



# United States Department of the Interior

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IN REPLY REFER TO:  
ER# 09/506

*Electronically Filed*

10 July 2009

Honorable Magalie R. Salas, Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, D.C. 20426

Subject: Review of Application Ready for Environmental Analysis; Kilarc-Cow Creek  
Hydroelectric Project, FERC No. 606-027; Shasta County, California

Dear Ms. Salas:

The Department of the Interior has received and reviewed the subject document and has the following comments to offer.

The U.S. Fish and Wildlife Service (Service or FWS), a bureau under Department of the Interior (Department), has reviewed the Federal Energy Regulatory Commission's (Commission or FERC) May 12, 2009, "*Notice of Application Accepted for Filing; Soliciting Motions to Intervene and Protests; Ready for Environmental Analysis and Soliciting Comments, Recommendations, Preliminary Terms and Conditions; and Preliminary Fishway Prescriptions*" (REA/Intervention Notice) for the Pacific Gas and Electric Company's (Licensee or PG&E) Kilarc-Cow Creek Hydroelectric Project (FERC Project No. 606 or Project).

The Service's following preliminary Section 18 Prescriptions for Fishways, recommended Section 10(j) Conditions, Section 10(a) Recommendations, and comments are provided in response to the Commission's May 12, 2009, REA/Intervention Notice regarding the Project in accordance with the Federal Power Act (FPA), as amended; the Fish and Wildlife Coordination Act (FWCA), as amended; the Endangered Species Act (ESA), as amended; the Migratory Bird Treaty Act (MBTA), as amended; and the National Environmental Policy Act (NEPA), as amended.

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The Department will also be filing a Motion to Intervene in support of decommissioning the Project, on behalf of its Bureaus, in the proceeding for this Project with the Commission under separate cover. The deadline for responding to the REA/Intervention Notice is July 10, 2009.

At this time, there are several outstanding ESA issues; however, these are in process of being addressed through consultation with appropriate agencies under Section 7 of the ESA. The Service supports decommissioning the Project provided that the Commission incorporates in the Decommissioning Order the Service's Section 18 Prescriptions for Fishways, recommended Section 10(j) Conditions, Section 10(a) Recommendations, and comments and provided that the Commission meets its responsibilities under the ESA.

The Service remains committed to working cooperatively with PG&E and other stakeholders throughout the decommissioning process. Decommissioning, as described in the License Surrender Application (LSA), remains the most viable alternative for maximizing benefits for fish and wildlife resources, including special status and listed anadromous fish species.

The Service was one of the signatories of the 2005 Decommissioning Agreement along with PG&E, the California State Water Resources Control Board (SWRCB), the National Marine Fisheries Service (NMFS), the California Department of Fish and Game (DFG), the National Park Service (NPS), Trout Unlimited, and Friends of the River, which establishes a framework for a decommissioning and restoration scenario for this Project. The Service remains committed to the principles outlined in the March 2005 Decommissioning Agreement.

The following comments, recommendations, terms and conditions have been developed jointly with and are consistent with the measures proposed by PG&E in their LSA, and those concurrently being filed by the NMFS, DFG, and the SWRCB (Resources Agencies).

## **ENERGY POLICY ACT OF 2005**

Beginning in January, 2001, the Department exercised Section 18 of the FPA in accordance with its Mandatory Conditions Review Policy (MCRP), which provided the Licensee and interested parties the opportunity to review and comment on the Department's fishway prescriptions. On August 8, 2005, Congress enacted the Energy Policy Act of 2005 (EP Act), Pub. L. No. 109-58, which mandates new processes when the Department prescribes fishways pursuant to Section 18 of the FPA. On November 17, 2005, the Department published interim final regulations implementing the EP Act, 70 Fed. Reg. 69804 (codified at 43 C.F.R. Section 45.1 et seq.), which became effective upon publication in the Federal Register. Because the new procedures mandated by the EP Act effectively subsumed or superseded the MCRP, the Department is no longer implementing the MCRP. 70 Fed. Reg. at 69806.

In this proceeding the Department is reserving the Secretary's Section 18 authority to prescribe fishways during the time period that the Project is under Commission jurisdiction; consequently, the Department will not provide hearing or alternative review processes at this time. *Id.* at 69829 (43 C.F.R. Section 45.1(c)). The Department will provide such processes if (and when) the Department exercises its reserved Section 18 authority.

## **PROJECT HISTORY**

The Kilarc-Cow Creek Project is licensed by the Commission as FERC Project No. 606. The Project, owned and operated by the PG&E, is located in Shasta County, California along Old

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Cow Creek and South Cow Creek. The Project consists of Kilarc Powerhouse and Cow Creek Powerhouse along with related canals, penstocks, forebays and other structures.

Due to the complex and competing resource issues associated with the Project, in early 2004 PG&E decided to explore decommissioning as an alternative to seeking a new license for the Project. PG&E's evaluation showed that the Project would be a high cost source of energy and would not be competitive with other generation sources. Staff representatives of PG&E, the City of Redding, and the California Energy Commission all recommended against relicensing the Project for economic and environmental reasons.

Each of these recommendations has been made part of the FERC record.

In March 2005, after 1½ years of cooperative effort, the Service, PG&E, DFG, the SWRCB, the NMFS, NPS, Trout Unlimited, and Friends of the River signed an agreement (Agreement) that stated PG&E would not seek a new license. By not filing an application for new license by the statutory deadline of March 27, 2005, the Company lost its incumbent licensee status and its opportunity to relicense the Project. The current FERC license for the Project expired March 27, 2007. Since then, the Project has been operating on annual licenses.

PG&E filed the Agreement with FERC on March 31, 2005. On April 7, 2005, FERC published a notice soliciting applications for the license from potential applicants other than PG&E, providing a 90-day period for filing a notice of intent. Synergies Energy Services, LLC filed a notice of intent to file a license on June 27, 2005, but failed to file an application for license with-in the time provided by the Commission. Therefore, FERC ordered PG&E to prepare and file a license surrender application in compliance with FERC's rules that provide for the disposition and decommissioning of Project facilities.

On March 12, 2009, PG&E filed the Kilarc-Cow Creek Hydroelectric Project License Surrender Application (LSA).

PG&E has detailed the proposed treatment of facilities in the Proposed Decommissioning Plan in the LSA. In general, treatment of the facilities related to decommissioning is described in the LSA as follows:

1. Removing diversion dams to allow free passage
2. Dam abutments may be left in place to protect stream banks
3. Powerhouse structures secured and left in place
4. Electrical equipment removed
5. Forebays graded and filled
6. In consultation with affected landowners, canal segments will be left in place, breached or filled. Flumes will be removed.

The content of the LSA appears to be consistent with the Agreement signed by the Service in March 2005. The only apparent deviation from the Agreement concerns the preservation of the pre-1914 water rights held by PG&E and associated with the Project, which will be discussed below.

In the March 2005 Agreement, the water rights associated with the Project were to be transferred to a resource agency or other entity for the protection, preservation and/or enhancement of

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aquatic resources (Cal. Code Regs., tit. 23, § 1707) after the completion of the decommissioning activities.

However, the Cow Creek stream system was adjudicated in 1969 (Decree of the Superior Court for Shasta County No. 38577) which requires the court to approve changes to the water rights associated with the Project. PG&E stated in the LSA that they will abandon the water rights by ceasing diversions after decommissioning. DFG, PG&E, and the Water Board have met and agreed that the best way to handle the water rights at this time would be for PG&E to advise the county Superior Court that their non-consumptive water rights, as prescribed in the 1969 Cow Creek Adjudication, have been abandoned in favor of instream flow enhancement, and that all project canals that facilitated the diversion of water have been removed and/or rendered inoperable.

It is our understanding that because the area is adjudicated, and the water rights are non-consumptive, there should not be an opportunity for a third party to come in and claim the abandoned water, which according to the March 2005 Agreement would be utilized for fish and wildlife resources. The Service continues to support the goal envisioned in the Agreement that PG&E's water rights be used to protect, preserve and/or enhance aquatic resources.

On May 12, 2009 FERC published a Notice of Application Ready for Environmental Analysis. The notice specified a deadline for filing motions to intervene and protests, recommendations, and preliminary terms and conditions, as July 11, 2009.

## **PROJECT DESCRIPTION**

The existing Project, owned and operated by PG&E or Applicant, is composed of two developments, including Kilarc, and Cow Creek, and has a combined installed capacity of 5 megawatts (MW).

*Kilarc Development:* The Kilarc development, which diverts water from Old Cow Creek, consists of the following constructed facilities: (1) North Canyon Creek Diversion Dam and Canal; (2) South Canyon Creek Diversion Dam and Canal; (3) Canyon Creek Siphon; (4) Kilarc Main Canal Diversion Dam and Main Canal (including tunnel and elevated flumes); (5) Kilarc Forebay Dam, an earth fill dam, 13-foot high and 43-foot long; (6) a 10-foot wide overflow spillway, 3.0 feet deep, and has a rated capacity of 50 cfs with 1.6-foot of freeboard; (7) 48-inch slide gate intake structure with a manual lift, protected by a trash rack over the opening to the penstock; and (8) Kilarc Penstock, a 4,801-foot long buried pipe, with a maximum flow capacity of 43 cfs.

*Cow Creek Development:* The Cow Creek development, which diverts water from South Cow Creek, consists of the following constructed facilities: (1) Mill Creek Diversion Dam and Canal; (2) Mill Creek-South Cow Creek Canal; (3) South Cow Creek Diversion Dam and Main Canal; (4) Cow Creek Forebay Dam, an earth filled berm, 16-foot high and 54-foot long; (5) Cow Creek Forebay, with a gross and useable storage capacity of 5.4 acre-feet; (6) a 49.7-foot wide overflow spillway, 1.7 feet deep, and has a rated capacity of 50 cfs with 1.2-foot of freeboard; (7) 42-inch slide gate intake is hydraulically operated and is protected by a trash rack over the opening to the penstock; and (8) Cow Creek Penstock, a 4,487-foot long buried pipe.

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## GOALS AND OBJECTIVES FOR THE PROJECT

FERC's Licensing Regulations direct resource agencies to list the resource management goals and objectives to serve as the basis for study recommendations and subsequent prescriptions, and recommendations for Project "protection, mitigation, and enhancement measures" (PM&E) to be incorporated into the Commission's order.

The Service's goal is to conserve and restore the essential attributes of the watershed ecosystem affected by the Project. After decommissioning, the Project will contribute to many beneficial uses, including the increased support of important ecological and environmental fish and wildlife resources. The Cow Creek watershed supports populations of anadromous salmonids, as well as native and introduced resident species.

Resident species common to Old Cow and South Cow creeks are rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*), and riffle sculpin (*Cottus gulosus*). South Cow Creek, downstream of Wagoner Canyon, also supports numerous other native and introduced resident species. In addition, South Cow Creek supports several species of anadromous fish including fall-run Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*O. mykiss*), and lamprey (species unknown, but likely Pacific Lamprey {*Lampetra tridentata*}).

Decommissioning the Project would result in the return of Project-diverted water to the streams which will significantly contribute to maintaining valuable habitat for anadromous and resident fish and other aquatic resources.

The Service will be proposing measures to protect, mitigate, enhance, or restore Project-affected terrestrial resources and resident and anadromous aquatic resources in the Project Area consistent with these resource goals and objectives, the March 2005 Agreement and the March 2009 LSA.

### Resource Goals

1. Protect, conserve, enhance, and recover native anadromous salmonids and other resident native fish and their habitats by providing access to historic habitats and by restoring fully functioning habitat conditions.
2. Identify and implement measures to protect, mitigate or minimize direct, indirect, and cumulative impacts to, and enhance native anadromous salmonid and other resident native fish resources, including related spawning, rearing, and migration habitats and adjoining riparian habitats.

### Resource Objectives

In addition to our resource goals, the Service has the following resource objectives for the protection and enhancement of the Project-affected aquatic and wildlife resources and their associated habitats:

1. Remove all Project diversions and return the diverted flow back to the stream for the benefit of anadromous and resident fish including fall-run Chinook salmon, steelhead, and rainbow trout.
2. Provide opportunity for periodic adjustments, if needed, to Project decommissioning,

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- within mutually acceptable limits, to optimize fish passage and flow for salmon and steelhead in Old Cow Creek and South Cow Creek.
3. Restore the historic water quality, resources and beneficial uses of both Old Cow Creek and South Cow Creek.
  4. Redistribute the accumulated gravel and sediment from behind the dams downstream while not creating any new fish passage impediments that would prevent upstream movement of fish.
  5. Avoid and minimize existing and future Project impacts to fish and wildlife species and the habitats they depend on.
  6. Maintain and restore the connections of floodplains, channels, and water tables to distribute flood flows and sustain diverse habitats.
  7. Maintain and restore spatial and temporal connectivity for aquatic and riparian species to provide physically, chemically and biologically unobstructed movement for their survival, migration and reproduction.
  8. Maintain or restore channel integrity. Diversion removals will maintain, improve, or restore fluvial processes to provide for balanced sediment transport, channel bed material mobilization and distribution, and channel structural stability that contribute to diverse aquatic habitat and healthy riparian habitat.
  9. Reduce and, where possible, reverse the spread of invasive species.

The resource goals and objectives would be obtained through the implementation of our FPA Terms, as stated in our *Recommendations, Terms and Conditions, and Prescriptions* Section of this letter.

## **AFFECTED RESOURCES**

Aquatic and wildlife resources affected by the Project of concern to the Service include species federally listed under the ESA and certain non-listed species of concern.

### **Federally Listed Species**

PG&E has been involved in informal consultation with the Service since 2002. On April 23, 2008, PG&E requested that FERC designate PG&E as the non-federal representative for informal consultation under the Endangered Species Act with the Service and NMFS pertaining to Project decommissioning. Pursuant to Section 7 of the Endangered Species Act, FERC granted the request (undated letter from Mr. Robert Fletcher (FERC) to Ms. Stacy Evans (PG&E) received June 16, 2008).

### **Federally Listed Plant Species**

There are no known occurrences of federally listed plant species in the vicinity of the Project (PG&E 2009).

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## **Federally Listed Fish Species**

The Service's and NMFS Fisheries' federally listed species include those species granted status under the ESA as threatened (FT). NMFS Fisheries also uses this federal designation for any Evolutionary Significant Unit (ESU) of anadromous runs of salmonids listed under the ESA. As discussed in the March 12, 2009 LSA, several special status anadromous species are present in the Project area that are either listed or have been considered for listing under the ESA. Fall and late-fall Chinook salmon in the Project are candidates for listing under the ESA. Central Valley ESU steelhead in the Project area are threatened under the ESA. The Project area has been designated critical habitat for the steelhead.

Central Valley ESU Spring run Chinook salmon are threatened under the ESA and California Endangered Species Act (CESA). These species are entitled to protection under the ESA (16 U.S.C. §§ 1531 *et seq.*), Federal Power Act (16 U.S.C. §§ 803 *et seq.*), the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §§ 1801 *et seq.*), and other laws.

Central Valley-run steelhead trout DPS (*Oncorhynchus mykiss irideus*) FT: The Central Valley Steelhead population unit (Distinct Population Segment {DPS}), which is listed as threatened under the ESA, includes all naturally spawned populations of steelhead within the Sacramento and San Joaquin River Basins (71 FR 834). Critical habitat for Central Valley Steelhead was designated September 2, 2005, and includes portions of Cow Creek and its tributaries (70 FR 54288). This critical habitat extends through the Project Area on South Cow Creek about 7 miles upstream of the Cow Creek Diversion Dam to the mouth of Hagaman Gulch.

Critical habitat on Old Cow Creek for steelhead extends upstream to near the Whitmore Radio Range Station and Whitmore Falls, which is downstream of the Kilarc Development. PG&E reports that Central Valley steelhead are present in South Cow Creek, above and below the Cow Creek Development, as well as within Old Cow Creek below the Kilarc Development (PG&E 2009).

Central Valley fall- and late fall-run Chinook salmon (*Oncorhynchus tshawytscha*): The Central Valley fall- and late fall-run Chinook salmon population unit is designated as a species of concern by NMFS and includes all naturally spawned populations of fall- and late fall-run Chinook salmon in the Sacramento and San Joaquin rivers and their tributaries. Fall-and late fall-run Chinook salmon have been reported to occur in South Cow Creek.

Central Valley Spring-run Chinook salmon ESU (*Oncorhynchus tshawytscha*) FT: The Central Valley spring-run Chinook salmon population unit, which is listed as threatened under the ESA, includes all naturally spawned populations of spring-run Chinook salmon in the Sacramento River and its tributaries (70 FR 37160). Critical habitat for Central Valley spring-run Chinook salmon was designated on September 2, 2005 (70 FR 52488), but does not include Cow Creek or its tributaries. A few individual fish that may have been spring-run Chinook salmon were observed in the vicinity of the Project.

These fish may have been strays from other systems (PG&E 2009). PG&E reports that the spring-run Chinook salmon ESU are known to occur in South Cow Creek below the tailrace (PG&E 2009), downstream to the Sacramento River (PG&E 2009). Additional fish have been observed within the South Creek Project bypass reach and within Old Cow Creek below Whitmore Falls (PG&E 2009).

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## **Federally Listed Wildlife Species**

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB) FT: VELB may occur in the project area. A total of two elderberry shrubs (*Sambucus* spp.), the sole host plant for VELB, occur in the Project area (PG&E 2009). Of the elderberry plants surveyed, none showed signs of VELB occupancy; however this does not necessarily mean that the shrubs are not occupied by VELB.

California red-legged frog (*Rana aurora draytonii*) (CRLF) FT: CRLF may occur in the Project area. While there is no suitable breeding habitat in the Project area, suitable breeding habitat exists within dispersal distance of the Project for CRLF. The Project area contains suitable non-breeding aquatic habitat which is utilized by CRLF outside of the breeding season. The Service provided letters to PG&E on June 12, 2002, to clarify the procedures for protocol surveys for the California red-legged frog, and on June 10, 2004, to review and provide comments on the habitat assessment for the California red-legged frog in the Project area.

## **Species of Special Concern**

The Service is also concerned about certain special status species that are not listed under the ESA, but are designated by other State, Federal, or local agencies as "species of special concern" species. Although the Service no longer maintains a list or a designation for "species of special concern," we are concerned about "federally delisted" species (FD). NMFS Fisheries designates any such "non-listed" and "sensitive" ESUs of anadromous runs of salmonids as a Species of Concern (FSC).

## **Wildlife Species**

Bald eagle (*Haliaeetus leucocephalus*) (FD): No bald eagles or bald eagle nests were found in the vicinity of the Project during focused raptor surveys. However, adult bald eagles have been observed roosting near Kilarc Forebay. Juvenile bald eagles have also been observed near the Project area (PG&E 2009).

Foothill yellow-legged frog (*Rayna boylei*) (FYLF): FYLF adults and juveniles are known to occur in South Cow Creek at the downstream end of the bypass reach, as well as in Hooten Gulch, upstream of the powerhouse (PG&E 2009). While FLYF are not known to occur within Old Cow Creek, or Mill Creek, suitable habitat is present.

Pacific Fisher (*Martes pennanti pacificai*) (Federal Candidate Species): This species was not observed during 2003 surveys although fishers are potentially present in the Kilarc and Cow Creek developments in mature, dense forest stands with snags; however, fishers are likely to avoid Project facilities and other activities with human disturbance. There are no reported occurrences within a 5-mile radius of the Kilarc and Cow Creek developments (PG&E, 2009).

## **Plant Species**

Balsamorhiza macrolepis var. macrolesis (big-scale balsamroot): Big-scale balsamroot is known to occur between the Cow Creek Powerhouse and Cow Creek Forebay. This single occurrence consists of approximately 23 plants (PG&E 2009).



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One of the Service's specific objectives is to ensure that invasive and noxious plants are eradicated or controlled so as to minimize the impacts of these particular plant species on the aquatic and terrestrial habitats of common, sensitive, and listed fish and wildlife species.

Twelve species of invasive/noxious plants were found within the Project's surveyed areas (PG&E 2009). These included the following: ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), yellow starthistle (*Centaurea solstitialis*), bullthistle (*Cirsium vulgare*), dogtail (*Cynosurus echinatus*), red-stem filaree (*Erodium cicutarium*), Klamath weed (*Hypericum perforatum*), Himalayan blackberry (*Rubus discolor*), cut-leaved blackberry (*Rubus laciniatus*), Medusa-head (*Taeniatherum caprt-medusae*), moth mullein (*Verbascum blattaria*), and hairy vetch (*Vicia villosa*).

### **Aquatic and Terrestrial Resources**

We are providing a description of the fish and wildlife resources affected by the Project in this section in order to describe the types of habitats found within the existing Project's reservoirs and affected stream reaches. This information, based on Project study data, aids the Service in the development of our FPA Terms. Our FPA Terms are developed in order to reduce the proposed Project's impacts by providing resource measures specifically tailored to address those proposed Project impacts on the Project's physical habitats and conditions and are based on existing information and preliminary decommissioning studies.

### **Fish Species**

Resident trout: Resident trout occurring within the Project include native rainbow trout (*Oncorhynchus mykiss*) and non-native brown trout (*Salmo trutta*). Rainbow trout are found upstream and downstream of all Project diversions and in canals in the Cow Creek watershed with the exception of the Mill Creek site. Brown trout are found upstream and downstream of the Kilarc Development, within Old Cow Creek, the Kilarc Main Canal and Forebay (PG&E 2009).

Other Native Fishes: Other native fish species were located within the Project reaches and canals, and within the Cow Creek Watershed. These included California roach (*Lavinia symmetricus*), riffle sculpin (*Cottus gluosus*) speckled dace (*Rhinichthys osculus*), Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento sucker (*Catostomus occidentalis*), and Lamprey (*Lampetra* sp.) (PG&E 2009).

### **Project Impacts on Salmonids**

Salmonids require cool, clear, running water to support their freshwater life history stages (Bjornn and Reiser 1991). Incubating salmon eggs require clean gravel substrates. Juvenile habitats typically consist of free-flowing streams providing a complex of alternating shallow, swift riffles, and low-velocity pools with abundant cover in the form of woody debris, boulders, and undercut banks. Dams convert natural stream habitats to artificial pond environments. Habitats for salmonids are adversely affected by project facilities because dams change stream flow patterns, reduce habitat diversity, diminish water quality, and create barriers to the natural instream movements of salmonids. Dams can also enhance habitats for species that prey upon juvenile salmon and steelhead.

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The effects of the existing Project conditions on fish passage and flow conditions, habitat, water quality, and other effects on native anadromous and resident fish resources directly concern the Service. The existing Project blocks access to historically productive spawning and rearing habitat for steelhead and Chinook salmon as well as resident fish species. In addition, the existing Project substantially influences seasonal and daily flows, important water quality parameters (e.g., temperature, dissolved oxygen, and total dissolved gas), and riparian areas in historic and current habitat for salmonids.

### **Riparian Resources**

Vegetation communities present within the Kilarc and Cow Creek Developments include: Sierran mixed coniferous forest, ponderosa pine plantation, interior live oak woodland, blue oak-foothill pine woodland, white alder riparian forest, northern mixed chaparral, annual grassland, wetlands (freshwater marsh and seeps), and developed/disturbed areas.

### **Wildlife Resources**

Terrestrial wildlife and their associated habitats which may inhabit the Project study area include upland game, waterfowl, furbearers, raptors, small mammals, song birds, reptiles, amphibians, and invertebrates.

## **RECOMMENDATIONS, TERMS AND CONDITIONS, AND PRESCRIPTIONS**

The Service seeks to ensure that appropriate levels of resource protection are incorporated in any Decommissioning Order and believes that our Section 18 Prescriptions for Fishways, Section 10(j) Conditions, and Section 10(a) Recommendations will protect, mitigate, and enhance fish and wildlife resources in the Project area. ESA issues will be addressed through the Commission's compliance with Section 7 of the ESA.

### **Federal Power Act Section 18**

#### **Reservation of Section 18 Authority Article**

Authority is reserved for the Department to prescribe the construction, operation, and maintenance of fishways at the Project, including measures to determine, ensure, or improve the effectiveness of such prescribed fishways, pursuant to Section 18 of the FPA, as amended, during the pendency of Commission jurisdiction over the Project.

#### **Justification for Reservation of Section 18 Authority Article**

Pursuant to Section 18 of the FPA, the Commission shall require the construction, maintenance, and operation by a Licensee at its own expense of such fishways as may be prescribed by the Secretary of the Interior or the Secretary of Commerce, as appropriate. 16 U.S.C. Section 811. The Secretary of the Interior is exercising the Department's Section 18 authority through the inclusion in the Commission's Order of a separate article that reserves the Department's authority to prescribe fishways, over the term of the Project, pursuant to Section 18 of the FPA. The Department reserves this authority in the event that monitoring of fish passage conditions (PM&E Measure AQUA-5) indicates long-term passage impediments.

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### **Recommended License Conditions Pursuant to Section 10(j) of the Federal Power Act**

In order to adequately protect, mitigate, and enhance fish and wildlife (including related spawning grounds and habitat) affected by the Project decommissioning, the Commission is to include in any Decommissioning Order conditions for such protection, mitigation, and enhancement based upon recommended conditions received pursuant to the FWCA, 16 U.S.C. Section 661, et seq., from the Service, NMFS Fisheries, and CDFG, 16 U.S.C. Section 803(j).

Pursuant to this authority, the Service submits for inclusion in the Decommissioning Order, the following conditions to protect, mitigate, and enhance fish and wildlife resources that are affected by decommissioning. These conditions are consistent with the PM&E Measures put forth by PG&E in their License Surrender Application, and are meant to reinforce our support of the current Decommissioning Plan as the best alternative to restore habitat and instream flows for the benefit of fish and wildlife resources.

The Service's PM&E's were developed to address resource issues associated with the decommissioning of the Project as previously identified in the Affected Resources Section.

The Service prepared these preliminary conditions based on current information regarding the proposed decommissioning of the Project and they are consistent with the March 2005 Decommissioning Agreement and the March 2009 LSA. If new information becomes available that may significantly affect the adequacy of the proposed measures, the Service may modify these Section 10(j) Conditions.

The Service reserves the right to modify these Section 10(j) Conditions as needed to meet its statutory obligations in light of changed situations and to be consistent with finalized decommissioning plans, new information developed as a result of the Commission's environmental review process, or to correct deficiencies or problems found during post-decommissioning monitoring or evaluation.

#### **1. PM&E Measure ESA-1: Federally Listed Species Protection, Mitigation, and Consultation**

##### **10(j) Condition: #1**

(1) Prior to removal/decommissioning of Project facilities or other activities that may affect federally listed species and Federal Candidate species and their habitats; the Licensee shall prepare a Draft Biological Assessment or other required documents and obtain any necessary permits or approvals from the Resource Agencies. The Draft Biological Assessment, or other required documents describe the potential impacts of the action on the species or their habitats.

(2) The Draft Biological Assessment shall evaluate the potential impact of the proposed action(s) on the species or its habitat. In coordination with the Commission, the appropriate Resource Agencies may require mitigation measures for the protection of the affected species. The Draft Biological Assessment shall be submitted to the appropriate Resource Agencies for review and approval. The Licensee shall incorporate comments from the Resource Agencies into a Final Biological Assessment and submit the document to the Commission for review and approval.

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(3) The Draft Biological Assessment shall:

- a) Include procedures to minimize adverse effects to special status species.
- b) Ensure Project-related activities meet restrictions included in site management plans for special status species.
- c) Develop implementation and effectiveness monitoring of measures taken or employed to reduce effects to special status species.

**10(j) Condition: #2**

If PG&E or the Commission determines that consultation with the Resource Agencies is required under Section 7 of the ESA, PG&E shall abide by all conservation measures and/or terms and conditions developed during the consultation process.

**Justification:**

The Service's concerns regarding any ESA issues associated with the Project would be addressed through the Commission's compliance with Section 7 of the ESA. Federally listed species and fish and wildlife resources potentially affected by the Project are noted earlier in the Affected Resources Section of this letter. The requirement for the preparation of a Biological Assessment would assist both the Commission and the Federal Resource Agencies in assessing the potential effects of the decommissioning on listed species.

Implementation of conservation measures developed during informal consultation and the terms and conditions of a biological opinion would minimize the adverse affects to listed species.

The purpose of this 10(j) Condition is to provide a mechanism for the evaluation of Project effects on any federally listed species in the Project area and implementation of appropriate resource management measures.

**2. PM&E Measure GEOL-1: Implement Soil Erosion and Sedimentation Control Best Management Practices**

**10 (j) Condition: #3**

The Licensee shall identify and implement Soil Erosion and Sedimentation Control Best Management Practices (BMPs) that address soil erosion impacts that may occur both during and after decommissioning construction work. The Licensee shall adhere to standard erosion control procedures, including applicable measures developed by the U.S. Forest Service and published in the Water Quality Management for Forest System Lands in California Best Management Practices (USDA-FS, 2000).

Prior to construction, the Licensee shall identify all natural drainage paths along the canals and tunnel during pre-construction surveys. Slopes prone to instability shall be identified, and site specific BMPs shall be implemented to avoid potential slope erosion and increased sedimentation in streams during and after construction activities.

During the construction period, the Licensee shall install BMPs in all areas where soil is disturbed and could result in an increase in sedimentation and/or erosion. The Licensee shall

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perform inspections after storm events and perform any necessary repairs, replacements and/or addition of BMPs.

At the end of construction, the Licensee shall identify potential future erosion sites and install long-term BMPs. Specific areas to be addressed are listed below:

- After removal of the canals, diversions, and impoundment structures, the Licensee shall implement BMPs such as restoration of natural drainage paths, and recontouring of slopes to match pre-existing slope morphology, as feasible. Revegetation shall be implemented to increase bank stability.
- The Licensee shall implement BMPs to address potential erosion of access roads and staging areas throughout the Kilarc and Cow Creek developments. Artificial swales, culverts, and/or other structures shall be designed to direct runoff away from disturbed areas based on the natural drainage features of the area. For any temporary access roads that are removed, the Licensee shall implement measures in accordance with BMP 2-26 Obliteration or Decommissioning of Roads, as defined in the USFS Water Quality Management for Forest System Lands in California Best Management Practices (USDA-FS, 2000).

### **Project Impacts:**

The removal of structures in the stream banks and creek restoration activities have the potential to result in streambank erosion. In addition, erosion and sedimentation may result from increased use and/or expansion of access roads and construction and/or use of staging areas, which could erode during precipitation events. Erosion and sedimentation may affect native anadromous and native resident fish by decreasing water quality, burying eggs, or burying available spawning gravel.

**Justification:** See GEOL-2.

### **3. PM&E Measure GEOL-2: Implement Stormwater Pollution Prevention Best Management Practices**

#### **10 (j) Condition: #4**

The Licensee shall identify all potential pollutant sources, including sources of sediment (e.g., areas of soil exposed by grading activities, soil/sediment stockpiles) and hazardous pollutants (e.g., from petroleum products leaked by heavy equipment or stored in maintenance areas). Also, the Licensee shall identify any non-storm water discharges and implement BMPs to protect streams from potential pollutants and minimize erosion of topsoil.

The Licensee shall include a monitoring and maintenance schedule to ensure BMP effectiveness for sediment control, spill containment, and post-construction measures.

The Licensee shall include a monitoring and reporting program, including pre- and post-storm inspections, to determine if BMPs are sufficient to protect streams and to identify any areas where stormwater can be exposed to pollutants. The monitoring program will include provisions

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for sampling and analysis to evaluate whether pollutants that cannot be visually observed are contributing to degradation of water quality.

**Project Impacts:**

The removal of structures in the stream banks and creek restoration activities have the potential to result in streambank erosion or release of hazardous substances. In addition, erosion and sedimentation may result from increased use and/or expansion of access roads and construction and/or use of staging areas, which could erode during precipitation events.

Erosion and sedimentation may affect native resident and anadromous fish by decreasing water quality, burying eggs, or burying available spawning gravel. Hazardous substances may harm native resident and anadromous fish and other aquatic resources by decreasing water quality or poisoning them.

**Justification:**

Implementation of PM&E measures GEOL-1 and GEOL-2 would reduce the potential impacts related to soil erosion and sedimentation and potential release of hazardous chemicals into stormwater runoff.

**4. PM&E Measure GEOL-3: Professional Engineering Design Plans and Specifications Mitigation, and Enhancement Plan**

**10 (j) Condition: #5**

The Licensee shall develop detailed design plans and specifications after FERC orders the Project to be decommissioned. These plans shall consider the potential for landslides and shall include provisions to minimize this potential. The Licensee shall prepare engineering plans for new access roads or staging areas to minimize grades and cut and fill volumes, as well as to minimize any potential for landslides as a result of the grading work.

**Project Impacts:**

Construction activities could cause soil to become unstable resulting in on- or off-site landslides. Landslides could reach streams and cause water quality problems, siltation off gravel beds, and harm to native resident and anadromous fish and other aquatic resources.

**Justification:**

Implementation of PM&E measure GEOL-3 would reduce the potential for landslides to occur and benefit native resident and anadromous fish and other aquatic resources.

**5. PM&E Measure GEOM-1: Sediment Release Measures**

**10 (j) Condition: #6**

Following removal of the South Cow Creek and Kilarc Main Diversion dams, the

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Licensee shall reshape the downstream face of the sediment wedge left in place at each diversion structure to an appropriate angle of repose. The Licensee shall also form a pilot thalweg to ensure temporary fish passage until the stored sediments have been transported by flow from the former impoundment sites and to help advance the processes of natural channel formation at the nickpoint created by the dam removal, by performing the following measures:

- Excavate a pilot thalweg through the sediment wedge that connects with the existing thalweg at a nearby upstream point to the thalweg immediately downstream of the dam.
- Shape the pilot thalweg on-site during the dam removal process.
- Dimension the pilot thalweg so that it has at minimum a 6-foot bottom width, which is approximately 20 percent of the 30 foot bankfull channel width downstream from the dam.
- Lay back the side slopes of the pilot thalweg to a natural, stable angle of repose.
- Construct the thalweg channel so that the starting depth at the downstream end of the channel is approximately equivalent to the water surface elevation of the plunge pools immediately downstream from each of the respective dams.

The final design will be based on the best available information at the time prior to implementation, in consultation with the Service, NMFS and CDFG. The Licensee shall make adjustments to the thalweg dimensions and elevation if site-specific conditions make it infeasible to construct the pilot channel to the recommended dimensions at either of the dam sites.

The Licensee shall allow the sediments remaining behind the diversions after excavation of the pilot channel to redistribute downstream during natural high flow events.

The Licensee shall place sediments excavated from the South Cow Creek and Kilarc Main Canal diversion impoundments along channel margins for future recruitment during high flow events to downstream areas. The Licensee shall place these native sediments so they do not interfere with riparian vegetation. The Licensee shall not place nonnative angular rock material (which may be found between the bin walls of South Cow Creek Dam) in the stream, but shall dispose of it locally at a suitable site (e.g., as canal fill).

The Licensee shall monitor fish passage conditions along the pilot thalweg channels and for 10 channel widths downstream of the dams for two years following removal. The monitoring program is discussed under PM&E Measure AQUA-5.

### **Project Impacts:**

The release of sediment behind the Kilarc Main Canal and South Cow Creek diversion dams may result in the short-term filling of pools downstream of the dams and the creation of fish passage impediments. The plunge pools located immediately downstream of each of the dams would partially or mostly fill with sediment, and would probably not re-form after the dams are removed. Other than these two plunge pools, pools further downstream would also temporarily store sediment, but seasonal high flows are sufficient to maintain these pools over the long-term, so that any sediment deposition would not persist.

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The downstream face of the sediment wedge (along the upstream face of the former dam site) could be a temporary impediment to fish passage until there are sufficient high flows to incise into the sediment wedge at the nickpoint created by the dam removal, producing a low-flow channel suitable for passage. Additionally, a highly mobile bed associated with transport of stored sediments could impede fish passage.

**Justification:**

Implementation of PM&E measure GEOM-1 would reduce the potential for creating fish passage barriers from the face of the sediment wedge and from release of sediments stored behind the dam. Fish passage monitoring (implemented under PM&E Measure AQUA-5) would ensure that dam removal does not result in long term fish passage barriers.

**6. PM&E Measure GEOM-2: Bank Erosion Measures**

**10 (j) Condition: #7**

To minimize potential impacts associated with bank erosion, the Licensee shall conduct the following monitoring and mitigation:

- The Licensee shall conduct a monitoring assessment after removal of the Kilarc Main Canal and South Cow Creek diversion dams. The monitoring shall consist of a visual assessment with photographic documentation of the impounded sediment wedge and streambanks adjoining the perimeter of the former sediment impoundment area. The monitoring shall be conducted after spring runoff, as soon as weather permits access to the sites and flows are low enough that the streambanks can be easily observed. The Licensee shall utilize the visual assessment to identify any areas of active erosion or undercutting, or areas that appear to be susceptible to erosion. The Licensee shall conduct the monitoring assessment for two years.
- If during the monitoring assessment, the Licensee observes significant erosion or bank undercutting, then the Licensee shall implement and install erosion control measures, as feasible, in the channel. The Licensee shall adhere to standard erosion control procedures, including applicable measures developed by the USFS and published in the Water Quality Management for Forest System Lands in California Best Management Practices (USDA-FS, 2000).

During the permitting process, the Licensee will design bank erosion control measures in consultation with the Service, CDFG, and the SWRCB. These erosion control measures may include planting vegetation on the exposed banks to help in stabilization, use of geotextile fabric, dormant pole plantings, or other techniques that may be suitable, potentially in combination with rip-rap for stabilization. Any re-vegetation will be consistent with the Mitigation and Monitoring Plan (MMP) (see PM&E Measure BOTA-1).

PM&E Measure GEOL-1 will also be implemented to address slope stabilization and erosion control protection at the site of infrastructure removal including the dam abutments and diversion canal intakes.



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**Project Impacts:**

There is the potential for localized bank erosion to occur following the removal of the larger two diversion dams, South Cow Creek and Kilarc Main Canal diversion dams. Erosion may occur at the site where dam abutments or diversion canal intakes were located or along the stream banks upstream from the respective dam sites in the backwater impoundment area once the sediments have been naturally transported downstream.

Following two years of monitoring, PG&E will consult with the resource agencies on the need for any additional monitoring that may be conducted as part of the U.S. Army Corps of Engineers (USACE) 404 permit.

**Justification:**

Implementation of PM&E Measures GEOM-2 and GEOL-1 would reduce the potential impact of bank erosion occurring from the removal of the Kilarc Main Canal and South Cow Creek diversion dams. There is no feasible way to determine in advance of dam removal if bank erosion would occur within the former zone of sediment deposition.

If monitoring determines bank erosion is occurring, PG&E would implement measures as described above to address erosion. It is expected that any erosion would be minimized as a result of dam removal with implementation of PM&E Measure GEOM-2.

**7. PM&E Measure AQUA-1: Isolate Construction Area**

**10 (j) Condition: #8**

To minimize the deconstruction impacts at the five diversion dams and the Kilarc Tailrace (where instream construction would be required), the Licensee shall isolate the construction area from the active stream using coffer dams or other such barriers. The Licensee shall route water around the construction area in pipes or by removing the dam in two or more phases, allowing the flow to move down the other portion of the stream, while the isolated portion of the dam is removed.

**Project Impacts and Justification:** See AQUA-3

**8. PM&E Measure AQUA-2: Conduct Fish Rescue in Instream Work Area**

**10 (j) Condition: #9**

After a work area is isolated, the Licensee shall conduct a fish rescue to remove any fish trapped in the work area. The Licensee shall relocate these fish to an area of suitable habitat within Old Cow Creek or South Cow Creek downstream of the work area.

**Project Impacts and Justification:** See AQUA-3

**9. PM&E Measure AQUA-3: Avoid Sensitive Periods for Steelhead and Chinook Salmon for the Removal of South Cow Creek Diversion Dam**

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**10 (j) Condition: #10**

The Licensee shall conduct decommissioning work at South Cow Creek Diversion Dam from July through September when adult anadromous salmonids are not present in South Cow Creek.

**Project Impacts:**

Deconstruction of the Kilarc Main Canal, South Cow Creek, and Mill Creek diversion dams may result in potential lethal effects from shockwaves associated with breaking down the dam structure; potential crushing of aquatic species from operation of heavy equipment in the stream; sedimentation effects associated with dam removal and removal of gates and other headwork structures; and potential fish passage impediments. Deconstruction of North and South Canyon Creek diversion dams may result in all of these impacts, except the potential crushing from heavy equipment in the stream. Finally, the decommissioning of the Kilarc Tailrace could potentially impact aquatic resources. The potential effects of filling the Kilarc Tailrace include the burial of fish by fill materials and sedimentation effects associated with placement of fill material.

**Justification:**

Implementation of PM&E Measures AQUA-1, AQUA-2, AQUA-3, and GEOL-2 would minimize impacts to fish during deconstruction activities in the Kilarc and Cow Creek developments through a combination of avoidance and monitoring measures.

**10. PM&E Measure AQUA-4: Meet NMFS Passage Guidelines for Anadromous Salmonids**

**10 (j) Condition: #11**

If the South Cow Creek Diversion Dam cutoff walls become fish passage barriers, the Licensee shall modify these cutoff walls or implement other appropriate measures to meet NMFS passage guidelines (drop, velocity, depth, roughened channel and other site specific factors) for anadromous salmonids. The Licensee shall consult with NMFS on designs to provide adequate fish passage.

**Project Impacts:**

There is a possibility of potential fish passage barriers resulting from retention of cutoff walls beneath the Cow Creek Diversion. PG&E intends to leave a portion of the South Cow Creek Diversion Dam (i.e., the cutoff walls) in place. The top of the cutoff walls are at about the same elevation as the natural stream bed in this area and also approximate the elevation of the head of the downstream riffle. Because of this, it is not anticipated that the cutoff walls would form a passage barrier but if they do AQUA-4 shall be implemented.

**Justification:**

Implementation of PM&E Measure AQUA-4 would help eliminate any potential passage barrier associated with retention of the cutoff walls below South Cow Creek Diversion Dam.

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## **11. PM&E Measure AQUA-5: Monitor Passage Conditions Following Removal of Kilarc Main Canal and South Cow Creek Diversion Dams**

### **10 (j) Condition: #12**

To assess the efficacy of PM&E Measure GEOM-1 and monitor for any potential development of long-term barriers, the Licensee shall monitor fish passage conditions from upstream of the current sediment accumulations above the dam to a point approximately 10 channel widths downstream of the dam after the diversions are removed.

The Licensee shall conduct monitoring for two years after decommissioning of each diversion dam. In each year of monitoring, the Licensee shall conduct monitoring once after the first major runoff event (as access conditions and staff safety allows) and once again later in the year, during the low-flow season, when the condition of the streambed can be more easily assessed. A biologist with experience in assessing fish passage shall conduct the monitoring. The biologist shall walk the stream segment described above and visually assess for any passage challenges arising from sediment movement (i.e., shallow riffles or bars) and obtain depth and velocity measurements at critical high elevation points.

The Licensee shall provide notification to resource agencies prior to monitoring so that agency staff may participate in this survey. The Licensee shall provide a summary of monitoring results at the conclusion of each year of monitoring to the Service, FERC, NMFS, CDFG, and SWRCB.

If, during the monitoring, a long-term passage impediment is identified as a result of the diversions being removed, the Licensee will consult with the Service, CDFG and NMFS and the USACE under the Section 404 permit to determine appropriate measures to remedy the situation.

### **Project Impacts:**

After removal of the Kilarc Main Canal Diversion Dam and South Cow Creek Diversion Dam, the stored sediment behind the dams could continue to act as a barrier to upstream migration, until natural flows removed some portion of the sediment. While this subsequent barrier would be temporary, the duration of time it persists would depend on the magnitude and duration of high flows during the subsequent winter(s), the size of the stored substrates, and channel geomorphology (see LSA Section 3.3.1 for a detailed description of the sediment release). This barrier could persist for one or more years. PM&E Measure GEOM-1, which calls for creation of a pilot thalweg channel through the stored sediments, is designed to address this impact.

The redistribution of the remaining stored sediment could result in new passage impediments being formed in the vicinity of the former dams. While some short-term impediments (days or weeks) may develop as a result of this sediment movement, long-term barriers (years) are not likely to develop as a result of dam removal.

### **Justification:**

Implementation of the PM&E Measure GEOM-1 would help minimize fish passage impacts below the Kilarc Main Canal and South Cow Creek diversion dams by reshaping the downstream face of the sediment wedge left in place to a reasonable angle of repose and excavating a pilot

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thalweg channel. The monitoring outlined in PM&E Measure AQUA-5 would determine whether any new long-term passage impediments relating to dam removal formed, and, if so, ensure that they are addressed in consultation with the Service, CDFG and NMFS.

## **12. PM&E Measure AQUA-6: Consult with CDFG**

### **10 (j) Condition: #13**

The Licensee shall consult with CDFG on fish management options (including reduced stocking, increased catch limits and other measures) to reduce the number of fish in Kilarc Forebay prior to decommissioning, with the intent of minimizing the number of fish needing to be rescued.

**Project Impacts and Justification:** See AQUA-8

## **13. PM&E Measure AQUA-7: Conduct Fish Rescue in Canals and Forebays, as Needed**

### **10 (j) Condition: #14**

The Licensee shall conduct fish rescues in the Kilarc Main Canal and Forebay to rescue any fish that remain in these waters during the decommissioning process. These fish shall be relocated to suitable areas to be determined in consultation with the Service, CDFG and NMFS. The Licensee shall consult with the Service, CDFG and NMFS with regard to the need to conduct fish rescues in South Cow Creek Main Canal and Cow Creek Forebay.

If consultation determines that a fish rescue is required for Cow Creek Canal or Forebay, the Licensee shall target salmonids and lamprey for rescue. Non-native fish, such as golden shiner, will not be rescued. The North Canyon Creek and South Canyon Creek diversions shall be decommissioned after diversions cease (these diversions have been out of service for several years), so that the channels are dry and cannot support fish.

If the area is not dry, the Licensee shall conduct fish rescues as described for Kilarc Main Canal and relocate the rescued fish to an area to be determined in consultation with the Service, CDFG and NMFS.

**Project Impacts and Justification:** See AQUA-8

## **14. PM&E Measure AQUA-8: Retain Fish Screen in South Cow Creek Main Canal**

### **10 (j) Condition: #15**

The Licensee shall retain the fish screen in South Cow Creek Main Canal until after any fish rescue, if needed (see PM&E Measure AQUA-7), is complete and the canal is closed off so fish can no longer enter the canal. Once the fish rescue has been accomplished, the Licensee shall close off the head of the canal before the screens are removed.

### **Project Impacts:**

Anadromous fish could be stranded in the North and South Canyon Creek canals to the extent that flows in the canals, if any, are cut off. Dewatering Kilarc Main Canal, South Cow Creek

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Main Canal, and the Mill Creek-South Cow Creek Canal could strand fish in the canals. Decommissioning the Kilarc and Cow Creek forebays could result in fish mortality during dewatering or the filling of the forebay.

**Justification:**

Implementation of PM&E Measures AQUA-6, AQUA-7, and AQUA-8 would minimize impacts to fish from decommissioning Project canals and forebays through fish rescues. Project impacts in regard to fish disease, predation, and reintroduction need to be better monitored. Corresponding remedial measures need to be undertaken to mitigate for any potential impacts.

**15. PM&E Measure AQUA-9: Discontinue Cow Creek Powerhouse Operations in the Spring**

**10 (j) Condition: #16**

The Licensee shall discontinue Cow Creek Powerhouse operations in the spring when natural flow is present upstream of the powerhouse.

**Project Impacts:**

Following decommissioning, Hooten Gulch would be returned to its natural ephemeral flow conditions. Cessation of perennial flows could result in fish being stranded or trapped in isolated pools and subsequently dying through predation, dehydration, or poor water quality conditions that develop as these pools dry up.

**Project Impacts and Justification:** See AQUA-10

**16. PM&E Measure AQUA-10: Remove Hooten Gulch Gunite and Implement Bank Stability Measures during the Dry Season**

**10 (j) Condition: #17**

The Licensee shall remove the gunite in Hooten Gulch and install any replacement bank stabilization measures during the summer when the gulch is dry.

**Project Impacts:**

Following decommissioning, Hooten Gulch would be returned to its natural ephemeral flow conditions. Cessation of perennial flows could result in fish being stranded or trapped in isolated pools and subsequently dying through predation, dehydration, or poor water quality conditions that develop as these pools dry up. Additionally, the removal of the gunite in Hooten Gulch adjacent to the South Cow Creek Powerhouse and replacement with alternative bank stabilization measures could create potential issues with increased turbidity and contamination from gas, oil and other substances associated with heavy equipment.

**Justification:**

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Implementation of PM&E Measures AQUA-9 and AQUA-10 would minimize potential impacts to aquatic resources, as Hooten Gulch would return more gradually to its natural ephemeral state as natural flows subside. Any fish in Hooten Gulch downstream of the powerhouse would then move downstream with the recession of natural flows in Hooten Gulch and would not be stranded as the result of decommissioning. Conducting channel work after the channel has naturally gone dry would avoid direct impacts to aquatic species as they would not be present at this time.

This section describes proposed PM&E measures to offset potential impacts on wildlife resources as a result of decommissioning activities.

**17. PM&E Measure WILD-1: Conduct Pre-Construction Surveys for Amphibians, Pond Turtles and Nesting Birds and Implement Avoidance and Protection Actions for Species Present**

**10 (j) Condition: #18**

The Licensee shall conduct pre-construction surveys for amphibians (foothill yellow-legged frog and California red-legged frog) reptiles (pond turtles), and any other individual at risk prior to construction activities at the diversions, forebays, and powerhouse tailraces, using standard protocols, including FWS species-specific protocols.

The Licensee shall capture and relocate to suitable habitat any individuals of these species observed in the construction area. The Licensee shall install exclusion fencing around the construction area. The Licensee shall have a biological monitor on call throughout the construction phase to identify and relocate, if necessary, any individual animals found in the construction area.

If a California red-legged frog is found, the Licensee shall stop construction work and notify FWS; construction activity will recommence upon FWS approval.

The Licensee shall conduct pre-construction surveys for nesting birds if vegetation removal is scheduled during the breeding period (generally March 1 - September 1). The Licensee shall use biologists with experience in conducting breeding bird surveys to conduct the surveys. These biologists shall conduct the surveys between dawn and 10 am.

If an active nest occupied by a special-status species or by other species protected by the Migratory Bird Treaty Act is found, the Licensee shall avoid the area and construction activities shall be restricted to an appropriate distance to avoid nest disturbance until nestlings have fledged.

**Project Impacts:**

There is a potential for habitat loss associated with Removal of Diversions. The release of sediments stored behind the Kilarc Main Canal Diversion Dam and the South Cow Creek Diversion Dam may result in the short-term loss of turtle and frog habitat directly below the dam sites. However, surveys conducted in 2003 indicate foothill-yellow legged frog utilize the downstream portion of the South Cow Creek bypass reach, not the reaches immediately below the diversion dams. Foothill yellow-legged frogs and pond turtles could be adversely affected by the decommissioning of South Cow Creek Diversion Dam, and the resultant reduced flows in

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Hooten Gulch. Similarly, potential summer habitat for California red-legged frog could be impacted in Hooten Gulch, but only if appropriate spawning habitat exists within one mile of Hooten Gulch. Because diversion flows into Hooten Gulch are low in summer, habitat in Hooten Gulch may be seasonal. Habitat may also be lost in backwater pools that have formed at Project diversions. These areas would no longer provide suitable habitat for pool-dwelling species, such as the northwestern pond turtle if it utilizes the diversion pools. Construction activities may disturb birds nesting in the vicinity. There is a potential for impacts to nesting birds associated with access road construction and improvement. Direct impacts could occur to birds nesting in vegetation that must be removed for access road construction or improvement. To address this impact, the following PM&E measures are proposed: PM&E Measures WILD-1, WILD-2, and WILD-3 will be implemented.

**Justification:**

The implementation of PM&E Measures WILD-1, WILD-2, and AQUA-9 would help minimize decommissioning-related impacts to individuals resulting from the loss of habitat from removal of diversions. The implementation of PM&E Measures WILD-1, WILD-2, and WILD-3 would schedule decommissioning activities to avoid adverse effects on birds.

**18. PM&E Measure WILD-2: Conduct Environmental Training for Construction Personnel**

**10 (j) Condition: #19**

The Licensee shall conduct environmental tailboard sessions with construction personnel to provide information on special-status-species potentially present in the area and the avoidance/minimization measures to be implemented. The Licensee's biological monitor shall be responsible for conducting worker environmental awareness training for all construction personnel (including new, added, and/or replaced workers) prior to the onset of active construction. The training shall include a brief description of the special-status species that potentially occur at the site and distribution of a brochure or pamphlet that describes the species to all workers. Workers shall be instructed to drive carefully and look for amphibians, reptiles or mammals in the path of their vehicles. In the event that an amphibian of any species is observed, workers shall stop their equipment immediately until such a time that the onsite biological monitor has identified it, relocated it if necessary or it moves from the active construction area by its own initiative.

In addition to PM&E Measures WILD-1 and WILD-2, PM&E Measure AQUA-9 will be implemented.

**Project Impacts:**

There may be habitat loss associated with decommissioning of forebays, intake structures, spillways, and Hooten Gulch. The filling of Kilarc and Cow Creek forebays would remove habitat for northwestern pond turtles and foraging habitat for raptors. Individuals that enter the construction area during deconstruction could be adversely affected. Decommissioning activities could affect nesting birds, including raptors.

**Justification:**

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The implementation of PM&E Measures WILD-1, WILD-2, and AQUA-9 would minimize any decommissioning-related impacts to individuals resulting from the loss of habitat from the removal of diversions.

**19. PM&E Measure WILD-3: Conduct Pre-Construction Surveys for Raptors and Implement Avoidance and Protection Actions for Species Present**

**10 (j) Condition: #20**

The Licensee shall conduct pre-construction surveys for raptors at protocol or standard distances (0.5 mile for peregrine falcons, 0.75 mile for goshawk, 660 feet for the bald eagle, and 300 feet for other raptors) from the deconstruction area (PG&E, 2009). For peregrine falcon, the Licensee shall conduct pre-construction surveys no earlier than 14 days prior to start of construction during the protocol survey period (March 15 to August 15). For northern goshawk, the Licensee shall conduct dawn acoustical surveys if the surveys must be done from February to April, or implement intensive search surveys from late June to fall. If goshawks are detected, the Licensee shall conduct a brief search of the detection area during the late incubation or nestling stage to determine the location of an active nest. For the bald eagle, the Licensee shall conduct an initial survey from late February through March (PG&E, 2009). If necessary, the Licensee shall conduct additional surveys in mid-nesting season (late April through May) and late in the season (early June to early July). Surveys may be conducted on foot, or with terrestrial vehicles, or aircraft. If an active raptor nest is found within the survey area, the Licensee shall avoid the nest and construction activities shall be restricted to an appropriate distance to avoid nest disturbance until nestlings have fledged. In addition to PM&E Measure WILD-3, PM&E Measures WILD-1, WILD-2, and AQUA-9 will be implemented.

**Project Impacts:**

There is a potential habitat loss and mortality associated with the decommissioning of canals, tunnels, flumes, and siphons. Potential impacts at the canals, tunnels, flumes, and siphons include minor, temporary loss of upland habitat and potential direct impacts to individuals present in aquatic habitat at these locations, individuals breeding/nesting in vegetation that must be removed (i.e., nesting birds, VELB), individuals that enter the construction area during deconstruction, and bats in the tunnels.

**Justification:**

The implementation of PM&E Measures WILD-1, WILD-2, WILD-3, and AQUA-9 would help minimize and/or avoid decommissioning-related impacts resulting from the loss of habitat and wildlife during deconstruction of the forebays, intake structures, and spillways. Implementation of PM&E Measure AQUA-9 would allow Hooten Gulch to return more gradually to its natural ephemeral state as natural flows subside, thereby helping to minimize potential impacts to amphibians and turtles. Further scheduling deconstruction activities at the Cow Creek Powerhouse

tailrace during the dry season when the channel is naturally dry will avoid impacts to aquatic species (PM&E Measure AQUA-10).



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## **20. PM&E Measure WILD-4: Conduct Pre-Construction Surveys for Elderberry Shrubs and Implement Existing Mitigation Measures**

### **10 (j) Condition: #21**

The Licensee shall conduct protocol pre-construction elderberry surveys within 100 feet of any deconstruction activities that could affect vegetation. If an elderberry shrub with one or more stems greater than 1 inch in diameter could be directly or indirectly affected by the activities, the measures provided in the Biological Opinion covering the Licensee's service area in the range of the VELB (FWS, 2003) shall be implemented.

### **Project Impacts:**

The Project may affect VELB and elderberry shrubs.

### **Justification:**

Implementing WILD-4 would help minimize adverse effects to VELB and elderberry shrubs.

## **21. PM&E Measure WILD-5: Conduct Pre-Construction Surveys for Bats**

### **10 (j) Condition: #22**

If deconstruction activities are initiated between March 1 and September 30, the Licensee shall conduct pre-construction surveys for bats at the tunnels and powerhouses. For the surveys, during the day, the Licensee shall search these facilities for bats or bat sign such as guano, staining, and culled insect parts. Internal surveys shall consist of surveying the interiors of tunnels and powerhouses. External surveys shall consist of surveying the external features of structures that could be used for roosting. Nighttime surveys in or near the facilities shall consist of counting bats as they exit to forage in the evening, assessing use of facilities to roost in at night, and acoustic monitoring with ultrasonic equipment in conjunction with computer software and visual observation. At its discretion, the Licensee may conduct limited capture of bats using nets to facilitate species identification (captures shall be conducted by a qualified bat biologist).

If

deconstruction activities occur between October 1 and February 28 (non-breeding season) the Licensee shall not be required to conduct pre-construction surveys for bats unless existing facilities with known (previously documented through monitoring surveys or historic observations) or potential hibernation roost sites will be disturbed.

### **Project Impacts:**

There is a potential for impacts to roosting habitat for bats associated with decommissioning of powerhouses and penstocks. Decommissioning activities at the Kilarc and Cow Creek powerhouses could disturb roosting bats, or result in the take of individuals if bats are present. No significant impacts to wildlife species are expected from work at penstocks. To address this impact, the following PM&E measures are proposed: PM&E Measures WILD-2 and WILD-5 will be implemented.

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**Justification:**

The implementation of PM&E Measures WILD-2 and WILD-5 would minimize and/or avoid decommissioning-related impacts resulting from the loss of roosting habitat or individuals during decommissioning of the Kilarc and Cow Creek powerhouses.

**22. PM&E Measure WILD-6: Exclude Wildlife from Tunnels**

**10 (j) Condition: #23**

The Licensee shall seal off Project tunnels at both ends for public safety, which will exclude wildlife (i.e., bats) from entry or habitation. The Licensee shall verify that the tunnels are uninhabited through pre-construction surveys (see PM&E Measure WILD-5). If bats are present, the Licensee shall install one-way exclusion devices prior to the breeding season before construction begins, in order to allow bats to leave the tunnels, but not return.

The exclusion devices shall be placed at all active entry points and shall remain in place for at least five to seven days. These devices shall be removed after the bats are excluded, and then exclusion points shall be sealed (PG&E, 2009). In addition, PM&E Measures WILD-1 and WILD-2 will be implemented.

**Project Impacts:**

There is a potential for adverse impacts to roosting bats in Project tunnels.

**Justification:**

The implementation of PM&E Measures WILD-1, WILD-2, WILD-4, WILD-5, and WILD-6 would minimize and/or avoid decommissioning-related impacts resulting from the loss of habitat or individuals during deconstruction of the Canals, Tunnels, Flumes, and Siphons.

**23. PM&E Measure WILD-7: Speed Limit on FERC Project and Temporary Access Roads**

**10 (j) Condition: #24**

The Licensee shall implement a speed limit of 15 miles per hour on FERC Project roads and temporary access roads while decommissioning activities are conducted. In addition to PM&E Measure WILD-7, PM&E Measure WILD-2 will be implemented.

**Project Impacts:**

There is a potential for impacts to the Pacific fisher from access road use. Direct impacts could occur to Pacific fisher from traffic related to decommissioning activities.

**Justification:**

Implementation of WILD-7 and WILD-2 would help minimize the risk of injury to Pacific fisher and other wildlife from traffic related to decommissioning activities.

Regional Environmental Officer, OEPC [ER 09/0506]

This section describes proposed PM&E measures to offset potential impacts on botanical resources as a result of decommissioning activities. In the LSA PG&E proposes to monitor riparian and wetland vegetation requiring restoration or mitigation under FERC's jurisdiction for two years following decommissioning. Any additional monitoring may be implemented under the authority of permitting and resource agencies such as the USACE (per the conditions of the CWA 404 permit) and SWRCB, and may extend up to an additional three years.

**24. PM&E Measure BOTA-1: Prepare and Implement a Mitigation and Monitoring Plan (MMP)**

**10 (j) Condition: #25**

The Licensee shall prepare and implement a MMP for impacts to riparian and wetland vegetation as part of the permitting process. The MMP shall be developed in consultation with the USACE, CDFG, and SWRCB. The Licensee's MMP shall include mitigation areas (e.g., South Cow Creek Diversion Dam, Kilarc and Cow Creek forebays), goals, the species to be assessed, as well as methods and performance criteria in the MMP. Riparian and wetland vegetation requiring restoration or mitigation shall be monitored by the Licensee under FERC's authority for two years following decommissioning.

The Licensee shall include restoration of abandoned or temporary roadbeds as part of the MMP, including compaction issues, seeding, mulching, and planting, and shall develop the MMP in consultation with the private landowners, where appropriate. The Licensee shall re-seed other disturbed areas, including temporary work areas, filled and graded areas, and roads requiring rehabilitation, and consult with private landowners, where appropriate. If straw is used for temporary erosion control, it shall be certified weed-free.

Native plants shall be used for re-seeding and other revegetation on the Licensee's property, and on private property unless the private landowner specifies the use of other materials. If the use of native seed is intended, but sufficient supplies are not available, then cereal seed shall be used for temporary erosion control. Cereal seed used for erosion control shall be seed for sterile cereal, if available. If seed for sterile cereal is not available, then other cereal seed may be used.

**Project Impacts**

There is a potential loss of vegetation associated with decommissioning of diversions. The potential impacts at the Kilarc Main Canal Diversion Dam, the North and South Canyon Creek diversion dams, and the South Cow Creek Diversion Dam include the temporary loss of upland vegetation. Potential impacts at the South Cow Creek Diversion Dam include the potential loss of riparian vegetation.

**Justification:** See BOTA-2

**25. PM&E Measure BOTA-2: Conduct Pre-Construction Surveys**

**10 (j) Condition: #26**

Regional Environmental Officer, OEPC [ER 09/0506]

The Licensee shall conduct pre-construction surveys for special-status plants in all areas that will be disturbed by decommissioning activities.

**Project Impacts:** See BOTA-1.

**Justification:**

The implementation of PM&E Measures BOTA-1, BOTA-2, and BOTA-3 would result in preserving special-status plant species and riparian habitat during and after deconstruction where practicable, preventing net loss in the health of riparian and aquatic habitat areas where practicable, and facilitating revegetation of disturbed areas.

**26. PM&E Measure BOTA-3: Avoid Special-Status Plants to the Extent Possible and Restore Habitat Conditions**

**10 (j) Condition: #27**

The Licensee shall avoid any identified populations of special-status plants to the extent practical. If decommissioning activities will result in temporary disturbance to part of a population, the Licensee shall stockpile the top 10 inches of soil from the disturbed area, protect the soil from exposure to weed seeds, and replace the soil when the decommissioning activities are complete.

**Project Impacts:**

There is a potential for loss of vegetation associated with decommissioning of forebays, intake structures and spillways. The botanical impacts at the Kilarc and Cow Creek forebays, intake structures, and spillways include temporary impacts to upland vegetation and loss of small areas of freshwater marsh rooted below the ordinary high water lines.

Potential impacts at Hooten Gulch include a possible reduction in the extent of the riparian vegetation due to the discontinuation of the augmented flow downstream from the Cow Creek Powerhouse.

To address these impacts, the following PM&E measures are proposed: PM&E Measures BOTA-1, BOTA-2, and BOTA-3 will be implemented at the Kilarc and Cow Creek forebays, intake structures, spillways, and Hooten Gulch because riparian and wetland vegetation would be impacted.

**Justification:**

The implementation of PM&E Measures BOTA-1, BOTA-2, and BOTA-3 would result in helping to preserve special-status plant species and riparian habitat during and after deconstruction where

possible, preventing net loss in the health of riparian and aquatic habitat areas where possible, and facilitating revegetation of disturbed areas.

Regional Environmental Officer, OEPC [ER 09/0506]

## SUMMARY

The Service supports decommissioning the Project per the signed March 2005 Decommissioning Agreement which will enhance cold freshwater habitat (including water flow and temperature) for fall- and late-fall-run Chinook salmon and steelhead in Old and South Cow creeks with no long-term diminishment of the quality and quantity of currently available habitat.

The Service does not object to decommissioning the Project, provided our Section 18 prescription to prescribe fishways and our proposed recommendations and conditions to protect, mitigate, and enhance fish and wildlife resources are incorporated into the Commission's Order. We believe the impacts we seek to address through this submittal are substantially addressed in our FPA Terms, which contains a wide variety of protection, mitigation and enhancement measures to benefit threatened and endangered species, water quality, and riparian, floodplain, and terrestrial and aquatic habitats throughout the Project.

The Service's concerns regarding any ESA issues associated with the Project will be addressed by the Commission through its compliance with Section 7 of the ESA. If the Commission's staff determines that any of the Section 10(j) fish and wildlife recommended conditions provided herein are inconsistent with the purposes and requirements of the FPA, as amended by the Electric Consumers Protection Act, then the Field Supervisor, Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Room W-2605, Sacramento, California 95825 (916) 414-6700, should be contacted to resolve the inconsistencies prior to issuance of the license.

Lastly, the Service recommends that the Commission initiate consultation discussions with the Service directly to jointly determine information needs to comply with Section 7 of the ESA on this licensing action.

Thank you for the opportunity to review this project.

Sincerely,

A handwritten signature in cursive script, reading "Patricia Sanderson Port". The signature is written in black ink on a white background.

Patricia Sanderson Port  
Regional Environmental Officer

cc:  
Director, OEPC  
FWS, Region VIII  
SOL-Sacramento

## REFERENCES

Regional Environmental Officer, OEPC [ER 09/0506]

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