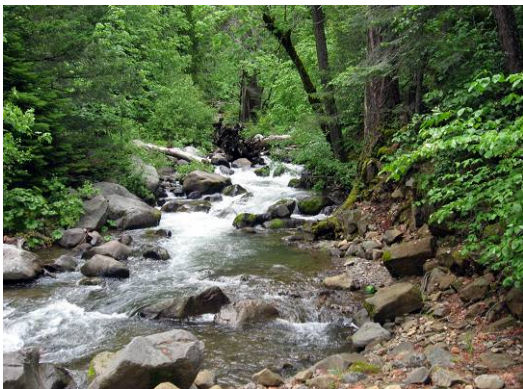


PACIFIC GAS AND ELECTRIC COMPANY

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



Proposed Decommissioning Plan



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Kilarc-Cow Creek Hydroelectric Project

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PROPOSED DECOMMISSIONING PLAN



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KILARC-COW CREEK HYDROELECTRIC PROJECT
FERC PROJECT NO. 606

PROPOSED DECOMMISSIONING PLAN

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Attachments

Attachment 1 – Kilarc-Cow Creek Project Agreement



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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 generally remove the Project facilities as described in this Proposed Decommissioning Plan (PDP).

The Project is located in Shasta County, California, approximately 30 miles east of the city of Redding, near the community of Whitmore. The Project consists of two developments constructed between 1904 and 1907: the Kilarc Development on Old Cow Creek (Figure 1-1) and the Cow Creek Development on South Cow Creek (Figure 1-2). Old Cow Creek and South Cow Creek are part of the Cow Creek Watershed. Old Cow Creek is a tributary to South Cow Creek and South Cow Creek is a tributary Cow Creek. Cow Creek drains to the Sacramento River. The Project comprises several small diversion dams, approximately 7 miles of water conveyance facilities, and two powerhouses with a total installed capacity of 5 megawatts (MW) with approximately 70 percent of that installed capacity attributable to the Kilarc Development. 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 (Figure 1-3).

The current license for the Project was issued by FERC on February 8, 1980, with an effective date of February 1, 1980 and an expiration date of March 27, 2007. 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 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 measures for the resources affected by the Project will outweigh the economic benefit of generation at the Project over the life of a new license, and will result in the Project no longer being an economic source of power for PG&E's electric customers. Consequently, in March 2005, PG&E entered into the Kilarc-Cow Creek Project Agreement (Agreement) signed by eight resource agencies and Interested Parties (Attachment 1). Pursuant to the Agreement, PG&E agreed, among other things, 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. In exchange, the other signatories agreed to support a scope of decommissioning which will address specified subjects, but provide PG&E flexibility to address these subjects in the most cost effective manner (e.g. the subject of fish passage may be addressed by breaching Project diversion dams rather than completing removing them).

Once the statutory deadline passed for PG&E to file an application for new license, FERC issued a public notice on March 7, 2005 inviting other entities to file NOIs to seek a new license for the Project. One entity did so: Synergics Energy Development, Inc. (Synergics) filed an NOI 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 (LSA) for the Project.

PG&E held local public meetings in March, May, September, and November of 2007 to explain its decision not to seek a new license for the Project, to explain the license surrender process, and to seek public input regarding Project decommissioning. Notices for the meetings were placed in the local newspapers and letters were sent to resource agencies, local governments, Indian tribes, non-governmental organizations, members of the public, and other groups likely to be interested in the license surrender proceedings (Interested Parties). During the meetings, PG&E solicited comments from the Interested Parties to assist it in identifying issues with decommissioning. PG&E also hosted a public site visit of the Project facilities in June 2007.

PG&E used the comments received from Interested Parties, the general principles contained in the Agreement, and environmental, cultural, and recreational resource information collected during the initial phase of PG&E's relicensing process, to develop a Preliminary Proposed Decommissioning Plan (PPDP). PG&E presented the PPDP at a public meeting on September 12 and 13, 2007, followed by a 30-day public comment period through October 12, 2007. PG&E reviewed the comments and held public and agency meetings on November 7 and 8, 2007 to discuss the scope of decommissioning and the resource issues to be addressed in the LSA. Based on these meetings, PG&E finalized the scope for additional resource studies and for a Draft LSA (DLSA). Additional studies considered necessary to ensure that environmental resources are adequately protected during deconstruction activities were performed in spring and summer 2008.

Study results and a revised PDP were included in the DLSA, which was issued on September 4, 2008 and distributed to all Interested Parties. Public meetings were held on September 9 and 10, 2008 in Redding and Palo Cedro, California to provide the public an opportunity to comment on the document. The meeting on September 9 also started a 60-day comment period that ended on November 8, 2008. PG&E collected public and agency comments and incorporated them into the final PDP and Final LSA.

In summary, the PDP is based on consultation with Interested Parties, including resource agencies and affected landowners; the results of resource studies; and oral and written comments received during public meetings and the comment periods for the PPDP and the DLSA. PG&E developed its decommissioning 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 the Project. Specific decommissioning actions were developed in consultation with affected landowners.

The PDP is intended to be accompanied by the protection, mitigation and enhancement (PM&E) measures described in Exhibit E, Environmental Report. While the PM&E measures are



oriented towards environmental and cultural resources, the PDP describes the detailed decommissioning of Project facilities.

Other alternatives considered for decommissioning Project facilities ranged from abandoning facilities in place to removing all facilities.¹ It was determined that these alternatives did not adequately address potential resource issues. For instance, abandoning the diversions in place will not allow fish passage, and removing all facilities could increase erosion at the diversion dam abutments.

The PDP 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 upon decommissioning.

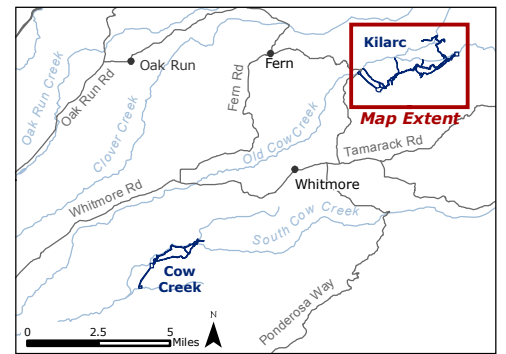
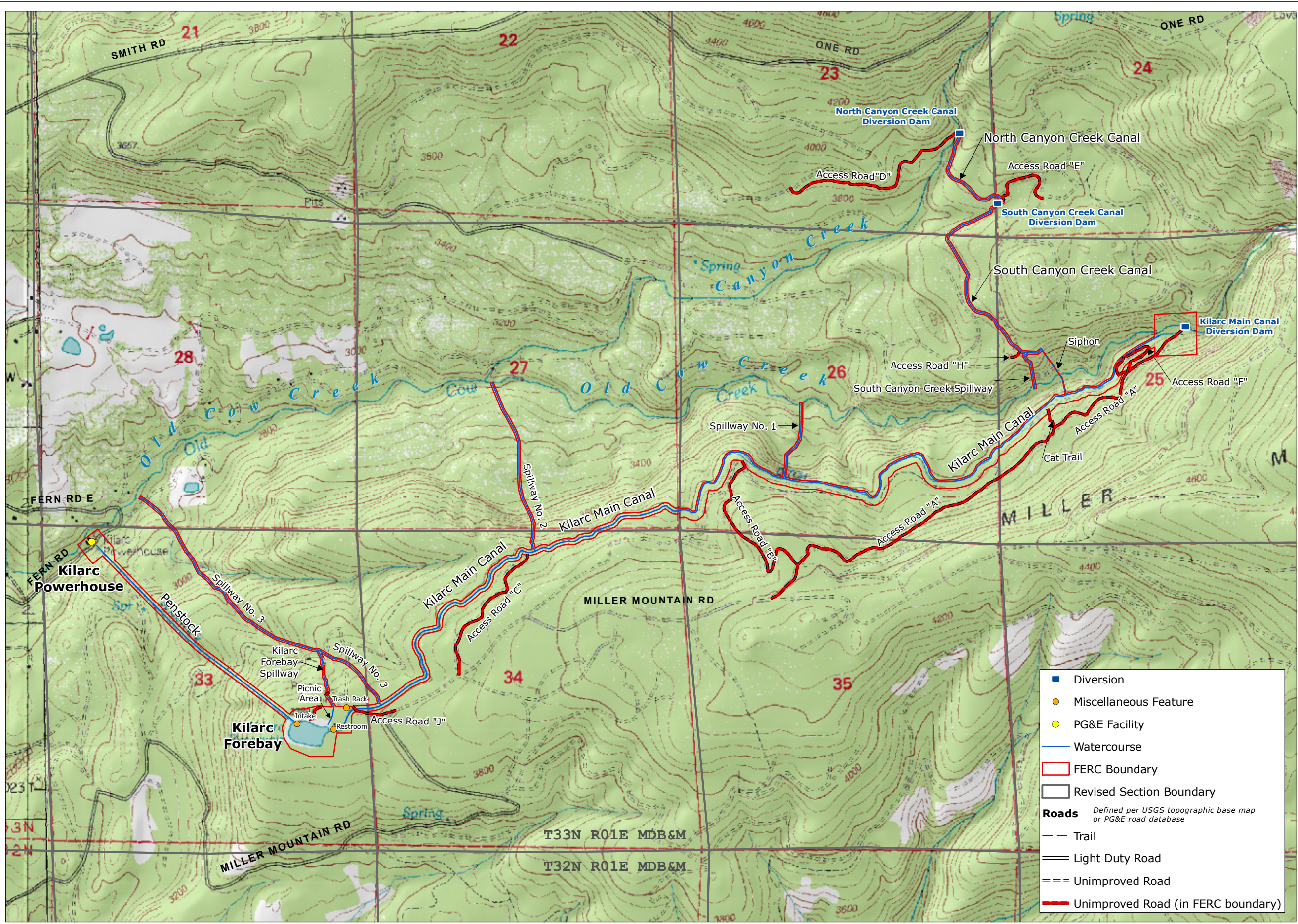
Other sections previously included in the Preliminary PDP have been superseded by the LSA.

- **Section 3 – Measures Addressing Potential Resource Issues.** This section identified potential resources that might be affected by decommissioning and proposed measures to protect them. These resources are described in LSA Exhibit E.2; Affected Environment. Potential impacts to these resources are addressed in Exhibit E.3, Project Impacts; and measures to protect, mitigate, or enhance the resources are described in Exhibit E.4, Protection, Mitigation, and Enhancement Measures.
- **Section 4 – Decommissioning Costs.** This section presented the preliminary estimated cost to decommission Project facilities. Costs are addressed in LSA Exhibit D.
- **Section 5 – Water Rights.** This section discussed PG&E’s water rights and their disposition upon decommissioning. This information is updated in Exhibit E (hydrology and water resources).
- **Section 6 – Land Rights and Landownership.** This section described PG&E’s land rights and landownership for operation and maintenance of the Project and their disposition following decommissioning. This information is updated in Exhibit E (land use).

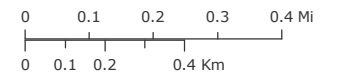
¹ On September 17, 2007 and August 1, 2008, Davis Hydro filed with FERC what PG&E understands to be two proposals for the continued operation of the Project facilities. The Federal Power Act and FERC regulations preclude PG&E from obtaining a new license to operate the Project since PG&E declined to file an application for a new license. 16 U.S.C. Section 808; 18 C.F.R. Section 16.24. In addition, the Federal Power Act and FERC regulations preclude a third party, like Davis Hydro, from assuming operations of Project facilities from PG&E for power generation where that third party missed applicable deadlines for submitting a license application. 16 U.S.C. Section 808; 18 C.F.R. Section 16.25. Therefore, PG&E did not consider any alternatives for continued operations in the development of the PDP.



- **Section 7 – License Surrender Application Schedule.** This section outlines the LSA process and provides a schedule for the process. The schedule is presented in LSA Exhibit C.



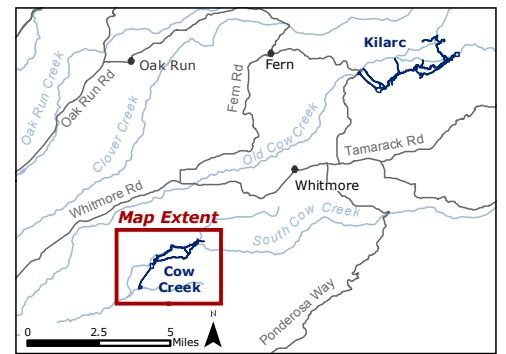
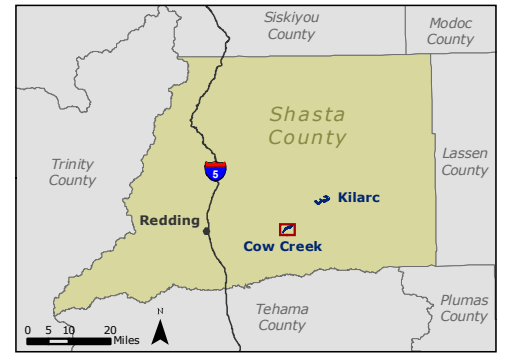
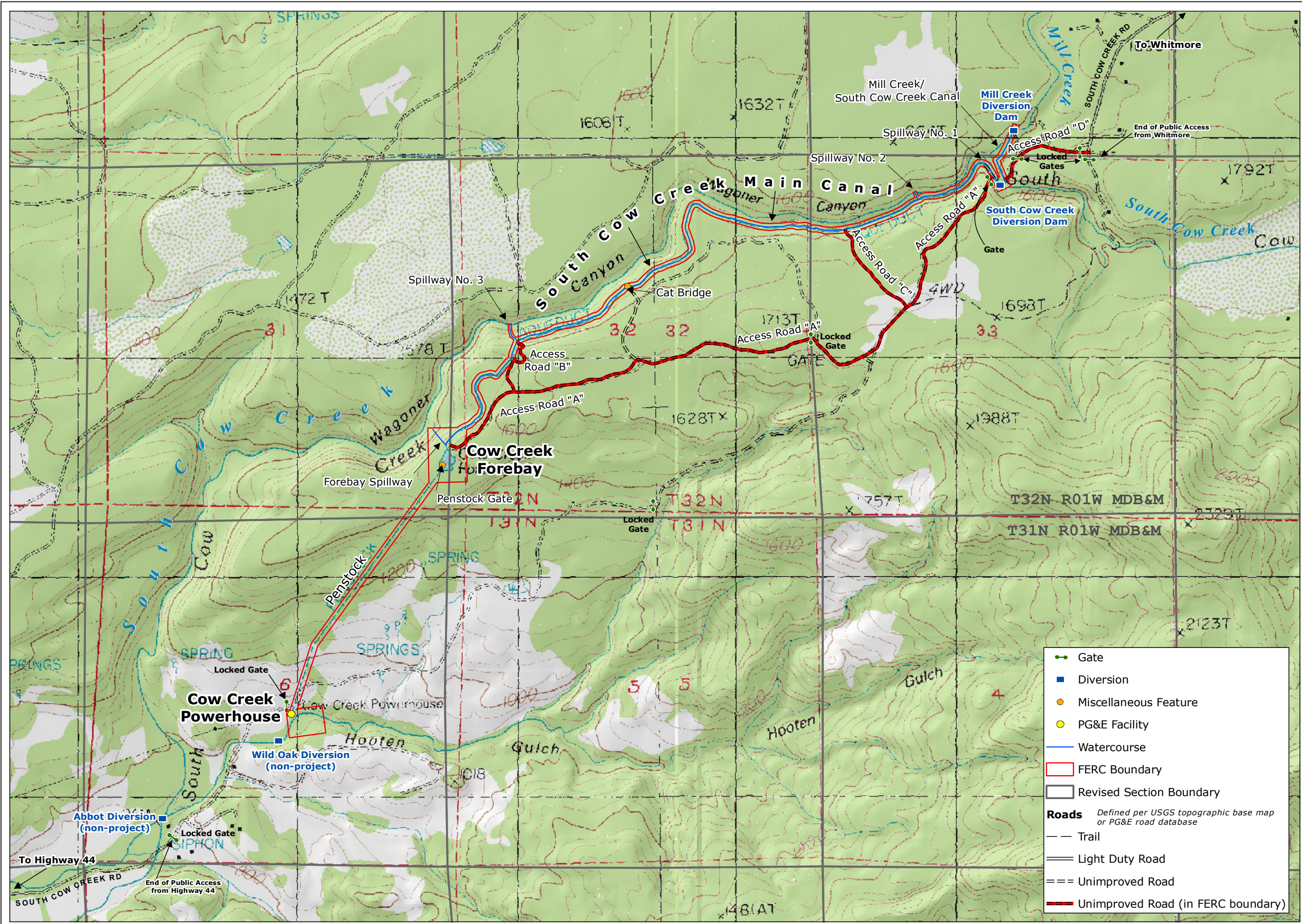
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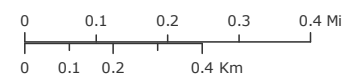
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**Figure 1-1
Features of the
Kilarc Development**

- Diversion
- Miscellaneous Feature
- PG&E Facility
- Watercourse
- FERC Boundary
- Revised Section Boundary
- Roads** Defined per USGS topographic base map or PG&E road database
- Trail
- == Light Duty Road
- Unimproved Road
- Unimproved Road (in FERC boundary)



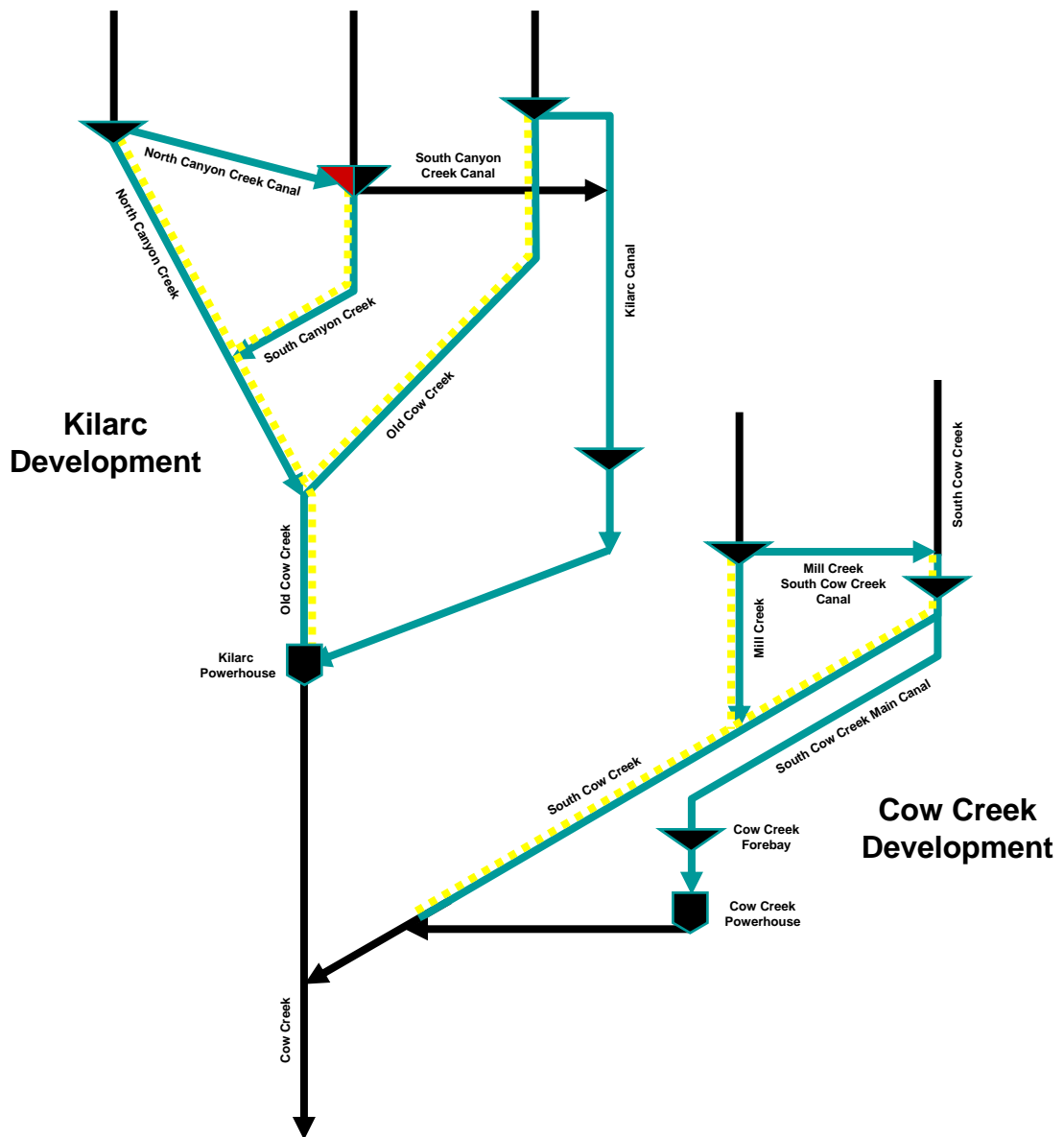
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**Figure 1-2
Features of the
Cow Creek Development**


- Gate
- Diversion
- Miscellaneous Feature
- PG&E Facility
- Watercourse
- FERC Boundary
- Revised Section Boundary
- Roads** *Defined per USGS topographic base map or PG&E road database*
- Trail
- Light Duty Road
- Unimproved Road
- Unimproved Road (in FERC boundary)



-  Powerhouse
-  PG&E Diversion
-  Streams and Water Conveyances
-  Project Area
-  Bypass Stream Reaches

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Figure 1-3
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 subwatersheds. The Kilarc Development, located in the Old Cow Creek subwatershed, is described first followed by the Cow Creek Development located in the South Cow Creek subwatershed. 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 PDP with two main objectives: 1) achieve specific "Desired Conditions"² once decommissioning is complete, as identified in the Agreement; and 2) address potential resource issues associated with decommissioning the Project.

Attachment 1 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" to be achieved during the Project, such as stable drainage of runoff. Desired Conditions are intended to help frame how the subjects will ultimately addressed, while leaving PG&E flexibility to do so in the most cost-effective manner. As noted, PG&E considered these Desired Conditions in developing its PDP for the Project features. PG&E also identified potential resource issues associated with decommissioning Project features and attempted to address those issues in its PDP. The Desired Conditions are discussed below by Project feature, and the potential resources issues are described in Exhibit E of the LSA.

- **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) 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.

² Under NEPA, refers to the social, economic, and ecological attributes toward which management of the land and resources of a plan area are to be directed.



- **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.³
- **Penstocks.** PG&E considered the following Desired Condition: address safety issues for both the public and wildlife.
- **Powerhouses.** PG&E considered the following Desired Conditions: (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.
- **Access Roads.** PG&E considered the following Desired Condition: best management practices for retiring roads where possible to minimize sediment.
- **Deconstruction Activities.** 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 subwatershed encompasses approximately 80 square-miles, including 25 square-miles located upstream from the Kilarc Main Canal Diversion Dam. The average yearly runoff at the dam is 48,900 acre-feet; on average, approximately 55 percent of the annual runoff is diverted from the stream to the Kilarc Powerhouse. The estimated dependable generating capacity of the Kilarc development is approximately 1.2 MW, and the estimated average annual energy generated is 19.1 million kilowatt-hours. Features of the Kilarc Development are illustrated in Figure 1-1.

Kilarc Development features include:

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

³ Recreational resources were also considered by PG&E in assessing potential impacts.



- Kilarc Penstock
- Kilarc Powerhouse
- Kilarc access roads (see Section 2.4)

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 2.2.1-1a North Canyon Creek – Diversion



Photograph 2.2.1-1b North Canyon Creek – Wooden Structure to be Removed



Photograph 2.2.1-1c North Canyon Creek – Canal



Description

Water is diverted from North Canyon Creek into the North Canyon Creek Canal at the North Canyon Creek Diversion Dam. The dam is a timber structure, 9.9 feet in length, 1 foot in height, with a crest elevation of 3,939.5 feet above mean sea level (MSL).

The canal is unlined, 3 feet in width by 1.5 feet in depth, and has a total length of 0.35 mile, 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 Decommissioning

Diversion Dam

- 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

- Two options are proposed for decommissioning the earthen canal depending on accessibility to the canal section: abandoning in-place (for limited accessibility) and filling the canal (for full accessibility). If abandoned in-place, the canal will be strategically breached to address storm runoff and avoid potential erosion/sediment issues. Filling the canal will entail 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 filled, the surface will be graded to drain rainwater and snowmelt; erosion control measures will be implemented consistent with Best Management Practices (BMPs) and Project-specific PM&E 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 South Canyon Creek Canal at the South Canyon Creek Diversion Dam. The dam is a concrete structure, 37.8 feet in length and 3 feet in height, with a crest elevation of 3,893.6 feet above MSL.

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

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

Proposal for Decommissioning:

Diversion Dam

- Remove diversion walls to natural ground or streambed level, gate, operating mechanism, and all segments. Concrete will be removed from site with mechanical components.



Flume

- Remove wooden and corrugated metal pipe structures. Concrete foundations will be left in place.

Canal

- Two options are proposed for decommissioning the earthen canal depending on accessibility to the canal section: abandoning in-place (for limited accessibility) and filling the canal by excavating one-half of the height of the canal berm and using the excavated materials as fill (for full accessibility; the canal is constructed of native material and has no lining). If abandoned in-place, the canal will be strategically breached to address storm runoff and avoid potential erosion/sediment issues. If filled, the surface will be graded to drain rainwater and appropriate erosion controls will be implemented. The concrete spillway and concrete gate slots will be removed and backfilled with excavated berm material.

Siphon

- Remove trash bars and concrete wing walls, collapse a rubble wall and bury it with excavated berm material.
- Remove all above-grade pipe and install concrete block wall at the vertical intake. Buried portions of the siphon will be capped and 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 Kilarc Main Canal at the Kilarc Main Canal Diversion Dam. The dam is a concrete structure, 83 feet in length, 8 feet in height, with a crest elevation of 3,814 feet above MSL.

Proposal for Disposition

- Remove the structures, guide walls, diversion gate and frame, gate operator, and debris from the site.
- A temporary cofferdam or diversion may be required.
- The diversion dam appears to be constructed on natural bedrock. 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 miles 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 mile of a 6-foot by 7-foot wood-lined tunnel.

Proposal for Disposition

- For the earthen canal sections, two options are proposed for decommissioning depending on accessibility to the canal section: abandoning in-place (for limited accessibility) and filling the canal (for full accessibility). A canal will be filled 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 filled, the surface will be graded to drain rainwater and appropriate erosion controls will be implemented. If abandoned in-place, the canal will be strategically breached to address storm runoff and avoid potential erosion/sediment issues.
- For the concrete and shotcrete-lined canal sections, several options are available for decommissioning depending on accessibility to the canal section. If the canal is easily accessible for heavy equipment, the concrete walls and bottom will be broken up and



pushed into the canal bottom. If there is little to no accessibility for heavy equipment to the canal section, the canal will be abandoned in-place. Abandoned-in-place sections will be strategically breached to address storm runoff and avoid potential erosion/sediment issues. Concrete sections with the downhill wall exposed may be hand cut, broken along the bottom edge, and pushed into the canal bottom. If excess native material is readily available, the canal will be filled with excavated berm material and graded, and erosion control measures will be implemented. Final disposition of sections not accessible by construction equipment will be determined on a case-by-case basis and the practicality of hand removal options will be considered.

- The flumes will be removed to their foundations, anchor bolts will be saw cut or ground flush, and foundation piers will be left in place.
- Mechanical equipment, a shed, and concrete sections, including foundations to grade, will be removed, grading will be conducted, and rip-rap will be installed, if required.
- Broken concrete will be used for rip-rap, if required, where removal of a structure damages the slope.
- Gates, frames, gate operators, support structures, the catwalk, guidewalls and any foundations to grade will be removed.
- The overflow spillway will be demolished, filled and graded, and appropriate erosion control measures will be implemented.
- The thermal electric generator and building will be removed along with slab or foundation concrete.



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 feet, a maximum base width of 43 feet, and a crest length of 1,419 feet at 3,782.4 above MSL. The spillway is 10 feet wide, 3 feet deep, and has a rated capacity of 50 cfs with 1.6 feet of freeboard. The intake structure has a 48-inch slide gate, with a manual lift, protected by a trash rack, over the opening to the Kilarc Penstock.

Kilarc Forebay has a surface area of 4.5 acres and a gross and usable storage capacity of 30.4 acre-feet at an elevation of 3,782.4 feet above MSL. Water surface elevation varies by approximately 1 foot during normal operations.

Proposal for Disposition

- The intake trash rake, telemetry, and electrical equipment will be removed; fencing and structures will be demolished and removed, along with any concrete foundations to grade; and the culvert will be backfilled when the canal is backfilled.
- The forebay will be filled with excavated bank material, graded for drainage, and seeded with appropriate seed mix; appropriate erosion control measures will be implemented in accordance with proposed PM&E measures.
- The overflow spillway will be demolished, filled, and graded (as part of reservoir fill work), and appropriate erosion control measures will be implemented.
- The bridge and platform will be disassembled and removed, control equipment will be removed, and the shaft will be cut off at the bottom of the reservoir. Concrete supports,



if any, will be left in the reservoir bottom and covered by fill during reservoir backfilling operations.

- The picnic tables and site furnishings will be removed. The restroom buildings and slabs will be demolished and removed. The toilet vaults will 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 a 4,801-foot-long buried pipe made of riveted steel with a diameter that varies from 48 to 36 inches; plate thickness varies from 0.19 inches to 0.25 inches. The maximum flow capacity is 43 cfs.

Proposal for Disposition

- The upper and lower ends of the penstock will be plugged with concrete and graded to cover the exposed section at the surge tower. Because removal of the buried pipe will



cause significant site disturbance at a significant cost, the buried pipe will be left in place.

- The surge tower will be cut off and removed; 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-foot by 40-foot 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. PG&E's interconnected transmission system passes through the powerhouse switchyard via a 7-foot-long, 60 kilovolt amperes transmission line tap, which will remain in-place.

Proposal for Disposition

- Turbines, generators and all associated electrical and mechanical equipment associated with the powerhouse will be removed and the structure will be abandoned in place.
- Turbine pits (located inside the Powerhouse structure) will be filled with mass concrete or other suitable fill material and capped with concrete to be flush with the surrounding floor.
- All exterior openings in the Powerhouse structure will be sealed in a manner dependent on their use. Draft tube openings will be sealed with formed concrete plugs;



penetrations for electrical connections will be sealed with foam type filler or plywood, depending on size; windows will be left in place but covered with plywood cut to match the opening and doors and windows will be closed and locked but not permanently sealed. The tailrace will be backfilled to the confluence using local earth materials.

- Powerhouse structure will be secured (in accordance with PM&E measures) and left in place during decommissioning; an option for future reuse of the structure will be preserved. The switchyard will be left in place as it is an integral part of the PG&E inter-connected transmission system.

2.3 Cow Creek Development Decommissioning Proposal

The South Cow Creek Watershed encompasses approximately 78 square-miles, including 53 square-miles located upstream from the South Cow Creek Diversion Dam. The average annual runoff at the dam is 79,500 acre-feet; 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 kilowatts, and the estimated average annual energy generated is 12 million kilowatt hours.

The Cow Creek Development features include:

- Mill Creek Diversion Dam
- Mill Creek-South Cow Creek Canal
- South Cow Creek Diversion Dam and Appurtenant Structures
- South Cow Creek Main Canal (including tunnel and spillways)
- Cow Creek Forebay Dam and Forebay
- Cow Creek Penstock
- Cow Creek Powerhouse
- Cow Creek Access Roads (see Section 2.4)

The Mill Creek Diversion Dam is located about 0.1 mile upstream of Mill Creek's natural confluence with South Cow Creek and diverts water from Mill Creek via the Mill Creek-South Cow Creek Canal 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 approximately 0.5 mile 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 Mill Creek-South Cow Creek Canal at the Mill Creek Diversion Dam. The dam is a concrete structure, 40.3 feet in length, 2.5 feet in height, with a crest elevation of 1,575.8 feet above MSL.

Proposal for Disposition

- Demolition and removal of gate and supporting structure from the site. Concrete from the dam and guide walls will be buried in the canal.
- 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 unlined, with a 5-foot-long by 3.3-foot-deep cross section, and has a total length of 0.17 mile, a capacity of 10 cfs and an average grade of 0.0021 percent.

Proposal for Disposition

- Abandon the canal and fill with excavated dam material, where reasonably feasible, to minimize environmental disturbance of the berm. This is the preferred alternative of the private landowner on whose property the canal is located. Strategic breaching will also be implemented to prevent retention of runoff water, where necessary.



2.3.3 South Cow Creek Diversion Dam and Appurtenant Structures



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 South Cow Creek Main Canal at the South Cow Creek Diversion Dam. The dam is a concrete capped steel bin wall and rock fill dam, 86.5 feet long, 12.3 feet wide, and 8.5 feet high with a crest elevation of 1,557.9 feet above MSL, built on top of independent upstream and downstream concrete cutoff walls (foundation footers) that are embedded in the stream bed. 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 South Cow Creek Canal and the South 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 cap, removing fill, and removing the bin walls and interior baffles.
- A temporary cofferdam/diversion will likely be required.
- Some abutments and foundation structures, connecting to the steep side slopes and below the channel bed, will be left in place to minimize potential future erosion and disturbance to the slopes. These structures include the two parallel cutoff walls beneath the bin-wall dam structure and the retaining walls on both slopes. Retention of the cutoff walls will provide bed grade control after the dam is removed. A portion of the north bank retaining wall will be left in place, with fill behind the wall graded to match the existing slope. Retention of the wall will provide erosion protection and address bank stability. A portion of the south bank retaining wall adjacent to the intake will also



be left in place to avoid destabilizing the steep bank behind and above it. All other structures and equipment will be removed (e.g., electrical, mechanical devices, gates, screens, exposed rebar, rakes, metal cables, crib dam sheet metal panels, tie bars and drainage pipes). Where feasible, it is acceptable to the private landowner if structures at or below ground level are left in place so long as they are graded over with sediment fill or fill from elsewhere.

- Equipment access will minimize environmental damage to the surrounding vicinity. More detail about road access to these structures is provided in Section 2.4.
- The broken concrete from the dam and ancillary structure removal will be placed in the first reaches of the main canal and graded over with fill from the canal banks or with sediment from behind the dam if the sediment is not needed or not suitable for stream restoration.
- To allow recruitment of native material stored behind the dam to downstream reaches, sediment from behind the dam, composed mostly of gravel and cobble, will be distributed along stream margins, taking care to not affect riparian vegetation.
- Nonnative material, which may be removed from between the bin walls, may be used for backfill in canals. This nonnative material will not be placed in or along the margins of the stream.

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 South Cow Creek Canal, including the tunnel, has a total length of 2.06 miles with a capacity of 50 cfs and an average grade of 0.0015 percent. The canal section consists of 2.02 miles of 13-foot by 4.8-foot deep canal. Approximately the first 0.12 mile of the canal is lined with shotcrete and approximately 1.9 miles are unlined. The tunnel is about 200 feet long and is 6 feet by 6.8 feet tall. Two additional subfeatures are located along the canal: a Cross-over flume and a Cat Bridge. There is limited elevation and watershed drainage above the canal with a significant percentage of that seasonal runoff crossing the canal on a single Cross-over flume.

Proposal for Disposition

- Abandoning the canals in place, with strategic breaching, is the preferred alternative of the private landowners on whose property the canal is located. For the earthen section of the canal, strategic breaching will address storm runoff and avoid potential erosion/sediment issues. The short, shotcrete-lined canal segment, from the diversion structure to the bridge, will have the shotcrete removed and placed in the bottom of the canal. The canal segment will then be filled with material from the berm, burying the shotcrete
- The Cross-over flume is a metal structure that can be easily removed. Given the minimal amount of runoff from uphill sources and the difficulty of maintaining the structure after abandonment, the recommendation is to remove the flume. Removal can be done primarily through unbolting or cutting metal connections. Foundations will be left in place to avoid disturbance to the steep slopes.



- The Cat Bridge is a substantial structure tied into the walls of the canal. Given the landowners' preference for abandoning the canal in place, the bridge will also be abandoned to allow access across the dry canal.
- Tunnel work includes plugging the upstream and downstream ends of the tunnel with concrete and abandoning the tunnel in place.
- Spillways (2 or 3) will be modified such that spill height elevation is the same as the canal bottom.
- Detail about road access to these structures is provided in Section 2.4.

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 acre-feet at an elevation of 1,537.2 feet above MSL, and a surface area of 1 acre. The dam is earth-filled berm and has a maximum height of 16 feet, a maximum base of 54 feet, and a crest length of 653 feet at an elevation of 1,538.9 feet above MSL. The spillway is 49.7 feet wide, 1.7 feet deep, and has a rated capacity of 50 cfs with 1.2 feet of freeboard. The spillway is a side discharge overflow section of shotcrete reinforcement leading to a natural waterway with the upper portion also armored with shotcrete.

The intake structure has a 42-inch slide gate, hydraulically operated and protected by a trash rack. The intake consists of a concrete structure supporting the control gate and automated trash rake.

The outlet structure consists of a submerged 42-inch pipe which transitions into the penstock. A metal catwalk provides access the intake and CMP telemetry shafts.

2.3.6 Cow Creek Forebay

Proposal for Disposition

- The Cow Creek Forebay will be dewatered and all removal work will occur when the forebay is dry.
- Work will involve removing the forebay by backfilling with the adjacent berm material, grading, and reseeding.



- 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.
- The mechanical trash rake will be removed and the concrete walls will be demolished and removed.
- 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 will be caused by its 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 feet long. Beginning at the upstream end, the first 15 feet of the penstock consists of 0.19-inch thick steel pipe, with a diameter that tapers from 42 inches to 36 inches. The next 766 feet consists of 36-inch diameter, 0.5-inch welded steel pipe. The final 3,706 feet is made of riveted steel with a 30-inch diameter and plate thickness that varies from 0.19 to 0.44 inch and includes a short, tapered section.

Proposal for Disposition

- Upstream and downstream ends of the penstock will be plugged with an engineered concrete block.
- Because removing the remaining buried penstock will cause a significant environmental disturbance and be extremely costly, the buried penstock will be left in place.

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-foot by 35-foot steel truss structure (plan dimensions) composed of cut-stone walls and a corrugated metal roof. The powerhouse contains two generators and other electric and mechanical equipment.

The switchyard includes a 3-phase, oil-immersed, self-cooled, outdoor unit. PG&E's interconnected transmission system passes through the powerhouse switchyard via a 70-foot long, 60-kilovolt amperes transmission tap line which will remain in place.

Immediately to the east of the powerhouse is Hooten Gulch, an intermittent water course that has been armored with shotcrete on its bottom and west bank to prevent erosion of the bank adjacent to the powerhouse.

Proposal for Disposition

- Powerhouse work will include removing turbines, generators, and all associated electrical and mechanical equipment, and abandoning the structure in place.
- Existing concrete will be left in place.
- Turbine pits (located inside the Powerhouse structure) will be filled with mass concrete or other suitable fill material and capped with concrete to be flush with the surrounding floor.



- The powerhouse structure will be secured (in accordance with PM&E measures) and left in place during decommissioning; an option for future reuse of the structure will be preserved.
- Switchyard work includes removing equipment and structures.
- Hooten Gulch will have the shotcrete armor removed for burial in the tailrace to allow a more natural stream bed for fish passage. Replacement bank stabilization measures will be installed.
- Decommissioning will end artificial water flows to the Wild Oak Hydro Powerhouse and the Abbott Diversion for irrigation. PG&E is working with the affected parties to address these issues.

2.4 Access Roads for Project Decommissioning

Description

Project decommissioning may require improvement of existing roads and/or new access for equipment required for decommissioning the Project facilities. A small number (approximately 0.5 mile total) of new, temporary access road segments may be built for the Kilarc Development, but no new access roads are anticipated to be needed for the Cow Creek Development. Existing access roads fall both within and outside of the Project boundary and cross a mix of PG&E and private lands. Environmental impacts from road improvement activities will be minimized to the extent possible through the application of BMPs as set forth in the United States Department of Agriculture Forest Service (USDA-FS) guidance on Water Quality Management for Forest System Lands in California (2000), and described in the applicable PM&E measures. Existing road improvements will be limited to the existing road bed and will consist primarily of surface smoothing and pothole filling with a motor grader. Equipment proposed for the decommissioning is relatively small due to the small size of the Project features and therefore it will have a low impact on existing roads. Typical equipment may include multi-terrain loaders and rubber tired backhoe loaders similar to Caterpillar models 297C and 450E, respectively. Construction equipment will be offloaded from haulers at locations served by major Project roads and travel under their own power to the work sites to minimize the need for extensive road improvements. In some areas on the Kilarc drainage, new, temporary road segments are proposed to allow access to canal segments that are otherwise rendered inaccessible by elevated flume structures. Some of these proposed access roads will cross private property, and PG&E will discuss proposed access with the private property owners. Proposed new access roads total approximately 0.5 mile, serving eight canal locations, accounting for less than 9 percent of the access road total.

Kilarc Access Roads – The Kilarc Development is accessed from Fern Road East via Whitmore Road. A junction connecting to Whitmore Road lies approximately 30 miles east of Redding along State Route (SR) 44. The paved Whitmore Road transitions into the partially graveled Miller Mountain Road as far as the Kilarc Forebay intake structure. Miller Mountain Road continues on, transitioning into a Project road for the length of the Kilarc Main Canal system



(see Figure 2-1). Access to the North and South Canyon portion of the Kilarc Development from Fern Road is via Oak Run Fern Road to Smith Road.

The Kilarc Development has several main Project features, with numerous sub-features, as described in Section 2.2. Proposals for access road improvement, or development of temporary new road segments to Kilarc Development facilities, are presented below.

- Kilarc Powerhouse. The powerhouse is accessible from a paved road in Whitmore via Whitmore and Fern roads. No improvements are proposed for these roads.
- Kilarc Forebay. The Kilarc Forebay is accessed from Miller Mountain Road up to the Kilarc Forebay intake structure, K-5 (refer to Figure 2-1). From K-5 to the Kilarc Forebay, access is along the existing recreation area roads and parking lot. No work is proposed for access all the way to the start of the Kilarc Forebay. Access from the Kilarc Forebay to overflow and spillway features requires improvements to road sections K-1 to K-2, K-2 to K-3, K-3 to K-4 and K-4 to K-5, forming a loop from the Kilarc Forebay to the overflow spillway and back to the intake structure. Less than 0.25 road miles require minor improvements.
- Kilarc Penstock. The Kilarc Penstock is accessible at the lower end from the powerhouse and the upper end from the Kilarc Forebay. It is approximately 4,000 feet long and drops approximately 1,100 feet in elevation. Removal of the buried Kilarc Penstock is not recommended, and therefore no access road is proposed for this feature.
- Kilarc Main Canal. The Project road that continues from Miller Mountain Road, from K-5 to the Kilarc Main Canal Diversion Dam at K-7, is approximately 3.2 miles long and is in generally good condition, requiring only minor improvement with a motor grader. This road segment provides access to the two ends of the canal. Intermediate access is provided by road segments K-36 to K-38, K-25 to K-40, K-13 to K-14 and K-8 to K-9. With the exception of K-25 to K-40, these segments require minor to moderate improvement to provide construction access. K-25 to K-40 is a very steep segment with a tight bend in the middle that will be difficult to improve for good access. An existing road on private property, K-6 to K-26, provides access to the same canal point on a much flatter route of about 1 mile in length and requires only moderate improvement. The canal is broken up along its length by a number of flumes that are designated for removal. Because of the terrain gaps bridged by the flumes, the canal is not crossable along its length by accessing one end or the other. Even with the intermediate roads described above, there are canal segments that cannot be accessed without new road segments. Typically, these proposed new road segments will be very short and begin at an existing road near the canal. Without these new segments there are a number of canal segments that will have to be either abandoned in-place or hand cut. The range of alternatives for the Kilarc Main Canal based on accessibility is described in Section 2.2.4.



- Kilarc Main Canal Diversion. Access is via the main Project road K-5 to K-7, which has segments both inside and outside the Project boundary. This is a major logging road in reasonably good condition and requires minimum dressing with a motor grader.⁴
- North and South Canyon Creeks. Access was not possible due to impassable roads at the time of assessment. However, previous visits to the Project showed that an existing road network will reach the Canyon Creek area. Access to and removal of features will most likely be along the canal itself.

Cow Creek Access Roads – The Cow Creek Development is accessed from the southwest on SR 44 via South Cow Creek Road. South Cow Creek Road, a paved County road, connects with SR 44 approximately 35 miles east of Redding. South Cow Creek Road has been defined by Shasta County to end at the pavement terminus where it is gated. The unpaved road continues over private property to the Cow Creek Powerhouse a short distance beyond. From there, over private lands, a single lane unpaved rough road having steep grades climbs to the Cow Creek Forebay and South Cow Creek Diversion Dam via unpaved spur roads. The South Cow Creek Diversion Dam and Cow Creek Forebay can also be reached from the northeast through gates at the County-defined end of South Cow Creek Road on the Whitmore side. These single lane roads are unpaved and run across private land. This road segment crosses South Cow Creek over a wet crossing. The County maintained portion of South Cow Creek Road intersects Whitmore Road approximately 2 miles east of Whitmore. Since the County maintained portion of South Cow Creek Road is gated on the southwest and northeast of the Project, the Cow Creek Development is inaccessible to the public.

Cow Creek Development has six main Project features as described in Section 2.3. Access for each feature is discussed below. In general, the Cow Creek Powerhouse can be accessed from roads to the southwest, and the South Cow Creek Diversion Dam and Forebay can be accessed from roads to the northeast. An existing network of roads, both in and out of the Project boundary, interconnects all six features (Figure 2-2).

- Cow Creek Powerhouse. Access to the Cow Creek Powerhouse is via SR 44 and South Cow Creek Road. The Cow Creek Powerhouse is approximately 0.5 mile past a locked gate on an unpaved road. The unpaved road into the Cow Creek powerhouse is in very good condition and will not require any improvements for access.
- Cow Creek Penstock. Access to the lower end of the Cow Creek Penstock is from the Cow Creek Powerhouse on access roads described above. The upper end of the penstock is accessible from the Cow Creek Forebay on access roads described in the Cow Creek Forebay section below. The penstock runs approximately 4,200 feet in length and climbs approximately 720 feet in elevation between the Cow Creek Powerhouse and Cow Creek Forebay. Removal of the buried Cow Creek Penstock is not recommended, and therefore no access road is proposed for this feature.

⁴ Refers to passing the road grader blade over the surface to smooth out ruts and wash boards; no patching, filling, widening or anything else is required.



- Cow Creek Forebay. The Cow Creek Forebay is accessed along the main access road segment connecting the South Cow Creek Diversion Dam to the Cow Creek Forebay, designated as C-3 to C-17. This road segment is approximately 2 miles long and needs only minor improvement to be suitable for construction access.

There are two options for reaching the main access road segment C-3 to C-17; one from the Cow Creek Powerhouse on road segment C-1 to C-18, and the second from the north side on road segment C-9 to C-3.

Road segment C-1 to C-18 is approximately 2.25 miles long and climbs over 800 feet in elevation. While the average grade is 6.5 percent, there are segments that are much steeper. In addition, there are areas on this road segment that appear to be subject to localized slumping, to over road flows, and are generally in bad condition. Given the length of the road and required improvements, the road segment C-1 to C-18 is not recommended for use or improvement.

Road segment C-9 to C-3 is approximately 1 mile long. This road segment crosses South Cow Creek at a paved wet crossing and climbs less than 100 total feet to the main access road segment road, C-3 to C-17, although it may have a steeper grade into and out of South Cow Creek. The road segment C-9 to C-3, and C-3 to C-17 is recommended for access to Cow Creek Forebay because it is in much better condition than C-1 to C-18 and is in need of only minor improvement.

- South Cow Creek Main Canal. The South Cow Creek Main Canal can be accessed at four main points along its length: from the South Cow Creek Diversion Dam, the Cross-over Flume, the Cat Bridge, and the Cow Creek Forebay. The access is described as spurs from C-3, since C-3 is the main intersection of several access roads on the ridge above the South Cow Creek Diversion Dam and South Cow Creek Main Canal. As described in the Cow Creek Forebay section above, road access is recommended from the north side of the Project (from C-9 to C-3). C-3 is located in a wide, relatively flat meadow area, and is the central point proposed for off-loading and staging of construction equipment to avoid heavy truck traffic on the small, less improved connecting road segments. Access to the South Cow Creek Diversion Dam is from C-3 to C-4. Access to the Cow Creek Forebay is from road segment C-3 to C-17. Access to the Cat Bridge is from C-3 through C-13 to C-14. C-13 to C-14 is a road about 0.25 mile long in need of minor to moderate improvement. The Cross-over flume can be accessed from C-3 through C-10 to C-11. However, C-10 to C-11 is a 0.25-mile long rough road that only accesses the Cross-over flume from the uphill side and will require moderate to major improvement; therefore, this road is not recommended for use. The flume can instead be accessed from the canal side via C-3 to C-14 (recommended for the Cat Bridge access), which is also recommended for access to the Cross-over flume.
- South Cow Creek Diversion Dam and associated structures. The South Cow Creek Diversion Dam can be accessed from the north side via road segments C-9 to C-7, a 0.25-mile-long segment in the Project boundary needing moderate improvement, and C-7 to C-6, a 0.125-mile-long segment in the boundary needing moderate to major

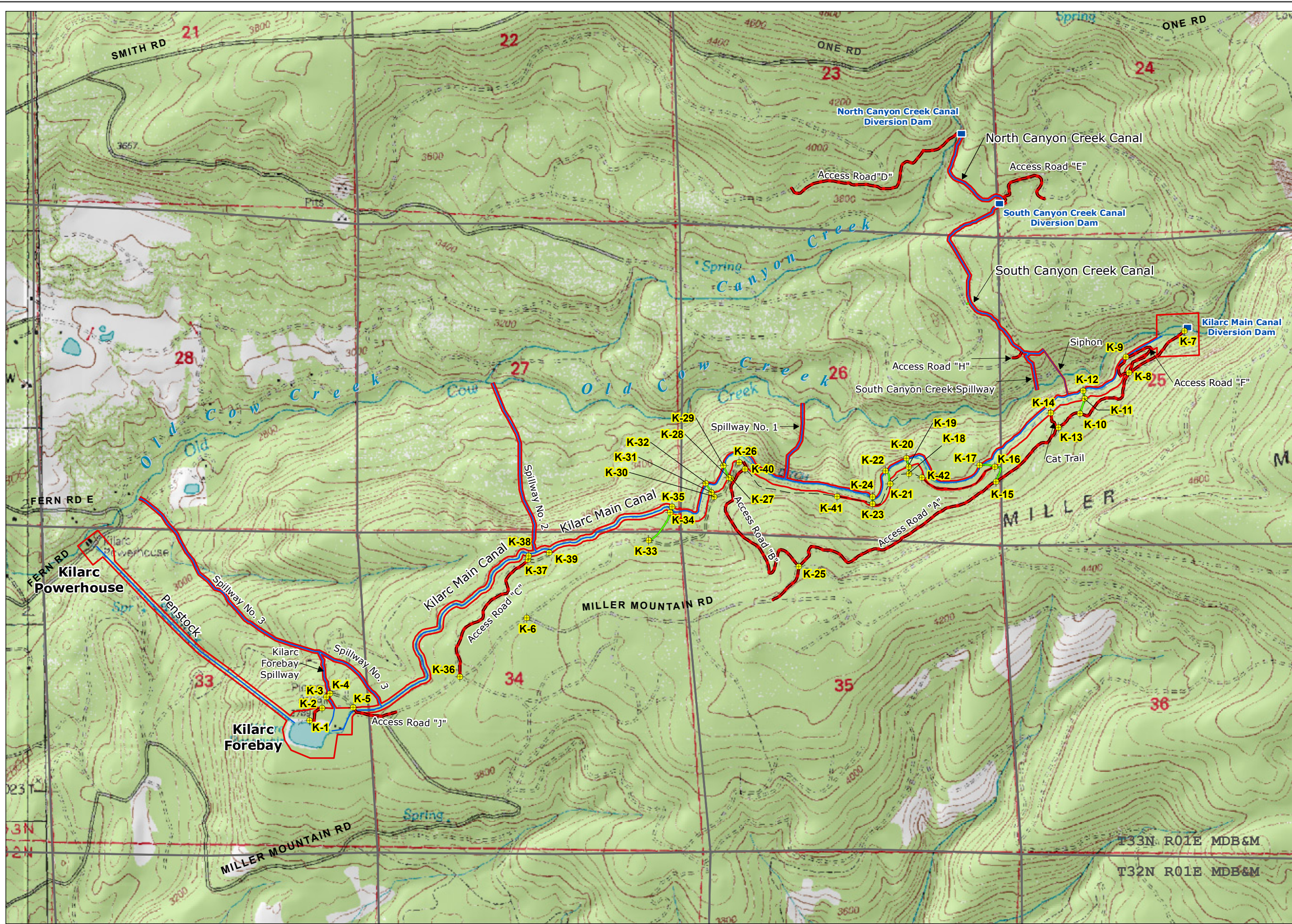


improvement. This northern approach from C-7 to C-6 via C-9 has a very steep final grade that is not suitable for equipment use. Use of this segment will likely cause heavy impacts to the road surface and immediate surroundings, requiring extensive rehabilitation. Therefore, this approach is not recommended for access to the South Cow Creek Diversion Dam. The south side of the South Cow Creek Diversion Dam and all the appurtenant structures can be accessed from C-9, through the wet crossing, to C-3 and on to C-4, which is the preferred and recommended access route. However, the northern end of the road segment from C-3 to C-4 is overly steep for over-the-road transport vehicle access, and there is limited room to maneuver at the bottom. Therefore, construction equipment will be off-loaded near C-3 and driven to the construction site as described in the South Cow Creek Main Canal section above. C-3 can also be accessed from the Cow Creek Powerhouse at C-1 through C-18, but, as described in the Cow Creek Forebay section above, the use of this road is not recommended for use for many reasons.

- Mill Creek Diversion Dam and Mill Creek-South Cow Creek Canal. Mill Creek Diversion can be accessed from road segment C-9 to C-7 and from a short, rough segment of logging access between points C-7 and C-8. This segment is approximately 373 feet long and will require moderate to major improvement; however it is not recommended for access. The Mill Creek-South Cow Creek Canal will be worked from the canal and does not require an access road. Light equipment and hand tools have been recommended for decommissioning the Mill Creek Diversion and the Mill Creek-South Cow Creek Canal. As the canal is decommissioned, it can serve as an access to reach the portion of the north bank retaining wall of the South Cow Creek Diversion Dam that is to remain in place for the associated minor backfilling and grading. This route is not recommended for heavier equipment access to the South Cow Creek Diversion Dam.

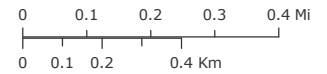
Proposal for Disposition

- For the disposition of existing Project roads, PG&E will leave them in-place per landowner requests, scarify and seed the surfaces of any roads to be rehabilitated, and erect barriers or obstacles to limit future access.
- If any new access roads are needed for decommissioning for Project facilities, PG&E will follow the protocols discussed in the applicable proposed PM&E measures to reduce or avoid impacts to environmental and cultural resources.
- For the disposition of any new access roads that are created for decommissioning, PG&E will leave them in-place per landowner requests, scarify and seed the surfaces of any roads to be rehabilitated, and erect barriers or obstacles to limit future access.



- Road Segment Endpoint
- Diversion
- Watercourse
- FERC Boundary
- Revised Section Boundary
- Roads** Defined per USGS topographic base map or PG&E road database
- Trail
- Light Duty Road
- Unimproved Road
- Unimproved Road (in FERC boundary)
- Potential New Road

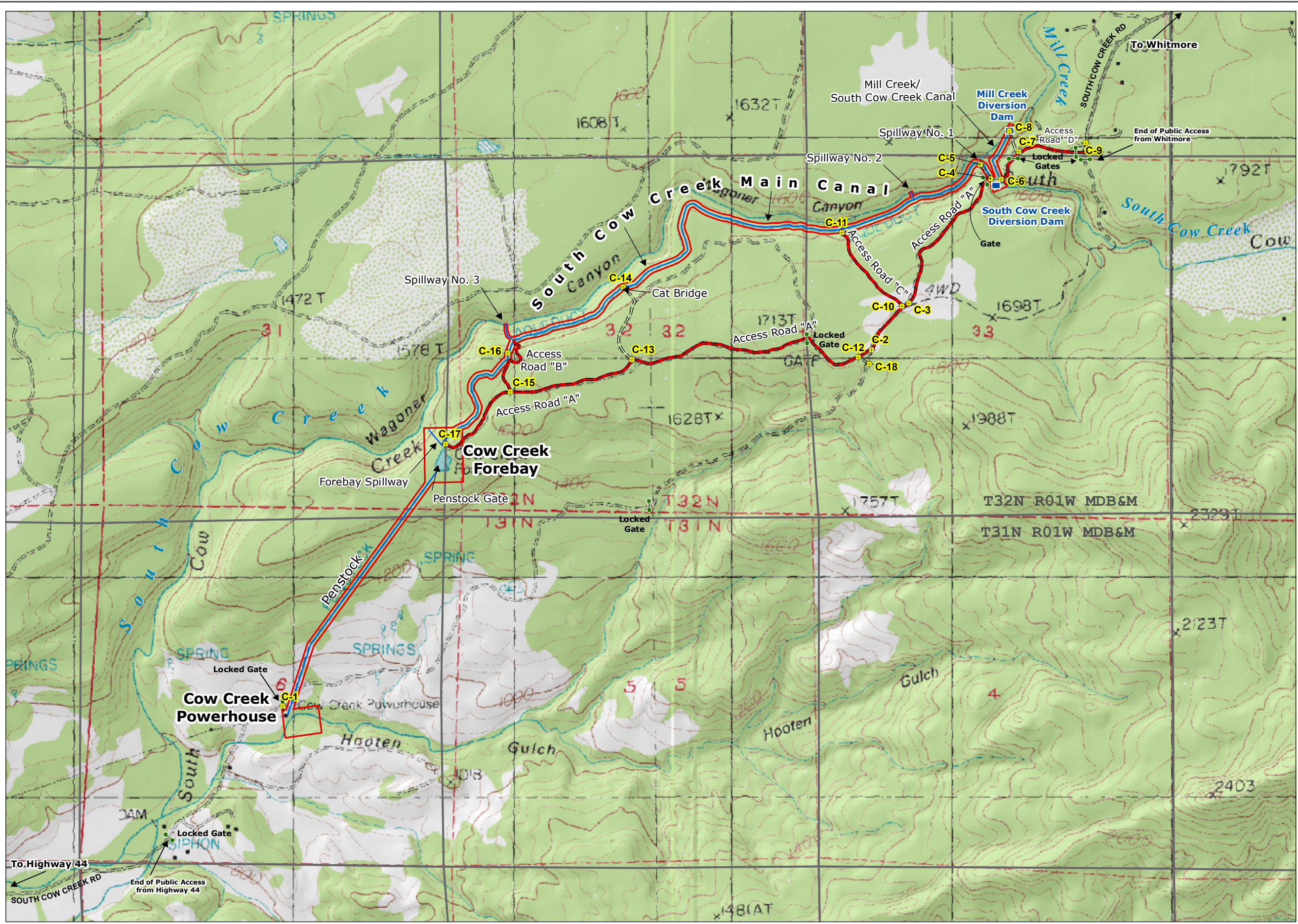
Imagery: USGS Digital Raster Graphic, 7.5-minute Quadrangle: Miller Mountain, CA. 1995.



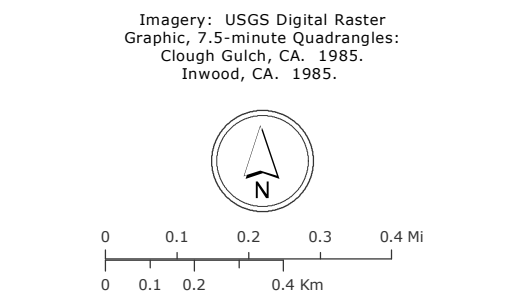
Pacific Gas & Electric Company
KILARC-COW CREEK HYDROELECTRIC PROJECT

Figure 2-1
Kilarc Development
Access Roads





- Road Segment Endpoint
 - Gate
 - Diversion
 - Watercourse
 - FERC Boundary
 - Revised Section Boundary
- Roads** *Defined per USGS topographic base map or PG&E road database*
- Trail
 - Light Duty Road
 - Unimproved Road
 - Unimproved Road (in FERC Boundary)



Pacific Gas & Electric Company
KILARC-COW CREEK HYDROELECTRIC PROJECT

**Figure 2-2
Cow Creek Development
Access Roads**



Attachment 1

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FEDERAL ENERGY
REGULATORY COMMISSION



March 30, 2005

Magalie R. Salas, Secretary
FEDERAL ENERGY REGULATORY COMMISSION
888 1st 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
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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", is written over the typed name.

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

WWS 2.1 Notwithstanding this Agreement, the Parties ^{that} ~~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

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

Dated: _____

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.

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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: Kenneth Sanchez
Wayne White, Field Supervisor

By: _____
Donald B. Koch, Regional Manager

Dated: 3/4/05

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: _____

Dated: _____

NOAA Fisheries

Friends of The River

By: _____
Rodney McInnis, Regional Administrator

By: _____
Steve Evans, Conservation Director

Dated: _____

Dated: _____

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U. S. Fish and Wildlife Service

California Dept. of Fish and Game

By: _____
Wayne White, Field Supervisor

By: Donald Koch
Donald B. Koch, Regional Manager

Dated: _____

Dated: March 1, 2005

**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: _____

Dated: _____

NOAA Fisheries

Friends of The River

By: _____
Rodney McInnis, Regional Administrator

By: _____
Steve Evans, Conservation Director

Dated: _____

Dated: _____

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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: _____

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

Dated: _____

Dated: March 17, 2005

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.

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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: _____

Dated: _____

NOAA Fisheries

Friends of The River

By: Rodney R M McInnis
Rodney McInnis, Regional Administrator

By: _____
Steve Evans, Conservation Director

Dated: 3-3-05

Dated: _____

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**