

Initial Study and Environmental Checklist

Britton Powerhouse
Pit 3, Pit 4, and Pit 5 Dam Flow Release Facilities
Pit River, Shasta County

State Water Resources Control Board
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ACRONYMS AND ABBREVIATIONS

CEQA	California Environmental Quality Act
cfs	cubic feet per second
Commission	Federal Energy Regulatory Commission
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
EIS	Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
ft	foot/feet
ft ²	square foot/feet
HPMP	Historic Properties Management Plan
IFR	Instream Flow Release
kV	kilovolt
Licensee	Pacific Gas and Electric Company
mi	mile(s)
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum of 1929
NOI	Notice of Intent
NRHP	National Register of Historic Places
PDEA	Applicant-Prepared Preliminary Draft Environmental Assessment
PG&E	Pacific Gas and Electric Company
Projects	Britton Powerhouse and flow release facilities
section 4(e) or 4(e)	Section 4(e) of the Federal Power Act
State Water Board	California State Water Resources Control Board
SWPPP	Storm Water Pollution Prevention Plan
TCP	Traditional Cultural Property
USFS	U.S. Forest Service
Water Quality Certificate	Clean Water Act section 401 Water Quality Certificate

Section 1.0 Introduction

Pacific Gas and Electric Company (Licensee or PG&E) has applied to the State Water Resources Control Board (State Water Board) for water quality certification under section 401 of the Clean Water Act (CWA) for construction of the Britton Powerhouse and Instream Flow Release (IFR) structures at the Pit 3, Pit 4, and Pit 5 dams (Projects). Issuance of water quality certification is a discretionary action that requires the State Water Board to comply with the California Environmental Quality Act (CEQA). This Initial Study and Environmental Checklist show there is no substantial evidence that the Projects as proposed by PG&E will result in any significant impacts to the environment. The State Water Board will prepare a Negative Declaration for the Projects.

The Projects are located on the Pit River, near the town of Burney, in Shasta County. All of the facilities are located within the Pit 3, 4, and 5 Hydroelectric Project, which is operated under Federal Energy Regulatory Commission (Commission or FERC) license no. 233 issued on July 2, 2007.

Section 2.0 Compliance

2.1 National Environmental Policy Act

In compliance with the National Environmental Policy Act (NEPA) the Commission issued a final environmental impact statement (final EIS) in June 2004 for the relicensing of the Pit 3, 4, and 5 Hydroelectric Project. The final EIS reviewed the scope and objectives of recommended resource management and monitoring plans that ultimately became Project license articles issued on July 2, 2007. The Commission requires the development of resource management plans and monitoring studies responding to the license articles in consultation with state and federal resource agencies, Native American Tribe (Pit River Tribe), and interested parties and submittal to the Commission for final approval before implementation.

The Commission is the lead federal agency for the purpose of ensuring compliance with license conditions and NEPA. In its review of the proposed resource plans submitted by the Licensee for approval, the Commission will determine if additional NEPA evaluation is needed to assess the effects on the environment from implementing the proposed plans.

The proposed Britton Powerhouse and associated 21-kilovolt (kV) power line will require an amendment to the FERC license. This new action will require an additional NEPA evaluation to assess the effects of construction and operation of the proposed powerhouse and associated 21-kV power line. To expedite the NEPA evaluation, the Licensee has prepared the Application to Amend the License containing an Exhibit E, which is also an Applicant-Prepared Preliminary Draft Environmental Assessment (PDEA). During its review of the Application, the Commission may or may not choose to adopt all or part of the PDEA as its NEPA document.

2.2 California Environmental Quality Act

Aspects of this Project are subject to both NEPA and CEQA. CEQA guidelines suggest that joint NEPA/CEQA documents should be prepared when possible. In this case, PG&E has prepared an application, including a PDEA for the addition of the Britton Powerhouse and associated 21-kV power line. The PDEA is incorporated here as part of the Initial Study for activities covered by FERC's NEPA review of the application, particularly for purposes of not duplicating description of the environmental setting of the Projects.

To meet the minimum stream flow requirements of the license, modifications to the instream flow release facilities at Pit 3, Pit 4, and Pit 5 dams will be needed. These modifications were not anticipated when the CWA section 401 Water Quality Certificate (Water Quality Certificate) was issued by the State Water Board but are necessary to make and regulate the minimum instream flow requirements of the water quality certificate, U.S. Forest Service (USFS) 4(e) conditions, and the FERC license articles for the Projects. Because these facilities were not anticipated during the relicensing proceedings, an additional CEQA review is needed.

This Initial Study was prepared to comply with CEQA to assess the environmental effects of modifications necessary for making the instream flow releases to meet the required minimum instream flows and the addition of the construction and operation of the proposed Britton Powerhouse at Pit 3 Dam and associated 21-kV power line. The CEQA Environmental Check List refers to both the PDEA and the Initial Study.

2.3 Water Quality Certification

Section 401 of the federal CWA (33 U.S.C. § 1341) requires any applicant for a federal license or permit, which may result in any discharge to navigable waters, to obtain certification from the state that the discharge will comply with the applicable water quality parameters in the CWA. In this case, the federal agencies issuing the licenses are the Commission and the U.S. Army Corps of Engineers (Corps). The sections of the CWA for which a state must certify compliance before issuing a section 401 certification include sections 301 and 302 (effluent limitations), section 303 (water quality standards and implementation plans), section 306 (national standards of performance for new sources), and section 307 (pretreatment effluent standards).

Under section 303 of the CWA and under the Porter-Cologne Water Quality Control Act, the Central Valley Regional Water Quality Control Board has adopted, and the State Water Board and U.S. Environmental Protection Agency have approved, the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan). The Basin Plan designates the beneficial uses of waters to be protected along with the water quality objectives necessary to protect those uses. Existing beneficial uses designated for the Pit River, from the mouth of Hat Creek to Shasta Lake, include municipal and domestic supply, agricultural supply, stock watering, power, water contact recreation, non-contact water recreation, canoeing and rafting, cold freshwater habitat, wildlife freshwater habitat, warm and cold spawning. Warm freshwater habitat is listed as a potential use.

2.4 Section 404 of the Clean Water Act

Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill materials into waters of the United States, including wetlands. The Corps issues section 404 permits either as individual permits or as general permits on a nationwide, regional, or state basis. The general permit eliminates individual review and allows certain activities to proceed with little or no delay provided certain general and specific conditions are met. To determine the need for compliance with section 404, PG&E had a wetlands delineation study performed by WRA Environmental Consultants (WRA 2008). On September 9, 2008, the results of this study were presented to a representative of the Corps for a preliminary determination if individual 404 permits or general nationwide permits will be required for work affecting waters of the United States, including wetlands. Subsequently, on October 29 and 30, 2008, the Corps' representative conducted a field inspection of the proposed affected areas and made a determination regarding which Nationwide Permit will be required at each location that may affect waters of the United States and wetlands. The final revision of the wetlands delineation study was submitted by WRA on December 19, 2008. Table 1 identifies the nationwide permits required by each action.

Table 1. Proposed actions requiring general permits under section 404 of the Clean Water Act and type of Nationwide Permit required for each action

Proposed Action	Nationwide Permit	Requirements
Pit 3 Dam: Flow Release Facilities—Dam penetration and installation of facilities	Nationwide Permit No. 3 (Maintenance)	Re-vegetate as necessary
Pit 3 Dam: Flow Release Facilities—Cofferdams	Nationwide Permit No. 33 (Temporary Construction, Access, and Dewatering for cofferdams and transition box)	Remove temporary fill to approved upland locations
Pit 3 Dam: Access Road	No permit required if road remains above high water mark.	
	Nationwide Permit No. 13 (Bank Stabilization) if rock fill supporting the road falls below the high water mark	Plant willows as mitigation.
Britton Powerhouse	No permit required	

Section 3.0 Proposed Project

The demand for clean renewable energy sources has increased with concerns about global climate change and the rising cost of petroleum-based energy. This demand and the need to meet the California's Renewable Portfolio Standards have made the addition of a proposed new Britton Powerhouse feasible. PG&E proposes this new powerhouse, so that it can take advantage of the minimum instream flow requirements from the Pit 3 Dam. Before it can build and operate this proposed new powerhouse, PG&E must obtain an amendment to its license for the Pit 3, 4, and 5 Project from the Commission. The powerhouse must be on-line by the end of 2010 to contribute to meeting the goal established by California Senate Bill 1078 in 2002 and accelerated in 2006 by Senate Bill 107.

The State Water Board will use this Initial Study in its decision-making process for issuance or denial of a CWA 401 Certificate for the following actions requiring approval by FERC or the Corps:

1. Installation of new IFR structures and a construction access road at Pit 3 Dam;
2. Installation of new IFR structures at Pit 4 Dam;
3. Installation of new IFR structure at Pit 5 Dam; and
4. Amendment of the FERC license to add a powerhouse at Pit 3 Dam (Britton Powerhouse).

When the Commission issued the new license on July 2, 2007, it was anticipated that, except for Pit 3 Dam, the required flows could be released and measured for compliance using existing facilities at Pit 4 and Pit 5 dams. At Pit 3 Dam, it was anticipated that modifications to the current outlet used for making minimum instream flow releases will be required for implementation of the new minimum flow regime to make seasonal adjustments, ramp flows during periods of change in flow, and accurately measure flows for compliance. It was anticipated that installation of the new release facilities will be accomplished by enlarging the existing low level outlet and installing a new valve capable of making and regulating the required releases. Access will be by way of the dam gallery and the low level outlet, and a crane will lower materials and equipment from the top of the dam or from Clark Creek Road.

Additional engineering studies indicated that because of space limitations at the Pit 3 Dam low level outlet and weight limitations of the Pit 3 Dam bridge deck, it will not be feasible to replace the existing release facilities or use a crane to lower materials and equipment from the dam. Because of the limitations for using a crane, a new access road must be constructed. The proposed modifications at the existing low level outlet and dam gallery are not feasible because the limited space inside the existing dam gallery will make removal and modification of the existing gate impractical and will compromise the dam structural support for the existing gates and will pose significant risks to gate operation and construction safety.

At Pit 4 Dam, engineering studies indicated that the planned use of the existing facilities to make and regulate required minimum instream flow releases could damage the existing outlet gates. At Pit 5 Dam, it was anticipated that required minimum streamflow releases will be made and regulated by raising and lowering the existing spillway gates and making fine adjustments using the existing instream flow release facilities. It has since been determined that the use of these large gates does not provide sufficient control necessary to regulate flow changes.

Because the planned access to the Pit 3 Dam outlet and the evaluated methods of releasing minimum flows at Pit 3, Pit 4, and Pit 5 dams are not feasible, it was necessary for PG&E to develop and propose an alternative method of making and regulating releases to meet the minimum instream flow requirements.

As stated above, the description of the construction of the Britton Powerhouse is in the applicant prepared PDEA, which is attached.

3.1 Pit 3 Dam Flow Release Structures and Access Road

3.1.1 Description of Existing Facilities

The Pit 3 Development is the most upstream of the three Pit 3, 4, and 5 developments. Located about 9 miles (mi) north of Burney, California, the Pit 3 development consists of the Pit 3 Dam; the 41,877 acre-ft of gross storage at Lake Britton (Pit 3 Reservoir); 21,203 feet (ft) of tunnel; three 500-ft-long steel penstocks; three turbine-generator units housed in a steel and reinforced concrete building; a switchyard; and a tailrace.

Pit 3 Dam is a concrete arch dam with a vertical upstream face and downstream slope of 0.75H:1V. The dam is about 494 ft long and 130 ft high to the top of the non-overflow section, which is located at elevation 2,750.5 ft National Geodetic Vertical Datum of 1929 (NGVD). The spillway consists of three 84.7-ft-wide ogee sections at the center of the dam. The ogee spill sections are equipped with inflatable rubber bladder dams. The spillway is capable of discharging up to 70,000 cubic feet per second (cfs).

The reservoir outlet consists of the power tunnel intake on the right shore (looking downstream) about 300 ft upstream from the dam and three low level outlets through the base of the dam. Each of the low level outlets consists of a 7-ft x 7-ft unlined concrete conduit with a steel trash rack and a cast iron slide gate at the upstream end. A concrete plug and orifice plate were installed in the right sluice-way in 1986 as an interim measure for releasing the past license's required minimum stream flow of 150 cfs.

3.1.2 Proposed Modifications and Scope of Work

The proposed modifications at the Pit 3 Dam include installing a new bypass pipe and discharge valve system on the right (looking downstream) non-overflow section of the dam. The new system will consist of an 8-ft-diameter bypass pipe penetrating through the right non-overflow section of the dam. A steel pre-fabricated intake will be installed on the upstream side of the dam at the existing right low level outlet intake. The bypass pipe will extend vertically for 10 ft along the face of the dam, and then through a 90 degree vertical bend for more than 16 vertical ft, follow a horizontal alignment along the face of the dam at the existing 35 degree central angle. The horizontal section will run a total length of about 100 ft from the new intake to the penetration and then downstream approximately 200 ft along the downstream dam face and terminate at the right abutment with a discharge valve. A guard valve will be provided at the upstream section near the dam face to facilitate shutoff and isolation of the discharge valve and the bypass pipe. A second guard valve will be installed downstream of the discharge valve to isolate the proposed Britton Powerhouse during routine maintenance, while maintaining the required flow releases without interruption. In addition, an access road will be constructed to the base of Pit 3 Dam to provide construction and operation access for the IFR structures. This road will provide access to the proposed Britton Powerhouse, as well as access for the annual gravel augmentation program required under the new FERC license. It will also provide

pedestrian access to the Pit River below the dam on the right side of the Pit River once construction is completed. Figure 1 shows the location of the new IFR structures. Figure 2 shows the location of the proposed access road. The proposed project will include the following major components:

- **Pit 3 Dam Access Road**—The access road will be constructed from Clark Creek Road at the right abutment of the dam to near the proposed Britton Powerhouse site. The Pit 3 Dam Access Road will be used for construction of the new IFR structures at the dam. The road will slope at about a 15 percent grade to a point near the base of the dam. Some retaining structures will be required to stabilize the slope above and below the excavations made to construct the access road.
- **Bypass Pipe Dam Penetration**—An 8.5-ft opening through the right non-overflow section of the existing concrete dam section will be cut through the dam from the downstream face to the upstream face. An 8-ft-diameter steel pipe will be sleeved through the 8.5-ft opening and encased in grout. The penetration and encased pipe will be located approximately at the floor level of the dam gallery entrance hallway. A new entrance to the gallery will be cut in the dam to the left of the existing entrance. Work will also include installing a permanent transition box at the upstream end by divers to facilitate a dewatered and safe environment for installing the penetration and the downstream bypass pipe system. The transition box will eliminate the need for a 90 degree elbow and provide a pipe alignment that is closer to the upstream face of the dam, which will reduce seismic complications.
- **New Intake**—A new intake structure will have a 288 square foot (ft²) opening, with a 16-ft by 12-ft trashrack with bars spaced at 2 to 3 inches (in.). The structure will be three sided with 96 ft² of trashrack opening on the sides and 192 ft² on the trashrack face. The intake will transition to a 96-in.-diameter steel pipe, which will transport water through the dam.
- **Upstream Bypass Pipe**—A steel pre-fabricated intake will be installed on the upstream side of the dam at the existing right low level outlet intake. The by pass pipe will extend vertically for 10 ft along the face of the dam, through a 90 degree vertical bend, and for about 20 vertical ft follow a horizontal alignment along the face of the dam at the existing 35 degree central angle. The horizontal section will extend about 100 ft from the new intake to the penetration, approximately 200 ft along the downstream dam face, and terminate at a concrete valve house along the right abutment. A guard valve will be provided at the upstream section near the dam face to facilitate shutoff and isolation of the discharge valve and the bypass pipe.
- **Downstream Bypass Pipe**—Approximately 100 ft of 8-ft-diameter steel pipe will be extended from the downstream end of the penetration to a discharge valve. The bypass pipe will terminate at a bifurcation valve with one end extending downstream for the proposed Britton Powerhouse penstock and the other end extending to a discharge valve. A concrete valve house will be built to enclose the valve and controls, and anchors and structural supports for the bypass pipe will be installed. The bypass pipe system will include an acoustic flow meter for accurate measurement, monitoring, and recording of the flow release.

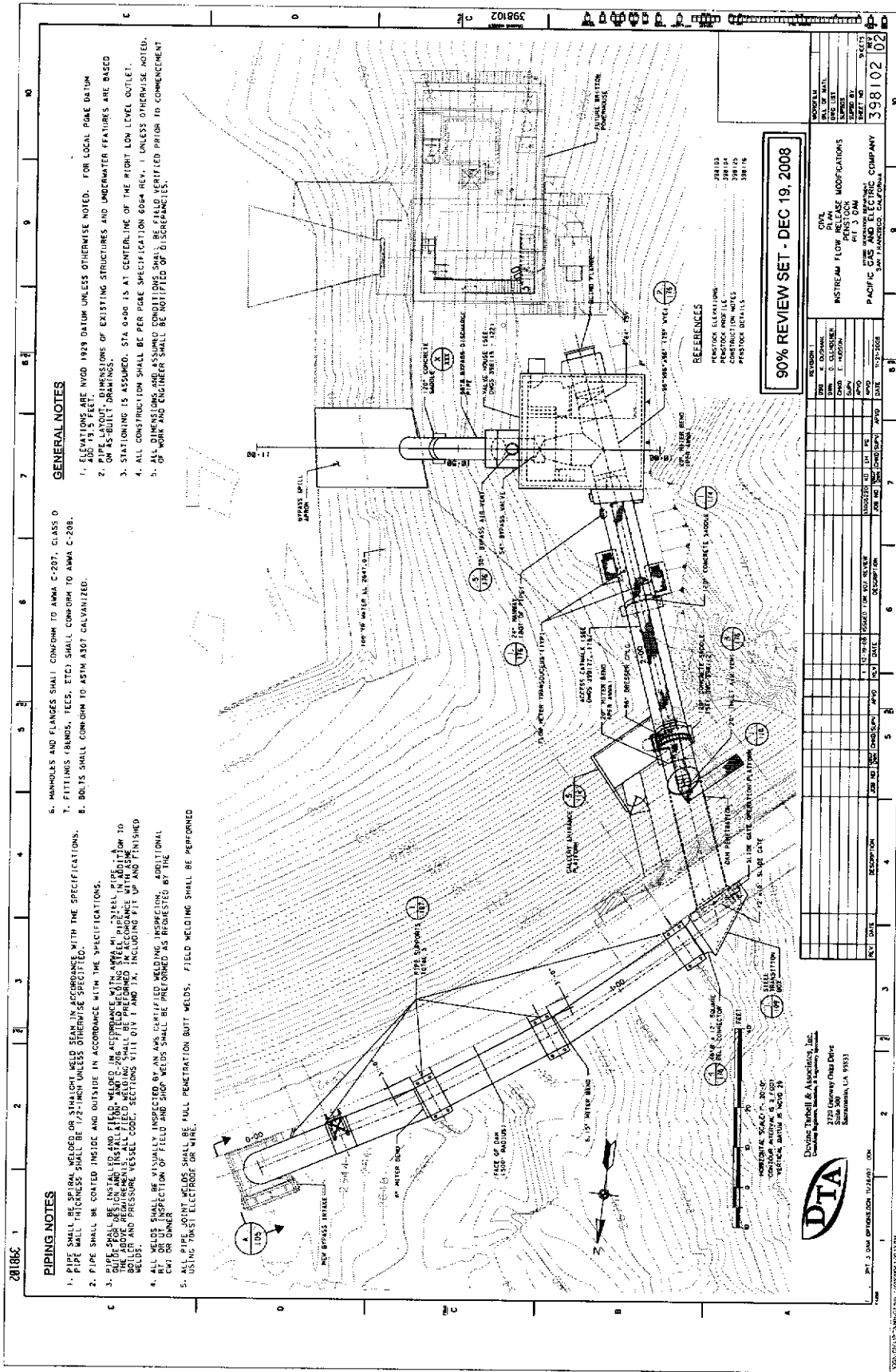


Figure 1. Location and configuration of new instream flow release structure at Pit 3 Dam

- **Discharge and Guard Valves**— A 12 ft wide by 10 ft high slide gate will be installed on the dam face at the upstream end of the dam penetration for emergency shutoff and isolation of the downstream valves and bypass pipe. A 54-inch knife gate will be used for discharge of instream flows, and an 84-inch butterfly valve will connect to the penstock of the Britton Powerhouse. The discharge valve and guard valve, operations system, and electrical controls will be enclosed in a valve house at the downstream end of the bypass pipe.
- **Power Supply and Controls**—Construction of the proposed project will include an electrical power supply, emergency stand-by power system, instrumentation, and controls. The existing local 12/21-kV power line adjacent to the dam will be the power source for normal operation of the proposed facility. Electrical power supply connections and an existing standby system to support uninterrupted operation of the IFR structures will be installed. The controls will be connected to the Pit 3 Control Center by a Supervisory Control and Data Acquisition Remote Terminal Unit.

3.1.3 Construction

3.1.3.1 Pre-Construction Tasks

The pre-construction phase of the dam modifications encompasses all activities that will occur before the physical construction work begins. These activities include conducting site inspections, meeting with representatives of resource agencies, acquiring all necessary permits, conducting environmental pre-construction surveys, and implementing protection measures at the site.

3.1.3.2 Mobilization

A job office will be established off-site near Burney, California, on Highway 89. Materials and equipment will be stored at the job site and nearby laydown areas adjacent to Clark Creek Road off the main road to allow traffic to pass and at Five Corners.

3.1.3.3 Site Access

The construction site will be accessed from Clark Creek Road via Highway 89. Personnel access to the right abutment will be provided at the dam using existing and temporary ladders and stairs. Cranes will be positioned on the road to lift heavy equipment, such as the intake pipe, valves, and concrete. For heavy loads exceeding the weight limit of the Pit 3 Dam Bridge, Clark Creek Road will be used. Clark Creek Road from Five Corners to the left side of the dam will be closed, and through traffic detoured to Highway 89 to avoid the construction site and ensure public safety. The magnitude of this type of work will require a full road closure. The length of the closures is anticipated to be about 4 months (from July 2009 through November 2009). A Traffic Control and Public Safety Plan has been prepared and establishes how traffic will be controlled during construction (Attachment A1).

3.1.3.4 Laydown Areas

Materials will be stored on-site at a designated laydown area at the turnout along Clark Creek Road on the north side of Pit 3 Dam. Additional laydown areas may also be developed downstream of the dam as construction progresses and flat areas are developed. Any additional laydown area will not be located outside the access road right-of-way to the

powerhouse or the proposed locations for the powerhouse and valve house. Minimal disturbance is expected for laydown area development because pre-existing areas will be used first. In the event additional laydown areas are required for equipment and material storage the area will be surveyed and designed to avoid impacts to sensitive species.

3.1.3.5 Pit 3 Dam Access Road

The Pit 3 dam access road will start at Clark Creek Road adjacent to the Pit 3 Dam (right abutment) and traverse south at an approximate 15 percent slope until it reaches the bench near the bottom of the slope. At this point, the horizontal alignment will approach a wide turn, using the existing flat topography on the bench and following the bench north to the proposed powerhouse site. There is also the potential to use existing topography, which may include both cut-and-fill walls and rock fill where required. The access road will be constructed mostly on engineered or native fill and supported by a retaining wall or rock fill buttressing on the downhill side of the roadway.

3.1.3.6 Intake and Underwater Pipe Installation

The intake guard valve and underwater pipe will be installed by workers on barges and divers, all working in accordance with the safety plan that will be developed before construction begins. A crane will lift the heavy loads from the road at the right abutment down to the barges. The barges will take the load from the crane and use winches to lower the load into position. The divers will align the load and then use tools or welders to fasten the loads. The intake will be prefabricated in the largest pieces possible to minimize the number of pieces that will need to be set and minimize the fastening time in the water. The supports for the pipe will be set and fastened to the dam, so the pipe has a place to sit when lowered into the water. The work in the water will include drilling and placing anchors in the dam and low level outlet structure, welding steel members and pipe, and fastening nuts and bolts together to join members.

3.1.3.7 Pipe Penetration through the Dam

A 12-ft-wide trapezoidal transition will be attached to the upstream face of the dam and pumped out to form a dry work area on the upstream side of the penetration. Barges will be used to guide the transition box into position, and once the cofferdam is in place, the divers will drill anchor holes for mechanical anchors. When all the holes are drilled, the transition box will be bolted to the dam face and will be sealed by the bulb seals fixed to the flanges of the transition box. The box will be attached entirely to the dam and will not touch reservoir sediments.

Holes about 2 in. and 6 in. in diameter will be core drilled through the dam in a circular pattern with an 8.5 ft diameter. The concrete plug will be removed by chipping it into pieces and removing it and the existing pipe from the downstream side of the dam. After the penetration hole is complete, the 8-ft-diameter pipe will be placed in the hole, and the annular space between the pipe and dam will be grouted. The valve will be placed on the pipe at the upstream end and closed to prevent any water from entering the pipe. The upstream pipe will be connected to the valve by divers. Any noise will be minimal due to the mechanical work being conducted underwater and inside the dam, and the duration of this activity will be short.

3.1.3.8 Downstream Pipe and Thrust Block

The downstream pipe will require a thrust block to anchor the water loads at the bend. The thrust block and pipe will be accessed from the new access road to the base of the dam and the

bench cut for the pipe. The thrust block will be a concrete cast-in-place structure anchored with steel anchors drilled into the rock. The pipe will be placed and temporarily supported until the thrust block is completed. The thrust block will be formed with wood forms, reinforcing bars placed in the forms and concrete poured into the forms. The concrete will be placed either using a crane with a concrete bucket or a pump truck. All concrete waste will be contained and removed from the site. The forms will be removed from the site after concrete has cured.

Limiting the amount of rock excavated at any one time will prevent excavation debris from entering the river. Chain link fence will be placed below the excavation area as required to prevent large debris from entering the river. K-rails may also be placed along the top of the right wing wall to shield the river from any debris that might fall from the work site. As an additional measure of protection for the river, a small cofferdam constructed using 1 to 2 yard "super sacks" filled with gravel suitable for use as spawning gravel will isolate the construction from the river. The gravel will then be left and the sacks removed after completion of the work at the site. A floating silt curtain will be placed in the river downstream of the construction activities.

3.1.3.9 Valve House

The valve house will be constructed on the slope above the concrete wall downstream of the dam. The foundation will be excavated to rock or material providing a solid foundation. Rock anchors will be drilled and grouted into the slope and foundation to anchor the building and resist thrust loads from the valve and pipe. The drilling equipment will be brought to the site along the new access road to the valve house. The concrete foundation will be formed, reinforcing bars placed, and concrete poured from a crane or pump truck. The pipe will be placed on the foundation and the next level of concrete poured, encasing the pipe and forming the floor of the valve house. The upper level of the valve house will have concrete walls and a concrete roof with hatch openings. The electrical components and controls will be placed in the valve house with conduits connecting to the dam control area on the dam and under the bridge.

3.1.3.10 Valve Installation

A 54-inch knife gate will be installed for discharge of instream flows releases and an 84-inch butterfly valve will be used to connect to the penstock of the Britton Powerhouse. The valve and operator device will be installed on the flange at the end of the pipe in the valve house using a crane located at the end of the new construction access road. The valve will be bolted to the flange and have a short section of discharge pipe bolted to the valve body to direct discharged water into the plunge pool.

3.1.3.11 Electrical and Controls Installation

The power and controls in the valve house will be connected to the control room areas at the dam. Along the pipe's route, conduits will be both buried and on the ground surface; they will then be fastened and extended to the top level of the dam. The existing stand-by generator on the dam will be used as the backup power for the valve controls. The flow meter will be mounted on the pipe between the dam and the valve house and have conduits that follow the pipe alignment to the valve house. The control panel for the flow meter will be located in the valve house building.

3.1.3.12 Bypass Flow during Construction

Minimum instream flow releases will be met throughout the construction period. For installation of the intake and upstream bypass pipe, the right low level outlet will be closed and the left low level outlet will be opened to provide the minimum instream flow release and a safe environment for the divers.

3.1.3.13 Cleanup and Demobilization

Any affected areas will be restored after completion of construction. All construction debris and environmentally deleterious materials will be removed from the dam site and laydown areas. Laydown areas will be cleared, regraded, and returned, as much as is reasonably possible, to their preconstruction condition or graded. All environmental mitigation measures stipulated by agencies in their approvals and permits will be implemented in a timely manner.

3.2 Pit 4 Dam Flow Instream Release Structure

3.2.1 Description of Existing Facilities

The Pit 4 Development is located immediately downstream of the Pit 3 Development. The Pit 4 Development consists of the 105 acre Pit 4 Reservoir with gross storage of 1970 acre-feet; Pit 4 Dam; 21,408 ft of tunnel; two 780-ft-long penstocks; two turbine-generator units housed within a steel and reinforced concrete building; a switchyard; and a tailrace channel.

Pit 4 Dam is a concrete structure consisting of two sections: a concrete gravity spillway section and a non-overflow slab-and-buttress section. The concrete gravity spillway section is 213 ft in length with a maximum height of 78 ft. The slab-and-buttress section is 202 ft in length with a maximum height of 58 ft. The crest of the non-overflow buttress section is at elevation 2438.5 ft NGVD, and the normal maximum reservoir is elevation 2422.5 ft NGVD. The spillway section is equipped with two 68 ft-wide by 14.5-ft-high drum gates that can discharge up to 81,000 cfs at normal maximum reservoir. The Pit 4 Reservoir is the forebay for the Pit 4 Powerhouse. The water level on the reservoir fluctuates depending on the operation of the powerhouse, but is not normally drawn down below elevation 2,415.5 ft NGVD.

Under normal operation, inflows of up to 3,700 cfs are diverted through the power tunnel to the Pit 4 Powerhouse for generation. The current minimum flow release of 150 cfs is made through a 42-in.-diameter bypass pipe and valve system in the non-overflow section of the right abutment.

3.2.2 Proposed Modifications and Scope of Work

The proposed modifications at Pit 4 Dam will involve replacement of the existing bypass pipe and discharge valve system with a new system that will consist of a larger size pipe and valve with increased capacity. Existing flows will be maintained using the existing low flow outlet gates during construction and when the new instream flow release system is shut down for maintenance and/or repair. A new intake structure with a larger trash rack and a trash rake will be installed at the right upstream face of the dam. A slide gate will be installed on the dam face at the upstream end of the dam penetration to provide emergency shutoff and isolation of the discharge valve and bypass pipe for maintenance. Figure 3 shows the planned location and configuration of the new IFR structures.

The new flow release system will require footings to be constructed at the Pit 4 Dam to support the proposed trash rack structure for the new intake. A total of four footings are designed to support the load of the trash rack. The favored scenario is to construct all four footings in the dry. PG&E's allowable operating reservoir surface elevations are between 2,425 ft and 2,415 ft NGVD. If a drawdown below this elevation is not allowed, PG&E will construct one footing underwater. The lowest footing will be at elevation 2,407 ft NGVD, 8 ft below minimum water surface elevation, and will require unique construction procedures. Figure 4 illustrates the footing design. The sequence for construction under this condition will be as follows:

- A diver will be briefed by a biologist on points of inspection at the construction site.
- The diver will enter the reservoir and move to the site of the proposed intake construction and area of light excavation for the pin pile footing to be constructed underwater.
- The diver will be equipped with a helmet mounted camera with a live feed to the surface where a biologist will monitor the underwater activity and conditions.
- The diver and biologist will work together to inspect underwater for the presence of species in the work zone.
- A floating silt curtain will be anchored to the bull nose on the right side of the dam face.
- A small barge equipped with a baker tank will be deployed into the reservoir from the parking area at the Pit 4 Tunnel intake, and a mini excavator will load onto the deck.
- The barge will move into position at the site of the footing, and the floating silt curtain will be extended to the tunnel intake structure.
- The silt curtain will be weighted at the bottom to avoid being drawn toward the tunnel intake. With the guidance of the diver, the mini excavator will perform light excavation of approximately 1 cubic yard of soil to prepare a 5-ft bench for the forms at the footing to elevation 2,407 ft.
- The excavated material will be placed on the embankment within the floating silt curtain containment.
- A prefabricated steel 2.5-ft by 2.5-ft form with tabs will be placed on the bench at the footing location.
- Once in position, the steel form will be anchored into place with an anchor approximately 12 in. into competent material.
- A crane will hand a 2.5-ft by 2.5-ft by 20-ft steel casing to the barge and divers will guide it into position where a prefabricated male-female fitting configuration will allow the steel casing to fit onto the form.
- The form and casing will be attached with a water tight seal, and a pump will be placed into the casing and water will be pumped to the baker tank.

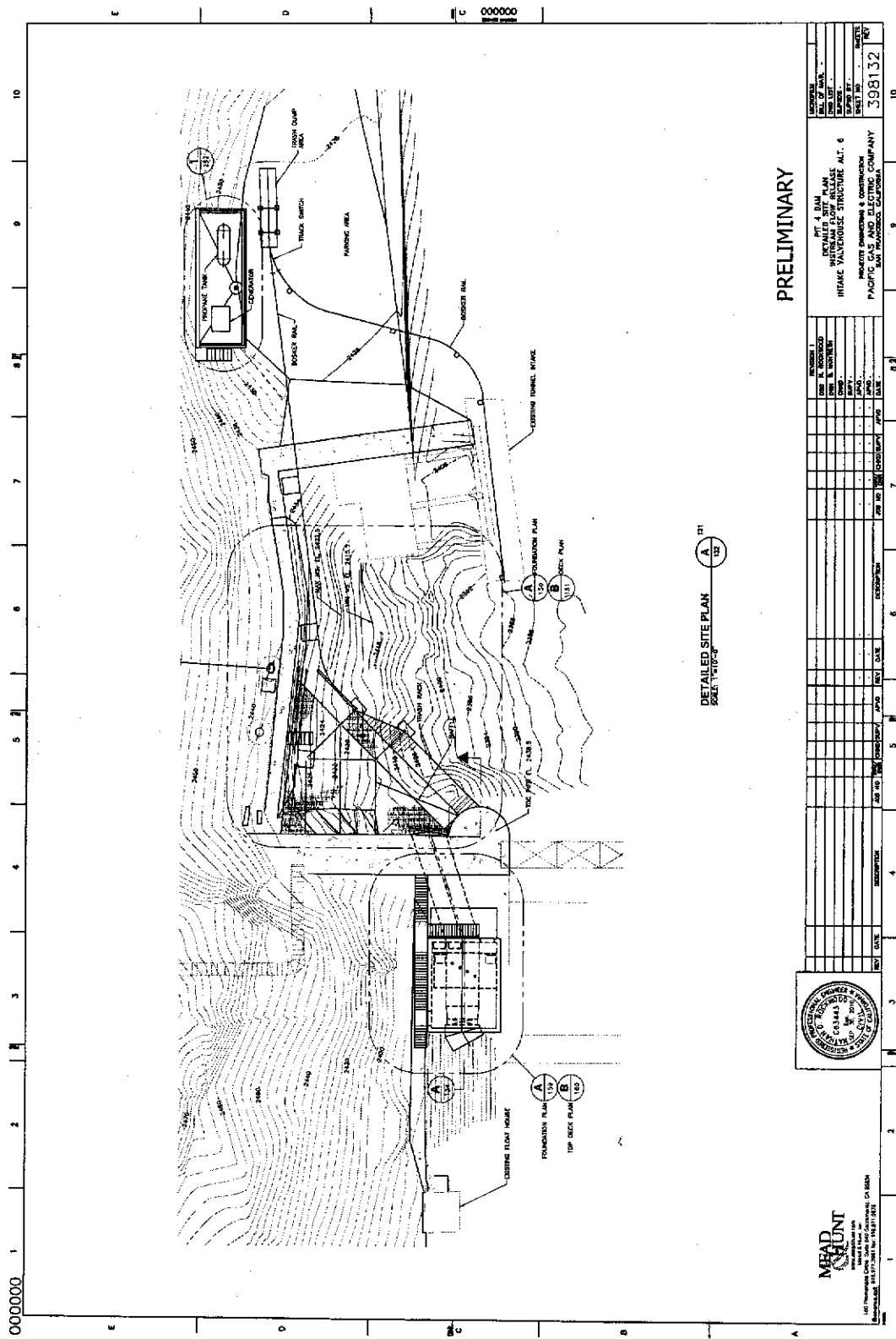
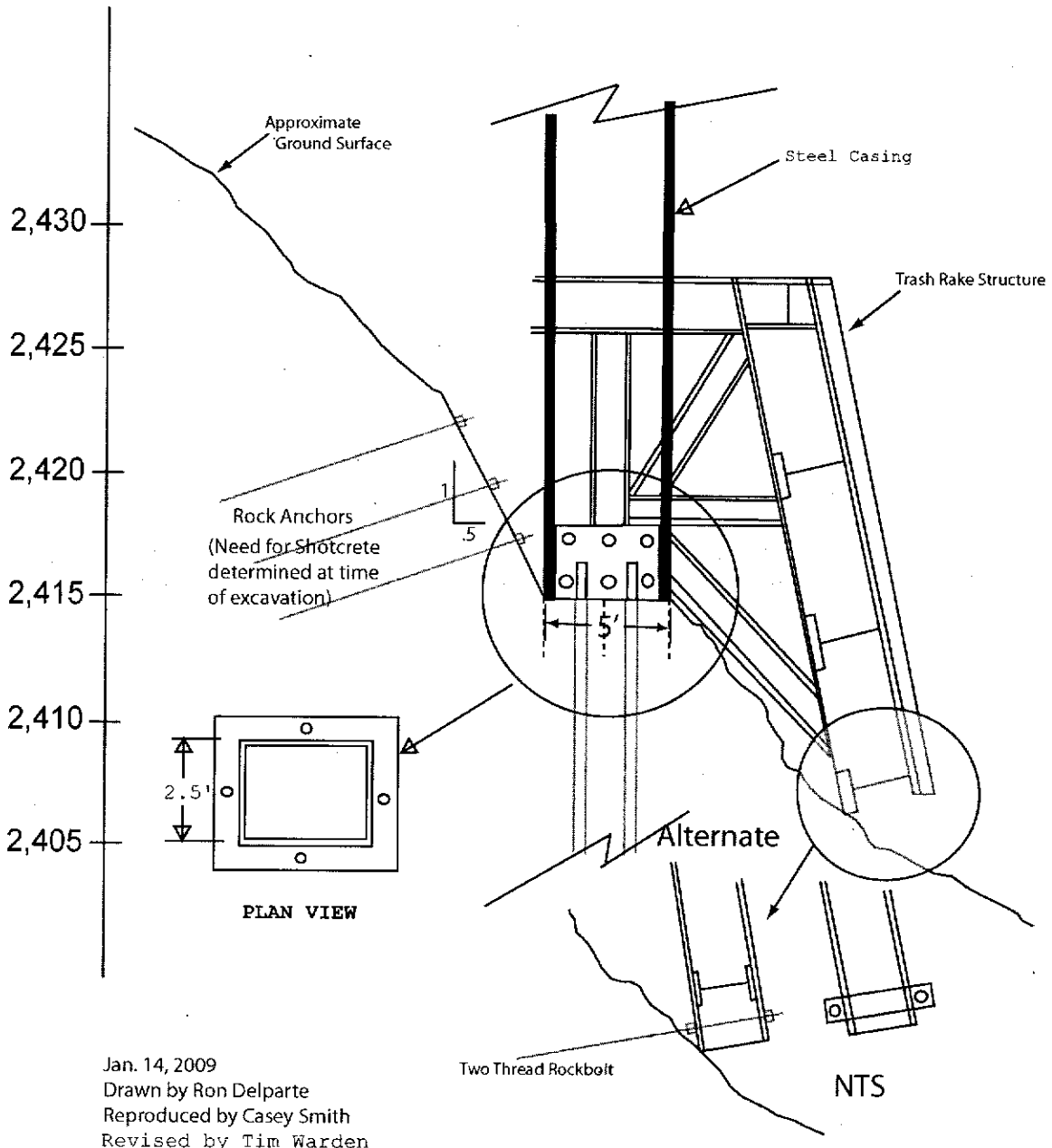


Figure 3. Location and configuration of new instream flow release structure at Pit 4 Dam

Pit 4 Intake Structure



Jan. 14, 2009
 Drawn by Ron Delparte
 Reproduced by Casey Smith
 Revised by Tim Warden

Figure 4. Illustration of Pit 4 Dam flow release facilities footing structure

- Four pin piles will be installed to an approximate depth of 10 ft below the footing and will require 5- to 6-in.-diameter holes to be pre-drilled inside the casing.
- Once drilled, 1-in.-diameter steel bars will be installed in the holes and a rebar cage placed in the form.
- Concrete will be placed from the bottom of the drilled holes to encase the steel pin piles to the top of the form with a tremie.
- A mounting bracket will be embedded in the concrete footing that will receive the structural component for the trash rack in the future.
- When the concrete has cured, the casing will be removed and the steel form will remain in place.
- The silt curtain will remain in place for the duration of construction activities at the Pit 4 intake.

Assuming construction for the Pit 4 Dam flow modifications begins in July 2009, the excavation for the footing will be among the first activities at that location. The underwater footing construction will be the priority activity and will begin approximately July 2, 2009. The excavation, form, and concrete placement will require approximately 1 week. The overall duration for construction at Pit 4 Dam will last approximately 3 months, with completion near the end of September 2009.

3.2.2.1 Remove Existing Flow Release System

The existing bypass pipe, valve and intake system will be removed, and the existing penetration through the right non-overflow section will be enlarged to an 8.5-ft-diameter opening from the downstream face to the upstream face. An 8-ft-diameter steel pipe will be sleeved through the 8.5-ft-diameter opening and encased in grout. The centerline of the encased pipe will be located at an approximate elevation of 2,409.5 ft NGVD. A diver will place a temporary bulkhead or blister dam at the upstream end to facilitate a dewatered and safe environment for installation of the penetration, pipe, and valve.

The new intake will be located on the right abutment of the dam.

3.2.2.2 Intake Structure

The intake will be a prefabricated steel structure and will be placed on cast in drill hole (or CIDH) piers. The intake structure, with an approximate footprint of 26 square ft, will be supported by drilled and cast in-place footings above minimum water level, as well as drilled and cast in-place footings or H-Piles where footings are required to be installed below the minimum water level. A trash rake will be attached to the steel structure to clean the trash racks.

3.2.2.3 Downstream Bypass Pipe

The downstream bypass pipe section will include approximately 40 ft of 8-ft-diameter steel pipe extending from the downstream end of the penetration to a new larger discharge valve near the existing discharge valve location. Anchors and structural supports for the bypass pipe will be installed. A 96-inch diameter knife gate will be provided in a concrete valve house downstream of the dam penetration for discharge and regulation of the required instream flow releases. The

bypass system will include an acoustic flow meter system for accurate measurement, monitoring, control, and recording of the flow release.

3.2.2.4 Discharge Valve

The installation of the discharge valve will include the valve, operation system, electrical controls and a concrete enclosure for protection against flood, weather, and vandalism. A slide gate will be installed on the dam face at the upstream end of the dam penetration to provide emergency shutoff and isolation of the discharge valve and bypass pipe for maintenance.

3.2.2.5 Electrical Power Supply

The modifications will include electrical power supply, emergency stand-by power system in a concrete building, instrumentation, and controls. The emergency stand-by power system will support uninterrupted operation of the bypass and flow release system. The controls will be connected by a Supervisory Control and Data Acquisition Remote Terminal Unit to the Pit 3 Control Center.

3.2.3 Construction Activities

3.2.3.1 Pre-Construction Phase

The pre-construction phase of the dam modification encompasses all activities that occur prior to the beginning of the physical work. This includes conducting site inspections, meeting with representatives of resource agencies, acquiring all necessary permits, conducting required environmental pre-construction surveys, and preparing the site Injury and Illness Prevention Plan (Attachment A2).

3.2.3.2 Mobilization

A job office will be established off-site near Burney, California. Materials and equipment will be stored along the Pit River Canyon Road off the main roadway to allow traffic to pass, unless the day's work requires a road closure. In this case, proper notification and signage will be provided.

3.2.3.3 Road Access

Access to the Pit 4 Dam is from the existing Pit River Canyon Road. Access to the construction site will be from the existing tunnel access road to the tunnel intake, the road on spoil pile 4(D), or from Pit River Canyon Road.

3.2.3.4 Laydown Areas

Some materials will be placed at the end of the tunnel access road and at the end of the spoil pile road near the base of the dam. Equipment and materials will also be placed at the Pit 4 spoil pile, and at the turnout located on Pit River Canyon road above the dam. Any laydown area will be protected using containment barriers to prevent concrete or deleterious materials from entering the reservoir or river. The draft Storm Water Pollution Prevention Plan (SWPPP) has been prepared and will be followed for collecting, settling, monitoring, and treating (if necessary) any waste water from the construction sites (see PDEA, Appendix A).

3.2.3.5 Intake

The new intake will be located on the right abutment on the upstream face of the dam. A monorail trashrake will be installed to service the trash rack for the tunnel intake and the new instream flow release intake. The monorail will be supported by CIDH piers on the embankment and the concrete tunnel intake structure.

3.2.3.6 Pipe Penetration through the Dam

An 8-in. submersible pump will be placed inside the cofferdam, and the area will be pumped dry. The pipe penetration location and geometry through the dam will be similar for all the intake structures located on the right side of the dam. The circular penetration will be above the existing 42 in. bypass pipe to avoid penetrating the foundations of the dam and other major structures such as the drum gate piers. The existing 42-in. bypass pipe, which penetrates the dam, will be filled with concrete and flanged on both sides of the dam and left in place. The top of the penetration will be below the minimum designed forebay elevation thus preventing a siphon condition. The centerline of the proposed pipe penetration at Pit 4 Dam will extend from the upstream face at an invert elevation of 2404.5 ft to the downstream face at approximately the same elevation. The pipe penetration will replace the existing discharge pipe, which was constructed in 1987. Construction of the 8.5 ft. diameter penetration will be completed using core drilling techniques. The 8-ft-diameter pipe will extend through the penetration, with the annulus being filled with dowels into the existing concrete and reinforcing mat placed between the pipe and dam concrete before being filled with concrete/grout. It is anticipated that shear rings along the pipe and dowels between the new reinforced concrete and existing dam will be required. Shear rings will extend into the grout and act as seepage rings between the pipe and grout.

3.2.3.7 Downstream Pipe and Trust Block

The downstream pipe will require a concrete saddle anchored to the concrete wall below the right abutment. The support block will be a concrete cast in-place structure anchored with steel anchors drilled through the concrete wall into the rock. The pipe will be placed and temporarily supported until the anchor block is completed. The saddle will be formed using wood forms, reinforcing bars placed in the forms, and concrete poured into the forms. The concrete will be poured either using a crane with a concrete bucket or by a pump truck. All concrete waste will be contained and removed from the site. The forms will be removed and taken from the site after concrete has cured.

3.2.3.8 Valve House

The valve house will be constructed on the slope of the concrete wall below the dam. Noise levels during construction will be minimal and intermittent. Rock anchors will be drilled and grouted into the slope through the concrete to anchor the building and resist thrust loads from the valve and pipe. The drilling equipment will be brought to the site along the spoil pile road extension to the right dam abutment. The concrete foundation will be formed, reinforcing bars placed and concrete poured using a crane or pump truck. The pipe will be placed on the foundation and the next level of concrete poured encasing the pipe and forming the floor of the valve house. The upper level of the valve house will have concrete walls and a metal roof with steel doors. The electrical equipment and controls will be placed in the valve house with conduits connecting to the control areas on the dam and at the tunnel intake structure.

3.2.3.9 Valve Installation

The bypass valve and operator device will be installed on the flange at the end of the pipe in the valve house using a crane located at the end of the spoil pile road or from the turnout on Pit River Canyon Road above the site. The valve will be bolted to the flange and have a short section of discharge pipe bolted to the valve body to direct the water into the plunge pool. The proposed valve house will be located approximately 40 ft from the downstream dam penetration on the sloping section of the right spillway wing wall. A concrete base with rock anchors drilled through the wing wall and into the slope of the hillside will provide the foundation for the valve house. The 16-ft x 18-ft building will enclose a 96-in. x 102-in. knife gate discharge valve, and the appropriate hydraulic controls and equipment.

3.2.3.10 Electrical and Controls Installation

The power and controls in the valve house will be connected to the control room area at the dam. Conduits will be run buried and on the surface along the pipe route and then fastened to the dam. A new propane-powered stand-by generator located near the intake tunnel will be used as the backup power source for the valve and to power other electrical equipment at the site. The flow meter will be mounted on the pipe between the dam and the valve house and will have conduits that follow the pipe alignment to the valve house. The control panel for the flow meter will be located in the valve house building.

3.2.3.11 Bypass Flow during Construction

PG&E will meet minimum flow requirements throughout construction. The existing bypass flow release system will have to be taken out of operation when the penetration and pipe installation is started. PG&E will meet the required instream flow release of 150 cfs by releasing from the left lower level outlet. According to the results of the vibration monitoring conducted in August 2008, the required instream flow of 150 cfs could be safely released and will not affect the structural integrity of the outlet. It is the current plan to draw the reservoir down to about elevation 2405 ft for about two weeks to allow construction of the lower pier supports for the new intake. If construction dates overlap with those at Pit 3 Dam, synchronous bypass measures will be employed.

3.2.3.12 Cleanup and Demobilization

The affected areas will be restored after completion of construction. All construction debris and environmentally deleterious materials will be removed for the dam site and laydown areas. Laydown areas will be cleared, regraded, and returned, as much as is reasonably possible, to their pre-construction condition. All environmental measures stipulated by agencies and their approvals and permits will be implemented in a timely manner.

3.3 Pit 5 Dam Flow Release Structures

3.3.1 Description of Existing Facilities

The Pit 5 Development is located immediately downstream of the Pit 4 Development. The Pit 5 Development consists of the 32 acre Pit 5 Forebay with 202 acre feet of useable storage; Pit 5 Diversion Dam; Pit 5 Open Conduit Dam; 28,167 ft of tunnel; four 1,380-ft-long steel penstocks; four turbine-generator units housed in a steel and reinforced concrete powerhouse building; and a switchyard. Pit 5 Diversion Dam is a 340-ft-long concrete gravity structure with an ogee spill

crest across the river channel at an elevation of 2,018.5 ft. The ogee crest provides support for piers and abutment structures for four spill bays with 50-ft-wide by 26.3-ft-high steel wheel gates. Each gate is operated by a double drum electric cable hoist with a cable-hung 55-ton concrete block counter weight system. The spill gates are capable of discharging up to 75,000 cfs at normal maximum reservoir. The reservoir level fluctuates depending on the operation of the powerhouse, but is not normally drawn down below elevation 2,030.5 ft.

The reservoir outlet consists of the power tunnel intake at the left abutment and a 30-in.-diameter outlet pipe underneath the left abutment extending from the power tunnel intake structure to the downstream end of the left spillway wall.

Under normal operation, inflows of up to 3,580 cfs are diverted through the 19-ft-diameter tunnel to the Pit 5 Powerhouse for power generation. The current minimum flow release of 150 cfs is made through a 30-in.-diameter outlet pipe under the left abutment at elevation 2,018.8 ft and one or more of two 12-in. slide gates in the left wheel gate.

3.3.2 Proposed Modifications and Scope of Work

Minimum stream flow releases will be provided by installing a total of nine slide gates each about 17 in. high by 42 in. wide in the four spillway wheel gates. Each of the slide gates will be located near the bottom of the spillway wheel gates and have a flow capacity range from 73 cfs to 114 cfs, depending on reservoir water surface elevation. The slide gates will be operated by electric actuators located on top of each wheel gate. Under normal operating conditions, several of the nine new slide gates will be fully open and the existing 30-inch bypass outlet along the left abutment will be regulated to provide the required instream flow. Figure 5 shows the location and configuration of the new flow release facilities in Pit 5 Dam.

3.3.3 Construction Activities

3.3.3.1 Pre-Construction Phase

The pre-construction phase of the dam modification encompasses all activities that occur prior to the beginning of the physical work. This includes site walk downs, meeting with representatives of resource agencies, acquisition of all necessary permits, and required environmental pre-construction surveys. A job office will be located near Burney. As with the Pit 3 flow modification, the work at Pit 5 dam will require the use of a crane to lift and install heavy components. The crane will be positioned as far off of the road as possible to allow room for traffic to pass. Heavy components such as the cofferdam will be handed to barges by the crane positioned on the intake tunnel side of the dam.

Pit 5 Dam can be accessed from the existing Pit River Canyon Road via Big Bend Road. No new roads will be required for construction.

A laydown area will be established adjacent to the existing PG&E fenced intake area and off of the main road. The laydown area will be protected with containment barriers to prevent concrete or deleterious materials from entering the reservoir or river.

Pit 3, 4, 5 Project (FERC No. 233)

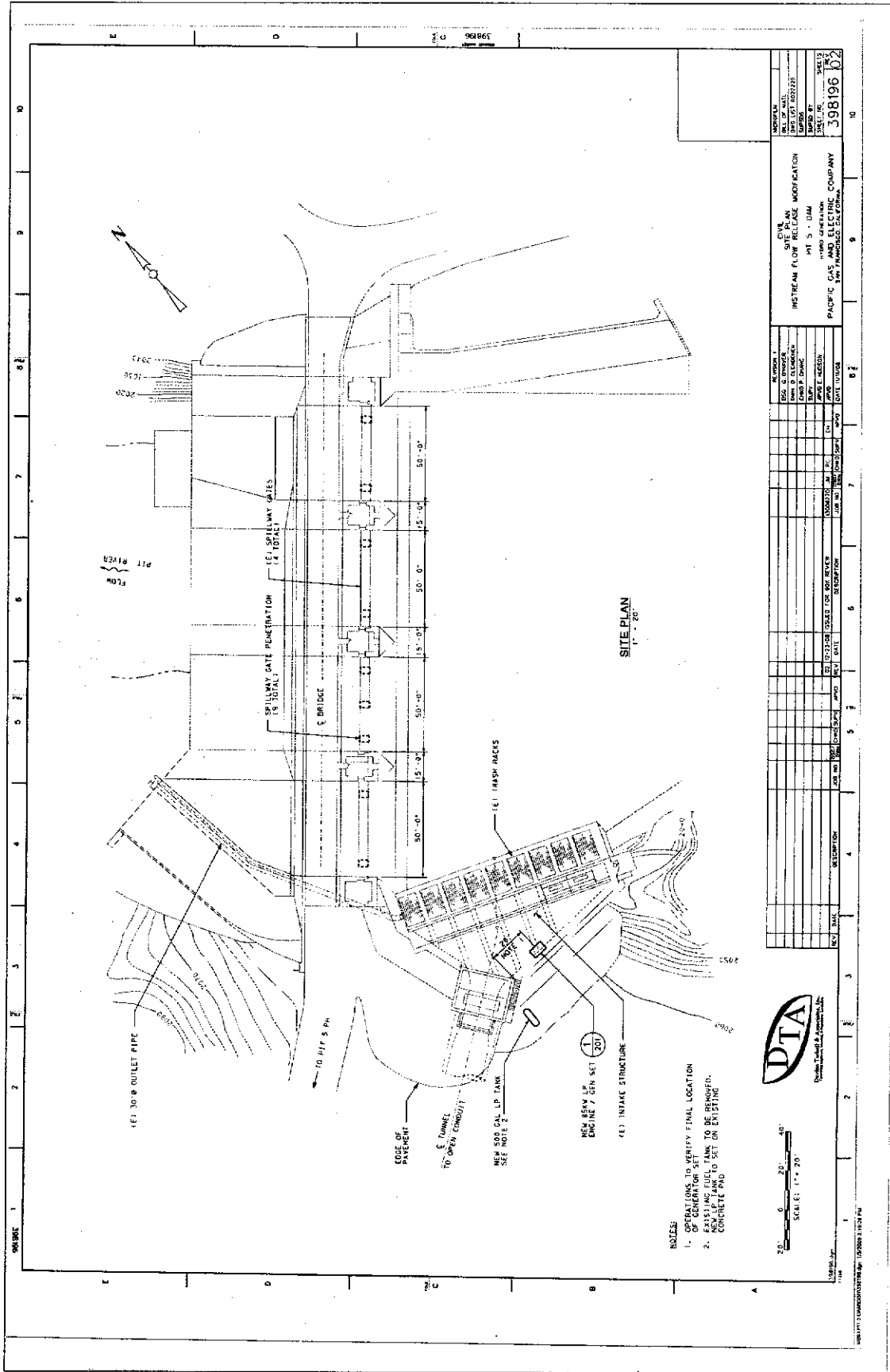


Figure 5. Location and configuration of the new flow release structures in Pit 5 Dam (page 1)

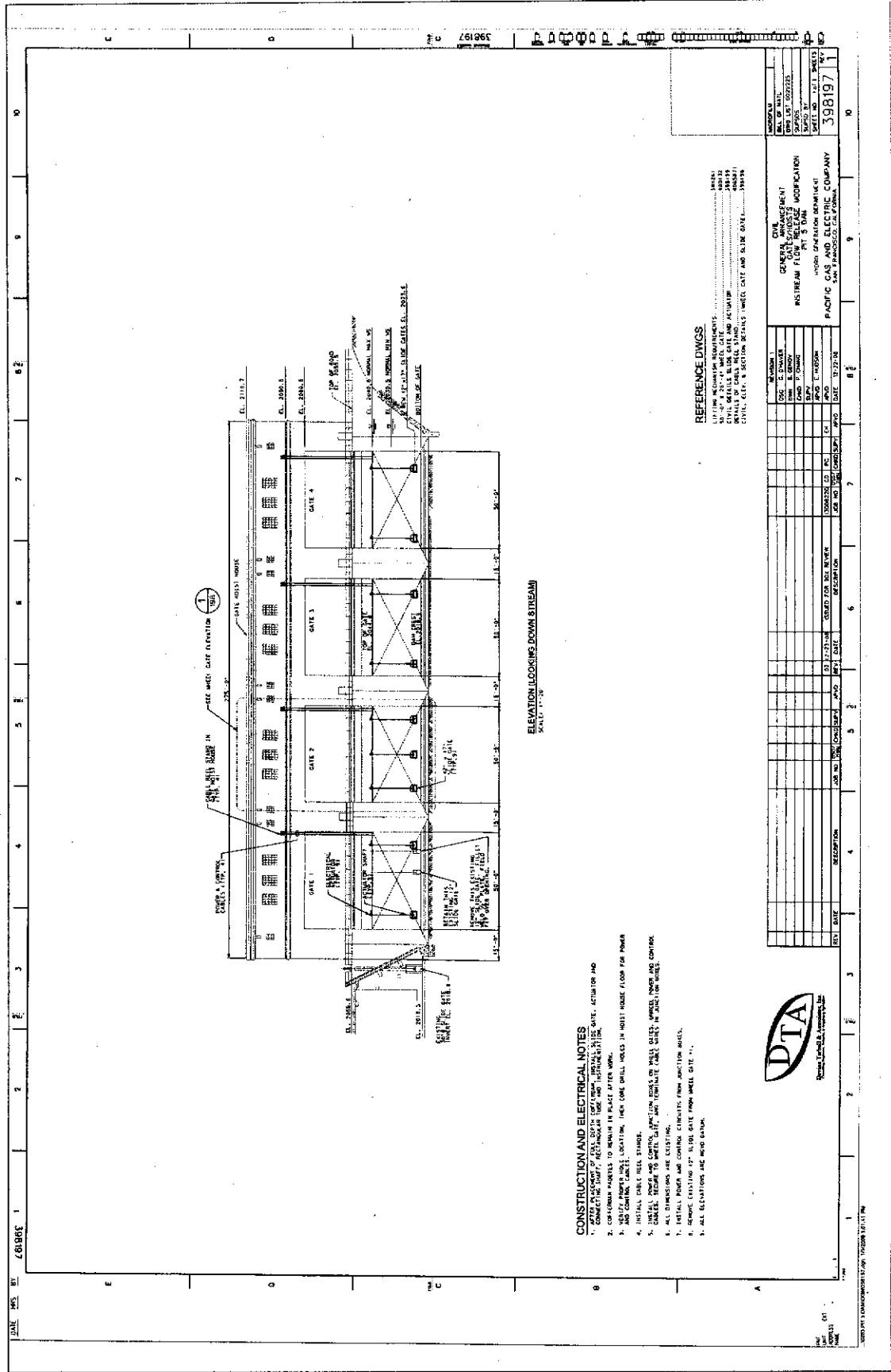


Figure 5. Location and configuration of the new flow release structures in Pit 5 Dam (page 2)

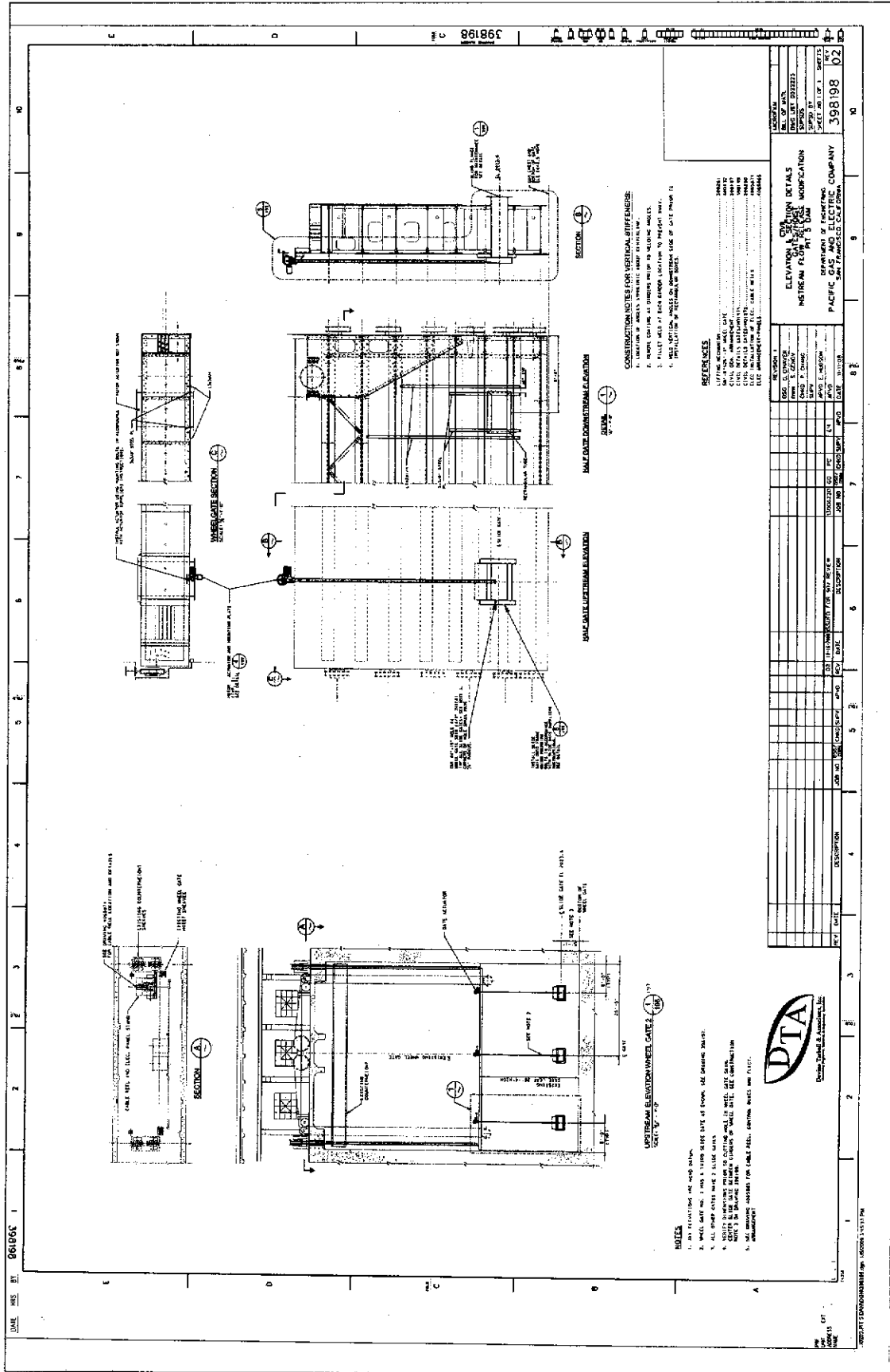


Figure 5. Location and configuration of the new flow release structures in Pit 5 Dam (page 3)

3.3.3.2 Construction Procedures

A 5-ft-radius half-cylinder steel cofferdam will be attached to the upstream side of the dam and pumped out to form a dry work area on the upstream side of the penetration. The cofferdam will be attached entirely to the dam and will not touch reservoir sediments. A total of nine holes will be cut in the steel plate on the upstream face of each existing gate (Figure 5). Starting from the left side of the dam, two 17-in.-high by 42-in.-wide gates will be installed in the first wheel gate. Three gates will be installed in the second wheel gate. The third and fourth wheel gates will receive two gates each. The gates will be constructed individually. The holes will be cut by a plasma torch from the downstream side of each gate.

After the penetration hole is complete, a prefabricated steel box liner will be installed and welded to the gate, and support members will be installed on the downstream side of the gate. A slide gate will be installed on the upstream flange and closed to prevent any water from entering the new penetration.

The gate will be bolted to the flange on the box liner by workers in the cofferdam. Guides will be welded on the upstream face of the dam to hold the gate stem. The gate operator with electric motor will be mounted on the top of the gate using a bracket welded to the gate. The cofferdam will then be removed from the dam and taken off-site.

The power and controls will be connected to the existing systems in the gate house above the dam gates. A new propane powered stand-by generation will replace the existing diesel generator. The facility's Spill Prevention, Control and Countermeasure Plan will be updated to reflect the change.

Minimum flow requirements will be met throughout the construction period using the existing bypass flow release system. The affected areas will be restored after completion of construction. All construction debris and environmentally deleterious materials will be removed from the dam site and laydown areas. Laydown areas will be cleared, regraded, and returned, to their pre-construction condition.

Section 4.0 Environmental Protection Measures

In addition to conditions required by the Commission, the license for the Pit 3, 4 and 5 Project also contains mandatory conditions required by the USFS under section 4(e) of the Federal Power Act [section 4(e)] and by the State Water Board contained in the Water Quality Certificate. The Commission license required the preparation of 33 resource management plans and monitoring studies as mitigation and enhancement of resources affected by the hydroelectric project. Table 2 lists all of the resource management plans and monitoring studies required by the license and the current development status.

Table 2. Required resource management plans and monitoring study plans

Plan Title	Requirement			Status
	FERC ^a	4(e) ^b	401 ^c	
Aquatic Mollusc Monitoring Plan	401	23(b)	Condition 14 and Measure 3	Submitted to FERC for approval on October 1, 2008
Terrestrial Mollusc Monitoring Plan	405	23		FERC approved on November 10, 2008
Macroinvertebrate Monitoring Plan	401	23(b)	Condition 14 and Measure 3	Submitted to FERC for approval on October 1, 2008
Reservoir Fish Monitoring Plan	401	23(b)	Condition 14 and Measure 3	Submitted to FERC for approval on October 1, 2008
River fish Monitoring Plan	401	23(b)	Condition 14 and Measure 3	Submitted to FERC for approval on October 1, 2008
Fire Management and Response Plan	405	20(b)		FERC approved on April 14, 2008; PG&E submitted a request for modification and clarification on December 9, 2008
Foothill Yellow-legged Frog Monitoring Plan	405	23	Measure 11	FERC approved on December 2, 2008
Western Pond Turtle Monitoring Plan	405	23	Measure 11	FERC approved on December 3, 2008
Terrestrial Wildlife Monitoring Plan	405	23(f)	Measure 11	Submitted to FERC for approval on June 25, 2008 Submitted amendment for approval on November 17, 2008
Large Woody Debris Transport Plan	403	21.2		FERC approved on July 18, 2008
Valley Elderberry Longhorn Beetle Plan	406		Measure 11	FERC approved on July 17, 2008
Interagency Bald Eagle Management Plan	401	23(e)	Measure 11	Final draft in preparation; to be sent Bald Eagle Collaborative Group in January 2009.
Gravel Management Plan	402	21.1		Submitted to FERC for approval on June 25, 2008; revision submitted on September 24, 2008
Riparian Vegetation Monitoring Plan	401		Measure 10	FERC approved on November 18, 2008

Pit 3, 4, 5 Project (FERC No. 233)

Plan Title	Requirement			Status
	FERC ^a	4(e) ^b	401 ^c	
Northern Spotted Owl Protection Plan	407	23	Measure 11	FERC approved on December 31, 2008
Install Bat Gate at Pit 4 Tunnel Adit	405	23(a)		FERC approved on October 3, 2008
Vegetation and Noxious Weed Management Plan	405	23(g)	Measure 9	In preparation; not required until July 2, 2009
Water Quality and Temperature Monitoring Plan	401	22	Condition 13 and Measure 2	Submitted to FERC for approval on October 31, 2008
Erosion and Sediment Control Plan	401(a)	16	Condition 14 and Measure 4	Submitted to FERC for approval on October 31, 2008
Visual Management Plan	411	20(c)		FERC approved on November 18, 2008
Roads and Facilities Management Plan	410	27		FERC approved on December 12, 2008
Tunnel Spoil Piles Management Plan	411	20(a)	Condition 14 and Measure 5	Submitted to FERC for approval on December 11, 2008
Interim Stream Flow and Facilities Modification Plan	401		Condition 11	FERC approved on October 7, 2008
Historic Properties Management Plan	412	24		Submitted to FERC for approval on July 1, 2008
Biological Monitoring & Adaptive Management Plan	401(a)	23	Condition 14 Measure 7	Submitted to FERC for approval on October 24, 2008
Discretionary Out-of-Season Spill Mitigation Plan	401	18	Condition 6	FERC approved on December 17, 2008
Sign Plan	411	20(d)		Submitted to FERC for approval on October 31, 2008
Project Patrol Plan	401	25		FERC approved on August 6, 2008
Recreation Management Plan	401(a) 408	26	Condition 14 and Measure 12	Submitted to FERC for approval on December 11, 2008
Recreation Stream Flow Release Plan	401		Condition 14 and Measure 8	Submitted to FERC for approval October 2, 2008
Dredging Plan (When Needed)	401	19	Measure 6	
Streamflow and Reservoir Level Monitoring Plan	401(a)	17	Condition 14 and Measure 1	Submitted to FERC for approval on October 30, 2008
Interpretive and Education Plan	408	26		In preparation; draft for review by TRG in February or March 2009

^a FERC license article.

^b Forest Service Section 4(e) condition.

^c Water Quality Certificate condition or mitigation measure.

All of the resource management plans and monitoring studies required under the Commission license will apply to the construction and implementation of the IFR structures at each of the project dams and to the construction and operation of the Britton Powerhouse when approved. Also, USFS Best Management Practices (USFS 2000) identified in the contractors' SWPPP will be used to protect water quality from sediment and hazardous materials during the construction period. The water quality certification, Commission license/approvals, COE 404 permits, and other permits and approvals will also ensure that the Projects will not have significant impacts.

4.1 Soils and Geology

The applicant prepared PDEA (Section 5.3) contains a description of the soils and geology of Pit River Canyon. The installation of the instream flow release structures will not result in any impacts to soils or geology, because all the construction will occur within the existing dam gate structures. The installation of instream flow release structures at the Pit 4 Dam and Pit 5 Dams and the construction of the Britton Powerhouse will have a small footprint (3,000 square ft). The release facilities will not result in substantial soil erosion or the loss of topsoil. The region has a low to moderate risk of seismicity.

4.2 Air Quality

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients, interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently to affect air quality. The project area includes the town of Burney located in Shasta County at the extreme northern end of the Basin (Sacramento Valley). The Sacramento Valley Air Basin has been divided into two planning areas: the Northern Sacramento Planning Area and the Broader Sacramento Planning Area. The northern area covers seven counties including Shasta County.

Generally, Shasta County experiences moderate to very poor capability to disperse pollutants nearly 80 percent of the time. This is, in large measure, due to the relatively stable atmosphere that acts to suppress vertical air movement. Extremely stable atmospheric conditions referred to as "inversions" act as barriers to pollutants. In valley locations under elevation 1,000 ft, such as the Redding Metropolitan area, these conditions create a "lid" under which pollutants are trapped. The Sacramento Valley Basin does not meet the state ambient air standards for ozone and particulate matter (PM₁₀). Shasta County currently is designated as a "Moderate" Non-Attainment area with respect to state standards for both ozone and PM₁₀. Shasta County meets the federal standards for these two items.

The Shasta County Air Quality Attainment Plan, last updated in 1998, contains control programs for stationary sources and transportation-related sources. Shasta County has also adopted an Air Quality element as part of its general plan that contains a number of objectives and policies related to preservation and improvement of air quality. The element also describes a strategy to evaluate air quality impacts of release facilities and suggests a uniform method for applying mitigation measures in addressing the impacts.

The Shasta County Air Pollution Control District has developed draft Rule 3.16, which applies to construction release facilities. California Health & Safety Code section 41700 states that "No person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of

persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have the natural tendency to cause, injury or damage to business or property." The Reasonably Available Control Measures in Rule 3.16 for construction, demolition, and earth moving are dust suppressants and wind screens. The small area ground disturbance, remote location and localized impact, along with the use of dust suppressants and naturally occurring wind screens, will reduce the impact to less than significant.

4.3 Hydrology and Water Quality

The Projects will not alter the hydrology of the Pit River during construction, or operation of the Britton Powerhouse. Existing release gates at the dams will be used to provide instream flows consistent with those currently released.

This Project will include construction adjacent to and within the Pit River. A number of measures have been included at the release facilities to reduce impacts to water quality during construction. The Regional Water Quality Control Board will require PG&E and/or its contractors to submit a Notice of Intent (NOI) to comply with the General Permit for Storm Water Discharges Associated with Construction Activity. The NOI requires submission of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP contains specific provisions for the protection of water quality, including compliance with the Best Management Practices (BMPs) (USFS 2000) as they relate to erosion control measures (Section 5).

The Pit 3, 4, and 5 Project is located in a region susceptible to heavy rains during the winter months and occasional summer thunderstorms that may produce heavy rain for relatively short periods. November through March are considered to be months with higher amounts of precipitation. Construction is planned for the summer and fall periods when precipitation levels are typically low. Contractor personnel will track the weather to anticipate inclement weather. Prior to anticipated inclement weather conditions, contractor personnel will check BMPs and execute repairs if necessary to prevent uncontrolled storm water discharge. There may be days when heavy precipitation will make conditions unsuitable to continue work. During these periods, the contractor will visually inspect runoff and erosion control features protecting work sites and drainages. Any necessary repairs to these features will be made immediately or as soon as it is safe to do so.

Materials and methods used to prevent erosion and sediment transport will depend on site and weather conditions. The goal of the BMPs employed will be to control runoff from construction areas and the transport of sediments into drainages and waterways during periods of precipitation. To accomplish this goal, various methods of directing runoff to protected areas and methods and materials to reduce velocities and filter runoff will be used.

PG&E and its contractors will comply with all local, state, and federal laws, orders, regulations, and water quality standards concerning the control and abatement of water pollution. PG&E and its contractor's employees will regularly monitor all construction areas and the features installed to control runoff and erosion and ensure that erosion control measures are properly working. If discharges are observed, PG&E will notify the Regional Water Quality Control Board-Redding Office within 24 hours.

Construction sites near the Pit River will be separated from the river by barriers. The type of barrier will depend on the site and include the following potential options:

- Debris fencing—chain-link fence material on posts to prevent debris from construction sites from entering a waterway;
- K-rail barriers—barriers used downslope of construction sites where there is a potential for rock and soil to travel downslope and enter the waterway; and
- “Super Sack” cofferdam—Poly bags filled with gravel suitable for use as spawning gravel used to form a cofferdam isolating the construction site from the river.

Seepage inside of cofferdams and other construction areas will be pumped to a Baker tank and used for dust control and compaction. The pH will be monitored to ensure limits are within tolerance for water reuse. In the event dewatering exceeds the volume anticipated, or exceeds the volume on demand for dust control and compaction, two additional options will be used.

The first options will involve dewatering at the source by a three inch pump placed in a sump pit below the limits of excavation. The pump will be screened to segregate the plus 150 micron particles. Water will be pumped to a 9000 gallon Baker Mud Tank with a 150 micron cloth weir. A pump will then deliver the filtered water to a 3 pod 30” sand filter where the water will be screened down to 20-30 micron, where it will then be discharged onto a rip rap energy dissipator splash pad and returned to the stream. A second round of filtration will take place for backwashing of the system to maintain the high quality filtration and performance through a 4200 gallon Baker Backwash Tank with a weir and 150 micron filtration. Power will be supplied by a 45 KVA genset.

The second option consists of a single 3” pump at the dewatering source that will deliver water to a 9000 gallon Baker Mud Tank with a cloth weir that will be filtered down to 150 micron. Water will then be pumped to a sprinkler system that will be discharged into the existing vegetation keeping it moist and assisting in fire prevention. Power will be supplied by a 45 KVA genset.

Core drilling will be conducted on Pit 3 and 4 dams from the downstream face to the upstream face. The slurry that will result will be contained on the decking by sloping inward to a lower elevation on an HDPE liner with 4 x 4 berms. A sump pit with a pump will move the slurry to a series of 55 gallon drums, acting as a group of weirs to settle the suspended particles and return water to the core drill to cool the coring bit. The drums will be placed in an area that is covered, in containment berms, and accessible for maintenance.

Certified weed-free hay bales and straw wattles will be used to prevent the transportation of sediment from the site during construction. If concrete pumping is required at a specific site, excess concrete material in the pump line and equipment containing concrete will be cleaned in secure, lined, above-ground containment units and hauled off-site for proper disposal.

4.3.1 Staging and Laydown Areas

Preparation of staging and laydown areas will include installation of features to direct storm runoff around the site and for controlling runoff from the site. BMPs include:

- Dikes and ditches will be installed to divert runoff around the perimeter of staging and laydown areas.
- Silt fences, straw wattles, sandbags, or other erosion and sediment control measures will be placed around the perimeter of staging and laydown areas to intercept sediment laden runoff from staging and laydown areas.

- All excavation areas will be protected by the use of berms and ditches to divert storm runoff from entering an active excavation area. Silt fences of filtration fabric, straw bales, and straw wattles will be installed on the downhill slopes below excavation areas.
- Sandbag berms may also be used to control and direct runoff flow to protected areas or areas not easily eroded.
- Oil absorbing booms will be placed in drainages to ensure that any potential accidental spills are contained and controlled.

4.3.2 Construction Site Preparation and Access Road Construction

Preparation of the site for constructing the flow release facilities and the access road will require the removal of vegetation, soil, and rock and placement of fill material to establish the desired grade elevations. The first step will be to clear the vegetation from the construction zone typically from the top of cut to the bottom of fill. Woody vegetation will be piled and burned at PG&E's location and discretion, or placed in-slope on the cut to decompose in accordance with BMPs for road pioneering (USFS 2000). Erosion and sediment control BMPs will be installed prior the initiation of construction (USFS 2000). BMPs include:

- Installing silt fences and straw bale barriers to prevent the transport of fine sediments;
- Placing culverts, drains, ditches and dikes to control drainage and runoff;
- Mulching exposed soils on cut-and-fill slopes to reduce erosion potential;
- Sloping the road bed inward and placing water bars to prevent accumulation of runoff over long sections of road; and
- Placing oil absorbing booms in drainages to ensure that any potential accidental spills are contained and controlled.

4.3.3 Maintenance, Inspection, and Repair Procedures

The following inspection and maintenance practices will be used to maintain erosion and sediment controls:

- All control measures will be inspected at least once each day and following any significant storm event (0.5 in. or greater).
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated immediately.
- Built up sediment will be removed from the silt fence when it has reached one-half the fence height.
- Silt fence will be inspected for a depth of sediment and tears, as well as inspected to ensure that the fabric is securely attached to the fence posts and the fence posts are firmly in the ground.

4.3.4 Demobilization and Clean-up

Following construction activities, all unnecessary erosion and sediment control features will be removed from the site for proper disposal. It may be necessary to keep some materials in place until the site has stabilized and the risk of erosion and sedimentation is reduced to an acceptable level. Organic materials such as straw wattles and straw bales will be left in place and allowed to decompose over time. All construction staging and laydown areas will be returned to a near natural condition. BMPs include:

- Hydroseeding and mulching exposed cut and fill slopes;
- Clearing debris and lining drainage areas to prevent long term erosion; and
- Scarifying, seeding, and mulching staging and laydown areas.

4.3.5 Post Construction Monitoring and Maintenance

The disturbed areas will require monitoring and maintenance until soils have stabilized and vegetation has been established. Periodic inspection of the site to monitor the condition of erosion and sediment control features. Features needing maintenance will be repaired or replaced as needed. Each year drainage and culverts will be inspected and maintained as needed.

4.4 Biological Resources

The applicant prepared PDEA contains a complete description of the aquatic and terrestrial resources that could be impacted by the release facilities. The FERC license requires pre-construction surveys for sensitive species of plants and animals potentially occurring in areas that could be affected by construction activities. As stated above, the license also requires the development of several resource management plans and monitoring plans to be developed in consultation with state and federal resource agencies, the Pit River Tribe, and other interested parties. Table 1 provides a list of the required resource management plans and monitoring study plans and the current development and approval status. The provisions of these plans will be implemented as necessary for all new Project developments. These plans will require pre-construction surveys for amphibians, mollusks, bats, sensitive plants, raptors, spotted owls, and forest predators. In addition, these plans contain specific protocols for protection of sensitive species during construction.

4.5 Cultural Resources

A review of the existing records indicates that there are more than 156 known archaeological sites within the Pit 3, 4, 5 Project Area of Potential Effects, including both prehistoric and historic-era sites. Approximately 14 of the recorded prehistoric sites are listed together on the National Register of Historic Places (NRHP) as the Lake Britton Archaeological District. In addition, there are 82 potential Traditional Cultural Properties (TCPs) documented within the Pit 3, 4, 5 Project Area. As a result, the lower Pit River area is considered to be highly sensitive and has been recommended as an addendum to the Lake Britton Archaeological District. Additionally, the hydroelectric system has been determined to be eligible for listing on the NRHP as a historic district; many of the features of this district contribute to this eligibility and several are also eligible for the NRHP individually.

The Projects are considered a federal undertaking, subject to the requirements of section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations. Under section 106, lead federal agencies (FERC) must take into account the effects of their undertakings on historic properties. Project activities associated with the flow modifications have the potential to affect historic hydroelectric system facilities. To avoid effects on historic properties, construction will be designed to avoid cultural resources (i.e., any archaeological site, historic architectural feature, or TCP regardless of its NRHP eligibility) as much as is feasible, unless a cultural resource has been formally evaluated as ineligible for the NRHP. Cultural resources that cannot be avoided may require evaluations and/or treatment to avoid impacts.

The Historic Properties Management Plan (HPMP; PG&E 2008) for the Projects, prepared by PG&E, USFS, and Pit River Tribe, prescribes specific measures for the protection of each identified historic properties, procedures for discovery of previously unidentified historic properties during construction, discovery of human remains during construction, and for providing qualified cultural monitors during ground disturbing activities in locations having a reasonable probability for cultural resources to be present as defined in the HPMP. The final HPMP was submitted to FERC for approval on July 1, 2008.

All flow modification locations and new access roads will be examined by a qualified professional archaeologist prior to any ground disturbing activity to define the extent and boundaries of any known or unknown cultural resources that may be present in the construction area and identify the potential for any project-related adverse affects. If necessary, alternative construction locations will be identified by the archaeologist in coordination with the designated project manager. In cases where flow modification locations will avoid cultural resources, but those resources are immediately adjacent to the work area, a qualified archaeologist and, if appropriate, a qualified tribal member, will monitor the ground-disturbing flow modification work and assist field crews in avoiding cultural resources.

The project area qualifies for listing on the NRHP as a historic district, and the Pit 3 and Pit 5 dams are both contributing features of the district. The Pit 3 Dam is also individually eligible as a historic property. Since the HPMP has not yet been approved by FERC, Stipulation IIIB (Interim Treatment of Historic Properties) of the Pit 3, 4, 5 Programmatic Agreement must be followed. This requires the Licensee to consult with the SHPO, the Tribe, and the National Forests regarding the effects on historic properties (including districts) of (1) all activities that require ground-disturbance; (2) new construction, demolition, repairs, or rehabilitation of project facilities; (3) any other procedure or activity that may affect any historic property; or (4) project-related erosion.

Pit 3 and Pit 5 dams qualify for listing on the NRHP as historic features. To avoid potential delays, PG&E has initiated the evaluation of the proposed actions for the potential effects on the eligibility of the Pit 3 and Pit 5 dams, photo documented the structures, and prepared a Historic American Buildings Survey (HABS) and the Historic American Engineering Record (HAER) to reduce the impact of the Projects.

4.6 Recreation and Land Use

Access to the Pit River will be limited during construction. Clark Creek Road across Pit 3 Dam will be closed to public traffic to allow the construction of the access road and Pit 3 IFR structures. Public notices will be published in the Intermountain News, Mountain Echo and Redding Search Light. Notices will also be distributed to sporting goods stores in Redding and

Burney areas. Organizations such as CalTrout will be requested to post notices on their websites and fishing guides will be contacted. The notices will provide the road closure dates and alternative routes for accessing the Pit River.

Following construction, additional recreation facilities will be available for public use at Pit 3 Dam where pedestrian access to the Pit River will be provided on the right side of the dam. At Pit 4 spoil pile 4(D) pedestrian access will be provided by the spoil pile road.

4.7 Aesthetics

During the construction phase, the presence of construction equipment and activity will temporarily impact the vistas at Pit 3, Pit 4, and Pit 5 dams. Following construction, none of the Pit 3 Dam features will be visible from vehicles approaching and crossing Pit 3 Dam on Clark Creek Road. Views of the construction activities at Pit 4 Dam and new IFR structures following construction will be brief when traveling the Pit River Canyon Road. Following construction the IFR structures at each of the dams and Britton Powerhouse at Pit 3 Dam will appear as part of the dam structure.

To the extent practicable, construction areas will be kept free of debris by removing it for disposal at approved disposal sites. Laydown areas will be kept in orderly organized appearance.

All construction materials will be removed from the area following completion of construction. Retaining structures will be treated to blend with the natural environment. Powerhouses and pipes will also be designed and constructed to blend with the architecture and color of the dam.

4.8 Hazards and Hazardous Materials

Hazardous materials, such as fuels, hydraulic fluids, and lubricants, can be a source of pollution of storm water runoff from staging and laydown areas and construction sites. PG&E and/or its contractors will be required to submit an NOI to comply with the General Permit for Storm Water Discharges Associated with Construction Activity. The NOI requires submission of an SWPPP. The SWPPP contains specific provisions to avoid spills during equipment maintenance and fueling procedures. The SWPPP also contains specific spills containment and clean-up procedures. In addition, a Spill Containment and Counter Measures plan may be required, in addition to filing a hazardous material business plan with Shasta County.

4.9 Fire Hazard Prevention

A fire plan has been submitted to and accepted by FERC on April 14, 2008 (Order Approving Fire Management and Response Plan under Article 411, FERC 2008). In summary the plan requires the following:

Crew pickups will have the following equipment:

- One shovel, one axe, and one or more UL-rated 4BC extinguisher(s) or 5-gallon (gal.) water-filled backpack pump on each pick up, crew truck, and personal vehicle.
- One shovel with each tractor, backhoe, or other heavy equipment.
- One shovel and one 5-gal. water-filled backpack pump with each welder.

- One shovel and one fully charged chemical fire extinguisher at a point no greater than 25 ft from the work site for each gasoline powered tool, including chain saws and rock drills. Fire extinguishers will be of the type and size set forth in the California Public Resources Code, section 4431 and the California Administrative Code, title 14, section 1234.

Shovels will be a type "O" with an overall length of no less than 46 in. Axes or pulaskis (pulaskis being the tool of preference) will have a 2.5 pound (lb) or larger head and have an overall length of no less than 28 in.

4.10 Transportation and Traffic

4.10.1 Emergency Access

An emergency access plan will be prepared and provided to local, state, and federal emergency service providers. The plan will include identification of periods of road closures, alternate routes during road closures, and notification procedures in the event of an emergency. Emergency service agencies such as the USFS, Shasta County Sheriff's Department, California Highway Patrol, and California Department of Forestry and Fire Prevention will be notified daily of planned road closures and alternative emergency access routes available.

4.10.2 Traffic Control Plan

Because the Project will involve construction activities on public roads, it will be necessary to implement measures to alert the public to the hazards and conditions that will exist during construction period. In addition to a program of providing advance notices to the public, a Traffic Control and Public Safety Plan (PDEA, Appendix C) will be implemented.

4.11 Pacific Crest Trail

Signs will be posted on the Pacific Crest Trail at both ends of the Pit 3 Dam to notify hikers of the construction activities and hazards. To avoid potential injury, hikers will be escorted through the construction area when necessary.

Section 5.0 Best Management Practices

Table 3 is a listing of the BMPs developed by the USFS, and adopted by this SWPPP to be implemented on site (USFS 2000). Appendix A, Best Management Practices, describes in more detail the BMPs that may be used for this project. BMPs are broken into eight categories by resources for definition and implementation.

1. Timber Management,
2. Road and Building Site Construction,
3. Mining,
4. Recreation,
5. Vegetation Manipulation,
6. Fire Suppression and Fuels Management,
7. Watershed Management, and
8. Range Management.

Table 3. USFS Best Management Practices (Source: USFS 2000)

Procedure	Category	BMPs	Description
T01	Streamside management zones	1.8, 1.19, 1.22	Limit activity near streams, water quality monitoring, water bars and other erosion control devices installed to disperse sheet flow and filter sediments and ensure erosion control structures are functioning properly
T02	Skid trails	1.10, 1.17	Not applicable
T03	Suspended yarding	1.11	Not applicable
T04	Landings	1.12, 1.16	Not applicable
T05	Timber administration	1.13, 1.20, 1.21, 1.25	Not applicable
T06	Special erosion control and revegetation	1.14, 1.15	Provide appropriate erosion and sediment control protection such as silt fence, straw wattles, check dams, etc., consult USFS on seed mixture, mulch, fertilizer, and timing of work
T07	Meadow protection	1.18, 1.22, 5.3	Not applicable
E08	Road surface, drainage and slope protection	2.2, 2.4, 2.5, 2.7, 2.10, 2.22, 2.23	Implementation of SWPPP, revegetation, wattles, erosion nets, terraces, side drains, blankets, mats, rip rapping, mulch, tackifiers, pavement, soil seals, and windrowing construction slash at the toe of slopes. Consider proper slope angles, compaction, and drainage. Sediment filters, settling ponds, and contour drainage. Strengthen fills by compaction in layers, maintain existing roads in good condition.

Pit 3, 4, 5 Project (FERC No. 233)

Procedure	Category	BMPs	Description
E09	Stream crossings	2.1	Locate and design with minimal disturbance. Minimize impact on water quality by installation of silt fence, straw wattles, check dams, use of baker tanks for dewatering.
E10	Road decommissioning	2.26	Water bars, rolling dips, outsloping, block road to vehicle access, remove crossings, natural drainage restored, reshape and stabilize sideslopes, revegetate.
E11	Control of side cast material	2.11	Minimize sediment production. Not allowed near streamside management zones. Where sidecasting or stockpiling is allowed, install silt fence, straw wattles, check dams.
E12	Servicing and fueling	2.12	The Spill Prevention Containment and Countermeasures plan implementation, to include spill response plan. Primary and secondary containment will be required for equipment operating near waters. Bulk storage is to be kept off site at the contractor's yard near Burney.
E13	In-channel construction practices	2.14,2.15,2.17	Minimize stream channel disturbance and sediment production, diversion of flows around construction sites, minimize sedimentation and turbidity from excavation. Silt fence, straw wattles, sand bags, temporary culverts, pump to baker tanks.
E14	Temporary roads	2.16,2.26	Limit damage to stream channels, ensure fish passage is not obstructed. Restore stream bed if disturbed.
E15	Rip rap composition	2.20	Minimize sediment production through ensured gradation quality control.
E16	Water source development	2.21	Supply water for road and fire suppression without compromising water quality. All water will be drawn from baker tanks following particulate separation.
E17	Snow removal	2.25	Not applicable
E18	Pioneer road construction	2.3,2.8,2.9,2.19	Minimize erosion by conducting operations during minimal runoff times, minimize mass wasting, complete release facilities with ground disturbance prior to rainy season, and prevent organic debris from entering streams. Effective planning and installation of silt fence and straw wattles, and cut and fill balancing.
E19	Restoration of borrow pits and quarries	2.18,2.27	Limit channel disturbances for gravel source development, and minimize sediment production from steep side cuts. Import gravel from approved commercial sources and laying back slopes on borrow sources, install silt fence, straw wattles, check dams, to contain sediment.
E20	Management of roads during wet periods	2.24,7.7	Reduce road surface disturbance and rutting, and minimize sediment runoff. Activity exclusion that could damage roads. Implement closures with boulders, bollards, or fences. Install straw wattles.

Procedure	Category	BMPs	Description
R22	Developed recreation sites	4.3,4,5,6,9,10	Assure availability of water quality data, protect water from nutrients, bacteria, and chemical from solid waste disposal, protect water quality that is consumed by and produced by organizational camps under Special Use Permit, regulate discharge and disposal of potential pollutants, limit pack, riding stock facilities, and heavy use areas. All water will be contained in tanks, waste water shall also be contained in impervious tanks and pumped by a sanitation truck and transported to sanitation facilities.
R23	Location of stock facilities in wilderness	4.11	Not applicable
G24	Range management	8.1,8.2,8.3	Not applicable
F25	Prescribed fire	6.3	Not applicable
M26	Mining operations	3.1,3.2	Not applicable
M27	Common variety minerals	3.3	Not applicable
V28	Vegetation Manipulation	5.1,5.2,5.5,5.7	Decrease sediment production and turbidity while mechanically treating slopes, reduce gully and sheet erosion by limiting tractor use, disposal of organic debris, introduce water quality and hydrologic considerations into the pesticide use and planning process. Install silt fence, straw wattles, and check dams where necessary.
V29	Revegetation of Surface Disturbed Areas	5.4	Minimize soil erosion through stabilizing influence of vegetation and root network.
R30	Dispersed Recreation Sites	4.5,4.6,4.10	Assure availability of water quality data, protect water from nutrients, bacteria, and chemical from solid waste disposal, protect water quality that is consumed by and produced by organizational camps under Special Use Permit, regulate discharge and disposal of potential pollutants, limit pack, riding stock facilities, and heavy use areas. All water will be contained in tanks, waste water shall also be contained in impervious tanks and pumped by a sanitation truck and transported to sanitation facilities.

Section 6.0 Environmental Checklist and Analysis

6.1 Introduction

1. Project Title: Pit 3, 4, and 5 Project, FERC Project No. 233
2. Lead Agency Name and Address:
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812-2000
3. Contact Person and Phone Number:
Russ Kanz
Stream Water Quality Specialist
(916) 341-5341
4. Project Location:
The Pit 3, 4, and 5 Hydroelectric Project (Pit 3, 4, and 5 Project or Project) is located on the Pit River, in Shasta County, in northern California.
5. Project Sponsor's Name and Address:
Pacific Gas and Electric Company
Mail Code N 11 C
Post Office Box 770000
San Francisco, CA 94177
6. General Plan Description: Not applicable.
7. Zoning: Not applicable.
8. Description of Project:
The State Water Board will use this Initial Study in its decision making process for issuance or denial of a Water Quality Certificate for the following actions requiring approval by FERC or the Corps:
 - a. Installation of new minimum flow release facilities and a construction access road at Pit 3 Dam,
 - b. Installation of new minimum flow release facilities at Pit 4 Dam,
 - c. Installation of new minimum flow release facilities at Pit 5 Dam,
 - d. Amendment of the FERC license to add a powerhouse at Pit 3 Dam (Britton Powerhouse). No new impoundments will be required in association with the proposed new powerhouse.
9. Surrounding Land Use and Setting:
Land use in the area of the Projects is forest land that is owned by PG&E or the USFS.
10. Other Public Agencies Whose Approval is Required:

Federal Agencies

- Federal Energy Regulatory Commission
- U.S. Army Corps of Engineers
- U.S. Forest Service
- U.S. Fish and Wildlife Service

State Agencies

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

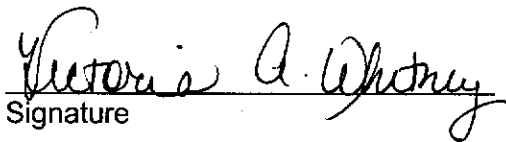
6.2 Environmental Factors Potentially Affected

The environmental factors checked below will be potentially affected by the Project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

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

6.3 Determination (To be completed by Lead Agency):

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


Signature

3/30/09
Date

Victoria A. Whitney
Deputy Director for Water Rights
State Water Resources Control Board

6.4 Evaluation of Environmental Impacts

6.4.1 Introduction

CEQA Guidelines section 15064-15065 were used to determine the significance of each issue in the following checklist. As stated above, extensive studies of biological, recreational, and historic resources were conducted to support the relicensing of Pit 3, 4, and 5 Hydroelectric Project. Biological surveys were conducted along the entire Pit River from the Pit 3 to the Pit 5 Powerhouse. Bald eagles and other sensitive species have been monitored yearly for more than 10 years. Information in the existing record was used, along with the description of the proposed Projects, to determine the level of significance for each potential impact. The overall footprint of these Projects is small, and most construction involves modification of existing facilities. Construction will occur during summer and fall period over a two year construction window. Construction will be complete by the end of 2010.

6.4.2 Aesthetics

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

- a. **Less Than Significant Impact.** During the construction phase, the presence of construction equipment and activity will temporarily impact the vistas at Pit 3, Pit 4, and Pit 5 dams. Following construction, none of the Pit 3 Dam features will be visible from vehicles approaching and crossing Pit 3 Dam on Clark Creek Road. View of the construction activities at Pit 4 Dam and new IFR structures following construction will be brief when traveling the Pit River Canyon Road. Installation of the IFR structures at Pit 5 Dam will be visible during the construction period. Following construction the IFR structures at each of the dam and Britton Powerhouse at Pit 3 Dam will appear as part of the dam structure.

- b. No Impact.** There are no designated scenic highways that view any of the construction sites.
- c. Less Than Significant Impact.** The minimum flow release pipe, access road, and Britton Powerhouse and Transmission Line will be visible when crossing Pit 3 Dam from the south on Clark Creek Road and from the Pacific Crest Trail, which includes several switchbacks on the right hillside above Pit 3 Dam and crosses Pit 3 Dam on Clark Canyon Road. However, these features will not interfere with the view down Pit River Canyon. Facilities will be designed to be compatible with the architecture of the dam, painted or coated to match the existing structures or to blend with the surroundings, and fresh rock may be stained to reduce the appearance of newly exposed clean rock surfaces. Vegetation will be planted at locations suitable to support establishment of perennial vegetation to screen the access road.
- d. No Impact.** The Project will not create a new source of light or glare that will adversely affect day or nighttime views on the area.

6.4.3 Agricultural Resources

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

- a. **No Impact.** There is no farmland in the Project Area.
- b. **No Impact.** There will be no conflict with existing zoning for agriculture or with a Williamson Act contract.
- c. **No Impact.** There will be no conversion of farmland to non-agricultural uses.

6.4.4 Air Quality

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.					
<i>Will the Project:</i>					
a. Conflict with or obstruct implementation of applicable air quality plan?					X
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?					X
c. Result in cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?				X	
d. Expose sensitive receptors to substantial pollutant concentrations?					X
e. Create objectionable odors affecting a substantial number of people?					X
f. Contribute to green house gas emissions					X

- a. **No Impact.** A project is deemed inconsistent with air quality plans if it results in population and/or employment growth that exceeds growth estimates included in applicable air quality management plans. There will be no population and/or employment growth associated with the Project.
- b. **No Impact.** There will be no air quality standard violated during construction of the Project.
- c. **Less than significant impact.** This Project will result in short-term localized impacts to air quality and may result in PM-10 emissions. Impacts will be reduced to less than significant though use of Reasonably Available Control Measures including dust suppressants and wind screens.
- d. **No Impact.** No sensitive receptors will be exposed to substantial pollutant concentrations from construction activities or operation of the Project.

- e. **No Impact.** Neither construction nor operations will create or cause objectionable odors.

- f. **No Impact.** There will be short-term contribution of greenhouse gas emission from construction equipment exhaust emissions. Operations of the flow release facilities will not contribute any additional greenhouse gases and the operation of Britton Powerhouse will offset power generation from non-renewable fossil fuels, most likely natural gas, resulting in an overall reduction in greenhouse gases.

6.4.5 Biological Resources

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<i>Will the Project:</i>					
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?					X
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?					X
c. Have a substantial adverse effect on federally protected wetlands as defined by section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?					X
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?					X
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?					X
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?					X

- a. **No Impact.** Several special status species of plants and animals occur in the Project Area. Pre-construction surveys and limited operating periods will prevent any impact from occurring. A list of special status species can be found in the Exhibit E/PDEA

Section 5.5.1.2 and in the Environmental Monitoring Plan (PDEA, Appendix D). Rough sculpin, a California Fully Protected Species, is present in the Pit River system. A construction plan has been developed to allow construction of one of the footings for the intake trash rack rake underwater in Pit 4 Reservoir. The plan includes monitoring for the presence of rough sculpin in the construction area and protection of water quality by installing a coffer dam around the construction and installation of a silt curtain to contain turbidity within the construction area. Department of Fish and Game staff has determined the construction in the Pit 4 Reservoir will not result in take of rough sculpin.

A colony of cliff swallows exists on the underside of the bridge deck over the Pit 3, Dam spillway. Cliff swallows are a protected species under the Migratory Bird Treaty Act. To avoid impacts to this colony netting will be installed to prevent the establishment of nests prior to the arrival of swallows in the spring. This procedure is allowed under the regulations of the Act.

Activities that are most likely to result in the take of migratory birds on highway projects include, but are not limited to, clearing or grubbing of migratory bird nesting habitat during the nesting season when eggs or young are likely to be present, bridge cleaning, painting, demolition, or reconstruction where bird nests are present (for example, swallows). In anticipation of this situation, structures can be protected from nest establishment by various measures, such as netting or other means of interference with establishment of nests that does not result in death or injury to adults. Removal of inactive nests of migratory birds should not be accomplished prior to consultation with the USFWS office with local jurisdiction. A permit may be required for removal of inactive nests. Application for a take permit is made on USFWS application form 3-200. Permits for take are issued in accordance with regulations at 50 CFR 21.

- b. **No Impact.** No riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service have been identified. Surveys to identify riparian plants will be conducted consistent with methods in the Riparian Monitoring Plan prior to construction. Barriers will be placed to protect riparian vegetation from debris and damage during construction of the Pit 3 Dam access road.
- c. **No Impact.** The Projects will not have a substantial adverse impact on federally protected wetlands as defined by section 404 of the CWA.
- d. **No Impact.** Construction and operation of the Projects will not change the ability of fish and wildlife species to move or migrate. Entrainment of fish at the proposed Britton Powerhouse is unlikely due to the depth of the intake in Lake Britton and the species of fish present in the reservoir. (See PDEA, Section 5.4.2.2, *Effects of Project Operation.*)
- e. **No Impact.** There will be no effect on any local policies or ordinances regarding biological resources.
- f. **No Impact.** Construction and operation of the Project will not conflict with provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. (See PDEA, Section 5.9.1.1, *Land Ownership and Use*)

6.4.6 Cultural Resources

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

- a. **Less Than Significant Impact.** PG&E has completed the necessary photo documentation of the Pit 3 and Pit 5 dams prior to any construction and consultation is currently in process with the SHPO to reach consensus that Historic American Building Survey/Historic American Engineering Record (HABS/HAER) documentation necessary to mitigate project effects resulting from the modifications. PG&E also is proceeding with consultation with the SHPO and Advisory Council of Historic Places to ensure the adequacy of the HABS/HAER report. A Memorandum of Agreement will signed by the State Historic Preservation Officer prior to beginning construction.
- b. **Less Than Significant Impact.** No significant archaeological resources have been identified within the Britton Powerhouse area. However, archaeological survey of the Britton Powerhouse area was not possible during relicensing studies due to safety concerns. Strict adherence to HPMP Section 4.9, *Inadvertent Discoveries* and monitoring during ground disturbing activities in accordance with Section 4.7, *Historic Property Monitoring*, will be undertaken in this area in order to address any potential for impact to previously unidentified cultural materials.
- c. **No Impact.** No paleontological or unique geologic resources have been identified in the Project area.
- d. **Less Than Significant Impact.** No human remains have been identified within the Britton Powerhouse area. However, inspection of the area was not possible due to safety concerns. Strict adherence to HPMP Section 4.8, *Treatment of Human Remains*, will be undertaken to address any potential for impact to previously unidentified human remains that may be present.

6.4.7 Geology and Soils

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<i>Will the Project:</i>					
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i. Rupture of a known earthquake fault, as delineated on the most recent Aliquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.					X
ii. Strong seismic ground shaking?					X
iii. Seismic-related ground failure, including liquefaction?					X
iv. Landslides?					X
b. Result in substantial soil erosion or the loss of topsoil?				X	
c. Be located on a geologic unit or soil that is unstable, or that will become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?					X
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?					X
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?					X

a.i. No Impact. The Aliquist-Priolo Earthquake Fault Zoning Act identifies special study zones for areas in which existing known faults are located. The purpose of the Act is to identify areas that may be limited to development and restrict development on or in proximity to active faults. There are no Aliquist-Priola faults in the immediate Project Area.

- a.ii. No Impact.** The California Geological Survey has predicted ground motions (10 percent probability of being exceeded in 50 years) as a fraction of the acceleration due to gravity in the greater Project Area. Based on those predictions, the peak ground acceleration in the Project Area will be less than 10 percent of gravity during a seismic event.
- a.iii. No Impact.** The potential for liquefaction depends on potential ground movement during seismic events, soil conditions, and depth of ground water. The Project site does not contain soil conditions and groundwater depths conducive to liquefaction.
- a.iv. No Impact.** The Project will not create landslides.
- b. Less Than Significant Impact.** Implementation of Best Management Practices (USFS 2000) during construction will avoid the risk of significant erosion. A SWPPP has been prepared to provide guidance during construction activities.
- c. No Impact.** The Project is located in a steeply incised bedrock canyon.
- d. No Impact.** The Project is not located on expansive soil as defined in Table 18-1-B of the Uniform Building Code.
- e. No Impact.** The Project will have no effect on on-site wastewater disposal systems.

6.4.8 Hazards and Hazardous Materials

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<i>Will the Project:</i>					
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?					X
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				X	
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?					X
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, will it create a significant hazard to the public or the environment?					X
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, will the project result in a safety hazard for people residing or working in the Project Area?					X
f. For a project within the vicinity of a private airstrip, will the project result in a safety hazard for people residing or working in the Project Area?					X
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?					X

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X	

- a. **No Impact.** The Project will not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- b. **Less Than Significant Impact.** During construction, the use of containment facilities, booms, and an environmental inspection program with a full-time on-site inspector will prevent any significant release of hazardous materials harming the environment. All equipment will be stored above the 100-year flood level. Equipment used in contact with a water course will use soy based hydraulic fluid. Any releases will be reported immediately to the Regional Board and CDFG. PG&E and/or its contractors will be required to submit an NOI to comply with the General Permit for Storm Water Discharges Associated with Construction Activity. The NOI requires submission of an SWPPP. The SWPPP contains specific provisions to avoid spills during equipment maintenance and fueling procedures. The SWPPP also contains specific spills containment and clean-up procedures. In addition, a Spill Containment and Counter Measures plan may be required, in addition to filing a hazardous material business plan with Shasta County.
- c. **No Impact.** There will be no hazardous material handled within 0.25 mi of a school.
- d. **No Impact.** No hazardous material storage sites are located in the vicinity of the Project.
- e. **No Impact.** No airstrips are located within 2 mi of the Project.
- f. **No Impact.** See e above.
- g. **No Impact.** No adopted emergency response plan or emergency evacuation plan exists for the area.
- h. **Less Than Significant Impact.** A fire prevention plan has been developed and will be in place during all phases of construction.

6.4.9 Hydrology and Water Quality

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

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

- a. **Less than Significant Impact.** This Project will include construction adjacent to and within the Pit River. A number of measures have been included into the release facilities to reduce impacts to water quality during construction. PG&E and/or its contractors will be required to submit a Notice of Intent (NOI) to comply with the General Permit for Storm Water Discharges Associated with Construction Activity. The NOI requires submission of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP contains specific provisions for the protection of water quality, including compliance with the Best Management Practices (BMPs) (USFS 2000) as they relate to erosion control measures. There may be a temporary increase in turbidity during drilling of concrete for coffer dam installation, installation of pipe supports, and placement and removal of "super sack" coffer dams in powerhouse tailrace areas. Measures taken as part of the Project plan to protect water quality such as coffer dams, "K" rail, and chain-link fence barriers will protect water quality. The proposed Britton Powerhouse will be fitted with a system to oxygenate the release water, as needed. This measure, combined with monitoring required under the Water Quality and Temperature Monitoring Plan, will substantially reduce the risk of not meeting the criteria for dissolved oxygen in the tailrace of the proposed powerhouse or downstream river reaches. Implementation of these measures will reduce the impact to less than significant.
- b. **No Impact.** There will be no impact on groundwater.
- c. **No Impact.** There will be no impact on drainages or rerouting of drainages to areas where substantial erosion could occur. Culverts will be placed so that they discharge onto rock and efforts to stabilize spoil piles will reduce erosion potential.
- d. **No Impact.** Existing drainage patterns will not be altered in any way that will significantly change the watercourse or increase runoff from surfaces.

- e. **No Impact.** See *d.* above.
- f. **Less than Significant Impact.** See *a.* above.
- g. **No Impact.** No housing will be constructed or is planned as part of this Project.
- h. **No Impact.** Structures placed within the 100-year flood level will not impede or redirect flood flows.
- i. **No Impact.** No new structures will be constructed that could fail and cause damage or risk loss of life due to failure.
- j. **No Impact.** The Project will not cause a sechi, tsunami, or mudflow.

6.4.10 Land Use and Planning

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

- a. **No Impact.** The Project will not divide any established community.
- b. **No Impact.** Construction activities and operation of Project facilities will not conflict with any land use plan, policy or regulation of any agency. Activities on National Forest System lands will be covered by an existing special use permit or require a new special use permit.
- c. **No Impact.** The proposed actions will not conflict with either the Shasta-Trinity or the Lassen National Forest – Land and Resource Management Plans. (See PDEA, Section 5.9.1.2, *Land Management*)

6.4.11 Mineral Resources

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

a. **No Impact.** The proposed actions will not affect diatomaceous earth deposits in the region or the mining of diatomaceous earth.

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

6.4.12 Noise

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<i>Will the Project:</i>					
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?					X
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?					X
c. A substantial permanent increase in ambient noise levels in the Project Vicinity above levels existing without the Project?				X	
d. A substantial temporary or periodic increase in ambient noise levels in the Project Vicinity above levels existing without the Project?					X
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, will the Project expose people residing or working in the Project Area to excessive noise levels?					X
f. For a project within the vicinity of a private airstrip, will the project expose people residing or working in the project area to excessive noise levels?					X

a. **No Impact.** Most of the construction activities at the dams will be either under water, inside the dam, or in areas that are not located near any development that will be disturbed by construction noise. Equipment will be fitted with mufflers, and blast mats will be used if blasting is required. There are no homes located near the construction areas. Passengers in passing vehicles and recreationists, including anglers, may be exposed to loud construction noise if they are near construction sites, although not at a level that will violate any noise ordinances or standards. Noise generated during construction will occur for a short duration.

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

- c. **Less Than Significant Impact.** It is not anticipated that the noise of water released from the new flow release facilities will be greater than currently exists. Noise from the new powerhouse will be audible, but not substantially above the existing ambient noise level at the Pit 3 Dam.
- d. **No Impact.** See *a.* above.
- e. **No Impact.** No public airports are located within 2 mi of the proposed Project.
- f. **No Impact.** No private airstrips are located within 2 mi of the proposed Project.

6.4.13 Population and Housing

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

- a. **No Impact.** The Project will not induce population growth.
- b. **No Impact.** The Project will not alter the number of houses in the area.
- c. **No Impact.** The Project will not displace anyone from their home or necessitate the construction of new housing.

6.4.14 Public Services

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

- a. **No Impact.** Project construction will occur seasonally for approximately 2 years and will not establish a permanent resident population that will require additional fire protection, police protection, schools, parks, or other public facilities.

6.4.15 Recreation

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<i>Will the Project:</i>					
a. Will the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility will occur or be accelerated?					X
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?					X

- a. **No Impact.** Project construction will occur seasonally and will not increase the number of residences in the area or the use of existing parks and recreational facilities.
- b. **No Impact.** See a. above.

6.4.16 Transportation/Traffic

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

- a. Less Than Significant Impact.** Materials will be delivered using Highway 299 and Highway 89, which are designed to handle heavy truck loads and traffic. Temporary road closures will also be required during construction, particularly at Pit 3 Dam. Advance notification will be used to alert the traveling public to the location, timing, and extent of road closures, and alternative routes will be suggested. Signs will be posted notifying motorists of road closures and detours. These measures will reduce the impact to less than significant. Following construction it is expected that traffic levels will return to pre-construction period levels.

- b. No Impact.** Local roads that will be used for this Project are designed for periods of significant truck traffic.
- c. No Impact.** The Project will not affect air traffic patterns.
- d. No Impact.** See *b.* above.
- e. Less than Significant Impact.** All emergency service agencies will be notified daily of planned road closures during construction and available alternative routes for emergency vehicles will be established, which will reduce this impact to less than significant.
- f. Less than Significant Impact.** The amount of available parking will not change at any location. A temporary loss of parking will occur at construction sites, but these areas will be closed to public access during the construction period.
- g. No Impact.** There are no alternative transportation programs for the area.

6.4.17 Utilities and Service Systems

Issues	Source	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<i>Will the Project:</i>					
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?					X
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?					X
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?					X
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?					X
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?					X
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?					X
g. Comply with federal, state, and local statutes and regulations related to solid waste?					X

- a. **No Impact.** The Project will not impact any waste water treatment facilities. Portable restroom facilities will be provided at all job sites and waste will be pumped and trucked off-site for disposal at approved waste treatment facilities.

- b. No Impact.** See *a.* above.
- c. No Impact.** No new storm water drainage facilities are required.
- d. No Impact.** The Project will use existing water supplies. PG&E holds all necessary water rights to operate the Project.
- e. No Impact.** See item *a.* above.
- f. No Impact.** Solid waste will be disposed of only in landfills capable of accommodating all Projects-generated solid wastes.
- g. No Impact.** The Projects will comply with all regulations relating to disposal of solid waste.

6.4.18 Mandatory Findings of Significance

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

- a. **No Impact.** The Project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. Measures are incorporated into Project plans to avoid or reduce the impacts.
- b. **No Impact.** The Project will not result in cumulative impacts. PG&E anticipates future road improvements, campground improvements, new campground construction, and stabilization of spoils piles within the Projects area. The impact of these future projects is not considered a cumulative impact.

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

Section 7.0 References

- PG&E (Pacific Gas and Electric Company). Pit 3, 4, 5 Project (FERC No. 233) Historic Properties Management Plan. Pacific Gas and Electric Company, San Francisco, CA. July 1, 2008.
- USFS (U.S. Forest Service). 2000. Water quality management for Forest System lands in California—Best management practices. U.S. Department of Agriculture, Forest Service, Pacific Southwest Region. September 2000.
- WRA (WRA Environmental Consultants). 2008. Delineation report of section 404 waters of the United States. Pit 3, 4, 5 Hydroelectric Project, FERC License No. 233. WRA Environmental Consultant, San Rafael, CA.