement conservation measures required by the U.S. Fish and Wildlife Service Final Biological Opinion to protect giant garter snakes within suitable habitat within the Project boundary. The State Water Board has determined that this measure will assist in protecting habitat and the rare, threatened, or endangered species beneficial use.

Protection of Valley Elderberry Longhorn Beetle

Valley elderberry longhorn beetle is a threatened species under the federal Endangered Species Act. The valley elderberry longhorn beetle is a riparian dependant species that bores into the stems of elderberry bushes. Inclusion of this measure is necessary to protect the rare, threatened, or endangered species beneficial use.

Protection of Red-Legged Frog

The California red-legged frog was federally listed as threatened in 1996, and a final Recovery Plan for the California red-legged frog was issued in 2003. The Oroville Facilities Project boundary is not included within any of the eight recovery units identified in the Recovery Plan, and no red-legged frogs were observed during the habitat surveys conducted in 2002 or during other relicensing field data collection activities. However, there is potentially suitable habitat for the red-legged frog within the Project boundary. DWR agrees to implement conservation measures required by the U.S. Fish and Wildlife Service Final Biological Opinion to protect the red-legged frog within the Project boundary. The State Water Board has determined this measure will assist in protecting habitat and the rare, threatened, or endangered species beneficial use.

Construction and Recharge of Brood Ponds

Waterfowl survival can be adversely affected by Thermalito Afterbay water level fluctuations, which increase the distance from emergent wetland cover and aquatic habitat. Existing brood ponds are designed to maintain a more stable water surface elevation than the Thermalito Afterbay and provide waterfowl cover adjacent to aquatic habitats that serve to reduce waterfowl brood losses. As water levels decrease within brood ponds (from evaporation, seepage, and evapotranspiration), the distance from aquatic habitat to brood cover increases within the pond. The SA requires DWR to develop, in conjunction with the California Department of Fish and Game and in consultation with the Ecological Committee and U.S. Fish and Wildlife Service, a plan to construct one new waterfowl brood pond every five years over a 20-year period, and maintain adequate water surface elevations. The State Water Board has determined this measure will assist in protecting the wildlife habitat beneficial use.

6.0 Findings

1. The State Water Board has reviewed and considered: (a) the Settlement Agreement for Licensing of the Oroville Facilities; (b) DWR's final FERC License Application; (c) comments on the final License Application by agencies and interested parties; (d) the

U.S. Forest Service Final 4(e) Conditions; (e) the FERC Environmental Impact Statement prepared pursuant to the National Environmental Policy Act; (f) DWR's application for water quality certification; (g) the Environmental Impact Report prepared by DWR; and (h) comments by agencies and interested parties. Further, the State Water Board has considered the Basin Plan, the existing water quality conditions, and project-related controllable factors.

2. As responsible agency under the California Environmental Quality Act (CEQA) the State Water Board has reviewed and considered the Environmental Impact Report (EIR) for this Project (State Clearinghouse Number 2001102011) prepared by DWR. A Notice of Determination for the EIR was filed with the State Clearinghouse on July 22, 2008. DWR determined the Project will not have a significant effect on the environment, and prepared a mitigation reporting and monitoring plan. CEQA requires that the responsible agency make one or more of a set of three findings whenever an EIR identifies a significant effect on the environment. These findings are set forth in section 21081 of the Public Resources Code: (1) Changes or alterations have been required in, or incorporated into, the 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.) The findings identified one or more significant environmental effects of the project on water resources. CEQA requires responsible agencies to prepare a statement of overriding considerations which reflects the ultimate balancing of competing public objectives (including environmental, legal, technical, social, and economic factors) that the agency is required by law to carry out or approve. The State Water Board is concurrently adopting a Statement of Overriding Considerations for this Project, with the adoption of the certification. The State Water Board also prepared a Mitigation, Monitoring, and Reporting Plan.

   The CEQA Mitigation, Monitoring and Reporting Plan, and Findings are included as Attachment A to this certification. The State Water Board will file a Notice of Determination within five days from the issuance of this certification.

3. On September 2, 2009, the State Water Board issued notice pursuant to section 3858 of title 23 of the California Code of Regulations that it intended to issue water quality certification after a 21-day notice period. On January 21, 2010, the State Water Board issued a draft water quality certification for public review.

ACCORDINGLY, BASED ON ITS INDEPENDENT REVIEW OF THE RECORD, THE STATE WATER BOARD CERTIFIES THAT THE OPERATION OF THE OROVILLE FACILITIES BY THE DEPARTMENT OF WATER RESOURCES, UNDER A LICENCE ISSUED BY THE COMMISSION, AS DESCRIBED IN ITS APPLICATIONS FOR WATER QUALITY CERTIFICATION, will comply with sections 301, 302, 303, 306 and 307 of the Clean Water Act, and with applicable provisions of state law, provided the Department of Water Resources complies with the following terms and conditions:

Specific Conditions

S1. Lower Feather River Habitat Improvement Plan

a) Within three years of license issuance, the Licensee shall develop a comprehensive Lower Feather River Habitat Improvement Plan. The Plan shall provide an overall strategy for managing the various environmental measures developed for implementation within the areas integrated in the Plan, including the implementation schedules, monitoring, and reporting. The Plan shall be developed in consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game, California State Water Resources Control Board (State Water Board), and Central Valley Regional Water Quality Control Board (consultees). Consultation with the Ecological Committee complies with the consultation requirement, as long as the agencies listed are part of the Ecological Committee. The Licensee shall submit the Plan to the Deputy Director for Water Rights (Deputy Director) for approval. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved.

b) The Licensee shall individually evaluate each of the programs and components of the Lower Feather River Habitat Improvement Plan to assess the overall effectiveness of each action within the Lower Feather River Habitat Improvement Plan. Each program or component may be updated or modified as appropriate to continue to best meet the Plan goals.

c) The following programs and plans shall be included in the comprehensive Lower Feather River Habitat Improvement Plan:

1. Gravel Supplementation and Improvement Program
2. Channel Improvement Program
3. Structural Habitat Supplementation and Improvement Program
4. Fish Weir Program
5. Riparian and Floodplain Improvement Program including the evaluation of pulse/flood flows
6. Feather River Fish Hatchery Improvement Program
7. Comprehensive Water Quality Monitoring Program
8. Oroville Wildlife Area Management Plan
9. Instream Flow and Temperature Improvement for Anadromous Fish.

d) The Plan shall provide for and include:

1. Coordination of implementation and monitoring activities agreed to in the individual components included in the comprehensive Plan;
2. Coordination with any Project-specific biological opinions and Operations Criteria and Plan findings or recommendations;
3. Annual reporting of monitoring results and activities, if appropriate, for the individual components to the consultees throughout the term of the license;
4. The integration of the programs and plans listed in subdivision (c) above, including an evaluation of synergistic effects and an evaluation and consideration of predation management; and
5. Development of a single, comprehensive monitoring and adaptive management summary report by the Licensee as set forth in (e) below.

e) During the sixth year following license issuance and at five-year intervals for the duration of the license, the Licensee shall develop and submit a single, comprehensive monitoring and adaptive management summary report. The Lower Feather River Habitat Improvement Plan report shall be submitted to the consultees listed in S1(a) above for review and comment at least 60 days prior to filing the report with the Deputy Director. The comprehensive report shall include the results of each of the various components of each program during the implementation period. The report shall also include information on any proposed changes or updates to the individual plans or programs within the Lower Feather River Habitat Improvement Plan.

S2. Gravel Supplementation and Improvement Program

a) Within two years of license issuance, the Licensee shall develop a Gravel Supplementation and Improvement Program Plan to address gravel management for the lower Feather River throughout the term of the license. The Plan shall be developed in consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, the California Department of Fish and Game, and the State Water Board (consultees). Consultation with the Ecological Committee complies with the consultation requirement, as long as the agencies listed are part of the Ecological Committee. The Licensee shall include with the Plan copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Licensee shall submit the Plan to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved. Upon Deputy Director approval, and after obtaining all necessary permits, the Licensee shall implement the Plan, including any changes required by the Deputy Director.

b) The Licensee, in consultation with the consultees listed in S2(a) above, shall coordinate the gravel supplementation activities with the measures conducted within the Lower Feather River Habitat Improvement Plan.

c) The Plan shall include a schedule to complete, within five years of license issuance, the supplementation of at least 8,300 cubic yards over the December 31, 2006 baseline of spawning gravels suitable for spring-run Chinook salmon or steelhead which shall be distributed over up to 15 locations in the LFC or HFC of the Feather River.

d) The Plan shall provide for: (1) a physical assessment of the spawning riffles from River Mile 54.2 up to River Mile 67.2 of the Feather River; (2) a gravel budget for the LFC and, if necessary, portions of the HFC within the Project Boundary; (3) a strategy to augment existing gravel recruitment beyond the 8300 cubic yards referenced in subdivision (c) above in the LFC and HFC with gravel injections, placements, or other methods developed through site-specific investigations; (4) plans to monitor and evaluate the effectiveness of gravel augmentation, particularly the biological response of fish species to the gravel supplementation and enhancement activities; (5) an annual summary account of the activities conducted; and (6) coordination with other components of the license and the Lower Feather River Habitat Improvement Plan to enhance natural reproduction of steelhead and Chinook salmon.

e) The Gravel Supplementation and Improvement Program Plan shall also include the following measures, criteria and timelines:

1. All work within the Ordinary High Water mark of the Lower Feather River shall take place during the months of June and July, or at other times as allowed by permit conditions to produce minimal impact to the target species (steelhead and Chinook salmon) and other river attributes (*i.e.* water quality).

2. Gravel placement or riffle rehabilitation at the treated riffles shall, where feasible, cover the extent of naturally observed spawning areas, be within an area extending between river banks, and extend at least 50 feet upstream and 50 feet downstream of the riffle, and be a depth of at least one foot.

3. Licensee shall monitor and replenish or rehabilitate gravel at individual sites every five years, as needed, for the term of the License. At five-year intervals after the initial supplementation period, the Licensee shall monitor and maintain a minimum of 10 riffle complexes in the LFC so that approximately 80 percent of the spawning gravels randomly sampled in riffle complexes shall be in the median size range preferred by Chinook salmon or steelhead. All work will be done in consultation with the consultees listed in S2(a) above. High flow events shall be defined in the Gravel Supplementation and Improvement Plan.

4. The Licensee, in consultation with the consultees listed in S2(a) above, shall conduct a study on the need for additional gravel supplementation in the HFC of the Feather River (within the Project Boundary). The study shall be submitted to the Deputy Director for modification and approval within eight years of license issuance. If gravel supplementation will benefit spawning and rearing, it will begin within 10 years of license issuance. Gravel supplementation, if provided, shall include the staging of spawning gravel stockpiles, of up to 2,000 cubic yards, of a size distribution determined by study, below the Thermalito Afterbay Outlet.

f) The Licensee shall prepare an annual summary report describing the activities completed pursuant to the Program and submit the report to the consultees listed in S2(a) above. Throughout the term of the license, the Licensee shall compile these annual reports at least once every five years in the Lower Feather River Habitat Improvement Plan Report.

g) The Licensee, in consultation with the consultees listed in S2(a) above, shall reevaluate the Gravel Supplementation and Improvement Program Plan every five years after initial implementation. Every five years the Licensee shall submit for the Deputy Director's information a Lower Feather River Habitat Improvement Plan report that includes any Plan updates. If any changes are recommended beyond the objectives, activities, or schedules identified in this article or the Gravel Supplementation and Improvement Program Plan, the Licensee shall submit final recommendations in a revised plan to the Deputy Director for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the revised plan shall be deemed approved.

S3. Channel Improvement Program

a) Within one year of license issuance, the Licensee shall develop and file for Commission approval a Moe Ditch and Hatchery Ditch Plan to improve two existing side channels at the upstream end of the LFC, Moe's Ditch, and Hatchery Ditch, by modifying these channels to provide suitable discharge, velocity, depth, substrate, cover and riparian vegetation to support salmonid spawning and rearing. The Plan shall be developed in consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, State Water Board, and the California Department of Fish and Game (consultees). Consultation with the Ecological Committee complies with the consultation requirement, as long as the agencies listed are part of the Ecological Committee. The Licensee shall include with the filing of the Moe and Hatchery Ditch Plans copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Plan shall include a schedule to complete the improvements to Moe's Ditch and Hatchery Ditch within three years of license issuance. The Licensee shall submit the Plan to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved.

b) Within four years of license issuance, the Licensee shall develop and file for Commission approval a Channel Construction Plan to identify and construct, within 10 years of license issuance, five additional side channel riffle/glide complexes of not less than a cumulative total of 2,460 feet in length of new habitat. These side channels shall be located and designed to maximize quantity/quality of suitable salmonid attributes (depth, velocity, substrate, cover, and vegetation) while minimizing the potential for warming, stranding, and predation problems. The Plan shall be developed in consultation with the consultees listed in S3(a) above. The Licensee shall include with the filing of the Channel Construction Plan copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Licensee shall submit the Plan to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved. Upon Commission approval, and after obtaining all necessary permits, the Licensee shall implement the Plan, including any changes required by the Commission.

c) Maintenance activities shall be developed by the Licensee in consultation with the consultees listed in S3(a) above. Maintenance activities shall occur at least once every five years, or as often as necessary to maintain channel functions. High flow events shall be defined in the Channel Construction Plan.

d) Licensee shall annually collect data appropriate for evaluating the effectiveness of the Channel Improvement Program and the achievement of the Channel Improvement Program objectives. The Licensee shall prepare an annual summary report describing monitoring and implementation activities completed pursuant to the Program and submit the report to the consultees listed in S3(a) above for review on an annual basis. Throughout the term of the License, the Licensee shall compile these annual reports every five years in the Lower Feather River Habitat Improvement Plan Report that is submitted to the Commission.

e) The Licensee, in consultation with the consultees listed in S3(a) above shall reevaluate the Channel Construction Plan every five years after initial implementation. If any changes are recommended beyond the objectives, activities, or schedules identified in this article or the Plan, the Licensee shall submit final recommendations in a revised plan to the Deputy Director for approval. The Licensee shall include with the filing copies of the comments, including recommendations made in the course of such consultation, and an explanation as to why any comment was not adopted. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the revised plan shall be deemed approved. Upon Deputy Director approval, the Licensee shall implement the Plan, including any changes required by the Deputy Director. The Licensee shall include any Deputy Director approved revisions to the Plan into any updates to the Lower Feather River Habitat Improvement Plan set forth in Condition S1.

S4. Structural Habitat Supplementation and Improvement Program Plan

a) Within two years of license issuance, the Licensee shall develop and file for Commission approval a Structural Habitat Supplementation and Improvement Program Plan to provide additional salmonid rearing habitat in the Lower Feather River by creating additional cover, edge, and channel complexity through the addition of structural habitat, including large woody debris, boulders, and other objects. The Plan shall be developed in consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, State Water Board, and California Department of Fish and Game (consultees). Consultation with the Ecological Committee complies with the consultation requirement, as long as the agencies listed are part of the Ecological Committee. The Licensee shall include with the filing of the Plan copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Licensee shall submit the Plan to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved. Within two years following Deputy Director approval of the Plan, and after obtaining all necessary permits, the Licensee shall implement the Plan, including any changes required by the Deputy Director.

b) The Plan shall contain the following elements:

1. Proposed locations for structural placements, including large woody debris, boulders, or other material. Large woody debris for this Program is defined as multi-branched trees at least 12 inches in diameter at chest height, and a minimum of 10 feet in length (with a preference for approximately 20 feet or longer), with approximately 50 percent of the structures containing intact rootwads. Large woody debris or other native materials shall be located within the river to maximize the instream benefit at the lowest minimum flow specified in Condition S8 with the rootwad (if attached) oriented upstream.

2. Development and implementation of a strategy to map existing large woody debris, riparian habitat, and sources of riparian and large woody debris recruitment.

3. Placement of a minimum of 2 pieces of large woody debris, boulders, or other appropriate material per riffle in the LFC and HFC from River Mile 54.2 to River Mile 67.2 of the Feather River for a total of between 50 and 500 pieces in locations that maximize benefits for salmonids. Additional large woody debris, boulders, or other material may be placed in glide, riffle or pool habitat where appropriate.

4. Completion of a safety analysis, and any resulting necessary modifications to the Plan, prior to program implementation to ensure that issues relating to human safety are adequately addressed.

5. Monitoring of the structural placements after major high flow events, or at least once every five years in the absence of a high flow event, to collect data appropriate for evaluating the effectiveness of the Program and its objectives. High flow events shall be defined in the Structural Habitat Supplementation Improvement Program Plan.

6. Inclusion of specific maintenance criteria, including the interval for replacement of large woody debris or other structures. Replacement shall occur at a minimum of every five years.

c) The Licensee shall annually collect data appropriate for evaluating the effectiveness of the Program and the achievement of the Program objectives. The Licensee shall prepare an annual summary report describing monitoring and implementation activities completed pursuant to the Program and submit the report to the consultees listed in S4(a) above for review on an annual basis. Throughout the term of the license, the Licensee shall compile these annual reports every five years in the Lower Feather River Habitat Improvement Plan Report that is submitted to the Commission.

d) The Licensee, in consultation with the consultees listed in (a) above, shall reevaluate the Plan every five years after initial implementation. If any changes are recommended beyond the objectives, activities, or schedules identified in this article or the Plan, the Licensee shall submit final recommendations in a revised plan to the Deputy Director for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why the comment was not adopted. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the revised plan shall be deemed approved. Upon Commission approval, the Licensee shall

implement the Plan, including any changes required by the Commission. The Licensee shall include any Commission and Deputy Director approved revisions to the Plan into any updates to the Lower Feather River Habitat Improvement Plan set forth in Condition S1.

S5. Fish Weir Program

a) Within one year of license issuance, the Licensee shall develop and file for Deputy Director approval a Phase 1 Weir Construction and Operations Plan consistent with the Project biological opinion(s). The Plan shall be developed in consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, State Water Board, and California Department of Fish and Game (consultees). Consultation with the Ecological Committee complies with the consultation requirement, as long as the agencies listed are part of the Ecological Committee. The Licensee shall include with the filing of the Phase 1 Plan copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Licensee shall submit the Plan to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved.

Upon Commission and Deputy Director approval, and after obtaining all necessary permits, the Licensee shall implement the Plan, including any changes required by the Commission and Deputy Director.

b) The Phase 1 Plan shall include a schedule to install and operate a monitoring weir in the vicinity upstream of the Thermalito Afterbay Outlet within three years of license issuance.

c) The Phase 1 Plan shall be designed to document run timing for spring-run and fall-run Chinook salmon and steelhead, and include design and safety analysis including boating compatibility, detailed engineering design, and a permitting process schedule. The Plan will include use of the monitoring weir, or an additional separate interim weir, to provide interim spatial and/or temporal segregation of Chinook salmon runs, and will include a timeline and study plan to implement such segregation within five years of license issuance. After issuance of a final Biological Opinion by the National Marine Fisheries Service, and upon the request of the Licensee, the Deputy Director may approve a different time frame for implementation of the weir. The time for implementation may not exceed the time required in the final Biological Opinion issued by the National Marine Fisheries Service. The Plan shall be a part of the Lower Feather River Habitat Improvement Plan.

d) Licensee shall correlate data from the monitoring weir to carcass surveys or other existing population counts. The Licensee, in consultation with the consultees listed in S5(a) above, shall use the data collected in Phase 1 to develop recommendations to the Deputy Director and the Commission regarding Phase 2 as set forth below.

e) Within eight years of license issuance, the Licensee shall develop and file for Commission approval a Phase 2 Anadromous Fish Segregation Weir Plan for the purpose of providing spatial separation for the spawning of spring-run and fall-run Chinook salmon. The Plan shall be developed in consultation with the consultees listed in S5(a) above. The Licensee shall include with the filing of the Phase 2 Plan copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Licensee shall submit the Plan to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved. Upon Commission and Deputy Director approval, and after obtaining all necessary permits, the Licensee shall implement the Plan, including any changes required by the Commission and Deputy Director.

f) The Phase 2 Plan shall include a weir operations protocol, safety analysis including boating compatibility, detailed engineering design, and identification of the required permitting process. The Phase 2 Plan shall also evaluate the installation of an egg-taking station, if appropriate, to collect fall-run Chinook salmon eggs for transport to the Feather River Fish Hatchery.

g) The Phase 2 Plan shall include a schedule to install and operate a Phase 2 anadromous fish segregation weir in the lower Feather River upstream of the Thermalito Afterbay Outlet within 12 years of license issuance.

h) The Licensee shall annually collect data appropriate for evaluating the effectiveness of the Fish Weir(s) and Egg-Taking Station, and correlate this data to carcass surveys or other existing population counts. The Licensee shall prepare annual summary reports for Phase 1 and Phase 2 describing the monitoring results and provide these reports to the consultees listed in S5(a) above for review. Every five years the annual reports shall be compiled in the Lower Feather River Habitat Improvement Plan Report. `

i) The Licensee, in consultation with the consultees listed in S5(a) above, shall reevaluate the Program every five years after initial implementation. The Licensee shall provide all Plan updates to the Deputy Director for information. If any changes are recommended beyond the objectives, activities, or schedules identified in this article or the Plan, the Licensee shall submit final recommendations in a revised plan to the Deputy Director for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Licensee shall submit the revised plan to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the revised plan shall be deemed approved. Upon Commission and Deputy Director approval, the Licensee shall implement the Plan, including any changes required by the Commission and the Deputy Director. The Licensee shall include any Commission and Deputy Director approved revisions to the Plan into any updates to the Lower Feather River Habitat Improvement Plan set forth in Condition S1.

S6. Riparian and Floodplain Improvement Program

a) Within six months of license issuance the Licensee shall develop and file for Deputy Director approval a Plan for a phased program to enhance riparian and other floodplain habitats for associated terrestrial and aquatic species. The Plan shall address the connection of portions of the floodplain habitat with the Feather River within the Oroville Wildlife Area and shall include a description of areas in which gravel extraction may take place, in anticipation of improving fish and wildlife benefits. The Plan shall also include a definition of high flow events. The Plan shall be developed in consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, State Water Board, and California Department of Fish and Game (consultees). Consultation with the Ecological Committee complies with the consultation requirement, as long as the agencies listed are part of the Ecological Committee. The Licensee shall include with the filing of the Plan copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why such comment was not adopted. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved. Upon Commission and Deputy Director approval, and after obtaining all necessary permits, the Licensee shall implement the Plan, including any changes required by the Commission and Deputy Director.

b) The Program set forth in the Plan shall be implemented in the following four phases:

Phase 1 – Within one year of license issuance and in consultation with the consultees listed in S6(a) above, the Licensee shall develop and submit to the Deputy Director a screening level analysis of proposed riparian/floodplain improvement projects, including how flood/pulse flows may contribute to floodplain values and benefit fish and wildlife species. This phase shall include the identification of a Phase 1 recommended alternative. This phase shall also include an assessment of the gravel value and potential extraction processes in order to provide guidance on the scope, timing, and magnitude of the Program.

Phase 2 – Within four years of license issuance and in consultation with the consultees listed in S6(a) above, the Licensee shall initiate Phase 2 of the Program. Phase 2 shall begin with conducting a full scope and feasibility evaluation and development of an implementation schedule of the Phase 1 recommended alternative. Within six years of license issuance, the Licensee shall submit the Phase 1 recommended alternative and implementation schedule to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Phase 1 recommended alternative and implementation schedule shall be deemed approved. Within eight years of license issuance, the Licensee shall complete the final design and commence construction and implementation of the approved alternative. Within 15 years of license issuance the Licensee shall fully implement this approved alternative.

Phase 3 – Within 15 years of license issuance and in consultation with the consultees listed in S6(a) above, the Licensee shall complete an evaluation of other potentially feasible projects and the identification of a Phase 3 recommended alternative. This phase shall include a reevaluation of how flood/pulse flows may contribute to floodplain values and benefit fish and wildlife species and shall include an assessment of the gravel value and potential extraction processes similar to the one completed in Phase 1.

Phase 4 – Upon Deputy Director approval, and within 25 years of license issuance, the Licensee shall complete construction of the Phase 3 recommended alternative.

c) The Licensee shall annually collect data appropriate for evaluating the effectiveness of the Program and the achievement of the Program objectives. The Licensee shall prepare an annual summary report describing monitoring and implementation activities completed pursuant to the Program and submit the report to the consultees listed in S6(a) above, for review on an annual basis. Throughout the term of the license, the Licensee shall compile these annual reports every five years in the Lower Feather River Habitat Improvement Plan Report that is submitted to the Commission.

d) The Licensee, in consultation with the consultees listed in S6(a) above, shall reevaluate the Plan every five years after initial implementation. If any changes are recommended beyond the objectives, activities, or schedules identified in this article or the Plan, the Licensee shall submit final recommendations in a revised plan to the Deputy Director for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any comment was not adopted. The Deputy Director may require modifications as

part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the revised plan shall be deemed approved. Upon Commission and Deputy Director approval, the Licensee shall implement the Plan, including any changes required by the Commission and Deputy Director.

S7. Feather River Fish Hatchery

Hatchery Operation

The Licensee shall ensure the continued operation of the Feather River Fish Hatchery in cooperation with the California Department of Fish and Game for the production of anadromous salmonids such as steelhead, fall-run Chinook salmon, spring-run Chinook salmon, as well as other salmonids that may be stocked as part of the license.

Water Temperature

Upon License issuance, the Licensee shall not exceed the water temperatures in Table S7. From April 1 through May 31 the water temperature shall not fall below 51 degrees Fahrenheit.

Table S7

September 1-September 30	56 °F
October 1 – May 15	55 °F
May 16 – May 31	59 °F
June 1 – June 15	60 °F
June 16 – August 15	64 °F
August 16 – August 31	62 °F

The temperatures in Table S7 shall be measured hourly year-round at the Feather River Fish Hatchery intake/aeration tower.

Upon facility modification as described in S7b, or after the first 10 years of operation under the License, whichever comes first, the Licensee shall not exceed the water temperatures in Table S7A. From April 1 through May 31 the water temperature shall not fall below 51 degrees Fahrenheit.

Table S7A

September 1-September 30	56 °F
October 1 – May 31	55 °F
June 1 – August 31	60°F

The temperatures in Table S7A are Maximum Mean Daily Temperatures and shall be calculated by adding the hourly temperatures achieved each day and dividing by 24. Water temperatures in Table S7A shall be measured year-round at the Feather River Fish Hatchery intake/aeration tower.

During Conference Years, as defined in Condition S8, the Licensee shall confer with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of

Fish and Game, and State Water Board to determine proper temperature and disease management goals.

a) Within six months of license issuance, the Licensee shall submit a status report describing any progress towards repairing or refurbishing the river valve, and a list of temperature control actions being used or contemplated to meet the Table S7 water temperatures. Within one year of license issuance, the Licensee shall submit a schedule for repair or refurbishment of the river valve, or for implementation of a proposed alternative method for meeting water temperature requirements in Table S7, to the Deputy Director for approval. The schedule shall include the steps and time necessary to evaluate, design, and complete the repair or refurbishment of the river valve. If the Licensee proposes an alternative method for meeting temperature requirements, evidence must be submitted that the alternative method will provide equivalent water temperature control as the river valve. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the schedule shall be deemed approved.

b) If the Licensee cannot meet the water temperature requirements in Table in S7A without facility modification(s), it shall within three years of license issuance, submit a long-term facility modification(s) and operations plan to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 90 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the plan shall be deemed approved.

<u>Feather River Fish Hatchery Management Program</u>

a) Within two years of license issuance, the Licensee shall develop a management plan (Plan) for the Feather River Fish Hatchery. The Plan shall be developed in consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, the California Department of Fish and Game, State Water Board, and the Central Valley Regional Water Quality Control Board (consultees) and in coordination with the Feather River Technical Team. The Plan shall include a schedule to begin implementation of the Fish Hatchery Management Program (Program) within three years of license issuance. The Licensee shall include with the filing of the Plan copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Licensee shall submit the Plan to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved. Upon Commission and Deputy Director approval, the Licensee shall implement the Plan, including any changes required by the Commission and Deputy Director.

b) The development of this Program will include review and consideration of the recommendations for the Feather River Fish Hatchery put forth in the *Joint Hatchery Review Committee Final Report on Anadromous Salmonid Fish Hatcheries in California* (December 2001).
c) Components of the Plan shall include:

1) Hatchery and Genetics Management Plans for each anadromous fish species managed by the hatchery.

2) Adaptive management protocols for hatchery production including egg taking, spawning, incubation, hatching, rearing, and stocking of fish.

3) A methodology to implement appropriate form(s) of tagging or marking of the Feather River Fish Hatchery artificial propagation programs, along with recovery of these tags/marks.

4) A methodology to study Feather River Fish Hatchery management effects on salmonids, and the interaction between in-river and hatchery-produced salmonids.

5) A methodology to study the phenotypic or genotypic traits that may be lost due to management actions or the adverse effects of the facilities if existing literature on these subjects is insufficient.

6) Development of a disease management methodology to reduce the incidence of disease outbreaks within the Feather River Fish Hatchery facilities and a plan to implement the methodology, as well as a requirement that the Licensee monitor and report to the consultees on disease and water quality issues. This component of the Plan shall include investigation of the mechanisms to control disease, including water supply disinfection, temperature control devices (e.g., chillers, shade screens, well water), chemical treatments, fish stress reduction methods (fish density manipulation, flow increases, aeration) and standards for acceptable loss.

7) A methodology to work with other Central Valley hatcheries to improve methods of integrating operations, marking and tag recovery, and data management.

8) A methodology to minimize straying of salmonids produced at the Feather River Fish Hatchery.

9) A methodology for the release of fish that evaluates full in-river release for the spring-run production, and in-river fall-run releases starting with 25 percent of the hatchery fall-run production, or other suitable amount to be determined by Licensee, in consultation with the consultees, and specifically the California Department of Fish and Game.

10) A methodology to use the results of studies, monitoring, and other information, in order to make changes to the operations of the Feather River Fish Hatchery.

d) Within one year of Plan approval by the Commission, the Licensee shall annually collect data appropriate for evaluating the effectiveness of the Program and the achievement of the Program objectives. The Licensee shall prepare an annual summary report describing monitoring and implementation activities completed pursuant to the Program and submit the report to the consultees listed in S7(a) above for review on an annual basis. Throughout the term of the license, the Licensee shall compile these annual reports every five years in the Lower Feather River Habitat Improvement Plan Report that is submitted to the Commission.

e) The Licensee, in consultation with the consultees listed above, shall reevaluate the Program/Plan ("Plan") every five years after initial implementation. When possible, the Plan shall be reevaluated concurrently with the renewal of the Hatchery and Genetics Management Plans. The Licensee shall provide all Plan updates to the Deputy Director for information. If any changes are recommended beyond the objectives, activities, or schedules identified in this article or the Plan, the Licensee shall submit final recommendations in a revised plan to the Deputy Director for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the revised plan shall be deemed approved. Upon Commission and Deputy Director approval, the Licensee shall implement the Plan, including any changes required by the Commission and Deputy Director.

f) The Licensee shall continue to use adaptive management practices for spring run salmonids until the Hatchery Genetics and Management Plans are developed and implemented.

g) The Licensee shall prepare an annual hatchery report beginning in the year following the calendar year the license is issued. The annual report shall contain, but not be limited to, the following information:

1. The number of each species and/or run of fish taken, along with the number of adults, grilse, steelhead and half-pounders.
2. An estimate of the number of eggs for each species and/or run.
3. The number, size and species and/or run of all fish reared at the hatchery.
4. The number, size, and release location and date of each species stocked and/or transferred.
5. An annual summary of disease management activities, including the diseases detected, the species infected and the number of losses, treatment methods, etc.
6. The egg take and stocking goal used that year.
7. A description of any significant operational changes that may have occurred as a result of the adaptive management process.

Hatchery Water Supply Disinfection System

In the event that anadromous salmonids are passed upstream of the Feather River Fish Hatchery, the Licensee shall install a water disinfection system for the Feather River Fish Hatchery water supply prior to such passage. The system shall be developed in consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game, State Water Board and Central Valley Regional Water Quality Control Board. Prior to installing the system, the Licensee shall develop and submit a plan to the Deputy Director for approval. The Licensee shall include with the filing copies of comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the plan shall be deemed approved.

Hatchery Annual Operation and Maintenance

Within two years of license issuance, the Licensee, in coordination with the California Department of Fish and Game, shall conduct a comprehensive facility assessment of the Feather River Fish Hatchery, and shall conduct such an assessment at least once every five years thereafter. The Licensee shall include all findings of the assessment in the Lower Feather River Habitat Improvement Plan Report filed with the Deputy Director as set forth in Condition S1.

S8. Flow/Temperature to Support Anadromous Fish

Minimum Flows and Temperature Requirements in the Low Flow Channel

a) Upon license issuance, the Licensee shall release a minimum flow of 700 cfs into the Low Flow Channel (LFC). The minimum flow shall be 800 cfs from September 9 to March 31 of each year to accommodate spawning of anadromous fish, unless another minimum flow, recommended by the resource agencies as envisioned under the Settlement Agreement A108.1(a) is approved by the Deputy Director. The Deputy Director's evaluation of the impact of reduced flow will include its impact on anadromous fish as well as on other beneficial uses. If the Licensee receives such approval, it may operate consistent with the revised minimum flow. Within 30 days of receipt, the Licensee shall file such notice with the Commission for information.

b) Licensee shall operate the Project to not exceed the water temperatures in Table S8 as measured at Robinson Riffle. If the Licensee demonstrates to the satisfaction of the Deputy Director that it cannot feasibly meet these water temperature requirements using current facilities, it shall within one year of license issuance submit for Deputy Director approval an interim operations plan that includes measures to reduce water temperatures. While documentation is pending to demonstrate that the Licensee cannot meet Table S8 requirements, the Licensee shall not be considered in violation of this subsection if the Deputy Director determines that exceedence of Table S8 temperatures is due to limitations of existing facilities. Similarly, if the Deputy Director determines that the Licensee cannot feasibly meet Table S8 requirements using current facilities, exceedences of Table S8 temperatures that the Deputy Director determines to be due to the limits of the current facilities will not be considered violations of this subsection during the time period in which DWR is preparing, and the Deputy Director is reviewing, the interim operations plan. The Deputy Director may require modifications of the interim operations plan as part of the approval. If, within 90 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the plan shall be deemed approved.

c) If the Licensee cannot meet the water temperature requirements in Table in S8 without facility modification(s), it shall within three years of license issuance, submit a long-term facility modification(s) and operations plan to the Deputy Director for approval. The plan must demonstrate compliance with Table S8 temperatures within 10 years of license issuance. The Deputy Director may require modifications as part of the approval. If, within 90 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the plan shall be deemed approved. If after facility modification(s) the Licensee demonstrates to the satisfaction of the Deputy Director that it cannot feasibly meet water temperatures in Table S8, it shall submit to the Deputy Director proposed alternative temperature requirements that

provide reasonable protection of the COLD beneficial use. The Deputy Director may require modifications as part of the approval. If, within 90 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the proposed requirements shall be deemed approved. Upon approval of the Deputy Director, the Licensee shall comply with the alternate temperature requirements.

Table S8
LFC Measured at Robinson Riffle
(all temperatures are in daily mean value (degrees F))

MONTH	Temperature
January	56
February	56
March	56
April	56
May 1-15	56-63*
May 16-31	63
June 1 – 15	63
June 16 – 30	63
July	63
August	63
September 1-8	63-58*
September 9 – 30	58
October	56
November	56
December	56

* Indicates a period of transition from the first temperature to the second temperature.

Minimum Flow and Temperature Requirements in the High Flow Channel

d) Upon license issuance, the Licensee shall, based upon the April through July unimpaired runoff of the Feather River near Oroville of the preceding water-year (October 1 through September 30), maintain a minimum flow in the High Flow Channel (HFC) in accordance with the following schedule, provided that such releases will not cause Oroville Reservoir to be drawn down below elevation 733 feet (approximately 1,500,000 acre-feet).

Preceding April through July unimpaired runoff	Minimum Flow in HFC October – February	Minimum Flow in HFC March	Minimum Flow in HFC April - September
Percent of Normal			
55% or greater	1,700 cfs	1,700 cfs	1,000 cfs
Less than 55%	1,200 cfs	1,000 cfs	1,000 cfs

The preceding water-year's unimpaired runoff shall be reported in Licensee's Bulletin 120, "Water Conditions in California-Fall Report." The term "normal" is defined as the April through July 1911-1960 mean unimpaired runoff near Oroville of 1,942,000 acre-feet.

e) If the April 1 runoff forecast in a given water-year indicates that Oroville Reservoir will be drawn to elevation 733 feet (approximately 1,500,000 acre-feet) under normal operation of the Project, then the minimum flows in the HFC may be reduced on a monthly average basis, in the same proportion as the respective monthly deficiencies imposed upon State Water Project deliveries to the State Water Contractors for agricultural use; however, in no case shall the minimum flow releases be reduced by more than 25 percent. If, between October 15 and November 30, the highest total 1-hour flow exceeds 2500 cfs, Licensee shall maintain a minimum flow within 500 cfs of that peak flow, unless such flows are caused by flood flows, an inadvertent equipment failure or malfunction.

f) Upon license issuance, Licensee shall operate the project to protect the COLD beneficial use in the HFC, as measured in the Feather River at the downstream Project Boundary, to the extent reasonably achievable. Within one year of license issuance, Licensee shall submit a plan for project operations to reasonably protect COLD beneficial uses before facility modification to the Deputy Director for approval. This interim plan must include a table of proposed interim temperature requirements, as well as interim measures to reduce water temperatures. The Deputy Director may require modifications as part of the approval. If, within 90 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the plan shall be deemed approved. Within three years of license issuance, Licensee shall submit a long-term facility modification and operations plan to the Deputy Director for approval, which shall include a table of proposed temperature requirements to protect the COLD beneficial use within 10 years after license issuance. When submitting the plan to the Deputy Director, the Licensee shall also submit the plan to parties on the FERC service list (#2100) and post the plan on its web site. The Deputy Director may require modifications as part of the approval. If, within 120 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the plan shall be deemed approved.

Conference Years Actions

a) By May 1 of a Conference Year, the Licensee shall consult with the National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Department of Fish and Game, and State Water Board (consultees) and prepare a strategic plan that states the specific actions that it will take to manage the coldwater pool to minimize exceedances of Table S8 and the applicable water temperature requirements at the lower project boundary, consistent with its water supply and other legal obligations. After consultation, the Licensee shall submit the strategic plan to the Deputy Director for approval and to the Commission for information. The Deputy Director may require modifications as part of the approval. If, within 30 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the plan shall be deemed approved. The Licensee shall implement the approved strategic plan. As part of any strategic plan, the minimum flows shall be maintained.

b) The Licensee shall inform the U.S. Fish and Wildlife Service, National Marine Fisheries Service, State Water Board, and California Department of Fish and Game within 10 days of the initial determination of a Conference Year and subsequent updates of that year-type classification.

c) A Conference Year is defined as any year in which the Oroville Temperature Management Index (OTMI) is equal to or less than 1.35 million acre-feet. OTMI is calculated by multiplying the total volume of stored water in Lake Oroville on May 1 by one half and adding to that calculation the projected May-through-September unimpaired Feather River flow at Oroville. The unimpaired Feather River flow at Oroville means the runoff that would be in the Feather River at Oroville if there were no human development on the Feather River. The amount of Feather River unimpaired flows used for calculating the OTMI will be the median value (with an exceedance probability of 50 percent) of May 1 forecast published in DWR Bulletin 120. As the actual amount of unimpaired flow after May 1 becomes available, the OTMI will be recomputed in the beginning of June, July, and August to account for the potential errors of the May 1 prediction. The OTMI will not be updated after the August 1 update.

Inability to Meet Temperature Requirements Due to Uncontrollable Forces

If the Licensee is unable to meet the temperature requirements in sections S7 and S8 of this certification due to an event or circumstance beyond its reasonable control, the Licensee shall file a notice within 10 days of such event or circumstance with the Deputy Director describing the event or circumstance causing the inability to meet those temperature requirements. Such notice shall include a statement of specific actions that the Licensee will take to address the event or circumstance and how it will manage the coldwater pool to minimize exceedances of Table S8 or of applicable temperature requirements at the lower project boundary, consistent with its water supply and other legal obligations. If the Deputy Director finds that there is a pattern of exceedances that could result in adverse impacts to fishery resources, it may require the Licensee to file a plan identifying any feasible measures that the Licensee may undertake, or modifications to other license requirements, to address the exceedances.

S9. Habitat Expansion

Option 1

Within two years of license issuance, the Licensee shall complete identification, evaluation and recommendation of habitat expansion action(s) to expand spawning, rearing and adult holding habitat to accommodate a net increase of 2,000 to 3,000 spring-run Chinook salmon for spawning. If the final habitat expansion plan developed through the Habitat Expansion Agreement (HEA) includes a schedule for completion of the recommended actions, is submitted to the Deputy Director for review, modification as appropriate, and approval within two years of license issuance, and is timely and appropriately implemented, the Licensee shall be deemed to have met the requirement for habitat expansion. For the purposes of this condition, if the Deputy Director does not either act on the Licensees' request for approval of the plan or identify the need for additional information or actions within 60 days of submission, the plan shall be deemed approved.

The State Water Board reserves the authority, delegated to the Deputy Director, to modify this condition if the goals of the habitat expansion plan are not met within the timelines in the plan, or if the Licensee withdraws from the HEA before the approved, final habitat expansion plan is fully implemented. If Pacific Gas and Electric Company (PG&E) does not agree to the plan, or refuses to implement the HEA, and the Licensee so requests, the Deputy Director will modify this condition as necessary to provide that the Licensee's responsibility is consistent with only the Licensee's share of the loss of habitat attributable to both PG&E's upstream facilities and the Project.

Option 2 (same as option 1 except for addition of one underlined sentence)
Within two years of license issuance, the Licensee shall complete identification, evaluation and recommendation of habitat expansion action(s) to expand spawning, rearing and adult holding habitat to accommodate a net increase of 2,000 to 3,000 spring-run Chinook salmon for spawning. If the final habitat expansion plan developed through the Habitat Expansion Agreement (HEA) includes a schedule for completion of the recommended actions, is submitted to the Deputy Director for review, modification as appropriate, and approval within two years of license issuance, and is timely and appropriately implemented, the Licensee shall be deemed to have met the requirement for habitat expansion. For the purposes of this condition, if the Deputy Director does not either act on the Licensees' request for approval of the plan or identify the need for additional information or actions within 60 days of submission, the plan shall be deemed approved. This term is extinguished when the Deputy Director determines, upon advice from the National Marine Fisheries Service, that the goals of the HEA have been achieved.

The State Water Board reserves the authority, delegated to the Deputy Director, to modify this condition if the goals of the habitat expansion plan are not met within the timelines in the plan, or if the Licensee withdraws from the HEA before the approved, final habitat expansion plan is fully implemented. If Pacific Gas and Electric Company (PG&E) does not agree to the plan, or refuses to implement the HEA, and the Licensee so requests, the Deputy Director will modify this condition as necessary to provide that the Licensee's responsibility is consistent with only the Licensee's share of the loss of habitat attributable to both PG&E's upstream facilities and the Project.

Option 3
Within one year of license issuance, the Licensee shall complete identification, evaluation and recommendation of habitat expansion action(s) to expand spawning, rearing and adult holding habitat to accommodate a net increase of 2,000 to 3,000 Spring-Run Chinook salmon for spawning. Within two years of license issuance the Licensee shall submit a final habitat expansion plan to the Deputy Director for modification and approval. The final habitat expansion plan shall include a schedule for completion of the recommended actions. The State Water Board reserves the authority, delegated to the Deputy Director, to modify this Condition if the goals of the habitat expansion plan are not met within the timelines in the plan, or if fish passage is required.

Option 4
The State Water Board reserves the authority, delegated to the Deputy Director, to require fish passage or other measures if the final habitat expansion plan developed through the Habitat Expansion Agreement is not implemented.

S10. Lake Oroville Warm Water Fishery Habitat Improvement Program

a) Within one year of license issuance, the Licensee shall develop and file with the Deputy Director for approval a Plan to improve the habitat of the warm water fishery in Lake Oroville, primarily for the benefit of spawning and rearing. The Licensee shall consult with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, State Water Board, and California Department of Fish and Game (consultees) in developing this Plan. Consultation with the Ecological Committee complies with the consultation requirement, as long as the agencies listed are part of the Ecological Committee. The Licensee shall include with the filing of the Plan copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved.

b) The Plan shall provide for: (1) construction, operation, and maintenance of projects to improve warm water fishery habitat within the reservoir or fluctuation zone; (2) implementation of the Plan in seven-year intervals, except that the final interval may be adjusted as appropriate to coincide with license expiration; (3) the annual construction of an average of 15 habitat units; (4) specific habitat units to be constructed in the first interval and that, for each subsequent seven-year interval, the Licensee shall plan further habitat units in consultation with the Ecological Committee, including specifically the consultees; (5) a monitoring program, including angler creel surveys, electrofishing, and springtime snorkel surveys, to evaluate the success of the habitat improvement program; and (6) modification of habitat units based on monitoring results, need, or improvements in technology, within the cost limitations stated above.

c) The Licensee shall file annually with the Deputy Director a compliance report for information. The annual compliance report shall describe all work performed on such habitat improvements during the previous calendar year. The annual report at the end of each seven-year interval shall describe all such work during that interval, including monitoring results.

S11. Lake Oroville Cold Water Fishery Improvement Program

a) Within one year following license issuance, the Licensee shall develop and file with the Deputy Director for approval a Plan to provide a cold water fishery primarily for the purpose of recreational fishing. The Licensee shall consult with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, State Water Board, and California Department of Fish and Game (consultees) in developing this Plan. Consultation with the Ecological Committee complies with the consultation requirement, as long as the agencies listed are part of the Ecological Committee. The Licensee shall include with the filing of the Plan copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved.

b) Any modification to the implementation measures not within the scope of the approved Plan must be filed with the Deputy Director for modification and approval.

c) The Plan shall provide for: (1) the stocking of 170,000 yearling salmon or equivalents per year, plus or minus 10 percent; (2) identification of a primary source of salmonids for stocking in the lake; (3) addressing disease issues associated with the source or handling of salmonids; (4) identification of alternative sources of salmonids for stocking in the lake; (5) analysis of the feasibility of providing a disinfection system for hatchery water resources; and (6) a monitoring program.

d) The Plan shall be reviewed and updated by the Licensee every 10 years. The Licensee shall consult with the consultees listed in S11(a) above, and then file the updated Plan with the Deputy Director for modification and approval. The Licensee shall include with the filing any comments, including recommendations made in the course of such consultation, and an explanation as to why any such comment was not adopted.

e) The Licensee shall submit a monitoring report every two years for information with the Deputy Director, and shall include with the filing copies of the comments, including recommendations, made by the consultees, and an explanation as to why any such comment was not adopted.

S12. Comprehensive Water Quality Monitoring Program

a) Within six months of license issuance, Licensee shall begin preparation of a Comprehensive Water Quality Monitoring Program (Program) to monitor water quality associated with the Project, and collect data necessary to develop a water quality trend assessment through the life of the Commission license. This Program shall be developed in consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game, State Water Board, the Central Valley Regional Water Quality Control Board, as well as Butte County Health Department (consultees). Consultation with the Ecological Committee complies with the consultation requirement, as long as the agencies listed are part of the Ecological Committee. The Program will include components to sample water chemistry, fish tissue bioaccumulation, recreation site pathogens and petroleum product concentrations, water temperatures, bioassays, cyanobacteria/cyanotoxins, and aquatic macroinvertebrate monitoring. The Program shall use accepted methodologies for field sampling and laboratory analysis and shall be consistent with State of California's Surface Water Ambient Monitoring Program Quality Assurance Program Plan.

b) Within nine months of license issuance, and following the consultation set forth in S12(a), the Program shall be submitted to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved. Upon approval by the Deputy Director, the Licensee shall implement the Program. The Licensee may at anytime, after consultation with consultees in S12(a), submit to the Deputy for approval changes to the Program. The Deputy Director may require modifications as part of the approval.

If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved.

c) In each of the first five years of the Program, Licensee shall collect, analyze and compile the water quality data into annual reports. The annual reports shall be provided to the Deputy Director and the consultees listed in S12(a) above, and any other entity upon request, by May 30th of the following year. Following completion of all data collected for year five, the Licensee shall compile a summary report of the initial Program, which shall be provided to the Deputy Director, the consultees listed in S12(a) above, and any other entity upon request. A 45-day notice shall accompany the report, inviting all recipients to attend a water quality meeting, scheduled by the Licensee, to discuss the finding of the five-year data set. After consultation, the Licensee shall submit recommendations for a final Comprehensive Water Quality Monitoring Program to the Deputy Director, for approval prior to the Licensee's filing of the Program with the Commission. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of consultation with the consultees, and an explanation as to why any such comment was not adopted. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Program shall be deemed approved. Upon Deputy Director approval, the Licensee shall implement the Program. Water quality data shall be analyzed and compiled by the Licensee into five-year reports and distributed to the consultees listed in S12(a) above, and any other entity upon request.

d) Within six months of Deputy Director approval of the final Comprehensive Water Quality Monitoring Program, Licensee shall begin implementation of the Water Chemistry Monitoring Plan component of the Program, including the following:

1. In-situ Physical Parameters: The Licensee shall monitor between 15 and 20 locations four times each year (seasonally) for in-situ physical parameters necessary for determining water quality. In-situ data collected at each sampling location shall include water temperature, dissolved oxygen (DO), pH, specific conductivity, oxidation/reduction, and turbidity. Monitoring at Lake Oroville, the Diversion Pool at Oroville Dam, and one site within the Thermalito Afterbay shall include vertical profiles for temperature, DO, pH, oxidation/reduction, and specific conductivity collected at the Diversion Pool and Thermalito Afterbay at one meter intervals from surface to substrate and at Lake Oroville as follows: at one meter intervals from surface to 30 meters depth, at three meter intervals from 33 to 60 meters depth, at five meter intervals from 65 to 100 meter depth, and at ten meter intervals from 110 meters to substrate.

2. Nutrients: The Licensee shall monitor between 15 and 20 locations two times each year (spring and fall), for nutrients necessary for determining water quality. Nutrient data collected at each sampling location shall include nitrate plus nitrite, ammonia, organic nitrogen, dissolved orthophosphate, and total phosphorus.

3. Metals: The Licensee shall monitor between 18 and 22 locations four times each year (seasonally), for metals necessary for determining water quality. The developed marinas (Bidwell and Lime Saddle) shall be included in the locations, along with sites to be specified in Lake Oroville, the Diversion Pool, Thermalito Forebay, Thermalito Afterbay, the LFC, Mile Long Pond, and the Feather River at the southern boundary of the Project. Additional monitoring shall occur at both marinas one time each month during the recreation season (June-September). Metals shall be analyzed and reported as total concentrations and dissolved fractions for aluminum, arsenic, cadmium, chromium, copper, iron, lead, manganese, nickel, selenium, silver, zinc, and mercury; in addition, total hardness shall be analyzed for each sampling location.

4. Minerals and Alkalinity: The Licensee shall monitor between 15 and 20 locations two times each year (spring and fall), for minerals and alkalinity necessary for determining water quality. Minerals data collected at each sampling location shall include calcium, sodium, potassium, magnesium, sulfate, chloride, boron, and alkalinity.

5. Plankton: The Licensee shall monitor two locations, two times each year, for phytoplankton and zooplankton as part of the water quality assessment. The monitoring sites are Lake Oroville and Thermalito Afterbay.

e) Within three years of Deputy Director approval of the final Program, Licensee shall begin implementation of the Fish Tissue Bioaccumulation Monitoring Plan component of the Program. The Licensee shall collect resident fish species from seven locations within project waters, one time every five years, beginning five years after license issuance, and analyze tissue for metals and organic compounds. Sampling strategy for target species, numbers of individuals, sampling locations, and analytical methods used shall be determined through Licensee consultation with the State Water Board, California Office of Environmental Health Hazard Assessment, Central Valley Regional Water Quality Control Board during development of the Comprehensive Water Quality Monitoring Program. Constituents to be analyzed include metals (arsenic, cadmium, chromium, copper, iron, lead, nickel, selenium, silver, zinc, and mercury), and organic compounds (chlordane, chlorpyrifos, DDT isomers, dieldrin, hexachlorobenzene, and polychlorinated biphenyls).

f) Within six months of Deputy Director approval of the Program, Licensee shall begin implementation of the Recreation Site Water Quality Monitoring Plan component of the Program, including the following:

1. Pathogens - The Licensee shall collect and analyze water samples for pathogens at 10 to 14 locations within project waters each summer season. Near-shore water samples shall be collected five times within a 30-day period at each location, and one time between June 15 and September 15. Potential sampling locations shall include developed beach areas, marinas, and boat launch areas along with high-use dispersed beach and shoreline locations in all waters affected by project operations.

Prior to April 30th each year, the Licensee, in consultation with the State Water Board, Central Valley Regional Water Quality Control Board, Butte County Health Department, and California Department of Parks and Recreation shall select the locations to be included in the upcoming seasonal sampling program. In addition, the Licensee shall collect and analyze water samples for pathogens from June 1 through September 30 at North Forebay recreation area, South Forebay recreation area, Loafer Creek recreation area, Monument Hill recreation area, Lime Saddle recreation area, Foreman Creek boat launch area, Stringtown boat launch area, and Mile Long Pond. Additionally, at the North Forebay recreation area, individual screening samples shall be collected monthly between June 1 and September 30. Laboratory analyses for pathogens shall include: total coliform, fecal coliform, e-coli, enterococcus, and streptococcus, or other pathogens of concern for public health protection identified during annual consultation.

2. Petroleum Products - The Licensee shall monitor six locations for petroleum products in project waters (Bidwell Marina, Lime Saddle Marina, Foreman Creek Boat-in Campground, Spillway Boat Ramp/Day Use Area, Oroville Dam, and Monument Hill). Water column samples shall be collected one time each month from June through September. Field sampling methods shall include both surface and bottom samples at each location. Samples shall be analyzed for Total Petroleum Hydrocarbons, and benzene.

3. Soil Erosion - The Licensee shall inspect trails between May 1 and May 15 and following the summer recreation season to identify soil erosion and potential subsidence into reservoirs or flowing waterways.

g) Within three months of Deputy Director approval of the Program, Licensee shall begin implementation of the Water Temperature Monitoring Plan to provide information that demonstrates compliance with the water temperature requirements in this certification. The Licensee shall site four permanent continuous temperature monitoring devices, one each at the following locations: (1) Feather River Hatchery aeration tower, (2) Robinson's Riffle, (3) Thermalito Afterbay Outlet, and (4) the Feather River adjacent to the most southern Project 2100 boundary. The permanent temperature gages shall be capable of providing real-time data to the hatchery operators and to the public via an internet-based medium such as the Department of Water Resources' California Data Exchange Center. The four permanent gages shall remain operational throughout the life of the license.

h) The Water Temperature Monitoring Plan shall be designed and implemented to provide data necessary for additional modeling or study associated with facility modification(s). The Licensee shall install and collect temperature data from temporary continuous recording devices at appropriate locations to provide data necessary for additional modeling or study associated with facility modification(s).

i) The Water Temperature Monitoring Plan shall be reviewed after five years, to determine if modifications to the Comprehensive Water Quality Monitoring Program are necessary for consistency with measures that may be implemented following decisions on water temperature management in the LFC and High Flow Channel. Continuous temperature monitoring will include both stream stations and reservoir stations, including vertical profile data collection adequate to evaluate changes in cold water pool and stratification in other deep water bodies within the Project boundary.

j) Within three years of Deputy Director approval of the Program, Licensee shall implement the Water Quality Bioassay Monitoring Plan component of the Program. The Licensee shall collect water column samples from two locations in the LFC, four times in a single year (seasonally), every five years, beginning five years after license issuance, to conduct bioassay tests on aquatic organisms. Aquatic organisms to be used in bioassays will be *Ceriodaphnia* and Fathead minnow (*Pimephales promelas*).

k) Within one year of Deputy Director approval of the Program, Licensee shall implement the Aquatic Macroinvertebrate Monitoring Plan component of the Program. The Licensee shall collect benthic macroinvertebrate samples from a minimum of seven stream locations during the fall index period one time every three years, beginning three years after license issuance. Field sampling, laboratory identification, and statistical analysis shall be consistent with the California Stream Bioassessment Procedures (California Department of Fish and Game) or Surface Water Ambient Monitoring Program (or successor program). A minimum of four sites shall be located in the LFC and one site in the High Flow Channel at the southern-most project boundary. Following construction of any side channel habitat created as part of the Lower Feather River Habitat Improvement Program, sampling sites representative of each channel shall be added to the monitoring program.

l) Within six months of license issuance, the Licensee shall submit a plan to the Deputy Director for modification and approval to protect the public from harmful cyanobacteria. The plan shall include sampling locations, sampling methodology, and laboratory procedures to monitor for the presence of harmful cyanobacteria and cyantoxins within Project waters. The plan shall include procedures for protecting the public from harmful levels of cyanotoxins. The plan shall be consistent with the Statewide Guidance for Blue-Green Algae.

m) The Licensee, in consultation with the consultees listed in (a) above shall reevaluate the Program every five years after initial implementation. Any recommendations acceptable to the Licensee for changes to the Program shall be submitted to the Deputy Director for modification and approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. Upon Deputy Director approval, the Licensee shall implement the Program, including any changes required by the Deputy Director.

n) The State Water Board reserves the authority to require Licensee to conduct studies and, if appropriate, develop a methyl mercury management plan. If ongoing or future research and monitoring data indicate that the reservoirs or other aspects of power operations increase mercury methylation rates, the Deputy Director may require Licensee to prepare and submit for approval a study plan, including studies, to identify: (1) DWR's contribution to the methyl mercury problem; (2) potential measures to reduce the amount of methylated mercury in the waters affected by Licensee's operations, as well as to protect human health; and (3) an evaluation of the feasibility of those measures. The Deputy Director may require modifications as part of the approval, and the Licensee shall implement the study plan as approved. If, based on the results of the study plan or other information, the Deputy Director determines that that DWR has contributed to the problem and there are appropriate and feasible measures that DWR could implement to reduce methyl mercury, Licensee shall develop an implementation plan for measures to reduce mercury and submit it to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 90 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the plan shall be deemed approved. Upon approval by the Deputy Director, the Licensee shall implement the mercury management plan.

o) The Deputy Director reserves jurisdiction to require a plan to address any Basin Plan violations identified in this monitoring which the Deputy Director finds the project causes or to which it significantly contributes.

S13. Pathogen Public Health Protection

a) The Licensee shall promptly provide results from pathogen testing at recreation areas (collected per Condition S12) to the Butte County Health Department, California Department of Health Services, State Water Board and Central Valley Regional Water Quality Control Board and confer with them on additional measures that may be necessary to inform and educate the public about bacteria levels in Project waters. Such information shall be shared with the Recreation Advisory Committee at the next meeting.

b) Upon direction from an appropriate agency, Licensee shall place notices notifying the public if unsafe levels of bacteria are present in the water. The Licensee shall also provide notices educating the public on sanitary measures designed to prevent or minimize contamination of water.

c) The Licensee, in consultation with the Butte County Health Department, California Department of Health Services, State Water Board and Central Valley Regional Water Quality Control Board shall determine if a public education program is needed to inform visitors to the project about water quality and the risks associated with recreating in contaminated waters. If needed, the Licensee shall develop the public education program in consultation with the above agencies.

d) The Licensee shall reevaluate these measures every five years. The Licensee shall file annually with the Deputy Director a compliance report for information.

e) Within six months of license issuance, the Licensee shall submit a plan to protect public health at the North Forebay recreation area to the Deputy Director for approval. The plan shall include a schedule to evaluate the current risk to swimmers and other recreation users. The Deputy Director may require modifications as part of the approval. If, within 90 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the plan shall be deemed approved. If the Deputy Director determines based on this evaluation or other reliable information there is a risk to the public, the Licensee shall have one year to submit a plan to reduce pathogens to levels necessary to protect public health.

S14. Public Education Regarding Risks of Fish Consumption

a) The Licensee shall develop a plan in consultation with the Office of Environmental Health Hazard Assessment, Central Valley Regional Water Quality Control Board, and Butte County Health Department, to advise the public regarding the risks associated with the consumption of contaminated fish. The plan shall include the collection and analysis of fish tissues and if necessary, the posting of consumption advisory notices at key locations. The plan shall be submitted to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 90 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the plan shall be deemed approved. If the Deputy Director determines levels of metals or other constituents are at levels in fish tissue that may be hazardous to humans, based on results from the Fish Tissue Bioaccumulation Monitoring, the Licensee shall provide funding to the Office of Environmental Health Hazard Assessment for the development of additional fish tissue advisories and/or publishing of written materials notifying the public about health issues associated with consuming fish taken from within Project waters.

b) The Licensee shall file annually with the Deputy Director a compliance report for information.

S15. Oroville Wildlife Area Management Plan

a) Within two years of license issuance the Licensee shall develop and file for Deputy Director approval a management plan for the Oroville Wildlife Area (OWA), including the Thermalito Afterbay. The Plan shall be developed in conjunction with the California Department of Fish and Game and the California Department of Parks and Recreation, and in consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, State Water Board, and Central Valley Regional Water Quality Control Board (consultees). Consultation with the Ecological Committee complies with the consultation requirement, as long as the agencies listed are part of the Ecological Committee. The Licensee shall include with the filing of the Plan copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved. Upon Commission and Deputy Director approval, and after obtaining all necessary permits, the Licensee shall implement the Plan, including any changes required by the Commission and Deputy Director.

b) The Plan shall contain the following elements:

1. Conservation measures required by Final Federal Biological Opinions
2. Resource actions included in this license that may affect the OWA
3. Strategies to minimize current and future conflicts between wildlife and recreation
4. Wildlife management goals and objectives
5. Recreation management goals and objectives (Consistent with the recreation measures outlined in the Recreation Management Plan, the Recreation Advisory Committee shall have an opportunity to provide input.)
6. Other best management practices, including fuel load management for the reduction of fire risk to nearby properties and human life
7. Common elements of the Lower Feather River Habitat Improvement Plan
8. Actions designed to improve conditions for special status species and their habitats
9. An implementation schedule
10. Monitoring and reporting requirements
11. A provision for periodic updates to the Plan as needed
12. Agency management and funding responsibilities

c) The Licensee, in consultation with the California Department of Fish and Game and the consultees listed in S15(a) above, shall reevaluate the Plan every five years after initial implementation. Consistent with the recreation measures outlined in the Recreation Management Plan, the Recreation Advisory Committee shall have an opportunity to provide input. The Licensee shall provide all Plan updates to the Deputy Director for information. If any changes are recommended beyond the objectives, activities, or schedules identified in the Plan, the Licensee shall submit final recommendations in a revised plan to the Deputy Director for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the revised plan shall be deemed approved. Upon Commission and Deputy Director approval, the Licensee shall implement the Plan, including any changes required by the Commission and Deputy Director.

S16. Protection of Vernal Pools

a) The Licensee shall implement conservation measures required by the U.S. Fish and Wildlife Service Final Biological Opinion to protect the vernal pool invertebrate habitat within the Project boundaries.

b) The Licensee shall evaluate the effectiveness of these conservation measures in accordance with the Biological Opinion. The Licensee, in coordination with U.S. Fish and Wildlife Service, shall evaluate and report to the Deputy Director information on the effectiveness of the conservation measures by June 21, 2010. The measures shall be reevaluated in the spring every other year thereafter in accordance with the Biological Opinion. If the conservation measures implemented are deemed to be unsuccessful in protecting the vernal pool habitat, the Licensee shall coordinate with the U.S. Fish and Wildlife Service to develop and implement additional or alternative conservation measures to protect the vernal pool habitat.

c) Proposed modifications outside the scope of the Biological Opinion shall be filed with the Deputy Director for approval prior to implementation. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the filing shall be deemed approved.

S17. Minimization of Disturbances to Nesting Bald Eagles

a) The Licensee shall include the conservation measures required by the U.S. Fish and Wildlife Service Final Federal Biological Opinion in any bald eagle management Plan(s). The Licensee shall file any bald eagle nest territory Plan(s) with the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved. Upon Deputy Director approval, the Licensee shall implement the Plan(s), including any changes required by the Deputy Director. The Licensee shall evaluate the conservation measures in the Plan(s) according to the provisions of the Biological Opinion, and implement modifications deemed necessary accordingly. Proposed modifications outside the scope of the Biological Opinion shall be filed with the Deputy Director for consultation and approval prior to implementation.

b) The Licensee shall develop additional management Plan(s) or amend the current Plan(s) if new bald eagle nest territories are identified within the Project boundary. The Plan(s) shall be developed or amended in consultation with the U.S. Fish and Wildlife Service. The Plan(s) shall be filed with the Deputy Director for approval. The Licensee shall include with the filing copies of the comments, including recommendations, made in the course of consultation, and an explanation as to why any such comment was not adopted. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved. Upon Deputy Director modification or approval, the Licensee shall implement the Plan(s), including any changes required by the Deputy Director.

S18. Protection of Giant Garter Snake

a) The Licensee shall implement conservation measures required by the U.S. Fish and Wildlife Service Final Biological Opinion to protect the giant garter snake within the Project Boundary.

b) The Licensee shall evaluate the effectiveness of these conservation measures in accordance with the Biological Opinion. The Licensee, in coordination with the U.S. Fish and Wildlife Service, shall annually evaluate and report to the Deputy Director for information on the effectiveness of the conservation measures. If the conservation measures implemented are deemed to be unsuccessful in protecting the giant garter snake, the Licensee shall coordinate with U.S. Fish and Wildlife Service to develop and implement additional or alternative conservation measures to protect the giant garter snake. Proposed modifications outside the scope of the Biological Opinion shall be filed with the Deputy Director for approval prior to implementation. The Deputy Director may require modifications as part of the approval.

If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the filing shall be deemed approved.

S19. Protection of Valley Elderberry Longhorn Beetle

a) The Licensee shall implement conservation measures required by the U.S. Fish and Wildlife Service Final Biological Opinion to protect the valley elderberry longhorn beetle within the Project Boundary.

b) The Licensee shall evaluate the effectiveness of these conservation measures in accordance with the Biological Opinion. The Licensee, in coordination with the U.S. Fish and Wildlife Service, shall annually evaluate and report to the Deputy Director for information on the effectiveness of the conservation measures. If the conservation measures implemented are deemed to be unsuccessful in protecting the valley elderberry longhorn beetle, the Licensee shall coordinate with U.S. Fish and Wildlife Service to develop and implement additional or alternative conservation measures to protect the valley elderberry longhorn beetle. Proposed modifications outside the scope of the Biological Opinion shall be filed with the Deputy Director for approval prior to implementation. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the filing shall be deemed approved.

S20. Protection of Red-Legged Frog

a) The Licensee shall implement conservation measures required by the U.S. Fish and Wildlife Service Final Biological Opinion to protect the red-legged frog within the Project Boundary.

b) The Licensee shall evaluate the effectiveness of these conservation measures in accordance with the Biological Opinion. The Licensee, in coordination with the U.S. Fish and Wildlife Service, shall annually evaluate and report to the Deputy Director for information on the effectiveness of the conservation measures. If the conservation measures implemented are deemed to be unsuccessful in protecting the red-legged frog, the Licensee shall coordinate with U.S. Fish and Wildlife Service to develop and implement additional or alternative conservation measures to protect the red-legged frog. Proposed modifications outside the scope of the Biological Opinion shall be filed with the Deputy Director for modification and approval prior to implementation. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the filing shall be deemed approved.

S21. Construction and Recharge of Brood Ponds

a) Within one year of license issuance, the Licensee shall develop and file for Deputy Director approval a Plan to construct four waterfowl brood ponds within the Thermalito Afterbay. The Plan shall be developed in conjunction with the California Department of Fish and Game and the Licensee shall consult with the Ecological Committee, including specifically the U.S. Fish and Wildlife Service, in developing the Plan. The Licensee shall include with the filing of the Plan copies of the comments, including recommendations, made in the course of such consultation, and an explanation as to why any such comment was not adopted. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the Plan shall be deemed approved. Upon modification or approval by the Deputy Director, the Licensee shall implement the Plan, including any changes required by the Deputy Director.

b) The Plan shall contain the following elements:

1. Construction of one brood pond every five years over the 20-year period beginning upon issuance of this license. The ponds shall be constructed by creating a small earthen berm across an inlet in the Thermalito Afterbay.

2. Maintenance of adequate water surface elevations within existing and future waterfowl brood ponds located within the Thermalito Afterbay by sufficiently filling the brood ponds no later than April 15 of each year. Once the brood ponds are filled, Licensee shall ensure that the water surface level of the ponds shall not fluctuate more than one foot throughout the primary waterfowl brooding season from April 15 through July 31.

3. Monitoring of the ponds on a weekly basis to ensure that adequate water surface elevations are maintained during the period from April 15 through July 31.

4. A requirement that the Licensee shall report to the California Department of Fish and Game's Oroville Wildlife Area Manager within 48 hours of discovering a fluctuation of more than one foot to report what the Licensee has done to remedy the situation or what the Licensee needs to further do to remedy the situation.

5. Weekly inspection of the ponds from April 15 through July 31 of each year and maintenance as needed to ensure their structural integrity.

c) The Licensee shall file an annual report with the Deputy Director for information on water elevation monitoring. In addition, the Licensee shall provide a copy of such annual report to California Department of Fish and Game and U.S. Fish and Wildlife Service.

S22. Timeline Extension Requests

Where the water quality certification conditions specify a schedule for compliance, Licensee may request from the Deputy Director an extension of the timeline specified, which may be granted upon a showing of good cause and due diligence.

General Conditions

G1. The Deputy Director reserves the authority to modify the conditions of this water quality certification to incorporate load allocations developed in a Total Maximum Daily Load developed by the State Water Board or Central Valley Regional Water Quality Control Board.

G2. This certification is contingent on compliance with all applicable requirements of the Water Quality Control Plan for the Sacramento and San Joaquin River Basins, except as may be modified by the specific conditions of the certification.

G3. Notwithstanding any more specific conditions in this certification, the Projects shall be operated in a manner consistent with all water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act. The Licensee shall take all reasonable measures to protect the beneficial uses of waters of the Feather River.

G4. The authorization to operate the Project pursuant to this certification is conditioned upon payment of all applicable fees for review and processing of the application for water quality certification and administering the State's water quality certification program, including but not limited to timely payment of any annual fees or similar charges that may be imposed by future statutes or regulations for the State's reasonable costs of a program to monitor and oversee compliance with conditions of water quality certification.

G5. This certification does not authorize any act which results in the taking of a threatened or endangered species or any act, which is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish & Game Code §§ 2050-2097) or the federal Endangered Species Act (16 U.S.C. §§ 1531 - 1544). If a "take" will result from any act authorized under this certification or water rights held by the Licensee, the Licensee shall obtain authorization for the take prior to any construction or operation of the Project. The Licensee shall be responsible for meeting all requirements of the applicable Endangered Species Act for the Projects authorized under this certification.

G6. In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under applicable state or federal law. For the purposes of section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this certification.

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

G7. Licensee must submit any change to the Oroville Facilities, including project operation, that would have a significant or material effect on the findings, conclusions, or conditions of this certification, to the Deputy Director for prior review and written approval. If such a change would also require submission to the Federal Energy Regulatory Commission, the change must first be submitted to the Deputy Director.

G8. This certification is subject to modification upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330 and California Code of Regulations, title 23, division 3, chapter 28, article 6 (commencing with § 3867).

G9. The State Water Board reserves authority to modify this certification if monitoring results indicate that continued operation of the project would violate water quality objectives or impair the beneficial uses of the Feather River.

G10. The State Water Board may add to or modify the conditions of this certification, as appropriate, to implement any new or revised water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act.

G11. The State Water Board may add to or modify the conditions of this certification as appropriate to coordinate the operations of this Project and other hydrologically connected water development projects, where coordination of operations is reasonably necessary to achieve water quality standards or protect beneficial uses of water.

G12. The State Water Board shall provide notice and an opportunity for hearing in exercising its authority to add or modify any of the conditions of this certification.

G13. Notwithstanding any more specific conditions in this certification, Licensee shall comply with mitigation measures of the mitigation monitoring and reporting plan in Attachment A.

CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of a water quality certification duly and regularly adopted at a meeting of the State Water Board held on December 15, 2010.

Jeanine Townsend
Clerk to the Board

Attachment

Attachment A

California Environmental Quality Act Findings and Mitigation Monitoring and Reporting Plan

Oroville Facilities

December 2010

The Final Environmental Impact Report (FEIR) for the Federal Energy Regulatory Commission (FERC) relicensing of Department of Water Resources' (DWR) Oroville Facilities (FERC No. 2100) identified one or more significant environmental effects of the project on water resources. 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 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.)

When significant effects are subject to a finding under paragraph (3) of subdivision (a), the public agency must find that specific overriding economic, legal, social, technological, or other benefits of the project outweigh the significant effects on the environment, if the agency approves the project. (Pub. Resources Code, § 21081, subd. (b).)

CEQA requires public agencies to prepare a program for monitoring or reporting on the revisions which it requires in the project and the measures it has imposed to mitigate or avoid significant environmental effects. (CEQA Guidelines § 15097)

The State Water Resources Control Board (State Water Board) is a responsible agency for the Oroville Facilities relicensing. Under Public Resources Code section 21002.1, subdivision (d), when issuing an approval for an aspect of a project for which a lead agency has performed CEQA review, a responsible agency considers only the aspects of the project that the agency is required by law to carry out or approve. The State Water Board is charged with issuing water quality certification for the proposed relicensing of the Oroville Facilities, and these CEQA findings and Mitigation Monitoring and Reporting Plan concern water resource impacts identified in the FEIR.

DWR prepared an Environmental Impact Report (EIR) for the relicensing of the Oroville Facilities. The following findings and mitigation monitoring and reporting plan refer to impacts as numbered in the EIR. It is divided into Program-Level and Project-Level sections as represented in the EIR.

Program Level

Water Quality

Impact 5.2.2-a: Violate any water quality standards or waste discharge requirements; and **Impact 5.2.2-c:** Otherwise substantially degrade surface water quality. The Gravel Supplementation and Improvement Program, Channel Improvement Program, Structural Habitat Supplementation and Improvement Program, Fish Weir Program, and Riparian and Floodplain Improvement Program include construction projects or instream work with the potential to cause a discharge or impact water quality standards.

Mitigation Measure 1: Measures are needed to avoid or reduce the impact from construction on water quality. To avoid or minimize the short term construction-related impacts to water quality, DWR shall comply with the Best Management Practices (attached) and develop a water quality monitoring and reporting program for approval by the Deputy Director for Water Rights (Deputy Director) prior to beginning construction. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the program shall be deemed approved. The water quality monitoring and reporting program shall be designed to ensure compliance with the water quality standards in the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. DWR shall submit a Notice of Intent (NOI) to comply with the General Permit for Storm Water Discharges Associated with Construction Activity, and a Storm Water Pollution Prevention Plan, to the Central Valley Regional Water Quality Control Board. A copy of this application and Storm Water Pollution Prevention Plan (SWPPP) shall be submitted to the Deputy Director. DWR shall monitor compliance with the BMPs, SWPPP, and approved water quality monitoring plan during construction and report any violations within 24 hours to the Regional Water Quality Control Board and the Deputy Director. DWR shall provide a final report summarizing water quality monitoring to the Deputy Director within 6 months after the completion of construction.

Implementation of Mitigation Measure 1 and compliance with Conditions S2, S3, S4, S5, and S6 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.2.2-b: Substantially alter an existing drainage pattern of the site or area, including alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation on- or off-site, or otherwise substantially degrade water quality. The Channel Improvement Program, Flow/Temperature to Support Anadromous Fish, and Riparian and Floodplain Improvement Program include construction that could result in impacts to surface water quality.

Implementation of Mitigation Measure 1 and compliance with Conditions S3, S6, and S8 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Aquatic Resources

Impact 5.4-a: Interfere substantially with the movement of native resident or migratory fish, substantially reduce the habitat of a fish species, or cause a fish population to drop below self-sustaining levels. Potential future facilities modifications to reduce water temperature may have an adverse impact on warmwater fisheries habitat quality in Thermalito Afterbay. This potential impact would be fully evaluated in subsequent project-specific CEQA analysis, and will vary depending on which facility modification option is chosen. However, bass are a very hardy species, and none of the facilities modification options under consideration would put the population into jeopardy. Potential future facilities modifications to reduce water temperature may have an adverse impact on black bass habitat quality in Thermalito Afterbay. This potential impact will be fully evaluated in subsequent project-specific CEQA analysis. Construction-related impacts on aquatic resources for black bass would be short-term.

Implementation of Mitigation Measure 1 and compliance with Condition S8 will reduce the short-term, construction-related impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the short-term, construction significant environmental effect as identified in the FEIR.

Mitigation Measure 2: Measures are necessary to reduce or mitigate impacts to black bass from reduced water temperature. Construction and operation of potential facilities modification at Thermalito Afterbay to reduce water temperature may impact black bass. Plans for construction of facilities modifications required in Condition S8 must include measures to reduce or mitigate potential habitat degradation on black bass or an explanation of why such measures are infeasible.

Implementation of Mitigation Measure 2 and compliance with Condition S8 will avoid or substantially lessen the long-term significant environmental effect on warm-water fisheries. These impacts are not likely to be large; however, without knowing what project will ultimately be implemented, it is not possible to ensure that the effect will be less than significant.

Facility modification is necessary to protect the COLD beneficial use. The Basin Plan for the Sacramento River watershed lists the river segment that includes Thermalito Afterbay as supporting both COLD and WARM beneficial uses. The Basin Plan provides that, where both COLD and WARM beneficial uses are listed, the COLD beneficial use should be preferentially protected. The EIR did not identify an alternative to protect the COLD beneficial use without facility modification. Specific social considerations make infeasible the mitigation measures or alternatives identified in the environmental impact report.

Impact 5.4-b: Cause a substantial decrease in the prey base for any species identified as a candidate, sensitive, or special-status species. Construction of the Gravel Supplementation and Improvement Program, Channel Improvement Program, Structural Habitat Supplementation and Improvement Program, Fish Weir Program, and Riparian and Floodplain Improvement Program could have short-term impacts on macroinvertebrates.

Implementation of Mitigation Measure 1 and compliance with Conditions S2, S3, S4, S5, and S6 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.4-c: Result in substantial habitat degradation for fisheries or aquatic species identified by DFG, NMFS, or USFWS as a candidate, sensitive, or special-status species. Implementation of the Gravel Supplementation and Improvement Program, Channel Improvement Program, Structural Habitat Supplementation and Improvement Program, Fish Weir Program, Riparian and Floodplain Improvement Program, and Flow/Temperature to Support Anadromous Fish could result in short-term construction-related impacts to aquatic resources. Implementation of the fish segregation weirs will reduce the currently available spawning habitat for fall-run Chinook salmon; however, this impact would be more than offset by the Lower Feather River Habitat Improvement Plan through gravel supplementation and side channel creation. Construction-related impacts on Chinook salmon, steelhead, and green sturgeon would be short-term.

Implementation of Mitigation Measure 1 and compliance with Conditions S2, S3, S4, S5, S6, and S8 will reduce the impacts to water quality from construction to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Wildlife Resources

Impact 5.5.4.1-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 DFG or USFWS**.** The Gravel Supplementation and Improvement Program, Channel Improvement Program, Structural Habitat Supplementation and Improvement Program, Fish Weir Program, and Recreation Management Plan have the potential to significantly impact bald eagle, Swainson's hawk, and giant garter snake habitat. The Gravel Supplementation and Improvement Program could have a potentially significant impact on bald eagle and Swainson's hawk nesting habitat. The Gravel Supplementation and Improvement Program, Channel Improvement Program, Structural Habitat Supplementation and Improvement Program, Fish Weir Program, Construction and Recharge of Brood Ponds, Provisions for Upland Food for Nesting Waterfowl, and Recreation Management Plan all have the potential to significantly impact giant garter snake. Staging areas for the Gravel Supplementation and Improvement Program could impact valley elderberry longhorn beetle, giant garter snake habitat, and bald eagle habitat.

Mitigation Measure 3: Measures are necessary to avoid or minimize the impact from habitat loss resulting from new construction on any species identified as a candidate, sensitive, or special-status species. The following actions shall be implemented to reduce the impact of habitat losses under the Proposed Project:

- DWR will consult with U.S. Fish and Wildlife Service and the Department of Fish and Game prior to beginning construction and follow the terms and conditions in the Biological Opinion in effect at the time.
- Surveys to identify candidate, sensitive, or special status species will be conducted prior to beginning construction as required by the U.S. Fish and Wildlife Service and the Department of Fish and Game.
- Projects will be designed for spatial and/or temporal avoidance of species identified as a candidate, sensitive, or special-status species by the U.S. Fish and Wildlife Service and the Department of Fish and Game
- Projects will not occur during applicable limited operating periods to avoid impacts to nesting bald eagles and Swainson's hawk unless a variance is approved by the U.S. Fish and Wildlife Service and the Department of Fish and Game.
- Projects will be designed to minimize direct habitat loss. Key wildlife habitat elements will be retained to the extent possible including snags, woody dead and down material, live trees containing cavities, and shrub cover.
- Retain screening vegetation to limit indirect habitat loss and wildlife disruption/displacement.
- Retain mature trees and minimize use of non-native landscaping.
- Minimize recreational development in riparian or wetland habitats.
- Revegetate areas of disturbed soil.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

DWR shall be responsible for ensuring compliance with each of these measures during construction, and shall submit a final report to the Deputy Director within 6 months of completion of construction.

Implementation of Mitigation Measure 3 and compliance with Conditions S2, S3, S4, S5, S6, S8, S16, S17, S18, S19, and S22 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.5.4.1-b: Interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Construction and operation of the fish weir may impact the movement of the highly aquatic western pond turtle, a State Species of Special Concern.

Mitigation Measure 4: This measure is necessary to ensure the fish weir will not block the upstream and downstream movement of western pond turtles. DWR will design and operate the fish weir to allow turtle passage without allowing salmon passage. The design will allow shoreline/shallow-water passage during periods of stable flow. The design must be submitted to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. If, within 60 days, the Deputy Director does not either act on the request for approval or identify the need for additional information or actions, the design shall be deemed approved. Within one year after completion of construction DWR must evaluate the performance of the weir for turtle passage and a final report on the testing must be submitted to the Deputy Director within six months of the performance testing.

Implementation of Mitigation Measure 4 and compliance with Condition S5 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.5.4.1-e: 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 DFG or USFWS**.** The Gravel Supplementation and Improvement Program has the potential to result in short term impacts to heron/egret rookeries through direct habitat loss and disturbance associated with construction access, staging, and in-water construction. Construction activities associated with the Gravel Supplementation and Improvement Program, Channel Improvement Program, Structural Habitat

Supplementation and Improvement Program, and Fish Weir Program could impact rookeries.

Implementation of Mitigation Measures 1 and 3 and compliance with Conditions S2, S3, S4, and S5 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.5.4.1-f: Substantial habitat degradation for wildlife species identified by U.S. Fish and Wildlife Service as Threatened or Endangered Species. Construction activities associated with the Gravel Supplementation and Improvement Program, Channel Improvement Program, Structural Habitat Supplementation and Improvement Program, and Fish Weir Program may have the potential for minor impacts on wildlife resources, including special-status species, which may include nesting bald eagles, Swainson's hawk, valley elderberry longhorn beetles, giant garter snakes, and California red-legged frogs, and their associated habitats. Staging areas and river access improvements required for the Gravel Supplementation and Improvement Program could impact valley elderberry longhorn beetle, giant garter snake habitat, and bald eagle and Swainson's hawk nesting habitat. Giant garter snake habitat losses may be associated with North Forebay fishing access improvements and the creation of a sandy beach at Larkin Road. Wildlife habitat enhancements and recreational developments at the Thermalito Complex could also affect habitat for Threatened or Endangered Species.

Implementation of Mitigation Measure 3 and compliance with Conditions S2, S3, S4, S5, S6, S17, S18, S19, S20, and S21 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.5.4.1-g: Result in a substantial impact on a wildlife species that is listed by the Department of Fish and Game or U.S. Fish and Wildlife Service as a Candidate, Sensitive, or Special-Status Species, or on its Designated Habitat. The Gravel Supplementation and Improvement Program has the potential to result in short-term adverse impacts on riparian and riverine habitats and species associated with these habitats through direct habitat loss and disturbance associated with construction access, staging, and in-water construction. These species could include American bittern, American white pelican, Barrow's goldeneye, black tern, California gull, California thrasher, Cooper's hawk, double-crested cormorant, osprey, yellow warbler, yellow-breasted chat, western pond turtle, and river otter. The Fish Weir Program has the potential to result in a substantial impact on western pond turtle by impairing upstream movement.

Implementation of Mitigation Measures 3 and 4 and compliance with Conditions S2 and S5 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Botanical Resources

Impact 5.5.4.2-a: 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 DFG or USFWS. The Proposed Project includes a number of actions relating to environmental and recreational improvements that may affect riparian/wetland resources and special plant habitats. Implementation of the Gravel Supplementation and Improvement Program, the Channel Improvement Program, the Structural Habitat Supplementation and Improvement Program, the Fish Weir Program, the Riparian and Floodplain Improvement Program, Flow/Temperature to Support Anadromous Fisheries, and the Lake Oroville Warm Water Fishery Habitat Improvement Program would disturb the streambed, stream bank, and adjacent riparian/wetland areas. These projects would have short-term significant impacts on sensitive riparian/wetland habitats. These short-term impacts would be considered significant due to direct loss of these resources; however, the projects causing these short-term impacts are designed to ultimately improve these resources through restoration, creation, rehabilitation, and enhancement. The long-term effects of these actions will be beneficial.

Mitigation Measure 5: The following measures are necessary to avoid or reduce the impacts to riparian habitat or sensitive natural communities. Conditions S2, S3, S4, S5, S6, S8, and S10 require the submission of plans to the Deputy Director for modification and approval. The plans must include the following elements:

- Conduct pre-project surveys.
- Design projects to avoid disturbance and minimize direct loss.
- Use fencing to prevent access/disturbance to adjacent wetland/sensitive areas from construction and vehicles.
- Wetland/sensitive areas that are disturbed will be revegetated with appropriate native species.
- Use erosion control and stabilization devices to prevent sediment from entering wetland and riparian sites.
- Stockpile soil for reuse in areas of special resources to reinoculate the soils and seed bank.
- Use weed free straw or other materials to control erosion.

DWR shall submit a report to the Deputy Director within 6 months of the completion of construction demonstrating that each of these measures was addressed and that quantifies the impacts to riparian habitat and sensitive communities.

Implementation of Mitigation Measures 1 and 5 and compliance with Condition S1 will substantially lessen these short-term impacts. Despite implementation of these mitigation measures there will still be short-term significant impacts. While these projects will result in a short-term reduction in sensitive riparian/wetland habitat, there will ultimately be long-term increases in habitat through restoration, creation,

rehabilitation, and enhancement. Long-term, these programs will benefit sensitive riparian/wetland habitat. The EIR did not identify any alternatives that will achieve benefits without short-term impacts. Specific social considerations make infeasible the mitigation measures or alternatives identified in the EIR.

Impact 5.5.4.2-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, or hydrological interruptions, or other means. The Proposed Project includes a number of actions relating to environmental and recreational improvements that may affect jurisdictional waters. Implementation of the Gravel Supplementation and Improvement Program, the Channel Improvement Program, the Structural Habitat Supplementation and Improvement Program, the Fish Weir Program, the Riparian and Floodplain Improvement Program, Flow/Temperature to Support Anadromous Fisheries, and the Lake Oroville Warm Water Fishery Habitat Improvement Program would disturb the streambed, stream bank, and adjacent riparian/wetland areas. These projects would have short-term significant impacts on jurisdictional waters of the United States. These short-term impacts would be considered significant due to direct loss of these resources; however, these projects would be designed to ultimately improve these resources through restoration, creation, rehabilitation, and enhancement. The long-term effects of these actions would be considered beneficial and no mitigation would be required.

Implementation of Mitigation Measures 1 and 5 and compliance with Condition S1 will substantially lessen these short-term impacts. Despite implementation of these mitigation measures there will still be short-term significant impacts. While these projects will result in a short-term reduction in sensitive riparian/wetland habitat, there will ultimately be long-term increases in habitat through restoration, creation, rehabilitation, and enhancement. Long-term, these programs will benefit sensitive riparian/wetland habitat. The EIR did not identify any alternatives that will achieve benefits without short-term impacts. Specific social considerations make infeasible the mitigation measures or alternatives identified in the EIR.

Impact 5.5.4.2-d: 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 Department of Fish and Game or U.S. Fish and Wildlife Service. Implementation of the Gravel Supplementation and Improvement Program, the Channel Improvement Program, the Structural Habitat Supplementation and Improvement Program, and the Fish Weir Program have the potential for minor impacts on special plant species from disturbance associated with access and staging areas.

Implementation of Mitigation Measures 1, 3, and 5 and compliance with Conditions S2, S3, S4, S5, and S6 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.5.4.2-e: Effects on Natural Communities, Wildlife Habitat, and Special-Status Species and Their Habitats from Invasive Plant Species. Implementation of the Gravel Supplementation and Improvement Program, the Channel Improvement Program, the Structural Habitat Supplementation and Improvement Program, the Fish Weir Program, and the Riparian and Floodplain Improvement Program would disturb the streambed, stream bank, and adjacent riparian/wetland areas and may potentially promote the establishment of invasive species by ground disturbance activities.

Implementation of Mitigation Measures 3 and 5 and compliance with Conditions S2, S3, S4, S5, and S6 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Recreational Resources

Impact 5.7-a: Cause a direct or indirect substantial physical degradation of either public recreation uses or public recreational facilities**.** The Structural Habitat Supplementation and Improvement Program includes placement of large woody debris (LWD) and boulders in the Feather River to improve habitat for fish. During placement of LWD and boulders, areas would be closed to recreation, creating a short-term impact to river users. Once placed, LWD could be a hazard to boats (hulls, anchor lines, and propellers) and could be a drowning hazard to swimmers and waders. Within the Structural Habitat Program, safety issues would be addressed to minimize risk to human safety. The Instream Structural Placement Plan would include an analysis of safety issues to avoid unreasonable risk to the safety of river users.

The Fish Weir Program includes the installation of two fish barrier weirs within the Feather River in two phases. Construction of the two weirs would likely cause short-term impacts on recreation; however, the level of impact cannot be identified without further details on weir construction. The weirs would have provisions for manually passing boats over the weirs, and therefore the weirs would not prevent boating, although they would be impediments, the severity of which would be based on final location and design. Most boat anglers focus on the Thermalito Afterbay Outlet, but some boaters travel the Feather River from Riverbend Park south toward the Thermalito Afterbay Outlet. Use of this section of the river may also increase due to the enhanced and now publicly accessible boat ramp at Riverbend Park. A boating compatibility analysis is also part of this measure and would identify impacts and ways to minimize impacts on boating from the two weirs. Installation of two fish weirs would also lead to a “No Fishing Zone” immediately above and below the weirs, which would decrease available fishing area. However, this would be a small decrease compared to the amount of area available for fishing along the Feather River both within and outside of the FERC Project boundary.

The Lake Oroville Warm Water Fishery Habitat Improvement Program would create additional habitat for fish, primarily within the fluctuation zone of Lake Oroville. Construction of new habitat could provide obstacles to boating (boulders, weighted

pipes, etc.) and may affect shore access from the water, depending on where enhancements are located around the reservoir. Some conflict with informal shoreline swimming locations may occur, given that areas of gradually sloping shoreline are favorable for both swimming and habitat enhancement. Riprap and other materials placed in the fluctuation zone may also affect the recreation setting, as the reservoir draws down and habitat enhancements become visible within the fluctuation zone. However, enhanced warm water fish habitat would benefit recreational angling opportunities in Lake Oroville, and the percentage of the fluctuation zone affected would be small.

The Flow/Temperature to Support Anadromous Fish proposed water temperature targets would likely be unnoticeable to anglers and boaters within the Feather River. The river is not commonly used for body water contact recreation, but is mainly used by boaters and shoreline anglers wearing waders. Water temperatures are already cold and a change of a few degrees colder would likely not be noticeable to most recreationists. The Proposed Project also includes future studies that would evaluate different ways to address temperature habitat needs for anadromous fish in the Low Flow Channel (LFC) and the High Flow Channel of the Feather River. Potential future facility modifications and operational changes resulting from this study would be subject to additional CEQA review and analysis.

Construction of the Channel Improvement Program, Riparian and Floodplain Improvement Program, and many proposed recreation facilities could cause short-term disruptions to recreation use and activities. Disruptions would likely only last during construction/implementation and would not continue once construction/implementation was completed (except for programs and specifics mentioned above and in the project-level impact section).

Mitigation Measure 6: Measures are needed to avoid or reduce impacts to recreational users and public recreation facilities. New facilities or projects must be designed to reduce impacts to recreational users and facilities (both water contact and non-contact). Conditions S3, S4, S5, S6, S8, and S10 require submission of plans to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. These plans must include an analysis of safety issues to avoid unreasonable risk to the safety of river users.

Implementation of Mitigation Measure 6 and compliance with Conditions S2, S3, S4, S5, S6, S8, and S10 will reduce the impacts to recreational resources to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Cultural Resources

Impact 5.8-a: Cause a substantial adverse change in the significance of a historical resource as defined in State CEQA Guidelines Section 15064.5.

Impact 5.8-b: Cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines Section 15064.5. The continuation of certain operations and maintenance activities, construction of new or improved facilities, implementation of new programs involving ground disturbance, and actions that would increase public access to sensitive locations could result in the loss of or damage to significant archaeological sites, ethnographic resources, and historic structures.

Significant archaeological sites, ethnographic resources, and historic structures could be lost or substantially damaged through the construction of new facilities, modifications to the licensed power facilities (e.g., diversion canal around Thermalito Afterbay and Alternate Afterbay Channel and Outlet), and habitat improvement programs and plans (Gravel Supplementation and Improvement Program and Riparian and Floodplain Improvement Program). These programs could involve ground disturbance that would substantially alter resources or could result in indirect impacts such as limiting access to traditionally used plants. However, the protective measures in the Historic Properties Management Plan (HPMP) would be implemented. These measures emphasize planning of new and modified facilities/programs to avoid significant cultural resources where feasible, and provide measures such as data recovery and/or public interpretation to reduce impacts if a significant cultural resource cannot be avoided.

Mitigation Measure 7: DWR shall comply with the Historic Properties Management Plan (HPMP) approved by the Federal Energy Regulatory Commission. For any project required in the water quality certification, the licensee shall demonstrate to the Deputy Director that the mitigation measures in the HPMP have been met. In addition, for activities for habitat expansion of spring-run salmon provided under Section 9 of the Certification, the Licensee must provide a report to the Deputy Director demonstrating that it has complied with Section 106 (National Historic Preservation Act); 36 CFR Part 800 amended; and California Public Resources Code Sections 5097 et seq. (Archaeological Paleontoloigical and Historical sites) and 5097.9 et seq. (Native American Historical, Cultural and Sacred sites).
Implementation of Mitigation Measure 7 and compliance with Conditions S2, S3, S4, S5, S6, S10, S17, S19, and S20 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.8-c: Disturb any human remains, including those interred outside of formal cemeteries. The continuation of certain operations and maintenance activities, construction of new or improved facilities, implementation of new programs involving ground disturbance (see Table 5.8-1), and actions that would increase public access to sensitive locations could result in the disturbance of Native American human remains, including those interred in archaeological deposits outside of formal cemeteries. Ongoing erosion, particularly in the fluctuation zone, also has the potential to disturb and expose human remains located within the project area.

Implementation of Mitigation Measure 7 and compliance with Conditions S2, S3, S4, S5, S6, S10, S17, S19, and S20 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Noise

Impact 5.11.2-b: Result in substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels. The construction noise resulting from the Gravel Supplementation and Improvement Program, Channel Improvement Program, Structural Habitat Supplementation and Improvement Program, Riparian and Floodplain Improvement Program, Lake Oroville Warm Water Fishery Improvement Program, Fish Weir Program, Lake Oroville Cold Water Fishery Improvement Program, Flow and Temperature to Support Anadromous Fish, and Construction of Recharge and Brood Ponds programs, if occurring during the daytime on weekdays and requiring the use of diesel engine–driven heavy equipment, would cause a substantial temporary increase in ambient noise levels to receptors within 75 feet of the work area, and the impact would be potentially significant. Further, construction noise resulting from these programs, if occurring during the nighttime or on weekends and requiring the use of diesel engine–driven heavy equipment, would cause a substantial temporary increase in ambient noise levels to receptors within 1,000 feet of the work area, and the impact would be potentially significant.

Mitigation Measure 8: Measures are necessary to reduce the impact of noise from construction activities. If construction requires the use of heavy construction equipment closer than 75 feet to residences, campgrounds, or similar recreation or noise sensitive areas, DWR will ensure the construction manager will either (a) arrange for all persons who would otherwise be within 75 feet of the work area to be moved to a farther distance or prevented from camping or recreating within the 75-foot limit, or, if not feasible, (b) erect temporary barriers of wood, noise abatement blankets, or similar material between the work area and the receptors. The barriers should be at least 8 feet high and solid from the ground to the top, and made of material that would reduce noise through the barrier (transmission loss) by at least 20 dBA. Plywood one-half inch thick would meet this requirement. Noise-generating construction activities will be limited to the hours of 7 a.m. to 8 p.m., Monday through Friday, with no noise-generating activities on Saturdays, Sundays, or legal holidays. This restriction would not be applicable if it would result in operational impacts on the Oroville Facilities or prevent activities to mitigate adverse conditions such as response to emergencies or other unforeseen situations. DWR shall be responsible for field verification of these measures, and shall report any violations of these measures to the Deputy Director or designee within 24 hours.

Implementation of Mitigation Measure 8 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Public Health and Safety

Impact 5.15-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. Hazardous materials could be accidentally released into the soil or an adjacent watercourse during construction activities. The Gravel Supplementation and Improvement Program, Structural Habitat Supplementation and Improvement Program, Riparian and Floodplain Improvement Program, and the Flow/Temperature to Support Anadromous Fish could involve the presence of hazardous materials such as oil, grease, or fuel near and/or in the FERC Project boundary. Accidental release of these materials into the soil or an adjacent watercourse could be potentially significant.

Mitigation Measure 9: Measures are necessary to avoid the release of hazardous materials during construction. DWR shall implement safe-handling procedures and prepare a Spill Prevention, Control, and Countermeasure Plan to prevent the release of hazardous materials and contain runoff. DWR shall incorporate into program implementation on-site handling rules to keep hazardous materials out of the soil and receiving waters. DWR shall:

- Equipment used in direct contact with water will be inspected daily to prevent the release of oil.
- Oil absorbent booms must be used when equipment is used in or immediately adjacent to waters.
- Store all reserve fuel supplies only within the confines of a designated staging area.
- Refuel equipment only in designated areas within the staging area.
- Require that staging areas be designed to contain contaminants such as oil, grease, and fuel products so that they do not drain toward receiving waters or storm drain inlets.
- Not allow uncured concrete to enter any water body in a quantity that changes pH more than 0.5.

DWR shall be responsible for ensuring compliance with the Spill Prevention, Control, and Countermeasure Plan and the measures above. DWR and/or its contractors must immediately report any spills of hazardous materials to the Department of Fish and Game, Regional Water Quality Control Board, and the Deputy Director.

Implementation of Mitigation Measures 1 and 9 and compliance with Conditions S3, S4, S6, and S8 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Project-Level Mitigation Measures

Geology

Impact 5.1-a: Specific projects that involve earth moving action could result in substantial soil erosion or loss of topsoil, degradation of soils or farmland, or changes in the rate of siltation, deposition, or erosion that could modify channel morphology or habitat use.

Implementation of Mitigation Measure 1 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.1-h: Directly or indirectly degrade a unique paleontological resource or site or compromise a significant paleontological site's scientific and educational values. Creation of brood ponds could result in disturbance to paleontological resources. These are in the vicinity of Lime Saddle where the blocks of Calaveras Limestone in the mélange sequence are known to contain fossils; an area about halfway along the Diversion Pool that is crossed by an outcrop of the Monte del Oro Formation that is known to contain fossils; and the vicinity of Thermalito Forebay and Thermalito Afterbay that overlie the Laguna Formation that in other places is known to contain vertebrate fossils. Construction of the brood ponds could involve earth-moving activities with the potential to disturb paleontological resources and could result in a potentially significant impact.

Mitigation Measure 10: Measures are necessary to avoid potentially significant impacts to paleontological resources during construction of brood ponds. Plans submitted to the Deputy Director in Condition S21 will include measures to screen for the presence of fossils. Plans will include measures to avoid disturbance. If avoidance is not possible the plans will includes procedures for the recovery/preservation of any fossils encountered.

Implementation of Mitigation Measure 10 and compliance with Condition S21 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Water Quality

Impact 5.2.2-a: Violate Any Water Quality Standards or Waste Discharge Requirements; and **Impact 5.2.2-c:** Substantially Degrade Surface Water Quality. The Channel Improvement Program will include construction that could cause short term impacts to water quality. The Construction and Recharge of Brood Ponds Project could

temporarily increase turbidity in Thermalito Afterbay. The Recreation Management Plan (RMP) includes construction of trails, equestrian facilities, day use area improvements, docks, boat ramps, and campgrounds, including new floating campsites. Construction of these facilities has the potential to increase soil disturbance and sediment transport. These recreation facilities may increase recreational use, which may in turn increase bacterial levels (e.g. through increased horse manure on trails, in parking lots, and equestrian campsites), oil and grease releases from increased boating and bicycling, and releases of other incidental floating materials into project waters.

Implementation of Mitigation Measure 1 and compliance with Conditions S12 and S13 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.2.2-b: Substantially alter an existing drainage pattern of the site or area, including alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation on- or off-site, or otherwise substantially degrade water quality. The construction of the new brood ponds could temporarily affect turbidity of Thermalito Afterbay.

Implementation of Mitigation Measure 1 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Aquatic Resources

Impact 5.4-b: Cause a substantial decrease in the prey base for any species identified as a candidate, sensitive, or special-status species. Construction of certain facilities could result in short term impact to macroinvertebrates.

Implementation of Mitigation Measure 1 and compliance with Conditions S2, S3, S4, S5, S6, and S8 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Wildlife Resources

Impact 5.5.4.1-a: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by DFG or USFWS. Construction of projects required in the Recreation Management Plan are estimated to

involve habitat losses of 1 acre or more resulting in potentially significant impact on wildlife habitat.

Implementation of Mitigation Measures 1 and 3 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.5.4.1-b: Interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. The Fish Weir Program has the potential to create a barrier to wildlife dispersal and movement including the highly aquatic western pond turtle, a State Species of Special Concern. This passage issue is a potentially significant impact. Projects such as new construction at Lime Saddle, additional campsites, and new marina parking as described in Recreation Management Plan, could significantly affect a rookery located near the boat ramp access road. The Gravel Supplementation and Improvement Program has the potential to result in short-term impacts to heron/egret rookeries through direct habitat loss and disturbance associated with construction access, staging, and in-water construction and no mitigation is necessary.

Implementation of Mitigation Measures 1, 3 and 4 and compliance with Conditions S2 and S5 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.5.4.1-f: Substantial habitat degradation for wildlife species identified by the Department of Fish and Game as Threatened or Endangered Species. Staging areas and river access improvements required for the Gravel Supplementation and Improvement Program could have potentially significant impacts on bald eagle nesting habitats as well as giant garter snake habitat.

Implementation of Mitigation Measures 1 and 3 and compliance with Condition S2 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.5.4.1-f: Substantial Habitat Degradation for Wildlife Species Identified by the U.S. Fish and Wildlife Service as Threatened or Endangered Species. Staging areas and river access improvements required for the Gravel Supplementation and Improvement Program could impact valley elderberry longhorn beetle, giant garter snake habitat, and bald eagle nesting habitat.

Implementation of Mitigation Measures 1 and 3 and compliance with Condition S2 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Botanical Resources

Impact 5.5.4.2-a: 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 DFG or USFWS. The Recreation Management Plan includes a number of improvements that have the potential to affect wetlands/waters of the United States including trails, equestrian facilities, day use area improvements, docks, boat ramps, and campgrounds. Some of the boat ramp extensions included in the Recreation Management Plan may involve significant fill material to be placed within water; however, this activity would be limited to areas that have been previously disturbed and inundated. The Recreation Management Plan actions could also cross drainages and, therefore, have potential to affect special-status plant species. Although when considered individually the acreage loss is small, the total loss could potentially be significant.

Implementation of Mitigation Measures 1 and 5 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.5.4.2-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, or hydrological interruptions, or other means. A number of programs and actions contained in the Staff Alternative Settlement Agreement (SA) relating to environmental and recreational improvements may affect jurisdictional wetlands. Flow/Temperature to Support Anadromous Fish establishes a new minimum flow for the LFC. Implementation of this program in the LFC may affect riparian vegetation when the minimum flow is increased. However, the flows identified in the SA would not increase water levels significantly and vegetation should reestablish naturally at the water's edge. The construction of permanent water temperature monitoring stations would occur on a small scale. The Recreation Management Plan includes a number of improvements that have the potential to affect wetlands/waters of the United States including trails, equestrian facilities, day use area improvements, docks, boat ramps, and campgrounds. The Recreation Management Plan actions would affect a variety of riparian resources because they may cross drainages and have potential to affect wetland/waters of the United States. Although individually, the acreage loss is small, the total loss could be potentially significant. Some of the trail enhancements/additions proposed have the potential to affect drainages; therefore, they have the potential to affect riparian resources. A number of new actions relating to

facilities around Lake Oroville could result in impacts on wetland resources. These impacts may be relatively small per site; however, the total loss could be potentially significant.

Implementation of Mitigation Measure 5 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.5.4.2-d: 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 DFG or USFWS**.** Flow/Temperature to Support Anadromous Fish establishes a new minimum flow for the LFC. Implementation of this program in the LFC may affect riparian vegetation when the minimum flow is increased. However, the flows identified in the SA would not increase water levels significantly and vegetation should reestablish naturally at the water's edge. The construction of permanent water temperature monitoring stations could create minor impacts on riparian resources or waters of the United States. The Recreation Management Plan includes a number of improvements that have the potential to affect wetlands/waters of the United States including trails, equestrian facilities, day use area improvements, docks, boat ramps, and campgrounds. The Recreation Management Plan actions would affect a variety of riparian resources because they may cross drainages and have potential to affect wetland/waters of the United States. Although individually, the acreage loss is small, the total loss could be potentially significant. Some of the trail enhancements/additions proposed have the potential to affect drainages; therefore, they have the potential to affect riparian resources. A number of new actions relating to facilities around Lake Oroville could result in impacts on wetland resources. These impacts may be relatively small per site; however, the total loss could be potentially significant.

Implementation of Mitigation Measure 5 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Recreational Resources

Impact 5.7-a: Cause a direct or indirect substantial physical degradation of either public recreation uses or public recreational facilities.

The Protection of Vernal Pools Conditions may influence location of recreation site expansion at the South Thermalito Forebay Boat Ramp/Day Use Area and may affect the location of a proposed trail along the south side of North Thermalito Forebay. Though proposed recreation development locations may be altered based on vernal

pool locations, pools would not preclude recreation development. A vernal pool protection measure to abandon and revegetate roads that DWR determines are no longer necessary could affect recreation by reducing informal trail access on these roads. Specific roads have not yet been identified; therefore, the specific level and location of impacts on recreation cannot be identified at this time. The level of impact significance to recreation will depend on the location and current use of roads proposed for revegetation. However, prior to abandonment, DWR would assess potential affects and mitigate to less-than-significant levels through avoidance, minimization, or compensation.

DWR is required to develop a management plan to minimize disturbance to nesting bald eagles and submit the plan to USFWS within 30 days of nest discovery. DWR currently has four management plans covering the four active nests within the project area. There are two existing trails that are within or skirt the primary zone for one of these nests near the Diversion Pool; however, the nest has been productive in recent years under the existing level of recreational activity on these trails. The dynamic nature of bald eagle nesting from year to year and the potential for new nest discovery requires that mitigation measures be developed for individual management plans as bird use is documented and impacts assessed. These management plans contain mitigation measures necessary to reduce disturbance during critical nesting months from recreation. Proposed day use development along Burma Road would likely not be affected by any measures to reduce disturbance to nesting bald eagles at the Diversion Pool, as proposed sites would be outside of the primary and secondary protection zones.

The Terrestrial Biological Assessment identifies minimal value giant garter snake habitat and states that potentially suitable habitat is currently not of sufficient quality to support the California red-legged frog. Furthermore, no giant garter snakes or red-legged frogs have been observed within the FERC Project boundary. Thus, existing recreation activities would not likely cause significant impacts on these species. Protection measures to minimize activities that modify habitat within 200 feet of giant garter snake and red-legged frog wetland habitat may result in specific trail alignments for shoreline access to avoid and minimize impacts for these species at North and South Thermalito Forebay. Additional development of the Larkin Road Car-Top Boat Ramp at the Thermalito Afterbay is proposed and would include five to ten new picnic tables, a beach, and a swimming area. Currently, visitors are informally swimming at the site and have impacted existing vegetation. Placement of the new day use facilities would be located to avoid or minimize impacts to potential giant garter snake habitat. Creation of a beach and associated connecting trail between the picnic area and the new beach designed to impact less than 0.10 acre as specified in the terrestrial biological assessment would ensure a less-than-significant impact to existing giant garter snake and red-legged frog habitat.

Protection measures to maintain the existing amount of habitat and avoid impacts on existing elderberry shrubs and valley elderberry longhorn beetle may influence the location of proposed day use and camping facilities at the Thermalito Afterbay Outlet and two watchable wildlife sites within the OWA. However, protection measures would not preclude recreation development.

The Thermalito Afterbay water level would be drawn down for an extended period during construction of waterfowl brood ponds. This drawdown could result in temporarily restricting access to the Thermalito Afterbay water surface for recreational activities and impact angling activity at the existing brood ponds. This is a short term construction impact and is considered less-than-significant when compared to the benefits afforded to recreation by the anticipated increases to waterfowl populations at Thermalito Afterbay.

Mitigation Measure 11: Measures are needed to mitigate direct or indirect substantial physical degradation of either public recreation uses or public recreational facilities. To ensure that impacts to recreation use is less-than-significant, DWR must submit plans to the Deputy Director prior to road abandonment. Projects will be designed to avoid and/or minimize impacts to recreation. If impacts cannot be avoided or minimized, then the plans will include adequate compensation to ensure a less-than-significant impact.

Implementation of Mitigation Measure 11 and compliance with Conditions S18, S19, S20, and S21 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Cultural Resources

Impact 5.8-a: Cause a substantial adverse change in the significance of a historical resource as defined in State CEQA Guidelines Section 15064.5.

Impact 5.8-b: Cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines Section 15064.5. Construction of new or improved facilities in locations containing significant cultural resources and actions that would increase public access to sensitive locations could result in the loss of or damage to significant archaeological sites, ethnographic resources, and historic structures. Significant archaeological sites, ethnographic resources, and historic structures could be lost or substantially damaged through the construction of certain new recreation facilities (e.g., improvements at Bidwell Canyon, new trails), modifications to the licensed power facilities (e.g., alterations to the Moe's and Hatchery ditches), and ground-disturbing actions undertaken to improve wildlife and plant habitat (e.g., construction of brood ponds in the Oroville Wildlife Area).

Implementation of Mitigation Measure 7 and compliance with Conditions S2, S3, S4, S5, S6, S10, S17, S19, and S20 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Impact 5.8-c: Disturb any human remains, including those interred outside of formal cemeteries. The construction of new or improved facilities involving ground disturbance, and actions that would increase public access to sensitive locations could result in the disturbance of Native American human remains, including those interred in archaeological deposits outside of formal cemeteries. Ongoing erosion, particularly in the fluctuation zone, also has the potential to disturb and expose human remains located within the project area.

Implementation of Mitigation Measure 7 and compliance with Conditions S2, S3, S4, S5, S6, S10, S17, S19, and S20 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Noise

Impact 5.11.2-b: Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels. The construction noise resulting from the Gravel Supplementation and Improvement Program, Channel Improvement Program, Structural Habitat Supplementation and Improvement Program, Riparian and Floodplain Improvement Program, Lake Oroville Warm Water Fishery Improvement Program, Fish Weir Program, Lake Oroville Cold Water Fishery Improvement Program, Flow and Temperature to Support Anadromous Fish and Construction of Recharge and Brood Ponds programs, if occurring during the daytime on weekdays and requiring the use of diesel engine–driven heavy equipment, would cause a substantial temporary increase in ambient noise levels to receptors within 75 feet of the work area, and the impact would be potentially significant. Further, construction noise resulting from these programs, if occurring during the nighttime or on weekends and requiring the use of diesel engine–driven heavy equipment, would cause a substantial temporary increase in ambient noise levels to receptors within 1,000 feet of the work area, and the impact would be potentially significant.

Implementation of Mitigation Measure 8 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Air Quality

Impact 5.12-c: Expose sensitive receptors to substantial pollutant concentrations. The Gravel Supplementation and Improvement Program, Channel Improvement Program, Structural Habitat Supplementation and Improvement Program, Riparian and Floodplain Improvement Program, Lake Oroville Warm Water Fishery Improvement Program, Fish Weir Program, Flow and Temperature to Support Anadromous Fish, and Construction of Recharge and Brood Ponds programs have the potential for the generation of dust

from grading activities or diesel engine exhaust from construction equipment, or both. If the grading work is performed in close proximity to sensitive receptors, there will be a potential for exposure to substantial concentrations of pollutants. Therefore, there would be a potentially significant impact.

Mitigation Measure 12: Measures are necessary to avoid or minimize increases in air pollutant concentrations during construction. If projects include grading, moving soil or gravel, include the use of construction equipment, or otherwise have the potential to create emissions the following requirements shall apply:

DWR shall be responsible for ensuring that persons performing grading, excavation, or similar dust-generating activities shall take every reasonable precaution not to cause or allow the emissions of fugitive dust to be airborne into areas occupied by residents or persons visiting the areas adjacent to the work site. DWR shall field verify compliance with the measures. Reasonable precautions shall include, but are not limited to:

- All materials excavated or graded should be sufficiently watered to prevent excessive amounts of dust. Watering should occur at least twice daily with complete coverage, preferably in the late morning and after work is done for the day.
- All clearing, grading, earth moving, or excavation activities should cease during periods of high wind (i.e. greater than 20 miles per hour average over one hour).
- The temporary closing of use areas downwind of the grading site.
- All materials transported off-site should be either sufficiently watered or securely covered to prevent excessive amounts of dust.
- All inactive portions of the construction site should be seeded and watered until vegetative cover is restored.
- On-site vehicle speed should be limited to 15 miles per hour. All areas subject to vehicle traffic (parking areas and dirt roads) shall be watered periodically.
- If used to suppress dust, petroleum based dust suppressants shall meet the road oil requirements of the applicable County APCD.
- Streets adjacent to the project site should be swept as needed to remove silt from construction activities.
- Equipment engines shall be maintained in good conditions and in proper tune as set forth in manufacturers' specifications.

Implementation of Mitigation Measure 12 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Public Health and Safety

Impact 5.15-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.

Implementation of Mitigation Measure 9 will reduce the impacts to a less-than-significant level.

Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Best Management Practices

The planning and execution of Proposed Project and Federal Energy Regulatory Commission (FERC) Staff Alternative Settlement Agreement (SA) articles that involve site preparation and construction activities to be undertaken by the California Department of Water Resources (DWR) would include the adoption of numerous Best Management Practices (BMPs) designed to avoid or mitigate short-term effects typically associated with such activities.

(From the California Stormwater BMP Handbook, Construction, by the California Stormwater Quality Association, http://www.cabmphandbooks.com/

Selection and implementation of BMPs is based on the pollution risks associated with the construction activity. The pollution prevention objectives of BMPs are defined by a review of information gathered during the assessment of the site and planned activities. Once defined, BMP objectives are developed and BMPs selected. The BMP objectives for construction projects are as follows:

- Control of Erosion, and Discharge of Sediment:
    - Minimize Disturbed Areas: Only clear land which will be actively under construction in the near term, minimize new land disturbance during the rainy season, and avoid clearing and disturbing sensitive areas (e.g., steep slopes and natural watercourses) and other areas where site improvements will not be constructed.
    - Stabilize Disturbed Areas: Provide temporary stabilization of disturbed soils whenever active construction is not occurring on a portion of the site. Provide permanent stabilization during finish grade and landscape the site.
    - Protect Slopes and Channels: Safely convey runoff from the top of the slope and stabilize disturbed slopes as quickly as possible. Avoid disturbing natural channels. Stabilize temporary and permanent channel crossings as quickly as possible and ensure that increases in runoff velocity caused by the project do not erode the channel.
    - Control Site Perimeter: Delineate site perimeter to prevent disturbing areas outside the project limits. Divert upstream run-on safely around or through the construction project. Runoff from the project site should be free of excessive sediments and other constituents.
    - Retain Sediment: Retain sediment-laden waters from disturbed, active areas within the site.

- Manage Non-Stormwater Discharges and Materials:
    - Practice Good Housekeeping: Perform activities in a manner to keep potential pollutants from coming into contact with stormwater or being transported off site to eliminate or avoid exposure.

- Contain Materials and Wastes: Store construction, building, and waste materials in designated areas protected from rainfall and contact with stormwater runoff. Dispose of all construction waste in designated areas, and keep stormwater from flowing onto or off of these areas. Prevent spills and clean up spilled materials.

ADDITIONAL GENERAL GUIDELINES

- Pre-construction surveys for sensitive species and environmental permitting/documentation will be done prior to commencement of work.
- No intentional harassment, killing, or collection of plants or animals at or around the work site will occur.
- No firearms are allowed on construction site, except for those used by peace officers, DFG [California Department of Fish and Game] wardens or State Park rangers.
- No pets will be allowed.
- All persons will stay within the boundaries of the work site.
- No other off-road travel or work will be permitted; all vehicles must be confined to existing roads or areas designated for vehicles.
- All trash, including food-related trash and cigarette butts, will be properly disposed of and removed by the workers daily.
- Always choose the site preparation method that creates the least soil disturbance, remains effective and safe, and accomplishes project goals.
- General timing restrictions will be employed to protect environmental resources.

GENERAL GUIDELINES FOR CONTROL OF RUNOFF & SEDIMENT FROM GROUND DISTURBANCE

General Guidelines when Removing Vegetation

- Disturbance of vegetation shall be kept to a minimum. Trees will be flagged and avoided during construction.
- Provide for rapid revegetation of all denuded areas through natural processes supplemented by artificial revegetation where necessary.
- Maintenance of existing woody vegetation:
- Preservation of existing vegetation shall be provided prior to the commencement of clearing and grubbing operations or other soil disturbing activities in areas identified on the plan as those to be preserved.
- Mark areas to be preserved with temporary fencing, such as orange polypropylene that is stabilized against UV [ultraviolet] light, and is at least 3 feet tall.
- Fence posts shall be wood or metal and spacing and depth shall be adequate to completely support the fence in an upright position.
- Minimize disturbed areas by locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours and reduce cutting and filling.
- Consider the impact of grade changes to existing vegetation and the root zone.
- Keep equipment away from trees to prevent trunk and root damage.

- Construction materials, equipment storage, and parking areas shall be located where they will not cause root compaction.
- All workers shall be instructed to honor protective devices. No heavy equipment, vehicular traffic, or storage piles of any construction material shall be permitted within the dripline of any tree to be retained. No toxic or construction materials (including paint, acids, nails, gypsum board, chemicals, fuels, or lubricants) shall be stored within 15 meters (50 feet) of the drip line of any retained trees, nor disposed of in any way which would injure vegetation.

General Guidelines to Minimize Surface Erosion and Stabilize Material

Surface erosion measures:

- Erosion control measures involving revegetation (seeding and fertilization) should be planned and implemented as soon as practicable following disturbance.
- An integrated system of collection, control, and dispersal of surface runoff is very important to prevent erosion. Mechanical measures include construction of ditches, slash windrows, straw bale dams, sediment barriers, erosion netting and fabrics, terraces, benching, riprap, and tackifiers.
- Be aware of ongoing conditions of weather, soil conditions, and water movement and how these conditions may affect runoff and erosion.
- Employ regular inspections and maintenance of erosion control features.

Stabilization measures:

- A combination of practices that promote the reestablishment of vegetation on exposed slopes, provides physical protections to exposed surfaces, prevents the downslope movement of soil, and controls drainage.
- Employ regular inspections and maintenance of erosion control features.
- Measures to reestablish vegetation on exposed soils are usually accomplished by seeding suitable herbaceous vegetation in conjunction with mulching and fertilization. Treatments may include tree seedling planting, sprigging, or bioengineering.
- Measures to physically protect the soil surface from erosion or modify the topography to minimize erosion include the use of gravel on the road surface and use of mulches, riprap, erosion mats, and terracing on cuts, fills, and ditches as appropriate. Temporary waterbars in areas of uncompleted roads and trails can be effectively utilized to reduce sedimentation.
- Measures which physically inhibit the transport of sediments to streams include the use of slash filter windrows on or below the fill slopes, baled straw in ditches or below fillslopes, silt fences, and catch basins in culvert inlets.
- Measures that reduce the amount of solid disturbance in or near streams include immediate placement of large culverts in live streams prior to crossing stream with rock embankment during road construction. Temporary pipes should not be installed unless sedimentation can be minimized during installation, use and removal.

Specifics for Erosion Control and Stabilization
Erosion Control BMPs—source control practices that protect the soil surface and prevent soil particles from being detached by rainfall, flowing water, or wind. Erosion control consists of preparing the soil surface and implementing one or more of the following BMPS to the disturbed soil areas. See Section 3.1 of:
http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

- Scheduling
- Preservation of Existing Vegetation
- Hydraulic Mulch
- Hydroseeding
- Soil Binders
- Straw Mulch
- Geotextiles or Mats
- Wood Mulching
- Earth Dikes and Drainage Swales
- Velocity Dissipation Devices
- Slope Drains
- Streambank Stabilization
- Polyacrylamide

Sediment Control BMPs—include any practice that traps soil particles after they have been detached and moved by rain, flowing water, or wind. Sediment Control measures are usually passive systems that rely on filtering or settling the particles out of the water or wind that is transporting them. See Section 3.2 of:
http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

- Silt fence
- Sediment basin
- Sediment trap
- Check dam
- Fiber rolls
- Gravel bag berm
- Street sweeping and vacuuming
- Sandbag barrier
- Straw bale barrier
- Storm drain inlet protection
- Chemical treatment

Wind Erosion Control—consists of applying water or other dust palliatives to prevent or alleviate dust nuisance. See Section 3.3 of:
http://www.cabmphandbooks.com/Documents/Construction/Section_3.pdf

Non-Stormwater Management BMPs—source control BMPs that prevent pollution by limiting or reducing potential pollutants at their source or eliminating off-site discharge.

These BMPs are also referred to as “good housekeeping practices” which involve keeping a clean, orderly construction site. See Section 4.1 of:
http://www.cabmphandbooks.com/Documents/Construction/Section_4.pdf

- Water conservation practices
- Dewatering
- Paving and grinding operations
- Temporary stream crossings
- Clean water diversion
- Illicit connection/discharge
- Potable water/irrigation
- Vehicle and equipment cleaning, fueling and maintenance
- Pile driving operations
- Concrete curing and finishing
- Material and equipment use
- Demolition adjacent to water
- Temporary batch plants

Waste Management and Materials Pollution Control BMPs—source controls to prevent pollution by limiting or reducing potential pollutants at their source before they come in contact with stormwater. These, like the non-stormwater management BMPs, are “good housekeeping practices” which involve keeping a clean, orderly construction site. See Section 4.2 of:
http://www.cabmphandbooks.com/Documents/Construction/Section_4.pdf

- Materials delivery and storage
- Material use
- Stockpile management
- Spill prevention and control
- Waste management
- Solid waste
- Hazardous waste
- Contaminated soil
- Concrete waste
- Sanitary/septic waste

General Practices for Toxic or Hazardous Spills

- Locate service and refueling sites well away from wetlands and stream channels.
- Any chemical spills will be cleaned up and reported immediately.
- Wash chemical containers and clean equipment in special areas designated for these uses.
- Keep chemicals away from surface water when mixing.
- Latrines, vaults, or pit toilets for camps will be located a minimum of 100 feet from all perennial lakes and streams.
- Minor oil spills can be prevented by:

- Collecting used oil, oil filters, and grease tubes
- Requiring equipment operators to carry absorbent pads
- Providing containment and cleanup for portable fuel tanks including hose and nozzle
- Following approved disposal methods for waste products
- Regular checks for and prompt repair of leaks
- Developing Spill Prevention Control and Countermeasure Plans