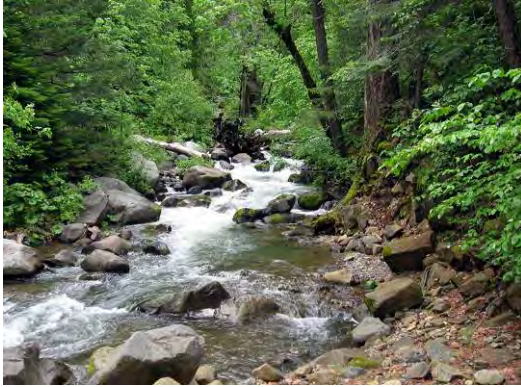


**PACIFIC GAS AND ELECTRIC COMPANY**

**Kilarc-Cow Creek Hydroelectric Project  
FERC Project No. 606**



**Preliminary Proposed  
Decommissioning Plan**

September 10, 2007



© 2007, Pacific Gas and Electric Company

PACIFIC GAS AND ELECTRIC COMPANY

**Kilarc-Cow Creek Hydroelectric Project**

**FERC Project No. 606**

**PRELIMINARY PROPOSED  
DECOMMISSIONING PLAN**

**September 10, 2007**



© 2007, Pacific Gas and Electric Company



**KILARC-COW CREEK HYDROELECTRIC PROJECT**  
**FERC PROJECT NO. 606**

**PRELIMINARY PROPOSED DECOMMISSIONING PLAN**

**TABLE OF CONTENTS**

<b>Section 1.0</b>	<b>Introduction.....</b>	<b>1-1</b>
<b>Section 2.0</b>	<b>Decommissioning Proposal .....</b>	<b>2-8</b>
2.1	Desired Conditions and Potential Resource Issues .....	2-8
2.2	Kilarc Development Decommissioning Proposal .....	2-9
2.3	Cow Creek Development Decommissioning Proposal .....	2-29
2.4	Project Roads .....	2-43
<b>Section 3.0</b>	<b>Measures To Address Potential Resource Issues .....</b>	<b>3-44</b>
3.1	Project Resources and Measures to Address Potential Decommissioning Issues.....	3-45
<b>Section 4.0</b>	<b>Decommissioning Costs .....</b>	<b>4-62</b>
<b>Section 5.0</b>	<b>Water Rights.....</b>	<b>5-63</b>
<b>Section 6.0</b>	<b>Land Rights and Landownership .....</b>	<b>6-66</b>
<b>Section 7.0</b>	<b>License Surrender Application Schedule.....</b>	<b>7-67</b>



**Appendices**

Appendix A - Kilarc-Cow Creek Project Agreement





### **List of Figures**

Figure 1.4-1.	Regional Location Map.....	1-3
Figure 1.4-2.	Project Location Map.....	1-4
Figure 1.4-3.	Features of the Kilarc Development .....	1-5
Figure 1.4-4.	Features of the Cow Creek Development .....	1-6
Figure 1.4-5.	Schematic of Creeks, Canals, and Diversions .....	1-7

### **List of Tables**

Table 3.1-1.	Shasta-Trinity National Forest Recreation Location, Facilities, and Activities	3-59
Table 4.1-1	Preliminary Estimated Expected Cost .....	4-62
Table 5.1-1	Water Rights .....	5-65



**List of Photos**

Photograph 2.1.1-1a	North Canyon Creek – Diversion .....	2-10
Photograph 2.1.1-1b	North Canyon Creek – Wooden Structure to be Removed .....	2-11
Photograph 2.1.1-1c	North Canyon Creek – Canal .....	2-11
Photograph 2.2.2-1a	South Canyon Creek – Diversion and Canal Inlet .....	2-13
Photograph 2.2.2-1b	South Canyon Creek – Canal Flumes .....	2-13
Photograph 2.2.2-1c	South Canyon Creek – Canal and Spillway .....	2-14
Photograph 2.2.2-1d	South Canyon Creek – Canal Siphon Inlet .....	2-14
Photograph 2.2.2-1e	South Canyon Creek – Canal Siphon Release To Kilarc Main Canal ..	2-15
Photograph 2.2.3-1a	Kilarc Diversion Dam (View from Upstream Side of Gate).....	2-16
Photograph 2.2.3-1b	Kilarc Main Canal Intake (View from Downstream Side of Gate) .....	2-17
Photograph 2.2.3-1c	Kilarc Main Canal – Diversion Dam.....	2-17
Photograph 2.2.4-1a	Kilarc Main Canal – Concrete Section.....	2-18
Photograph 2.2.4-1b	Kilarc Main Canal – Shotcrete-Lined Section .....	2-19
Photograph 2.2.4-1c	Kilarc Main Canal – Wooden Flume .....	2-19
Photograph 2.2.4-1d	Kilarc Main Canal – Steel Flume.....	2-20
Photograph 2.2.4-1e	Kilarc Main Canal – Tunnel.....	2-20
Photograph 2.2.4-1f	Kilarc Main Canal – Earthen Section .....	2-21
Photograph 2.2.5-1a	Kilarc Forebay .....	2-23
Photograph 2.2.5-1b	Kilarc Forebay – Intake.....	2-23
Photograph 2.2.5-1c	Overflow Spillway .....	2-24
Photograph 2.2.5-1d	Kilarc Forebay – Outlet Structure to Penstock .....	2-24
Photograph 2.2.5-1e	Kilarc Picnic Area .....	2-25
Photograph 2.2.6-1	Kilarc Penstock .....	2-26



Photograph 2.2.7-1a	Kilarc Powerhouse .....	2-27
Photograph 2.2.7-1b	Kilarc Switchyard.....	2-28
Photograph 2.3.1-1	Mill Creek Diversion – Dam and Canal Intake .....	2-30
Photograph 2.3.2-1	South Cow Creek Canal.....	2-31
Photograph 2.3.3-1a	South Cow Creek Diversion – Dam.....	2-32
Photograph 2.3.3-1b	South Cow Creek Diversion – Intake Structure and Fish Ladder.....	2-32
Photograph 2.3.3-1c	South Cow Creek Diversion – Fish Screen Detail .....	2-33
Photograph 2.3.4-1a	South Cow Creek Canal .....	2-34
Photograph 2.3.4-1b	South Cow Creek Tunnel.....	2-35
Photograph 2.3.4-1c	South Cow Creek Canal – Earthen Section.....	2-35
Photograph 2.3.4-1d	South Cow Creek – Shotcrete Section .....	2-36
Photograph 2.3.5-1a	Cow Creek Forebay and Outlet Structure .....	2-37
Photograph 2.3.5-1b	Cow Creek Forebay – Intake.....	2-37
Photograph 2.3.5-1c	Cow Creek Forebay – Spill Channel.....	2-38
Photograph 2.3.5-1d	Cow Creek Forebay – Spill Outlet.....	2-38
Photograph 2.3.7-1	Cow Creek – Penstock.....	2-40
Photograph 2.3.8-1a	Cow Creek – Switchyard and Powerhouse .....	2-41
Photograph 2.3.8-1b	Cow Creek Powerhouse .....	2-42



**Acronyms and Abbreviations**

<b>Term</b>	<b>Definition</b>
<b>A</b>	
ac-ft	acre feet
Agreement	Kilarc-Cow Creek Project Agreement
ACB	air circuit breaker
APE	Area of Potential Effects
<b>B</b>	
BMP	Best Management Practices
<b>C</b>	
CDFG	California Department of Fish and Game
CA	California
CEQA	California Environmental Quality Act
CFS	Cubic feet per second
CNPS	California Native Plant Society
CNDDB	California Natural Diversity Database
<b>D</b>	
<b>E</b>	
EA	Environmental Assessment
<b>F</b>	
FERC	Federal Energy Regulatory Commission
FSCD	First State Consultation Document
ft	feet
<b>G</b>	
gpm	global precipitation measurement
<b>H</b>	
HP	Horsepower
<b>I</b>	
in	inch
<b>J</b>	
<b>K</b>	
kVA	kilovolt-amperes



# Kilarc-Cow Creek Hydroelectric Project, FERC Project No. 606

## Preliminary Proposed Decommissioning Plan

---

Term	Definition
kW	Kilowatt
kWh	kilowatt hour(s)
<b>L</b>	
Licensee	Pacific Gas and Electric Company
<b>M</b>	
mi	mile
mi <sup>2</sup>	square miles
msl	mean sea level
MW	megawatts
<b>N</b>	
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NEIC	Northeast Information Center
NOAA	National Oceanic & Atmospheric Administration
NOAA Fisheries	National Marine Fisheries Service
NOI	Notice of Intent
NRHP	National Register of Historic Places
<b>O</b>	
<b>P</b>	
PAOT	people-at-one-time
PG&E	Pacific Gas and Electric Company
Preliminary Plan	Preliminary Proposed Decommissioning Plan
Project	Kilarc-Cow Creek Project, FERC No. 606
Project Area	The geographic area defined in the license issued by FERC for the Project as needed for Project operations and maintenance
Project Vicinity	The area extending to about five miles from the Project Boundary
<b>Q</b>	
<b>R</b>	
rm	river mile
rpm	revolutions per minute
<b>S</b>	
Stakeholders	Resource agency personnel and anyone with an interest in the Project



**Kilarc-Cow Creek Hydroelectric Project, FERC Project No. 606**  
**Preliminary Proposed Decommissioning Plan**

---

<b>Term</b>	<b>Definition</b>
Stewardship Council	Pacific Forest and Watershed Lands Stewardship Council
STNF	Shasta-Trinity National Forest
SWDU	Statements of Water Diversion and Use
SWRCB	State Water Resources Control Board, Division of Water Rights
Synergics	Synergics Energy Developments, Inc.
<b>T</b>	
TRPA	Thomas R. Payne and Associates
<b>U</b>	
USFWS	U.S. Fish and Wildlife Service
<b>V</b>	
VAOT	vehicles-at-one-time
VELB	Valley Elderberry Longhorn Beetle
<b>W</b>	
<b>X</b>	
<b>Y</b>	
<b>Z</b>	



## **Section 1.0 Introduction**

---

Pacific Gas and Electric Company (PG&E), the Licensee for the Kilarc-Cow Creek Hydroelectric Project, FERC No. 606 (Project), is applying to the Federal Energy Regulatory Commission (FERC) to surrender the license for the Project. As part of the surrender process, PG&E proposes to decommission and remove the Project works as described in this Preliminary Proposed Decommissioning Plan (Preliminary Plan).

The Project is located in Shasta County, California (CA), approximately 30 miles east of the city of Redding, near the community of Whitmore (see Figure 1.4-1; all Figures appear at the end of this section). The Project consists of two developments constructed between 1904 and 1907: the Kilarc Development on Old Cow Creek (also known as North Canyon Creek) and the Cow Creek Development on South Cow Creek. Old Cow Creek and South Cow Creek are tributaries to the Sacramento River. The Project comprises several small diversion dams, approximately seven miles of water conveyance facilities and two powerhouses with a total installed capacity of 5 megawatts (MW). The Kilarc Development diverts water from North and South Canyon Creeks and Old Cow Creek. The Cow Creek Development diverts water from Mill Creek and South Cow Creek. The water is diverted for generating power through a canal system to the Kilarc and Cow Creek forebays, where penstocks direct the water to the powerhouses.

The license for the Project expired on March 27, 2007; the Project is currently operating under an annual license. PG&E initially sought a new license for the Project, filing with FERC in 2002 a Notice of Intent (NOI) to relicense the Project. However, after performing some initial relicensing studies and consulting with resource agencies and other interested parties, PG&E ultimately concluded that the likely cost of providing the necessary level of protection, mitigation, and enhancement for the resources affected by the Project would outweigh the economic benefit of generation at the Project over the life of a new license. Consequently, in March 2005, PG&E entered into the Kilarc-Cow Creek Project Agreement (Agreement) with the resource agencies and interested parties (Appendix A). Pursuant to the Agreement, PG&E, among other things, agreed not to file an application for a new license by the statutory deadline of March 27, 2005, and instead agreed to support decommissioning of the Project. PG&E honored that commitment and the statutory deadline for filing an application for a new license passed.

Once the deadline passed for PG&E to file an application for new license, PG&E lost its opportunity to relicense the Project. Pursuant to its regulations, FERC then issued a public notice inviting other entities to file NOIs to seek a new license for the Project. The only entity to do so was Synergics Energy Development, Inc. (Synergics), who filed a notice on June 7, 2005. Synergics, however, failed to file an application for new license by the December 27, 2006 deadline established by FERC and FERC denied Synergics' request to extend the deadline.

After Synergics failed to timely file an application for new license for the Project, PG&E, as directed by FERC, began the process of preparing a License Surrender Application for the Project. On March 23, 2007, PG&E filed with FERC a proposed schedule for filing a License



Surrender Application. FERC approved the proposed schedule on June 11, 2007. Pursuant to the approved schedule, PG&E is required to file with FERC a License Surrender Application, including a Decommissioning Plan, by March 26, 2009. The process and schedule for filing the License Surrender Application is described in Section 4.0 *Decommissioning Costs*.

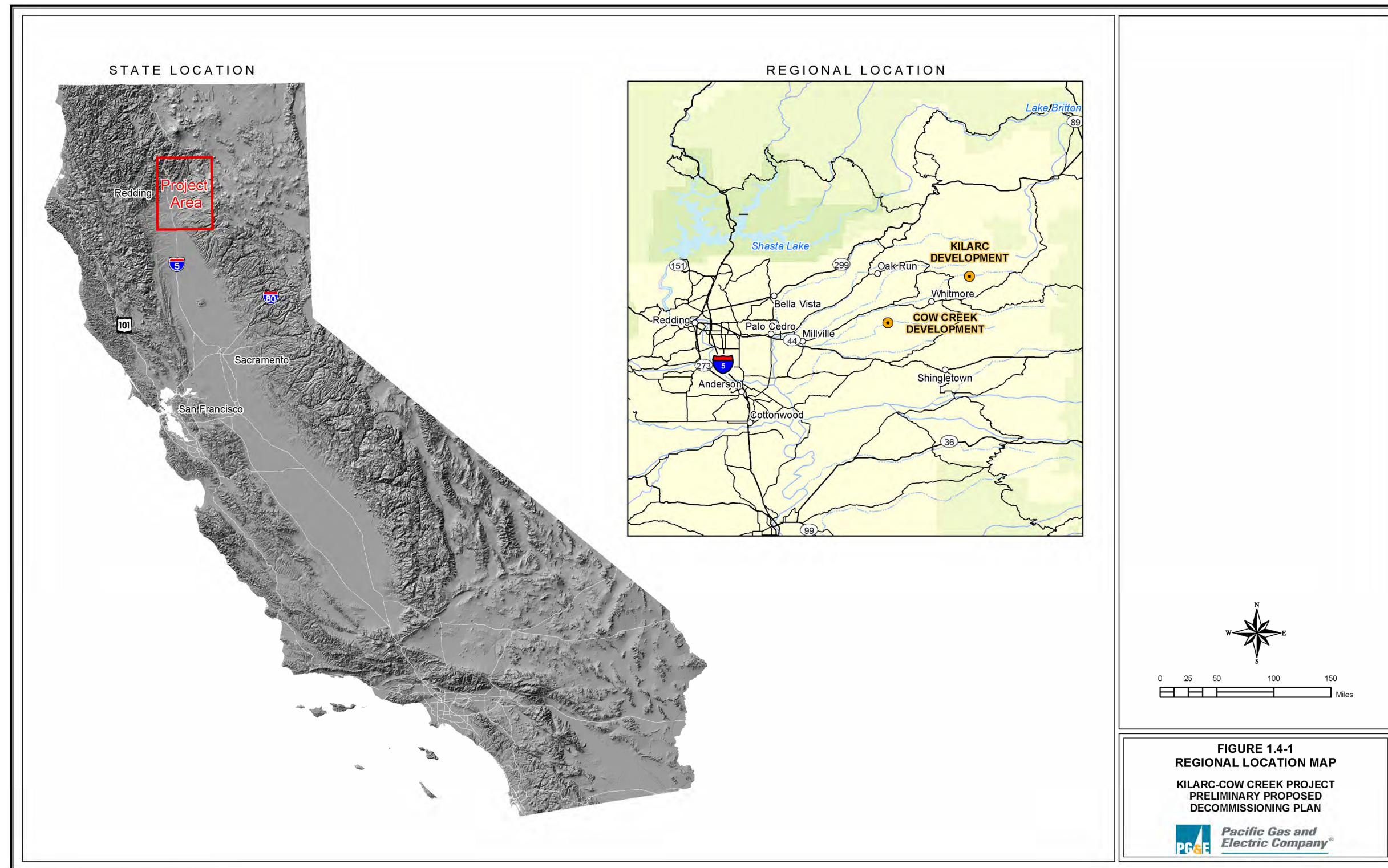
PG&E began the process of preparing its License Surrender Application by holding a public meeting in Whitmore, California on March 29, 2007. PG&E followed the initial public meeting with additional public meetings on May 15 and 16, 2007. Notices for the meetings were placed in the local newspapers and letters were sent to relicensing stakeholders. During the meetings, PG&E solicited comments from the stakeholders to assist it in identifying issues with decommissioning prior to developing this Preliminary Plan. As a follow-up to the May 15 and 16, 2007 meetings, PG&E hosted a public site visit of the Project facilities on June 13 and 14, 2007.

PG&E used the comments received from stakeholders, and the Agreement in conjunction with environmental, cultural, and recreational resource information collected during the initial phase of PG&E's relicensing process to develop this Preliminary Plan.

This Preliminary Plan describes the Project decommissioning plan, and once in final form will be incorporated into PG&E's License Surrender Application. The Preliminary Plan is organized as follows:

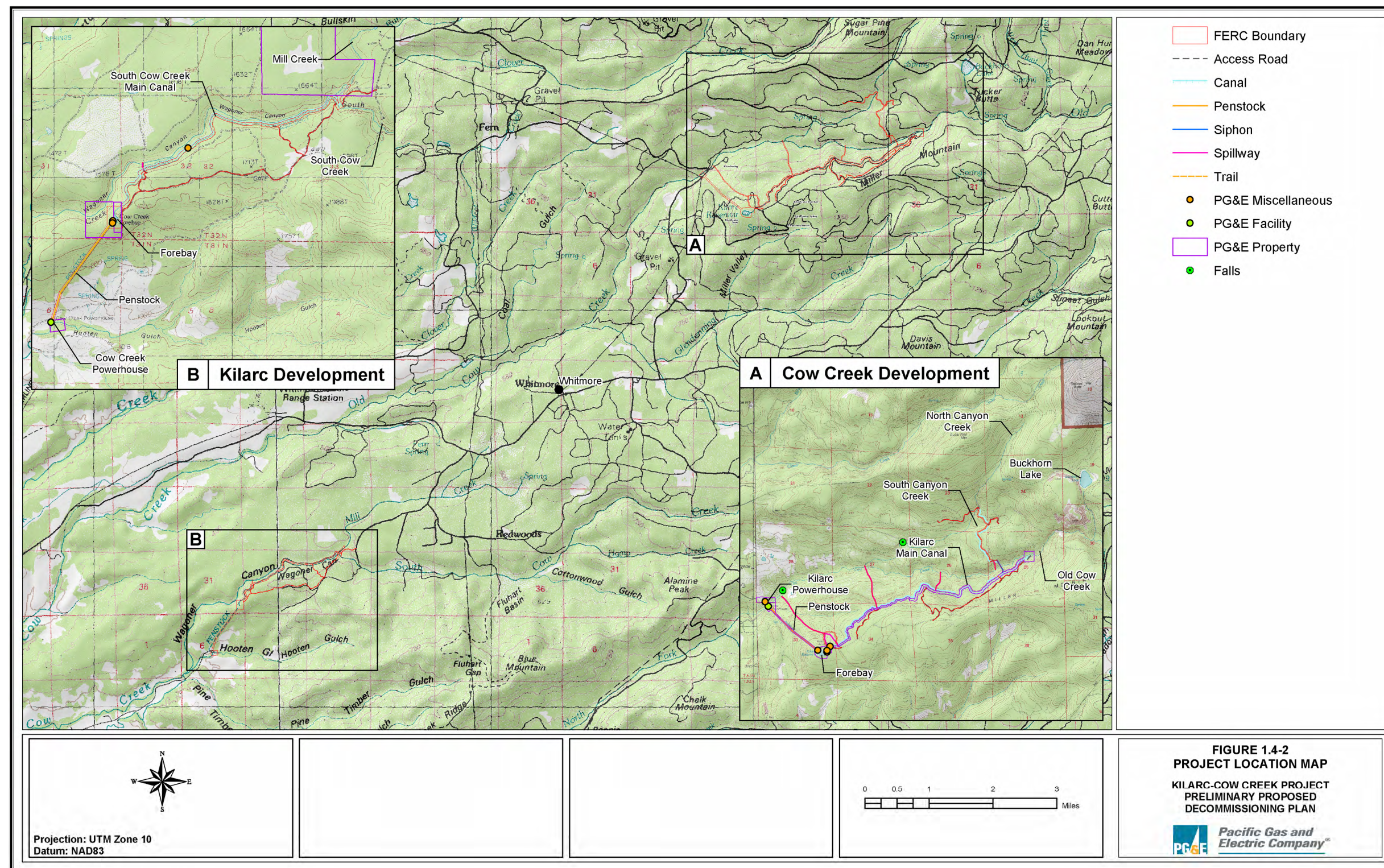
- **Section 1 – Introduction.** This section provides background information on the Project and events to date related to the decommissioning process.
- **Section 2 – Decommissioning Proposal.** This section describes the Project features and proposed decommissioning actions for each feature. The section also provides information on potential environmental effects associated with decommissioning activities and the final disposition of the facilities after decommissioning.
- **Section 3 – Measures Addressing Potential Resource Issues.** This section identifies potential resources that might be affected by decommissioning and measures to be implemented to protect them. This section also identifies additional studies that might be necessary to ensure that environmental resources are adequately protected during decommissioning activities.
- **Section 4 – Decommissioning Costs.** This section provides the preliminary estimated cost to decommission the Project facilities.
- **Section 5 – Water Rights.** This section discusses PG&E water rights and the current proposal for their disposition after decommissioning.
- **Section 6 – Land Rights and Land Ownership.** This section describes PG&E land rights and landownership for operation and maintenance of the Project and their disposition following decommissioning.
- **Section 7 – License Surrender Application Schedule.** This section discusses the License Surrender Application process and provides a schedule for the process.





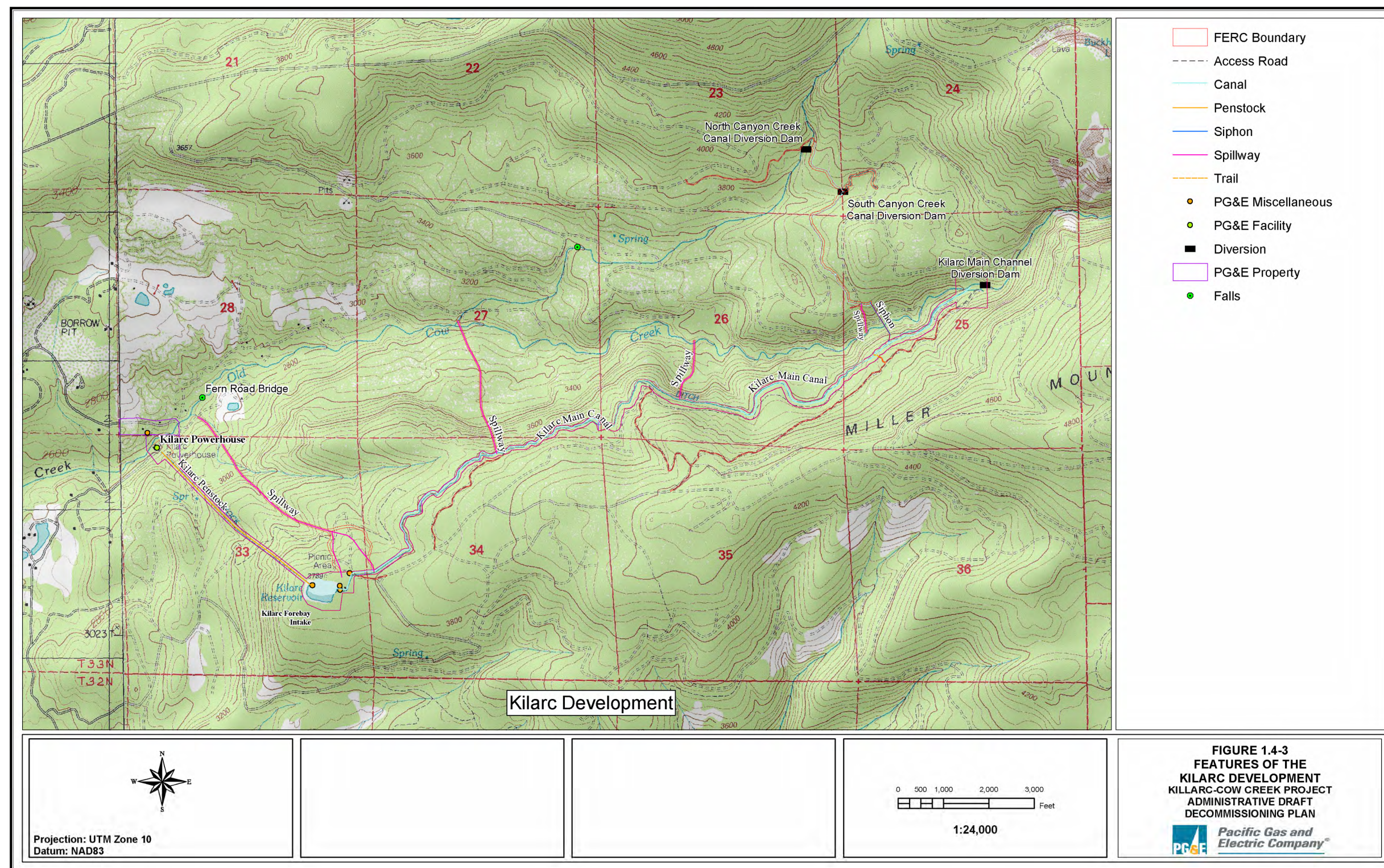
**Figure 1.4-1. Regional Location Map**





**Figure 1.4-2. Project Location Map**





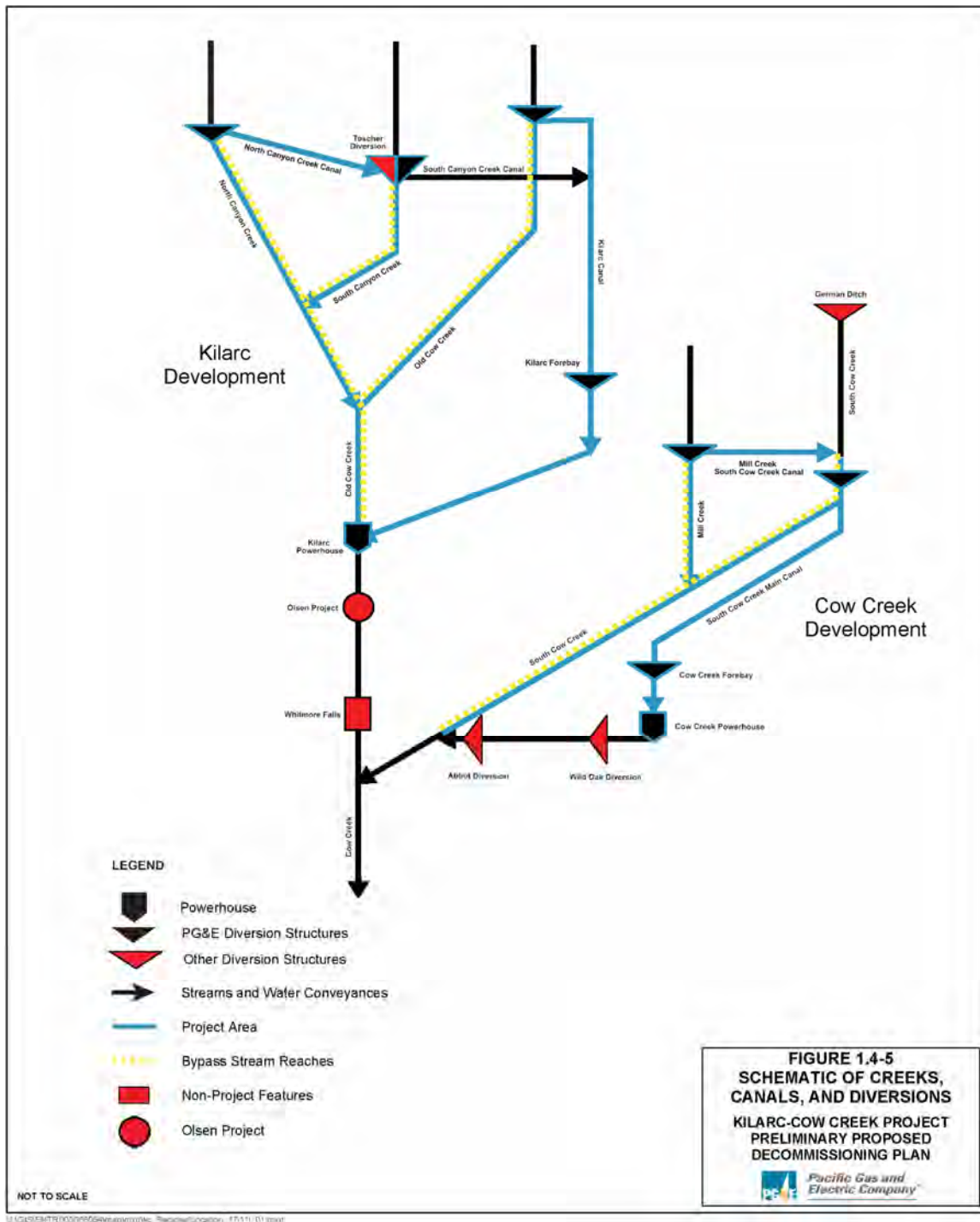
**Figure 1.4-3. Features of the Kilarc Development**





**Figure 1.4-4. Features of the Cow Creek Development**





**Figure 1.4-5. Schematic of Creeks, Canals, and Diversions**



## Section 2.0 Decommissioning Proposal

---

This section presents PG&E's decommissioning proposal by Project feature. The Kilarc and Cow Creek developments are presented separately since they are independent developments located in different watersheds. The Kilarc Development, located in the Old Cow Creek watershed, is described first followed by the Cow Creek Development, which is located in the South Cow Creek watershed. PG&E will obtain all federal, state, and local permits required to decommission the Project.

### 2.1 Desired Conditions and Potential Resource Issues

PG&E developed its Preliminary Plan with two main objectives: (1) achieving specific "Desired Conditions" once decommissioning is complete, as identified in the Agreement; and (2) addressing potential resource issues associated with decommissioning Project features.

Appendix A to the Agreement contains a list of subjects to be addressed through the decommissioning process. For example, the disposition of canals. For each of these subjects, the Agreement lists "Desired Conditions." (Desired Conditions) for example, stable drainage of runoff, which were intended to help frame how the subjects were ultimately addressed. As noted, PG&E considered these Desired Conditions in developing its Preliminary Plan for the various Project features. PG&E also identified potential resource issues associated with decommissioning Project features and attempted to address those issues in its Preliminary Plan. The Desired Conditions are discussed below by Project feature, and the potential resources issues are described in Section 3.0 *Measures to Address Potential Resource Issues*.

- **Diversion Structures.** With respect to the disposition of diversion structures, PG&E considered the following Desired Conditions: (1) safe, timely, and effective fish passage both upstream and downstream of the diversion; (2) a geomorphically stable stream channel above, below, and at the diversions; (3) retention of as much spawning gravel as possible in active channels during deconstruction activities, and (4) address safety issues for both the public and wildlife.
- **Canals and Spillways.** With respect to the disposition of canals and spillways (including waterways, tunnels, and flumes), PG&E considered the following Desired Conditions: (1) stable drainage of runoff to natural waterways, including safe, timely and effective fish passage; maintaining good water quality, and preventing contributions of sediment to drainages and streams; (2) preservation of riparian habitat during and after deconstruction wherever possible; (3) maintaining floodplain connectivity, and (4) addressing safety issues for both the public and wildlife.



- **Forebays.** With respect to the disposition of forebays, PG&E considered the following Desired Conditions: (1) maintain geomorphically stable sediment conditions; and (2) conduct appropriate fish and wildlife rescue and/or salvage prior to deconstruction activities.
- **Penstocks.** With respect to penstocks, PG&E's considered the following Desired Condition to address safety issues for both the public and wildlife.
- **Powerhouses.** With respect to the powerhouses, PG&E's considered the following Desired Conditions are to (1) address safety issues for both the public and wildlife; (2) preserve historical and/or cultural values; and (3) preserve options for future reuse of structures.
- **Deconstruction Activities.** More generally with respect to general decommissioning activities, PG&E considered the following Desired Conditions (1) where practicable, prevent net loss in the health of riparian and aquatic habitat areas; (2) allow for natural revegetation; (3) schedule decommissioning activities to avoid adverse effects on fish and wildlife; (4) ensure minimal water quality impairment during deconstruction and immediately thereafter, including minimizing turbidity and deposition of settleable and suspended solids; and (5) conduct appropriate fish and wildlife rescue and/or salvage prior to deconstruction activities.

## **2.2 Kilarc Development Decommissioning Proposal**

The Old Cow Creek watershed encompasses approximately 80 square miles (mi<sup>2</sup>), including 25 mi<sup>2</sup> located upstream from the Kilarc Diversion Dam. The average yearly runoff at the dam is 48,900 ac-ft, on average, approximately 55 percent of the annual runoff is diverted from the stream to the Kilarc Powerhouse.

Kilarc Development features include:

- North Canyon Creek Diversion Dam and Canal;
- South Canyon Creek Diversion Dam and Canal;
- Canyon Creek Siphon;
- Kilarc Main Canal Diversion Dam and Main Canal (including tunnel and elevated flumes);
- Kilarc Forebay Dam; and
- Kilarc Forebay, Penstock, and Powerhouse.

The North Canyon Creek Canal diverts water from North Canyon Creek to South Canyon Creek. Water from South Canyon Creek is diverted to South Canyon Creek Canal, which enters Canyon Creek Siphon and then the Kilarc Main Canal. Water from Old Cow



Creek is also diverted to the Kilarc Main Canal, which flows to Kilarc Forebay. From Kilarc Forebay, water flows through the penstock to Kilarc Powerhouse; near the powerhouse, the water is returned to Old Cow Creek.

### **2.2.1 North Canyon Creek Diversion and Canal**

Photograph 2.1.1-1a North Canyon Creek – Diversion







Photograph 2.1.1-1b North Canyon Creek – Wooden Structure to be Removed



Photograph 2.1.1-1c North Canyon Creek – Canal





### **Description**

Water is diverted from North Canyon Creek into the canal at the diversion dam. The dam is a timber structure, 9.9 feet (ft) long, 1-ft high, with a crest elevation of 3,939.5-ft above mean sea level (msl).

The canal is an unlined, 3-ft wide by 1.5-ft deep and has a total length of 0.35 mi, with a capacity of 2.5 cubic feet per second (cfs) and an average grade of 0.0021 percent. The canal delivers water to a point just upstream of the South Canyon Creek Diversion Dam.

### **Proposal for Disposition**

#### ***Diversion***

- Remove wooden stream bank supports and bottom boards.
- The small wooden structure will remain in place to minimize site disturbance caused by difficult access.

#### ***Canal***

- Several options are available for decommissioning the earthen canal from abandon in-place, to filling the canal by excavating one-half of the height of the canal berm and using the excavated materials as fill, (the canal is constructed of native material and has no lining). If abandoned in-place the canal would be strategically breached to address storm runoff to avoid potential erosion/sediment issues. If filled, the surface will be graded to drain rainwater and appropriate erosion controls will be implemented.
- Appropriate erosion control measures will be implemented.





### **2.2.2 South Canyon Creek Diversion and Canal**

Photograph 2.2.2-1a South Canyon Creek – Diversion and Canal Inlet



Photograph 2.2.2-1b South Canyon Creek – Canal Flumes







Photograph 2.2.2-1c South Canyon Creek – Canal and Spillway



Photograph 2.2.2-1d South Canyon Creek – Canal Siphon Inlet







Photograph 2.2.2-1e South Canyon Creek – Canal Siphon Release To Kilarc Main Canal



### **Description**

Water is diverted from South Canyon Creek into the canal at the diversion dam. The dam is a concrete structure, 37.8-ft long and 3-ft high with a crest elevation of 3,893.6-ft above msl.

The canal has a total length of 0.74 mi with a capacity of 7.5 cfs and an average grade of 0.0021 percent. The conduit consists of 0.71 mi of unlined canal, 4-ft wide by 2-ft deep, and 0.03 mi of flume, 2-ft wide by 1.8-ft deep.

Water from the canal flows into the Canyon Creek Siphon. The siphon consists of a 0.17 mi 12-in diameter pipe which then conveys the water into the Kilarc Main Canal.

### **Proposal for Disposition**

#### ***Diversion***

- Work includes removing diversion walls, gate, operating mechanism, and all segments.



### ***Flume***

- Work includes removing wooden and corrugated metal pipe structures.

### ***Canal***

- Several options are available for decommissioning the earthen canal from abandon in-place, to filling the canal by excavating one-half of the height of the canal berm and using the excavated materials as fill, (the canal is constructed of native material and has no lining). If abandoned in-place the canal would be strategically breached to address storm runoff to avoid potential erosion/sediment issues. If filled, the surface will be graded to drain rainwater and appropriate erosion controls will be implemented. For the concrete spillway and concrete gate slots, they will be removed and backfilled with excavated berm material.

### ***Siphon***

- Work includes removing trash bars and concrete wing walls, collapsing a rubble wall, and burying it with excavated berm material.
- Work includes removing all above-grade pipe and installing a cast-in-place concrete block at the vertical intake. Buried portions of the siphon will be abandoned in place.

## **2.2.3 Kilarc Diversion Dam**

Photograph 2.2.3-1a Kilarc Diversion Dam (View from Upstream Side of Gate)







Photograph 2.2.3-1b Kilarc Main Canal Intake (View from Downstream Side of Gate)



Photograph 2.2.3-1c Kilarc Main Canal – Diversion Dam







## **Description**

Water is diverted from Old Cow Creek into the canal at the dam. The dam is a concrete structure, 83.0-ft long, 8-ft high with a crest elevation of 3,814.0-ft msl.

## **Proposal for Disposition**

- Work includes removing the structures, guide walls, the diversion gate and frame, the gate operator, and the removal of debris from the site.
- A temporary cofferdam or diversion may be required.
- The diversion dam appears to be constructed on a natural barrier. The concrete portion that was added to construct the diversion will be removed.

### **2.2.4 Kilarc Main Canal**

Photograph 2.2.4-1a Kilarc Main Canal – Concrete Section







Photograph 2.2.4-1b Kilarc Main Canal – Shotcrete-Lined Section



Photograph 2.2.4-1c Kilarc Main Canal – Wooden Flume







Photograph 2.2.4-1d Kilarc Main Canal – Steel Flume



Photograph 2.2.4-1e Kilarc Main Canal – Tunnel







Photograph 2.2.4-1f Kilarc Main Canal – Earthen Section



### **Description**

The Kilarc Main Canal has a total length of 3.65 mi with a capacity of 52 cfs and an average grade of 0.0021 percent. The conveyance system consists of 2.03 miles of canal, 1.44 miles of metal and wood flume, and 0.18 mi of a 6-ft by 7-ft wood lined tunnel.

### **Proposal for Disposition**

- For the concrete sections of canal and shotcrete-lined canal, sections the concrete walls and bottom will be broken-up and pushed into canal bottom. The canal will then be filled with excavated berm material, graded, and erosion control measures implemented.
- For the earthen canal sections, several options are available for decommissioning from abandon in-place, to filling the canal by excavating one-half of the height of the canal berm and using the excavated materials as fill, (the canal is constructed of native material and has no lining). If abandoned in-place the canal would be strategically breached to address storm runoff to avoid potential erosion/sediment issues. If filled the surface will be graded to drain rainwater and appropriate erosion controls will be implemented.



- The flumes would be removed to their foundations, anchor bolts would be saw cut, or ground flush, and foundation piers would be left in place.
- Work includes removing mechanical equipment, a shed, concrete sections, grading, and if required installing rip rap.
- Broken concrete will be used for rip rap if required where removal of structure damages the slope.
- Work includes removing gates, frames, gate operators, support structures, catwalk, and guidewalls.
- Work includes demolishing the overflow spillway, filling and grading the spillway, and implementing appropriate erosion control measures.
- The thermal electric generator and building would be removed.





### **2.2.5 Kilarc Forebay**

Photograph 2.2.5-1a Kilarc Forebay



Photograph 2.2.5-1b Kilarc Forebay – Intake







Photograph 2.2.5-1c Overflow Spillway



Photograph 2.2.5-1d Kilarc Forebay – Outlet Structure to Penstock





Photograph 2.2.5-1e Kilarc Picnic Area



### **Description**

The dam at Kilarc Forebay is earth-filled and has a maximum height of 13-ft, a maximum base width of 43-ft, and a crest length of 1,419-ft at 3,782.4 msl. The spillway is 10.0-ft wide, 3.0-ft deep, and has a rated capacity of 50 cfs with 1.6-ft of freeboard. The intake structure has a 48-in slide gate with a manual lift, protected by a trash rack over the opening to the Kilarc Penstock.

### **Proposal for Disposition**

- Work includes removing the intake trash rake, telemetry, and electrical equipment; demolishing and removing fencing and structures, and backfilling the culvert when the canal is backfilled.
- Work includes filling the forebay with excavated bank material, seeding and grading for drainage, and implementing appropriate erosion control measures.
- Work includes demolishing the overflow spillway, filling and grading the spillway (as part of reservoir fill work), and implementing appropriate erosion control measures.
- Work includes disassembling and removing the bridge and platform, removing control equipment, and cutting the shaft off at the bottom of the reservoir.





- The picnic tables and site furnishing will be removed. The restroom buildings will be demolished and removed. The toilet vaults would be pumped, backfilled and abandoned in-place.

### **2.2.6 Kilarc Penstock - Penstock**

Photograph 2.2.6-1 Kilarc Penstock



#### **Description**

The Kilarc Penstock is 4,801-ft long buried pipe. It is made of riveted steel with a diameter that varies from 48 in to 36 in and a plate thickness varying from 0.19 to 0.25 inches. The maximum flow capacity is 43 cfs.

#### **Proposal for Disposition**

- Work includes plugging the upper and lower ends of the penstock with concrete and grading to cover the exposed section at the surge tower. Removal of the buried pipe would cause significant site disturbance at a significant cost.





- Work also includes cutting-off the surge tower and removing it. The opening will be covered with a welded steel plate.

### **2.2.7 Kilarc Powerhouse and Switchyard**

Photograph 2.2.7-1a Kilarc Powerhouse







Photograph 2.2.7-1b Kilarc Switchyard



### **Description**

The Kilarc Powerhouse is a 65-ft by 40-ft steel frame structure (plan dimensions), composed of rubble masonry walls and a corrugated iron roof. The powerhouse contains two turbines and generators and other electrical mechanical equipment.

The Kilarc Switchyard includes an oil-immersed outdoor type transformer. The Licensee's interconnected transmission system passes through the powerhouse switchyard via a 7-ft long, 60 kilovolt-amperes (kVA) transmission line tap and will remain in-place.

### **Proposal for Disposition**

- Work includes removal of turbines and generators and all associated electrical and mechanical equipment associated with the powerhouse and abandoning the structure in place.
- Turbine pits will be filled with mass concrete or other suitable fill material and capped with concrete.



- All openings will be sealed and the tailrace backfilled to the confluence using local earth materials.
- The building will remain in place; the long-term disposition of the structure needs to be determined.
- The switchyard will be left in place, as it is an integral part of the PG&E interconnected transmission system.

### **2.3 Cow Creek Development Decommissioning Proposal**

The South Cow Creek watershed encompasses approximately 78 square miles (mi<sup>2</sup>), including 53 mi<sup>2</sup> located upstream from the South Cow Creek Diversion Dam. The average annual runoff at the dam is 79,500 ac-ft; on-average approximately 37 percent of the annual runoff is diverted to Cow Creek Powerhouse. The estimated dependable generating capacity of the Cow Creek development is approximately 400 kilowatt (kW), and the estimated average annual energy generated is 12 million kWh.

The Cow Creek Development features include:

- Mill Creek Diversion Dam;
- Mill Creek-South Cow Creek Canal;
- South Cow Creek Diversion Dam and Main Canal;
- Cow Creek Forebay Dam; and
- Cow Creek Forebay, Penstock, and Powerhouse.

The Mill Creek-South Cow Creek Canal diverts water from Mill Creek to South Cow Creek. From South Cow Creek, the water is diverted to the South Cow Creek Main Canal and into Cow Creek Forebay. From Cow Creek Forebay, the water flows through a penstock to Cow Creek Powerhouse. The water is then discharged from the powerhouse to Hooten Gulch where it flows to South Cow Creek.





### **2.3.1 Mill Creek Diversion – Dam and Canal Intake**

Photograph 2.3.1-1 Mill Creek Diversion – Dam and Canal Intake



#### **Description**

Water is diverted from Mill Creek into the canal at the diversion dam. The dam is a concrete structure, 40.3-ft long, 2.5-ft high with a crest elevation of 1,575.8-ft above msl.

#### **Proposal for Disposition**

- Work includes the demolition and removal of materials from the site.
- Demolition may require construction of a temporary channel diversion.
- A temporary cofferdam may be required.

### **2.3.2 Mill Creek– South Cow Creek Canal**

Photograph 2.3.2-1 South Cow Creek Canal



#### **Description**

The Mill Creek–South Cow Creek Canal is an unlined 5-ft by 3.3-ft cross section and has a total length of 0.17 mi, with a capacity of 10 cfs and an average grade of 0.0021 percent.

#### **Proposal for Disposition**

- Several options are available for decommissioning the earthen canal from abandon in-place, to filling the canal by excavating one-half of the height of the canal berm and using the excavated materials as fill. If abandoned in-place the canal would be strategically breached to address storm runoff to avoid potential erosion/sediment issues. If filled, the surface will be graded to drain rainwater and appropriate erosion controls will be implemented.



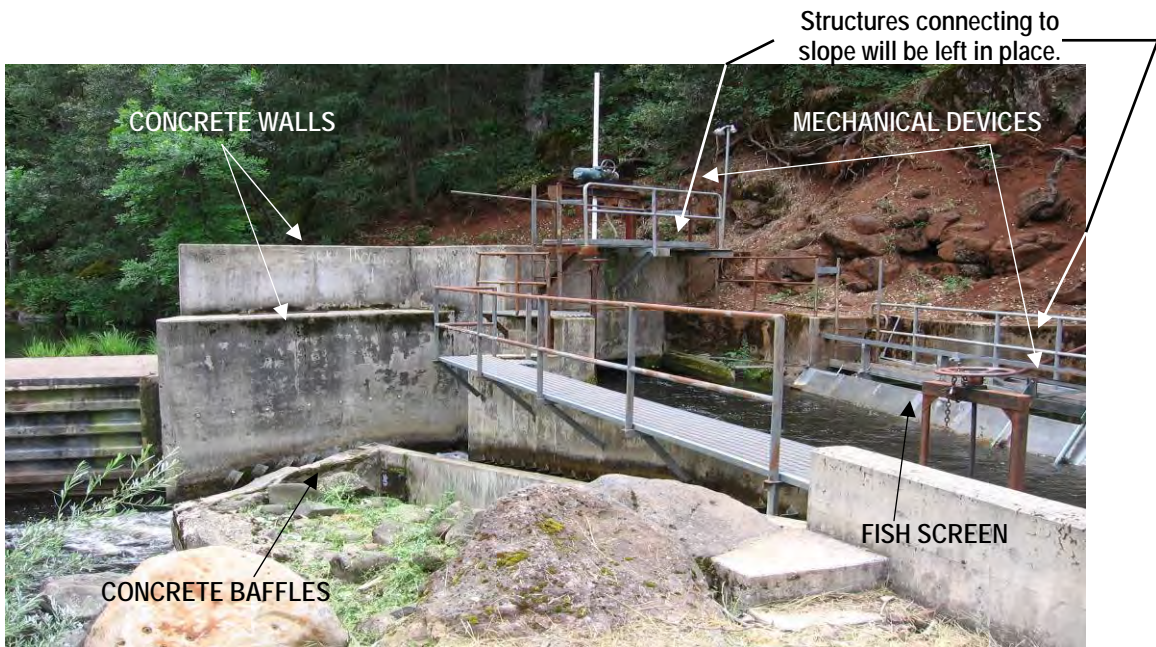


### **2.3.3 South Cow Creek Diversion Dam and Fish Ladder**

Photograph 2.3.3-1a South Cow Creek Diversion – Dam



Photograph 2.3.3-1b South Cow Creek Diversion – Intake Structure and Fish Ladder







Photograph 2.3.3-1c South Cow Creek Diversion – Fish Screen Detail



### **Description**

Water is diverted from South Cow Creek into the canal at the diversion dam. The dam is a concrete-capped steel bin wall and rock-fill dam, 86.5-ft long, 16-ft high with a crest elevation of 1,561.4-ft above msl. Water diverted by the dam passes through a concrete intake structure, with a trash rack and control gate, into a transition section. In the transition section, water is split between the Cow Creek Canal and the Cow Creek Fish Ladder. Water going to the fish ladder passes through a control gate and down the ladder; water going to the canal passes through a fish screen and then a control gate before entering the canal.

### **Proposal for Disposition**

- Dam removal will include removing the concrete top, removing fill, and removing the bin walls.
- A temporary cofferdam/diversion may be required.
- Some structures connecting to the steep slope will be left in place to minimize disturbance to the slope due to decommissioning activities.
- Work will include removing all equipment (e.g., mechanical devices, gates, screens, and rakes).
- Concrete walls and baffles will be removed.
- Sediment from behind the dam maybe used for backfill.
- Backfilled areas will be capped with an impermeable layer.



### **2.3.4 South Cow Creek Canal and Tunnel**

Photograph 2.3.4-1a South Cow Creek Canal







Photograph 2.3.4-1b South Cow Creek Tunnel



Photograph 2.3.4-1c South Cow Creek Canal – Earthen Section







Photograph 2.3.4-1d South Cow Creek – Shotcrete Section



### **Description**

The canal including the tunnel has a total length of 2.06 mi with a capacity of 50 cfs and an average grade of 0.0015 percent. The canal section consists of 2.02 mi of 13-feet by 4.8-ft deep canal. Approximately 0.12 miles of the canal are lined with shotcrete and approximately 1.9 miles are unlined. The tunnel is 0.04 mi long and is 6-ft by 6.8-ft.

### **Proposal for Disposition**

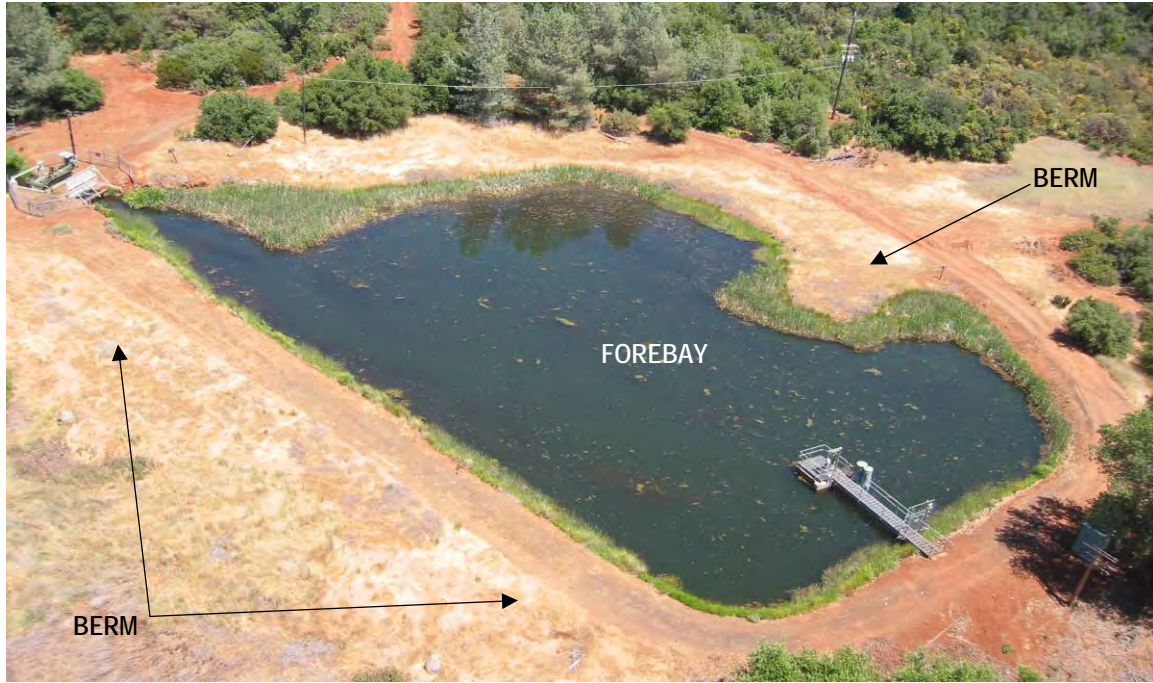
- For the shotcrete-lined canal sections, the concrete walls and bottom lining will be broken-up and pushed into the canal bottom. The canal will then be filled with excavated berm material, graded, and erosion control measures implemented.
- For the earthen canal sections, several options are available for decommissioning from abandon in-place, to filling the canal by excavating one-half of the height of the canal berm and using the excavated materials as fill, (the canal is constructed of native material and has no lining). If abandoned in-place the canal would be strategically breached to address storm runoff to avoid potential erosion/sediment issues. If filled the surface will be graded to drain rainwater and appropriate erosion controls will be implemented.
- Tunnel work includes plugging the upstream and downstream ends of the tunnel with concrete and abandoning the tunnel in place.





### 2.3.5 Cow Creek Forebay

Photograph 2.3.5-1a Cow Creek Forebay and Outlet Structure



Photograph 2.3.5-1b Cow Creek Forebay – Intake







Photograph 2.3.5-1c Cow Creek Forebay – Spill Channel



Photograph 2.3.5-1d Cow Creek Forebay – Spill Outlet



### **Description**

Cow Creek Forebay has a gross and useable storage capacity of 5.4 ac-ft at an elevation of 1,537.2-ft above msl and a surface area of 1.0 acre.





The dam is earth-filled berm, which has a maximum height of 16-ft, a maximum base of 54-ft, and a crest length of 653-ft at an elevation of 1,538.9-ft above msl. The spillway is 49.7-ft wide, 1.7-ft deep, and has a rated capacity of 50 cfs with 1.2-ft of freeboard. The intake structure has a 42-in slide gate, hydraulically operated and protected by a trash rack.

The outlet structure has a 42-in slide gate, hydraulically operated and protected by a trash rack.

The intake consists of a concrete structure supporting a control gate and automated trash rake. The spillway is a side discharge overflow section of shotcrete reinforcement leading to a natural waterway with the upper portion also armored with shotcrete.

### **2.3.6 Cow Creek Forebay**

#### **Proposal for Disposition**

- Forebay will be dewatered and all removal work will occur during the dry.
- Work will involve removing the forebay by backfilling with the adjacent berm material, grading, and reseeded.
- Removal of the outlet structure will consist of removing structural steel elements, cutting-off corrugated metal pipe flush with the bottom, breaking-up concrete, and backfilling.
- Broken concrete will be placed in the forebay and covered with earth.
- Work includes removing the mechanical trash rake and the demolition and removal of concrete walls.
- Below-grade structures will be left in place and graded over.
- The spillway will be abandoned in place to minimize disturbance to the slope that would be cause removal.



### **2.3.7 Cow Creek – Penstock**

Photograph 2.3.7-1 Cow Creek – Penstock



#### **Description**

The Cow Creek Penstock is a buried pipe 4,487-ft long. Beginning at the upstream end, the first 15-ft of the penstock consists of 0.19-in thick steel pipe, with a diameter that tapers from 42 to 36 in. The next 766-ft consists of 36-in diameter, 0.5-in welded steel pipe. The final 3,706-ft is made of riveted steel with a 30-inch diameter and plate thickness that varies from 3/16 to 7/16-in and includes a short, tapered section.

#### **Proposal for Disposition**

- Upstream and downstream ends of the penstock will be plugged with an engineered concrete block.
- The remaining penstock is mostly buried and will be abandoned in place.
- Removing the buried penstock would cause significant site environmental disturbance and incur significant expense.





### **2.3.8 Cow Creek – Powerhouse and Switchyard**

Photograph 2.3.8-1a Cow Creek – Switchyard and Powerhouse





Photograph 2.3.8-1b Cow Creek Powerhouse



### **Description**

The Cow Creek Powerhouse is an approximately 53.5-ft by 35-ft steel truss structure (plan dimensions), and composed of cut-stone walls and a corrugated metal roof. The powerhouse contains two generators and other electrical and mechanical equipment.

The switchyard includes a three-phase, oil-immersed, self-cooled, outdoor unit. The Licensee's interconnected transmission system passes through the powerhouse switchyard via a 70-ft long, 60-kVA transmission tap line and will remain in place.

### **Proposal for Disposition**

- Powerhouse work includes removing turbines and generators, and all associated electrical and mechanical equipment and abandoning the structure in place.
- Existing concrete will be left in place.
- Turbine pits will be filled with mass concrete or other suitable fill and capped with concrete.
- The building will remain in place. Long-term disposition of the structure needs to be determined.
- Switchyard work includes removing equipment and structures.





- Decommissioning will end water delivery to the Wild Oak Hydro Powerhouse and the Abbott Diversion for irrigation. PG&E will work with the affected parties to address these issues.

## **2.4 Project Roads**

### **Description**

Project decommissioning may require improvement of existing roads and/or new access for equipment required for decommissioning the Project facilities. Following completion of Project decommissioning, the roads maybe left in-place or removed. How the roads are left will depend on landownership, desires of the landowner, and environmental considerations.

### **Proposal for Disposition**

- Leave existing Project roads in place per landowner request.
- Scarify and seed the surfaces of any roads to be rehabilitated.
- Implement erosion controls and Best Management Practices (BMPs) as appropriate.
- Erect barriers/obstacles as required to limit future access.



## Section 3.0 Measures To Address Potential Resource Issues

---

This section describes the general construction activities associated with decommissioning Project facilities and proposed measures to address potential resources issues during the decommissioning activities. Construction activities during decommissioning fall into the following general areas:

- Providing access for decommissioning activities by improving existing roads and/or new access. These activities consist of improving existing access roads and trails or creating new temporary access roads to provide access for the construction equipment required for the removal of project features and to minimize the impact of increased use during deconstruction activities.
- Instream construction activities are those activities taking place behind cofferdams in the dry, or in the wet, to remove project features that are in the stream bed including removal of dams and intake structures.
- Standard construction activities are all other construction activities required to decommission the project that do not require working in the stream beds, such as work on canals, forebays, penstocks, powerhouses or switchyards.

The section is organized by resource areas as previously defined. Those areas are:

- Aquatic Resources:
  - Fisheries;
  - Special Status Amphibians and Reptiles; and
  - Terrestrial Invertebrates, Birds, Mammals, Vegetation, and Plant Species.
- Geomorphology and Water Quality.
- Historical and Cultural Resources.
- Recreational Resources.

Within each resource area, the general measures are listed by Project feature type (i.e., diversions, canals, etc.) to be consistent with the description of activities in Section 2.0, *Decommissioning Proposal*.





### **3.1 Project Resources and Measures to Address Potential Decommissioning Issues**

#### **3.1.1 Aquatic Resources**

##### **3.1.1.1 Fisheries**

#### **Background**

The fisheries resources within the Project Area have been managed by the California Department of Fish and Game (CDFG) since 1930 (SHN 2001). This has involved stocking various bypass reaches and the Kilarc Forebay. Consequently, the fish resources within the Project Area consist of a mix of native and introduced species. Special status fish species known to occur within the Project Area include steelhead (*Oncorhynchus mykiss*), and fall-run Chinook salmon (*Oncorhynchus tshawytscha*). Steelhead are listed as Threatened under the Federal Endangered Species Act (ESA).

In Old Cow Creek (Kilarc Development), anadromous fish have been reported as far upstream as Whitmore Falls, river mile (~RM) 11 (from the confluence with Cow Creek). Historically, Old Cow Creek has been managed as an anadromous stream downstream of Whitmore Falls and as a resident trout stream upstream of Whitmore Falls.

Two studies have been conducted in Old Cow Creek drainage that provide information on fish resources in the Project Vicinity: CDFG (1985, as cited in SHN 2001) study near Kilarc Powerhouse and the Thomas R. Payne and Associates (TRPA: 2002) study for the Olson Hydroelectric Project. California Department of Fish and Game (CDFG) sampled Old Cow Creek near the Kilarc Powerhouse in 1973. They reported that resident rainbow and brown trout, and riffle sculpin were found in Old Cow Creek within the Project Area. CDFG also noted that the resident trout populations were in good condition, with high abundance numbers relative to stream size. Population estimates for rainbow trout ranged from 1,670 to 1,922 fish per mile, and sculpin ranged from 6,580 to 8,115 fish per mile.

Chinook salmon and steelhead are currently found in South Cow Creek (SHN 2001). In 1965, CDFG estimated the size of annual anadromous salmonid runs within South Cow Creek as 950 fall-run Chinook salmon and 500 steelhead. Wagoner Canyon is steep and rocky and may provide an impediment to Chinook migrations. In the 1970's, CDFG removed a natural barrier at the beginning of Wagoner Canyon (~RM 8.5 in relation to the mouth of South Cow Creek) to provide better access for fall-run Chinook salmon to upstream areas (SHN 2001).

Different studies have reported Chinook salmon spawning within similar areas of South Cow Creek (Healey 1965, CDFG unpublished data), ranging from the confluence with Cow Creek to the base of Wagoner Canyon. Healey (1965) noted that most fall-run and late fall-run Chinook salmon spawn and rear downstream of Wagoner Canyon near Hooten Gulch. In fall 1985, 1986, and 1987, CDFG conducted aerial spawning surveys



on over 13 miles of South Cow Creek, from the confluence with Old Cow Creek to approximately three miles upstream of the South Cow Creek diversion dam. CDFG reported that the upstream extent of fall-run Chinook salmon spawning in South Cow Creek was below Hooten Gulch (SHN 2001).

The extent of steelhead activity within the Project Area is well documented, and ranges from South Cow Creek at the confluence with Hooten Gulch to the South Cow Creek campground. Moock and Steitz (1984) have observed steelhead passing through the fish ladder at the South Cow Creek diversion dam. CDFG (2001) noted steelhead spawning areas upstream of Wagoner Canyon, with the majority above the South Cow Creek diversion. Healey (1974) reported that the best steelhead spawning habitat in South Cow Creek occurs from approximately RM 10 (just downstream of the South Cow Creek diversion) to RM 15 (approximately five miles upstream of the diversion). TRPA (1986) reported a few redds in South Cow Creek, approximately three miles upstream from the South Cow Creek diversion. This study also reported redds in Atkins Creek, which they determined were most likely steelhead redds. Atkins Creek is located at RM 20 and is the furthest distance upstream steelheads have been reported on South Cow Creek.

Resident rainbow trout are found throughout South Cow Creek wherever habitat conditions are suitable. A survey by TRPA (1985) was conducted within South Cow Creek, approximately three miles upstream of the Project Area (between the South Cow campground and Morelli Ranch). The survey reported abundant rainbow trout (8,215 fish/mile) and lower numbers of brown trout (693 fish/mile).

A summary on when fish species of concern are present within the Project is presented below:

#### ***Steelhead***

- Adults: October through mid-April.
- Spawning: January through April.
- Rearing: Year round.

#### ***Fall-run Chinook Salmon***

- Adults.
- Spawning.
- Rearing.

#### **General Measures to Protect Resources During Decommissioning**

##### **Diversion Structures**

- Additional pre-construction surveys needed: None.





- Isolate work area from main channel (i.e., cofferdam or other appropriate measure).
- Conduct fish rescue within work area.
- Time construction work to avoid salmonid spawning and early life-history stages.
- Proposed Monitoring.
  - Implement appropriate erosion and turbidity BMPs and conduct *in situ* water quality monitoring to ensure effectiveness of BMPs.

#### Canals and Forebays

- Additional pre-construction surveys needed: None.
- Isolate canal from intake.
- Conduct fish rescue.
  - After canal is isolated and partially dewatered and reservoir is drawn down.
- Proposed monitoring.
  - No monitoring required after fish rescue is conducted.

#### Powerhouse and Penstock

- Additional pre-construction surveys needed: None.
- Tailrace dewatering.
  - Isolate construction area if necessary (aquatic resources may not become stranded with dewatering).
  - Implement sediment and turbidity control measures and monitoring.
  - Conduct fish rescue within tailrace if necessary (aquatic resources may not become stranded with dewatering).
- Proposed Monitoring.
  - Survey tailrace during dewatering to identify and rescue any aquatic resources that become stranded.

### **3.1.1.2 Special-status Amphibians and Reptiles**

#### **Background**

Based on information in the California Natural Diversity Database (CNDDDB; CDFG 2003) USFWS species list and habitat assessments and surveys conducted in 2003 (PG&E 2004), one special-status amphibian and one special-status reptile species and



their habitat occur in the Project Area; foothill yellow-legged frog (*Rana boylii*), and northwestern pond turtle (*Emys marmorata*), respectively. Both species have been documented within the Project Area, specifically in the downstream end of the bypass reach of South Cow Creek and in Hooten Gulch (Cow Creek Development). Old Cow Creek (Kilarc Development) offers marginal to unsuitable stream habitat for foothill yellow-legged frog, and the species may be limited by low availability of suitable breeding habitat, basking sites, or food production.

Foothill yellow-legged frog adults and juveniles were found in South Cow Creek at the downstream end of the bypass reach and in the downstream portion of Hooten Gulch where the Cow Creek Powerhouse tailrace augments summer flow. This indicates that reproduction was successful in the summer of 2003. Juvenile frogs were most abundant in terrestrial sites at the edges of long runs with few midstream rocks, but adults were also found along moderately rocky runs. Bullfrog tadpoles were also observed in the downstream portion of the South Cow bypass reach. Upstream of the reaches where foothill yellow-legged frogs were found was a steeper, boulder/cobble dominated creek, with mostly fast water and little edgewater. Therefore, there is not likely to be substantial breeding habitat.

No foothill yellow-legged frogs were found in the Old Cow Creek bypass. Preliminary habitat mapping data and ground surveys conducted in July and September of 2003, suggest that Old Cow Creek contains little suitable spawning habitat. Frog colonization may be limited further by insufficient forage or basking sites. Mill Creek is a small, heavily vegetated stream that offers little or no foothill yellow-legged frog basking, spawning, or tadpole habitat.

The Project Area lies within the distribution of California red-legged frog (*Rana aurora draytonii*). However, no spawning habitat for this species was identified within the Project Area. Potential “summer habitat” exists for California red-legged frog along Hooten Gulch within 100-meters of its confluence with South Cow Creek, but only if it can be confirmed that appropriate spawning habitat exists within one mile of Hooten Gulch (PG&E 2004)

A northwestern pond turtle was observed in Hooten Gulch during the relicensing amphibian surveys. Appropriate habitat is also present in the Kilarc and Cow Creek forebays, upstream from the diversion on South Cow Creek, and in Old Cow Creek.

### **General Measures to Protect Resources**

As the hydroelectric facilities are decommissioned and removed, Hooten Gulch and the two forebays would no longer provide suitable habitat for amphibians and turtles. The small backwater behind the diversion dams may still provide some suitable habitat for pond turtles. Foothill yellow-legged frogs and northwestern pond turtles would be adversely affected by the removal of their habitat in Hooten Gulch and the forebays. For





both species, ample habitat exists in South Cow Creek. Individuals may need to be captured and relocated prior to dewatering these habitats.

Additional sediment may be released as the diversion dams are removed. The sediments would be sampled to determine if they are suitable for release. The release of sediment may have a short term adverse effect on frogs and turtles if they occur in close proximity to the dam sites.

Preconstruction surveys would need to be conducted prior to construction activities to capture and remove frogs or turtles before specific construction activities commenced. Construction monitoring would also be necessary to remove any individuals that may be located once construction has commenced.

### **Diversions**

- Additional pre-construction surveys needed: None.
- Diversion dam impoundments may contain habitat suitable for northwestern pond turtle. They do not contain suitable habitat for foothill yellow-legged frog or California red-legged frog. If these species utilize the stream channel near these diversions as dispersal habitat, construction activities may have the potential to affect individuals of these species.
- Proposed Monitoring.
  - Preconstruction surveys and, if needed, relocation of frogs or turtles.
  - For dam removal or notching operations, determine if special-status amphibians or reptiles are present within the construction areas.
  - Construction monitoring for northwestern pond turtle.
  - Sediment may be released when the diversion dams are removed. Release of sediment may have a short-term adverse effect on frogs or turtles if they occur in close proximity to the dam sites. Determine if sediments must be excavated and removed from impoundment, or if they can be allowed to naturally recruit to downstream reaches.
  - Implement studies outlined in Section 3.1.3 Geomorphology and Water Quality/Diversions.

### **Canals and Forebays**

- Additional pre-construction surveys needed: None.
- The diversion canals, with swiftly flowing water and lack of habitat complexity, do not contain suitable habitat for foothill yellow-legged frog, California red-legged frog, or northwestern pond turtle. The canals are dry for a portion of the year.



- The forebays do not provide suitable habitat for foothill yellow-legged frog, or suitable spawning habitat for California red-legged frog. Northwestern pond turtle may utilize the Kilarc and Cow Creek forebays.
- Proposed Monitoring.
  - Preconstruction surveys around Kilarc and Cow Creek forebays and, if needed, relocation of frogs or turtles.
  - Monitoring when forebays are dewatered and, if needed relocation of frogs or turtles.

### **Powerhouse and Penstocks**

- Tailrace.
  - Additional pre-construction surveys needed: None.
  - The reach in Hooten Gulch augmented by flow from Cow Creek Powerhouse tailrace provides good quality breeding and rearing habitat for foothill yellow-legged frog, supports northwestern pond turtle, and may support summer habitat for California red-legged frog, if confirmed spawning habitat exists within one mile. As the hydroelectric facilities are decommissioned and removed, reduced flow may reduce the amount of available habitat.
- Proposed Monitoring.
  - Preconstruction surveys and, if needed, relocation of frogs or turtles.
  - Time construction activities to avoid spring/early summer breeding period of foothill yellow-legged frog.
  - Potential need of amphibian and reptile rescue from dewatered Powerhouse tailrace.

### **3.1.2 Terrestrial Invertebrates, Birds, Mammals, Vegetation, and Plant Species**

#### **Background**

#### **Wildlife**

Reconnaissance-level surveys for terrestrial wildlife habitats were conducted in the Project Area from April 22 through April 24, 2003, and June 17 through 18, 2003. The study area consisted of: (1) intake areas at the North Canyon Creek, South Canyon Creek, Kilarc, Mill Creek, and South Cow Creek diversion dams; (2) Kilarc Forebay, Kilarc Penstock, Kilarc Powerhouse, Cow Creek Forebay, Cow Creek Penstock, and Cow Creek Powerhouse; (3) North Canyon Creek Canal, South Canyon Creek Canal, Kilarc Main





Canal, Mill Creek, and South Cow Creek Main Canal, and (4) diverted reaches of Old Cow Creek and South Cow Creek.

Wildlife habitats were identified, and all wildlife observed or detected through diagnostic sign (i.e., track, scat, feather, and carcass, etc.) were identified as to species and recorded. The objective of the surveys was to identify and evaluate the wildlife habitats present in the Project Area and record wildlife observations. Any special-status species observed or detected were recorded, CNDDDB forms were completed, and locations were mapped.

Surveys were conducted in representative habitat for special-status wildlife species. Areas potentially supporting special-status species (i.e., northwestern pond turtle, bald eagle, California spotted owl, American peregrine falcon, willow flycatcher, California thrasher, ringtail, and several species of bats) were specifically targeted.

### **Vegetation and Plant Species**

Special-status plant species surveys were conducted in the Project Area in May 2003 and June 2003 in conjunction with focused Valley Elderberry Longhorn Beetle (VELB) habitat surveys, and riparian surveys in July 2003 and August 2003. The focused surveys were performed in all accessible areas within 25-feet of diverted reaches and 100-feet of Project facilities.

### **General Measures to Protect Resources**

#### **General Measures**

- Any construction that is conducted in the breeding season for birds (usually from March 1 to September 1) could result in impacts to special-status nesting birds and to other birds protected by the Migratory Bird Treaty Act.
- Proposed Monitoring.
  - Pre-construction surveys for nesting birds will be conducted if vegetation removal is scheduled for the breeding season. Construction activities will attempt to be scheduled to minimize any impacts to nesting birds.

#### **Diversions**

- Additional pre-construction surveys needed: None.
- If riparian vegetation has developed at the diversion structure, decommissioning activities could affect riparian vegetation.
- Decommissioning work on the diversion canal may result in potential impacts to fritillaries in the vicinity of the canal that may be a special-status species, Butte County fritillary. This species is a CNPS List 3 species, and mitigation for impacts as required under California Environmental Quality Act (CEQA) will be implemented.



- Proposed Monitoring.
  - Spring surveys for Butte County fritillary along the diversion canal will be conducted to determine whether impacts to this species will occur and to determine suitable avoidance, minimization, and mitigation measures.

### **Canals and Forebays**

- Additional pre-construction surveys needed: None.
- Two elderberry shrubs, potential habitat for the federally-listed valley elderberry longhorn beetle, were reported on slopes above and below the canal.
- Two stems of a special-status orchid, mountain lady-slipper, were observed growing from under a concrete-walled section of the Kilarc Main Canal. Loss of this plant is probably unavoidable; it is growing at the top of an eroding slope and is in a precarious position.
- Decommissioning activities at the forebay, and possibly at the diversion structures, may affect wetland vegetation.
- Proposed Monitoring.
  - If decommissioning activities could potentially disturb the Valley Elderberry Longhorn Beetle (VELB), plants and any associated beetles because equipment cannot be kept at least 200-feet from these plants, standard mitigation for such impacts will be implemented.
  - The proposed work at the forebay diversion structure (cofferdam) will have a wetland delineation developed for the project and any identified mitigation for impacts to any wetlands will be appropriately developed.

### **Powerhouses and Penstocks**

- Additional pre-construction surveys needed: None.
- Decommissioning activities at the Project powerhouses and tunnels could affect special-status bats if any are using these facilities for roosting. Although no bats or signs of bats were observed in surveys in 2003, bats may have occupied one or more of these facilities in the interim.
- Leaving the penstocks in place, avoids potential impacts to the surrounding terrestrial habitat, including a few fritillaries in the vicinity of the Kilarc penstock that may be a special-status species, Butte County fritillary. This species is a CNPS List 3 species, and mitigation for impacts would be required under CEQA.
- Proposed Monitoring.
  - Appropriate surveys for bats will be conducted at Project Powerhouses and tunnels to appropriately address resource issues prior to decommissioning activities.





### **3.1.3 Geomorphology and Water Quality**

#### **Background**

#### **Geomorphology**

PG&E conducted studies during 2003 as part of the relicensing effort to characterize sediment transport and stream stability on Old Cow Creek, South Cow Creek, and Hooten Gulch in order to evaluate potential Project-related impacts. Geologic controls, sediment sources, sediment transport characteristics, sediment deposits, and general channel stability were examined in the field. The purpose of the investigation was to determine whether Project operations are adversely affecting channel conditions. The Sediment and Channel Stability study (Study) addresses the influence of the project diversions and subsequent downstream flow reductions on the potential to increase sedimentation, cause the loss of spawning gravel, and generally alter bed particle size, with consequent alteration of aquatic habitat. The Licensee's study qualitatively evaluated these and other potential Project-related effects on channel morphology.

#### **Water Quality**

A water quality monitoring study was performed during 2003 as part of the relicensing effort to characterize water quality conditions in the Kilarc-Cow Creek Project Area. The water quality results were compared to State Water Board Basin Plan standards to verify that the existing conditions met the objectives identified in the California Regional Water Quality Control Board – Central Valley Region Basin Plan (Basin Plan). Preliminary results from the water quality monitoring study indicate that water quality in the project area is generally good.

For the Old Cow Creek portion of the Project, water samples were collected from four locations. Sample locations were placed immediately upstream of the diversion dam of Old Cow Creek to determine the water quality conditions entering the Project Area, and in the Kilarc Forebay to assess any change in water quality conditions that may have resulted due to the conveyance system. To assess the water quality conditions along the bypass reach, a sample location was placed immediately upstream and downstream of the Kilarc Powerhouse on Old Cow Creek.

For the South Cow Creek portion of the Project, water samples were collected from five locations. Samples were taken from locations immediately upstream of the diversion dams of Mill Creek and South Cow Creek to determine the water quality conditions entering the Project Area, and in the Cow Creek Forebay to assess any change in water quality conditions that may have resulted due to the conveyance system. To assess the water quality conditions along the bypass reach, samples were taken on South Cow Creek immediately upstream of its confluence with Hooten Gulch. Samples were also taken immediately downstream of the Cow Creek Powerhouse tailrace in Hooten Gulch to assess the quality of water below Cow Creek Powerhouse.



The water quality field sampling included two sampling events, one during the winter and the other in the summer months of 2003. The winter months represent high flow conditions while the summer months are representative of lower flow conditions.

Water samples were collected for analyses of inorganic chemicals, nutrients, and dissolved metals. *In situ* water quality measurements were also collected at each sampling location at the time of sampling. The *in situ* measurement included pH, air and water temperature, specific conductance, dissolved oxygen, and turbidity.

### **Water Temperature**

Water temperature monitoring was conducted during the 2003 relicensing effort to assess Project-related sources and magnitudes of impacts to water temperature. The monitoring (1) evaluated water temperature during the warmer months, (2) characterized water temperatures along bypass reaches for aquatic organisms, and (3) characterized the ability of the Project to affect water temperatures in bypass reaches and reaches downstream of Project reservoirs.

Water temperature was recorded every 20 minutes during the 2003 monitoring program and recorded as daily averages. Old Cow Creek mean daily water temperatures remained below 20°C during the monitoring program. Mean daily water temperatures in South Cow Creek were warmest just above the confluence with Hooten Gulch, and averaged 18.3°C and ranged from 10.6°C to 24.3°C. Mean daily water temperatures in South Cow Creek consistently were above 20°C above the South Cow Diversion during the summer months (July-August).

### **General Measures to Protect Resources**

#### **Diversions**

- For Dam Removal or Notching Options, determine if sediments must be excavated and removed from impoundment, or if they can be allowed to naturally recruit to downstream reaches.
- Pre-Construction Survey.
  - Determine quantity and size composition of sediments stored behind dam.
  - Topographic survey of impoundment.
  - Particle size sampling in impoundment (Vibracore, auger, and pebble count).
  - Research historical as-built or design drawings with dam and channel elevation data.
- Sediment transport analysis.
  - Cross-section and gradient surveys of channel segments in representative and in most sensitive (i.e., low-gradient, least entrenched, and most





adjustable) and most representative segments of channel downstream from impoundment for input to hydraulic model.

- Prepare hydraulic model simulations of channel bedload transport capacity over range of flow conditions; compare to increased sediment load from stored sediments.
- Determine chemical composition of stored sediments.
  - Metal contaminant sampling of sediments.
- Vertical and lateral channel instability following dam removal, notching, and/or sediment excavation. There is a potential for vertical channel instability (incision and head-cutting) and bank erosion. Equilibrium channel grade through impoundment should be re-established as part of deconstruction work.
- Determine proper channel longitudinal gradient to maintain vertical channel stability through former impoundment and upstream reach.
- Longitudinal profile survey from 10 bankfull widths below impoundment, through impoundment, to 10 bankfull widths upstream of backwater created by impoundment.
- Research historical as-built or design drawings with dam and channel elevation data.
- Determine potential for bank instability from dam site to approximately 10 bankfull channel widths upstream from impoundment back water.
  - Field inspection. Estimate bank angle following dam/sediment removal, likely bank material composition, presence, and function of existing riparian vegetation. Propose stabilization measures, and construction BMPs.
- Proposed Monitoring.
  - Track channel geomorphic adjustments (change in bed particle size, bank erosion and vertical channel stability) as part of the post decommission monitoring. Develop the monitoring plan, to begin prior to decommissioning work (baseline), immediately following completion of decommissioning, and at intervals after post-decommissioning. Monitoring to encompass area both upstream and downstream from dam sites. Monitoring to include:
    - Cross-section surveys (to track bank erosion and lateral channel stability).
    - Longitudinal profile to track vertical stability (aggradation/degradation).
    - Pebble counts and/or facies mapping to track bed particle size composition.
    - Bank stability ratings (performed immediately following decommission work and at intervals thereafter).



- Implementation of standard BMPs and monitoring during deconstruction activities to ensure adequate protection of the environmental resources.
- Develop a Storm Water Pollution Prevention Plan for the deconstruction activities associated with the decommissioning.

### **Canals and Forebays**

- Change in hillslope drainage patterns and potential erosion associated with fill of canals and forebays. In addition, potential erosion of forebays if left unfilled.
- Pre-Construction Analysis.
  - Conduct slope stability studies to assess susceptibility to erosion from changes in runoff patterns. Identify areas needing additional protection. Field survey to identify natural drainage intersection points with canal. On-site measurement of drainage feature dimensions, and consider appropriate method to allow runoff across in-filled canal in a stable manner.
  - Field survey of forebays to assess natural drainage outlets.
- Proposed Monitoring.
  - Develop and implement a monitoring plan to inspect canals to identify erosion associated with canal filling for a period to be determined following decommissioning. Post removal inspection of forebays to ensure proper drainage, and minimize risk of hillslope instability due to ponding and improper drainage.
  - Implementation of standard BMPs and monitoring during deconstruction activities to ensure adequate protection of the environmental resources.
  - Develop a Storm Water Pollution Prevention Plan for the deconstruction activities associated with the decommissioning.

### **Powerhouses and Penstocks**

- Pre-construction analysis: None.
- Erosion at site-specific locales associated with deconstruction or other treatment of facilities.
- Proposed Monitoring.
  - Identify areas in need of protection during implementation of proposed activities.
  - Implementation of standard BMPs and monitoring during deconstruction activities to ensure adequate protection of the environmental resources.
  - Develop a Storm Water Pollution Prevention Plan for the deconstruction activities associated with the decommissioning.





### **3.1.4 Historical and Cultural Resources**

#### **General**

As part of its relicensing effort, PG&E completed a cultural resources inventory within the Area of Potential Effects (APE), pursuant to Section 106 of the National Historic Preservation Act (NHPA) and 36 Code of Federal Regulations (CFR) 800.4, Identification of Historic Properties. In-field studies included a pedestrian archaeological survey; no excavations were made nor were artifacts collected. A survey area of 10 meters (30-feet) on either side of the feature was used for the water conveyance canal (aqueduct) and access roads. The whole of the two powerhouse sites (including the penstocks, forebays and diversion dams) are included in the APE.

A record search was conducted at the Northeast Information Center (NEIC), California State University, Chico. In addition, research was conducted at the Licensee's record center and other repositories with information regarding the construction phases of the Kilarc-Cow Creek Project.

The APE is defined as the area within the FERC Project boundary. The APE includes the Project powerhouse sites including the footprint of the powerhouse, penstock, water conveyance canals, the diversion dams, forebay, and all access roads.

#### **General Measures to Protect Resources**

#### **Project Facilities**

- The Kilarc Powerhouse and associated switchhouse and the Cow Creek Powerhouse are potentially eligible for listing on the National Register of Historic Places (NRHP) as a discontinuous district.
- Associated structures and facilities do not meet criteria for eligibility because of modifications and replacement.
- Recorded individual components of each project development.
- Project Area.
  - Kilarc Powerhouse and facilities - penstock, three ancillary buildings, siphons, dams, and aqueduct.
  - Cow Creek Powerhouse and facilities - penstock, siphons, dams, and aqueduct.
  - Building foundation - concrete building foundation near Cow Creek facilities.

#### **Proposed Monitoring**

- An Archaeological Survey Report will be developed to determine the need to record project facilities.



- Pre-decommissioning surveys for unknown cultural resources will be conducted at the facilities that will require ground disturbing activities to remove.
- Surveys for potential cultural resources in Kilarc and Cow Creek Forebay following dewatering.

### **3.1.5 Recreational Resources**

#### **General**

During the 2003 relicensing effort, PG&E conducted a study to determine the existing recreation use and visitor survey information from the Kilarc Forebay and Kilarc Powerhouse. The forebay and powerhouse are the only two recreation areas where activity is promoted and facilities provided. Other lands within the Project area are privately owned and not open to public access, or not easily accessible (e.g., no road access, heavily forested, and steep hillsides).

#### **Kilarc Forebay**

During the survey period (Memorial Day through Labor Day, 2003 including July 4<sup>th</sup>) the highest peak number of people-at-one-time (PAOT) of 25 was observed at Kilarc Forebay Shoreline with an average of 5.4 percent PAOT. The highest peak number of vehicles-at-one-time (VAOT) was nine at Kilarc Forebay Picnic Area. The overall peak number of persons observed in the study area was 25 on May 25<sup>th</sup>, 2003 (Memorial Day weekend) with an average of 2.8 persons observed at one time, and the overall peak number of vehicles observed in the study area was nine on September 1<sup>st</sup>, 2003 (Labor Day weekend) with an average of 3.2 vehicles observed at one time. Approximately 77.9 percent of total visitors to the study area were observed at the Kilarc Forebay Shoreline. Approximately 13.3 percent of total visitors were observed at the Kilarc Forebay Picnic Area. For the entire sampling season, the highest number of vehicles in the study area (130) was observed at Kilarc Forebay Picnic Area, followed by Kilarc Inlet Canal Area with 35.

In terms of activity participation, the highest number of people was recorded for bank fishing with approximately 62 percent of the total number of visitors. The second highest number was for general recreation with 93 visitors and approximately 19.6 percent of total visitors. Picnicing and sunning had approximately 12 and six percent participation respectively. Although no survey respondents indicated that they boated, 2 visitors (0.4 percent participation) were recorded for general boating. Overall, results indicated that fishing had the highest visitor participation. Although survey respondents indicated that they arrived before 12 PM and left the study area by 5 PM, researcher observations revealed different information. According to researcher observations, the majority of all observed activity occurred in the morning (Table 3.1-1). The forebay's picnic areas table use was evenly split between morning and afternoon use. The group's picnic areas use was predominantly in the afternoon.





The recreation study also identified numerous other recreation opportunities with the region including the neighboring Shasta-Trinity National Forest (STNF). Other recreation lakes and rivers within STNF that offer fishing and picnicking opportunities are presented in Table 3.1-1.

**Table 3.1-1. Shasta-Trinity National Forest Recreation Location, Facilities, and Activities**

<b>Name of Lake or River</b>	<b>Location</b>	<b>Facilities</b>	<b>Recreation Activities</b>
Bear Creek	Near McArthur, in Shasta-Trinity National Forest	None	Fishing
Castle Lake	Near Mount Shasta, in Shasta-Trinity National Forest	Campsites, picnic tables, vault toilets	Camping, fishing, swimming, hiking, picnicking, wind-surfing
Clear Creek	West of Redding in Shasta-Trinity National Forest	Primitive Campsite	Primitive camping, fishing, swimming
Gumboot Lake	Near Mount Shasta, in Shasta-Trinity National Forest	Campsites, picnic tables, vault toilets	Non-motorized boating, swimming, camping, hiking, picnicking, fishing
Iron Canyon Reservoir	Near Big Bend, in Shasta-Trinity National Forest	Two campgrounds, boat ramp	Boating, camping, fishing, swimming
Keswick Lake	Near Redding, in Shasta-Trinity National Forest	Boat ramp, day-use picnic area	Boating, fishing, jet skiing, swimming, water skiing, picnicking
Lake Britton	Near Fall River Mills, in Shasta-Trinity National Forest	Marina, three boat ramps, campgrounds	Boating camping, fishing, jet skiing, swimming, water skiing, picnicking, windsurfing
Lake Siskiyou	Near Mount Shasta, in Shasta-Trinity National Forest	Boat ramp, dock, Campsites, bathrooms with showers, marina	Boating, camping, fishing, swimming, picnicking, windsurfing
McCloud River	Near McCloud, in	Four	Camping, fishing,



**Table 3.1-1. Shasta-Trinity National Forest Recreation Location, Facilities, and Activities**

<b>Name of Lake or River</b>	<b>Location</b>	<b>Facilities</b>	<b>Recreation Activities</b>
	Shasta-Trinity National Forest	campgrounds, picnic area	swimming, rafting, picnicking
Picayune Lake	Near Mount Shasta, in Shasta-Trinity National Forest	none	Day use only, picnicking, swimming, trout fishing
Pit River	Northeast of Redding, in Shasta-Trinity National Forest	Campsites	Camping, fishing, hot springs, swimming
Rock Creek	Near Lake Britton, in Shasta-Trinity National Forest	Primitive campground	Fishing, camping
Shasta Lake	Near Redding, in Shasta-Trinity National Forest	14 boat ramps, 12 marinas, 12 campgrounds, lakeshore lodging, 400 houseboat rentals	Boating, water skiing, camping, fishing, jet skiing, swimming, windsurfing
Tamarack Lake	Near Castella, in Shasta-Trinity National Forest	none	Primitive camping, fishing, swimming
Toad Lake	Near Mount Shasta, in Shasta-Trinity National Forest	Campsites, picnic tables, vault toilets	Camping, fishing, picnicking, hiking, swimming, wind-surfing
Trout Creek	Near McCloud, in Shasta-Trinity National Forest	Small campground	Camping, fishing
Upper Sacramento River	Near Mount Shasta, upstream of Shasta Lake in Shasta-Trinity National Forest	Campsites, put-in sites	Camping, fishing, rafting, swimming
Upper Sacramento River	Near Mount Shasta, upstream of Shasta Lake in Shasta-	Campsites, put-in sites	Camping, fishing, rafting, swimming





**Table 3.1-1. Shasta-Trinity National Forest Recreation Location, Facilities, and Activities**

<b>Name of Lake or River</b>	<b>Location</b>	<b>Facilities</b>	<b>Recreation Activities</b>
	Trinity National Forest		
Whiskeytown Lake	Near Redding, in Shasta-Trinity National Forest	Three boat ramps, three campgrounds, picnic areas	Boating, water skiing, jet skiing, fishing, camping, swimming, wind-surfing, picnicking



## **Section 4.0 Decommissioning Costs**

---

The preliminary estimated cost to decommission the Project facilities is presented below. This preliminary estimate is based on an assumed scope of work with contingency to address uncertainty. These costs are expected to change as the decommissioning plan is refined. The Surrender Application is filed with FERC, through bidding and awarding of contracts for removal of the Project facilities.

**Table 4.1-1 Preliminary Estimated Expected Cost**

<b>Activity Phase</b>	<b>Preliminary Estimated Cost</b>
Preparation and Filing of Surrender Application Including Decommissioning Plan	\$1,000,000
Project Facility Removal	\$8,000,000
Post Decommissioning Monitoring	\$1,400,000
Total Preliminary Estimated Decommissioning Costs	\$10,400,000



## Section 5.0 Water Rights

---

For the Kilarc Development PG&E holds four pre-1914 water rights in the Old Cow Creek<sup>1</sup> watershed. The three main water rights are for the non-consumptive use for power generation at Kilarc Powerhouse. PG&E claims a right to divert 2.5 cfs from North Canyon Creek into the North Canyon Creek Canal, a right to divert 7.5 cfs from South Canyon Creek into the South Canyon Creek Canal, and a right to divert 52 cfs from Old Cow Creek into the Kilarc Canal. PG&E has filed Statements of Water Diversion and Use (SWDU) numbers 9,977; 1,020, and 828, respectively for these three diversions. The remaining water right (200 global precipitation measurement (gpm)) is for domestic use at Kilarc Powerhouse. PG&E reports this water right in SWDU 869.

For the Cow Creek Development PG&E also owns two pre-1914 water rights in the South Cow Creek watershed. Both of these rights are for the non-consumptive use for power generation at the Cow Creek Powerhouse. PG&E claims a right to divert 20 cfs from Mill Creek into the Mill Creek Canal and a right to divert 50 cfs from South Cow Creek into the South Cow Creek Canal. PG&E has filed SWDU numbers 849 and 829 respectively for these diversions.

The Agreement (Attachment A) includes the following on water rights:

*“If the Company is authorized or ordered to decommission the Project, the Company intends that its appropriative water rights held for operation of the Project will be protected and used to preserve or enhance aquatic resources. Upon a final order from FERC ending Project power generation operations, the Company intends that its appropriative water rights held for operation of the Project will be transferred to and used by a resource agency or other entity acceptable to the Parties to protect, preserve or enhance aquatic resources, as authorized by applicable laws and regulatory agencies. Additionally, the Company will in good faith work with others to resolve potential water rights issues with the goal of preserving or enhancing aquatic resources.”*

In addition, the Project Agreement Subject and Desired Conditions included the following on water rights:

- *PG&E appropriative water rights are protected and used to preserve or enhance aquatic resources.*
- *Other water right holder's rights are preserved.*
- *All water rights preserved subject to the law.*
- *Water rights are enforceable and permanent.*

---

<sup>1</sup> Old Cow Creek and North Cow Creek are names that are used interchangeably in the Water Rights discussions for Old Cow Creek.





- *Maintain aquatic habitat values downstream of Hooten Gulch.*

PG&E's current proposal for disposition of the six water rights described above is to abandon them upon receiving a final Order from FERC ordering the decommissioning of the Project. The Cow Creek Adjudication (Decree entered August 25, 1969), address water rights in the Project Area. It is PG&E's intention not to re-open the Adjudication or diminish its authority in any way as part of decommissioning the Project.

PG&E holds shares in the South Cow Creek Ditch Association for water associated with the German Ditch. The German Ditch diversion is located upstream from PG&E's diversion for the South Cow Creek Canal. PG&E's shares of first and second priority water allow it to keep up to 1.44 cfs in the German Ditch to be delivered to Mill Creek. The water is then allowed to flow down to PG&E's Mill Creek diversion for the Mill Creek Canal where it can be diverted by PG&E for generation use at Cow Creek Powerhouse. Under third priority right, 2.0 cfs are left in the creek and are diverted at PG&E's South Cow Creek Ditch for generation use at Cow Creek Powerhouse. Upon decommissioning, PG&E will divest its ownership of shares in the Association and the shares will remain with the Association. (Figures 1.4-1 through 1.4-5 present a schematic of creeks, canals, and diversions in the Project area).

Cow Creek Powerhouse current discharges water into Hooten Gulch, which continue to flow for a distance before the water joins with Cow Creek. The Wild Oak Development, a mini-hydro takes water from Hooten Gulch for generation purposes. In addition, Abbott Diversion also withdraws water from Hooten Gulch (a total water right of 14 cfs) for irrigation purposes. With decommissioning of the Cow Creek Development, water will not be available to Hooten Gulch to serve these two water users. As stated in the Agreement, PG&E intends to work with the parties involved to address these issues.

A summary of the water rights associated with the Project is presented below.



**Table 5.1-1 Water Rights**

SWDU No.	Priority /first use	Gage	Dir Diversion		Description (Name of Works)	Point of Diversion	Place of Use	Type of use	Water Right Class
			Amount	Units					
9977	1907	CB 128	2.5	cfs	North Canyon Creek Canal	North Canyon Creek	Kilarc PH	P	Pre 1914
1020	1906	CB 1	7.5	cfs	South Canyon Creek Canal	South Canyon Creek	Kilarc Powerhouse	P	Pre 1914
828	1903	CB 2	52	cfs	Kilarc Canal below intake	Old Cow Creek	Kilarc Powerhouse	P	Pre 1914
849	1907	CB	20	cfs	Mill Creek Canal	Mill Creek	Cow Creek Powerhouse	P	Pre 1914
829	1904	CB 8	50	cfs	S. Cow Creek Canal, below intake	South Cow Creek	Cow Creek Powerhouse	P	Pre 1914
869	1901		200	gpm	Kilarc domestic supply	tributary to Cow Creek	Kilarc Powerhouse	D,II	Pre 1914



## **Section 6.0 Land Rights and Landownership**

---

A total of approximately 187.13 acres are included within the FERC Project boundary. Of this total, approximately 19 acres are patented lands that are subject to Section 24 of the Federal Power Act; approximately 117 acres are PG&E-owned lands; and approximately 51 acres are privately owned lands, for which PG&E has acquired all of the necessary rights (including easements) to operate and maintain the Project. Where PG&E holds easements on private lands for Project facilities, upon completion of decommissioning, PG&E currently proposed to quick claim the easements back to the private landowner. The final disposition for the lands PG&E owns for Project purposes and all other PG&E lands in the area will be determined by the Pacific Forest and Watershed Lands Stewardship Council (Stewardship Council).





## **Section 7.0 License Surrender Application Schedule**

---

On March 23, 2007, PG&E filed a proposed Surrender Schedule with FERC. FERC approved the proposed schedule on June 11, 2007. The approved schedule requires PG&E to file with FERC a License Surrender Application, including a decommissioning plan by March 26, 2009.

PG&E began development of this Proposed Decommissioning Plan in July 2007. PG&E will present this Proposed Plan to the public on September 12 and 13, 2007, followed by a 30-day public comment period. PG&E will prepare responses to comments received and schedule a subsequent meeting (anticipated in November 2007) to discuss its responses to the comments.

If it is determined that additional studies are necessary to ensure that environmental resources are adequately protected during deconstruction activities, such studies would be performed in 2008. Study results and a revised Decommissioning Plan will include the draft License Surrender Application, which PG&E anticipates filing with FERC in August 2008. After a 60-day public comment period, PG&E will finalize the License Surrender Application and file it with FERC in March 2009.

Upon acceptance of the License Surrender Application, FERC will undertake an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) and will consult with federal and state resource agencies under the Endangered Species Act. The State Water Resources Control Board (SWRCB) will also initiate a California Environmental Quality Act (CEQA) review prior to issuing a Water Quality Certification for the decommissioning activities pursuant to Section 401 of the Clean Water Act. PG&E anticipates that the FERC EA, federal and state consultations, and SWRCB CEQA process will be completed within six months to two years after PG&E files its License Surrender Application. PG&E expects that FERC will issue an Order granting PG&E's License Surrender Application between 2009 and 2011. Based on this Order, PG&E will develop a detailed engineering plan and management plans for removal of the Project facilities. After approval of these plans by FERC and obtaining any other required permits, PG&E anticipates commencing decommissioning activities between 2010 and 2013. It's expected removal of the Project facilities will take two years followed by two years of maintenance and monitoring of the site restoration work.



## References

---

- California Department of Fish and Game (CDFG). 1995. Fish Species of Special Concern in California, Sacramento River Late-Fall Chinook Salmon. California Department of Fish and Game.
- California Department of Fish and Game (CDFG). 2003. Rarefind2, California Natural Diversity Database. Electronic database. Sacramento, California.
- Healey, T. 1965. Aerial salmon spawning survey of Cow & Cottonwood Creeks, February 26, 1965, California Department of Fish and Game Memorandum Report to
- Healey, T. 1974. South Cow Creek Stream Survey, 11 and 26 July 1974, California Department of Fish and Game Stream Survey Report, 10 September 1974.
- Moock, S. W. and C. E. Steitz. 1984. South Cow Creek fish ladder and screen evaluation studies. Pacific Gas and Electric Company, San Ramon, California.
- Pacific Gas and Electric. 2004. Site Assessment For California Red-Legged Frog (*Rana aurora draytonii*) Habitat In The Kilarc-Cow Project Area.
- SHN Consulting Engineers & Geologists and Vestra Resources, Inc (SHN). 2001. Cow Creek Watershed Assessment. Prepared for Western Shasta Resource Conservation District and Cow Creek Watershed Management Group.
- Thomas R. Payne & Associates (TRPA). 1985. Electrofishing survey of Old Cow Creek, Tucker Project, Shasta County, California. Prepared for Mega Renewables, Inc., Redding, CA.
- TRPA. 1986. Meeting and proposed fishery mitigation for Morelli Project FERC No. 8659, South Cow Creek, Shasta County, California. Letter to Dave Hoopaugh CDFG, February 11 1986.

### Personal Communications

- Manji, A., CDFG. pers. comm. Dec. 2003.
- Overton, P., CDFG. pers comm. Oct. 2003
- Parkinson, D. pers. comm. June 2003.
- Parkinson, D. pers. comm. Oct 2003.



# **Appendix A**

## **Kilarc-Cow Creek Project Agreement**



FILED  
OFFICE OF THE  
SECRETARY

Pacific Gas and Electric Company

**MAILING ADDRESS**

P.O. Box 7442  
San Francisco, CA 94120

**STREET/COURIER ADDRESS**

Law Department  
77 Beale Street, 830A  
San Francisco, CA 94105  
415/973-7145  
Fax 415/973-5520

Annette Faraglia  
Attorney at Law

**ORIGINAL**

2005 MAR 31 P 3:27

FEDERAL ENERGY  
REGULATORY COMMISSION



March 30, 2005

Magalie R. Salas, Secretary  
FEDERAL ENERGY REGULATORY COMMISSION  
888 1<sup>st</sup> Street, NE, Docket Room 1A-East  
Washington D.C. 20426-0002

**Re: Kilarc-Cow Creek, FERC Project No. 606**

Dear Ms. Salas:

Enclosed please find an original and eight (8) copies of the executed Kilarc-Cow Creek Project Agreement ("Agreement") by and between Pacific Gas and Electric Company ("PG&E"), U.S. Fish and Wildlife Service, California Department of Fish and Game, National Park Service, California State Water Resources Control Board, NOAA Fisheries, Trout Unlimited, and Friends of the River in regard to the above referenced Kilarc-Cow Creek Project ("Project"). Under the Agreement, PG&E will not seek a new FERC license for the Project but will continue operating it until the current license expires on March 27, 2007 and on annual licenses thereafter until the Project is: (1) acquired by another license applicant; or (2) decommissioned by FERC order.

PG&E extensively analyzed anticipated new license conditions and determined that such conditions would make the Project an uneconomic source of power. This determination led to the development and execution of the Agreement. In the event FERC orders the Project to be decommissioned, the Agreement identifies what the signatory parties believe are the subjects that would need to be addressed and the desired condition of each of these subjects after decommissioning. PG&E used this indication of decommissioning scope along with other considerations in reaching its decision to enter into the Agreement and not file an application for new license. Specific actions necessary to achieve the desired conditions would be determined in the future. The Agreement also addresses the transferring of water rights, upon decommissioning, to a resource agency or other entity to support spring run Chinook salmon and steelhead trout.

On August 17, 2004 FERC representatives participated in a meeting, via conference call, with the signatory parties to discuss the possibility of PG&E not filing a relicensing application. Prior to and after that call, Steve Nevares, PG&E's Project Manager for the



Magalie R. Salas, Secretary  
FEDERAL ENERGY REGULATORY COMMISSION  
March 30, 2005  
Page Two

---

Kilarc-Cow Creek Relicensing Project, has been in contact with FERC staff regarding developments. Most recently, on January 19, 2005, Mr. Nevares updated FERC's Tim Welch, Emily Carter, and Alan Mitchnick on the status of the Agreement.

If you have any questions regarding the attached Agreement, you may contact Steve Nevares at (415) 973-3174, e-mail SAN3@pge.com, or myself at (415) 973-7145, e-mail ARF3@pge.com.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Annette Faraglia'.

Annette Faraglia

**Attachment**

cc: Ms. Emily Carter  
Mr. Robert Fletcher  
Mr. Hossein Ildari  
Mr. Alan Mitchnick  
Mr. Timothy Welch

Mr. Wayne White, Field Supervisor, U.S. Fish & Wildlife Service  
Mr. Donald B. Koch, Regional Manager, California Department of Fish & Game  
Mr. Jonathan B. Jarvis, Regional Director, National Park Service, Pacific West Region  
Ms. Victoria A. Whitney, Chief Div. of Water Rights, CA State Water Resources Control Bd.  
Mr. Rodney McInnis, Regional Administrator, NOAA Fisheries  
Mr. Steven Evans, Conservation Director, Friends of The River  
Charles Bonham, Esq., California Counsel, Trout Unlimited

Service List for Kilarc Cow-Creek Project, FERC Project No. 606

## **Kilarc-Cow Creek Project Agreement**

This Agreement regarding the Kilarc-Cow Creek Project ("Agreement") is signed as of March 22, 2005 ("Effective Date") by and among Pacific Gas & Electric Company, a California corporation (the "Company"), U.S. Fish and Wildlife Service, California Department of Fish and Game, National Parks Service, California State Water Resources Control Board, Nation Marine Fisheries Service, Friends of the River, and Trout Unlimited. The signatories to this Agreement are referred to individually as a "Party" or collectively as the "Parties".

### **PROJECT BACKGROUND**

A. The Kilarc-Cow Creek Project is licensed by the Federal Energy Regulatory Commission ("FERC") as FERC Project No. 606 (the "Project"). The Project is located in Shasta County, California along Old 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.

B. The current FERC license for the Project expires on March 27, 2007. For the last two years the Company has been following the process prescribed in the Federal Power Act to obtain a new license. The Company's application for a new license is due to FERC by March 27, 2005. The Parties to this Agreement have been participants in the Company's relicensing process for the Project.

C. Due to the complex and competing resource issues associated with the Project, in early 2004 the Company decided to explore decommissioning as an alternative to relicensing the Project. The Company requested that the Parties participate in evaluating actions that would be necessary should the Project be decommissioned. This led to the Parties identifying a list of subjects and desired conditions to be addressed should the Project be decommissioned. The subjects and desired conditions are listed in Attachment A, which is incorporated herein by reference.

D. The Company's evaluation of the cost of decommissioning the Project based on the subjects and desired conditions in Attachment A versus operating the Project under a new license with the anticipated conditions, show that under a new license the Project would be a high cost source of energy and would not be competitive with other generation sources. This evaluation was only possible once the relicensing work had proceeded to the point where potential conditions of a new license could be identified by the Parties.

E. Based on the Parties' consensus regarding the subjects and desired conditions in Attachment A, the Company is willing to stop work on relicensing the Project and not file a new license application. The Company is also willing to support decommissioning the Project based on its determination that decommissioning is a viable and cost-effective alternative to relicensing.



F. By not filing an application for new license by the statutory deadline of March 27, 2005, the Company will lose its incumbent licensee status and forgo its opportunity to relicense the Project. Under 18 C.F.R. §16.18, FERC is authorized to issue annual licenses to the Company pending determination of the future status of the Project. The United States may seek to take over the Project, or other entities may apply for the Project license within a time period set by FERC under 18 C.F.R. §16.25. Other entities may also apply for the Project license prior to March 27, 2005. If no timely applications are received, FERC will order the Company to prepare and file a license surrender application in compliance with FERC's rules that provides for the disposition of Project facilities.

## AGREEMENT

### 1. RELICENSING

1.1 The Company agrees not to file an application for new license for the Project. The other Parties support this action.

1.2 Entities other than the Company may seek to acquire a new license for the Project following the FERC prescribed process. The Parties accept that if an entity other than the Company indicates an interest in licensing the Project, the Company will need to provide such entities with Project information as required, including the results of relicensing studies performed to date. Additionally, the Parties accept that in such circumstances the Company will not hinder the efforts of such entities to obtain a license for the Project.

1.3 The Company will continue to operate the Project under the terms and conditions of the existing license until it expires on March 27, 2007, and then on annual licenses issued by FERC under 18 C.F.R. §16.18 until the Project is transferred to another licensee, or is decommissioned. The Company recognizes that during the period of annual license, if any, the Parties may work together, or individually, or with FERC to establish mutually acceptable environmental measures that improve water quality and/or conditions for state and federally protected species. The Parties recognize that FERC may incorporate additional or revised interim conditions in annual licenses if necessary and practical to limit adverse impacts on the environment under 18 C.F.R. §16.18(d). Any Company application for license surrender filed pursuant to 18 C.F.R. §16.25 shall provide for disposition of the Project facilities.

### 2. GOVERNMENTAL PARTIES RETAIN AUTHORITIES

*WAS* 2.1 Notwithstanding this Agreement, the Parties <sup>that</sup> ~~which~~ are governmental agencies retain all of their authorities and mandates related to the Project, the Project-affected resources and the Company's ongoing relicensing or surrender of license proceeding, and to any new licensing proceeding that may be initiated for this Project. Such authorities and mandates are not diminished in any way by these Parties entering into this Agreement. Entering into this Agreement is not in any manner a pre-decisional act or commitment by any of the governmental agencies as to the disposition of the Project assets or water rights.

2.2 Notwithstanding this Agreement, the Parties that are non-governmental organizations retain all of their rights related to the Project, the Project-affected resources and the Company's ongoing relicensing proceeding, and to any new licensing proceeding that may be initiated for this Project. Such rights are not diminished in any way by these Parties entering into this Agreement. Entering into this Agreement is not in any manner a pre-decisional act or commitment by any of the non-governmental organizations as to the disposition of the Project assets or water rights.

### **3. DECOMMISSIONING**

3.1 The Company commits to supporting decommissioning the Project based on decommissioning being the viable and cost effective alternative to relicensing.

3.2 If FERC authorizes or orders the Company to decommission the Project, upon a final order from FERC ending Project power operations, the Company intends to transfer its appropriative water rights held for operation of the Project ("water rights") to a resource agency or other entity that: 1) agrees to use the water rights to protect, preserve, and/or enhance aquatic resources, as authorized by applicable laws and regulations, such as Water Code section 1707; and 2) is acceptable to the Parties. Additionally, prior to transferring of its water rights, the Company will work in good faith with other non-Parties to resolve potential water rights issues with the goal of having the water rights used to preserve, protect and/or enhance aquatic resources.

3.3 In the event the Company files or is ordered by FERC to file a surrender application, which the Company agrees will include a decommissioning plan, the subjects and desired conditions in Attachment A represent the Parties' good faith effort at this time to identify the subjects that would need to be addressed and the desired condition of each of these subjects after decommissioning of the Project. It is the Parties' intent that the surrender application and decommissioning plan will define these subjects and desired conditions more fully and identify the actions to be taken by which the desired conditions will be met. If a consensus agreement cannot be reached, the dissenting Party will submit written documentation in the form of a letter to the other Parties explaining the dissenting Party's reasons for not agreeing with the other Parties. This letter will become part of the decommissioning record.

3.4 The subjects and desired conditions in Attachment A are based on limited information and subject to change by consensus of the Parties based on additional information that may become available or compliance with applicable laws and regulations. Consensus means that all Parties involved in a decision can "live with" that decision even if the decision is not exactly as each Party would desire.

3.5 Additional subjects and desired conditions may be added to this Agreement by a consensus decision-making process among the Parties.

3.6 If the Company files, or is ordered by FERC to file a surrender application and a decommissioning plan, the Parties will work collaboratively to develop the surrender schedule and decommissioning plan. The decommissioning plan will identify and refine the actions

necessary to address the subjects and desired conditions in Attachment A following decommissioning of the Project and will be consistent with legal requirements and obligations to FERC, and other applicable state and federal laws. Decisions on actions to address the subjects and desired conditions in Attachment A will be made by consensus of all Parties involved in the decommissioning plan's development.

3.7 To the extent permissible, the Parties will support the Company in the necessary regulatory processes to decommission the Project, including the Company's efforts before the CPUC to recover the costs the Company incurs to decommission the Project in accordance with Attachment A.

#### **4. NEW PARTIES**

Additional governmental agencies, groups and individuals may become Parties to this Agreement.

#### **5. COMMUNICATIONS TO THE PUBLIC**

This Agreement and the work that may be needed to assist the Company and the Parties in developing a detailed decommissioning proposal are open to members of the public.

#### **6. TERM OF AGREEMENT**

6.1 This Agreement shall remain in effect until the later of 1) March 27, 2007; 2) the date the Project license is transferred to a new licensee; or 3) completion of the decommissioning of the Project under a FERC order and the final order from FERC ending the Company's responsibilities as the licensee of the Project, unless this Agreement is terminated sooner pursuant to the terms of this Agreement.

6.2 Each Party has the option of withdrawing from this Agreement by providing written notice to the other Parties explaining the reasons for the proposed withdrawal and affording the other Parties thirty (30) calendar days to consult and seek alternatives to such withdrawal. All Parties agree they will not arbitrarily withdraw from the Agreement and will make a good faith effort to consult with the other Parties to resolve any dispute prior to withdrawal.

6.3 Withdrawal by the Company terminates this Agreement. Grounds for Company withdrawal include, but are not limited to, the CPUC's failure to authorize the Company to fully recover in rates its decommissioning costs.

6.4 This Agreement can also be terminated by unanimous agreement of the Parties.

#### **7. MISCELLANEOUS PROVISIONS**

7.1 There are no intended third-party beneficiaries of this Agreement.



7.2 This Agreement does not create any rights, interests, claims or causes of action at law or in equity for any Party against another Party, or for any non-party against any Party.

7.3 Each person signing this Agreement on behalf of a Party represents that she or he is authorized to sign the Agreement on the Party's behalf.

7.4 This Agreement does not make any Party the agent or representative of any other Party, and this Agreement does not create any partnership or venture between or among the Parties.

7.5 This Agreement may be signed in counterparts by the Parties, and the signed counterparts taken together shall constitute one complete Agreement. A facsimile signature by a Party on a counterpart of this Agreement is as valid as the original signature.

**Attachment A: Kilarc-Cow Creek Project Decommissioning Agreement Subjects and Desired Conditions**

*The Parties have signed this Agreement as of the dates listed below.*

**U. S. Fish and Wildlife Service**

By: \_\_\_\_\_  
Wayne White, Field Supervisor

Dated: \_\_\_\_\_

**National Park Service  
Pacific West Region**

By: \_\_\_\_\_  
Jonathan B. Jarvis, Regional Director

Dated: \_\_\_\_\_

**NOAA Fisheries**

By: \_\_\_\_\_  
Rodney McInnis, Regional Administrator

Dated: \_\_\_\_\_

**California Dept. of Fish and Game**

By: \_\_\_\_\_  
Donald B. Koch, Regional Manager

Dated: \_\_\_\_\_

**California State Water  
Resources Control Board**

By: \_\_\_\_\_  
Victoria A. Whitney, Chief, Div. of Water Rights

Dated: \_\_\_\_\_

**Friends of The River**

By: \_\_\_\_\_  
Steve Evans, Conservation Director

Dated: \_\_\_\_\_

7.2 This Agreement does not create any rights, interests, claims or causes of action at law or in equity for any Party against another Party, or for any non-party against any Party.

7.3 Each person signing this Agreement on behalf of a Party represents that she or he is authorized to sign the Agreement on the Party's behalf.

7.4 This Agreement does not make any Party the agent or representative of any other Party, and this Agreement does not create any partnership or venture between or among the Parties.

7.5 This Agreement may be signed in counterparts by the Parties, and the signed counterparts taken together shall constitute one complete Agreement. A facsimile signature by a Party on a counterpart of this Agreement is as valid as the original signature.

**Attachment A: Kilarc-Cow Creek Project Decommissioning Agreement Subjects and Desired Conditions**

The Parties have signed this Agreement as of the dates listed below.

**U. S. Fish and Wildlife Service**

By: Kenneth Sanchez  
Wayne White, Field Supervisor

Dated: 3/4/05

**California Dept. of Fish and Game**

By: \_\_\_\_\_  
Donald B. Koch, Regional Manager

Dated: \_\_\_\_\_

**National Park Service  
Pacific West Region**

By: \_\_\_\_\_  
Jonathan B. Jarvis, Regional Director

Dated: \_\_\_\_\_

**California State Water  
Resources Control Board**

By: \_\_\_\_\_  
Edward Anton, Chief, Div. of Water Rights

Dated: \_\_\_\_\_

**NOAA Fisheries**

By: \_\_\_\_\_  
Rodney McInnis, Regional Administrator

Dated: \_\_\_\_\_

**Friends of The River**

By: \_\_\_\_\_  
Steve Evans, Conservation Director

Dated: \_\_\_\_\_

7.2 This Agreement does not create any rights, interests, claims or causes of action at law or in equity for any Party against another Party, or for any non-party against any Party.

7.3 Each person signing this Agreement on behalf of a Party represents that she or he is authorized to sign the Agreement on the Party's behalf.

7.4 This Agreement does not make any Party the agent or representative of any other Party, and this Agreement does not create any partnership or venture between or among the Parties.

7.5 This Agreement may be signed in counterparts by the Parties, and the signed counterparts taken together shall constitute one complete Agreement. A facsimile signature by a Party on a counterpart of this Agreement is as valid as the original signature.

**Attachment A: Kilaro-Cow Creek Project Decommissioning Agreement Subjects and Desired Conditions**

The Parties have signed this Agreement as of the dates listed below.

**U. S. Fish and Wildlife Service**

By: \_\_\_\_\_  
Wayne White, Field Supervisor

Dated: \_\_\_\_\_

**California Dept. of Fish and Game**

By: Donald Koch  
Donald B. Koch, Regional Manager

Dated: March 1, 2005

**National Park Service  
Pacific West Region**

By: \_\_\_\_\_  
Jonathan B. Jarvis, Regional Director

Dated: \_\_\_\_\_

**California State Water  
Resources Control Board**

By: \_\_\_\_\_  
Edward Anton, Chief, Div. of Water Rights

Dated: \_\_\_\_\_

**NOAA Fisheries**

By: \_\_\_\_\_  
Rodney McInnis, Regional Administrator

Dated: \_\_\_\_\_

**Friends of The River**

By: \_\_\_\_\_  
Steve Evans, Conservation Director

Dated: \_\_\_\_\_



7.2 This Agreement does not create any rights, interests, claims or causes of action at law or in equity for any Party against another Party, or for any non-party against any Party.

7.3 Each person signing this Agreement on behalf of a Party represents that she or he is authorized to sign the Agreement on the Party's behalf.

7.4 This Agreement does not make any Party the agent or representative of any other Party, and this Agreement does not create any partnership or venture between or among the Parties.

7.5 This Agreement may be signed in counterparts by the Parties, and the signed counterparts taken together shall constitute one complete Agreement. A facsimile signature by a Party on a counterpart of this Agreement is as valid as the original signature.

**Attachment A: Kilarc-Cow Creek Project Decommissioning Agreement Subjects and Desired Conditions**

The Parties have signed this Agreement as of the dates listed below.

**U. S. Fish and Wildlife Service**

**California Dept. of Fish and Game**

By: \_\_\_\_\_  
Wayne White, Field Supervisor

By: \_\_\_\_\_  
Donald B. Koch, Regional Manager

Dated: \_\_\_\_\_

Dated: \_\_\_\_\_

**National Park Service  
Pacific West Region**

**California State Water  
Resources Control Board**

By:   
Jonathan B. Jarvis, Regional Director

By: \_\_\_\_\_  
Edward Anton, Chief, Div. of Water Rights

Dated: 3/16/05

Dated: \_\_\_\_\_

**NOAA Fisheries**

**Friends of The River**

By: \_\_\_\_\_  
Rodney McInnis, Regional Administrator

By: \_\_\_\_\_  
Steve Evans, Conservation Director

Dated: \_\_\_\_\_

Dated: \_\_\_\_\_

7.2 This Agreement does not create any rights, interests, claims or causes of action at law or in equity for any Party against another Party, or for any non-party against any Party.

7.3 Each person signing this Agreement on behalf of a Party represents that she or he is authorized to sign the Agreement on the Party's behalf.

7.4 This Agreement does not make any Party the agent or representative of any other Party, and this Agreement does not create any partnership or venture between or among the Parties.

7.5 This Agreement may be signed in counterparts by the Parties, and the signed counterparts taken together shall constitute one complete Agreement. A facsimile signature by a Party on a counterpart of this Agreement is as valid as the original signature.

**Attachment A: Kilarc-Cow Creek Project Decommissioning Agreement Subjects and Desired Conditions**

The Parties have signed this Agreement as of the dates listed below.

**U. S. Fish and Wildlife Service**

By: \_\_\_\_\_  
Wayne White, Field Supervisor

Dated: \_\_\_\_\_

**National Park Service  
Pacific West Region**

By: \_\_\_\_\_  
Jonathan B. Jarvis, Regional Director

Dated: \_\_\_\_\_

**NOAA Fisheries**

By: \_\_\_\_\_  
Rodney McInnis, Regional Administrator

Dated: \_\_\_\_\_

**California Dept. of Fish and Game**

By: \_\_\_\_\_  
Donald B. Koch, Regional Manager

Dated: \_\_\_\_\_

**California State Water  
Resources Control Board**

By: Victoria A. Whitney  
Victoria A. Whitney, Chief  
Div. of Water Rights

Dated: March 17, 2005

**Friends of The River**

By: \_\_\_\_\_  
Steve Evans, Conservation Director

Dated: \_\_\_\_\_

7.2 This Agreement does not create any rights, interests, claims or causes of action at law or in equity for any Party against another Party, or for any non-party against any Party.

7.3 Each person signing this Agreement on behalf of a Party represents that she or he is authorized to sign the Agreement on the Party's behalf.

7.4 This Agreement does not make any Party the agent or representative of any other Party, and this Agreement does not create any partnership or venture between or among the Parties.

7.5 This Agreement may be signed in counterparts by the Parties, and the signed counterparts taken together shall constitute one complete Agreement. A facsimile signature by a Party on a counterpart of this Agreement is as valid as the original signature.

**Attachment A: Kilarc-Cow Creek Project Decommissioning Agreement Subjects and Desired Conditions**

The Parties have signed this Agreement as of the dates listed below.

**U. S. Fish and Wildlife Service**

By: \_\_\_\_\_  
Wayne White, Field Supervisor

Dated: \_\_\_\_\_

**National Park Service  
Pacific West Region**

By: \_\_\_\_\_  
Jonathan B. Jarvis, Regional Director

Dated: \_\_\_\_\_

**NOAA Fisheries**

By: Rodney R. McInnis  
Rodney McInnis, Regional Administrator

Dated: 3-3-05

**California Dept. of Fish and Game**

By: \_\_\_\_\_  
Donald B. Koch, Regional Manager

Dated: \_\_\_\_\_

**California State Water  
Resources Control Board**

By: \_\_\_\_\_  
Edward Anton, Chief, Div. of Water Rights

Dated: \_\_\_\_\_

**Friends of The River**

By: \_\_\_\_\_  
Steve Evans, Conservation Director

Dated: \_\_\_\_\_



7.2 This Agreement does not create any rights, interests, claims or causes of action at law or in equity for any Party against another Party, or for any non-party against any Party.

7.3 Each person signing this Agreement on behalf of a Party represents that she or he is authorized to sign the Agreement on the Party's behalf.

7.4 This Agreement does not make any Party the agent or representative of any other Party, and this Agreement does not create any partnership or venture between or among the Parties.

7.5 This Agreement may be signed in counterparts by the Parties, and the signed counterparts taken together shall constitute one complete Agreement. A facsimile signature by a Party on a counterpart of this Agreement is as valid as the original signature.

**Attachment A: Kilarc-Cow Creek Project Decommissioning Agreement Subjects and Desired Conditions**

The Parties have signed this Agreement as of the dates listed below.

**U. S. Fish and Wildlife Service**

By: \_\_\_\_\_  
Wayne White, Field Supervisor

Dated: \_\_\_\_\_

**National Park Service  
Pacific West Region**

By: \_\_\_\_\_  
Jonathan B. Jarvis, Regional Director

Dated: \_\_\_\_\_

**NOAA Fisheries**

By: \_\_\_\_\_  
Rodney McInnis, Regional Administrator

Dated: \_\_\_\_\_

**California Dept. of Fish and Game**

By: \_\_\_\_\_  
Donald B. Koch, Regional Manager

Dated: \_\_\_\_\_

**California State Water  
Resources Control Board**

By: \_\_\_\_\_  
Edward Anton, Chief, Div. of Water Rights

Dated: \_\_\_\_\_

**Friends of The River**

By: HEH  
Steve Evans, Conservation Director

Dated: Feb 25, 2005

**Trout Unlimited**

By:   
Chuck Bonham, California Counsel

Dated: 03/03/2005

**Pacific Gas and Electric Company**

By: \_\_\_\_\_  
Gregory M. Rueger  
Sr. Vice President Generation and Chief Nuclear Officer

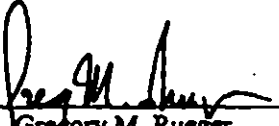
Dated: \_\_\_\_\_

**Trout Unlimited**

By: \_\_\_\_\_  
Chuck Bonham, California Counsel

Dated: \_\_\_\_\_

**Pacific Gas and Electric Company**

By:  \_\_\_\_\_  
Gregory M. Rueger  
Sr. Vice President Generation and Chief Nuclear Officer

Dated: March 22, 2005



## **Attachment A**

### **Kilarc-Cow Creek Project Agreement Subjects and Desired Conditions**

#### **Subjects Addressed**

Following is a list of subject areas (numbered items) and desired conditions (lettered items) addressed the Decommissioning Alternative Agency and Stakeholder meetings in the context of an Agreement for decommissioning the Kilarc-Cow Creek Project.

1. **Cost for Implementing Decommissioning**
  - a) Costs are known
  - b) Economics are favorable (i.e., more favorable than relicensing)
  - c) Funds for implementation, monitoring and contingency are identified
2. **Disposition of Diversion Structures**
  - a) Safe, timely, and effective passage up/downstream for fish
  - b) Geomorphically stable stream channel above/below/at diversions
  - c) Retain as much spawning gravel as possible in active channel during deconstruction activities
  - d) Safety issues addressed - public and wildlife
3. **Disposition of Canals and Spillways (includes waterways, tunnels and flumes)**
  - a) Stable drainage of runoff to natural waterways including:
    - Safe, timely, and effective fish passage
    - Maintain good water quality
    - Does not contribute sediment to drainage and streams
  - b) Preservation of riparian habitat during/after deconstruction wherever possible
  - c) Maintain floodplain connectivity
  - d) Safety issues addressed - public and wildlife
4. **Disposition of Forebays**
  - a) Geomorphically stable sediment conditions
  - b) Appropriate fish and wildlife rescue/salvage prior to deconstruction activities
5. **Disposition of Penstocks**
  - a) Safety issues addressed - public and wildlife
6. **Disposition of Powerhouses (includes switchyards)**
  - a) Safety issues addressed - public and wildlife
  - b) Historical/cultural values preserved
  - c) Preserve options for future reuse of structures other than powerhouses

7. **Disposition of Water Rights**
  - a) PG&E appropriate water rights are protected and used to preserve or enhance aquatic resources
  - b) Other water right holders rights are preserved
  - c) All water rights preserved subject to the law
  - d) Water rights are enforceable and permanent
  - e) Maintain aquatic habitat values downstream of Hooten Gulch
8. **PG&E Lands (as managed by a land trust)**
  - a) Promote land use consistent with ecological function of streams
  - b) Safety issues addressed - public and wildlife
9. **Public Recreation Opportunities**
  - a) Achieve balance between lost recreation opportunities at Kilarc forebay with other recreation opportunities (e.g., fishing and picnicking)
  - b) Recreation stream fisheries opportunities enhanced
  - c) Public access available to recreational opportunities
10. **FERC Approval for Decommissioning**
  - a) Timely FERC approval of decommissioning alternative consistent with the Agreement
11. **CPUC Rate Recovery for Decommissioning**
  - a) Full and timely rate recovery for decommissioning costs
12. **Post Decommissioning Licensee Responsibilities**
  - a) Decommissioning desired conditions are maintained post-decommissioning for specified time period
  - b) Scope and cost of responsibilities are known
13. **Permit Approval Process**
  - a) Timely identification and issuance of required permits
  - b) Permit conditions consistent with the Agreement
  - c) Environmental benefits of decommissioning outweigh impacts to resources
14. **Implementation Schedule**
  - a) Decommissioning schedule is approved with clearly defined timeframe
15. **Roads and Access Routes**
  - a) Best management practices for retiring roads where possible to minimize sediment
16. **Protection of Special Status Species**
  - a) Compliance with California Endangered Species Act and Endangered Species Act

**17. Deconstruction Activities**

- a) Current water right holders continue to receive their water
- b) Where practicable, no net loss in the health of riparian and aquatic habitat areas as a result of deconstruction activities
- c) Allows natural revegetation
- d) Timing of decommissioning activities are scheduled to avoid adverse effects on fish/wildlife
- e) Minimal water quality impairment during deconstruction and immediately thereafter including turbidity, settleable solids, suspended solids
- f) Appropriate fish and wildlife rescue/salvage prior to deconstruction activities