



Pit 1 Hydroelectric  
Project 401 Water  
Quality Certification  
Amendment

Federal Energy  
Regulatory  
Commission Project  
No. 2687

Draft Environmental  
Impact Report

State Clearinghouse  
No. 2013052053

June 2017



## Document Information

Prepared for State Water Resources Control Board

Project Name Pit 1 Hydroelectric Project 401 Water Quality Certification Amendment

Federal Energy Regulatory Commission Project No. 2687  
Draft Environmental Impact Report  
State Clearinghouse No. 2013052053

File: E316900580\_PGE Pit 1\_DEIR\_JUN2017.docx

Date June 2017

Prepared for:



**State Water Resources Control Board, Division of Water Rights**  
P.O. Box 2000, Sacramento, CA 95812 USA

Prepared by:



**Cardno, Inc.**  
2890 Gateway Oaks Drive, Suite 200, Sacramento, CA 95833 USA

This Page Intentionally Left Blank



# Table of Contents

<b>Executive Summary .....</b>	<b>ix</b>
Introduction and Background .....	ix
Project Objective .....	ix
Project Description .....	x
Water Management .....	x
Planned Outage .....	x
Unplanned Outage .....	x
Public Involvement .....	x
Areas of Known Controversy .....	xiii
Key Issues and Significant Impacts .....	xiii
Alternatives Considered .....	xiii
Summary of Impacts and Levels of Significance .....	xiii
<b>1 Introduction .....</b>	<b>1-1</b>
1.1 Background .....	1-1
1.2 Purpose of EIR .....	1-2
1.3 Project Overview .....	1-3
1.3.1 Project Objective .....	1-3
1.3.2 Project Area .....	1-3
1.4 California Environmental Quality Act .....	1-3
1.4.1 Scope and Intent of the Document .....	1-3
1.4.2 Type of EIR: Project EIR .....	1-4
1.5 Public Involvement .....	1-4
1.5.1 CEQA Scoping Process and Comments .....	1-4
1.5.2 Draft EIR Comment Period .....	1-9
1.5.3 Public Notice / Public Review .....	1-9
1.5.4 Response to Comments / Final Environmental Impact Report .....	1-10
1.5.5 Certification of the Environmental Impact Report .....	1-10
1.5.6 Project Consideration .....	1-10
1.5.7 Mitigation Monitoring and Reporting Program .....	1-10
1.6 Organization of the EIR .....	1-10
<b>2 Project Description .....</b>	<b>2-1</b>
2.1 Existing Project Operations and Facilities .....	2-1
2.1.1 Minimum Instream Flow Requirements .....	2-2
2.1.2 Summer Flushing Flows .....	2-2
2.1.3 Recreational Whitewater Boating Flow Releases .....	2-3
2.1.4 Outages .....	2-5

2.1.5	Unplanned Outage .....	2-5
2.2	Proposed Project .....	2-6
2.2.1	Water Management.....	2-6
2.2.2	Planned Outage .....	2-7
2.3	Responsible and Trustee Agencies.....	2-7
<b>3</b>	<b>Environmental Setting &amp; Environmental Impacts .....</b>	<b>3-1</b>
3.1	Introduction .....	3-1
3.1.1	Environmental Baseline .....	3-1
3.1.2	Resource Areas Eliminated from Further Analysis .....	3-1
3.2	Biological Resources .....	3-4
3.2.1	Environmental Setting .....	3-4
3.2.2	Regulatory Setting.....	3-9
3.2.3	Environmental Impacts.....	3-13
3.3	Cultural Resources .....	3-18
3.3.1	Environmental Setting .....	3-18
3.3.2	Regulatory Setting.....	3-21
3.3.3	Environmental Impacts.....	3-30
3.4	Hydrology/Water Quality.....	3-32
3.4.1	Environmental Setting .....	3-32
3.4.2	Regulatory Setting.....	3-41
3.4.3	Environmental Impacts and Mitigation .....	3-44
3.5	Recreation .....	3-47
3.5.1	Environmental Setting .....	3-47
3.5.2	Regulatory Setting.....	3-58
3.5.3	Environmental Impacts and Mitigation .....	3-60
3.5.4	Impacts and Mitigation .....	3-61
<b>4</b>	<b>Other CEQA Considerations.....</b>	<b>4-1</b>
4.1	Irreversible Impacts .....	4-1
4.2	Significant Unavoidable Impacts .....	4-1
4.3	Growth-Inducing Impacts.....	4-1
4.4	Cumulative Impacts .....	4-1
4.4.1	Approach.....	4-2
4.4.2	Impacts.....	4-2
<b>5</b>	<b>Alternatives.....</b>	<b>5-1</b>
5.1	Alternative 1: No Project Alternative.....	5-1
5.1.1	Characteristics.....	5-1
5.1.2	Environmental Effects .....	5-2
5.1.3	Conclusion.....	5-3

5.2	Alternative 2: Spring Whitewater Boating Flows .....	5-3
5.2.1	Environmental Effects .....	5-3
5.2.2	Conclusion.....	5-4
5.3	Alternative 3: Non-Native Crayfish Barriers.....	5-4
5.3.1	Characteristics.....	5-4
5.3.2	Environmental Effects .....	5-5
5.3.3	Conclusion.....	5-6
<b>6</b>	<b>List of Preparers.....</b>	<b>6-1</b>
6.1	State Water Resources Control Board .....	6-1
6.2	Cardno, Inc. ....	6-1
6.3	Surf to Snow Environmental Resource Management .....	6-1
6.4	Spring Rivers Ecological Sciences .....	6-1
<b>7</b>	<b>References.....</b>	<b>7-1</b>

## Appendices

Appendix A	Notice of Preparation and Scoping Meetings
Appendix B	EIR Scoping Summary Report

## Tables

Table ES-1	Summary of Impacts from the Proposed Project .....	xiv
Table 2.1-1	Minimum Instream Flows* .....	2-2
Table 2.1-2	Summary of Summer Flushing Flows, 2003-2009.....	2-2
Table 2.1-3	Designated Existing Beneficial Uses (E) in the Fall River and Pit River.....	2-4
Table 2.2-1	Overview of Agencies with Authority over the Proposed Project.....	2-7
Table 3.2-1	Aquatic Species Known to Inhabit the Project Area .....	3-6
Table 3.2-2	Special-Status Species in the Proposed Project area .....	3-7
Table 3.2-3	Average Water Temperatures for the July/August Time Period, Based on Daily Mean Water Temperatures, at Three Sampling Stations Located within the Pit 1 Bypass Reach .....	3-15
Table 3.5-1	National Visitation Estimates for the National Forest System .....	3-55
Table 3.5-2	Summary of Boating Use Observed in the Pit 1 Bypass Reach during Summer Flushing Flows (2003–2009) and October Whitewater Boating Flows (2011–2014) .....	3-57
Table 5.1-1	Comparison of Alternatives .....	5-1

## Figures

Figure ES-1	Project Overview .....	xi
Figure 1.3-1	Project Overview .....	1-5
Figure 1.3-2	Pit 1 Project Facilities and CEQA Project Area .....	1-7
Figure 3.4-1	Sacramento River Watershed Basin and Subregions .....	3-33
Figure 3.4-2	Sacramento River Watershed Basin and Northeast Subregion .....	3-35
Figure 3.5-1	Pit 1 Whitewater Recreation: Canyon Section and 299 Section.....	3-51
Figure 3.5-2	Pit 1 Recreation Canyon WW Reach.....	3-53

## Acronyms & Abbreviations

401 Certification	Section 401 Water Quality Certification
ARPA	Archaeological Resources Protection Act
BAOT	boats at one time
Basin Plan	Water Quality Control Plan for the Sacramento River and San Joaquin River Basins
Basin Plans	water quality control plans
BLM	Bureau of Land Management
California Parks	California Department of Parks and Recreation
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CNPS	California Native Plant Society
CRHR	California Register of Historic Resources
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
DEIR	Draft Environmental Impact Report
DHS	Department of Health Services
DO	Dissolved Oxygen
DWR	Department of Water Resources
EIR	Environmental Impact Report
ESA	Endangered Species Act
FEIR	Final Environmental Impact Report
FERC	Federal Energy Regulatory Commission
FPA	Federal Power Act
MMRP	Mitigation Monitoring and Reporting Program
msl	mean sea level
MW	megawatts
MWh	megawatts per hour
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NEPA	National Environmental Protection Act

NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NOC	Notice of Completion
NOD	Notice of Determination
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OHP	Office of Historic Preservation
PAOT	persons at one time
PG&E	Pacific Gas and Electric Company
pH	potential of hydrogen
Pit 1 Project	Pit 1 Hydroelectric Project, FERC Project No. 2687
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
PRC	California Public Resources Code
QA/QC	quality assurance and control
Regional Water Boards	Regional Water Quality Control Boards
RWDs	Reports of Waste Discharge
SCH	State Clearinghouse and Planning Unit
State Water Board	State Water Resources Control Board
TMDL	total maximum daily load
TRC	Technical Review Committee
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WDRs	waste discharge requirements

# Executive Summary

---

## Introduction and Background

The Pacific Gas and Electric Company (PG&E) Pit 1 Hydroelectric Project (Pit 1 Project), Federal Energy Regulatory Commission (FERC or Commission) Project No. 2687, is located on the Pit and Fall Rivers near the communities of Fall River Mills and McArthur in northeastern Shasta County, California (Figure ES-1).

The Commission issued a new license in March 2003 to PG&E for the continued operation of the Pit 1 Project. The license incorporates the State Water Resources Control Board (State Water Board) Clean Water Act Section (CWA) 401 Water Quality Certification (401 Certification) issued on December 4, 2001. Pursuant to the new license and 401 Certification, PG&E implemented required summer flushing flows between 2003 and 2009 to control the growth of aquatic vegetation and mosquito production on Fall River Pond, and monitored surface aquatic vegetation on Fall River Pond from 2005 through 2016.

Monitoring data since 2005 showed that summer flushing flows were not needed for the control of aquatic vegetation or mosquito production and that the increased continuous minimum instream flows implemented pursuant to the 401 Certification as part of the new license had been controlling the nuisance aquatic vegetation, which controls mosquito production by limiting breeding habitat, in Fall River Pond.

In May 2009, the U.S. Fish and Wildlife Service (USFWS) expressed concern regarding a decline in Shasta crayfish (*Pacifastacus fortis*) in the Pit 1 Bypass Reach and requested a suspension of the 2009 summer flushing flows at the Pit 1 Project. To protect Shasta crayfish, FERC and the State Water Board have annually approved the temporary suspension of summer flushing flows, initially to allow for continued study of the Shasta crayfish, and subsequently for the preparation of environmental documents pursuant to the California Environmental Quality Act (CEQA). State Water Board staff concluded that significant effects would not occur from the temporary suspension of summer flushing flows for a limited period. Amendment of the 401 Certification to permanently remove the summertime flushing flows requires compliance with CEQA based on the potential for significant environmental impacts particularly to biological resources, water quality and hydrology, and recreation.

The purpose of this Environmental Impact Report (EIR) is to identify and disclose the potential for significant impacts from the permanent elimination summer flushing flows in the Pit 1 Bypass Reach and the institution of recreational whitewater boating flow releases (whitewater boating flows) during October. October whitewater boating flows would provide dedicated whitewater recreation opportunities in the fall (Proposed Project) to replace opportunistic whitewater recreation opportunities previously provided by summer flushing flows.

## Project Objective

The objective of the Proposed Project is to reduce impacts to the endangered Shasta crayfish from operations of the Pit 1 Project, while best maintaining the designated beneficial uses for the Pit River as identified in the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan). This objective would be achieved by the elimination of summer flushing flows and implementation of October whitewater boating flows. The elimination of summer flushing flows in the Pit 1 Bypass Reach would curtail adverse impacts to Shasta crayfish habitat during critical lifecycle stages.



## **Project Description**

The following summarizes operational changes to the Pit 1 Project, which comprise the Proposed Project evaluated under CEQA. These modifications primarily entail adjustments to the flow of water through the Fall River Weir into the Pit 1 Bypass Reach.

### **Water Management**

Under current license conditions, summer flushing flows occurred for three weekends (6 days per year) between 2003 and 2009. As part of the Proposed Project, PG&E would discontinue summer flushing flows permanently. PG&E would continue annual ground-level photo point monitoring of aquatic vegetation on Fall River Pond in June, July, and August. In the event that conditions result in excess aquatic vegetation (i.e., surface aquatic vegetation exceeding 20 percent coverage of Fall River Pond), PG&E would implement vegetation control methods, such as harvesting or non-summer flushing flows. To avoid negative effects to biological resources and their habitat in the Pit 1 Bypass Reach, PG&E would not use summer flushing flows to control aquatic vegetation between May 1 and September 30.

Pursuant to the June 14, 2011, FERC order<sup>1</sup> approving the schedule for final whitewater boating flows, recreational whitewater releases, which began in 2011, would continue to be implemented in October. Four days of whitewater boating flows would occur on or before October 30, either on two weekends (Saturday and Sunday) or the four consecutive days (Friday through Monday) over the Columbus Day weekend to minimize negative impacts to biological resources, avoid the negative effects of summer flushing flows on Shasta crayfish habitat, and minimize the magnitude of the flow change.

### **Planned Outage**

To avoid potential negative effects to Shasta crayfish, PG&E would not conduct planned outages that result in out-of-season spills in the Pit 1 Bypass Reach between May 1 and September 30. PG&E would operate the Pit 1 Project in a manner that does not cause discretionary, out-of-season spills.

### **Unplanned Outage**

PG&E would minimize or avoid out-of-season pulsed flows in the Pit 1 Bypass Reach during unplanned outages by implementing new operational procedures. PG&E would reduce the maximum allowable operating limit on the Pit 1 Forebay by 0.5 foot (from 3,303.5 feet to 3,303 feet NGVD<sup>2</sup> [3,323 feet to 3,322.5 feet PG&E datum]) during the summer, which would provide PG&E additional time to address the unplanned outage before having to spill from the Pit 1 Forebay.

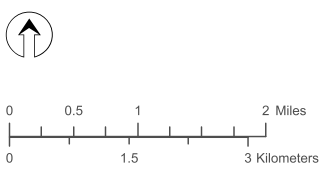
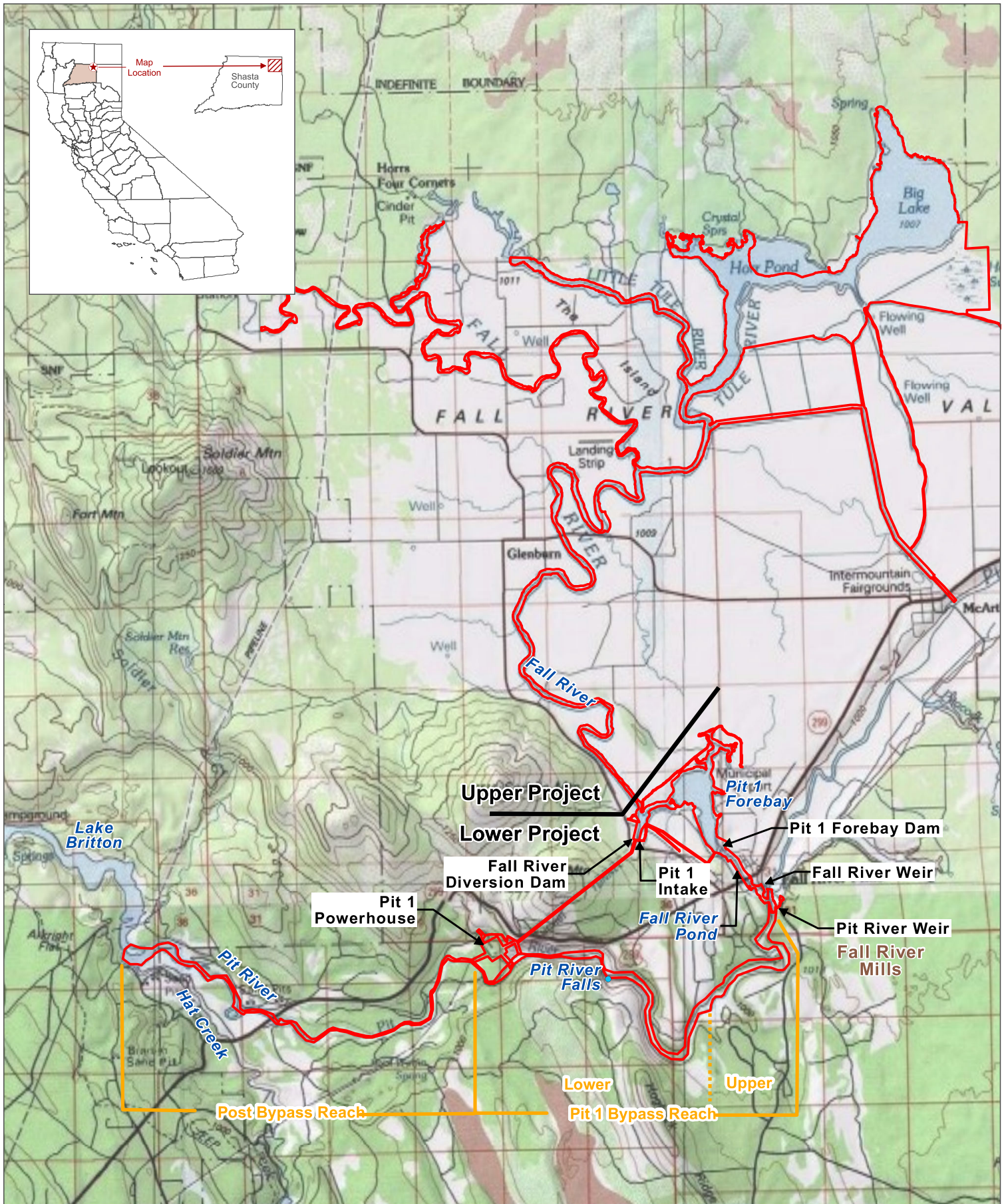
## **Public Involvement**

In accordance with Section 15082 of the CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.), the State Water Board released a Notice of Preparation (NOP) on May 17, 2013 (Appendix A). The NOP requested comments on the scope of the EIR including specific issues the EIR should cover and potential alternatives to the Proposed Project. The State Water Board also conducted two CEQA scoping meetings to provide the public with the opportunity to provide input prior to the preparation of the EIR. Comments received focused on concerns related to whitewater recreation flows and suggestions that there was a lack of evidence linking the flushing flows with a decline in Shasta crayfish. Several comments also included suggestions on alternatives to the Proposed Project including the continuation of summer flushing flows, developing barriers to block invasive crayfish species, and the use of temperature control devices. A summary of the comments received during public scoping is in Appendix B.

---

<sup>1</sup> 135 FERC ¶ 62,215. Order Approving Final Whitewater Boating Flow Schedule (issued June 14, 2011).

<sup>2</sup> National Geodetic Vertical Datum



Legend

Proposed Project Area

Pit 1 Hydroelectric Project

FIGURE ES-1  
Project Overview



This Draft EIR (DEIR) will be circulated for a minimum of 45 days. The Notice of Availability has information on where to submit comments. Responses to all comments received will be addressed in the Final EIR (refer to Chapter 1 for additional information). (CEQA Guidelines, §§15086-15087 and 15105.)

### **Areas of Known Controversy**

The proposed change in summer flushing flows has been met with concerns from the whitewater boating community because eliminating flushing flows would result in reduced whitewater boating opportunities during the summer months on the Pit 1 Bypass Reach.

### **Key Issues and Significant Impacts**

No significant impacts have been identified in this EIR.

### **Alternatives Considered**

Alternatives considered include:

1. Elimination of summer flushing flows and the implementation of October whitewater boating flow releases (Proposed Project);
2. Continuation of summer flushing flows (or the No Project Alternative) which discusses what would happen if the Proposed Project is not implemented;
3. Elimination of summer flushing flows and the implementation of spring whitewater boating flow releases; and
4. Implementation of non-native Crayfish barriers and continuation of summer flushing flows.

Based on the merits of the Proposed Project as compared to the other alternatives, the Proposed Project achieves the objective of the State Water Board in reducing impacts to the endangered Shasta crayfish from the Pit 1 Project, while protecting water quality objectives, and maintaining the beneficial uses as designated in the Basin Plan for the Pit River.

### **Summary of Impacts and Levels of Significance**

No significant impacts have been identified from implementation of the Proposed Project as summarized in Table ES-1.

**Table ES-1 Summary of Impacts from the Proposed Project**

<b>CEQA Resource Area</b>	<b>Impact – Would the Proposed Project:</b>	<b>Impact Determination</b>
Biological Resources	<b>BIO-1:</b> 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 CDFW or USFWS?	Beneficial
Biological Resources	<b>BIO-2:</b> Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW and USFWS?	Less than significant
Biological Resources	<b>BIO-3:</b> Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Less than significant
Biological Resources	<b>BIO-4:</b> 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?	Beneficial
Biological Resources	<b>BIO-5:</b> Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	No impact
Biological Resources	<b>BIO-6:</b> Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	No impact
Biological Resources	<b>BIO-7:</b> Have a substantial effect on common species or their habitat that would result in an ecological change?	Less than significant
Cultural Resources	<b>CULT-1:</b> Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	Less than significant
Cultural Resources	<b>CULT-2:</b> Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	Less than significant
Cultural Resources	<b>CULT-3:</b> Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Less than significant
Cultural Resources	<b>CULT-4:</b> Disturb any human remains, including those interred outside of formal cemeteries?	Less than significant
Hydrology and Water Quality	<b>HYD-1:</b> Violate any water quality standards or waste discharge requirements?	Less than significant
Hydrology and Water Quality	<b>HYD-2:</b> Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the	No impact



<b>CEQA Resource Area</b>	<b>Impact – Would the Proposed Project:</b>	<b>Impact Determination</b>
	production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	
Hydrology and Water Quality	<b>HYD-3:</b> 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 that would result in substantial erosion or siltation on or offsite?	Less than significant
Hydrology and Water Quality	<b>HYD-4:</b> 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 that would result in flooding on- or offsite?	No impact
Hydrology and Water Quality	<b>HYD-5:</b> Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	No impact
Hydrology and Water Quality	<b>HYD-6:</b> Otherwise, substantially degrade water quality?	Less than significant
Hydrology and Water Quality	<b>HYD-7:</b> 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?	No impact
Hydrology and Water Quality	<b>HYD-8:</b> Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	No impact
Hydrology and Water Quality	<b>HYD-9:</b> 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?	No impact
Hydrology and Water Quality	<b>HYD-10:</b> Inundation by seiche, tsunami, or mudflow?	No impact
Recreation	<b>REC-1:</b> Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Less than significant
Recreation	<b>REC-2:</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?	No Impact
Recreation	<b>REC-3:</b> Conflict with adopted plans, regulations, or agreements?	Less than significant
Recreation	<b>REC 4:</b> Substantially reduce recreational uses?	Less than significant
Recreation	<b>REC-5:</b> Substantially diminish recreational experiences?	Less than significant

This Page Intentionally Left Blank



# 1 Introduction

---

This chapter provides the Proposed Project background, discusses the legal authority and purpose of the EIR, explains the intended uses of the EIR, provides an overview of the CEQA process, and outlines the organization of the EIR. This chapter also includes a summary of the scoping process and identifies key issues of concern.

## 1.1 Background

FERC issued a new license<sup>3</sup> on March 19, 2003, to PG&E for the continued operation of the Pit 1 Project. The license incorporates the State Water Resources Control Board (State Water Board) CWA Section 401 Water Quality Certification (401 Certification) issued on December 4, 2001. Pursuant to the new license and 401 Certification, PG&E implemented summer flushing flows between 2003 and 2009 to control the growth of aquatic vegetation, and subsequently mosquito production, on Fall River Pond, and monitoring of surface aquatic vegetation on Fall River Pond from 2005 through 2010.

Monitoring data collected between 2005 and 2010, shows that summer flushing flows are not needed to control surface vegetation or mosquito production, and that increased continuous minimum instream flows implemented pursuant to the 401 Certification as part of the new license, are controlling the nuisance aquatic vegetation and mosquito production in Fall River Pond.

In May 2009, the U.S. Fish and Wildlife Service (USFWS) expressed concern regarding a decline in Shasta crayfish in the Pit 1 Bypass Reach and requested a suspension of the 2009 summer flushing flows at the Pit 1 Project. The letter stated that summer flushing flows released from the Fall River Weir into the Pit 1 Bypass Reach were reducing and eliminating coldwater habitat for the federally and state-listed endangered Shasta crayfish and providing beneficial habitat for non-native crayfish species. In a State Water Board letter dated August 28, 2009, PG&E was notified that before an amendment of the 401 Certification can be considered State Water Board must comply with the CEQA.

On April 15, 2010, the State Water Board received a request from FERC to temporarily suspend the summer flushing flow requirements of the 401 Certification. On July 6, 2010, the State Water Board issued Order WQ 2010-0009-EXEC<sup>4</sup>, which temporarily amended the 401 Certification to suspend summer flushing flows for 2 years (2010 and 2011). On August 10, 2010, FERC issued an order<sup>5</sup> temporarily amending the license and incorporating the temporary amendment to the 401 Certification.

On March 22, 2012, PG&E submitted a letter to the State Water Board requesting an extension of the suspension of flushing flows for one additional year to allow for implementation of the Shasta crayfish study plan and completion of the CEQA analysis. USFWS provided concurrence of support on July 19, 2012. On June 14, 2012, the State Water Board issued Order WQ 2012-0008-EXEC<sup>6</sup> approving the temporary suspension of flushing flow requirements through 2012. FERC issued an order<sup>7</sup> temporarily amending the license and incorporating the temporary amendment to the 401 Certification on

---

<sup>3</sup> 102 FERC ¶ 61,309

<sup>4</sup> State of California State Water Resources Control Board Order WQ 2010-0009-EXEC Order Approving Temporary Suspension of Flushing Flow Requirements (SWRCB 2010 Order, issued July 6, 2010).

<sup>5</sup> 132 FERC ¶ 62.101. Order Temporarily Amending License and Incorporating Temporary Amendment to Water Quality Certification (issued August 10, 2010).

<sup>6</sup> State of California State Water Resources Control Board Order WQ 2012-0008-EXEC Order Approving Extension of the Temporary Suspension of Flushing Flow Requirements (SWRCB 2012 Order, issued June 14, 2012).

<sup>7</sup> 140 FERC ¶ 62.080. Order Temporarily Amending License and Incorporating Temporary Amendment to Water Quality Certification (issued July 26, 2012).

July 26, 2012. PG&E issued the final Pit 1 Hydroelectric Project Shasta Crayfish Study Report on January 31, 2013.

On March 28, 2013, April 21, 2014, March 19, 2015, and March 31, 2016, PG&E submitted letters to the State Water Board requesting additional one-year extensions to the temporary suspension of Pit 1 Project summer flushing flows to allow time for the completion of the Draft EIR. USFWS provided letters of support on May 17, 2013, April 21, 2014, March 19, 2015, and June 9, 2016, respectively. On June 20, 2013, June 12, 2014, June 23, 2015, and June 28, 2016, respectively, the State Water Board issued Orders WQ 2013-0024-EXEC,<sup>8</sup> WQ 2014-0023-EXEC,<sup>9</sup> WQ 2015-0076-EXEC,<sup>10</sup> and WQ 2016-0072-EXEC,<sup>11</sup> approving the temporary suspension of summer flushing flow requirements through 2013, 2014, 2015, and 2016. FERC issued orders temporarily amending the license and incorporating the temporary amendment to the 401 Certification on June 27, 2013,<sup>12</sup> June 19, 2014,<sup>13</sup> June 24, 2015,<sup>14</sup> and July 19, 2016,<sup>15</sup> respectively.

On April 18, 2017, PG&E submitted a letter to the State Water Board requesting an extension of one additional year to the temporary suspension of Pit 1 Project summer flushing flows to allow time for the completion of the Draft EIR. USFWS provided a letter of support on June 13, 2017. State Water Board staff are currently processing PG&E's 2017 extension request.

The State Water Board concluded that there would not be significant effects if the requirements for summer flushing flows were suspended for a limited period, with adequate safeguards to prevent the suspension from becoming permanent. Amendment of the 401 Certification to permanently remove the summer flushing flows requires compliance with CEQA based on the potential for significant environmental impacts particularly to water quality and hydrology, biological resources, and recreation by removing the summer flushing flow requirement permanently.

This EIR is being prepared under the direction of the State Water Board staff to comply with the regulatory requirements of CEQA.

## 1.2 Purpose of EIR

The State Water Board will use the results of the CEQA analysis contained in this EIR to support conditions and requirements of the Pit 1 Project 401 Certification amendment. In particular, the analysis of effects on water quality and designated beneficial uses identified in the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan).

---

<sup>8</sup> State of California State Water Resources Control Board Order WQ 2013-0024-EXEC Order Approving Extension of the Temporary Suspension of Flushing Flow Requirements (SWRCB 2013 Order, issued June 20, 2013).

<sup>9</sup> State of California State Water Resources Control Board Order WQ 2014-0023-EXEC Order Approving Extension of the Temporary Suspension of Flushing Flow Requirements (SWRCB 2014 Order, issued June 12, 2014).

<sup>10</sup> State of California State Water Resources Control Board Order WQ 2015-0076-EXEC Order Approving Extension of the Temporary Suspension of Flushing Flow Requirements (SWRCB 2015 Order, issued June 17, 2015).

<sup>11</sup> State of California State Water Resources Control Board Order WQ 2016-0072-EXEC Order Approving Extension of the Temporary Suspension of Flushing Flow Requirements (SWRCB 2016 Order, issued June 28, 2016).

<sup>12</sup> 143 FERC ¶ 62,220. Order Temporarily Amending License and Incorporating Temporary Amendment to Water Quality Certification (issued June 27, 2013).

<sup>13</sup> 147 FERC ¶ 62,218. Order Temporarily Amending License and Incorporating Temporary Amendment to Water Quality Certification (issued June 19, 2014).

<sup>14</sup> 151 FERC ¶ 62,214. Order Modifying and Approving Temporary Flow Variance (issued June 24, 2015).

<sup>15</sup> 156 FERC ¶ 62,049. Order Modifying and Approving Temporary Flow Variance (issued July 19, 2016).

## **1.3 Project Overview**

### **1.3.1 Project Objective**

The objective of the Proposed Project is to reduce impacts to the endangered Shasta crayfish caused by operations of the Pit 1 Project, while maintaining the designated beneficial uses identified in the Basin Plan for the Pit River.

### **1.3.2 Project Area**

The Pit 1 Project is located on the Pit and Fall Rivers in northeastern Shasta County, near the communities of Fall River Mills and McArthur (7.5-minute U.S. Geological Survey [USGS] quadrangles Cassel, Hogback Ridge and Fall River Mills). The Pit 1 Project area is defined by the FERC boundary as shown in Figure 1.3-1.

The Pit 1 Project area is divided into the Lower Pit 1 Bypass Reach and Upper Pit 1 Bypass Reach. The Upper Pit 1 Bypass Reach includes Big Eddy (the largest pool in the Project Area), and the Lower Bypass Reach includes a canyon section with a waterfall by the name of Pit River Falls, as well as Fall River Pond downstream through the Pit 1 Bypass Reach (see Figure 1.3-2). Fall River flows through flat Fall River Valley to the Pit 1 Forebay and Fall River Pond. Downstream of Fall River Pond, the Fall River cascades approximately 57 feet to its confluence with the Pit River. As shown in Figure 1.3-1, water is diverted from Fall River to the Pit 1 Powerhouse, which is located on Pit River approximately 7 miles downstream of the confluence with Fall River. This arrangement bypasses 0.9 miles of lower Fall River and 6.6 miles of Pit River (Pit 1 Bypass Reach).

Fall River Pond and the Pit 1 Bypass Reach are the two aquatic resources that would most directly be affected by the permanent elimination of summer flushing flows from the Proposed Project. The Pit River portion of the Pit 1 Project area evaluated in this EIR extends from the confluence with Fall River downstream through the Pit 1 Bypass Reach and includes Pit River between the Pit 1 Powerhouse and the river's confluence with Hat Creek in the upper portion of Lake Britton.

## **1.4 California Environmental Quality Act**

CEQA, enacted in 1970 (Pub. Resources Code, § 21000 et seq.), is a statute that requires state and local agencies to identify the significant environmental impacts of actions and to avoid or mitigate those impacts, if feasible. A public agency or private entity must comply with CEQA when it undertakes an activity defined by CEQA as a "project." A project is an activity that must receive some discretionary approval (meaning that the agency has the authority to deny the requested permit or approval) from a government agency, which may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment.

CEQA requires public agencies to consider the potential environmental impacts of their proposed discretionary actions. Before PG&E can modify Pit 1 Project operations, it must request to amend the existing 401 Certification from the State Water Board in accordance with Section 401 of the CWA. As the lead agency under CEQA, the State Water Board must consider whether amending the 401 Certification would have an adverse effect on the environment.

### **1.4.1 Scope and Intent of the Document**

This EIR was developed for the State Water Board, other responsible and trustee agencies and interested parties to understand the potential environmental effects of the Proposed Project. The EIR will be used for the following purposes:

- To disclose to the public, decision-makers, elected officials and other stakeholders the potential environmental effects associated with implementation of the Proposed Project, and to solicit input on the potential environmental effects;

- To identify ways to avoid or minimize potential environmental effects of the Proposed Project, including alternatives;
- To provide the State Water Board with a technically and legally adequate environmental document to be used as one basis for its decision-making process for the amended 401 Certification; and
- To provide responsible and trustee regulatory agencies with information necessary to evaluate Proposed Project permitting requirements.

A list of agencies expected to use this EIR for subsequent approvals for the Proposed Project is presented in Chapter 2. The State Water Board must consider the Final EIR in deciding whether or how to approve the Proposed Project.

#### **1.4.2 Type of EIR: Project EIR**

This EIR is a Project EIR prepared in accordance with California Code of Regulations, title 14, section 15161. This EIR provides a project-specific analysis of the physical changes in the environment that would result from implementation of the project. Pursuant to CEQA, the EIR must examine all phases of the project including planning, construction, and operation. (CEQA Guidelines, § 5161).

### **1.5 Public Involvement**

#### **1.5.1 CEQA Scoping Process and Comments**

In accordance with Section 15082 of the CEQA Guidelines, the State Water Board prepared a NOP, (Appendix A) and sent it to the Governor's Office of Planning and Research, State Clearinghouse and Planning Unit (SCH), responsible and trustee agencies, and interested persons on May 17, 2013. The NOP provided a description of the Proposed Project, the location of the Proposed Project, and the resources and environmental concerns to be analyzed in the EIR. The NOP also requested public comments be submitted by June 24, 2013, on the scope of the EIR and potential alternatives to the Proposed Project.

The State Water Board conducted two CEQA scoping meetings to provide the public with the opportunity to provide input prior to the preparation of the EIR, pursuant to CEQA Guidelines section 15083. Public notices of the NOP and scoping meeting were published in the following local news periodicals as follows:

- Intermountain News
- Redding Record Searchlight
- Mountain Echo

The meetings took place on June 11, 2013, from 9:00 a.m. to 11:00 a.m. at the Central Valley Regional Water Quality Control Board (CVRWQCB) office in Redding, California, and from 6:00 p.m. to 8:00 p.m. at the Intermountain Fairgrounds in McArthur, California.

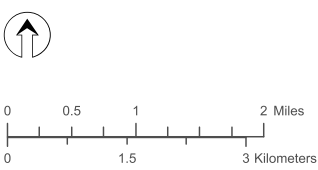
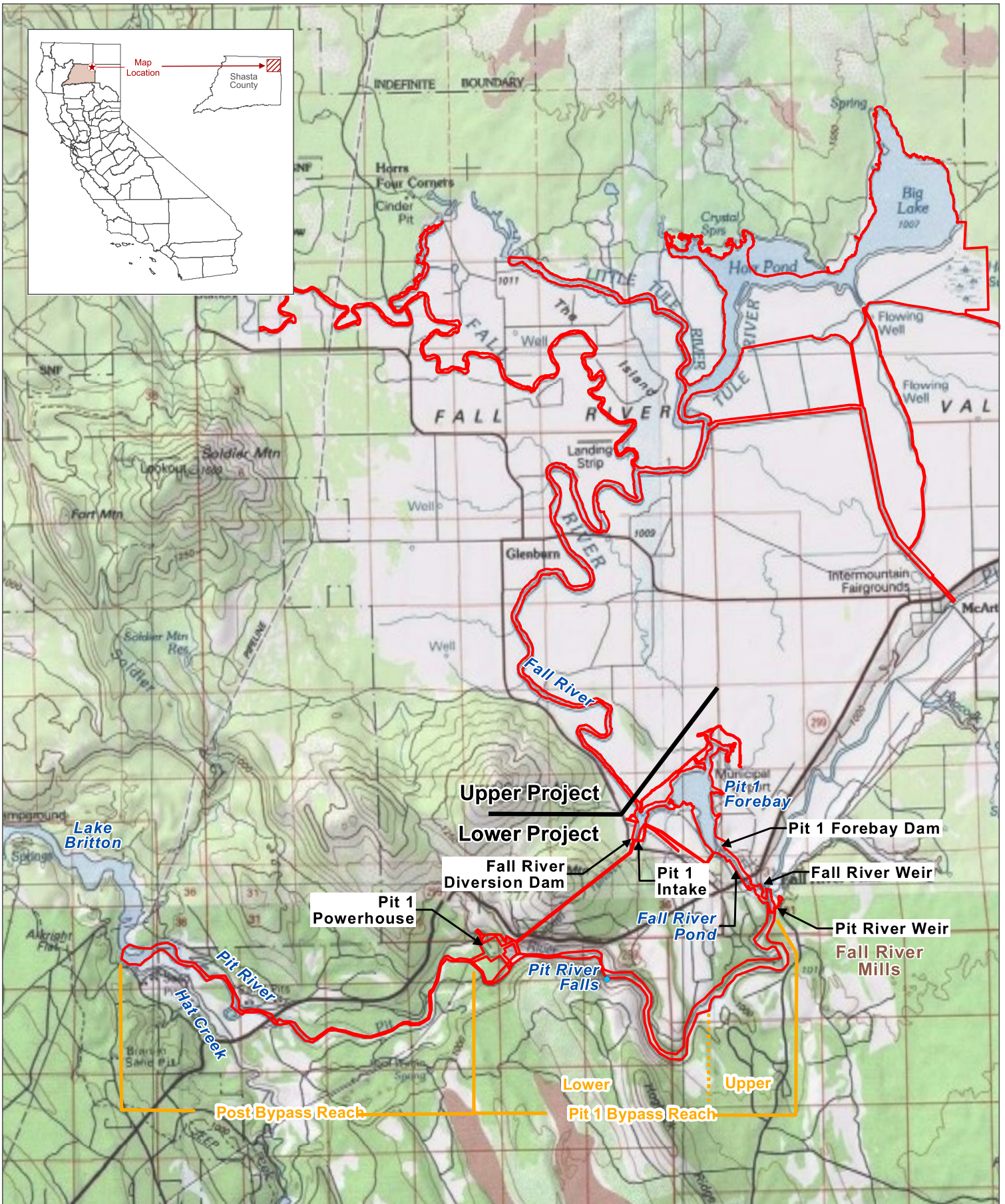
##### **1.5.1.1 *Summary of Comments***

A summary of comments received during the public scoping comment period is presented below. A full listing and discussion of comments received during the public scoping comment period can be found in the Pit 1 Project EIR Scoping Summary Report included as Appendix B of this EIR.

#### **General Comments**

General comments received to date primarily focus on concerns related to the Proposed Project's effect on whitewater recreation and a lack of evidence linking the summer flushing flows with a decline in Shasta crayfish.





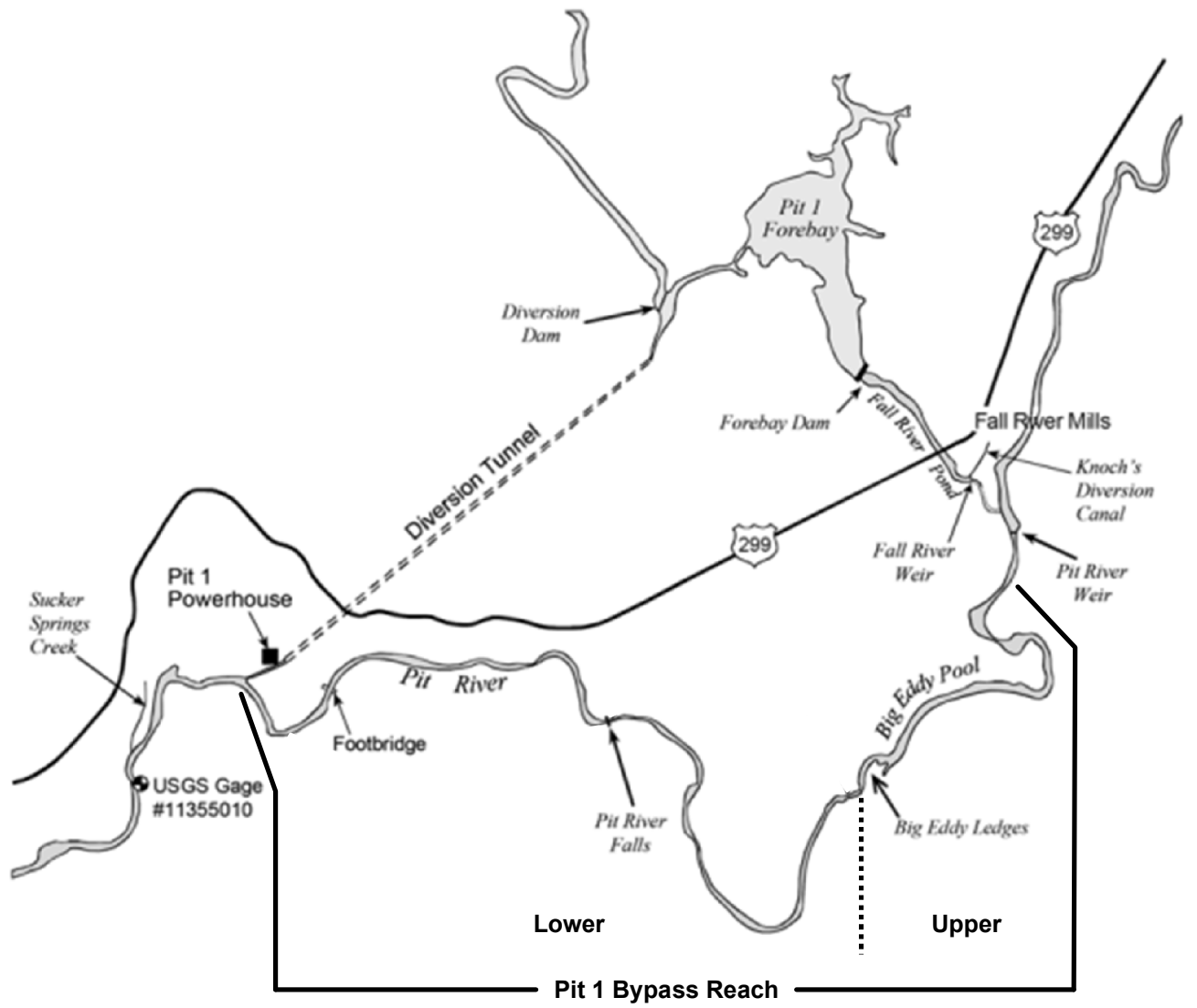
Legend

Proposed Project Area

Pit 1 Hydroelectric Project

FIGURE 1.3-1  
Project Overview





Pit 1 Hydroelectric Project

FIGURE 1.3-2  
Pit 1 Project Facilities and CEQA Project Area





## **Public Agency Comments**

The California Department of Fish and Wildlife (CDFW) expressed concerns about the lack of recent Shasta crayfish surveys and made suggestions regarding the content of the EIR.

## **Project Alternatives**

Suggested alternatives to the Proposed Project included: (i) continuation of summer flushing flows (No Project Alternative); (ii) elimination of summer flushing flows, and instead conduct spring whitewater boating flow releases (Spring Whitewater Boating Flow Releases Alternative); (iii) continuation of summer flushing flows and installation of barriers to block invasive crayfish species (Install Non-Native Crayfish Barriers Alternative). Comments stressed the importance of the site as a recreational resource, which would be adversely affected by the Proposed Project.

### Biological Resources/Aquatic and Fisheries Resources

The following are comments related to biological resource impacts:

- Lack of evidence that the decline in Shasta crayfish is caused by the summer flushing flows from the Pit 1 Project.
- Increases in water temperature caused by the Pit 1 Project should be addressed.
- Updated crayfish surveys are needed.

### Recreation

The loss of recreational opportunities from the elimination of summer flushing flows from the Pit 1 Project was of concern to many stakeholders. Many comments addressed the value of the flow releases to whitewater boaters and kayakers.

## **1.5.2 Draft EIR Comment Period**

This document constitutes the DEIR. The DEIR contains a description of the Proposed Project, regulatory setting, description of the physical environmental setting, analysis of Proposed Project implementation, identification of impacts from the Proposed Project and mitigation measures for impacts found to be significant, as well as an analysis of alternatives to the Proposed Project, growth inducing effects, cumulative impacts, and other considerations. As soon as the draft EIR is complete, a Notice of Completion (NOC) is filed with the SCH. (Pub. Resources Code, §21161; CEQA Guidelines, § 15085).

## **1.5.3 Public Notice / Public Review**

Concurrent with the filing of the NOC, the State Water Board will release a Notice of Availability (NOA) to provide public notice that the DEIR is available for public review and will invite comment from the general public, agencies, organizations, and other interested parties. Public comment on the DEIR will be accepted during a 45-day public review period. (CEQA Guidelines, §§15086-15087 and 15105.). The DEIR, NOA, and Draft 401 Certification Amendment language are available for review on the State Water Board website at: [State Water Resources Control Board Water Quality Certification Program](#)

During the public review period, written comments may be sent to:

State Water Resources Control Board  
Division of Water Rights-Water Quality Certification Program  
Attn: Meiling Roddam  
P.O. Box 2000  
Sacramento, CA 95812

Or

Email Address: [Meiling.Roddam@waterboards.ca.gov](mailto:Meiling.Roddam@waterboards.ca.gov)

#### **1.5.4 Response to Comments / Final Environmental Impact Report**

Following the public review period, a FEIR will be prepared. The FEIR will include written responses to comments received during the public review period for the DEIR. The FEIR may also contain additional information clarifying the Project or addressing comments received on the DEIR, where necessary. The State Water Board will review and consider the FEIR prior to its decision to approve or conditionally approve the Proposed Project. The FEIR, including the responses to comments, will be available at least 10 days prior to certifying the FEIR. (CEQA Guidelines, §§ 15088 and 15089.)

#### **1.5.5 Certification of the Environmental Impact Report**

Once the State Water Board finds that the FEIR is “adequate and complete,” the State Water Board will certify the FEIR. The rule of adequacy generally holds that the EIR can be certified if: (1) it shows a good faith effort at full disclosure of environmental information and (2) provides sufficient analysis to allow decisions to be made regarding the Proposed Project in contemplation of environmental considerations. (CEQA Guidelines, §15090.)

#### **1.5.6 Project Consideration**

After review and consideration of the FEIR, the State Water Board can consider taking action on the Proposed Project. (CEQA Guidelines, § 15092.) A decision on the Proposed Project will be accompanied by written findings in accordance with CEQA Guidelines section 15091, and, if applicable, section 15093. (Pub. Resources Code, §§ 21081 & 21081.5.) A Notice of Determination (NOD) will then be filed within 5 working days after deciding to approve the Proposed Project. (CEQA Guidelines, § 15094.)

#### **1.5.7 Mitigation Monitoring and Reporting Program**

Public Resources Code section 21081.6, subdivision (a) requires lead agencies to adopt a reporting or monitoring program to describe measures that have been adopted or made a condition of Project approval to mitigate or avoid significant effects on the environment. The mitigation program adopted by the State Water Board as conditions for approval of the Proposed Project would be included in a Mitigation Monitoring and Reporting Program (MMRP) designed to reduce or avoid potentially significant effects on the environment (CEQA Guidelines §15097). The MMRP ensures the mitigation program is carried out during Project implementation. For the Proposed Project, no MMRP is currently proposed since no mitigation measures have been identified and no significant impacts were found as a result of the analyses contained in Chapter 3.

### **1.6 Organization of the EIR**

The EIR for the Proposed Project is organized as follows:

- **Executive Summary.** This chapter presents a summary of the Proposed Project and alternatives considered in this EIR. It also identifies areas of controversy, significant unavoidable impacts, and provides a summary of environmental impacts. Also within the section is a table that lists the thresholds of significance and environmental impacts by issue area.
- **Chapter 1, Introduction.** This chapter describes the purpose and scope of the EIR. Public scoping efforts are discussed, including a summary of public comments to be analyzed in the EIR. The public review and intent of the EIR document are addressed, followed by a summary of how the EIR is organized.
- **Chapter 2, Project Description.** This chapter defines the project objectives, existing operations, and proposed changes. This chapter concludes with a list of agencies expected to use the EIR document for review and approvals required for implementation of the Proposed Project.

- **Chapter 3, Environmental Setting & Environmental Impacts.** This chapter describes the regional and local environmental setting for each issue area analyzed in the EIR. The chapter also describes the regulatory setting, thresholds of significance and includes a discussion of potential environmental impacts associated with the Proposed Project for each of the following resource areas:
  - Biological Resources
  - Cultural Resources
  - Hydrology and Water Quality
  - Recreation
- **Chapter 4, Other CEQA Considerations.** This chapter discusses potentially significant irreversible effects and irretrievable commitments of resources, the potential for growth-inducing impacts, and cumulative impacts. Cumulative impacts are those impacts that are individually less than significant but, when considered together with related impacts of other projects in the affected area, could result in a combined effect that is significant. Additionally, this chapter considers the effects of the Proposed Project that would result in a commitment of resources and uses of the environment that could not be recovered if the Proposed Project were constructed, as well as describing the potential for unavoidable adverse impacts from the Proposed Project.
- **Chapter 5, Alternatives.** This chapter contains a description of alternatives to the Proposed Project that were considered by the State Water Board.
- **Chapter 6, List of Preparers.** This chapter lists the individuals involved in preparing this EIR and their responsibilities.
- **Chapter 7, References.** This chapter provides a list of the sources of information cited in the EIR.
- **Appendix A, Notice of Preparation and Scoping Meetings**
- **Appendix B, EIR Scoping Summary Report**

This Page Intentionally Left Blank

## 2 Project Description

---

This chapter presents a description of the existing operations and existing facilities of the Pit 1 Project and the proposed changes to Pit 1 Project operations that constitute the Proposed Project. This chapter also identifies the trustee agencies expected to use the EIR in their decision-making and consultation processes required to implement the Proposed Project.

### 2.1 Existing Project Operations and Facilities

The Pit 1 Hydroelectric Project, FERC Project No. 2687 (Pit 1 Project) is located on the Pit and Fall Rivers near the communities of Fall River Mills and McArthur in northeastern Shasta County. The Pit 1 Project consists of a concrete diversion dam and powerhouse that allows water to enter the Pit 1 Forebay. The Pit 1 Powerhouse typically operates as a peaking plant with a variable discharge schedule depending on the system energy demands and total available inflow. The current FERC license requires minimum instream flows of 700 cubic feet per second (cfs) in the Pit River between the Pit 1 Powerhouse tailrace and Lake Britton. In addition to the minimum instream releases, flows fluctuate with powerhouse operations, but must adhere to license-required ramping rates. Because of the higher minimum instream flows and more gradual ramping rates under the current license, the amount of flow fluctuation in the Pit River downstream of the tailrace has been reduced relative to previous license operations. Under the previous license, the Pit River below the Pit 1 Powerhouse generally experienced daily fluctuations that ranged from approximately 500 cfs to 2,000 cfs as a result of powerhouse operations. Discharge from the powerhouse under the current license generally ranges between 1,000 cfs and 2,000 cfs with some higher winter and spring runoff events. From mid-June to mid-October however, when the mean Fall River summer discharge is generally between 800 cfs and 900 cfs with a standard deviation of less than 100 cfs, the powerhouse operates more in a run-of-river mode with relatively stable discharge.

The concrete diversion dam is 15 feet high and has a 595-foot-long spillway. At the left abutment are three, 20-foot openings, each controlled by radial gates that allow water to enter the project forebay (Pit 1 Forebay). There is also a 24-inch slide gate bypass near the right abutment of the dam. The forebay dam is a 40-foot-high by 586-foot-long compacted earth and rock-fill structure that, impounds a 222-acre forebay. The spillway at its right abutment has two openings, each controlled by a radial gate. The center spillway contains a 24-inch-diameter outlet. There are two intake facilities to the Pit 1 intake canal and tunnel: Intake Number 1 diverts water from the Fall River upstream of the diversion dam, and Intake Number 2, which is the only intake currently in use, diverts water from the forebay. The intakes open into two, short canal sections that converge into one common canal leading to a 10,076-foot-long concrete-lined tunnel. Most of the tunnel is horseshoe-shaped, 14 feet high by 13 feet wide. The tunnel terminates at a 60-foot-diameter, concrete-lined surge chamber with a spill channel. Two, 1,372-foot-long penstocks, varying from 10 feet, 9 inches at the upper end to 8 feet in diameter at the lower end, deliver water to the powerhouse, which contains two vertical-shaft, Francis-type turbines with a dependable capacity of 65.5 megawatts (MW). Water flowing from the powerhouse is discharged through a 1,150-foot-long tailrace channel. There are no transmission lines associated with the Pit 1 Project. The switchyard is the point of junction with PG&E's primary transmission system.

PG&E operates the Pit 1 Project in accordance with the articles, terms, and conditions of the FERC license issued on March 19, 2003, which incorporates the 401 Certification and the USFWS Biological Opinion. PG&E's current Pit 1 Project operations consist of water management, land and recreation management, project maintenance and environmental monitoring as described below.

### 2.1.1 Minimum Instream Flow Requirements

The current minimum instream (instantaneous) flows downstream of the Fall River Pond as measured at the Fall River Weir are shown in Table 2.1-1.

**Table 2.1-1 Minimum Instream Flows\***

Release Period	Minimum Instream Flow
November 1 to November 15	75 cfs
November 16 to May 15	50 cfs
May 16 to May 31	75 cfs
June 1 to October 31	150 cfs

\* PG&E is granted an allowable deviation of minus 10% flow variability in these release requirements, but the monthly average daily flow shall meet or exceed the minimum flow requirement.

### 2.1.2 Summer Flushing Flows

Pursuant to License Article 401 and Condition 13 of the current 401 Certification, PG&E implemented summer flushing flows between 2003 and 2009 to control the growth of aquatic vegetation on Fall River Pond (Table 2.1-2). Flushing flows occurred for approximately three weekends (6 days) per year during the summer months between 2003 and 2009. PG&E monitored surface aquatic vegetation on Fall River Pond from 2005 through 2009, as required by License Article 401 and Condition 14 of the 401 Certification. The monitoring showed that summer flushing flows were not needed for vegetation control. In addition, although the summer flushing flow monitoring plan did not include direct monitoring for mosquito production, an indirect benefit of reduced mosquito production was found. New continuous base flows (minimum instream flows) through Fall River Pond increased velocity and reduced surface aquatic vegetation, which in turn reduced the amount of potential mosquito breeding habitat (Spring Rivers 2010a). The new minimum instream flows implemented as a condition of the 2003 FERC license control these issues of aquatic vegetation growth and mosquito breeding in Fall River Pond (Spring Rivers 2010a).

**Table 2.1-2 Summary of Summer Flushing Flows, 2003-2009**

Flushing Flow Date	Flushing Flow No. Days	Pit 1 Bypass Reach <sup>a</sup> Flushing Flow <sup>b</sup> Mean Daily Discharge (cfs)	Pit 1 Bypass Reach <sup>a</sup> Background <sup>c</sup> Mean Daily Discharge (cfs)	Pit 1 Forebay Released Mean Daily Discharge (cfs)
June 21-22, 2003	2	1,188	334	854
July 19-20, 2003	2	983	302	681
August 23-24, 2003 <sup>e</sup>	0	444	444	0
May 18-23, 2004	6	1,057	359	698
July 17-18, 2004	2	810	249	561
August 28-29, 2004	2	857	239	618
June 4-5, 2005	2	1,844	1,051	793
July 16-17, 2005	2	999	391	608
August 27-28, 2005	2	998	382	616



Flushing Flow Date	Flushing Flow No. Days	Pit 1 Bypass Reach <sup>a</sup> Flushing Flow <sup>b</sup> Mean Daily Discharge (cfs)	Pit 1 Bypass Reach <sup>a</sup> Background <sup>c</sup> Mean Daily Discharge (cfs)	Pit 1 Forebay Released Mean Daily Discharge (cfs)
June 17, 2006	1	1,413	457	956
June 18, 2006	1	1,287	457	830
July 15, 2006	1	1,223	389	834
July 16, 2006	1	1,103	389	714
August 19, 2006	1	657	327	330
August 20, 2006	1	730	327	403
June 23-24, 2007	2	818	253	565
July 21-22, 2007	2	903	266	637
August 18-19, 2007	2	856	255	601
June 21-22, 2008	2	985	425	560
July 19-20, 2008	2	1,051	439	612
August 16-17, 2008	2	941	364	577
June 20-21, 2009	2	996	480	516
July 18-19, 2009	2	853	375	478
August 29-30, 2009	2	899	390	509

<sup>a</sup> Mean daily discharge at the downstream end of the Pit 1 Bypass Reach calculated as the difference between the mean daily discharge downstream of the Pit 1 Powerhouse (USGS 11355010) and the mean daily discharge through the Pit 1 Powerhouse (USGS 11354200).

<sup>b</sup> Mean daily discharge at the downstream end of the Pit 1 Bypass Reach during the flushing flow days.

<sup>c</sup> Mean daily discharge at the downstream end of the Pit 1 Bypass Reach for the week before and after, excluding the day immediately before and after (n=12 days), the flushing flow days (includes the minimum instream flow release of 150 cfs, approximately 103 cfs of spring accretion flow, and Pit River flow upstream of the Fall River confluence).

<sup>d</sup> Mean daily Pit 1 Forebay release discharge during the flushing flows (in addition to the minimum instream flow release of 150 cfs) calculated as the difference between the flushing flow and background mean daily discharge at the downstream end of the Pit 1 Bypass Reach.

<sup>e</sup> The August 2003 flushing flow was scheduled, but did not occur due to a levee failure in the upper reaches of the Pit 1 Project.

### 2.1.3 Recreational Whitewater Boating Flow Releases

Whitewater boating (REC-1 in Table 2.1-3) is an existing beneficial use of the Pit River within the Pit 1 Project. Designated beneficial uses of the Pit and Fall rivers are shown in Table 2.1-3. PG&E conducted a two-phase recreational boating use study to assess the potential impacts of flow augmentation for whitewater boating on fish, wildlife, cultural and recreational resources within the Pit 1 Project area between September 15 and October 30 (R2 2006; R2 et al. 2008). Phase 1 included the compilation and review of existing resource information, and determination of whether existing data and information were sufficient to evaluate potential whitewater boating flow impacts on the target resources, or whether additional studies were warranted as potential Phase 2 studies. On July 16, 2009, FERC issued an order approving the Phase 2 study, to refine acceptable boating flow ranges, particularly those near the low end

of the range. Results indicated that flows exceeding 600 cfs at Big Eddy are boatable in kayaks, and flows of 800 to 1,000 cfs at Big Eddy provide quality technical trips (R2 et al. 2008).

**Table 2.1-3 Designated Existing Beneficial Uses (E) in the Fall River and Pit River**

<b>Designated Beneficial Uses (RWQCB-CVR 2007)</b>	<b>Fall River</b>	<b>Pit River<sup>a</sup></b>
Municipal and domestic supply (MUN)	E	E
Agriculture (irrigation and stock watering) (AGR) <sup>b</sup>	E	E
Hydropower Generation (POW)	E	E
Recreation (contact) (REC-1)	E	E
Recreation (canoeing and rafting) (REC-1)	E	E
Recreation (other non-contact) (REC-2)	E	E
Freshwater habitat (warm) (WARM)	E	E
Freshwater habitat (cold) (COLD)	E	E
Spawning (warm) (SPWN)		E
Spawning (cold) (SPWN)		
Wildlife habitat (WILD)	E	E

<sup>a</sup> Beneficial uses for the Pit River from the forks to the mouth of Hat Creek, which includes the Proposed Project area affected reach.

<sup>b</sup> Uses of water for irrigation, stock watering, or support of vegetation for range grazing are grouped under agricultural supply.

PG&E has requested the elimination of summer flushing flows through Fall River Pond and the Pit 1 Bypass Reach during the summer due to their potential to affect Shasta crayfish habitat. To mitigate the loss of the incidental recreational whitewater boating flows, PG&E has proposed recreational whitewater boating flows in October on or before October 30 as outlined in the Pit 1 Project Whitewater Boating Flow Recommendations (Spring Rivers 2011a) that was filed with FERC in March 2011. Because the instream flow release into the Pit 1 Bypass Reach changes from 150 cfs to 75 cfs at the end of October, PG&E recommended that recreational whitewater boating flows not be released after October 30 to minimize the magnitude of the flow change. Based on hydrology and boater preference, PG&E recommended either two weekends or four consecutive days over the Columbus Day weekend of recreational whitewater boating flow releases on or before October 30 of each year. On June 14, 2011, FERC issued an order<sup>16</sup> approving the final October whitewater boating flow schedule. FERC ordered the implementation of recreational whitewater boating flow releases in the Pit 1 Bypass Reach as a beneficial use of the Pit River and “in lieu of any previously scheduled May, June, and July flows.” Pursuant to the June 2011 FERC order, PG&E began implementing recreational whitewater boating flow releases in the Pit 1 Bypass Reach in October 2011. PG&E will continue to implement and provide advanced public notice of these October recreational whitewater boating flow releases. Any future proposal to implement whitewater releases outside of this period would be subject to consultation with the USFWS.

<sup>16</sup> 135 FERC ¶ 62,215. Order Approving Final Whitewater Boating Flow Schedule (issued June 14, 2011).

#### **2.1.4 Outages**

PG&E operates the Pit 1 Project to provide flows through the Pit 1 Powerhouse to the Project tailrace such that the total instantaneous flow in the Pit River downstream of the Project tailrace is a minimum of 700 cfs or greater in compliance with License Article 402 and 401 Certification Condition 11.

Each of the two turbine units in the Pit 1 Powerhouse is capable of handling the normal discharge from the Fall River so an outage of a single unit does not result in a spill except during rare flood events. Because the license-mandated maximum operating level of the reservoir is less than the maximum water (i.e., spill) elevation of the Pit 1 Forebay, shorter duration outages (i.e., 2 hours or less) of both units do not generally result in a spill. When two-unit outages last longer than 2 hours, water is released from the Pit 1 Forebay into Fall River Pond and the lower Fall River Bypass Reach, and thence into the Pit 1 Bypass Reach.

During the warmer months, releasing water from the Pit 1 Forebay into the bypass reaches to maintain the 700 cfs flow downstream of the Pit 1 tailrace has the potential to affect the summer habitat for Shasta crayfish in the Pit 1 Bypass Reach. To avoid potential effects of an out-of-season pulsed flow to summer habitat for Shasta crayfish, PG&E would not conduct planned outages that result in out-of-season spills in the Pit 1 Bypass Reach between May 1 and September 30. In summary, PG&E would operate the Pit 1 Project in a manner that does not cause discretionary, out-of-season spills.

#### **2.1.5 Unplanned Outage**

Unplanned outages of the Pit 1 Powerhouse temporarily result in reduced flows downstream of the powerhouse tailrace that deviate from the License Article 402 minimum instantaneous flow requirement of 700 cfs. Unplanned outages that result in spills are infrequent, particularly in the warmer summer months. For the 15-year period that PG&E has electronic data (2001 through 2015), there have been 41 unplanned outages, but only 16 two-unit outages. Eleven (mean  $1.32 \pm 1.01$  hours, range 0.30 to 4.03 hours) of the two-unit outages did not require a spill, and only five (31 percent) resulted in spills. The five spills resulted from two-unit outages lasting more than 2 hours (mean  $5.09 \pm 2.24$  hours, range 2.31 to 7.45 hours). Three of the five occurred in 2006 and one spill occurred in each of 2005 and 2009. In twelve of the 15 years, including the last 6 years, there were no spills. No two-unit outages resulted in a spill during the warmest months of June, July, or August during the last 15 years.

Because of the lengthy travel time for spills through the Bypass Reach, the Pit 1 Powerhouse is often back on line either before or about the same time the water released from the Pit 1 Forebay reaches the compliance gage downstream of the Pit 1 tailrace. Flow releases from Pit 1 Forebay can take approximately 7 hours to reach the downstream end of Big Eddy Pool. This lengthy travel time is attributed to: (1) filling the in-river storage in Pit River upstream of the Pit River Weir; and (2) the slow movement of water through the approximately 1.6-mile (2.5-km) length of Big Eddy Pool. Because PG&E response times during an outage are fairly rapid, 93% of unplanned outages last less than 8 hours. Consequently, the Pit 1 Powerhouse is often back on line either before or about the same time the water released from the Pit 1 Forebay reaches downstream of the Pit 1 tailrace. In these cases, spills through the Pit 1 Bypass Reach, which increase water temperature during the warmer summer months, are not effective in shortening the length of time flows deviate from the license-required 700 cfs downstream of the Pit 1 tailrace.

In an effort to try to reduce the likelihood, frequency, and duration of spills into the Bypass Reach related to unplanned outages in the summer, PG&E had originally suggested implementing new operational procedures for the Pit 1 Forebay. By reducing the maximum allowable operating limit on the Pit 1 Forebay by 0.5 foot (from 3,303.5 feet to 3,303 feet NGVD [3,323 feet to 3,322.5 feet PG&E datum]) during the warmer months (between May 1 and September 30), PG&E would gain an additional 2 hours of time to address an unplanned outage before having to spill from the Pit 1 Forebay. The data from the 15-year period (2001 through 2015), however, shows that this measure would not have averted any unplanned outage spills between May 1 and September 30. By lowering the maximum allowable operating limit on

the Pit 1 Forebay, PG&E would only have avoided two spills during the last 15 years, and both of these spills occurred during the cooler months (i.e., January and April 2006).

In summary, under the current operating conditions, the frequency and duration of unplanned outages in the warmer months is already very low. Only two unplanned outages resulted in spills during warmer months (i.e. September 2005, May 2009) during the last 15 years (Figure 2). Both of these spills resulted from unplanned outages that lasted almost 7.5 hours.

Under the Proposed Project, PG&E would continue to maintain minimum instream flows in the lower Fall River In compliance with Articles 402 and 403 of the Pit 1 Project License and 401 Certification Condition 8. Flows through the Pit 1 Powerhouse to the Pit 1 Project tailrace would continue so that the total instantaneous flow in the Pit River downstream of the tailrace is 700 cfs or greater, as measured at the USGS gage 11-3550.10. The 700-cfs minimum flow is for the protection and enhancement of habitat in the Pit River for aquatic species, including the California floater [mussel] (*Anodonta californiensis*) and montane peaclam (*Pisidium ultramontanum*), both U.S. Forest Service (USFS) sensitive species, as well as resident fish (Article 402).

## **2.2 Proposed Project**

The following describes the operational changes to the Pit 1 Project that comprise the Proposed Project, as well as PG&E's commitment to operate the Pit 1 Project to avoid or minimize potential effects to Shasta crayfish within the Proposed Project area. These changes primarily entail adjustments to the flow of water through the Fall River Weir into the Pit 1 Bypass Reach.

PG&E is proposing to eliminate summer flushing flow releases permanently and to continue ground-level monitoring aquatic vegetation on Fall River Pond in the absence of summer flushing flows. Monitoring aquatic vegetation also provides an indication of the presence of mosquito habitat since mosquito larvae are associated with permanent water bodies, such as Fall River Pond, and generally live in shallow water with thick vegetation (Spring Rivers 2010a). Additionally, PG&E is proposing to conduct whitewater boating flow releases for approximately 4 days in October on or before October 30 of each year.

### **2.2.1 Water Management**

Flushing flows occurred for three weekends (6 days) per year during the summer months between 2003 and 2009. As part of the Proposed Project, PG&E would discontinue summer flushing flows permanently. PG&E would continue annual ground-level photo point monitoring of aquatic vegetation on Fall River Pond in June, July, and August. In the event that conditions, such as a series of drought years, result in excess aquatic vegetation (i.e., surface aquatic vegetation exceeding 20 percent coverage of Fall River Pond), PG&E would implement vegetation control methods, such as harvesting or non-summer flushing flows. The suppression of aquatic vegetation also controls mosquito production by reducing the amount of breeding habitat for mosquitos. To avoid negative effects to biological resources and their habitat in the Pit 1 Bypass Reach, PG&E would not use summer flushing flows to control aquatic vegetation between May 1 and September 30 (i.e., no discretionary out-of-season spills). PG&E monitored surface aquatic vegetation on Fall River Pond from 2005 through 2009, as required by License Article 401 and Condition 14 of the 401 Certification. Monitoring of surface aquatic vegetation showed that summer flushing flows were not needed for vegetation, or mosquito control, and that the new continuous minimum instream base flows implemented as a condition of the 2003 FERC license were controlling these issues in Fall River Pond (Spring Rivers 2010a).

Pursuant to the June 14, 2011, FERC order<sup>17</sup> approving the final October whitewater boating flow schedule, PG&E will continue to implement recreational whitewater boating flow releases, which began in 2011. Whitewater boating flow releases will occur for either two weekends or four consecutive days over the Columbus Day weekend (on or before October 30<sup>th</sup>) to minimize negative impacts to biological

---

<sup>17</sup> 135 FERC ¶ 62,215. Order Approving Final Whitewater Boating Flow Schedule (issued June 14, 2011).

resources, avoid the negative effects of summer flushing flows on Shasta crayfish habitat, and minimize the magnitude of the flow change. (Because minimum instream flow release into the bypass reaches changes from 150 cfs to 75 cfs at the end of October, recreational whitewater boating flows will not be released after October 30.)

**2.2.2 Planned Outage**

To avoid potential negative effects to Shasta crayfish, PG&E would not conduct planned outages that result in out-of-season spills in the Pit 1 Bypass Reach between May 1 and September 30. PG&E would operate the Pit 1 Project in a manner that does not cause discretionary, out-of-season spills.

**2.3 Responsible and Trustee Agencies**

Compliance with federal, state, and local laws and regulations as well as environmental permits would be required for the Proposed Project. Federal, State, and local approvals and consultations identified for the Proposed Project are described in Table 2.2-1 below.

**Table 2.2-1 Overview of Agencies with Authority over the Proposed Project**

<b>U.S. Fish and Wildlife Service</b>	<b>California Department of Fish and Wildlife</b>	<b>State Water Resources Control Board</b>
<p>The U.S. Fish and Wildlife Service (USFWS) is a trustee agency over a resource affected by the Proposed Project and has jurisdiction over any species listed under the federal Endangered Species Act (ESA). Consults under Section 7 of the ESA. Determines whether a proposed action is likely to jeopardize the continued existence of, or destroy or adversely modify critical habitat of, federally listed species.</p> <p>The Shasta crayfish is a listed species under the ESA.</p>	<p>The California Department of Fish and Wildlife (CDFW) is a trustee agency over a resource affected by the Proposed Project and has jurisdiction pursuant to the California Endangered Species Act (CESA). Fish and Game Code Section 2050 et seq. prohibits take of a candidate species or species listed as threatened or endangered under CESA unless authorized by CDFW pursuant to Fish and Game Code section 2080.1 or section 2081, subdivisions (b) and (c). The Shasta crayfish is a listed species under the CESA.</p>	<p>Clean Water Act Section 401 requires that, prior to the issuance of a federal license or permit for an activity or activities that may result in a discharge of pollutants into navigable waters, the applicant must first obtain a water quality certification from the state in which the discharge would originate. The State Water Board is the CEQA Lead Agency for this project and is responsible for certification of the EIR, adopting CEQA findings, and filing a NOD for the water quality certification amendment.</p>

This Page Intentionally Left Blank

## 3 Environmental Setting & Environmental Impacts

---

### 3.1 Introduction

This chapter describes the regional and local environmental setting, regulatory setting, thresholds of impact significance and identifies the potential environmental impacts associated with the Proposed Project. The environmental resource areas analyzed include:

- Section 3.2, Biological Resources
- Section 3.3, Cultural Resources
- Section 3.4, Hydrology/Water Quality
- Section 3.5, Recreation

In addition, this chapter addresses several environmental resource areas that have been eliminated from detailed discussion since the Proposed Project would have no effect on those resources.

#### 3.1.1 Environmental Baseline

The environmental baseline considered for this CEQA analysis is the Pit 1 Project as currently licensed by FERC, which includes the occurrence of flushing flows in the summer months prior to temporary suspension. Impacts to each issue area are discussed in context of the current environmental baseline.

#### 3.1.2 Resource Areas Eliminated from Further Analysis

The following resource areas were eliminated from detailed analysis. A brief discussion of those resource areas and the reasons why they were eliminated are provided.

##### 3.1.2.1 *Aesthetics*

There would be no construction or other ground disturbing activities associated with the Proposed Project. During three weekends of summer per year, implementation of the Proposed Project would reduce the volume of water flowing over Pit River Falls to approximately one third of what it would be during the flushing flows. In the absence of summer flushing flows, the amount of water flowing over Pit River Falls would be relatively constant throughout the summer. There is a popular scenic vista point overlooking Pit River Falls on State Route 299 (SR 299). Waterfall sightseeing is generally regarded as being of the highest quality during peak flows. Although the Pit River Falls are slightly more dramatic during a summer flushing flow (e.g., 750 to 900 cfs) compared to summer base flows (approximately 250 to 300 cfs), with the highest quality viewing during natural high flows (e.g., 10,000 to 30,000 cfs in 1980, 1982, 1983, 1989, 1993, 1995, 1996, 1997, 2006, 2017). The majority of years include multiday, high runoff events greater than 3,000 cfs. PG&E would continue to implement October recreational whitewater boating flow releases during either two weekends or four consecutive days over the Columbus Day weekend in October before October 30, which would in turn result in additional waterfall viewing opportunities. There would be no damage to scenic resources associated with the Proposed Project. Impacts related to aesthetic resources would not occur under the Proposed Project.

##### 3.1.2.2 *Agricultural and Forestry Resources*

There would be no construction or other ground disturbing activities associated with the Proposed Project. There would be no loss or conversion of farmland to nonagricultural uses. Additionally, the Proposed Project would not conflict with existing zoning for agricultural use or any Williamson Act contracts or existing zoning for, or cause rezoning of, forest or timberland, including timberland zoned Timberland

Production. There would be no loss or conversion of forestland to non-forest uses. Therefore, no impacts would occur to agricultural and forestry resources.

### **3.1.2.3 Air Quality**

There would be no construction or other ground disturbing activities associated with the Proposed Project. The change in flushing flows resulting from the Proposed Project would not affect air quality or result in emissions of greenhouse gases. The Proposed Project would not conflict with, or obstruct implementation of, an air quality plan or violate any air quality standard or contribute to an existing or projected air quality violation.

The Proposed Project would not result in any singular or cumulative increase in criteria pollutants. Since the Proposed Project would produce no new pollutants, it would not expose sensitive receptors to substantial pollutant concentrations. The Proposed Project may create objectionable odors at times if aquatic vegetation accumulates and then dies off on a large scale in Fall River Pond. Monitoring data since 2005 indicate that the continuous minimum instream flows implemented pursuant to 401 Certification Condition 8 have adequately controlled the nuisance aquatic vegetation in the pond. In the event that conditions result in excess aquatic vegetation (i.e., surface aquatic vegetation exceeding 20 percent coverage of Fall River Pond), the Proposed Project calls for PG&E to implement vegetation control methods, such as harvesting or non-summer flushing flows (see Section 2.2.1). Therefore, mass aquatic plant die-off events would be rare and unlikely to affect substantial numbers of people. Significant air quality impacts would not occur under the Proposed Project.

### **3.1.2.4 Geology and Soils**

There would be no construction or other ground disturbing activities associated with the Proposed Project. The Proposed Project does not propose any new uses or structures that could further expose people to the risks of earthquake ruptures, strong seismic shaking, seismic ground failures, or landslides.

Portions of the Proposed Project are located in the Pit River Canyon, which is subject to occasional rockslides. The Proposed Project, however, would have no effect on the stability of the canyon walls or the frequency of rockslides, or increase erosion. The Proposed Project would have no impact on the potential for on- or offsite landslides, lateral spreading, subsidence, liquefaction, or collapse.

Additionally, the Proposed Project is not located on expansive soils, and does not involve construction of buildings that might be compromised by expansion and contraction of such soils and does not involve the disposal of wastewater. Impacts related to geology and soils would not occur.

### **3.1.2.5 Greenhouse Gas Emissions**

There would be no construction associated with the Proposed Project. PG&E loses approximately 900 to 1,200 MWh of power generation for each flushing flow. These generation losses are typically offset by other sources, some of which are likely nonrenewable generation sources. The elimination of flushing flows during the summer months would allow PG&E to increase renewable power generation during a peak electricity demand period. Additionally, the Proposed Project involves the implementation of whitewater boating flows in October for 4 days (instead of 6) during a non-peak electricity demand period and for a lesser number of days. The renewable power generation would also likely be offset by other sources, some of which may be nonrenewable generation sources. However, it would be for a lesser number of high flow events resulting in a lower loss of power generation from the Pit 1 Project.

As a result, PG&E would be gaining generation capability in the summer months when energy demand is higher and losing generation capability in October when the energy demand is typically lower. Overall, the elimination of summer flushing flows and the addition of whitewater boating flow releases for 4 days in October would be a beneficial impact to greenhouse gas emissions because it would result in increased



renewable power generation capabilities during a high demand season, and thus would not result in additional greenhouse gas emissions.

#### **3.1.2.6 Hazards and Hazardous Materials**

The Proposed Project does not include any uses that would create a hazard to the public or environment through the transport, use, or disposal of hazardous materials. No hazardous materials would be emitted or handled. The Proposed Project would not affect any known hazardous material sites. No new hazards are identified as a result of the implementation of the Proposed Project.

The Proposed Project would have no effect on the implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. Additionally, the Proposed Project would have no effect on the exposure of people or structures to wildland fires. Therefore, no impact would occur related to hazards and hazardous materials.

#### **3.1.2.7 Land Use and Planning**

The Proposed Project does not involve the division of any established communities and would not conflict with any applicable land use plan, policy, or regulation of an agency. The Proposed Project is not located within a habitat conservation plan or natural community conservation plan area. Therefore, land use impacts would occur.

#### **3.1.2.8 Mineral Resources**

The Proposed Project would have no effect on the availability of mineral resources or on mineral recovery resource sites delineated on a local General Plan, specific plan, or other land use plan. Therefore, no impacts on mineral resources would occur.

#### **3.1.2.9 Noise**

The Proposed Project does not propose uses that would result in the exposure of people working or living in the Proposed Project area to excessive noise levels. No construction would occur that could result in changes to ambient noise levels or cause ground-borne vibration. Therefore, impacts related to noise would not occur.

#### **3.1.2.10 Population/Housing**

The Proposed Project does not include any uses that would increase population in the area. No new construction or infrastructure is proposed. The Project would not result in displacement of housing or require construction for replacement housing. Therefore, population and housing impacts would not occur.

#### **3.1.2.11 Public Services**

The Proposed Project does not include any uses that would generate a need for new or improved public services, including fire protection, police protection, schools, parks, or other public facilities. Therefore, impacts on public services would not occur.

#### **3.1.2.12 Transportation and Traffic**

Due to the elimination of summer flushing flows, the Proposed Project would reduce the whitewater boating opportunities in the Proposed Project area during the summer months. PG&E would, however, increase the opportunity for whitewater boating in October. The cessation of summer flushing flows may result in minor increased use of the Class II whitewater downstream of the Pit 1 Powerhouse, but is unlikely to attract a large number of out-of-area boaters. The change in the timing of whitewater boating flow releases from summer to October would not conflict with any applicable plans, ordinances, or policies related to traffic, would not produce hazards due to design features or incompatibility with current land

use, and would have no effect on emergency access or interfere with alternative transportation facilities. No impacts would occur related to transportation and traffic.

### **3.1.2.13 Utilities/Service Systems**

The Proposed Project does not include any uses that would generate a need for new or improved utilities or service systems, including wastewater treatment, storm drainage, water supplies, and solid waste. No utilities or service systems would be affected, and no impacts would occur.

## **3.2 Biological Resources**

This section describes the biological resources present within the Proposed Project area. The Proposed Project has the potential to affect species found in or closely associated with the aquatic environment, but not species that are strictly associated with the terrestrial environment. Thus, the biological resources analysis focuses on those species found in, or that otherwise use, the aquatic habitat such as riparian plants and birds that feed on aquatic species. The analysis focuses on special status aquatic invertebrates, fish, and reptiles species. Potential impacts of the proposed operational changes (i.e., elimination of summer flushing flows into the Pit 1 Bypass Reach) on those biological resources have been analyzed. In addition, this section discusses federal, state, and local laws, regulations, policies, and objectives applicable to the Proposed Project.

### **3.2.1 Environmental Setting**

Baseline environmental setting information for the Proposed Project area was compiled from existing published literature. Primary data sources include the following:

- Pit 1 Shasta Crayfish Study Report, pursuant to California State Water Resources Control Board Order WQ 2010-0009-EXEC, Pit 1 Hydroelectric Project, FERC Project No. 2687. January 2013 (PG&E 2013)
- Shasta Crayfish Technical Review Committee Summary Report. (Spring Rivers 2009a)
- Recovery Plan for the Shasta Crayfish (*Pacifastacus fortis*) (USFWS 1998)
- Pit 1 Flushing Flows Effectiveness Monitoring Plan, 2012 Annual Report (Spring Rivers 2013a)
- Shasta Crayfish Technical Review Committee, 2011 Annual Report (Spring Rivers 2012a)
- Shasta Crayfish Technical Review Committee, 2012 Annual Report (Spring Rivers 2013b)
- Distribution and Status of Crayfish in the Pit River Drainage, California (Daniels 1980)
- Life history, distribution, and abundance of *Pacifastacus fortis* (*Decapoda: Astacidea*) (Eng and Daniels 1982)
- Environmental Assessment for Hydropower License: Pit 1 Hydroelectric Project (FERC 1999)

#### **3.2.1.1 Aquatic Habitats and Biota**

The Pit River, which originates on the west slopes of the Warner Mountains, drains to the west through Alturas to Fall River Mills. Fall River is the largest tributary to the Pit River in the Proposed Project area (see Figure 1.3-1). Fall River flows into Pit 1 Forebay and then into Fall River Pond. Fall River Pond is approximately 0.7 mile long and is created by the Fall River Pond Weir. Beyond the weir, Fall River flows approximate 1,000 feet to its confluence with the Pit River. Water that enters the Pit 1 Forebay is diverted via the Fall River Diversion to the Pit 1 Powerhouse. The forebay is used to store water to support powerhouse peaking operations, but also to provide minimum instream flows to the Pit 1 Bypass Reach that extends approximately 6.6 miles from the confluence of the Fall River to the Pit 1 Powerhouse. The

minimum instream flows that PG&E is required to release from the Fall River Pond are presented in Table 2.1-1.

The Pit River supports a montane riparian plant community that is commonly dominated by alder (*Alnus* spp.), big-leaf maple (*Acer macrophyllum*), Oregon ash (*Fraxinus latifolia*), and cottonwood (*Populus* sp.). Black oak (*Quercus kelloggii*) is also a common species that occurs along the margins of the river. Understory vegetation that typically dominates this community type includes willow (*Salix* spp.), dogwood (*Cornus* sp.), gooseberry (*Ribes* spp.), and thimbleberry (*Rubus parviflorus*).

The first 1.9 miles of the Pit 1 Bypass Reach are low gradient and characterized by a wide channel, deep pools, and slow moving water (PG&E 2013). The largest pool, called Big Eddy, is approximately 200 feet wide and 20 to 25 feet deep (FERC 1999). The remainder of the Pit 1 Bypass Reach is within the Pit River Canyon where the river channel is narrow (generally 40 to 80 feet wide) and shallow with numerous riffles, and has a steeper gradient with higher water velocities. The Pit River Falls are located in this reach, as well as 15 mapped springs (USFWS 1998) that contribute approximately 100 cfs to the river flow. Downstream of the Pit 1 Powerhouse, the Pit River flows approximately 3 miles to Lake Britton (FERC 1999). From 1975 to 1991, mean monthly flow in the Pit River above the Fall River confluence averaged 58 cfs in August and 1,422 cfs in March, while flow below the Pit 1 Powerhouse averaged 1,285 cfs in August and 3,008 cfs in March (FERC 1999).

Water temperature in the Pit 1 Bypass Reach, as measured from August 26 through September 1, 2004, was 19.8°C at a flow of 277 cfs (Spring Rivers 2009b). Inflow from the springs is cooler at approximately 15°C (FERC 1999). Both Fall River Pond and Big Eddy are eutrophic with warm water temperatures and high primary productivity. As a result, Fall River Pond historically has supported excessive growths of aquatic vegetation in the summer, and Big Eddy Pool exhibits thermal stratification in the summer with large fluctuations in dissolved oxygen and pH (FERC 1999).

A suite of common aquatic fish and invertebrate species are known to inhabit Fall River, Pit River, Pit 1 Forebay, and Fall River Pond (Table 3.2-1). The native and introduced trout prefer cooler waters while the other introduced fish are typical warm water species. Both the western ridgeshell (*Gonidea angulata*) and western pearlshell (*Margaritifera falcata*) are coldwater dependent species. The non-native signal crayfish (*Pacifastacus leniusculus*) and northern crayfish (*Orconectes virilis*) are known to occur within the Proposed Project area; they were introduced sometime during the 1960s and 1970s (PG&E 2013) and have become common within the Pit River watershed. Non-native (introduced) fish species dominate in the Pit 1 Forebay, Fall River Pond, and Big Eddy (FERC 1999). The non-native bullfrog (*Lithobates catesbeiana*) is also present within the Proposed Project area (Spring Rivers 2011a).

### **3.2.1.2 Special-Status Species**

Only those species listed or candidates for listing as threatened or endangered, or are state or federal species of special concern, are discussed in this section. Three invertebrates categorized by the U.S. Forest Service (USFS) as Sensitive are also discussed. The Pit 1 Bypass Reach does not support federal or state listed plant species (CDFW 2017, CNPS 2017), but may provide habitat for plant species that have a State rare plant rank. Special-status species in the Proposed Project area with their status are listed in Table 3.2-2.

**Table 3.2-1 Aquatic Species Known to Inhabit the Project Area**

Common Name	Scientific Name	Native/Introduced	Location
<b>Fish</b>			
Rainbow trout	<i>Oncorhynchus mykiss</i>	N	FR, P, PR
Brown trout	<i>Salmo trutta</i>	I	FR
Sacramento sucker	<i>Catostomus occidentalis</i>	N	FR, P, PR
Sacramento pikeminnow	<i>Ptychocheilus grandis</i>	N	FR, P, PR
Hardhead	<i>Mylopharodon conocephalus</i>	N	FR, P, PR
Pit Roach	<i>Lavinia symmetricus mitrulus</i>	N	FR, P, PR
Tui chub	<i>Siphateles bicolor</i>	N	FR, P
Tule perch	<i>Hysterocarpus traskii</i>	N	PR
Bigeye marbled sculpin	<i>Cottus klamathensis macrops</i>	N	FR, P, PR
Rough sculpin	<i>Cottus asperimus</i>	N	FR, P, PR
Pit sculpin	<i>Cottus pitensis</i>	N	PR
Pit-Klamath brook lamprey	<i>Entosphenus lethophagus</i>	N	FR
Green sunfish	<i>Lepomis cyanellus</i>	I	FR, P, PR
Bluegill	<i>Lepomis macrochirus</i>	I	FR, P, PR
Largemouth bass	<i>Micropterus salmoides</i>	I	FR, P, PR
Smallmouth bass	<i>Micropterus dolomieu</i>	I	PR
Black crappie	<i>Pomoxis nigromaculatus</i>	I	P, PR
Mosquitofish	<i>Gambusia affinis</i>	I	FR, P
Channel catfish	<i>Ictalurus</i>	I	P
Black bullhead	<i>Amieurus melas</i>	I	FR, P, PR
Brown bullhead	<i>Amieurus nebulosus</i>	I	FR
Common carp	<i>Cyprinus carpio</i>	I	FR, P, PR
Golden shiner	<i>Notemigonus chrysoleucas</i>	I	PR
<b>Invertebrates</b>			
California floater	<i>Anodonta californiensis</i>	N	FR, P, PR
Western ridged-shell	<i>Gonidea angulata</i>	N	P, PR
Western pearlshell	<i>Margaritifera falcata</i>	N	PR
Canary dusksnail	<i>Colligyrus convexus</i>	N	FR, PR
Nugget pebblesnail	<i>Fluminicola seminalis</i>	N	FR, P, PR
Scalloped juga	<i>Juga occata</i>	N	FR, P, PR
Great Basin rams-horn	<i>Helisoma newberryi</i>	N	FR, P, PR
Kneecap lanx	<i>Lanx patelloides</i>	N	FR, P, PR
Shasta crayfish	<i>Pacifastacus fortis</i>	N	FR, PR
Signal crayfish	<i>Pacifastacus leniusculus</i>	I	FR, P, PR
Northern crayfish	<i>Orconectes virilis</i>	I	FR, P, PR

Source: FERC 1999, Spring Rivers 2009b

FR = Fall River drainage  
 I = Introduced  
 N = Native  
 P = Pit 1 Forebay  
 PR = Pit River

**Table 3.2-2 Special-Status Species in the Proposed Project area**

Common Name	Scientific Name	Federal Status	State Status	Other Status
Shasta crayfish	<i>Pacifastacus fortis</i>	E	E	S1
Bald eagle	<i>Haliaeetus leucocephalus</i>	Delisted	E	—
Northern western pond turtle	<i>Actinemys marmorata</i>	—	SSC	FSS, S3
Foothill yellow-legged frog	<i>Rana boylei</i>	—	SSC	FSS, S3
Hardhead	<i>Mylopharodon conocephalus</i>	—	SSC	FSS, S3
Pit Roach	<i>Lavinia symmetricus mitrulus</i>	—	SSC	S2
Bigeye marbled sculpin	<i>Cottus klamathensis macrops</i>	—	SSC	S1S2
Rough sculpin	<i>Cottus asperimus</i>	—	T	SFP, S2
Nugget pebblesnail	<i>Fluminicola seminalis</i>	—	—	FSS, S1S2
Montane peaclam	<i>Pisidium ultramontanum</i>	—	—	FSS, S1
Canary dusksnail	<i>Colligyrus convexus</i>	—	—	S1S2
California floater	<i>Anodonta californiensis</i>	FSC	—	FSS, S2?
Western ridged-shell	<i>Gonidea angulata</i>	—	—	S1S2
Western pearlshell	<i>Margaritifera falcata</i>	—	—	S1S2
Scalloped juga	<i>Juga occata</i>	—	—	FSS, S1
Great Basin rams-horn	<i>Helisoma newberryi</i>	—	—	FSS, S1S2
Kneecap lanx	<i>Lanx patelloides</i>	—	—	FSS, S2

Source: FERC 1999, Spring Rivers 2009b

- E = endangered
- FSS = Forest Service Sensitive
- S1 = Critically Imperiled in the state because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.
- S2 = Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state.
- S2? = By adding a “?” to this rank it represents more certainty than S2S3, but less certainty than S2.
- S3 = Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state.
- SFP = State fully protected
- SSC = State Species of Special Concern
- T = threatened

### **3.2.1.3 Shasta crayfish**

The Shasta crayfish is listed as endangered under the federal and CESAs. The species is endemic to California and is only known to occur in northeastern Shasta County (Eng and Daniels 1982). The majority of its population is currently located in the Fall River and Hat Creek drainages upstream of the Proposed Project area (USFWS 1998). The Shasta crayfish occurs in very low abundance within the Pit 1 Bypass Reach and is presumed extirpated from Fall River Pond directly upstream (PG&E 2013). This species is presumed to still occur at two locations in the Pit 1 Bypass Reach above the Pit River Falls (PG&E 2013; Spring Rivers 2008, 2011b). Shasta crayfish have also been found at the downstream end of the Pit 1 Bypass upstream of the Pit 1 Powerhouse tailrace, but this population has possibly been extirpated (Spring Rivers 2012a). One dead Shasta crayfish was found at this Lower Pit 1 Bypass location during surveys in the mid-1990s (USFWS 1998). The most current population estimate for the Shasta crayfish within the Bypass Reach is between 5 and 70 individuals (PG&E 2013). During the last comprehensive surveys, which were conducted in 2007 and 2009, one dead Shasta crayfish was observed in the Pit 1 Bypass Reach.

Shasta crayfish mate in the fall (September to October) after the final molt of the season (USFWS 1988), and the female attaches the eggs (1 to 70) to the underside of her abdomen or tail (USFWS 1998). The eggs hatch in mid-May to late July when the water warms slightly, and the immature larvae stay attached to the female until their third instar state, when they become free living at 5 to 7 millimeters in size (USFWS 1998). Both males and females become sexually mature at about 5 years of age.

Shasta crayfish habitat is characterized by clean lava boulder, cobble, and gravel substrate that is associated with spring flow areas (Eng and Daniels 1982, Daniels 1980). The substrate is typically free of fine material with little to no aquatic vegetation (Eng and Daniels 1982). Shasta crayfish are generally found in water that has little annual temperature variation (Eng and Daniels 1982). Shasta crayfish are typically associated with areas that experience minimal velocity, occurring in pools, runs, or along the margins of a river that are at least 1 foot deep (PG&E 2013). Shasta crayfish are associated with coldwater habitats, and based on various studies sponsored by PG&E (Spring Rivers 2009b), a range of mean daily temperatures have been identified as providing suitable habitat (PG&E 2013):

- Coldwater habitat < 15 to 17°C
- Marginally cold habitat 17.1 to 18°C
- Cool habitat 18.1 to 19°C

Within the Pit 1 Bypass Reach, Shasta crayfish have been identified in areas along the margins of the Pit River that are protected from the primary river current by large boulder substrate (PG&E 2013). They have also been found underneath layers of river substrate. Colder water and lower velocities occur in the river at locations where springs are present.

Both non-native crayfish species, signal crayfish and northern crayfish are known to occur within the Pit 1 Bypass Reach and are competitors for habitat/resources and predators of the Shasta crayfish. As indicated by various crayfish surveys from the 1990s to present, the numbers of non-native crayfish have increased throughout the Pit 1 Bypass Reach (PG&E 2013). For example, no northern crayfish were detected in the spring located below the Pit 1 Footbridge during surveys in the 1990s; however, 198 northern crayfish were counted during surveys in the mid-2000s. Similarly, between the mid to late 2000s, the number of signal crayfish located above the Pit River Falls, where Shasta crayfish are known to occur, nearly tripled (PG&E 2013).

### **Bald Eagle**

Bald eagles are present in the Proposed Project area, but the proposed changes in operations would not adversely affect this species. Thus, it is not addressed further in this document.

### **Northern Western Pond Turtle**

Northwestern pond turtles are known to be present in the Proposed Project area, particularly in the Big Eddy and the Fall River pond where it uses aquatic vegetation mats for basking (Spring Rivers 2011a). Upland habitat adjacent to the Pit River supports both nesting and over-wintering activity.

### **Foothill Yellow-Legged Frog**

Although observation records from 1978 indicate foothill yellow-legged frogs were in the Pit 1 Bypass Reach between Pit River Falls and Big Eddy (Daniels' 1978 unpublished field data, as cited in Spring Rivers 2017a), no foothill yellow-legged frogs or other special status amphibians were found within the Proposed Project area during annual surveys from 2004 through 2008 (PG&E 2011). Based on the 2004-2008 survey results, this species is not expected to be present and is not discussed further in this document.

### **Hardhead**

This native fish is present but not abundant in the Project Area. It is always associated with Sacramento pikeminnow and usually with the Sacramento sucker. The species prefers warm, clear, deep pools and runs with low water velocities over sand to boulder substrates (Moyle 2002).

### **Bigeye Marbled Sculpin**

The bigeye marbled sculpin is found in the Fall River and in the Pit River downstream of Lake Britton. The species resides in spring-fed streams and rivers with a low gradient and water temperatures below 20°C in the summer, preferring temperatures of 11 to 15°C (Moyle 2002). Due to the warm temperatures in the portions of the Fall River within the Proposed Project area, this species is not expected to be present and is not discussed further in this document.

### **Rough Sculpin**

Rough sculpins inhabit spring-fed tributaries to the Pit River, including the Fall River and Tule River. Some have also been collected in the Pit River and Lake Britton. The species prefers cool, rapidly flowing, deep water with temperatures of about 15°C (Moyle 2002). As with the bigeye marbled sculpin, warm water temperatures limit the presence of this species in the Proposed Project area. This species is not expected to be present and is not discussed further in this document.

### **Freshwater Invertebrates**

The three freshwater mussel species, California floater, western ridged-shell, and western pearlshell, are all known to occur in the Pit 1 Bypass Reach. The montane peaclam clam has been found in portions of the Proposed Project area. The canary duskysnail, nugget pebblesnail, scalloped juga, Great Basin rams-horn, and kneecap lanx have all been found in portions of the Proposed Project area. Most of these species are coldwater dependent and have a relatively narrow temperature tolerance range.

## **3.2.2 Regulatory Setting**

Federal, state, and local laws, regulations, policies, executive orders, and plans pertaining to the Proposed Project are discussed in this section.

### **3.2.2.1 *Federal***

#### **Endangered Species Act**

Pursuant to the federal ESA, the U.S. Fish and Wildlife Service (USFWS) has authority over projects that may result in take of a species listed as threatened or endangered under the act. "Take" is defined under the ESA, in part, as killing, harming, or harassing an individual of a species. Under federal regulations, take is further defined to include habitat modification or degradation that results, or is reasonably expected to result, in death or injury to wildlife by significantly impairing essential behavioral patterns,

including breeding, feeding, or sheltering. If the likelihood exists that a project would result in take of a federally listed species, either an incidental take permit under Section 10(a) of the ESA, or a federal interagency consultation under Section 7 of the ESA, is required.

On October 24, 2004, the USFWS issued a Biological Opinion for the operation of the Pit 1 Project. The Biological Opinion allowed for the incidental take of Shasta crayfish. The USFWS (2009), however, stated that the flushing flows were not considered in the 2004 Biological Opinion and “appropriate take authorization had not been obtained for this action.” In addition, the incidental take permit issued in the 2004 Biological Opinion expired in 2007 (USFWS 2009). Based on various monitoring efforts, the USFWS stated that flushing flows were reducing coldwater refugia for Shasta crayfish and requested that flushing flows be suspended. The USFWS also stated that the out-of-season flushing flows may be resulting in the take and contributing to the decline of the Shasta crayfish within the Bypass Reach (USFWS 2009).

On April 15, 2010, the State Water Board received a request from FERC to temporarily suspend the summer flushing flow requirements in the Project’s 401 Certification incorporated into the FERC Project license. On July 6, 2010, the State Water Board issued Order WQ 2010-0009-EXEC, which temporarily amended the 401 Certification to suspend summer flushing flows for 2 years (2010 and 2011). On August 10, 2010, FERC issued an order temporarily amending the license and incorporating the temporary amendment to the 401 Certification.

On March 22, 2012, PG&E submitted a letter requesting an extension of the suspension of summer flushing flows for one additional year for the Project to allow for implementation of the Shasta crayfish study plan and completion of the CEQA analysis. USFWS provided concurrence of support on July 19, 2012. On June 14, 2012, the State Water Board issued Order WQ 2012-0008-EXEC approving the temporary suspension of flushing flow requirements through 2012. PG&E issued the final Pit 1 Hydroelectric Project Shasta Crayfish Study Report on January 31, 2013.

On March 28, 2013, April 21, 2014, March 19, 2015, March 31, 2016, and April 18, 2017 PG&E submitted letters to the State Water Board requesting additional one-year extensions to the temporary suspension of Pit 1 Project summer flushing flows to allow time for the completion of the Draft EIR. USFWS provided letters of support on May 17, 2013, April 21, 2014, March 19, 2015, June 9, 2016, and June 13, 2017, respectively. On June 20, 2013, June 12, 2014, June 23, 2015, and June 28, 2016, respectively. The State Water Board issued Orders WQ 2013-0024-EXEC<sup>8</sup>, WQ 2014-0023-EXEC<sup>9</sup>, WQ 2015-0076-EXEC<sup>10</sup>, and WQ 2016-0072-EXEC<sup>11</sup>, approving the temporary suspension of summer flushing flow requirements through 2013, 2014, 2015, and 2016. FERC issued orders temporarily amending the license and incorporating the temporary amendments to the 401 Certification on June 27, 2013<sup>12</sup>, June 19, 2014<sup>13</sup>, June 24, 2015<sup>14</sup>, and July 19, 2016<sup>15</sup>, respectively. The State Water Board is currently processing an order in response to PG&E’s April 18, 2017, request for an additional one-year extension to the temporary suspension of summer flushing flows.

### **Shasta crayfish Recovery Plan**

The ESA, section 4(f), requires recovery plans to be developed and implemented for listed species, unless such a plan would not promote conservation of the species. The USFWS prepared a recovery Plan for the Shasta Crayfish in 1998 (USFWS 1998). The recovery plan outlines criteria for down-listing the species to “threatened” as well as achieving recovery/delisting. The recovery plan provides an approach to recover and/or to provide adequate protection for the Shasta crayfish. The objective of the recovery plan is to reduce threats, protect/restore habitat, and improve the population status of the Shasta crayfish to a level that would warrant delisting.

### **Fish and Wildlife Coordination Act**

The Fish and Wildlife Coordination Act (16 U.S.C. 661-667e), as amended in 1964, was enacted to protect fish and wildlife resources when federal actions result in the control or modification of a natural stream or body of water. The statute requires federal agencies to consider the effect that water-related



projects would have on fish and wildlife resources. Consultation and coordination with the USFWS and state fish and game agencies (e.g., CDFW) are required to address ways to prevent loss of and damage to fish and wildlife resources.

### **Federal Energy Regulatory Commission**

FERC issues preliminary permits and licenses to non-federal entities for the development of hydropower projects under its jurisdiction, including projects utilizing federal dams or other federal facilities where Congress has not authorized power development as a project purpose.

FERC issued PG&E a new license on March 19, 2003, that allowed for the continued operation of the Pit 1 Project. Pursuant to the new license and the 401 Certification, PG&E implemented the required flushing flows between 2003 and 2009.

As discussed above, at the request of the USFWS (2009), FERC submitted a letter to the State Water Board requesting that the 401 Certification for the Pit 1 Project be amended so summer flushing flows could be temporarily suspended. The State Water Board issued orders that temporarily suspended summer flushing flows from 2010 through 2016 while undergoing the CEQA process to analyze the effects of permanently suspending the flushing flow requirements. FERC, in turn, issued orders temporarily amending the Pit 1 Project License to suspend summer flushing flows.

### **FERC License Article 412**

License Article 412 required PG&E to develop a Shasta crayfish management plan in consultation with the USFWS, CDFW, California Department of Parks and Recreation (California Parks), and interested stakeholders within the Pit River drainage. The final management plan (PG&E 2003a) includes (1) Shasta crayfish monitoring within delineated habitat areas (FERC License Article 409), (2) signal crayfish removal/management, (3) tracking of CDFW's fish stocking program within the Pit 1 Project area, and (4) annual reporting.

### **FERC License Article 410**

License Article 410 required PG&E to establish a technical review committee (TRC) to assist PG&E in Shasta crayfish protection and recovery within the Pit 1 Project area. The TRC is composed of representatives from the USFWS, CDFW, California Parks, State Water Board, interested stakeholders, and PG&E. The TRC meets annually to discuss Shasta crayfish monitoring and survey efforts as well as any PG&E operations scheduled to occur that may impact this species. By May 31 of each year, PG&E provides an annual report to the TRC that summarizes activities that took place the previous year as part of the Shasta crayfish management plan (License Article 412).

### **FERC License Article 401(a)**

License Article 401(a) requires that PG&E monitor the effectiveness of the flushing flows that were designed to control aquatic vegetation and mosquito production in Fall River Pond. PG&E was required to conduct a monitoring program for the initial 5 years that flushing flows were implemented. PG&E developed the Flushing Flow Effectiveness Monitoring Plan (PG&E 2004) to address License Article 401 and its incorporation of Conditions 8, 13, and 14 of the 401 Certification issued by the State Water Board in 2001. The monitoring of summer flushing flows was initiated in 2005 and ended in 2009 when flushing flows were suspended. The State Water Board orders that temporarily suspended summer flushing flows from 2010 through 2016 require PG&E to continue monitoring the effectiveness of minimum instream flow releases at controlling aquatic vegetation in Fall River Pond during 2010-2016, following the methods described in the Flushing Flow Effectiveness Monitoring Plan.

### **3.2.2.2 State**

#### **California Endangered Species Act**

The CESA; California Fish and Game Code, Chapter 1.5) states that all native species or subspecies of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants that are threatened or endangered of becoming extinct will be protected and preserved. CESA further establishes that state agencies should not approve Proposed Projects that would jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available that would prevent jeopardy.

CESA also requires that reasonable and prudent alternatives be developed by CDFW, together with the project proponent (PG&E) and the state lead agency (State Water Board), consistent with conserving the species, while at the same time maintaining the project purpose to the greatest extent possible.

Under Section 2081 of the California Fish and Game Code, an incidental take permit from CDFW is required for projects that could result in the “take” of a species that has a designation of threatened or endangered. Under CESA, take is defined as an activity that would directly or indirectly kill an individual of a species. Habitat modification is not considered take under CESA.

#### **Section 401 of the Clean Water Act**

Under Section 401, the applicant for a federal permit or license for an activity that may result in a discharge to a water body is obligated to obtain a 401 Certification from the state that ensures that the proposed activity complies with state water quality standards.

The State Water Board issued PG&E a 401 Certification in December 2001 for the continued operation of the Pit 1 Project. Pursuant to the 401 Certification, PG&E implemented the required summer flushing flows between 2003 and 2009 to control aquatic vegetation in Fall River Pond. The suppression of aquatic vegetation also controls mosquito production by reducing the amount of breeding habitat for mosquitos. PG&E monitored surface aquatic vegetation on Fall River Pond, which remained below 10 percent surface aquatic vegetation cover, from 2005 through 2009. Condition 8 of the 401 Certification requires that PG&E make continuous flow releases from the Pit 1 Forebay into the lower Fall River (below Pit 1 Dam) and the Pit River. Minimum instream flows below the Fall River Weir must be 75 cfs between November 1 and November 15, 50 cfs between November 16 and May 15, 75 cfs between May 16 and May 31, and 150 cfs between June 1 and October 31. Condition 8 allows for a 10 percent deviation from the above listed minimum flows, but the monthly average daily flow must meet or exceed the minimum flow requirement. At no time is PG&E allowed to intentionally release less than the proposed flow except for public safety or other emergencies.

Condition 13 of the 401 Certification requires PG&E to release flushing flows to control aquatic vegetation growth and mosquito production in Fall River Pond. The flushing flows are required to be released during “one weekend in each of May or June, July and August to reduce nuisance aquatic growth and control mosquito populations in the Fall River Pond” (State Water Board 2010). The flushing flows were defined as 1,250 cfs. Due to potential impacts from the summer flushing flows on Shasta crayfish, however, summer flushing flows were suspended in 2010 – 2016 (State Water Board 2010, 2012, 2013, 2014, 2015a, and 2016).

Condition 14 of the 401 Certification requires PG&E to monitor the effectiveness of the summer flushing flows to control aquatic vegetation and mosquito populations in Fall River Pond. Monitoring occurred between 2005 and 2009, when it was determined that the summer flushing flows were potentially impacting the Shasta crayfish.

### **3.2.2.3 Local**

#### **Shasta County General Plan Objectives and Policies**

The Shasta County General Plan includes a list of sensitive and rare wildlife species known to occur within the county of Shasta (Shasta County 2004); the General Plan deems the health of these species' populations to be an important indicator of the net effect of the human community on the natural environment. Aquatic species included in this list that are known to occur within the Proposed Project include Shasta crayfish, rough sculpin, bigeye marbled sculpin, hardhead, pit roach, and northern western pond turtle. The General Plan includes various objectives and policies that were designed to protect these special status species. The objectives and policies that pertain to the Proposed Project include the following:

- **Objective FW-1.** Protection of significant fish, wildlife, and vegetation resources.
- **Policy FW-c.** Projects that contain or may impact endangered and/or threatened plant or animal species, as officially designated by the California Fish and Wildlife Commission [sic] and/or the USFWS, shall be designed, or conditioned to avoid any net adverse project impacts on those species. [Shasta County]

### **3.2.3 Environmental Impacts**

#### **3.2.3.1 Methodology**

The environmental analysis for biological resources was based on the review of existing Project-related documents. The effects of the Proposed Project were compared to the environmental baseline or existing conditions (out-of-season flushing flows) to determine impacts.

#### **3.2.3.2 Significance Criteria**

Project evaluation criteria and the mandatory findings of significance as explained in CEQA Guidelines Appendix G indicate that the Proposed Project would have a significant effect on biological resources if it would:

- 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 CDFW or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- 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.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.
- Have a substantial effect on common species or their habitat that would result in ecological change.

#### **3.2.3.3 Impacts**

##### **Special Status Species**

Impact	Determination
<b>BIO-1:</b> 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 CDFW or USFWS?	Beneficial

### Invertebrates

The Proposed Project would not alter water temperatures beyond temperature levels that were recorded during Pit 1 Project operations under the previous license before the introduction of flushing flows in 2005. The minimum instream flows defined by License Article 401 would not inundate coldwater habitat to a point where water temperatures are detrimental to the Shasta crayfish or special status invertebrates listed in Table 3.2-2.

Various studies and monitoring efforts (PG&E 2013, Spring Rivers 2009a) have shown that flushing flows have a potential to significantly impact Shasta crayfish within the Pit 1 Bypass Reach. It has been shown that the summer flushing flows:

- Cause rapid and substantial changes in temperature and reductions in the area of thermal refugia habitat;
- Increase daily average water temperature in the Pit 1 Bypass Reach of the Pit River;
- Reduce or eliminate the effects of fluctuating day-to-night air temperatures (i.e., diel temperature fluctuations);
- Reduce or eliminate essential thermal refugia habitat; and
- Increase dispersal and survivorship of non-native crayfish.

Based on warm summer water temperatures in the lower Fall River, summer flushing flows were predicted to impact water temperatures within the Pit 1 Bypass Reach (Spring Rivers 2009b). The primary concern was that these flows would reduce and/or eliminate important coldwater habitat for the Shasta crayfish and other coldwater dependent species. To determine potential impacts of summer flushing flows on coldwater habitat, water temperature sensors were installed near a spring located upstream of the Pit 1 Powerhouse. Water temperature data were collected from August 26 through September 1, 2004, during both base and summer flushing flow events.

Water temperature data collected outside of the influence of this spring upstream of the Pit 1 Powerhouse tailrace indicated that the mainstem of the Pit River was 19.8°C at a base flow of 277 cfs. During a summer flushing flow of 977 cfs, water temperatures in the mainstem of the river increased to 21.5°C. The water temperatures of the plume from the spring were also sampled. At the base flow of 277 cfs, the coldwater plume downstream of the spring ranged from 15.6 to 19.5°C with more than half of the plume at 16°C. At the flushing flow of 977 cfs, the plume temperature ranged from 17 to 20.1°C with half of the plume at 19°C (Spring Rivers 2009b). There were also approximately 560 square feet of coldwater habitat that ranged from 15 to 17°C at the base flow. During the summer flushing flow, the amount of coldwater habitat at this same temperature range was reduced to 56 square feet (Spring Rivers 2009b).

PG&E has verified the above information using jet/plume theoretical formulae (Fisher et al. 1979, as cited in Appendix B in Spring Rivers 2009c) to predict the impact that summer flushing flows have on coldwater habitat. The analysis showed that summer flushing flows significantly reduced coldwater habitat availability (Appendix B in Spring Rivers 2009c). At a base flow of 277 cfs, the analysis predicted that both coldwater habitat (<15 to 17°C) and marginally coldwater habitat (17.1 to 18°C) were available. During summer flushing flows, however, the coldwater habitat was eliminated and the amount of marginally coldwater habitat was significantly reduced. As a result, coldwater habitat created by spring accretion that flowed in the Pit River was reduced.

Water temperature data collected during the 1990–1992 and 2004–2011 monitoring periods showed that the implementation of minimum instream flow releases from the Fall River into the Pit 1 Bypass Reach has resulted in a noticeable increase in water temperatures during the July/August time period at the Pit River Falls and near the Pit 1 Footbridge. From 1990 to 1992, the average water temperature at the Pit River Falls was 19.8°C. Between 2003 and 2011, the average temperature at this same location rose to 21.0°C, an increase of 1.2°C. Water temperatures near the footbridge increased from 18.4°C to 20.2°C during this same time period (Table 3.2-3). There was no noticeable change in water temperatures near the sample station located upstream of the Pit River Falls (PG&E 2013).

**Table 3.2-3 Average Water Temperatures for the July/August Time Period, Based on Daily Mean Water Temperatures, at Three Sampling Stations Located within the Pit 1 Bypass Reach**

Sample Location	1990–1992 July/Aug Water Temperature Average	2004–2011 July/Aug Water Temperature Average	Post 2003 Flow Regime Temperature Change
Big Eddy	22.1°C	22.2°C	Increase 0.1°C
Pit River Falls	19.8°C	21.0°C	Increase 1.2 °C
Pit 1 Footbridge	18.4°C	20.2°C	Increase 1.8 °C

Source: PG&E 2013

During summer flushing flows in July and August 2009, water temperature monitoring documented the resultant increase in water temperature and loss of thermal refugia habitat. Summer flushing flows increased the maximum daily water temperatures observed and resulted in rapid and substantial changes in water temperature within the area influenced by coldwater springs. In the mainstem habitat, summer flushing flows in the Pit 1 Bypass Reach muted the maximum and minimum daily water temperatures and eliminated diel (within a 24-hour period) thermal refugia (PG&E 2011).

When summer flushing flows do not occur, air temperature has a major influence on daily water temperatures. During a summer flushing flow event, however, nighttime water temperatures do not decrease as they would under non-flushing flow conditions (PG&E 2013). As a result, the fluctuation of daytime and nighttime water temperatures was significantly minimized, reducing or eliminating nighttime thermal refugia.

Whitewater boating flow releases under the Proposed Project would occur during October, when average water temperatures are cooler. As a result, whitewater boating flows would not inundate coldwater habitat or significantly increase average water temperatures as seen under operations with summer flushing flows. Diel fluctuations would be maintained and essential coldwater refugia would be available for Shasta crayfish to occupy. As a result, when compared to the existing Pit 1 Project operations, whitewater boating flow releases in October as proposed would result in a beneficial impact to the Shasta crayfish.

#### **Northern Western Pond Turtle and Hardhead**

The northern western pond turtle and hardhead would benefit from warmer water temperatures. However, flushing flows during summer months are more likely to force both species to lesser quality habitat, increase exposure to predation, increase the potential for stranding of hardhead, and inundate pond turtle basking sites making it more difficult for them to thermo-regulate. The Proposed Project would involve whitewater boating flow releases in October when northern western pond turtles are typically in upland habitat over-wintering. Hardhead body size would also be larger than during summer months making them less likely to get trapped or stranded during higher flows. When compared to existing Pit 1 Project conditions, the Proposed Project would have a beneficial impact on both species.

### Riparian Habitat

Impact	Determination
<b>BIO-2:</b> Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW and USFWS?	Less than significant

The elimination of flushing flows during summer months would ensure that riparian habitats along the margins of the Pit River within the Pit 1 Bypass Reach are not inundated during critical periods of the vegetative growing season. Similarly, elimination of summer flushing flows would have minimal effects on riparian vegetation along the margins of Fall River Pond. Implementing whitewater boating flow releases in October would have minimal effects on riparian vegetation because growth is reduced at this time of year due to shorter day length and cooler temperatures. In addition, some tree species transition into winter dormancy. Therefore, impacts related to riparian habitat would be less than significant.

### Wetlands

Impact	Determination
<b>BIO-3:</b> Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Less than significant

The Proposed Project does not include any construction activity that involves the dredge or fill of jurisdictional wetlands or the alteration of a jurisdictional waterway. As described in the Hydrology/Water Quality section, the Proposed Project would eliminate summer flushing flows and implement October whitewater boating flows of similar magnitude. As such, the hydrological change entailed by the Proposed Project is a change in the timing of flow releases from summer to October and is not anticipated to impact wetlands. The Proposed Project does not entail water withdrawals, water impoundment, or discharge of substances to the water. As a result, the Proposed Project would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA and impacts are less than significant.

### Movement of Native Resident or Migratory Fish or Wildlife Species

Impact	Determination
<b>BIO-4:</b> 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?	Beneficial

The Proposed Project would not have a substantial adverse effect on the movement of any native resident or migratory fish or wildlife species or interfere with their use of nursery sites. The minimum instream flows required under Article 402 in the license provide a flow regime that is conducive to supporting aquatic resources within the Pit 1 Bypass Reach.

Surveys conducted between 2005 and 2009 of the Pit 1 Project found that the Shasta crayfish population in the Pit 1 Bypass Reach declined substantially, while populations of non-native crayfish increased (Spring Rivers 2011a; PG&E 2011). A total of 21 Shasta crayfish were identified in 2005 near the Pit River Falls. In 2008, at the same location, only one dying Shasta crayfish was detected. During these same years, the number of signal crayfish nearly tripled, while the number of northern crayfish doubled. Although these survey results may be an artifact of difficult survey conditions (e.g., turbid water, large boulder substrate, high water velocities) a significant decline in Shasta crayfish numbers was recorded.

The elimination of summer flushing flows in the Pit 1 Bypass Reach may reduce the dispersal of non-native crayfish that are direct competitors/predators of the Shasta crayfish, however, the October whitewater boating flows have a similar potential for dispersal. Both the signal and northern crayfish species are more tolerant of water temperature fluctuations and have the ability to occur in habitats that experience a wider range in water temperatures. Summer flushing flows affect Shasta crayfish by rapidly reducing the amount of available coldwater habitat normally produced by coldwater springs, increasing daily average water temperatures, and eliminating daily temperature fluctuations and cooler nighttime water temperatures. (PG&E 2013). When compared to summer flushing flows, the October whitewater boating flows would have less of an impact on daily average water temperatures, and would help maintain daily water temperatures fluctuations that offer critical nighttime refugia to the Shasta crayfish.

When compared to the Pit 1 Project operations required under the license, the Proposed Project would have a beneficial impact on both the northern western pond turtle and hardhead. While both the northwestern pond turtle and hardhead would benefit from warmer water temperatures, flushing flows during summer months are more likely to force both species to lesser quality habitat, increase exposure to predation, increase the potential for stranding of hardhead, and inundate pond turtle basking sites making it more difficult for them to thermo-regulate. The October whitewater boating flows implemented as part of the Proposed Project would not affect northern western pond turtles, which are typically in upland habitat over-wintering by October. Hardhead would also be less affected by the Proposed Project whitewater boating flow releases, as their body size would be larger in October than during summer months, making them less likely to become trapped or stranded during higher flows.

Overall, the Proposed Project would not interfere 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. The elimination of flushing flows in the summer and implementation of October whitewater boating flows would have a beneficial impact to Shasta crayfish and other aquatic species in the Pit 1 Bypass Reach as discussed above.

**Local Policies and Ordinances**

Impact	Determination
<b>BIO-5:</b> Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	No impact

The Proposed Project does not conflict with local policies or ordinances designed to protect biological resources. Suspending summer flushing flows would ensure that Shasta County General Plan (2004) objective FW-1 and policy FW-c are met. Objective FW-1 requires the protection of “significant fish, wildlife, and vegetation resources.” Permanently suspending summer flushing flows would preserve coldwater refugia for aquatic invertebrates that include the Shasta crayfish, California floater, and montane peaclam. Daily fluctuations in water temperatures would also be restored and improve the availability of coldwater habitat.

Shasta County General Plan policy FW-c requires projects to “avoid any net adverse project impacts” on threatened or endangered species. The minimum instream flows required as part of the 401 Certification that the State Water Board issued to PG&E in 2001 for the continued operation of the Pit 1 Project would provide sufficient flows in the Pit 1 Bypass Reach. Therefore, there are no conflicts with any local policies or ordinances protecting biological resources and no impacts would occur.

### Adopted Conservation Plans

Impact	Determination
<b>BIO-6:</b> Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	No impact

The Pit 1 Bypass Reach is not located within a habitat conservation plan, natural community conservation plan, or any other local, regional, or state habitat conservation plan area. Therefore, no impacts would occur.

### Ecological Change

Impact	Determination
<b>BIO-7:</b> Have a substantial effect on common species or their habitat that would result in an ecological change?	Less than significant

The elimination of summer flushing flows and implementation of October whitewater boating flows would benefit coldwater dependent species such as the rainbow trout and western pearlshell. The change in the timing of flow releases from summer to October would eliminate the warming that occurs during summer flushing flows. Water temperatures would be much cooler in Fall River Pond in October when compared to water temperatures in July and August. Unlike the summer flushing flows, the October whitewater boating flows would not inundate coldwater refugia with warmer water or increase daily average water temperatures. Fluctuation in day-to-night air and water temperatures would be better maintained.

The October whitewater boating flows could still result in the stranding or trapping of common species. However, based on a stranding fish study conducted in 2006 (R2 2006), the number of fish that were stranded was determined to be negligible. A total of 37 fish, primarily common species (i.e., largemouth bass and green sunfish), were stranded. It was also estimated that during summer months, when fish are smaller, they would be more prone to being trapped when compared to fall months when they fish are larger and more capable of escaping high water velocities. As a result, the Proposed Project would have a less than significant impact on common species that occupy the Pit 1 Bypass Reach (Table 3.2-1).

## 3.3 Cultural Resources

This section describes existing environmental and regulatory setting for cultural resources, and identifies potential impacts of the Proposed Project on cultural resources.

### 3.3.1 Environmental Setting

The environmental setting and affected environment within the Proposed Project area are summarized from documents prepared by Far Western (2010) and other existing published literature. Primary data sources include the following:

- Data Recovery Excavations at CA-SHA-3643/H at the Pit 1 Weir Access at Cassel Bridge, Fall River Mills, Shasta County, California (Far Western Archaeological Group 2010)
- 2008 Archaeological Site Monitoring, Pit 1 Hydroelectric Project (FERC No. 2678) (Albion Environmental, Inc. 2009)
- 2009 Archaeological Site Monitoring, Pit 1 Hydroelectric Project (FERC No. 2678) (Albion Environmental, Inc. 2010)
- 2012 Archaeological Site Monitoring, Pit 1 Hydroelectric Project (FERC No. 2678) (Albion Environmental, Inc. 2013)



The Proposed Project area is in Fall River Valley in Shasta County near the eastern boundary of the Cascade Range and the western margins of the Modoc Plateau. The landscape is characterized by a mosaic of lakes, streams, marshes, and open grassland, surrounded by prominent volcanic features like Mount Shasta, which dominates the mountains to the northwest. Mixed-conifer/oak woodland, with river-associated areas of riparian and lacustrine vegetation (e.g., willows, marshes), predominate the Project area.

### **3.3.1.1 Prehistory**

As stated Far Western study (2010), the Proposed Project's surrounding region exhibits a complexity of Sierra Nevada, Great Basin, Southern Cascade, and Central Valley cultural influences. Regional sites extend from the Early Archaic to the Emergent, dating from 7,500 years ago to the historic period. Dated components have been identified at a number of excavated sites, as material for radiocarbon dating along with diagnostic projectile points are present at habitation and shell midden sites, and most sites contain abundant obsidian for hydration and source analyses.

Researchers have identified four distinct prehistoric site types within the Pit River/Fall River region: Habitation/Village (small or large) with features, Deep Lithic Scatters (greater than one meter deep), Shallow Lithic Scatters (less than one meter deep), and Shell Middens without features. In addition, many regional locations have been identified as Traditional Cultural Properties, which include sacred areas, resource procurement areas, village sites, and named places.

### **3.3.1.2 Ethnography**

The Pit River Tribe is a federally recognized tribe of eleven bands living primarily along the Pit River. The traditional territory of the Pit River Tribe encompassed a somewhat square area between Mount Shasta, Goose Lake, Lassen Peak, and Shaefer Mountain in the northeastern portion of California. The Ajumawi band of the Pit River Tribe occupied Fall River Valley, with lands extending up into the Medicine Lake Highlands. Nine independent tribelets have been recognized among the Ajumawi, each of which "functioned as an autonomous political unit, though socially they were connected by intermarriage and by the consciousness that they spoke a common language not shared by their neighbors."

### **3.3.1.3 Social Organization and Land Use**

Before European contact, the Pit River communities consisted of clusters of villages made up of related people, often under the leadership of one man. Land ownership was often expressed in terms of these clusters, although there was individual ownership of specific valuable resources such as oak groves, fishing holes, and ponds frequented by geese.

Subsistence focused on the Pit River and the adjacent valleys. Locally important resources were plentiful, and included salmon, suckers, shellfish, acorns, sugar pine nuts, waterfowl, deer, and various berries. Native fishermen built stone fish traps within the area for hundreds of years. Some of these traps are still used today and others are an important part of the local archaeological record. Family groups dispersed to hunt waterfowl in the swampy valleys in the spring, spent the summer along the Pit River, and in autumn went to the hills to hunt and collect acorns, epos root (i.e. an edible root of a flowering plant in the carrot family), and pine nuts before returning to sheltered valley wintering grounds. Due to the severity of winters, the winter houses were sturdy semi-subterranean, multi-family lodges. Summer housing was more informal, and at most consisted of a single-family, thatch-covered structure.

The bands had variable relationships with their neighbors, but since village and band exogamy were encouraged, adjacent bands were likely to be closely related by marriage. Political alliances were important in warfare, as groups had to travel across adjacent lands to trade and to procure distant resources such as obsidian. Relations with non-Pit River neighbors, though often volatile, included trade with the Yana and Wintu for valley resources; with the Modoc for furs, bows, and dentalia shells (i.e. marine tusk shell) and with the related Atsugewi people for epos roots and seeds.

### **3.3.1.4 Local Archaeological Resources**

In 1974, archaeological surveys were conducted along the waterways in and around the Fall River Valley for the Pit 1 Project, and recorded 102 prehistoric sites. The majority of sites were habitation with the remainder identified as “campsites.” Associated village features included bedrock mortars, petroglyphs, house pits, rock rings, ash lenses, and human interments. Additionally, numerous historic structures and prehistoric sites are recorded in the Proposed Project area, particularly along the Pit 1 Bypass Reach and around the Pit 1 Forebay.

As part of the Phase 1 whitewater boating flows study, PG&E conducted an archaeological survey along the Pit 1 Bypass Reach from Fall River Mills to the Pit 1 Powerhouse tailrace. This area includes the traditional lands of the Ajumawi and Ilmawi bands of the Pit River Tribe, with Ajumawi concerns primarily above the Pit River Falls, and Ilmawi concerns downstream of the falls. Two major settlement areas, the villages of Wennehahle and Dawchtahpit, are known to be present in the canyon, along with a prime resource procurement spot and spiritual place, or “Place in Myth,” known as Tatsuhani. The canyon is considered a “power place” and is very important spiritually to some local tribal people. (Spring Rivers 2011a)

### **3.3.1.5 Fall River Mills**

Fall River Valley is roughly 120 square miles (78,000 acres, including 12,000 acres of drained swamp land). While cattlemen used the valley as stock range before 1867, that year more farmers arrived and began growing barley, oats, wheat, hay, and vegetables. Natural water power provided by an abrupt drop of Fall River into the Pit River made Fall City (i.e. Fall River Mills) an ideal site for industry. By the early 1880s, Fall City was the main agricultural and industrial focus of eastern Shasta County. Settlement was encouraged by the rumors that the railroad was planning to build a line connecting Fall City with Redding. Settlers were also drawn to the valley by the free land available for homesteading. While a land “boom” never occurred, a continuous trickle of people entered the valley, claimed land, and built homes throughout the 1880s. John McArthur was among the largest ranchers to purchase land holdings, beginning in 1868. The family established the town of McArthur, situated northeast of the Pit 1 Project area. Like others in the late 1800s, they constructed canals to divert drainage water into the Pit River, as well as to take water from the Tule River to irrigate their fields.

As PG&E was planning for the Pit 1 Powerhouse in the early 1920s, they began working with local ranchers, such as the McArthur and the Knoch families. PG&E also began purchasing water rights and land in the valley. A circa 1922 plan of Fall River Mills shows two weirs in the Fall River below Bridge Street. A flume leading from the Fall River carried water to the PG&E Fall River Plant at the confluence of the Fall and Pit rivers. Although not shown on the plan a diversion, known as the Knoch pipe, had been in place as early as 1914.

A 1923 plan of the diversion depicted a canal taking water from the north bank of the Fall River just below Bridge Street. This canal diverted water for the old powerhouse and the Knoch pipe and ditch. At the north end of the canal on the north side of Main Street was a flume that went off to the east, a ditch that carried water off to the northwest, and Knoch’s 22-inch-diameter pipe leading off to the east-northeast. A weir in the Fall River just below the canal entrance apparently kept the river’s elevation sufficiently high to keep water flowing into the canal.

Water from the canals went into two ditches, one irrigated lands north of the river and one irrigated lands south of the river supported by a pipeline spanning the Pit River. The one to the north used less water, while the southern ditch was important to the continued operations of the Knoch ranch.

The Pit 1 Hydroelectric Project requires a certain water elevation to be maintained in the Fall River. When PG&E began running the Pit 1 Powerhouse in 1922, the power output was lower than anticipated because of the water diversions of the McArthur family for irrigation. The company bought much of the McArthurs’ land and water rights in 1924. The Knoch family also owned significant water rights and land,

but instead of selling, they began a permanent relationship with PG&E for both the maintenance of their water rights and the lease of PG&E-acquired lands for pasture.

In 1939, 1,103 feet of 22-inch-diameter pipe was replaced in the Knoch pipeline. In exchange for limiting Knoch's water rights, PG&E agreed to maintain his pipeline across the Pit River. Today the Knoch Diversion and Canal continue to deliver water from the Fall River to the Knoch family for their ranching operation. The diversion is much as similar to how PG&E designed it in the early 1920s.

### **3.3.2 Regulatory Setting**

Federal, state, and local laws, regulations, and policies pertaining to cultural resources and the Proposed Project are discussed in this section.

#### **3.3.2.1 *Federal***

##### **National Environmental Policy Act**

The National Environmental Policy Act (NEPA) establishes the federal policy of protecting important historic, cultural, and natural aspects of our national heritage during federal project planning. All federal or federally-assisted projects requiring action pursuant to Section 102 of the act must take into account impacts on cultural resources (42 U.S.C. §§ 4321–4347).

The Council on Environmental Quality (CEQ) Guidelines provided a standard for determining the significance of impacts analyzed under NEPA. "Significance" as used in NEPA requires considering impacts in terms of both context and intensity (40 C.F.R. § 1508.27).

"Context" means that the action must be analyzed in terms of society as a whole, the affected region and interests, and the local setting. The span of the context should be scaled to match the action. For larger actions a wider context is appropriate. For smaller site-specific actions the local context may be sufficient. Both the short- and long-term impacts of an action are relevant to this analysis (40 C.F.R. § 1508.27(a)).

"Intensity" means the severity of an impact. The CEQA Guidelines direct federal agencies to consider cultural resources when evaluating intensity. Specific factors that may affect the intensity of an impact include the proximity to historical or cultural resources, the potential for impacts on National Register of Historic Places (NRHP)-eligible or listed properties and the potential for loss or destruction of significant scientific, cultural, or historical resources (40 C.F.R. § 1508.27(b)).

Collectively, these considerations mean that NEPA analysis should identify the potential for an action to adversely affect resources that are or may be eligible for listing on the NRHP.

##### **Section 106 of the National Historic Preservation Act of 1966**

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires federal agencies to consider the effects of their actions on historic properties (16 U.S.C. § 470f). Historic properties are resources listed on or eligible for listing on the NRHP (36 C.F.R. § 800.16(l)(1)). A property may be listed in the NRHP if it meets criteria provided in the NRHP regulations (36 C.F.R. § 60.4).

The National Register criteria for evaluation (36 C.F.R. § 60.4) are as follows:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, association (discussed further in Section 18.2.2.1), and:

- (A) That are associated with events that have made a significant contribution to the broad patterns of our history;
- (B) That are associated with the lives of persons significant in our past;

- (C) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess artistic value, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (D) That have yielded, or may be likely to yield, information important in prehistory or history.

Some property types do not typically qualify for the NRHP; however, these properties may qualify if they fall into one or more of the following criteria considerations. These considerations consist of the following:

- A religious property deriving primary significance from architectural or artistic distinction or historical importance;
- A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event;
- A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life;
- A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events;
- A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived;
- A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
- A property achieving significance within the past 50 years if it is of exceptional importance.

The Section 106 review process typically consists of the following major steps:

- Identify the federal agency undertaking.
- Initiate Section 106 process.
- Identify historic properties.
- Assess adverse effects.
- Resolve adverse effects.

The Section 106 regulations define an adverse effect as an effect that alters, directly or indirectly, the qualities that make a resource eligible for listing in the NRHP (36 C.F.R. § 800.5A(a)(1)). Consideration must be given to the property's location, design, setting, materials, workmanship, feeling, and association, to the extent that these qualities contribute to the integrity and significance of the resource. Adverse effects may be direct and reasonably foreseeable, or may be more remote in time or distance (36 C.F.R. § 8010.5(a)(1)).

Under section 304(a) of the NHPA, “[t]he head of a Federal agency ... shall withhold from disclosure to the public, information about the location, character, or ownership of a historic resource if the Secretary and the agency determine that disclosure may ... risk harm to the historic resources ...”

### **Native American Graves Protection and Repatriation Act**

The Native American Graves Protection and Repatriation Act (NAGPRA) provides a process for federal agencies to return certain Native American cultural items to lineal descendants and culturally affiliated Indian tribes. NAGPRA defines the ownership of Native American human remains and funerary materials

excavated on lands owned or controlled by the federal government. NAGPRA establishes a hierarchy of ownership rights for Native American remains identified on these lands (25 U.S.C. § 3002(a)):

- Where the lineal descendants can be found, the lineal descendants own the remains.
- Where the lineal descendants cannot be found, the remains belong to the Indian tribe or Native Hawaiian organization on whose land the remains were found.
- If the remains are discovered on other lands owned or controlled by the federal government and the lineal descendants cannot be determined, the remains belong to the Indian tribe or Native Hawaiian organization that is culturally affiliated with the remains, or the tribe that aboriginally occupied the land where the remains were discovered.
- Under NAGPRA, intentional excavation of Native American human remains on lands owned or controlled by the federal government may occur (25 U.S.C. § 3002(c)) only under the following circumstances:
  - With a permit issued under the Archaeological Resources Protection Act (16 U.S.C. § 470cc); and;
  - After documented consultation with the relevant tribal or Native American groups.
- Ownership and disposition follows NAGPRA for all human remains and associated artifacts.

NAGPRA also provides guidance on inadvertent discoveries of Native American or Hawaiian human remains on lands owned or controlled by the federal government. When an inadvertent discovery on these lands occurs in association with construction, construction must cease. The party that discovers the remains must notify the relevant federal agency, and the remains must be transferred according to the ownership provisions above (25 U.S.C. § 3002(d)).

### **The Archaeological Resources Protection Act**

The Archaeological Resources Protection Act (ARPA) requires a permit for intentional excavation of archaeological materials on federal lands (16 U.S.C. § 470 ee (a)). The federal agency that owns or controls the land may dispense permits for excavation as provided in the ARPA regulations (43 C.F.R. § 7.5). The permit may require notice to affected Indian tribes (43 C.F.R. § 7.7), and compliance with the terms and conditions provided in the ARPA regulations (43 C.F.R. § 7.9).

#### **3.3.2.2 State**

##### **California Environmental Quality Act**

Under CEQA, public agencies must consider the effects of their actions on both “historical resources” and “unique archaeological resources.” As stated in Public Resources Code section 21084.1, a “project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.” Public Resources Code section 21083.2 requires agencies to determine whether Proposed Projects would have effects on “unique archaeological resources.”

“*Historical resource*” is a term with a defined statutory meaning (Pub. Resources Code, § 21084.1 and Cal. Code Regs., tit. 14, § 15064.5, subd. (a)). The term embraces any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR). The CRHR includes resources listed in or formally determined eligible for listing in the NRHP, as well as some California State Landmarks and Points of Historical Interest.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be “historical resources” for purposes of CEQA (Pub. Resources Code, § 5024.1 and Cal. Code Regs., title 14, § 4850). Unless a resource listed in a survey has

been demolished, lost substantial integrity, or a preponderance of evidence indicates that it is otherwise not eligible for listing, a lead agency should consider the resource to be potentially eligible for the CRHR.

In addition to assessing whether historical resources potentially impacted by a Proposed Project are listed or have been identified in a survey process (Pub. Resources Code, § 5024.1, subd. (g)), lead agencies have a responsibility to evaluate them against the CRHR criteria prior to making a finding as to a Proposed Project's impacts to historical resources (Pub. Resources Code, § 21084.1 and Cal. Code Regs., title 14, § 15064.5, subd. (a)(3)). Following California Code of Regulations, title 14, section 15064.5, subdivision (a), a historical resource is defined as any object, building, structure, site, area, place, record, or manuscript that:

- Is historically or archeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political or cultural annals of California; and meets any of the following criteria:
  - Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
  - Is associated with the lives of persons important in our past;
  - Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
  - Has yielded, or may be likely to yield, information important in prehistory or history.

Public Resources Code section 5024 also requires consultation with the Office of Historic Preservation (OHP) when a project may impact historical resources located on state-owned land.

For historic structures, California Code of Regulations, title 14, section 15064.5, subdivision (b)(3) states that a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995) would mitigate impacts to a less-than-significant level. Potential eligibility also rests upon the integrity of the resource. Integrity is defined as the retention of the resource's physical identity that existed during its period of significance. Integrity is determined through considering the setting, design, workmanship, materials, location, feeling, and association of the resource.

As noted above, CEQA also requires lead agencies to consider whether projects would impact unique archaeological resources. Public Resources Code section 21083.2, subdivision (g) states that a *unique archaeological resource* means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, a high probability exists that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; and/or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Treatment options under Public Resources Code section 21083.2 include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a unique archaeological resource).

Advice on procedures to identify cultural resources, evaluate their importance, and estimate potential effects is given in several agency publications such as the series produced by the Governor's Office of

Planning and Research. The technical advice series produced by this office strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities including, but not limited to, museums, historical commissions, associations and societies, be solicited as part of the process of cultural resources inventory. In addition, California law protects Native American burials, skeletal remains, and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains.

California Health and Safety Code section 7050.5, subdivision (b) specific protocols when human remains are discovered as follows:

In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

California Code of Regulations, title 14 (CEQA Guidelines), section 15064.5, subdivision (e) requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission (NAHC) must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the NAHC. CEQA Guidelines section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the CEQA Guidelines also require a lead agency to make provisions for the accidental discovery of historical or archaeological resources. Pursuant to CEQA Guidelines section 15064.5, subdivision (f), these provisions should include “an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place.” Public Resources Code section 5024 requires consultation with the OHP when a project may impact historical resources located on state-owned land.

Paleontological resources are classified as nonrenewable scientific resources and are protected by state statute (Pub. Resources Code, section 5097.5, Archeological, Paleontological, and Historical Sites and Appendix G). No state or local agencies have specific jurisdiction over paleontological resources. No state or local agency requires a paleontological collecting permit to allow for the recovery of fossil remains discovered as a result of construction-related earth moving on state or private land in a project site.

### **Mitigation Requirements for Archaeological Resources Qualifying As Historical Resources**

As set forth in CEQA Guidelines section 15064.5, subdivision (c), special rules apply where a lead agency is not certain at first whether an archaeological resource qualifies as either an “historical resource” or a “unique archaeological resource.” That section provides that “[w]hen a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource.” “If a lead agency determines that the archaeological site is an historical resource,” the resource shall be

subject to the rules set forth above regarding historical resources. In addition, according to CEQA Guidelines section 15126.4, subdivision (b):

[p]ublic agencies should, whenever feasible, seek to avoid damaging effects on any historical resource of an archaeological nature. The following factors shall be considered and discussed in an EIR for a project involving such an archaeological site:

- (A) Preservation in place is the preferred manner of mitigating impacts to archaeological sites. Preservation in place maintains the relationship between artifacts and the archaeological context. Preservation may also avoid conflict with religious or cultural values of groups associated with the site.
- (B) Preservation in place may be accomplished by, but is not limited to, the following:
  1. Planning construction to avoid archaeological sites;
  2. Incorporation of sites within parks, greenspace, or other open space;
  3. Covering the archaeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site.
  4. Deeding the site into a permanent conservation easement.

Thus, although Public Resources Code section 21083.2, in dealing with unique archaeological sites, provides for specific mitigation options “in no order of preference,” CEQA Guidelines Section 15126.4, subdivision (b), in dealing with “historical resources of an archaeological nature,” provides that “[p]reservation in place is the preferred manner of mitigating impacts to archaeological sites.”

For archaeological resources that qualify as historical resources, data recovery is a disfavored form of mitigation compared with preservation in place. Yet “[w]hen data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provisions for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken. Such studies shall be deposited with the California Historical Resources Regional Information Center.” (CEQA Guidelines, § 15126.4, subd. (b)(3)(C).) Moreover, “[i]f an artifact must be removed during project excavation or testing, curation may be an appropriate mitigation” (*Ibid.*). “Data recovery shall not be required, however, for an historical resource [as with a unique archaeological resource] if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center” (*Id.*, subd. (b)(3)(D)).

With respect to *both* historical resources and unique archaeological resources, CEQA Guidelines, section 15064.5, subdivision (f) states:

[A] lead agency should make provisions for...resources accidentally discovered during construction. These provisions should include an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place.

### **Mitigation for Unique Archaeological Resources**

If a lead agency determines that “an archaeological site does not meet the criteria” for qualifying as an historical resource “but does meet the definition of a unique archeological resource..., the site shall be treated in accordance with the provisions of section 21083.2” (Pub. Resources Code, § 21083.2). Section 21083.2 contains the special rules for mitigation for “unique archaeological resources.” These rules do not



apply if the archaeological resource is an historical resource (CEQA Guidelines, § 15064.5, subd. (c)(1)). Public Resources Code § 21083.2, subdivision (b) states:

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. Examples of that treatment, in no order of preference, may include, but are not limited to, any of the following:

1. Planning construction to avoid archaeological sites.
2. Deeding archaeological sites into permanent conservation easements.
3. Capping or covering archaeological sites with a layer of soil before building on the sites.
4. Planning parks, greenspace, or other open space to incorporate archaeological sites.

(Pub. Resources Code, § 21083.2, subd. (b).)

Excavation as mitigation shall be restricted to those parts of the unique archaeological resource that would be damaged or destroyed by the project. Excavation as mitigation shall not be required for a unique archaeological resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource, if this determination is documented in the Environmental Impact Report.

(*Id.*, subd. (d).)

If, however, “an archaeological resource is neither a unique archaeological nor an historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Initial Study or EIR, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process” (CEQA Guidelines, § 15064.5, subd. (c)(4)).

### **California Public Resources Code, Duties of State Agencies**

California state agencies must provide the OHP an inventory of all state-owned structures older than 50 years of age under its jurisdiction that are listed in or that may be eligible for inclusion in the NRHP or are registered or that may be eligible for registration as a state historical landmark (Pub. Resources Code § 5024[a]). The OHP compiles these lists into a master list (Pub. Resources Code, § 5024, subd. (d)).

State agencies must provide notice to the State Historic Preservation Officer early in the planning process if the agency intends to alter or demolish resources on the master list (Pub. Resources Code, § 5024.5, subd. (a)). The State Historic Preservation Officer has 30 days to respond after receiving notice. If the State Historic Preservation Officer determines that the action would have an adverse effect on a listed historical resource, the agency must adopt prudent and feasible measures to mitigate or eliminate the adverse effects (*Id.*, subd. (b)).

### **Discoveries of Human Remains under CEQA**

California law sets forth special rules that apply where human remains are encountered during project construction. These rules are set forth in one place in CEQA Guidelines §section 15064.5, subdivision (e) as follows:

In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the following steps should be taken:

- (1) There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
  - (A) The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required (as required under California Health and Safety Code Section 7050.5).
  - (B) If the coroner determines the remains to be Native American:
    1. The coroner shall contact the Native American Heritage Commission within 24 hours.
    2. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American.
    3. The most likely descendant may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods (as provided in Public Resources Code Section 5097.98), or
- (2) Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance.
  - (A) The Native American Heritage Commission is unable to identify a most likely descendant or the most likely descendant failed to make a recommendation within 24 hours after being notified by the Commission.
  - (B) The descendant identified fails to make a recommendation; or
  - (C) The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

### **California Native American Graves Protection and Repatriation Act**

Sections 8010–8011 of the California Health and Safety Code establish a state repatriation policy that is consistent with and facilitates implementation of NAGPRA. The policy requires that all California Indian human remains and cultural items be treated with dignity and respect and encourages voluntary disclosure and return of remains and cultural items by publicly funded agencies and museums in California. The policy provides for mechanisms to aid California Indian tribes, including non-federally recognized tribes, in filing repatriation claims and getting responses to those claims.

### **Confidentiality Considerations**

CEQA and the California Public Records Act restrict the amount of information regarding cultural resources that can be disclosed in an EIR to avoid the possibility that such resources could be subject to vandalism or other damage (*Clover Valley Foundation v. City of Rocklin* (2011) 197 Cal. App. 4th 200, 219-220, *citing* Gov. Code, § 6254, subd. (r), and CEQA Guidelines, § 15120, subd. (d)). CEQA Guidelines section 15120, subdivision (d) prohibits an EIR from including “information about the location of archaeological sites and sacred lands, or any other information that is subject to the disclosure restrictions of Section 6254 of the Government Code.” In turn, the Public Records Act (Gov. Code, § § 6250 et seq.) lists as exempt from public disclosure any records “of Native American graves, cemeteries, and sacred places and records of

Native American places, features, and objects described in Sections 5097.9 and 5097.933 of the [California] Public Resources Code maintained by, or in the possession of, the NAHC, another state agency, or a local agency.” (Gov. Code, § 6254, subd. (r)).

Public Resources Code sections 5097.9 and 5097.993 list the Native American places, features, and objects, the records of which are not to be publically disclosed under the Public Records Act as “any Native American sanctified cemetery, places of worship, religious or ceremonial site, or sacred shrine located on public property” (Pub. Resources Code, § 5097.9) and any “Native American historic, cultural, or sacred site, that is listed or may be eligible for listing in the California Register of Historic Resources ..., including any historic or prehistoric ruins, any burial ground, any archaeological or historic site, any inscriptions made by Native Americans at such a site, any archaeological or historic Native American rock art, or any archaeological or historic feature of a Native American historic, cultural, or sacred site ...” (§5097.993, subd. (a)(1)).

The Public Records Act also generally prohibits disclosure of archaeological records. Specifically, Government Code section 6254.10 provides: “Nothing in [the Public Records Act] requires disclosure of records that relate to archaeological site information and reports maintained by, or in the possession of ... a local agency, including the records that the agency obtains through a consultation process between a California Native American tribe and a state or local agency.”

These authorities prohibit the disclosure of records and information concerning certain of the region’s archeological, cultural, and historic resources in this Draft EIS/EIR. The State Water Board, as CEQA Lead Agency, believes confidentiality of the site locations of certain archaeological, cultural, and historic resources found in the region is necessary to prevent vandalism to the resources. Public release of information on the sites may allow their discovery by trespassers, leading to potential looting. The State Water Board’s position is consistent with the intent of National Historic Preservation Act § 304(a):

The head of a Federal agency ... shall withhold from disclosure to the public, information about the location, character, or ownership of a historic resource if the Secretary and the agency determine that disclosure may ... risk harm to the historic resources ...”

As a result, specific descriptions of certain of the archeological, cultural, and historic resources are not provided in this chapter. For the preservation of the sites, specific information on the locations and nature of findings at the resources cannot be included in the CEQA documents. Site-specific content and location information will be reviewed by appropriate federal and state agency officials on a need-to-know basis, thereby protecting the confidential information regarding location and content of the sites.

### **California State Assembly Bill 52**

Assembly Bill 52 added new requirements to the CEQA regarding consultation with California Native American tribes and consideration of Tribal Cultural Resources. Information on Tribal Cultural Resources is not necessarily available through existing databases; rather, they are identified through consultation between a lead agency and a Native American tribal group. The new requirements apply to projects that have a notice of preparation for an negative declaration, mitigated negative declaration, or an EIR filed on or after July 1, 2015.

#### **3.3.2.3 Local**

##### **Shasta County General Plan, Heritage Resources**

The objectives and policies that pertain to the Proposed Project include the following:

- Objective HER-1 Protection of significant prehistoric and historic cultural resources.

- Policy HER-a Development projects in areas of known heritage value shall be designed to minimize degradation of these resources. Where conflicts are unavoidable, mitigation measures which reduce such impacts shall be implemented. Possible mitigation measures may include clustering, buffer or non-disturbance zones, and building siting requirements.

### **3.3.3 Environmental Impacts**

#### **3.3.3.1 Methodology**

The environmental analysis for cultural resources was based on the review of existing Project-related documents. The impacts of the Proposed Project were compared to environmental baseline or existing conditions (summer flushing flows) and the significance criteria below to determine the level of impacts.

#### **3.3.3.2 Significance Criteria**

Project evaluation criteria and the mandatory findings of significance as explained in CEQA Guidelines Appendix G indicate that the Proposed Project would have a significant effect on cultural resources if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

#### **3.3.3.3 Impacts**

Impacts to cultural resources in the Proposed Project area are discussed. There is no construction associated with the Proposed Project; therefore, no direct ground disturbance would occur from implementation of the Proposed Project.

<b>Impact</b>	<b>Determination</b>
<b>CULT-1:</b> Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	Less than significant

The Proposed Project involves elimination of summer flushing flows and implementation of October whitewater boating flows.

Cultural resource surveys conducted in 2004 recorded multiple cultural resource sites within the Pit 1 Bypass Reach. A subsequent survey in 2005 was made to verify and confirm site-specific conditions and erosion potential. As part of the Whitewater Boating Flows Recommendation Study (Spring Rivers 2011a), a cultural resources survey of the Pit 1 Bypass Reach in the Pit River Canyon was done to identify the locations of all cultural resources and to describe any Project-related or other impacts to the resources. Any cases of cultural resources affected by erosion caused by whitewater or natural flood flows in the Pit River were revisited during a summer flushing flows to document changes in wetted perimeter and stage height associated with the flushing flows. A determination as to whether releases for whitewater boating or summer flushing flows would be of sufficient magnitude to impact each of the cultural resources that are affected by erosion was also made. If the stage height was not sufficient to affect a resource, the minimum stage that would affect it (i.e., vertical distance above the observed flushing flow) was measured (Spring Rivers 2011a).

Archaeological sites located in different sections along the Pit 1 Bypass Reach showed minimal to no erosion effects, and those effects seen were determined to be more likely due to natural high flow events than by releases for whitewater boating or summer flushing flows. Further documentation of the minimal recreational boating usage during 2003 and 2004 indicated there were no impacts to the cultural resources due to the boaters themselves. Based on these cultural resource surveys, the whitewater boating flows study concluded that there would be no effects of whitewater boating on specific cultural resources in the Pit 1 Bypass Reach (PGE 2011).

Additionally, the Proposed Project does not entail any construction or other ground-disturbance activities, which could disturb previously unknown cultural resources. Impacts would be less than significant with implementation of the Proposed Project.

Impact	Determination
<b>CULT-2:</b> Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	Less than significant

See discussion for CULT-1 above. The Proposed Project does not entail any construction or other ground-disturbance activities, which could disturb previously unknown cultural resources. As discussed above, releases for whitewater boating or summer flushing flows were determined to have minimal to no erosion effects on existing archaeological sites along the Pit 1 Bypass Reach. It was determined to be more likely due to natural high flow events than by Pit 1 Project operations. Therefore, impacts would be less than significant with implementation of the Proposed Project.

Impact	Determination
<b>CULT-3:</b> Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Less than significant

See discussion for CULT-1 above. The Proposed Project does not entail any construction or other ground-disturbance activities, which could disturb previously unknown cultural resources. Releases for whitewater boating or summer flushing flows were determined to have minimal to no erosion effects on existing paleontological sites along the Pit 1 Bypass Reach. It was determined to be more likely due to natural high flow events than by Pit 1 Project operations. Therefore, impacts would be less than significant with implementation of the Proposed Project.

Impact	Determination
<b>CULT-4:</b> Disturb any human remains, including those interred outside of formal cemeteries?	Less than significant

See discussion for CULT-1 above. The Proposed Project does not entail any construction or other ground-disturbance activities, which could disturb previously unknown cultural resources including human remains. Releases for whitewater boating or summer flushing flows were determined to have minimal to no erosion effects on existing cultural resources sites along the Pit 1 Bypass Reach. It was determined to be more likely due to natural high flow events than by Pit 1 Project operations. Therefore, impacts would be less than significant with implementation of the Proposed Project.

### **3.4 Hydrology/Water Quality**

This section: (1) describes the existing hydrologic and water quality conditions in the region and the Proposed Project area; (2) presents a summary of the regulatory context; (3) analyzes the hydrology and water quality impacts of the Proposed Project; and (4) evaluates the need for any potential mitigation measures.

#### **3.4.1 Environmental Setting**

##### **3.4.1.1 *Hydrology***

#### **Regional Hydrology**

The Sacramento River basin is the largest river basin in California, covering 27,000 square miles with approximately 31 percent of the state's total annual surface water runoff. The Sacramento River basin lies between the Sierra Nevada and Cascade Range in the east and the Coast Range and Klamath Mountains in the west. The Sacramento River basin is composed of six subregions including the Northeast, Westside, Eastside, Feather River, American River, and Sacramento Valley (Figure 3.4-1).

The Northeast Subregion (Figure 3.4-2) source waters rise in the volcanic plateaus and ranges of northern California as three rivers: the Upper Sacramento, McCloud, and Pit rivers. These rivers drain a four-county (Modoc, Lassen, Siskiyou, and Shasta) area in the north and northeastern part of the Sacramento River basin and generally flow southwest into Lake Shasta (Sacramento River Watershed Program 2017).

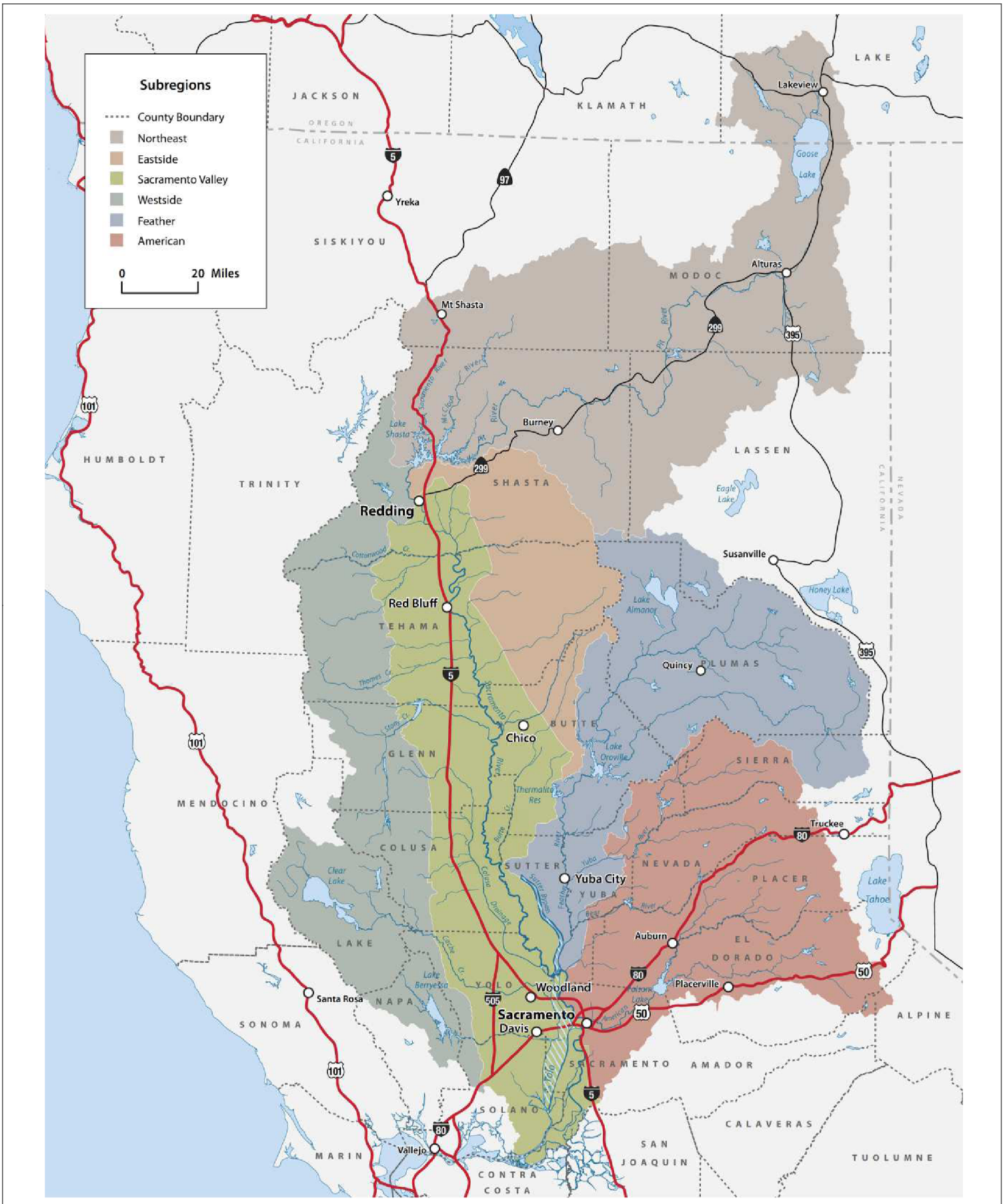
#### **Pit River Watershed**

The Pit River watershed is located in northeastern California, at the western edge of the Great Basin Province. The Pit River watershed includes all tributaries to the Pit River from its headwaters in northeastern California near the Oregon and Nevada border, to its confluence with the McCloud and Sacramento Rivers in Lake Shasta. Individual rivers and streams in the Pit River Watershed vary greatly in their characteristics and the aquatic resources they support. Some are managed largely for agricultural irrigation supply, and others are among the state's most notable wild trout waters. There are six sub-watersheds within the Pit River Watershed, including Goose Lake, Upper Pit River, Fall River, Hat Creek, Burney Creek, and Lower Pit River sub-watersheds.

#### **Upper Pit River Watershed**

The Pit River begins in the Warner Mountains of northeast California and flows in a southwesterly direction toward Shasta Lake. The Upper Pit River watershed includes the area from the Pit River headwaters downstream to the confluence with Fall River. Below the confluence with Fall River, the Pit River markedly changes character because of the inflow of large volumes of cold water from Fall River, Hat Creek, and Burney Creek. Elevation within the Upper Pit River watershed varies from 9,833 feet above mean sea level (msl) at the Eagle Peak summit, located in the southeast portion of the Warner Mountains, to the Fall River Valley floor (3,200 feet msl). Average annual precipitation is 10 inches (low elevation) to 25 inches (high elevation). Most precipitation falls during the winter months.

The North Fork of the Pit River originates south of Goose Lake. Goose Lake is a closed basin that historically flowed into the North Fork of the Pit River during rare peak water levels, when it spills over into the Pit River. The South Fork of the Pit River originates from several tributaries in the south Warner Mountains. The North and South Fork Pit Rivers converge at the city of Alturas to form the mainstem Pit River, which flows southwesterly for approximately 60 miles until its confluence with Fall River. There are 21 principal tributaries along the Pit River Watershed that total more than 1,000 linear miles of perennial stream encompassing approximately 4,324 square miles. (Pit River Watershed Alliance 2015)



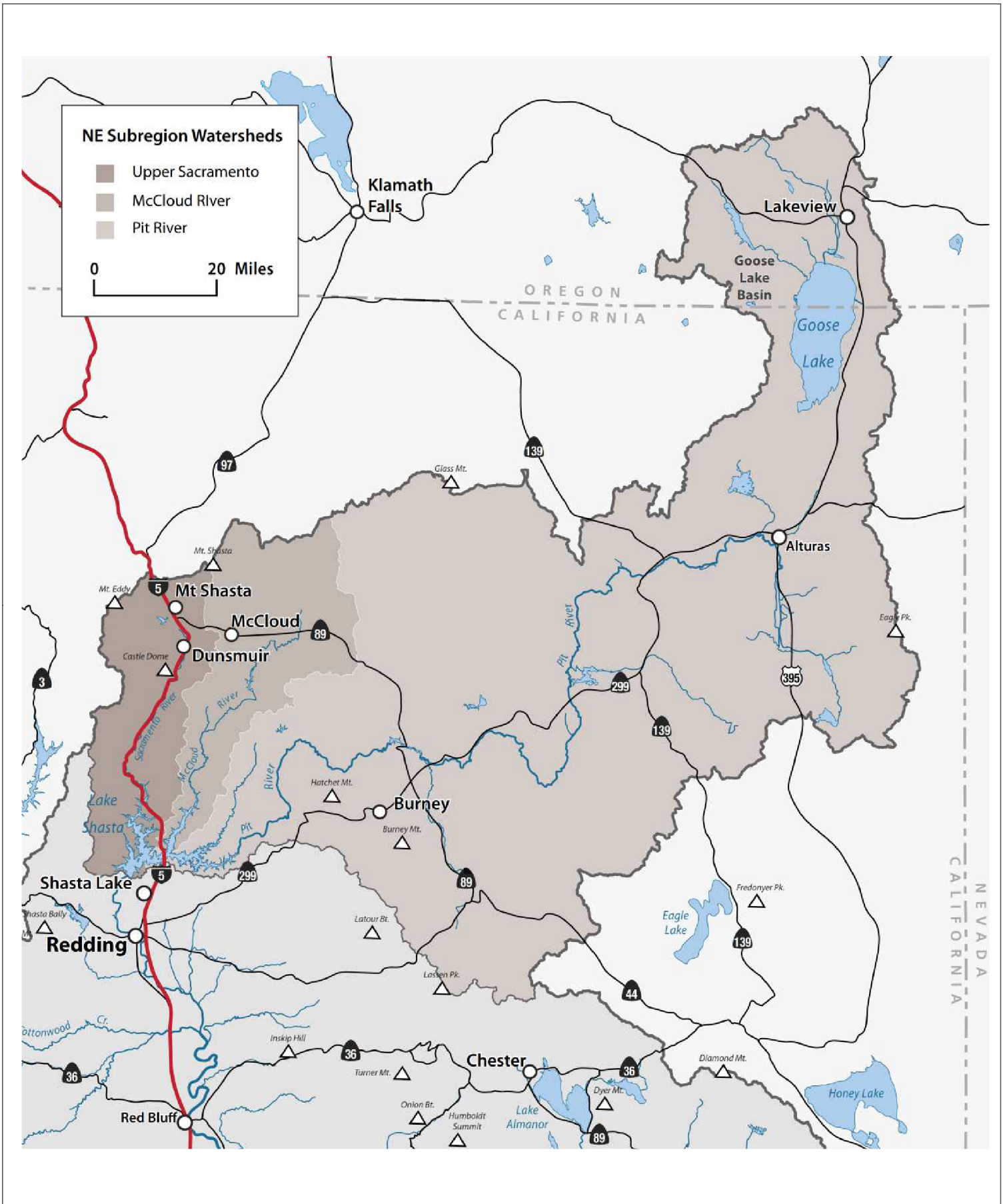
Source: Sacramento River Watershed Basin Website 2013

**Pit 1 Hydroelectric Project**

**FIGURE 3.4-1**  
Sacramento River Watershed Basin and Subregions







Source: Sacramento River Watershed Basin Website 2013

Pit 1 Hydroelectric Project

FIGURE 3.4-2  
Sacramento River Watershed Basin and Northeast Subregion



## **Fall River Watershed**

Fall River is located in eastern Shasta County and is one of the state's largest spring-fed rivers. The Fall River is formed by a series of large springs that are believed to originate from snowmelt off Mount Shasta and surrounding volcanic regions. The majority of flow in the Fall River drainage comes from Thousand Springs, Rainbow Springs, Spring Creek, Lava Creek, Ja She Creek, Big Lake springs, as well as numerous smaller springs and seeps. Based on isotope hydrology studies, precipitation over the high elevation regions of Medicine Lake Volcano recharge the Fall River spring aquifer system with travel times likely less than 20 years (Davisson and Rose 1997 2014). Much of this water traverses the region through a complex network of underground lava tubes and fracture systems (Sacramento River Watershed Website 2017). The river meanders for approximately 15 miles through Fall River Valley before entering the Pit River and eventually Shasta Lake. Average annual rainfall in Fall River Watershed is approximately 15 inches.

The only major source of surface water (i.e. not fed by groundwater) is Bear Creek near the headwaters of the Fall River. Bear Creek can contribute significant inflow during winter and spring runoff, but typically goes dry in its lower reaches by mid-summer. Fall River flows are joined by water from Tule River, which is fed by Little Tule River and Big Lake (all spring-fed) and enter the Pit River near the town of Fall River Mills (Sacramento River Watershed Website 2017). At the Pit 1 Diversion Dam, which is just north of Fall River Mills, most of the Fall River flow is diverted by PG&E to generate electricity through the Pit 1 Powerhouse.

## **Proposed Project Area**

Fall River Pond, Fall River bypass reach, and Pit 1 Bypass Reach are the river reaches most directly affected by the Proposed Project's permanent elimination of the summer flushing flows. The Pit 1 Bypass Reach includes the largest pool, Big Eddy, in the Upper Pit 1 Bypass Reach, and a canyon section with Pit River Falls in the Lower Bypass Reach. The Pit River portion of the Proposed Project area extends downstream from the Pit 1 Bypass and includes Pit River between Pit 1 Powerhouse and the river's confluence with Hat Creek, which is in the upper portion of Lake Britton (refer to Figure 1.3-1).

The Fall River flows into the Pit 1 Forebay and then into Fall River Pond. Fall River Pond is approximately 0.7 mile long and is created by the Fall River Pond Weir. Beyond the weir, Fall River flows approximately 1,000 feet through the cascading Fall River bypass reach to its confluence with the Pit River. The Pit 1 Forebay is used to store water to support powerhouse peaking operations, but also to provide minimum instream flows to the Pit 1 Bypass Reach that extends approximately 6.6 miles from the confluence with the Fall River to the Pit 1 Powerhouse (refer to Figure 1.3-2).

The first 1.9 miles of the Pit 1 Bypass Reach is low gradient and characterized by a wide channel, deep pools, and slow moving water. Big Eddy is approximately 200 feet wide and 20 to 25 feet deep. The remainder of Pit 1 Bypass Reach is within the Pit River Canyon where the river channel is narrow (generally 40 to 80 feet wide), shallow with numerous riffles, and has a steeper gradient and higher water velocities. The Pit River Falls are located in the Pit 1 Bypass Reach, as well as 15 mapped springs that contribute approximately 100 cfs to the river flow. A detailed description of the Proposed Project is provided in Chapter 2, including a discussion on minimum instream flows, summer flushing flows, recreational whitewater boating flow releases, outages, and unplanned outages.

### **3.4.1.2 Water Quality**

#### **Summary of License-Required Studies**

Pursuant to Article 401 of the FERC license and 401 Certification Conditions 16 and 17, PG&E implemented a water quality monitoring plan (PG&E 2003b) to determine the benefits/effects of flow releases required under the license on water quality in the Pit 1 Project, and reported results annually. The 401 Certification Condition 16 specifies that monitoring be conducted May 16 through October 31 annually at eight locations. Water temperature, dissolved oxygen (DO), conductivity, pH, and turbidity

were measured during the monitoring program. Streamflow measurements and meteorological data were also collected during the monitoring program.

Pursuant to 401 Certification Condition 17, a draft report summarizing the first 5 years (2004 through 2008) of water quality monitoring (Spring Rivers 2009c) was submitted to the Chief of the Division of Water Rights (Deputy Director) for review and comment in March 2009, then filed with FERC in July 2009. The five-year data summary demonstrated that the current minimum instream flow release generally met Basin Plan criteria to reasonably protect the beneficial uses, with a few excursions that were attributed to short-term diel fluctuations (Spring Rivers 2011c). During consultation, PG&E recommended that the 2003 water quality monitoring plan be modified. Due to the scheduling of the review and approval process surrounding the proposed amendment to the water quality monitoring plan, the 2009 water quality monitoring effort was conducted according to the 2003 Plan (PG&E 2003b).

In October 2009, PG&E submitted a draft Water Quality Monitoring Plan Amendment to the State Water Board, CDFW, and USFWS. Recommendations from the five-year summary report and water quality plan amendment included:

- Monitoring diel DO over two 5-day periods in 2010 (six locations were monitored throughout the Pit 1 Project area, including two stations in the Fall River, and four stations in the Pit River);
- Changing report due dates to allow time to complete quality assurance and control (QA/QC) results; and
- Reporting QA/QC results in the annual reports.

In January 2010, the State Water Board sent a letter to PG&E that listed several recommendations from PG&E's 5-year summary report (Spring Rivers 2009c) and requested that PG&E submit a final water quality monitoring plan that included those recommendations.

Additional modifications to the water quality plan, as requested by the State Water Board, included:

- Consolidating monitoring stations FR3 and FR4 to one station (FR3);
- Moving PR1 (Pit River at Pittville) to a new location upstream of the Cassel Road Bridge (PR1A) that more accurately represents water quality as it enters the Project by monitoring immediately upstream of the Pit 1 Bypass Reach;
- Replacing the upstream Pit River flow station (PR1) with an alternative method to estimate flow in the Pit River upstream of the Fall River confluence;
- Eliminating monitoring station PR3;
- Eliminating meteorological station at Pit 1 Intake; and continue to use the station at Pit 3 Intake; and
- Changing the in-situ monitoring interval from biweekly to monthly.

In March 2010, PG&E submitted a final Water Quality Monitoring Plan Amendment (PG&E 2010) (2010 Plan) to the Deputy Director and FERC. In May 2010, FERC issued its order amending the water quality monitoring plan. The amended 2010 Plan (PG&E 2010) was first implemented in 2010 and is to be continued thereafter on an annual basis until the program is modified or terminated by the State Water Board as described in 401 Certification Condition 17.

### **Summary of General Water Quality Results/Trends**

Data collected by PG&E during the 1990-1992 relicensing efforts were compared with data from the 2004-2015 compliance monitoring programs. Data from the 1990 to 1992 studies reflected conditions prior to the implementation of minimum instream flows and summer flushing flows from Pit 1 Forebay into the Fall River. In contrast, the 2004 to 2015 data represented conditions after implementation of license-required flows.

Data collected between 2004 and 2015 indicate that monitored water quality parameters have remained at relatively constant levels between years (Sagraves and Spring Rivers 2016). The exceptions are DO and pH measured in the Pit River at Big Eddy.

#### Dissolved Oxygen

The 2004 to 2015 data indicate that DO values have stabilized at acceptable levels and do not exhibit the extreme fluctuations that were observed in 1992 (Sagraves and Spring Rivers 2016). The extreme fluctuations in DO values observed in 1992 were the result of static low-flow regime that existed in this part of the watershed prior to 1993 before the Muck Valley Hydroelectric Project (which is not Project-related) began operating (Sagraves and Spring Rivers 2010). In particular, the 1992 regime was driven by an absence of significant inflow from the Fall River, combined with low summer flows in the Pit River above the Fall River confluence, which was comprised almost entirely of agricultural returns (Sagraves and Spring Rivers 2010). The combination of low discharge, nutrient-rich water, and warm ambient conditions resulted in substantial algae growth in the large pools of the Pit River in the Big Eddy section. The respiratory cycle of the algae created a widely variable DO regime observed in this section of the river (Sagraves and Spring Rivers 2010).

During the 2010 to 2012 annual monitoring programs (Sagraves and Spring Rivers 2010; Spring Rivers 2012b; PG&E 2013), a diel DO investigation was conducted to define the natural diel cycle at two key locations within the Project (FR3 and PR2). The data were used to identify the optimal sampling period for each station, and support explanations as to why a few samples from past monitoring efforts exhibited DO levels that did not meet the Basin Plan COLD objective. Data from 2010 to 2012 indicated that average DO levels were above the minimum criteria for COLD freshwater habitats; however, sampling during early morning can capture DO levels at the minimum of the diel cycle and result in synoptic readings that are less than the Basin Plan objective. Data indicate that these excursions are of short duration and that daily average DO measurements were well above applicable Basin Plan objectives (PG&E 2013).

In summary, the positive change in Pit River water quality for DO appears to be related to changes in the flow regime of the Pit River that occurred after implementation of license-required flows. Data collected from 2004 to 2015 indicate that minimum DO values have increased. However, the available data are not sufficient to isolate the improvement effects made between PG&E's instream flow releases from lower Fall River and the Muck Valley Operations (Sagraves and Spring Rivers 2010).

Water quality in the Pit 1 Project area was typically within Basin Plan standards, although periodically DO data did not meet the Basin Plan objectives. Periodic excursions of DO below the Basin Plan COLD<sup>18</sup> objective were primarily related to sample collection coincident with the minimum of the diel cycle.

#### pH

Results from 2015 are consistent with previous monitoring results (for pH) suggesting that the Pit 1 Project receives waters from PG&E's Fall River and Muck Valley hydropower projects with slightly elevated pH levels and passes them essentially unchanged through the Pit 1 Project facilities (Sagraves and Spring Rivers 2016). The data also indicate that pH levels entering the Project are already elevated to levels above the Basin Plan objective of 8.5 during most periods (Sagraves and Spring Rivers 2016). Periodic elevated levels of pH were naturally occurring (higher pH of groundwater inflow; effects of algal growth and decomposition particularly during the summer months when biological production is at its peak), and did not reach a level that produced negative effects on any of the beneficial uses (DWR 1982).

---

<sup>18</sup> Cold Freshwater Habitat (COLD) - Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates. The dissolved oxygen (DO) concentrations shall not be reduced below the following minimum level at any time: Waters designated COLD - 7.0 mg/l (CV RWQCB 1998).

The positive change in Pit River water quality for pH also appears to be related to changes in the flow regime of the Pit River that occurred after implementation of license-required flows. Data collected from 2004 to 2015 indicate that maximum pH values have been reduced or stabilized overall.

#### Water Temperature

In general, water temperatures throughout the Project reflected ambient conditions and fell within the range of previous monitoring efforts. The 2004–2015 data from each of the Fall River stations indicate that mean monthly July-August water temperatures were very similar to those measured in 1990–92. This suggests that the increased instream flow release being made from Pit 1 Forebay to the lower Fall River has not significantly altered the thermal structure of the forebay, or the thermal regime in Fall River Pond (Sagraves and Spring Rivers 2016).

Mean July and August water temperatures from 1990 to 1992 were very similar to those measured in 2004 to 2015 from each of the four Fall River stations (Sagraves and Spring Rivers 2016). This suggests that the increased instream flow release being made from Pit 1 Forebay to the lower Fall River has not significantly altered the thermal structure or regime of either the forebay or the thermal regime in Fall River Pond. The distance between the forebay and the Pit River confluence is sufficiently short that there is little thermal change occurring in the Fall River Pond or the Fall River bypass reach. As a result, water temperatures in the lower Fall River largely reflect conditions measured in the forebay (PG&E 2013).

Water temperatures in the Upper Pit 1 Bypass Reach at Big Eddy have been relatively unaffected by the change in flow regime. Water temperatures in the lower Pit1 Bypass Reach, however, have been warmed by the current minimum instream flows. On average, July-August water temperatures at the Pit River Falls and Pit 1 Footbridge were 1.2 °C and 1.8 °C, respectively, warmer during the Post-2003 regime as compared with the pre-1993 regime. Summer flushing flow events further increase water temperatures in the lower Pit1 Bypass Reach (PG&E 2013).

#### Flushing Flows and Aquatic Vegetation

Pursuant to Article 401 of the Pit 1 Project License and 401 Certification Conditions 16 and 17, PG&E implemented a water quality monitoring plan in 2003 and amended the plan in 2010 (PG&E 2003b, 2010). The purpose of the plan was to determine the benefits/effects of flow releases, required under the license, on water quality in the Pit 1 Project, and report results annually. License Article 401 and 401 Certification Conditions 8 and 13 require continuous minimum instream flow releases and three summer flushing flows per year through Fall River Pond. In compliance with Article 401 and 401 Certification Condition 14, PG&E developed the Flushing Flow Effectiveness Monitoring Plan (PG&E 2005), which was submitted to FERC in 2005 and approved in 2006, to monitor, for 5 years, the effectiveness of flushing flows at controlling surface aquatic vegetation in Fall River Pond.

Under the current license flow conditions, average vegetation cover exceeded an estimated 10 percent in 2004, but still remained below levels that existed prior to implementation of the current flow regime in 2003. The five-year summary report concluded that since implementation in 2003, the license-required minimum instream flow releases have had a substantially greater role in suppressing vegetation than the summer flushing flows (Spring Rivers 2009c). The 2010 water year was a Below Normal water year, following 3 years of Dry and Critically Dry water years, and therefore represents relatively dry conditions. Nevertheless, in the 2010 water year, in the absence of summer flushing flows, the continuous minimum instream flow releases through Fall River Pond as required by 401 Certification Condition 8, kept the surface vegetation at acceptable levels.

### **3.4.2 Regulatory Setting**

#### **3.4.2.1 *Federal***

##### **Federal Clean Water Act of 1972**

The U.S. Environmental Protection Agency (USEPA) is the lead federal agency responsible for water quality management. The CWA is the primary federal law that governs and authorizes water quality control activities by USEPA as well as the states. Various elements of the CWA, discussed below, address water quality.

##### **Water Quality Criteria and Standards**

Under federal law, USEPA has published water quality regulations under Volume 40 of the Code of Federal Regulations. Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of two elements: (1) identified designated beneficial uses of the water body in question; and (2) criteria that protect the designated beneficial uses. Section 304(a) requires USEPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. In California, USEPA has granted the State Water Board and its nine regional water quality control boards (Regional Water Boards) the authority to identify beneficial uses and adopt applicable water quality objectives.

##### **Federal Antidegradation Policy**

The federal antidegradation policy, established in 1968, is designed to protect existing uses, water quality, and national water resources. The federal policy directs states to adopt a statewide policy that includes the following primary provisions.

- Existing instream uses and the water quality necessary to protect those uses shall be maintained and protected.
- Where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development.
- Where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

#### **3.4.2.2 *State***

In California, the State Water Board has broad authority over water quality control issues for the state. The State Water Board is responsible for developing statewide water quality policy and exercises the powers delegated to the state by the federal government under the CWA. Other state agencies with jurisdiction over water quality regulation in California include the California Department of Pesticide Regulation, CDFW, and Office of Environmental Health and Hazard Assessment. As of July 1, 2014, the administration of the Drinking Water Program (DWP) transferred from DPH to the State Water Board. This transfer of responsibility aligns the state's drinking water and water quality programs in an integrated organizational structure to best position the state to both effectively protect water quality and the public health as it relates to water quality, while meeting current needs and future demands on water supplies (State Water Board 2015b).

Regional authority for planning, permitting, and enforcement is delegated to the nine Regional Water Boards. The Regional Water Boards are required to formulate and adopt water quality control plans

(Basin Plans) for all areas in the region and establish water quality objectives in the plans. The CVRWQCB is responsible for the water bodies in the project vicinity.

### **Section 401 Water Quality Certification or Waiver**

Under Section 401 of the CWA, an applicant for a FERC license or Section 404 permit (to discharge dredged or fill material into waters of the United States) must first obtain a certificate from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant or deny 401 Certification is delegated by the State Water Board to the nine Regional Boards (Pub. Util. Code, § 2821, subd. (e)(1); Cal. Code Regs., title 23, §§ 3859 & 3831, subd. (e)).

### **Section 303(d) Impaired Waters List**

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that would not attain water quality objectives for specific pollutants after implementation of required levels of treatment by point-source dischargers (municipalities and industries). Section 303(d) requires that the state develop a total maximum daily load (TMDL) for each of the listed pollutants. The TMDL is the amount of loading that the water body can receive and still be in compliance with water quality objectives. The TMDL can also act as a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. The TMDL prepared by the state must include an allocation of allowable loadings to point and nonpoint sources, with consideration of background loadings and a margin of safety. The TMDL must also include an analysis that shows the linkage between loading reductions and the attainment of water quality objectives. USEPA must either approve a TMDL prepared by the state or, if it disapproves the state's TMDL, must issue its own. National Pollutant Discharge Elimination System (NPDES) permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. After implementation of the TMDL, it is anticipated that the problems that led to placement of a given pollutant on the Section 303(d) list would be remediated.

### **Porter-Cologne Water Quality Control Act of 1969**

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is California's statutory authority for the protection of water quality. Under the act, the state must adopt water quality policies, plans, and objectives that protect the state's waters for the use and enjoyment of the people. The act sets forth the obligations of the State Water Board and Regional Boards to adopt and periodically update Basin Plans. Basin Plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The act also requires waste dischargers to notify the Regional Boards of their activities through the filing of Reports of Waste Discharge (RWDs) and authorizes the State Water Board and Regional Boards to issue and enforce waste discharge requirements (WDRs), NPDES permits, 401 Certifications, or other approvals. The Regional Boards also have authority to issue waivers to RWDs/WDRs for broad categories of *low threat* discharge activities that have minimal potential for adverse water quality effects when implemented according to prescribed terms and conditions.

### **Water Quality Control Plan for the Sacramento-San Joaquin River Basins**

The CVRWQCB, under the authority of the Porter-Cologne Act and pursuant to the CWA, is responsible for authorizing activities that have the potential to discharge wastes to surface water or groundwater resources. The Water Quality Control Plan for the Sacramento-San Joaquin River Basins, adopted by the CVRWQCB in 1998, identifies the beneficial uses of water bodies and provides water quality objectives and standards for waters of the Sacramento River and San Joaquin River Basins. State and federal laws mandate the protection of designated beneficial uses of water bodies. State law defines beneficial uses as "domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or



preserves” (Water Code § 13050[f]). Designated beneficial uses for the Fall River and Pit River as described in the Basin Plan are provided in Table 2.1-3.

The Basin Plan identifies specific narrative and numeric water quality objectives for a number of physical properties (e.g., water temperature, turbidity, and suspended solids); biological constituents (e.g., coliform bacteria); and chemical constituents of concern, including inorganic parameters, trace metals, and organic compounds. Water quality objectives for toxic priority pollutants (i.e., select trace metals and synthetic organic compounds) are identified in the Basin Plan and in the California Toxics Rule, which was adopted in May 2000. The CTR is discussed below.

### **California Toxics Rule**

In May 2000, the State Water Board adopted and USEPA approved the California Toxics Rule, which establishes numeric water quality criteria for approximately 130 priority pollutant trace metals and organic compounds. The State Water Board subsequently adopted its Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Water Board 2005). The State Implementation Policy outlines procedures for NPDES permitting for toxic pollutant objectives that have been adopted in Basin Plans and in the California Toxics Rule.

### **State Water Board Resolution No. 68-16**

The goal of State Water Board Resolution No. 68-16 (Statement of Policy with Respect to Maintaining High Quality Waters in California) is to maintain high-quality waters where they exist in the state (State Water Board 1968). The non-degradation policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy provides as follows:

- Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the state and would not unreasonably affect present and anticipated beneficial uses of such water.
- Any activity that produces waste or increases the volume or concentration of waste and that discharges to existing high-quality waters would be required to meet waste discharge requirements that would ensure that (1) pollution or nuisance would not occur and (2) the highest water quality consistent with the maximum benefit to the people of the state would be maintained.

#### **3.4.2.3 Regional and Local**

The Shasta County General Plan (Shasta County 2004) contains a policy objective to protect surface and groundwater resources so that all present and future Shasta County residents have a reasonable assurance that an adequate quantity and quality of water exists.

#### **Shasta County General Plan Objectives and Policies:**

- **Policy W-a.** Sedimentation and erosion from proposed developments shall be minimized through grading and hillside development ordinances and other similar safeguards as adopted and implemented by the County.
- **Policy W-f.** The County shall encourage and participate in interagency planning efforts, such as the Redding Area Water Council, to protect and enhance the quality of all groundwater and surface water resources.

## **Shasta County Groundwater Management Ordinance**

The Shasta County Groundwater Management Ordinance (SCC 98-1) is included in the Shasta County Code (Chapter 18.08) for the purpose of protecting groundwater resources from extraction for use on lands outside of the County. The ordinance requires permit approval for extraction of groundwater for export out of the County, including extraction of groundwater to replace a surface water supply that would be exported. The ordinance acknowledges that other groundwater management measures may be part of comprehensive and cooperative planning efforts that the County may jointly undertake with other agencies.

### **3.4.3 Environmental Impacts and Mitigation**

#### **3.4.3.1 *Methodology***

The environmental analysis for hydrology and water quality is based on review of existing Project-related documents. The effects of the Proposed Project are compared to environmental baseline conditions (i.e., existing conditions) to determine impacts. This assessment includes the assumption that results reported and analyses conducted by subject-matter experts are reliable and adequate for characterization of potential water quality issues.

#### **3.4.3.2 *Significance Criteria***

In accordance with CEQA Guidelines Appendix G, implementation of the Proposed Project would have a significant impact on hydrology and water quality if it would result in any of the following conditions:

- Violate any water quality standards or waste discharge requirements.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would 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 would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
- 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 that would result in substantial erosion or siltation on or offsite.
- 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 that would result in flooding on- or offsite.
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- Otherwise substantially degrade water quality.
- 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.
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows.
- 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.
- Inundation by seiche, tsunami, or mudflow.

**3.4.3.3 Impacts and Mitigation**

Impact	Determination
<b>HYD-1:</b> Violate any water quality standards or waste discharge requirements?	Less than significant

**Waste Discharge Requirements**

The Project does not propose any uses that would generate additional wastewater. Therefore, there are no waste discharge requirements associated with the Proposed Project.

**Water Quality Standards**

Based on the data presented in Section 2.1.2, elimination of the summer flushing flow releases and implementation of October whitewater boating flows would not have substantial adverse effects on water quality standards in the Proposed Project area. Impacts would be less than significant with implementation of the Proposed Project.

Impact	Determination
<b>HYD-2:</b> Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would 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 would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	No impact

The Proposed Project would not alter the minimum instream flows required under Article 402 in the license and it would not deplete groundwater supplies or interfere with groundwater recharge. The elimination of summer flushing flows and implementation of October whitewater boating flows would not affect groundwater. No impacts to groundwater would occur.

Impact	Determination
<b>HYD-3:</b> 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 that would result in substantial erosion or siltation on or offsite?	Less than significant

The Proposed Project would not alter surface drainage, cause flooding or surface water increases, or affect storm drainage capacity. The summer flushing flows have been studied for erosion potential (PG&E 2011), and were not found to result in increased erosion potential. Similarly, the October whitewater boating flows, which are of similar magnitude to the summer flushing flows, would not result in increased erosion potential. Therefore, impacts related to erosion or siltation would be less than significant.

Impact	Determination
<b>HYD-4:</b> 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 that would result in flooding on- or offsite?	No impact

The elimination of summer flushing flows and implementation of October whitewater boating flows would not contribute to alteration of the existing drainage patterns on- or offsite or increase the rate or amount of surface runoff. Therefore, no impacts related to drainage or runoff would occur.

Impact	Determination
<b>HYD-5:</b> Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	No impact

The elimination of summer flushing flows and implementation of October whitewater boating flows would not affect stormwater runoff. The Project does not propose any uses that would affect the capacity of existing or planned stormwater drainage systems. The Proposed Project would not contribute to sources of polluted runoff. Therefore, there would be no impact to storm drainage systems.

Impact	Determination
<b>HYD-6:</b> Otherwise, substantially degrade water quality?	Less than significant

Based on the data presented in Section 2.1.2, elimination of the summer flushing flows and implementation of October whitewater boating flows would not degrade water quality. Therefore, impacts related to water quality are less than significant.

Impact	Determination
<b>HYD-7:</b> 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?	No impact

The Proposed Project does not involve housing or placement of other land uses within a floodplain; therefore, there would be no impact.

Impact	Determination
<b>HYD-8:</b> Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	No impact

The Proposed Project does not involve the construction of any new facilities. No housing structures are associated with the Proposed Project. Accordingly, there would be no impact to housing as a result of flooding risks.

Impact	Determination
<b>HYD-9:</b> 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?	No impact

The elimination of summer flushing flows and implementation of October whitewater boating flows would not impact the integrity of the existing dam system. Therefore, the Proposed Project would not expose people or structures to flooding risks. Therefore, there would be no impact.

Impact	Determination
<b>HYD-10:</b> Inundation by seiche, tsunami, or mudflow?	No impact

The elimination of summer flushing flows and implementation of October whitewater boating flows would not result in mudflows. The Proposed Project would not expose people or structures to inundation by seiche or tsunami. Impacts would be less than significant with implementation of the Proposed Project.

## **3.5 Recreation**

This section discusses potential impacts from implementation of the Proposed Project on recreation resources. Included in this section is a discussion of the existing recreation setting, regulatory environment, and impacts from the Proposed Project on recreational resources.

### **3.5.1 Environmental Setting**

The Pit 1 Project is located in the Fall River Valley and the Pit River Canyon of northeastern California. The small communities of McArthur and Fall River Mills are contiguous with or near Project facilities and features. The surrounding area is composed of pasture, cropland, wetlands, riparian, riverine, and hardwood/conifer woodlands. The adjacent landforms are dominated by mountains and other features associated with the volcanic Cascade Range. Within this area, the Pit River morphology ranges from a relatively open, flat, and slow-moving reach of river to a cascading, fast-moving river in an incised canyon setting.

The Pit 1 Project is located within a region that has a strong association with outdoor recreation. Densely forested mountains, lower elevation terrain dominated by volcanic features, and numerous lakes and rivers support a wide variety of recreation opportunities and experiences. Throughout the region, the varied elevations, settings, and environmental characteristics combine to support camping, picnicking, hiking, wildlife observation, river and lake angling, swimming, flat-water boating, and whitewater boating. Regional recreational attractions include: Lake Shasta, Lassen Volcanic National Park, McArthur-Burney Falls State Park, Castle Crags State Park, Ahjumawi-Lava Springs State Park, Mount Shasta Recreation Area, Lassen National Forest, and Shasta-Trinity National Forest. In addition, there are numerous privately owned facilities that provide recreation opportunities.

The 2003 FERC license for the Pit 1 Project divided the Pit 1 Project area into two sections: the Upper Project Area and Lower Project Area (see Figure 1.3-1). The Upper Project Area is upstream of the Pit 1 Project's diversion dam on the Fall River. This area consists of about 3,400 acres of land and water. In this area are approximately 22 miles of the Fall River, 5 miles of the Tule River, Little Tule River, and Big Lake. Included in the Upper Project Area is approximately 3,000 acres of the 6,000-acre McArthur Swamp (known as Hollenbeak Field, Ash Field, and Rat Farm Pond) adjacent to Big Lake and upper Tule River and about 12 miles of levees along Horr Pond; Big Lake; and the Fall, Tule, and Little Tule rivers.

The Lower Project Area includes the Fall River Diversion Dam and the area downstream of the diversion dam, including the 222-acre Pit 1 Forebay and over 200 acres of land surrounding the forebay. Within the Lower Project Area is the Pit 1 Bypass Reach. Within the Bypass Reach are about 0.9 mile of the lower Fall River and 6.6 miles of the Pit River. The Pit 1 Bypass Reach includes the pool named Big Eddy in the upper section of this reach, and a canyon section in the lower end of the reach with a waterfall by the name of Pit River Falls.

Recreation uses in the Proposed Project area are primarily associated with the Lower Project Area. There is also a nexus with recreation use on the section of Pit River between the Pit 1 Powerhouse, and the river's confluence with Hat Creek in the upper portion of Lake Britton.

#### **3.5.1.1 *Recreation Opportunities***

The land and water features along the Pit River, from the confluence with the Fall River downstream to Lake Britton, support a wide range of recreation opportunities such as camping, hiking, picnicking, fishing, and whitewater boating. Private facilities, informal boating access sites, and developed recreation areas provide access to the Project Area for recreation, including the Lion's Club picnic area, the Bureau of Land Management (BLM) campground, Dusty Campground, and other public access points associated with the PG&E- Hat 2 hydroelectric facility.

The Fall River flows almost entirely within private lands, limiting both shoreline and boat access. Recreational access in the upper Fall River is primarily through private lodges and launches.

The primary recreational activities at the Pit 1 Forebay include swimming, shoreline fishing, boating, waterskiing, picnicking, and camping. As part of the license for the Pit 1 Project, recreation improvements were made in 2005 to enhance the existing picnicking, fishing, boating, and swimming opportunities currently available at the Pit 1 Forebay, which is also known as Fall River Lake. The Fall River Lake Recreation Area includes a group picnic area with barbeque and shade structure, a picnic area with swim beach, boat launch, and accessible fishing platform.

At the Fall River Pond, shore fishing for largemouth bass is the primary recreational activity. The Fall River Pond Access was improved to include a small watercraft ramp, picnic table, and interpretive display.

As part of the license for the Pit 1 Project, in 2007 PG&E constructed the Pit River Access across from the confluence with the Fall River. The Pit River Access includes a hand watercraft launch, interpretive display, restroom, and parking, is the put-in for whitewater boating on the Pit 1 Bypass Reach.

Along State Highway 299, a scenic overlook provides visitors to the area with vistas of the Pit River Falls. Facilities for camping and picnicking, waterskiing, boating, beach use, and fishing opportunities can be found at Lake Britton.

### **1996 Pit River Whitewater Boating Study**

An initial assessment of whitewater boating opportunities in the Pit River was conducted by PG&E in 1996 (WRC Environmental 1996). This assessment identified put-in and take-out locations, characterized the runs (reaches of river for whitewater boating), developed flow range estimates for whitewater boating use, and estimated current and project whitewater recreation use on the runs. In addition, the difficulty and approximate skill level required by reaches was determined based on the International Scale of River Difficulty. That grading system defined rapids as a Class I through V as described below.<sup>19</sup>

- Class I: Very small rough areas, requires no maneuvering. (Skill Level: None)
- Class II: Some rough water, maybe some rocks, small drops, might require maneuvering. (Skill Level: Basic Paddling Skill)
- Class III: Whitewater, medium waves, maybe a 3- to 5-foot drop, but not much considerable danger. May require significant maneuvering. (Skill Level: Experienced paddling skills)
- Class IV: Whitewater, large waves, rocks, maybe a considerable drop, sharp maneuvers may be needed. (Skill Level: Whitewater Experience)
- Class V: Whitewater, large waves, large rocks and hazards, maybe a large drop, precise maneuvering (Skill Level: Advanced Whitewater Experience)
- Class VI: Whitewater, typically with huge waves, huge rocks and hazards, huge drops, but sometimes labeled this way due to largely invisible dangers (e.g., a smooth slide that creates a near-perfect, almost inescapable hydraulic, as at Woodall Shoals/Chattooga). Class VI rapids are considered hazardous even for expert paddlers using state-of-the-art equipment, and come with the warning “danger to life or limb.” (Skill Level: Expert)

Whitewater boating opportunities exist on two sections of the Pit 1 River: the Pit 1 Bypass Reach and the Pit River downstream of the Pit 1 Powerhouse tailrace (Figure 3.5-1). The Pit 1 Bypass Reach, which extends 6.7 miles from the Fall River confluence to the Pit 1 Powerhouse tailrace, is considered to be a Class III or Class IV run, with the exception of Pit River Falls, which are Class V. The Pit River downstream of the Pit 1 Powerhouse tailrace is a Class II/III run. When suitable flows are present, whitewater boaters use sections of the river based on their skill level and/or experience preference. Whitewater boaters access the Pit 1 Bypass Reach of river from the Pit River Access across from the confluence with the Fall River. Most boaters on the Pit 1 Bypass Reach take out at the BLM Pit River

---

<sup>19</sup> It should be noted that a revised whitewater grading scale has been since adopted by American Whitewater.

Campground. To access the Pit River downstream of the Pit 1 Powerhouse tailrace, boaters put-in at the BLM Pit River Campground and generally take out at the State Highway 299 bridge. The Pit 1 Bypass Reach only has sufficient water to boat during flow releases or natural high water events, whereas the Pit River downstream of the Pit 1 Powerhouse has sufficient water to boat year-round.

is the Pit 1 Bypass Reach begins with 2.2 miles of low gradient (less than 10 feet per mile) stream composed of several long pools separated by short drops. This reach is known as Big Eddy. The ledges reach is a 0.3-mile-long rapid. In this section, the river drops about 40 feet. The canyon whitewater reach can be further divided into three sections: upper canyon whitewater reach, the Pit River Falls and portage, and the lower canyon whitewater reach (Figure 3.5-2). The upper canyon whitewater reach extends about 2.2 miles from the base of the ledges to the Pit River Falls. The channel gradient of this segment varies from 70 to 125 feet per mile. Pit River Falls spans the entire width of the canyon, about 300 to 400 feet, and is about 35 to 40 feet high. A portage trail bypasses about 750 feet of the channel, and includes a 30-foot climb up to an abandoned toll road and about a 700-foot carry to a point where the crafts are lowered into the pool below the falls. The lower canyon whitewater reach, with varied channel gradients from 60 to 88 feet/mile, extends about 2.1 miles from the bottom of the Pit River Falls to the Pit 1 tailrace.

At flows of 1,050 cfs to 3,500 cfs, Big Eddy is Class I to II, Ledges is Class III to IV, Pit River Falls is Class V, upper canyon is Class III to IV, and lower canyon is Class III+ to IV+ (WRC Environmental 1996).

The Pit River downstream of the Pit 1 Powerhouse tailrace extends 2.6 miles and has an overall gradient of about 24 feet per mile. Boaters that continue past the State Highway 299 bridge have 1.2-miles of swiftwater (16 feet/mile gradient) followed by a 1.2-mile lake surface section. At flows of 750 cfs to 5,300 cfs, the Pit River between the Pit 1 Powerhouse and the State Highway 299 bridge is Class II+ to III, and the reach downstream of State Highway 299 bridge is Class I to II (WRC Environmental 1996).

Other whitewater boating opportunities in the area include the Pit 5 Reach of the Pit River, Upper Klamath, Trinity, and South Fork American rivers. These rivers are boatable during the late summer or early fall as a result of water resource project operations. PG&E implements whitewater boating flow releases on the Pit 5 Reach one weekend in August and one weekend in September.

### **2008 Potential Impacts of Whitewater Boating Flows – Phase 2 Report – Pit 1 Project**

In March 2003, FERC issued a new license for the Pit 1 Project. Article 424 of the license required PG&E to prepare a plan to study potential impacts of flushing flows and whitewater boating flows on fish, wildlife, cultural, and recreation resources occurring in the fall (particularly September 15 to October 30). The plan called for a two-phase approach. Phase 1 included the compilation and review of existing resource information, and determination of whether existing data and information were sufficient to evaluate potential whitewater boating flow impacts on the target resources, or whether additional studies were warranted as potential Phase 2 studies. Phase 1 also reassessed the feasibility of providing whitewater boating flow releases in the range of 1,250 cfs to 1,750 cfs between September 15 and October 30, based on the license conditions of a 150-cfs release from Fall River Pond and the requirement to maintain a minimum flow of 700 cfs below Pit 1 Powerhouse. The Phase 2 studies included a whitewater boating study to refine acceptable boating flow ranges, particularly those near the low end of the range. These studies also utilized the updated American Whitewater Class rating system. Field studies for the Phase 2 study took place in 2006 during flushing flows as required by the license. The Phase 2 study was conducted by R2 Resource Consultants, Inc., Spring Rivers Ecological Sciences LLC, and Confluence Research and Consulting. The results were presented in the report titled *The Potential Impacts of Whitewater Boating Flows – Phase 2 Report – Pit 1 Project FERC Project No. 2687* (R2 et al. 2008).

As part of the study, 118 boaters were surveyed. Of that number, 107 (91 percent) were hard shell kayakers, 7 (6 percent) were rafters, and 4 (3 percent) were inflatable kayakers. Of the boaters surveyed, 105 (89 percent) were from California, and of those 44 (42 percent) were from Chico and Redding; the others were from Mount Shasta, Sacramento, and the San Francisco Bay Area. The remaining boaters

were from Washington (2 boaters), Oregon (11), and Nevada (15). The boaters rated the reach from Big Eddy to the BLM campground (the canyon run) as a Class III or Class IV run. Difficulty ratings were generally unrelated to flow. This Class rating is based on the following updated rating system (American Whitewater 2005).

- Class I: Fast moving water with riffles and small waves. Few obstructions, all obvious and easily missed with little training. Risk to swimmers is slight; self-rescue is easy.
- Class II: Straightforward rapids with wide, clear channels, which are evident without scouting. Occasional maneuvering may be required, but rocks and medium-sized waves are easily missed by trained paddlers. Swimmers are seldom injured and group assistance, while helpful, is seldom needed. Rapids that are at the upper end of this difficulty range are designated “Class II+”.
- Class III: Rapids with moderate, irregular waves that may be difficult to avoid and that can swamp an open canoe. Complex maneuvers in fast current and good boat control in tight passages or around ledges are often required; large waves or strainers may be present but are easily avoided. Strong eddies and powerful current effects can be found, particularly on large-volume rivers. Scouting is advisable for inexperienced parties. Injuries while swimming are rare; self-rescue is usually easy but group assistance may be required to avoid long swims. Rapids that are at the lower or upper end of this difficulty range are designated “Class III-” or “Class III+”, respectively.
- Class IV: Intense, powerful, but predictable rapids requiring precise boat handling in turbulent water. Depending on the character of the river, it may feature large, unavoidable waves and holes or constricted passages demanding fast maneuvers under pressure. A fast, reliable eddy turn may be needed to initiate maneuvers, scout rapids, or rest. Rapids may require “must” moves above dangerous hazards. Scouting may be necessary the first time down. Risk of injury to swimmers is moderate to high, and water conditions may make self-rescue difficult. Group assistance for rescue is often essential but requires practiced skills. A strong Eskimo roll is highly recommended. Rapids that are at the lower or upper end of this difficulty range are designated “Class IV-” or “Class IV+”, respectively.
- Class V: Extremely long, obstructed, or very violent rapids that expose a paddler to added risk. Drops may contain large, unavoidable waves and holes or steep, congested chutes with complex, demanding routes. Rapids may continue for long distances between pools, demanding a high level of fitness. What eddies exist may be small, turbulent, or difficult to reach. At the high end of the scale, several of these factors may be combined. Scouting is recommended but may be difficult. Swims are dangerous, and rescue is often difficult even for experts. A very reliable Eskimo roll, proper equipment, extensive experience, and practiced rescue skills are essential. Because of the large range of difficulty that exists beyond Class IV, Class 5 is an open-ended, multiple-level scale designated by Class 5.0, 5.1, 5.2, etc., each of these levels is an order of magnitude more difficult than the last. Example: increasing difficulty from Class 5.0 to Class 5.1 is a similar order of magnitude as increasing from Class IV to Class 5.0.
- Class VI: These runs have almost never been attempted and often exemplify the extremes of difficulty, unpredictability, and danger. The consequences of errors are very severe and rescue may be impossible. For teams of experts only, at favorable water levels, after close personal inspection and taking all precautions. After a Class VI rapids has been run many times, its rating may be changed to an appropriate Class 5.x rating.

Flow preferences between the WRC Environmental (1996) study and the R2 Resource Consultants (2006) interim study were compared. The WRC Environmental (1996) study rated medium-high forebay releases from 1,700 to 2,800 cfs at the highest. Though the R2 (2006a) study does not directly contradict these findings; it does imply that lower flows are more acceptable than indicated by the WRC Environmental (1996) study. Results of the survey in 2006 indicated that flows exceeding 600 cfs at Big Eddy are boatable in kayaks, and flows of 800 to 1,000 cfs at Big Eddy provide quality technical trips.



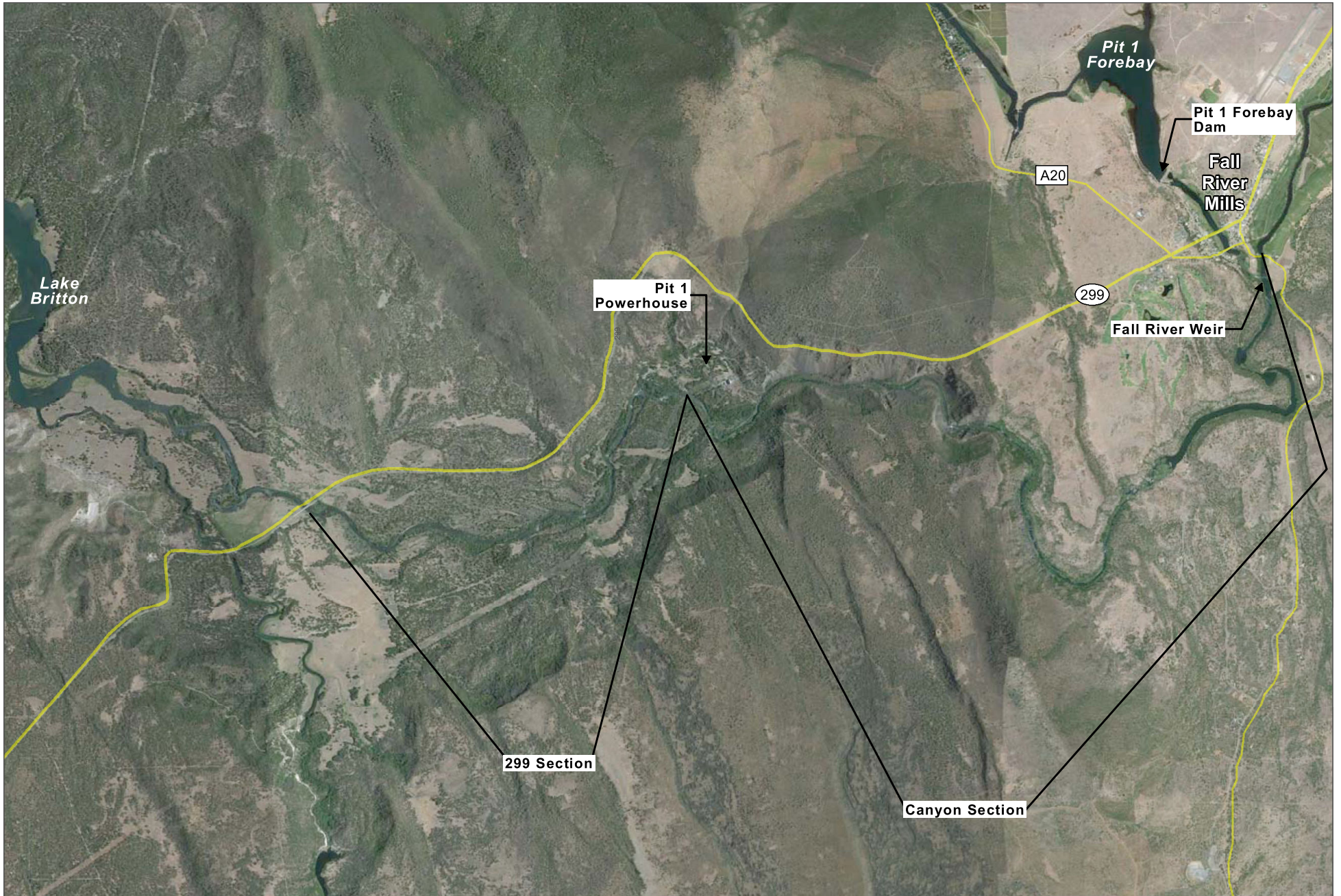
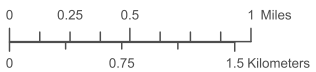


Image Source: Google Earth, 04-09-13



### Pit 1 Hydroelectric Project

FIGURE 3.5-1

Pit 1 Whitewater Recreation: Canyon Section and 299 Section





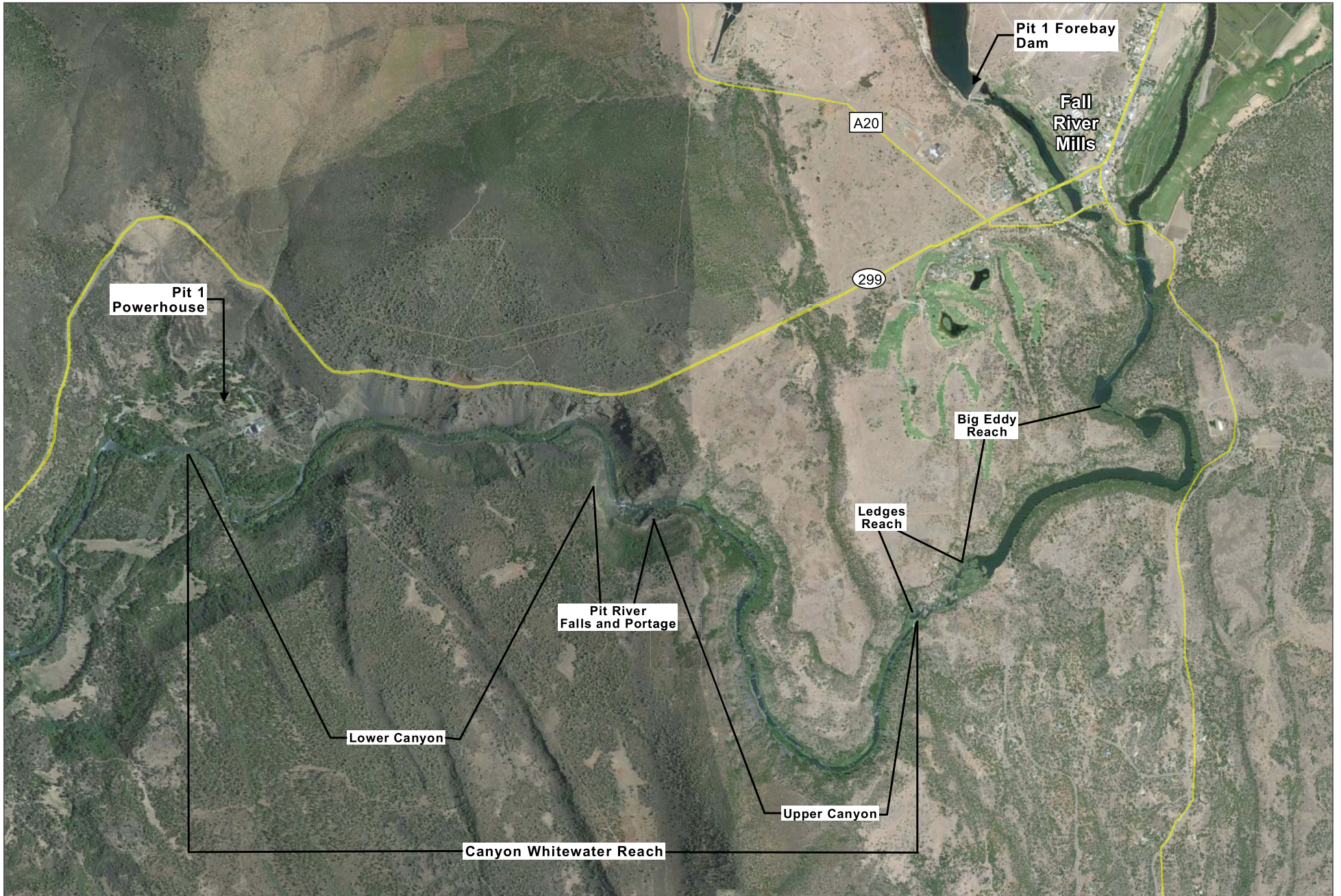
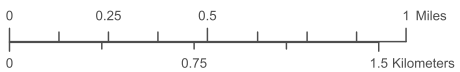


Image Source: Google Earth, 04-09-13



### Pit 1 Hydroelectric Project

FIGURE 3.5-2  
Pit 1 Recreation Canyon WW Reach





### 3.5.1.2 Recreation Use

Except for whitewater boating activities, information related to recreation use specific to sites, or areas, within the Proposed Project area is largely based on estimates and no formal recreation use survey has been conducted. For the purposes of this assessment, recreation use is assumed to have been relatively constant, with no significant increase or decrease in use or change in activity participation since license issuance. This is supported by recreation use monitoring conducted by the USFS on National Forests. The assumption is that recreation use and activities within the Proposed Project area are relatively commensurate with recreation use within National Forests.

From 2005 to 2011, there was essentially no change in National Forest visitation. During this time period it was estimated that visitation to National Forests increased by only 0.9 percent. In addition, the demographic makeup of visitors to the National Forests remained largely unchanged between 2005 and 2011. Estimates for the National Forest system recreation use are presented in Table 3.5-1.

**Table 3.5-1 National Visitation Estimates for the National Forest System**

Visit Type	Visits FY 2005–2009	Visits FY 2006–2010	Visits FY 2007–2011
Day-Use – Develop Sites	70,653	69,731	70,659
Overnight Use – Developed Sites	15,023	16,244	18,335
General Forest Area	103,802	103,773	104,847
Wilderness	6,533	6,803	7,709
<b>Total Site Visits<sup>1</sup></b>	<b>196,011</b>	<b>196,551</b>	<b>201,549</b>
<b>National Forest Visits<sup>2</sup></b>	<b>164,373</b>	<b>164,214</b>	<b>165,880</b>

Source: USFS 2010, 2012

In 1996, PG&E developed recreation use estimates for specific sites within the Pit 1 Project area based on a Public Outdoor Recreation Use Study it had conducted (WRC Environmental 1996).

During the summer recreation season, from Memorial Day to Labor Day weekend, recreation use at the Pit 1 Forebay is estimated at 9,266 day-use recreation days and 102 camping days (FERC 1999). A day-use recreation day is typically defined as one 12-hour visit to a site, or 12 hours of activity at a site, and a camping day is 1 overnight stay.

There are about 60 persons at one time (PAOT) during a typical summer weekend. The Pit 1 Forebay received an estimated 720 boating recreation days during the summer recreation season. During a typical weekend afternoon, 4 boats at one time (BAOT) were observed at the forebay. Most of the boats observed (95 percent) were powerboats, with the remainder being jet skis, non-powered boats, or sailboards. Immediately downstream of the forebay dam spillway channel there were an estimated 1,178 day-use recreation-days during the fishing season and an average of 1 PAOT during a typical weekend along the shoreline (FERC 1999).

Recreational use at Big Eddy totaled 1,263 recreation-days with a maximum of 28 PAOT observed during a holiday weekend. At the Pit 1 Project Footbridge, located in the Pit 1 Powerhouse area, recreation use was estimated to be 749 recreation-days of day-use activity (FERC 1999).

The WRC Environmental (1996) study estimated the use of the Canyon Section at 25 whitewater recreation visits annually and the future average annual demand to be about 150 annual visits. This study also estimated the 1996 whitewater boating use on the 299 Section to be about 100 annual visits. Future

annual average visitation on this section of the Pit River was estimated at about 200 annual visits (WRC Environmental 1996).

Whitewater boating use on the Pit 1 Bypass Reach was monitored by direct observation during the three weekends of summer flushing flows from 2003, when the current license took effect, through 2009, which was the last year summer flushing flows occurred. Whitewater boating use on the Pit 1 Bypass Reach was also monitored by direct observation during the first 4 years of the October whitewater boating flows from 2011 through 2014. Table 3.5-2 presents the observed whitewater recreation use and daily mean use during the summer flushing flows (2003–2009) and October whitewater boating flows (2011–2014).

The majority of boaters used kayaks, during both the summer flushing flows (96%) and the whitewater boating flows (90%). Raft use during the whitewater boating flows (10%) was a little higher than during the summer flushing flows (4%). Boaters were not observed using tubes or canoes.

For whitewater boating flow availability, the release of the 2003-2009 summer flushing flows, and the October whitewater boating flows, which began in 2011, notices have been publicized annually in local newspapers (i.e., Mountain Echo, Intermountain News, Redding Record Searchlight) and provided to American Whitewater for inclusion on their website. The American Whitewater website (<http://www.americanwhitewater.org/>) includes dates and target magnitudes of flow releases.

Whitewater boating use during the summer flushing flows was relatively low until the July 2006 release. Prior to 2006, an average of two people boated each summer flushing flow weekend day. In contrast, an average of 39 people boated each summer flushing flow weekend day from 2006 through 2009. During the 2003–2009 summer flushing flows, an average of 23 boaters boated the Pit 1 Bypass Reach with an average of 22 kayak runs and one raft run each day.

In contrast, boating use during the 2011-2014 October whitewater boating flows was more than two times greater than during the 2003-2009 summer flushing flows. During the 2011-2014 October whitewater boating flows, an average of 64 boaters boated the Pit 1 Bypass Reach with an average of 49 kayak runs and six raft runs each day (see Table 3.5-2).

### **3.5.1.3 Recreational Instream Flow**

In addition to access and recreation support facilities, another important consideration relative to recreation use and the recreational experience is instream flow. In some instances, such as whitewater boating activities, instream flow is the fundamental consideration.

In the Pit 1 Bypass Reach, the current minimum instream (instantaneous) flows downstream of the Fall River Pond, as measured at the Fall River Weir, range between 75 cfs and 150 cfs. These flows are sufficient to support dispersed stream-based recreation activities. They also allow for access to the stream channel for instream recreation activities such as angling. However, instream flows between 75 cfs and 150 cfs are too low to support whitewater boating activities. Below the Pit 1 Powerhouse, the license-required minimum instream flow is 700 cfs.

Condition 13 of the 401 Certification requires the Licensee to control growth of aquatic vegetation and mosquito production in the Fall River Pond by releasing a continuous minimum fish/aquatic habitat flows as described in Condition 8 and by releasing flushing flows through Fall River Pond for two consecutive days (Saturday and Sunday) three times per summer. Flushing flows are defined as 1,250 cfs or the natural flow to the Pit 1 Forebay, whichever is less. The magnitude of the summer flushing flows is adequate to support whitewater recreation activities.

**Table 3.5-2 Summary of Boating Use Observed in the Pit 1 Bypass Reach during Summer Flushing Flows (2003–2009) and October Whitewater Boating Flows (2011–2014)**

Year	Number of Survey Days	Number of Weekend Survey Days	Number of Days with Boaters	Number of Kayak Runs	Number of Raft Runs	Total Number of Boating Runs	Number of Boaters (i.e., Boater Days) <sup>a</sup>
<b>Summer Flushing Flows</b>							
2003	6	6	3	25	0	25	25
2004 <sup>b</sup>	9	6	2	6	0	6	7
2005	6	6	1	4	0	4	4
2006	6	6	4	121	2	123	128
2007	6	6	6	299	14	313	339
2008	6	6	6	209	7	216	219
2009	6	6	6	266	13	279	247
<b>Totals</b>	<b>45</b>	<b>42</b>	<b>28</b>	<b>930</b>	<b>36</b>	<b>966</b>	<b>969</b>
<i>Daily Mean Use during Summer Flushing Flows</i>				<b>22</b>	<b>1</b>	<b>23</b>	<b>23</b>
<b>October Whitewater Boating Flows</b>							
2011	4	4	4	201	13	214	237
2012	4	4	4	246	16	262	283
2013	4	4	4	158	22	180	218
2014	4	4	4	183	38	221	285
<b>Totals</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>788</b>	<b>89</b>	<b>877</b>	<b>1,023</b>
<i>Daily Mean Use during October Whitewater Boating Flows</i>				<b>49</b>	<b>6</b>	<b>55</b>	<b>64</b>

Source: PG&E 2011, PG&E unpublished data

<sup>a</sup> Number of boater days—one “boater day” is defined by State Water Board as boating use by one person on the Pit 1 Bypass Reach for any part of a given day. Boaters making multiple runs are only counted as one boater day.

<sup>b</sup> During 2004, the May/June flushing flows occurred for 5 days from Wednesday, May 19, through Sunday, May 23. There were no boaters on any day. Only the weekend days were used to calculate daily mean use.

The initial summer flushing flows were scheduled to be released in May or June when warranted by vegetation growth in the Fall River Pond. The second summer flushing flow was to be released in July, and the third at the end of August prior to the Labor Day weekend. The releases were to be made from approximately 2 a.m. Saturday morning and continue until approximately 3 p.m. the following Sunday afternoon, and then be ramped down over a period of time. In an effort to support whitewater boating use of the summer flushing flows, the Licensee provides advanced public notice of the flow releases by telephone and on existing websites.

In March 2011, PG&E filed its proposed whitewater boating flow release schedule to implement recreational whitewater boating flow releases in the Pit 1 Bypass Reach. This proposal recognized whitewater boating as a beneficial use of the Pit River and the ecological constraints associated with the provision of flows sufficient to support whitewater boating activities.

Since 2011, the October whitewater boating flows have occurred annually during two weekends in October; alternatively, the October whitewater boating flows could occur over four consecutive days during the Columbus Day weekend. Annual flow schedules would be set each year based on river conditions. The initial 2011 flow release was targeted to be 850 cfs to 950 cfs.

In June 2011, FERC issued an order to implement October recreational whitewater boating flow releases in the Bypass Reach as a beneficial use of the Pit River. The FERC order<sup>20</sup> stated:

“The proposed whitewater boating flow schedule(s) should be implemented in a timely manner in order to accommodate desired late summer or fall flows, in lieu of any previously scheduled May, June and July flows” (FERC 2011).

### **3.5.2 Regulatory Setting**

Recreational resources are protected and/or managed by a variety of agencies at the federal, state, and local levels. Each of these agencies has their agency-specific laws, ordinances, and/or regulations. In general, the terrestrial resources in the Proposed Project area are associated with privately owned lands, but the Pit 1 Project and associated waters of the Fall and Pit rivers come under the auspices of federal and state regulations.

#### **3.5.2.1 *Federal***

The Pit 1 Project and associated facilities, operate in accordance with the articles, terms, and conditions of the FERC license for the Pit 1 Project. The FERC license was issued March 19, 2003, pursuant to Sections 4(e) and 15 of the Federal Power Act (FPA), 16 U.S.C. §§ 797(e) and 808, for the continued operation and maintenance of the Project. As part of the licensing process the USFWS issued a Biological Opinion for impact associated with Pit 1 Project facilities and operations. The following language defines the FERC license objective for the Pit 1 Project:

It is the Commission's policy with respect to recreational development at licensed projects to “seek, within its authority, the ultimate development of [recreational] resources, consistent with the needs of the area to the extent that such development is not inconsistent with the primary purpose of the project.”...To that end, the Commission requires licensees to make reasonable expenditures to develop suitable recreation facilities and to provide for adequate public access to project facilities and waters.

---

<sup>20</sup> 135 FERC ¶ 62,215. Order Approving Final Whitewater Boating Flow Schedule (issued June 14, 2011).



### **3.5.2.2 State**

Under Section 401(a)(1) of the CWA (33 U.S.C. § 1341(a)(1)), FERC may not issue a license for a hydroelectric project unless the state water quality certifying agency has either issued a water quality certification for the project or has waived certification. Section 401(d) of the CWA (33 U.S.C. § 1341(d)) provides that state certification shall become a condition of any federal license or permit that is issued. Amendment to the 401 Certification issued by the State Water Board requires the completion of assessment and documentation required by CEQA. The 401 Certification places numerous conditions on the Project:

Condition 13 of the 401 Certification addresses the control of aquatic vegetation and mosquito production as follows:

The Licensee shall control growth of aquatic vegetation and mosquito production in the Fall River Pond by releasing a continuous minimum fish/aquatic habitat release as described in Condition 8 and by releasing flushing flows through Fall River Pond for two consecutive days (Saturday and Sunday) three times per year. Flushing flows are defined as 1,250 cfs or the natural flow to the Pit 1 Forebay, whichever is less. The flushing flow will be released in May or June when warranted by vegetation growth in the Fall River Pond. The second flushing flow will be released in July, and the third flushing flow will be released at the end of August, prior to the Labor Day weekend. The releases will be made from approximately 2 a.m. Saturday morning and continue until approximately 3 p.m. the following Sunday afternoon and then be ramped down over a period of time. PG&E shall develop a vegetation flushing flow ramping plan in consultation with the Department of Fish and Game and the California Water Board and obtain written approval of the plan by the Chief of the Division of Water Rights. The Licensee shall implement the flushing program as soon as practicable after issuance of the new license.

The Licensee shall provide as much advanced public notice as possible of a proposed flushing flow release but no less than 48 hours through a boat-a-phone or existing PG&E website.

Though not specifically mentioned in Condition 13, the summer flushing flows stipulated by this measure also have the incidental benefit of supporting whitewater boating activities.

In addition to measures stipulated by the State Water Board, the CDFW has a jurisdictional overlay on the Pit 1 Project area. All fishing and hunting activities throughout the various waterways and lands affected by the Pit 1 Project are subject to CDFW regulation, which stipulates hunting and fishing methods, target species, take limits, and hunting and fishing seasons. The CDFW may also regulate boating on Pit 1 Project waters when consistent with FERC requirements.

### **3.5.2.3 Regional and Local**

The Shasta County General Plan and Zoning Ordinance guides recreational development and use of unincorporated lands outside of FERC's jurisdiction.

Shasta County General Plan Open Space and Recreation (OSR) objectives and policies relevant to the Proposed Project include:

- **Objective OSR-1.** Protection of the OSR resources of Shasta County for the use and enjoyment by county residents both now and in the future.
- **Objective OSR-2.** Provision of public access to OSR resources consistent with the need to protect these resources and the rights of private property owners.
- **Policy OSR-a.** Protection of the open space resources under Shasta County jurisdiction shall be achieved primarily through policies recognizing the contributions of these resources to the economy of the county.

### **3.5.3 Environmental Impacts and Mitigation**

#### **3.5.3.1 *Methodology***

The assessment of impacts to recreation associated with the Proposed Project is limited to activities directly affected by the cessation of summer flushing flows for three weekends (6 days) and the implementation of October whitewater boating flows for two weekends or four days over Columbus weekend. The primary recreational use of the summer flushing flows is whitewater boating, which would thus be most directly affected by the termination of flushing flows. Other recreational uses that may be affected by the termination of summer flushing flows include angling activities and dispersed stream corridor recreation uses such as picnicking, wading, and swimming. In addition, the experiential value of recreation activities could diminish.

The principal factor for the support of whitewater boating activities is adequate instream flow. The magnitudes of the summer flushing flows are adequate to support whitewater boating activities. Conversely, the minimum instream flows required by the Pit 1 Project's FERC license are not sufficient to support whitewater boating activities. For the purposes of this assessment, the termination of summer flushing flows would be considered equivalent to the loss of summertime whitewater boating opportunities associated with the flow releases (6 days). Similarly, the implementation of October whitewater boating flows is equivalent to the gain of four days of whitewater boating opportunities in October.

The potential impacts to recreation uses indirectly affected by summer flushing flows or October whitewater boating flows were evaluated by assessing the resource considerations needed to support those recreation activities. These resource considerations are access to the resource, ability to walk along the streambank, presence of beaches or areas suitable for picnicking, and in-channel conditions suitable for wading, fishing, and/or swimming activities.

Relative to other Proposed Project-related recreation uses, the underlying assumption is that other uses and levels of visitation would not be affected by the termination of summer flushing flows or implementation of October whitewater boating flows. In addition, it is assumed that whitewater boating use associated with the summer flushing flows or October whitewater boating flows does not have a notable influence on the inducement of other recreational uses, or visitation, to the Proposed Project area.

#### **3.5.3.2 *Significance Criteria***

To identify the potential effects of the Proposed Project on the recreational opportunities described above, circumstances that would constitute a "significant impact" need to be identified. These circumstances may be functional, experiential, or both.

A function-related impact is one that would result in the loss or displacement of use on the subject stream reach. For example, a change to instream flow that would preclude the ability to use that resource would be function-related. An experiential impact would result if, for example, the change to instream flow changes the experience of its use, regardless of whether use of the resource is lost or displaced.

Experientially associated effects are less defined and, as a result, more variable in application. Experiential impacts are associated with the quality of the recreation experience, as opposed to the ability to participate in the activity. The establishment of flow requirements for whitewater boating is an example of experientially associated criteria. Minimum flows are set with regard to the experiential aspect of the recreational activity and often assume the activity is not feasible at flows lower than the minimum flow identified. In most cases, the target activity is physically possible below an identified minimum flow, but the recreation experience is diminished to the extent that it is no longer considered viable.

The application of an impact threshold would depend on the specific resource and associated activity. In some cases, the impact threshold may be a single consideration while some resources may have multiple considerations.

The assessment of impacts from the Proposed Project on recreation includes multiple considerations: regulatory, functional, and experiential. In assessing impacts from the Proposed Project on recreation, three thresholds for the determination of impact can be applied. The application of these significance criteria would address regulatory/policy conflicts (regulatory), loss of recreation use and/or opportunity (functional), and changes to the recreation experience (experiential). The Proposed Project would result in a significant impact if:

- The Proposed Project or its operation conflicts with adopted plans, regulations, or agreements.
- Recreational uses as described are substantially reduced as a result of the implementation of the Proposed Project.
- Recreational experiences are substantially diminished as a result of the implementation of the Proposed Project.

In addition, in accordance with CEQA Guidelines Appendix G, implementation of the Proposed Project would result in a significant impact if any of the following conditions occurred:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

**3.5.4 Impacts and Mitigation**

Under the Proposed Project, the summer flushing flows released from Fall River Pond into the Pit 1 Bypass Reach would be terminated and October whitewater boating flows would be implemented. The primary purposes of these summer flushing flows, as described in Article 401 of the FERC license and in 401 Certification Conditions 13 and 14, are to control aquatic vegetation and mosquito production. A recognized incidental benefit of these summer flushing flows was an increased opportunity for whitewater recreation activities during the three flushing flow events.

In addition to whitewater recreation use directly dependent on the summer flushing flows, other recreation activities that may be affected by the termination of summer flushing flows include angling activities and dispersed stream corridor recreation uses such as picnicking, wading, and swimming. Resource considerations that could be affected by instream flow include access to the resource, ability to walk along the streambank, presence of beaches or area suitable for picnicking, and in-channel conditions suitable for wading, fishing, and/or swimming activities.

Implementation of the Proposed Project affect both instream and dispersed stream corridor recreation use. The evaluation of potential impacts from the Proposed Project and mitigation needs is presented in this section. The assessment of impacts is based on the impact significance criteria discussed in the previous section.

Impact	Determination
<b>REC-1:</b> Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Less than significant

The Pit River Campground and PG&E’s Pit River Access are the only recreation facilities likely to be impacted by the Proposed Project. Implementation of the Proposed Project decreases use of the BLM Pit River Campground and PG&E’s Pit River Access during three weekends during the summer, however, it increases use of the BLM Pit River Campground and PG&E’s Pit River Access during two weekends (or 4 days over Columbus weekend) during October. Use of the BLM Pit River Campground by other recreationists is generally higher during summer weekends compared to October weekends, because of

summer vacations. Therefore, impacts related to increased use of existing recreational facilities would be less than significant.

Impact	Determination
<b>REC-2:</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?	No Impact

As required by the FERC license for the Pit 1 Project, PG&E constructed the Pit River Access in 2011 to provide boaters with a put-in for year-round access to the Pit 1 Bypass Reach. Implementation of the Proposed Project does not require construction or expansion of recreational facilities. Therefore, no impacts due to construction or expansion of recreational facilities would occur.

Impact	Determination
<b>REC-3:</b> Conflict with adopted plans, regulations, or agreements?	Less than significant

The Proposed Project does not conflict with plans, regulations, or agreements.

There are no conflicts with federal land or water plans, regulations, or agreements. The Proposed Project is not on federal lands and there are no applications of federal land policies or requirements associated with implementation of the Proposed Project. Implementation of the Proposed Project does not involve the filling or other uses of federally regulated waters. Implementation of the Proposed Project would amend the Pit 1 Project License, and as such, would be consistent with license requirements.

There are no conflicts with local land or water plans, regulations, or agreements. Implementation of the Proposed Project would not result in the loss of open space or significantly diminish the recreation resources of Shasta County, as discussed below., The Proposed Project does not propose any uses or changes in existing uses that would affect the provision of public access to OSR resources, consistent with the need to protect these resources and the rights of private property owners, nor would the Project affect the ability of Shasta County to protect the open space resources. Impacts would be less than significant.

Impact	Determination
<b>REC 4:</b> Substantially reduce recreational uses?	Less than significant

There is the potential that implementation of the Proposed Project would result in a reduction in whitewater recreation use. The Proposed Project, however, includes implementation of October whitewater boating flows in place of summer flushing flows so the Proposed Project would not substantially reduce whitewater recreation use.

The termination of summer flushing flows would reduce or potentially eliminate periodic summer whitewater recreational opportunities in the Pit 1 Bypass Reach. However, there are other summertime whitewater boating opportunities in the region, such as the August whitewater boating releases in the Pit 5 Reach downstream of the Project Area.

The Class II whitewater downstream of the Pit 1 Powerhouse (downstream of the Pit 1 Bypass Reach) would continue to be available throughout the summer and is used for tubing and by less experienced boaters. The magnitude of the flows in the reach downstream of the Pit 1 Powerhouse is unaffected by either the summer flushing flows or October whitewater boating flows. There may be a slight decrease in use of this run because of some whitewater boaters used this section after the Pit 1 Bypass Reach, but most of these boaters took out at the BLM Pit River Campground. The primary resource choice for more experienced boaters is the Pit 1 Bypass Reach, under adequate flows; use of the Class II reach is commonly regarded as incidental.

In June 2011, FERC ordered the implementation of recreational whitewater boating flow releases in the Pit 1 Bypass Reach. As stated in the FERC order, these flow releases are “in lieu of any previously scheduled May, June, and July flows” (FERC 2011). These whitewater releases, which began in 2011, would continue to be implemented for two weekends or four consecutive days in October, on or before October 30.

Whitewater boating use during the 2011–2014 October whitewater boating flows was more than two times greater than during the 2003–2009 summer flushing flows. During the 2003–2009 summer flushing flows, an average of 23 boaters boated the Pit 1 Bypass Reach with an average of 22 kayak runs and one raft run each day. During the 2011–2014 October whitewater boating flows, an average of 64 boaters boated the Pit 1 Bypass Reach with an average of 49 kayak runs and 6 raft runs each day.

The termination of summer flushing flows would not have an adverse effect on dispersed stream corridor recreation uses. The baseline flows associated with Pit 1 Project operations as currently licensed would support the resource considerations associated with angling activities and dispersed stream corridor recreation uses such as picnicking, wading, and swimming. In addition, implementation of the Proposed Project would result in improved angling opportunities during three summer weekends. The higher flows that were associated with the summer flushing flow releases may have affected angling activities and dispersed stream corridor recreation uses. These adverse effects were tied to the loss of beach area, loss of suitable instream flow conditions for wading or swimming, diminished angling conditions, and loss or diminishment of the ability to walk along the streambank. With implementation of the Proposed Project, these high summer flushing flows would not occur. Therefore, impacts related to reduced recreational uses would be less than significant.

Impact	Determination
<b>REC-5:</b> Substantially diminish recreational experiences?	Less than significant

Recreation experiences would not be substantially diminished as a result of implementation of the Proposed Project. A primary consideration in scheduling whitewater boating flow releases during October is the lower availability of other comparable regional whitewater opportunities during the October timeframe, as opposed to the spring/summer timeframe. California, in particular northern California, is renowned worldwide for its abundance of outstanding whitewater boating resources. The availability of whitewater boating opportunities is at its peak in the late spring and early summer when snowmelt runoff and dam releases provide sufficient instream flow for whitewater boating activities. Depending on the water-year type, in mid- to late summer and early fall the runoff subsides, and dam-controlled releases are decreased or terminated.

Almost all late-summer viable whitewater resources are a result of water releases from water storage and/or hydroelectric projects. Even with these projects, flow releases may be curtailed to the extent that whitewater activities are not viable or the quality of the resource is diminished to the extent that they do not attract use. By October, whitewater boating opportunities are considerably diminished, and in many cases, eliminated. The October whitewater boating flow releases under the Proposed Project not only address biological concerns, but also provide viable whitewater boating opportunities at a time when whitewater boating opportunities, within the region and beyond, are scarce and whitewater opportunities are in high demand. The late season demand is substantiated by whitewater boating use during the 2011–2014 October whitewater boating flows, which was more than two times greater than during the 2003–2009 summer flushing flows.

The termination of summer flushing flows would not have an adverse effect on dispersed stream corridor recreation uses. In most circumstances, the baseline minimum instream flows provide favorable conditions for these activities by providing more beach area, suitable instream flow conditions for wading or swimming, favorable angling conditions, and increased ability to walk along the streambank. Therefore, impacts related to diminished recreational experiences would be less than significant.

This Page Intentionally Left Blank

## 4 Other CEQA Considerations

---

This chapter presents discussions of irreversible impacts, significant and unavoidable impacts, growth-inducing impacts, and cumulative impacts as required by the CEQA Guidelines.

### 4.1 Irreversible Impacts

CEQA Guidelines section 15126.2, subdivision (c) requires that an EIR discuss the significant irreversible environmental changes that would result from the implementation of a Proposed Project. These changes include use of nonrenewable resources during a project's initial and continued phases, because a large commitment of such resources makes their future use thereafter unlikely. A project's primary and secondary impacts that would commit future generations to similar uses (e.g., highway improvements that provide access to a previously inaccessible area) would be irreversible changes.

There are no irreversible impacts from the Proposed Project as discussed in Chapter 3.

### 4.2 Significant Unavoidable Impacts

Unavoidable significant adverse impacts are those effects that would significantly affect either natural systems or community resources, and cannot be mitigated to less than significant.

There are no significant and unavoidable impacts from the Proposed Project as discussed in Chapter 3.

### 4.3 Growth-Inducing Impacts

Section 15126.2, subdivision (d) of the CEQA Guidelines requires an EIR to include a detailed statement of a Proposed Project's anticipated growth-inducing impacts. The analysis of growth-inducing impacts must discuss the ways in which a Proposed Project could foster economic or population growth or the construction of additional housing in the Project Area. The analysis must also address project-related actions that, either individually or cumulatively, would remove existing obstacles to population growth. A project would be considered growth inducing if it induces growth directly (through the construction of new housing or increasing population) or indirectly (increasing employment opportunities or eliminating existing constraints on development). Under CEQA, growth is not assumed to be either beneficial or detrimental.

The Proposed Project would not involve new development or infrastructure installation that could directly induce population growth in the Proposed Project area. Additionally, the Proposed Project would not involve construction of new housing or create a demand for additional housing.

Furthermore, the Proposed Project would not displace any existing housing units or persons. The Proposed Project involves a change in summer flushing flows to October whitewater boating flows in the Pit 1 Bypass Reach and as such would not result in any growth inducing impacts.

### 4.4 Cumulative Impacts

The CEQA Guidelines, at section 15355, define cumulative impacts as two or more individual affects that, when considered together, are considerable or that compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

CEQA requires a summary of the expected environmental effects to be produced by those projects, with specific reference to additional information stating where that information is available, and a reasonable analysis of the cumulative impacts of the relevant projects. An EIR must examine reasonable options for mitigating or avoiding any significant cumulative effects of a Proposed Project. In some situations, the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations, rather than the imposition of conditions on a project-by-project basis.

#### **4.4.1 Approach**

The CEQA Guidelines section 15130, subdivision (b), requires either (1) a list of past, present, and reasonably foreseeable future projects producing related or cumulative impacts, including those projects outside the control of the lead agency (*list approach*), or (2) a summary of projects contained in an adopted General Plan or related planning document that is designed to evaluate regional or area-wide conditions (*plan approach*). Projects included in this cumulative impact analysis were identified using a list approach and are those that could result in impacts on the same resources in the same geographic areas as the Proposed Project. The general area that was considered in the cumulative impact analysis is limited to Shasta County. Shasta County projects were examined for their potential to result in a cumulative impact when combined with the Proposed Project.

##### **4.4.1.1 Cumulative Impact Methodology**

The cumulative impact analysis is based on CEQA requirements. When assessing whether there would be a significant cumulative impact from implementation of the Proposed Project in combination with other projects, the analysis considers whether the incremental effects of the project would be cumulatively considerable (Pub. Resources Code, § 21094, subd. (e)(2)). As discussed in the CEQA Guidelines, section 15064, subdivision (h)(4), the mere existence of significant cumulative impacts caused by other projects alone does not constitute substantial evidence that the Proposed Project's incremental effects are "cumulatively considerable." *Cumulatively considerable* means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. (CEQA Guidelines, § 15064, subd. (h)(1)). The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the Proposed Project's incremental effects are cumulatively considerable. (*Id.*, subd. (h)(4).)

The Proposed Project's incremental contribution to a cumulative effect would not be cumulatively considerable if the project would comply with the requirements of a previously approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources, through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. (CEQA Guidelines, § 15064, subd. (h)(3)). Plans can include, but are not limited to, a water Quality Control Plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, and plans or regulations for the reduction of greenhouse gas emissions).

#### **4.4.2 Impacts**

The Proposed Project is a change in operations from summer flushing flows to October whitewater boating flow and it does not involve any construction. The Proposed Project would result in a reduction of adverse impacts to the endangered Shasta crayfish by eliminating temperature fluctuations during the summertime, which are believed to be affecting their ability to survive in the Pit 1 Bypass Reach. There are no known projects in Shasta County or in the Proposed Project area that are currently proposed based on a review of the most recent Shasta County cumulative projects list. Examples of types of projects that may have a cumulatively considerable effect when taking the Proposed Project into account would be discontinuation of other whitewater boating opportunities so as to cumulatively reduce



whitewater boating opportunities available in the Proposed Project area. No projects are currently known to be proposed that would discontinue other whitewater boating opportunities in the area at the same time of year as the Proposed Project. Therefore, no cumulative impacts would occur from implementation of the Proposed Project.

This Page Intentionally Left Blank

## 5 Alternatives

When reviewing project alternatives, the State Water Board decided to carry the Proposed Project forward for analysis as discussed in Chapter 3 because it met the State Water Board's objective of reducing identified impacts to the Shasta crayfish while providing whitewater boating flow releases in October when there are fewer whitewater boating opportunities in the region. The Proposed Project is a balance of best maintaining beneficial uses as designated in the Basin Plan while protecting the endangered Shasta crayfish. A comparison of alternatives is contained in Table 5.1-1 and a discussion of each alternative considered by the State Water Board is provided below.

**Table 5.1-1 Comparison of Alternatives**

<b>Environmental Issue</b>	<b>Proposed Project</b>	<b>No Project</b>	<b>Spring Whitewater Boating Flows</b>	<b>Non-Native Crayfish Barriers</b>
Aesthetics/Visual Resources	N/A	N/A	N/A	N/A
Agricultural Resources	N/A	N/A	N/A	N/A
Air Quality/Greenhouse Gases	N/A	N/A	N/A	N/A
Biological Resources- Aquatic	B	SU	SU	SU
Cultural Resources	LTS	LTS	LTS	S
Geologic and Seismic Hazards	N/A	N/A	N/A	N/A
Hazards and Hazardous Materials	N/A	N/A	N/A	N/A
Hydrology and Water Quality	LTS	LTS	LTS	LTS
Land Use and Planning	N/A	N/A	N/A	N/A
Noise	N/A	N/A	N/A	N/A
Recreation	LTS	N/A	N/A	N/A
Traffic and Transportation	N/A	N/A	N/A	N/A

- B = Beneficial
- LTS = Less than Significant
- N/A = Not Applicable or No Impact
- SU = Significant and Unavoidable

### 5.1 Alternative 1: No Project Alternative

#### 5.1.1 Characteristics

Consideration of a No Project Alternative is specifically required by CEQA Guidelines section 15126.6, subdivision (e)(1)-(3). The purpose of evaluating the No Project Alternative is to compare the impacts of the Proposed Project with the impacts that could occur without implementation of the Proposed Project or the circumstance under which the Proposed Project does not proceed. The No Project Alternative is defined as what would be reasonably expected to occur in the foreseeable future if none of the other project

alternatives were approved and implemented based on current plans and consistent with available infrastructure.

Under the No Project Alternative, flushing flows would continue to be implemented in the summertime months and no other changes in Pit 1 Project operations as described in Chapter 2 would occur.

### **5.1.2 Environmental Effects**

Implementation of the No Project Alternative would affect the following resource areas.

#### **5.1.2.1 *Biological Resources***

Implementation of this alternative would continue to eliminate thermal refugia for the endangered Shasta crayfish and potentially extirpate this species from its current habitat in the Pit 1 Bypass Reach. This alternative is considered undesirable because it would not meet the State Water Board's objective of reducing harmful effects of summer flushing flows to the endangered Shasta crayfish. Compared to the Proposed Project's beneficial impacts, biological resources impacts under the No Project Alternative would be significant and unavoidable.

#### **5.1.2.2 *Cultural Resources***

Implementation of this alternative assumes that flushing flows would still occur over the summer months. Cultural resource surveys conducted in 2004 recorded multiple cultural resource sites within the Pit 1 Bypass Reach. As part of the Whitewater Boating Flows Recommendation Study (Spring Rivers 2011a), a cultural resources survey of the Pit 1 Bypass Reach in the Pit River Canyon was done to identify the locations of all cultural resources and to describe any Project-related or other impacts to the resources. Any cases of cultural resources affected by erosion caused by whitewater or natural flood flows in the Pit River were revisited during a summer flushing flow to document changes in wetted perimeter and stage height associated with the flushing flow event. A determination as to whether summer flushing flows would be of sufficient magnitude to impact each of the cultural resources that are affected by erosion was also made. If the stage height was not sufficient to affect a resource, the minimum stage that would affect it (i.e., vertical distance above the observed flushing flow) was measured (PGE 2011).

Archaeological sites located in different sections along the Pit 1 Bypass Reach showed minimal to no erosion effects, and those effects seen were determined to be more likely due to natural high flow events than by Pit 1 Project operations. Further documentation of the minimal recreational boating usage during 2003 and 2004 indicated there were no impacts to the cultural resources due to the boaters themselves. Based on these cultural resource surveys, the whitewater boating flows study concluded that there would be no effects of whitewater boating on specific cultural resources in the Pit 1 Bypass Reach (PGE 2011).

Therefore, as with the Proposed Project, implementation of the No Project Alternative would have less-than-significant impacts related to cultural resources.

#### **5.1.2.3 *Hydrology and Water Quality***

Implementation of the No Project Alternative assumes that summer flushing flows would still occur. Summertime flushing flows were recommended to control nuisance aquatic vegetation and mosquito production. However, monitoring data show that the minimum instream flows have been sufficient to control unwanted vegetation and mosquito production. Therefore, under the No Project Alternative, water quality would remain unchanged in the Pit 1 Bypass Reach.

#### **5.1.2.4 *Recreation***

Under the No Project Alternative, summer flushing flows would continue to provide whitewater boating opportunities during the summer months. October whitewater boating flows would not occur and therefore, when compared to the Proposed Project, less recreational opportunities would exist with

implementation of the No Project Alternative. This alternative would, however still maintain designated beneficial uses, which is an objective of the Proposed Project.

### **5.1.3 Conclusion**

The No Project Alternative would not achieve the State Water Board's objective of reducing impacts to the Shasta crayfish, but would maintain the summer flushing flows per the current FERC license for the Pit 1 Project. Continuation of summer flushing flows would maintain water quality objectives and Basin Plan designated beneficial uses.

## **5.2 Alternative 2: Spring Whitewater Boating Flows**

An alternative to summer flushing flows would be to change the season in which recreational flow releases are conducted. Rather than conduct flushing or recreational whitewater boating flows during the critically warm months of July and August, when coldwater refugia are reduced in the Pit 1 Bypass Reach, whitewater boating flow releases could be conducted in the spring. While the base temperature in the Bypass Reach is lower in spring than in summer, springtime whitewater boating flows would still represent a temporary change to base conditions. The mainstem of the Pit River does not naturally experience sudden temperature or flow changes in the summer due to a lack of precipitation. During the spring however, there can be runoff and precipitation and the river can experience natural changes in flow and temperature.

### **5.2.1 Environmental Effects**

Implementation of the Spring Whitewater Boating Flows Alternative would affect the following resource areas.

#### **5.2.1.1 *Biological Resources***

Spring whitewater boating flows may not cause the drastic temperature changes as seen in the summer since the minimum instream base flow conditions are cooler in the spring, and have more natural variability. Temperature fluctuations would still occur, however, as a result of the spring whitewater boating flow releases. Both non-native crayfish species in the Pit 1 Bypass Reach are more tolerant of temperature fluctuations and have a wider temperature range than the native Shasta crayfish. Since non-native crayfish can acclimate faster, a sudden increase in temperature would likely increase their competitive advantage. Spring whitewater boating flows may reduce the day-to-night water temperature fluctuations that were observed during summer flushing flows due to the presence of cooler air temperatures and spring runoff. However, spring whitewater boating flows may still result in a higher minimum daily water temperature than would occur otherwise. The average monthly water temperature in June between 2004 and 2011 at Big Eddy Pool was 19.9°C, compared to 22.9°C and 21.6°C during July and August, respectively (PG&E 2013). Based on the June temperature data, it is reasonable to assume that water temperatures in spring (April and May) would be cooler than 19.9°C, which would minimize water temperature fluctuations caused by spring whitewater boating flows. Compared to the current FERC license requirements for summer flushing flows, spring whitewater boating flows would result in smaller temperature changes in the Pit 1 Bypass Reach. Higher flow events do occur in the spring in the Pit River, however, short, pulsed high flow events are not typical of the natural hydrology of the Pit River. While the temperature changes resulting from springtime whitewater boating flows would not be completely eliminated, the implementation of springtime whitewater boating flows would have substantially less impact on Shasta crayfish than summer flushing flows.

Spring whitewater boating flows also have the potential to adversely affect spawning and recruitment of aquatic species by washing eggs and juveniles out of their habitat. Spring whitewater boating flows would adversely affect freshwater mussels in the Pit River. Pulsed flows in the spring and summer disrupt the three critical reproductive events, which occur between April and August for all three native mussels in the

Pit 1 Bypass Reach, with spawning in April and May, glochidial release in June and early July, and juvenile excitement in July and August (Spring Rivers 2007, 2011a).

### **5.2.1.2 Cultural Resources**

Implementation of this alternative assumes that whitewater boating flows would still occur, but in the spring as opposed to the summer months. Cultural resource surveys conducted in 2004 recorded multiple cultural resource sites within the Pit 1 Bypass Reach. A subsequent survey in 2005 was made to verify and confirm site-specific conditions and erosion potential. Any cases of cultural resources affected by erosion caused by whitewater or natural flood flows in the Pit River were revisited during a summer flushing flow to document changes in wetted perimeter and stage height associated with the flushing flow event. A determination as to whether summer flushing flows would be of sufficient magnitude to impact each of the cultural resources that are affected by erosion was also made.

Archaeological sites located in different sections along the Pit 1 Bypass Reach showed minimal to no erosion effects, and those effects seen were determined to be more likely due to natural high flow events than by Pit 1 Project operations. Further documentation of the minimal recreational boating usage during 2003 and 2004 indicated there were no impacts to the cultural resources due to the boaters themselves. Based on these cultural resource surveys, whitewater boating flows study concluded that there would be no effects of whitewater boating on specific cultural resources in the Pit 1 Bypass Reach (PGE 2011).

As with the Proposed Project, whether in spring or fall, whitewater boating flows would have no adverse effects on cultural resources.

### **5.2.1.3 Hydrology and Water Quality**

Summer flushing flows were implemented to control nuisance aquatic vegetation and mosquito production. Monitoring data show that the minimum instream base flows in the summer have been sufficient to control unwanted vegetation and mosquito production. Due to the potential for spring precipitation and runoff, which would add to the base flow, flushing flows in the spring would not be required to manage vegetation and mosquito production. Therefore, under the Spring Whitewater Boating Flows Alternative, water quality would remain unchanged in the Pit 1 Bypass Reach.

### **5.2.1.4 Recreation**

Spring whitewater boating flows would likely be considered a less desirable opportunity for whitewater boaters since natural high flow events are more common in the spring and there are many other high-quality alternatives at the same time of year. Adding spring whitewater boating flows would not be adding much in the way of unmet demand for whitewater boating opportunities in the region.

### **5.2.2 Conclusion**

This alternative does not meet the State Water Board's objective of reducing adverse impacts to the endangered Shasta crayfish, while maintaining the designated beneficial uses related to whitewater boating. Although this alternative would provide whitewater boating opportunities on the Pit 1 Bypass Reach in the spring, it is not the ideal time of year for whitewater boaters to use this resource.

## **5.3 Alternative 3: Non-Native Crayfish Barriers**

### **5.3.1 Characteristics**

Alternative 3 would involve maintaining existing Pit 1 Project operations, including summer flushing flows. In addition, this alternative includes installing barriers in the Pit 1 Bypass Reach to protect the surviving Shasta crayfish populations from further invasion by non-native crayfish populations.

The use of barriers is a potential solution to protecting Shasta crayfish populations in the Pit and Fall River watersheds. Crayfish barriers have been studied along the Pit and Fall Rivers as discussed in the Pit 1 Shasta Crayfish Study Report (PG&E 2013). Pursuant to License Article 413, PG&E developed and implemented a Crayfish Barrier Plan (PG&E 2006) to construct and maintain two exclusion barriers to protect Shasta crayfish and their habitat from invasion by signal crayfish (*Pacifastacus leniusculus*) and other non-native crayfish species (e.g., *Orconectes virilis*). PG&E continues annual monitoring and reporting for the long-term evaluation of barrier effectiveness in the TRC annual reports. (Spring Rivers 2009a, 2010b, 2011b, 2012a, 2013b, 2014, 2015, 2016, 2017b).

### **5.3.2 Environmental Effects**

Implementation of the Install Non-Native Crayfish Barriers Alternative would result in effects on the following resource areas.

#### **5.3.2.1 Biological Resources**

Installing non-native crayfish barriers in the Pit 1 Bypass Reach would not be effective in protecting the Shasta crayfish populations in this area of the river for the following reasons

- Non-native crayfish are already widely distributed throughout the Pit 1 Bypass Reach. Furthermore, non-native crayfish are also found in the Fall River drainage and Upper Pit River watershed upstream of the Pit 1 Bypass Reach, as well as downstream of the Pit 1 Bypass Reach. Barriers only prevent upstream movement, and would not prevent non-native crayfish from moving downstream into occupied Shasta crayfish habitat. Therefore, barriers would not be effective at controlling non-native crayfish in the Pit 1 Bypass Reach.
- Installation and maintenance of barriers in the Pit River would be infeasible. The barriers that have been constructed, as studied in the Crayfish Barrier Plan (PG&E 2006), are on small spring-fed creeks that experience low flows and little bedload movement as compared to the Pit River. Furthermore, barriers have not been installed where there are large non-native crayfish populations upstream. Movement of large cobble and boulder substrate in the Pit River during high flows (e.g., winter runoff, flushing flows, or whitewater boating flows) would damage or remove the barriers, and would require frequent repair or replacement.

Therefore, the feasibility and effectiveness of installing such barriers along the Pit 1 Bypass Reach would be low.

Additionally, this alternative has the potential to entrap other aquatic species in the Pit 1 Bypass Reach. Northwestern pond turtles would likely be able to move over a barrier; however, native benthic (bottom dwelling) fish such as sculpins (e.g., pit sculpin) may not be able to move over the barriers. With implementation of this alternative, Shasta crayfish habitat would not be improved, but rather would continue to be degraded by non-native crayfish, and summer flushing flows.

#### **5.3.2.2 Cultural Resources**

Implementation of this alternative assumes that summer flushing flows would still occur. Cultural resource surveys conducted in 2004 recorded multiple cultural resource sites within the Pit 1 Bypass Reach. As part of the Whitewater Boating Flows Recommendation Study (Spring Rivers 2011a), a 2005 cultural resources survey of the Pit 1 Bypass Reach was done to identify the locations of all cultural resources and to describe any Project-related or other impacts to the resources. Any cases of cultural resources affected by erosion caused by whitewater or natural flood flows in the Pit River were revisited during a summer flushing flow to document changes in wetted perimeter and stage height associated with the flushing flow event. A determination as to whether summer flushing flows would be of sufficient magnitude to impact each of the cultural resources that are affected by erosion was also made.

Archaeological sites located in different sections along the Pit 1 Bypass Reach showed minimal to no erosion effects, and those effects seen were determined to be more likely due to natural high flow events than by Pit 1 Project operations. Further documentation of the minimal recreational boating usage during 2003 and 2004 indicated there were no impacts to the cultural resources due to the boaters themselves. Based on these cultural resource surveys, the Phase 1 whitewater boating flows study concluded that there would be no effects of whitewater boating on specific cultural resources in the Pit 1 Bypass Reach (PGE 2011).

Installing fish barriers would require disturbance along and within the river for construction of wing walls and stainless steel support structures. Undiscovered resources could be present that could be impacted by construction. Depending on the location of the barriers, and the cultural resources sensitivity of the area, impacts could be significant.

Therefore, although the continuation of summer flushing flows would have no adverse effects on cultural resources, installation of the barriers could result in significant impacts on cultural resources.

### **5.3.2.3 Hydrology and Water Quality**

Summer flushing flows were implemented to control nuisance aquatic vegetation and mosquito production. Monitoring data show that the increased minimum instream base flows have been sufficient to control unwanted vegetation. Summer flushing flows are not required to maintain water quality in the Pit 1 Bypass Reach and would not be a necessary component for Pit 1 operations. Installation of barriers would involve construction of wing walls along the river edge and stainless steel supports would be driven into the bedrock. Water quality best management practices would be implemented to minimize hydrology and water quality impacts associated with construction. Therefore, impacts under this alternative would be less than significant.

### **5.3.2.4 Recreation**

Under this alternative, summer flushing flows would continue to provide whitewater boating opportunities during the summer months. If it were feasible to install barriers in the Pit 1 Bypass Reach, such barriers would not impact recreation under whitewater boating flow conditions. Therefore, no recreational impacts would occur under this alternative.

### **5.3.3 Conclusion**

Implementation and maintenance of crayfish barriers in the Pit 1 Bypass Reach would not be feasible, and would not mitigate the imminent threat to Shasta crayfish from non-native crayfish populations. In addition, summer flushing flows and the associated water temperature impacts would continue. Although this alternative would maintain beneficial uses, it would not achieve the State Water Board's objective of reducing impacts to the Shasta crayfish.



## 6 List of Preparers

---

### 6.1 State Water Resources Control Board

Project Manager ..... Meiling Roddam  
Engineering Geologist.....Peter Barnes  
Senior Environmental Scientist (Supervisor).....Susan Monheit

### 6.2 Cardno, Inc.

Project Manager ..... Kendra Ryan  
Biological Resources..... Steve Yonge  
Cultural Resources..... Shruti Ramaker  
Recreation ..... David Martinez  
Production Supervisor ..... Iris Eschen  
Sr. Technical Editor .....Reinhold Dillon  
Technical Editor ..... Nancy Beisser

### 6.3 Surf to Snow Environmental Resource Management

Hydrology and Water Quality ..... Elizabeth Frantz

### 6.4 Spring Rivers Ecological Sciences

Biological Resources..... Maria Ellis Ph.D.

This Page Intentionally Left Blank

## 7 References

---

- Albion Environmental, Inc. 2009. 2008 Archaeological Site Monitoring, Pit 1 Hydroelectric Project, (FERC No. 2678). Prepared for Pacific Gas and Electric Company. March.
- Albion Environmental, Inc. 2010. 2009 Archaeological Site Monitoring, Pit 1 Hydroelectric Project, (FERC No. 2678). Prepared for Pacific Gas and Electric Company. February.
- Albion Environmental, Inc. 2013. 2012 Archaeological Site Monitoring, Pit 1 Hydroelectric Project, (FERC No. 2678). Prepared for Pacific Gas and Electric Company. February.
- American Whitewater. 2005. Safety Code of American Whitewater. Available at [American Whitewater Safety](#).
- California Department of Fish and Wildlife (CDFW). 2017. California Natural Diversity Database, State and Federally Listed Endangered, Threatened, and Rare Plants of California. April. Biogeographic Data Branch. Sacramento, California. Available at [California Department of Fish and Wildlife CNDDDB](#).
- California Department of Water Resources (DWR). 1982. Pit River Water Quality Study. Northern District.
- California Native Plant Society (CNPS). 2017. Inventory of Rare and Endangered Plants, 7th edition. Available at [California Native Plant Society Rare Plants Inventory](#).
- Central Valley Regional Water Quality Control Board (CVRWQCB). 1998 (revised 2011). Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins, Fourth Edition. September 15. October.
- Daniels, R.A. 1980. Distribution and status of crayfish in the Pit River drainage, California. *Crustaceana* 38 (2): 131-138.
- Davisson, M.L, and T.P. Rose. 1979. Comparative Isotope Hydrology Study of Groundwater Sources and Transport in Three Cascade Volcanoes of Northern California. Lawrence Livermore National Laboratory, CA. September.
- Davisson, M.L, and T.P. Rose. 2014. Recharge and flow in the Medicine Lake Volcano-Fall River Springs Groundwater Basin, California. *Environmental Forensics* 15 [66]: 66-77.
- Eng, L.L. and Daniels, R.A. 1982. Life history, distribution, and status of *Pacifastacus fortis* (Decapoda: Astacidae). *California Fish and Game* 68 (4): 197-212.
- Far Western Archaeological Group. 2010. Data Recovery Excavations at CA-SHA-3643/H at the Pit Federal Energy Regulatory Commission (FERC). 1999. Environmental Assessment for Hydropower License, Pit 1 Hydroelectric Project, FERC Project No. 2687-014, California. April 29.
- Federal Energy Regulatory Commission (FERC). 2011. Order Approving Final Whitewater Boating Flow Schedule. Project Number 2687-154. June 14.
- Moyle, P.B. 2002. *Inland Fishes of California*. University of California Press, Berkeley and Los Angeles.
- PG&E. 2003a. Shasta Crayfish Management Plan, Addressing License Articles 409 and 412, Pit No. 1 Hydroelectric Project, FERC Project No. 2687. San Ramon, California. September 22.
- PG&E. 2003b. Water Quality Monitoring Plan, Pit 1 Hydroelectric Project, FERC 2687 Article 401. San Ramon, California. September.

- PG&E. 2005. Flushing Flow Effectiveness Monitoring Plan. Pit No. 1 Hydroelectric Project, FERC Project No. 2687. November 2005.
- PG&E. 2006. Crayfish Barrier Plan addressing License Article 413. Pit 1 Hydroelectric Project, FERC Project No. 2687. December.
- PG&E. 2010. Water Quality Monitoring Plan Amendment Addressing License Article 401 as It Relates to CWRCB Water Quality Certificate Conditions 16 and 17. February.
- PG&E. 2011. Biological Evaluation for Pacific Gas and Electric Company's Pit 1 Hydroelectric Project. Prepared with support from Cardno ENTRIX and Spring Rivers Ecological Sciences LLC. Pacific Gas and Electric Company Environmental Services, San Ramon, California. March.
- PG&E. 2013. Pit 1 Shasta Crayfish Study Report, Pursuant to California State Water Resources Control Board, Board Order WQ 2010-0009-Exec. Pit 1 Hydroelectric Project, FERC Project No. 2687. January.
- Pit River Watershed Alliance. 2015. Website. Updated 8/27/15. Available at [Pit River Watershed Alliance](#).
- R2 Resource Consultants, Inc. 2006. Addendum to Potential Impacts of Whitewater Boating Flows – Phase 1 Interim Report – Pit 1 Project FERC Project No. 2687. May 11. Prepared for Pacific Gas and Electric Company San Ramon, California.
- R2 Resource Consultants, Inc., Spring Rivers Ecological Sciences LLC, and Confluence Research & Consulting. 2008. Potential Impacts of Whitewater Boating Flows – Phase 2 Report – Pit 1 Project FERC Project No. 2687, Final Report. Prepared for Pacific Gas and Electric Company, San Francisco, California. March 31.
- Sacramento River Watershed Program. 2017. Fall River Watershed. Available at Sacramento River Watershed Program.
- Sagraves, Timothy, Sagraves Environmental, and Spring Rivers Ecological Sciences. 2010. Water Quality Monitoring Results, 2009 Annual Report. Prepared for Pacific Gas and Electric Company, San Ramon, CA. March.
- Sagraves, Timothy, Sagraves Environmental, and Spring Rivers Ecological Sciences. 2016. Pit 1 Water Quality Monitoring Results, 2015 Annual Report. Prepared for Pacific Gas and Electric Company, San Ramon, CA. May.
- Shasta County. 2004. Shasta County General Plan, as Amended through September 2004. Available for review at [Shasta County General Plan](#).
- Spring Rivers Ecological Sciences. 2007. Reproductive Timing of Freshwater Mussels and Potential Impacts of Pulsed Flows on Reproductive Success. Prepared for California Energy Commission, Public Interest Energy Research Program. October.
- Spring Rivers Ecological Sciences. 2008. Shasta Crayfish Technical Review Committee 2007 Annual Report. Prepared for Pacific Gas and Electric Company Environmental Services, San Ramon, California. May.
- Spring Rivers Ecological Sciences. 2009a. Shasta Crayfish Technical Review Committee Summary Report. Prepared for Pacific Gas and Electric Company Environmental Services, San Ramon, California. May.
- Spring Rivers Ecological Sciences. 2009b. A Biological Evaluation of Thermal Effects from Summer Flushing/Whitewater boating flows on Spring-influenced Aquatic Habitat in the Pit 1 Bypass Reach. Prepared by Spring Rivers Ecological Sciences, Cassel, California for Pacific Gas and Electric Company, San Ramon, California. May.

- Spring Rivers Ecological Sciences. 2009c. Pit 1 Hydroelectric Project, FERC Project No. 2687, Five-Year Water Quality Monitoring Summary Report, 2004–2008. Prepared for Pacific Gas and Electric, Environmental Services, San Ramon, California June
- Spring Rivers Ecological Sciences. 2010a. Pit 1 Flushing Flow Effectiveness Monitoring Plan Summary Report. Final. Prepared for Pacific Gas and Electric Company, Environmental Services, San Ramon, California. June.
- Spring Rivers Ecological Sciences. 2010b. Shasta Crayfish Technical Review Committee, 2009 Annual Report. Prepared for Pacific Gas and Electric Company, Land and Environmental Management, San Ramon, California. May.
- Spring Rivers Ecological Sciences. 2011a. Pit 1 Hydroelectric Project, FERC Project No. 2687, Whitewater Boating Flow Recommendations. Prepared for Pacific Gas and Electric Company, Land and Environmental Management, San Ramon, California. February.
- Spring Rivers Ecological Sciences. 2011b. Shasta Crayfish Technical Review Committee, 2010 Annual Report. Prepared for Pacific Gas and Electric Company, Land and Environmental Management, San Ramon, California. May.
- Spring Rivers Ecological Sciences. 2011c. Pit 1 Flushing Flow Effectiveness Monitoring Plan 2010 Annual Report. Prepared for Pacific Gas and Electric Company, Land and Environmental Management, San Ramon, California. March.
- Spring Rivers Ecological Sciences. 2012a. Shasta Crayfish Technical Review Committee, 2011 Annual Report. Prepared for Pacific Gas and Electric Company, Land and Environmental Management, San Ramon, California. May
- Spring Rivers Ecological Sciences. 2012b. Pit 1 Flushing Flow Effectiveness Monitoring Plan 2011 Annual Report. Prepared for Pacific Gas and Electric Company, Land and Environmental Management, San Ramon, California. March.
- Spring Rivers Ecological Sciences. 2013a. Pit 1 Flushing Flows Effectiveness Monitoring Plan, 2012 Annual Report. Prepared for Pacific Gas and Electric Company, Land and Environmental Management, San Ramon, California.
- Spring Rivers Ecological Sciences. 2013b. Shasta Crayfish Technical Review Committee, 2012 Annual Report. Prepared for Pacific Gas and Electric Company, Land and Environmental Management, San Ramon, California.
- Spring Rivers Ecological Sciences. 2014. Shasta Crayfish Technical Review Committee, 2013 Annual Report. Prepared for Pacific Gas and Electric Company, San Ramon, California.
- Spring Rivers Ecological Sciences. 2015. Shasta Crayfish Technical Review Committee, 2014 Annual Report. Prepared for Pacific Gas and Electric Company, San Ramon, California.
- Spring Rivers Ecological Sciences. 2016. Shasta Crayfish Technical Review Committee, 2015 Annual Report. Prepared for Pacific Gas and Electric Company, San Ramon, California.
- Spring Rivers Ecological Sciences. 2017a Pit 3, 4, and 5 Hydroelectric Project FERC Project No. 233 Foothill Yellow-Legged Frog Monitoring 2007–2016 Summary Report. Prepared for Pacific Gas and Electric Company, San Ramon, CA. April.
- Spring Rivers Ecological Sciences. 2017b. Shasta Crayfish Technical Review Committee, 2016 Annual Report. Prepared for Pacific Gas and Electric Company, San Ramon, California.
- State of California State Water Resources Control Board (State Water Board). 1968. Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California. Available at [State of California State Water Resources Control Board](#).

- State of California State Water Resources Control Board (State Water Board). 2005. Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California. Available at State Water Board Implementation Policy.
- State of California State Water Resources Control Board (State Water Board). 2010. Order approving temporary suspension of flushing flow requirements, Order WQ 2010-0009-EXEC. In the matter of the request to amend water quality certification for the Pit 1 Hydroelectric Project for Pacific Gas and Electric Company, Federal Energy Regulatory Commission Project No. 2687.
- State of California State Water Resources Control Board (State Water Board). 2012. Order approving temporary suspension of flushing flow requirements, Order WQ 2012-0008-EXEC. In the matter of the request to amend water quality certification for the Pit 1 Hydroelectric Project for Pacific Gas and Electric Company, Federal Energy Regulatory Commission Project No. 2687.
- State of California State Water Resources Control Board (State Water Board). 2013. Order approving temporary suspension of flushing flow requirements, Order WQ 2013-0024-EXEC. In the matter of the request to amend water quality certification for the Pit 1 Hydroelectric Project for Pacific Gas and Electric Company, Federal Energy Regulatory Commission Project No. 2687.
- State of California State Water Resources Control Board (State Water Board). 2014. Order approving temporary suspension of flushing flow requirements, Order WQ 2014-0023-EXEC. In the matter of the request to amend water quality certification for the Pit 1 Hydroelectric Project for Pacific Gas and Electric Company, Federal Energy Regulatory Commission Project No. 2687.
- State of California State Water Resources Control Board (State Water Board). 2015a. Order approving temporary suspension of flushing flow requirements, Order WQ 2015-0076-EXEC. In the matter of the request to amend water quality certification for the Pit 1 Hydroelectric Project for Pacific Gas and Electric Company, Federal Energy Regulatory Commission Project No. 2687.
- State Water Resource Control Board (State Water Board). 2015b. Transfer of Drinking Water from DPH to SWRCB. Updated 7/7/15. Available at [State Water Board Drinking Water Program](#).
- State of California State Water Resources Control Board (State Water Board). 2016. Order approving temporary suspension of flushing flow requirements, Order WQ 2016-0072-EXEC. In the matter of the request to amend water quality certification for the Pit 1 Hydroelectric Project for Pacific Gas and Electric Company, Federal Energy Regulatory Commission Project No. 2687.
- U.S. Fish and Wildlife Service (USFWS). 1998. Recovery Plan for the Shasta Crayfish (*Pacifastacus fortis*). U.S. Department of the Interior, Fish and Wildlife Service, Region 1, Portland, Oregon.
- U.S. Fish and Wildlife Service (USFWS). 2009. Lapse In Incidental Take Authorization for the Pit 1 Hydroelectric Project, FERC Project No. 2687, Shasta County, California. U.S. Department of the Interior, Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California.
- U.S. Forest Service (USFS). 2010. National Visitor Use Monitoring Results, National Summary Report. Data collected FY 2005 through FY 2009. Last updated April 25.
- U.S. Forest Service (USFS). 2012. National Visitor Use Monitoring Results, National Summary Report. Data collected FY 2007 through FY 2011. Last updated May 22.
- WRC Environmental. 1996. Pit River Whitewater Boating Study, Pit 1 Hydroelectric Project FERC No. 2687. Prepared for PG&E, San Francisco, CA, in association with Resource Decisions. September.

Pit 1 Hydroelectric Project 401 Water  
Quality Certification Amendment,  
FERC Project No. 2687  
Draft Environmental Impact Report

APPENDIX

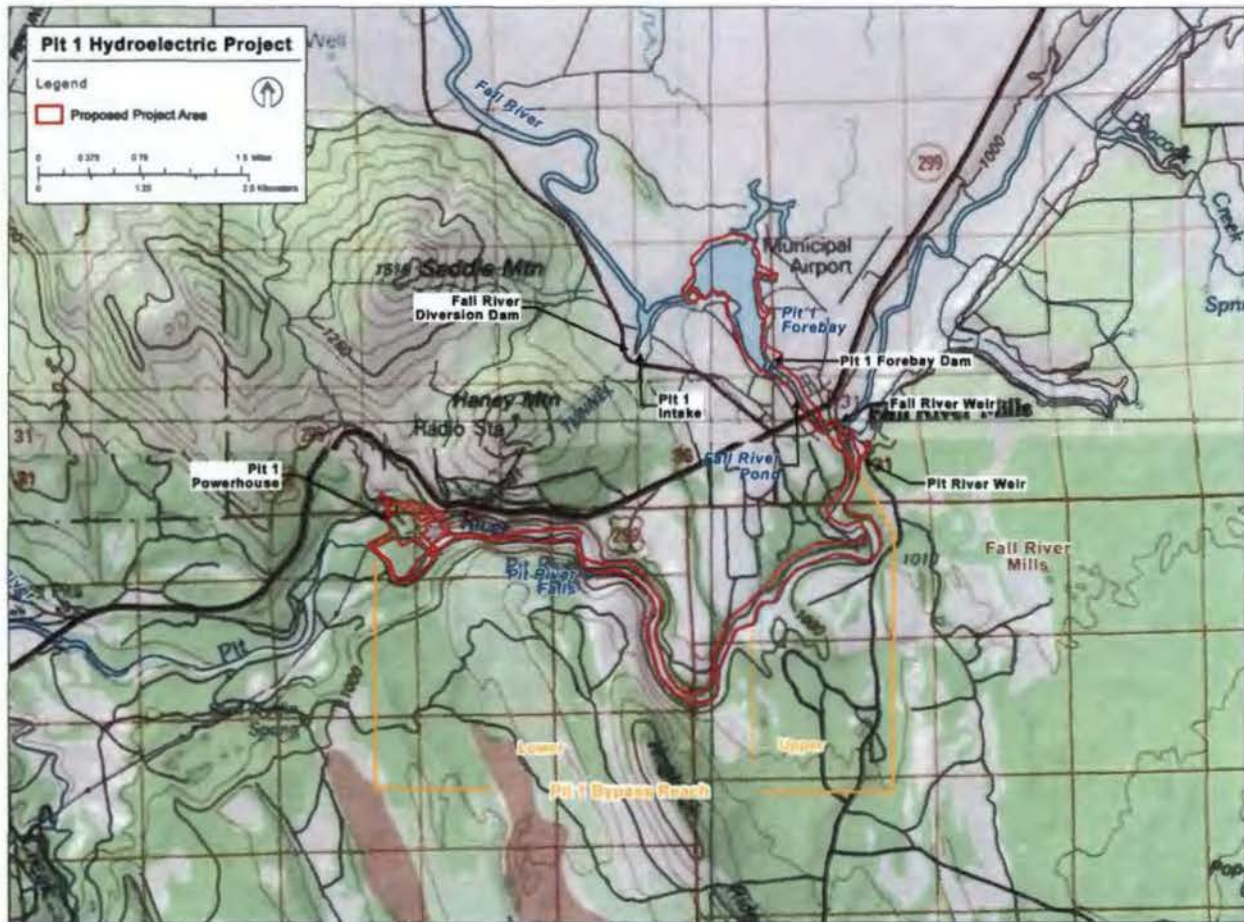
A

NOTICE OF PREPARATION AND  
SCOPING MEETINGS





**NOTICE OF PREPARATION AND SCOPING MEETINGS  
FOR AN ENVIRONMENTAL IMPACT REPORT  
FOR THE PIT 1 HYDROELECTRIC PROJECT 401 WATER QUALITY  
CERTIFICATION AMENDMENT**



**PROPOSED PROJECT AREA**

To save paper, the State Water Resources Control Board (State Water Board) strongly encourages interested parties to subscribe to receive information by email. If you would like to receive future announcements about Pit 1 Hydroelectric Project related matters, please provide your email address or mailing address to Mr. Peter Barnes at (916) 445-9989 or [PBarnes@waterboards.ca.gov](mailto:PBarnes@waterboards.ca.gov). If you would like to receive additional information related to the Division of Water Rights Water Quality Certification Program, please subscribe to the State Water Board's email list for "Water Rights Water Quality Certification" under "Water Rights" online at: [http://www.waterboards.ca.gov/resources/email\\_subscriptions/swrcb\\_subscribe.shtml](http://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.shtml)

Alternatively, if you would like to be placed on the State Water Board's hard copy mailing list for Pit 1 Hydroelectric Project related matters, you must request to be placed on the list. If you do not request to be placed on the mailing list (or request to remain on the list if you are already on the list) by **June 24, 2013**, you will no longer receive hard copy notices until such time as the State Water Board receives a renewed request to be placed (remain) on the hard copy mailing list<sup>1</sup>. Requests to be placed on the hard copy mailing list should be sent to: Peter Barnes; State Water Resources Control Board; Division of Water Rights; P.O. Box 2000; Sacramento, CA 95812-2000.

<sup>1</sup> There will be the opportunity to sign up for the hard copy mailing list at the scoping meetings.



**Notice of Preparation****Form B****To:** State Clearinghouse, Governor's Office of Planning and ResearchP.O. Box 3044Sacramento, CA 95812-3044**Subject:** **Notice of Preparation of an Environmental Impact Report for the Pit 1 Hydroelectric Project 401 Water Quality Certification Amendment****Lead Agency:****Consulting Firm (If applicable):**

Agency Name	<u>State Water Resources Control Board</u>	Firm Name	<u>Cardno ENTRIX</u>
Street Address	<u>P.O. Box 2000</u>	Street Address	<u>201 Calle Cesar Chavez #203</u>
City/State/Zip	<u>Sacramento, CA 95812-2000</u>	City/State/Zip	<u>Santa Barbara, CA 93103</u>
Contact	<u>Peter Barnes</u>	Contact	<u>Shruti Ramaker</u>

Pacific Gas and Electric Company (PG&E) owns and operates the Pit 1 Hydroelectric Project (Pit 1 Project), which is located on the Pit and Fall Rivers near the communities of Fall River Mills and McArthur in northeastern Shasta County, California. The Federal Energy Regulatory Commission (FERC) issued a new license for the continued operation of the Pit 1 Project in March 2003. The license incorporates the State Water Board's Clean Water Act (CWA) 401 Water Quality Certification (401 Certification) issued in December 2001. Pursuant to the new license and 401 Certification, PG&E implemented required flushing flows between 2003 and 2009 to control the growth of aquatic vegetation and mosquito production in Fall River Pond, and monitored surface aquatic vegetation on Fall River Pond from 2005 through 2012.

In a letter dated May 26, 2009, the United States Fish and Wildlife Service (USFWS) expressed concern regarding a decline in Shasta crayfish in the Pit 1 Bypass Reach and requested suspension of the 2009 flushing flows at the Pit 1 Project. The letter stated that flushing flows released from the Fall River Weir into the Pit 1 Bypass Reach were reducing/eliminating coldwater habitat for federally endangered Shasta crayfish and providing beneficial habitat for non-native crayfish species. The State Water Board concluded that amendment of the 401 Certification to permanently remove the flushing flows requires compliance with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.) based on its potential for significant environmental impacts. The permanent removal of flushing flows is referred to as the Pit 1 Hydroelectric Project 401 Water Quality Certification Amendment (Proposed Project).

The State Water Board is the CEQA lead agency for the Proposed Project under its discretionary 401 Certification authority. The State Water Board plans to prepare an environmental impact report (EIR) for the Proposed Project.

The State Water Board is seeking comments from trustee agencies and interested persons concerning the scope and content of the environmental information to be included in the EIR. Please send your comments to Mr. Peter Barnes at the address shown at the end of this Notice of Preparation. Please provide a contact person and contact information in case there are questions about the comments.



**Project Title:** Pit 1 Hydroelectric Project 401 Water Quality Certification Amendment (Proposed Project)

**Project Location:** The Proposed Project Area is located within the Pit 1 Project Area in the Fall River Valley and the Pit River Canyon in Shasta County in northeastern California. The Fall River Valley contains the communities of McArthur and Fall River Mills. An overview of the Proposed Project Area is shown in the figure at the front of this Notice of Preparation. The Pit 1 Project Area is shown in Figure 1 at the end of this Notice of Preparation.

### SCOPING MEETINGS

Two scoping meetings are scheduled as presented in the table below and will be conducted in two parts each. In the first part, State Water Board staff, or contractors working on behalf of the State Water Board, will explain the Proposed Project, describe the State Water Board's role as a 401 Certification agency, and provide other information to trustee agencies and interested persons. During the second part, attendees will be provided with the opportunity to submit oral and written comments concerning potentially significant impacts of the Proposed Project, potential alternatives, and mitigation measures that should be analyzed in the EIR. The time allotted for each individual or organization to comment orally may be limited if the number of people in attendance so requires.

Scoping Meetings Date and Time	Scoping Meetings Location
June 11, 2013 9:00 a.m. to 11:00 a.m.	Central Valley Regional Water Quality Control Board 364 Knollcrest Drive, Suite 205 Redding, CA 96002
June 11, 2013 6:00 p.m. to 8:00 p.m.	Intermountain Fair 44218 A Street McArthur, CA 96056

If you would like to request a reasonable accommodation for a disability, please contact Ms. Shruti Ramaker of Cardno ENTRIX at: [shruti.ramaker@cardno.com](mailto:shruti.ramaker@cardno.com) or (805) 979-9561.

### QUESTIONS AND ADDITIONAL INFORMATION

General questions about this Notice of Preparation should be directed to Mr. Peter Barnes at (916) 445-9989 or [PBarnes@waterboards.ca.gov](mailto:PBarnes@waterboards.ca.gov). Questions regarding legal issues should be directed to Mr. David Rose at (916) 341-5196 or [DRose@waterboards.ca.gov](mailto:DRose@waterboards.ca.gov).

Information related to the water quality certification for the Proposed Project will be posted on the Pit 1 Project's webpage, which is available online at:  
[http://www.waterboards.ca.gov/waterrights/water\\_issues/programs/water\\_quality\\_cert/ceqa\\_projects.shtml#ferc2687](http://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/ceqa_projects.shtml#ferc2687)

### BACKGROUND

Pursuant to CEQA, Public Resources Code, Section 21000 et seq., the State Water Board is initiating preparation of an EIR regarding the potential impacts of the Proposed Project as compared to the environmental baseline of the Pit 1 Project conditions prior to suspension of flushing flows. The CEQA Project objective is to:

- Amend the existing 401 Certification to permanently eliminate or modify the requirement for flushing flows that may be detrimental to endangered Shasta crayfish.



Section 401 of the CWA (33 U.S.C. §1341) requires every applicant for a federal license or permit that may result in a discharge into navigable waters to provide the federal licensing or permitting agency with certification that the project will be in compliance with specified provisions of the CWA. Section 401 provides that conditions of certification shall become conditions of any federal license or permit for the project. The State Water Board is the agency in California that is responsible for 401 Certification of any potential discharge for an activity that requires a FERC license or amendment. (Wat. Code, §13160; Cal. Code Regs., tit. 23, §3855, subd. (b).) The issuance of 401 Certification is a discretionary action subject to CEQA compliance. Because there are potentially significant impacts associated with the Proposed Project, the State Water Board has decided to prepare an EIR.

Under the provisions of the CWA, a 401 Certification may be issued if the State Water Board determines that the project will comply with specified provisions of the CWA, including water quality standards and implementation plans. The State Water Board will determine whether the Proposed Project adequately protects the beneficial uses and meets the water quality objectives for waterbodies in the Proposed Project area, as defined in the *Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins* (Basin Plan; Central Valley Regional Water Quality Control Board, 2007). Additional information concerning the Basin Plan and designated beneficial use is available at the following website:  
[http://www.waterboards.ca.gov/centralvalley/water\\_issues/basin\\_plans/index.shtml](http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/index.shtml)

### **Brief Background on Proposed Project**

On March 19, 2003, FERC issued a new license to PG&E for the continued operation of the Pit 1 Project. The new license prescribed increased minimum flows for the Pit 1 Bypass Reach in order to achieve improved water quality in the bypass reach. In addition, flushing flows were prescribed to manage nuisance vegetation and mosquito production in Fall River Pond upstream of the Pit 1 Bypass Reach and downstream of the Pit 1 Forebay. The FERC license incorporates the State Water Board's 401 Certification, issued on December 4, 2001.

Pursuant to the license, PG&E implemented flushing flows for seven years between 2003 and 2009 to control the growth of nuisance aquatic vegetation and mosquito production in Fall River Pond. Pursuant to the license, PG&E also monitored nuisance surface aquatic vegetation on Fall River Pond from 2005 through 2012 and continues annual monitoring. Monitoring data since 2005 show that flushing flows were not needed for nuisance vegetation or mosquito control and that the increased continuous minimum base flows implemented pursuant to Condition 8 of the 401 Certification have been controlling nuisance vegetation and mosquitoes in Fall River Pond.

The Shasta crayfish (*Pacifastacus fortis*) was listed as endangered under the Federal Endangered Species Act (ESA) (16 U.S.C. §§ 1531 - 1544) on September 30, 1988 (53 FR38460-38465) and as endangered under the California ESA (Fish & Game Code §§ 2050 2097) on February 26, 1988. Critical habitat has not been designated for this species.

In a letter to the State Water Board dated May 26, 2009, USFWS expressed concern regarding a decline in Shasta crayfish in the Pit 1 Bypass Reach and requested suspension of the 2009 flushing flows. The letter stated that flushing flows were reducing/eliminating coldwater habitat for Shasta crayfish and providing beneficial habitat for the competitor/predator non-native signal crayfish (*Pacifastacus leniusculus*) and northern crayfish (*Orconectes virilis*). Both non-native crayfish species are more tolerant of temperature fluctuations and have a wider temperature range than Shasta crayfish. Summer flushing flows can affect Shasta crayfish by rapidly reducing the size of coldwater habitat normally produced by the coldwater springs, increasing



daily average water temperature, eliminating diel temperature fluctuations and cooler nighttime water temperatures, and facilitating the dispersal of non-native crayfish.

On April 15, 2010, FERC submitted a letter to the State Water Board requesting a temporary suspension of flushing flows for 2010. On July 6, 2010, the State Water Board issued an Order Approving Temporary Suspension of Flushing Flow Requirements (Order WQ 2010-0009-EXEC), which temporarily suspended flushing flows for 2010 and 2011. The State Water Board concluded that there would not be any significant effects if the requirement for flushing flows was suspended for a limited period, with adequate safeguards to prevent the suspension from becoming permanent except after full compliance with CEQA. The State Water Board also concluded that amendment of the 401 Certification to permanently remove the flushing flows would require compliance with CEQA based on the potential for significant environmental impacts. On August 10, 2010, FERC issued an order temporarily amending the license and incorporating the amendment to the 401 Certification.

In March 2012, PG&E sent a letter to the State Water Board requesting a temporary suspension of flushing flows for 2012 to allow the terms of the State Water Board Order to be completed; specifically, completion of its CEQA process related to permanent suspension of flushing flows and completion of development and implementation of the Shasta crayfish study by PG&E. On June 14, 2012, the State Water Board extended the temporary suspension of flushing flows through the 2012 calendar year in an Order Approving Extension of the Temporary Suspension of Flushing Flow Requirements (Order WQ 2012-0008-EXEC). FERC issued an order temporarily amending the license and incorporating the amendment to the 401 Certification in July 2012.

### **Brief Description of the Existing Pit 1 Project Facilities**

The Pit 1 Project consists of a concrete diversion dam that allows water to enter the Pit 1 Forebay. The Pit 1 Forebay is created by a 40-foot-high by 586-foot-long compacted earth and rock-fill dam. There are two intake facilities to the Pit 1 intake canal and tunnel: intake Number 1 diverts water from the Fall River upstream of the diversion dam, and intake Number 2 diverts water from the Pit 1 Forebay. The intakes open into two short canal sections that converge into one common canal leading to a concrete-lined tunnel. The tunnel terminates at a 60-foot-diameter concrete-lined surge chamber with a spill channel. Two penstocks deliver water to the Pit 1 Powerhouse, located on the Pit River approximately 7 miles downstream from the confluence of the Fall River and the Pit River. The Pit 1 Powerhouse contains two vertical-shaft, Francis-type turbines with a dependable capacity of 65.5 megawatts. There are no transmission lines associated with the Pit 1 Project. The switchyard is the point where the Pit 1 Project joins with PG&E's primary transmission system.

### **CEQA Project Description and Alternatives**

The following summarizes the proposed operational changes to the Pit 1 Project comprising the Proposed Project, including PG&E's proposed changes to the authorized Pit 1 Project operations in order to avoid or minimize potential effects to Shasta crayfish within the Project Area. These changes entail adjustments to the flow of water through the Fall River Weir into the Pit 1 Bypass Reach. Other changes to the Pit 1 Project license adopted by PG&E and approved by FERC since issuance of the current license that do not pertain to the State Water Board's jurisdiction are not included in the Proposed Project.

**Water Management:** As part of the Proposed Project, PG&E would discontinue summer flushing flows permanently. PG&E would continue annual ground-level photo point monitoring of aquatic vegetation on Fall River Pond in June, July, and August. In the



event that conditions, such as a series of drought years, result in excess aquatic vegetation (i.e., surface aquatic vegetation exceeding 20 percent coverage of Fall River Pond), PG&E would implement vegetation control methods, such as harvesting or non-summer flushing flows. To avoid negative effects to biological resources and their habitat in the Pit 1 Bypass Reach, PG&E would not use flushing flows to control aquatic vegetation between May 1 and September 30 (i.e., no discretionary out-of-season spills).

Pursuant to the June 14, 2011, FERC Order, recreational whitewater releases, which began in 2011, would continue to be implemented in October, on or before October 30, to minimize negative impacts to biological resources, avoid the negative effects of summer pulse flows on Shasta crayfish habitat, and minimize the magnitude of the flow change while allowing for recreational whitewater opportunities. Any future proposal to implement whitewater releases outside of this period would be subject to consultation with USFWS.

**Planned Outage:** To avoid potential negative effects to Shasta crayfish, PG&E would not conduct planned outages that result in out-of-season spills in the Pit 1 Bypass Reach between May 1 and September 30. PG&E would operate the Pit 1 Project in a manner that does not cause discretionary, out-of-season spills.

**Unplanned Outage:** PG&E would minimize or avoid out-of-season pulse flows in the Pit 1 Bypass Reach during unplanned outages by implementing new operational procedures. PG&E would reduce the maximum allowable operating limit on the Pit 1 Forebay by 0.5 feet (from 3,303.5 feet to 3,303.0 feet National Geodetic Vertical Datum (NGVD) [3,323.0 feet to 3,322.5 feet PG&E datum]) during the summer, which would provide PG&E additional time to address the unplanned outage before having to spill from the Pit 1 Forebay.

**At a minimum, the EIR will evaluate the following environmental factors, as required by CEQA:**

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| ▪ Aesthetics                       | ▪ Land Use/Planning               |
| ▪ Agriculture and Forest Resources | ▪ Mineral Resources               |
| ▪ Air Quality                      | ▪ Noise                           |
| ▪ Biological Resources*            | ▪ Population/Housing              |
| ▪ Cultural Resources               | ▪ Public Services                 |
| ▪ Geology/ Soils                   | ▪ Recreation*                     |
| ▪ Greenhouse Gas Emissions         | ▪ Transportation and Traffic      |
| ▪ Hazards and Hazardous Materials  | ▪ Utilities/Service Systems       |
| ▪ Hydrology/Water Quality*         | ▪ Mandatory Finds of Significance |

\*The following resource areas are expected to have potentially significant impacts from the Proposed Project and will be discussed in detail in the EIR.

Additionally, the EIR will address growth-inducing impacts, cumulative impacts and significant unavoidable impacts (if applicable).

**SUBMITTAL OF WRITTEN COMMENTS**

Please send your written comments regarding this Notice of Preparation of an EIR for the Proposed Project to the address below. When submitting your comments, please provide a contact person and contact information in case there are questions about the comments. **The comment deadline is NOON (12:00 p.m.) on June 24, 2013.**

State Water Resources Control Board  
Division of Water Rights  
Attention: Peter Barnes  
P.O. Box 2000  
Sacramento, CA 95812-2000

Phone: (916) 445-9989  
Fax: (916) 341-5400  
Email: [PBarnes@waterboards.ca.gov](mailto:PBarnes@waterboards.ca.gov)



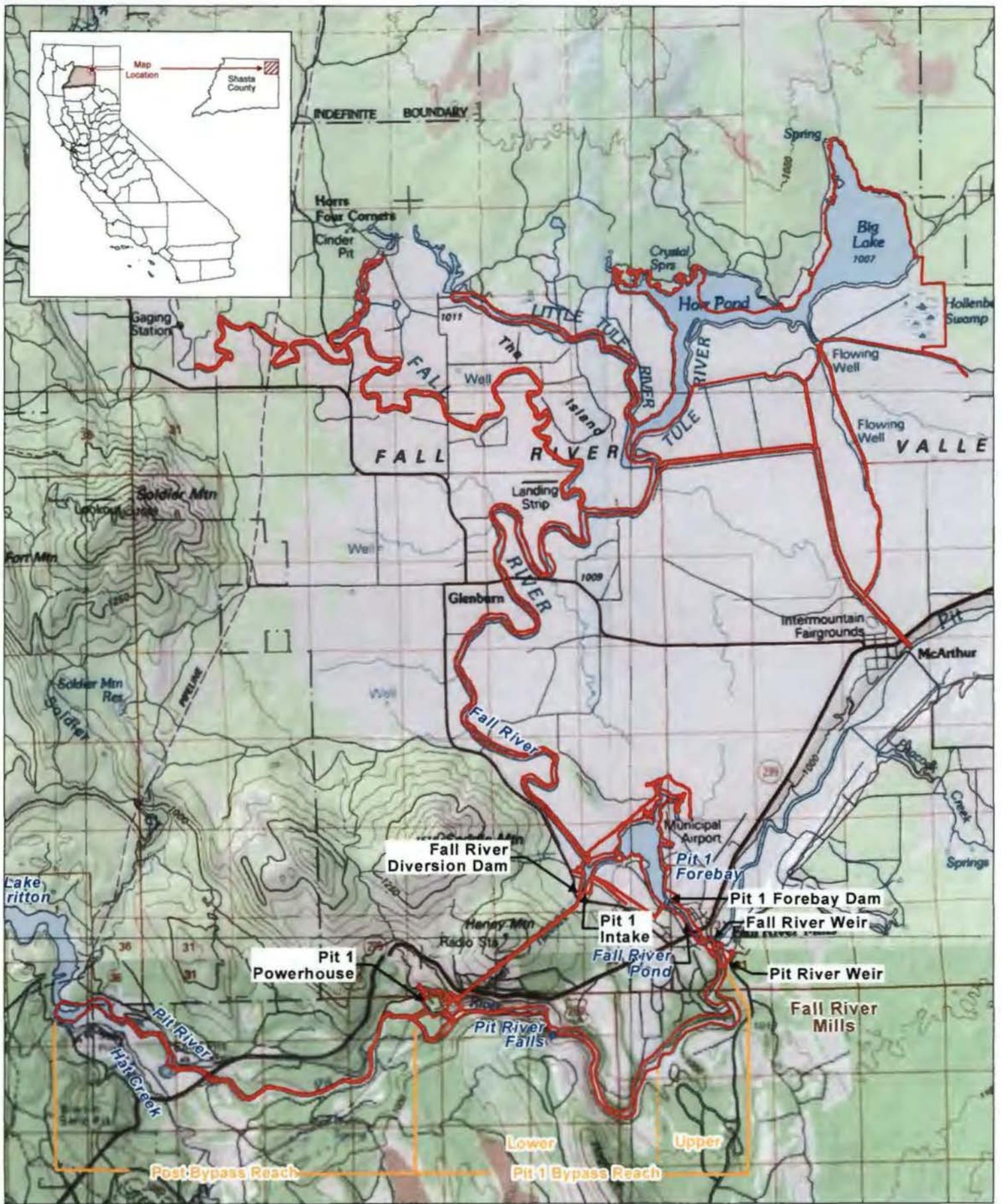
Erin Ragazzi  
Water Quality Certification Program Manager

**MAY 17 2013**

Date

Attachment: Figure 1





Pit 1 Hydroelectric Project



Legend

Pit 1 Project Area

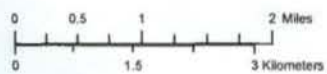


FIGURE 1  
Project Overview



Pit 1 Hydroelectric Project 401 Water  
Quality Certification Amendment,  
FERC Project No. 2687  
Draft Environmental Impact Report

APPENDIX

B

EIR SCOPING SUMMARY REPORT



# Pit 1 Hydroelectric Project 401 Certification Modification EIR Scoping Summary Report

31782797.00





## Document Information

Prepared for            State Water Resources Control Board  
Project Name            Pit 1 Hydroelectric Project 401 Certification Modification EIR  
Project Number        31782797  
Project Manager        Shruti Ramaker  
Date                     August 2013

Prepared for:

State Water Resources Control Board  
Division of Water Rights  
P.O. Box 2000,  
Sacramento, CA 95812-2000.

Prepared by:



Cardno ENTRIX  
201 North Calle Cesar Chavez, #203  
Santa Barbara, CA 93103

## Table of Contents

<b>1</b>	<b>Introduction .....</b>	<b>1-1</b>
<b>2</b>	<b>Commenting Agencies and Organizations.....</b>	<b>2-1</b>
2.1	Written Comments.....	2-1
2.2	Oral Comments .....	2-2
<b>3</b>	<b>Summary of NOP Responses.....</b>	<b>3-1</b>
3.1	General Comments .....	3-1
3.2	Public Agency Comments .....	3-1
3.3	Project Alternatives.....	3-1
3.4	Environmental Impact Analysis .....	3-1

## Appendices

Appendix A	Notices
Appendix B	Scoping Meeting Presentation
Appendix C	Written Responses
Appendix D	Public Scoping Meeting Transcript

## Tables

Table 1.	Scoping Comment Summaries Table .....	3-2
----------	---------------------------------------	-----

## Acronyms

CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
NOP	Notice of Preparation
EIR	Environmental Impact report
FERC	Federal Energy Regulatory Commission
PG&E	Pacific Gas and Electric

# 1 Introduction

---

The State Water Resources Control Board (State Water Board) is the California Environmental Quality Act (CEQA) lead agency for the Pit 1 Hydroelectric Project 401 Water Quality Certification Amendment, under its discretionary Section 401 water quality certification authority. Pacific Gas and Electric Company (PG&E) owns and operates the Pit 1 Hydroelectric Project (Pit 1 Project). The Pit 1 Project is licensed by the Federal Energy Regulatory Commission (FERC), and is designated FERC Project No. 2687.

FERC issued a new license for the continued operation of the Pit 1 Project in March 2003. The license incorporates the State Water Board's Clean Water Act (CWA) 401 Water Quality Certification (401 Certification) issued in December 2001. Pursuant to the new license and 401 Certification, PG&E implemented required flushing flows between 2003 and 2009 to control the growth of aquatic vegetation and mosquito production in Fall River Pond, and monitored surface aquatic vegetation on Fall River Pond from 2005 through 2012.

In a letter dated May 26, 2009, the United States Fish and Wildlife Service (USFWS) expressed concern regarding a decline in Shasta crayfish in the Pit 1 Bypass Reach and requested suspension of the 2009 flushing flows at the Pit 1 Project. The letter stated that flushing flows released from the Fall River Weir into the Pit 1 Bypass Reach were reducing/eliminating coldwater habitat for federally endangered Shasta crayfish and providing beneficial habitat for non-native crayfish species. The State Water Board concluded that amendment of the 401 Certification to permanently remove the flushing flows would require compliance with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.) based on its potential for significant environmental impacts. The permanent removal of flushing flows is referred to as the Pit 1 Hydroelectric Project 401 Water Quality Certification Amendment (Proposed Project).

The State Water Board is the CEQA lead agency for the Proposed Project under its discretionary 401 Certification authority. The State Water Board plans to prepare an environmental impact report (EIR) for the Proposed Project.

The State Water Board released a Notice of Preparation (NOP) communicating the intent to prepare an EIR for the Proposed Project on May 17, 2013. The NOP was distributed to the State Clearinghouse, agencies and individuals. The NOP, included in Appendix A, provided a description of the Proposed Project, the location of project activities, and the resources and environmental concerns to be analyzed in the EIR. The NOP also requested that comments on the scope of the EIR including specific issues the EIR should cover of the EIR and potential alternatives to the Proposed Project be submitted by June 24, 2013.

The State Water Board also conducted two CEQA scoping meetings to provide the public with the opportunity to provide input prior to the preparation of the EIR, pursuant to CEQA Guidelines section 15083. (Cal. Code Regs., tit. 14, § 15083.) Public notices of the NOP and scoping meeting were published as follows:

- Intermountain News
- Redding Record Searchlight
- Mountain Echo

The meetings took place on June 11, 2013 from 9:00 a.m. to 11:00 a.m. at the Central Valley Regional Water Quality Control Board office in Redding, California, and from 6:00 p.m. to 8:00 p.m. at the Intermountain Fairgrounds in McArthur, California. Copies of the newspaper notices are also included in Appendix A. The scoping meeting presentation is included in Appendix B.

This report summarizes the written and oral comments received during the scoping period, May 17, 2013 through June 24, 2013. Chapter 2 provides a list of the commenting agencies and organizations. Chapter 3 summarizes all of the comments received on the NOP and includes a matrix of comments received during the scoping period. The written responses to the NOP and other written comments submitted at the scoping meeting (full text) from public agencies, organizations, and individuals are included in Appendix C. A full transcript of the oral comments received during the scoping meeting is included as Appendix D.

Copies of comments received to date can also be found on the State Water Board website, at:

[http://www.swrcb.ca.gov/waterrights/water\\_issues/programs/water\\_quality\\_cert/pit1\\_ferc2687.shtml](http://www.swrcb.ca.gov/waterrights/water_issues/programs/water_quality_cert/pit1_ferc2687.shtml)



## 2 Commenting Agencies and Organizations

---

### 2.1 Written Comments

The following agencies, organizations and/or members of the public provided written responses to the NOP by letter or electronic mail (email) during the Pit 1 Hydroelectric Project 401 Water Quality Certification Amendment public scoping period. The numbering of the written responses correlates to the appearance of each in Appendix A.

#### Public Agency

1. California Department of Fish and Wildlife

#### Non-Profit Organization

2. American Whitewater

#### Landowners/Local Residents

3. Charles Albright
4. Kyle Allred
5. Bob Baiocchi
6. Daniel Brasuell
7. Ida Crawford
8. Virginia Dye
9. Mary Elliot
10. Travis Geddes
11. Connor Herdt
12. Roland McNutt
13. Matthew Phillips
14. James Reed
15. Eli Ren
16. Kenneth Rosecrance
17. Lee Schmelter
18. Bob Simmons
19. George Williams
20. Lisa Williams

## 2.2 Oral Comments

The following agencies, organizations and/or members of the public provided oral comments during the Pit 1 Hydroelectric Project 401 Water Quality Certification Amendment public scoping meetings held June 11, 2013 and are listed in speaking order:

### 9 am Meeting

#### Speaker and Affiliation (if provided)

Matt Myers, California Department of Fish and Wildlife

Dave Steindorf, American Whitewater

Charlie Guilbault

Mike Martini

Ron Rogers

### 6 pm Meeting

#### Speaker and Affiliation (if provided)

Doug Knox

Ross Jones

Harold Chandler

## 3 Summary of NOP Responses

---

The purpose of the NOP is to solicit input “as to the scope and content of the environmental information to be included in the EIR.” (Cal. Code Regs., tit. 14, § 15375). The following provides a summary of the responses to the NOP, including all written comments mailed, emailed or submitted at the public scoping meeting as well as oral comments received during the scoping meeting. A more detailed matrix of comments is provided at the end of this section in Table 1.

### 3.1 General Comments

General comments received to date primarily focus on concerns related to whitewater recreation flows and a lack of evidence linking the flushing flows with a decline in Shasta crayfish.

### 3.2 Public Agency Comments

The California Department of Fish and Wildlife commented regarding concerns about the lack of recent Shasta crayfish surveys and made suggestions regarding the content of the EIR as listed in the matrix below.

### 3.3 Project Alternatives

Suggested alternatives to the Project include the continuation of flushing flows, developing barriers to block invasive crayfish species, and the use of temperature control devices. Comments stressed the importance of the site as a recreational resource, which would be adversely affected by the proposed plan.

### 3.4 Environmental Impact Analysis

The following comments pertain to specific resources or environmental concerns that should be addressed in the EIR including the technical appendices.

#### Biological Resources/Aquatic and Fisheries Resources

The following are comments related to biological resource impacts:

- Lack of evidence that the decline in Shasta crayfish is caused by the flushing flows at the Pit 1 Project.
- Increases in water temperature caused by the Pit 1 Project should be addressed.
- Updated crayfish surveys are needed.

#### Recreation

The loss of recreational opportunities from the elimination of flushing flows at the Pit 1 Project was of concern to many local residents. Many comments addressed the value of the flow releases to whitewater boaters and kayakers.

The matrix below includes a more detailed summary of comments. Comment letters and emails are included in their entirety in Appendix C as are oral comments in Appendix D.

**Table 1. Scoping Comment Summaries Table**

Name	Description	Date of comments	Comment summary	CEQA Issue Area
<b>Written Responses to the NOP</b>				
<b>Public Agencies</b>				
1- California Department of Fish and Wildlife	Response to NOP letter	6/18/2013	<p>The EIR should address the following issues:</p> <ol style="list-style-type: none"> <li>1. A new survey for Shasta crayfish and non-native crayfish in the Project Area is needed and the last survey conducted (in 2009) is outdated.</li> <li>2. The Project's flow regime should be evaluated and compared to baseline conditions.</li> <li>3. The EIR needs to evaluate unplanned outages and out-of-season pulse flows for the entire flow regime and compare to baseline conditions to avoid/minimize effects to Shasta crayfish.</li> <li>4. The EIR should include a single table that summarizes all historic Pit 1 Project surveys and results, conducted for Shasta crayfish and non-native crayfish.</li> </ol>	Biological Resources
<b>Non-Profit Organization</b>				
2- American Whitewater	Response to NOP letter	6/24/2013	<p>American Whitewater believes that the Water Board has a duty under CEQA and the Basin Plan to examine numerous reasonable alternatives that will protect the endangered Shasta crayfish in the Pit 1 Bypass Reach and address ongoing temperature impacts of the Pit 1 Project. Alternatives include developing barriers to keep invasive crayfish out of Shasta crayfish habitat, examining temperature control devices to mitigate the project's temperature impacts, and assessing minimum instream flow release scenarios.</p> <p>Population trends indicate that a cause other than flushing flows is leading to Shasta crayfish decline. The evidence does not support PG&amp;E's argument that flushing flows' effect on temperature is contributing to Shasta crayfish decline.</p> <p>The EIR must consider significant environmental impacts. American Whitewater is particularly concerned that the project will have significant environmental impacts on whitewater recreation.</p>	<p>Alternatives</p> <p>Biological Resources</p> <p>Recreation</p>

Name	Description	Date of comments	Comment summary	CEQA Issue Area
			The State Water Board should ensure that power operations are not contributing to the degradation of Shasta crayfish. Daily operations of the Pit 1 Hydroelectric Project increase water temperatures, and the record lacks adequate information to show that elimination of flushing flows will protect Shasta crayfish.	General
<b>Landowners/Local Residents</b>				
3-Charles Albright	Response to NOP letter	5/24/2013	Has been paddling for over 42 years and has always enjoyed paddling the Pit River. States that PG&E needs to start sharing water along the whole river with the public and riverside environment all the way to Lake Shasta and not just Fall River Mills to Pit 1.	Recreation
4-Kyle Allred	Response to NOP Letter	5/27/2013	States that the Pit River summer release is a wonderful recreation opportunity for boaters and requests that it continue.	Recreation
5- Bob Baiocchi	Email	5/9/2013	Amendment should include a daily bypass flow requirement from the Fall River Dam in compliance with California Fish and Game Code 5937 to protect fish species and their habitat in Fall River below PG&E's Fall River Dam and also fish species and their habitat in the Pit River below the dam in the Pit River. Taking all of the water from Fall River by PG&E is a direct violation of Article X, Section 2 of the State Constitution because it is the unreasonable diversion of the state's water. The time has arrived to enforce state law to protect all beneficial uses of Fall River and Pit River as shown in the Basin Plan.	General, Biological Resources, Hydrology
6- Daniel Brasuell	Email in response to NOP	6/07/2013	Asks the following questions: what studies have been done to show that summer releases are the cause of the Shasta Crayfish population decline? Has it been ruled out that unnatural water temperatures due to the powerhouses and reservoirs could have caused it? Or that the deviation from natural flow year round could have caused it? What direct knowledge do we have that a pulse of water a few weekends a year is the root cause? If the recreational pulse of water is not allowed, what restrictions will be levied on the owners of the powerhouses and reservoirs? Proper study is needed to find that the pulse weekends are causing the decline and ensure that all parties controlling the river are legally bound to the same ruling.	Biological Resources, Hydrology, Recreation
7- Ida Crawford	Email in response to NOP	6/07/2013	Has kayaked above Pit 1 Powerhouse during whitewater releases for several years and states that it is a fabulous class 3-4 run that it would be a shame to lose.	Recreation

Name	Description	Date of comments	Comment summary	CEQA Issue Area
8- Virginia Dye	Letter in response to NOP	6/19/2013	States that if there is a truthful concern over crayfish, other technologies that have environmental impacts should also be considered.	General comment
9- Mary Elliot	Letter in response to NOP	6/27/2013	Enjoys kayaking in Pit River and would be disappointed to lose the summer releases. States that she likes to do what is best for the environment and that valid reports and data are needed before losing the recreational site.	Recreation
10- Travis Geddes	Email in response to NOP	6/10/2013	Values the annual summer and fall release on the Pit 1 reach of the Pit River near fall River Mills as a resource for kayaking offering a unique opportunity for intermediate boaters. Asks the following questions: What studies have been done to show that summer releases are the cause of the Shasta Crayfish population decline? What were the methods used to gather the data about the dwindling crayfish numbers? How does the state of the Shasta Crayfish population in the Pit 1 reach compare to Shasta Crayfish populations in other areas of the Pit?	Recreation, Biological Resources
11- Connor Herdt	Email in response to NOP	6/03/2013	Opposes the proposed cancellation of the recreations releases, described as a wonderful resource for whitewater enthusiasts. Requests reconsideration of the decision to end the releases.	Recreation
12- Roland McNutt	Email in response to NOP	06/10/2013	As an avid whitewater boater, urges the continuation of Pit 1 reach releases.  Believes that sound science warranting elimination of the flows is lacking. States that Shasta crayfish declines and invasive crayfish increases have been seen throughout the Pit River Basin in the same timeframe as that considered for Pit 1 and in areas where summer flushing/whitewater flows do not occur. Suggests continuing the summer releases as a control group to compare with crayfish declines in other areas.	Recreation  Aquatic and Fisheries Resources, Alternatives
13- Matthew Phillips	Email in response to NOP	5/23/2013	Enjoys the recreational use of the Pit river summer flows as a whitewater kayaker and strongly opposes canceling the releases. States that canceling the flows would lead to further degradation of the river landscape.	Recreation, Biological Resources
14- James Reed	Email in response to NOP	5/27/2013	States that the summer flushing flows allow area paddlers to enjoy a beautiful river when little else is running; the Pit River is best seen from a whitewater craft. Hopes that the river will continue to be available to the paddling community in summer months.	Recreation

Name	Description	Date of comments	Comment summary	CEQA Issue Area
15- Eli Ren	Email in response to NOP	6/23/2013	Values the Pit River as a source of whitewater recreation. States that the evidence does not point to summer releases as the cause of invasive crayfish out-competing the Shasta crayfish. Requests that the summer releases on the Pit River resume.	Recreation, Aquatic and Fisheries Resources
16- Kenneth Rosecrance	Email in response to NOP	6/10/2013	Has boated this section of whitewater and states it would be a shame for recreational boaters to lose this boating opportunity during summer months when nothing else is available.	Recreation
17- Lee Schmelter	Email in response to NOP	5/24/2013	States the following: The decision to eliminate summer flushing flows to benefit the Shasta crawfish is illogical because similar reductions in crawfish population in the water basin occurred regardless of water flushing. It seems this decision is an attempt to conserve water but at the expense of boaters who use the summer flows, and without logical reason. Please reconsider.	Aquatic and Fisheries Resources
18- Bob Simmons	Email in response to NOP	5/24/2013	Asks if anyone has done a financial analysis of shutting down the river flows and how many tourist dollars does it generate and where does it go. Requests real science to back up claims regarding crayfish declines.	Socioeconomics, Recreation
19- George Williams	Email in response to NOP	5/23/2013	Suggests that many of the increased flows about Pit 1 be scheduled for times that can be accommodating to area recreation industries. States that higher flows are in the best interest of the river's health. Requests that the flows continue.	Alternatives, Recreation
20- Lisa Williams	Email in response to NOP	6/09/2013	As an avid whitewater boater, urges the continuation of Pit 1 reach releases.  Believes that sound science warranting elimination of the flows is lacking. States that Shasta crayfish declines and invasive crayfish increases have been seen throughout the Pit River Basin in the same timeframe as that considered for Pit 1 and in areas where summer flushing/whitewater flows do not occur.	Recreation  Aquatic and Fisheries Resources

### Public Meeting Transcript (in Speaking Order)

Name	Description	Date of comments	Comment summary	CEQA Issue Area
Matt Myers, CDFW	Public comment. Transcribed during meeting.	6/11/2013	The EIR should address the following issues: A new survey for Shasta crayfish and non-native crayfish in the Project Area is needed and results from the 2009 survey are outdated. The Project's flow regime should be evaluated and compared to baseline conditions. The EIR should include a single table that summarizes all historic Pit 1 Project surveys and results, conducted for Shasta crayfish and non-native crayfish.	Biological Resources, Hydrology
Dave Steindorf, American Whitewater	Public comment. Transcribed during meeting.	6/11/2013	<p>States that looking at the aquatic component of the flushing flows is inadequate, and the whitewater recreation aspect needs to be evaluated as well. Also stated that the proposed amendment would reduce whitewater recreation on the Project and would change the current license stating that 6 days of summer flushing flows would be made.</p> <p>Thinks the idea that flushing flows are causing harm to the Shasta crayfish is completely erroneous and that it is the Project that is warming the water. He recommends that the Board conduct necessary modeling to evaluate what would happen if full flow of the Pit River was released back into the Bypass Reach. Also recommends the Board revisit the certification requirement of minimum in-stream flow.</p> <p>Believes the correct scope under CEQA should be for the protection of the Shasta crayfish, not the narrow effects of flushing flows. Also asked Board to reevaluate the Project to see if it is meeting water quality concerns and stated that if reducing flushing flows is in fact necessary to protect the Shasta crayfish, American Whitewater will work with the Board to find alternatives to make up for lost whitewater opportunities.</p>	Recreation, Aquatic and Fisheries Resources
Charlie Guilbault	Public comment. Transcribed during meeting.	6/11/2013	Thinks the Board should investigate recreational uses and wants to know if flows are reduced, whether recreational needs can be met in some other way.	Recreation
Mike Martini	Public comment. Transcribed during meeting.	6/11/2013	Uses Project area for recreation. Asks that the reduction in recreational opportunities cause by reduced flows be mitigated for somehow. Suggests that rather than remove the pulses, they be done at a different time of the year.	Recreation
Ronald Rogers	Public comment. Transcribed during meeting.	6/11/2013	States that American Whitewater spent time working with FERC to come up with solutions for competing uses of the Project and doesn't feel that the curtailments should be taken without due consideration. Believes better studies need to be conducted to determine if crayfish populations are in fact present in the Pit 1 stretch. If they are present, believes higher base flow releases to maintain populations may be warranted.	Recreation, Aquatic and Fisheries Resources



Name	Description	Date of comments	Comment summary	CEQA Issue Area
			States that if the releases are taken away, other mitigations need to be considered, such as better access for whitewater boating on that stretch.	
Dave Steindorf	Public comment. Transcribed during meeting.	6/11/2013	Believes a representative from the Fish and Wildlife Service should have been present to explain their rationale for the amendment and is upset both Federal agencies were absent (FERC and USFWS). Appreciates the State agencies that showed up to the forum.	General Comment
Doug Knox	Public comment. Transcribed during meeting.	6/11/2013	States that he has an aquaculture license and asks if there could be other species responsible for the reduction in Shasta crayfish and not the warm water. Would like potential predators of the crayfish to be explored.	Aquatic and Fisheries Resources
			States that the declining numbers of the species doesn't mean that the warm water is the cause.	
Ross Jones	Public comment. Transcribed during meeting.	6/11/2013	Believes the research was designed to arrive at a foregone conclusion (i.e., that warm water is the cause of decline)	General Comment
Harold Chandler	Public comment. Transcribed during meeting.	6/11/2013	States that raccoons eat crayfish and asks that raccoon populations be studied to see if there has been an increase.	Biological Resources
Ross Jones	Public comment. Transcribed during meeting.	6/11/2013	States that the Modoc Independent Tea Party has been reviewing the Pit River IRWM (Integrated Regional Water Management Program).	General Comment
			Wants to make sure the impact of reduced flushing on millifol is addressed.	
Harold Chandler	Public comment. Transcribed during meeting.	6/11/2013	States that he is highly suspicious of U.S. Fish and Wildlife and issues having to do with endangered species. Believes USFWS should have all of the information about the Project as well as what people are asking about.	General Comment
Ross Jones	Public comment. Transcribed during meeting.	6/11/2013	States that he has lived in the area for over 20 years and has been associated with agriculture. He is concerned that the State of California is trying to use an endangered species on the Pit River to usurp the landowners' given water rights. He also stated that the project is a waste of money and since PG&E is paying for it, that means the people are the ones who actually pay for it, which he finds inappropriate.	General Comment
Doug Knox	Public comment. Transcribed during meeting.	6/11/2013	Modoc Independent Tea Party claims to have studied and is familiar with the Pit River IRWM. He states taking the dams out will run landowners out. He states that scientists tried to run his business in	General Comment

Name	Description	Date of comments	Comment summary	CEQA Issue Area
			Sacramento County on a fish farm out and that now all these people are trying to take the water here. He doesn't trust the people within State agencies getting involved due to an endangered species and wants them to stay out of the area.	
Ross Jones	Public comment. Transcribed during meeting.	6/11/2013	Concerned that this project is a water grab and is fed up with it.	General Comment
Doug Knox	Public comment. Transcribed during meeting.	6/11/2013	States that The Tea Party is fed up with the Project and they have a radio program every Saturday at noon on KCFJ 570 AM for 30 minutes to discuss the people they are upset with.	General Comment; Biological Resources
			States that anyone who would shut water off to ranch and farm land in the San Joaquin Valley for the delta smelt is not an environmentalist, but a domestic terrorist, and the Tea Party is going to fight them.	
			States that there are more endangered species in the Pit River than just the Shasta crayfish. He mentions the crayfish, the sculpin, the sucker, and the western pond turtle, and states that farmers are going to have to fence off the whole Pit River to keep their cattle out of it. Also states that now the California Department of Fish and Wildlife wants to put the salmon in above Shasta.	
			Believes it is a sin to put a crayfish over a human and take his friends' lands. Also states that every farmer and rancher is the creator and they take care of the land, and now these people are going to be run off the land.	
Harold Chandler	Public comment. Transcribed during meeting.	6/11/2013	States that just a few people are here representing hundreds of people and that their radio show reaches thousands. Also states that they are just an offshoot from the main Tea Party in Redding.	General Comment

Pit 1 Hydroelectric Project  
401 Certification Modification EIR

APPENDIX

A

NEWSPAPER NOTICES



Appendix A  
Newspaper Notices

---

## Record Searchlight Notice



In the Superior Court of the State of California  
in and for the County of Shasta

CERTIFICATE OF PUBLICATION  
RECORD SEARCHLIGHT

CARDNO ENTRIX  
201 N CALLE CESAR CHAVEZ 2  
SANTA BARBARA CA 93103

REFERENCE: 287685 SHRUTI  
6782104 NOTICE IS HEREBY GIV

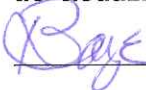
State of California  
County of Shasta

I hereby certify that the Record Searchlight is a newspaper of general circulation within the provisions of the Government Code of the State of California, printed and published in the City of Redding, County of Shasta, State of California; that I am the principal clerk of the printer of said newspaper; that the notice of which the annexed clipping is a true printed copy was published in said newspaper on the following dates, to wit;

PUBLISHED ON: 05/24 06/09

FILED ON: 05/24/13

I certify under penalty of perjury that the foregoing is true and correct,  
at Redding, California on the above date.



RECORD SEARCHLIGHT  
1101 Twin View Blvd, Redding, CA 96003

NOTICE IS HEREBY GIVEN THAT the State Water Resources Control Board (State Water Board) has issued a Notice of Preparation (NOP) for an Environmental Impact Report related to the Pit 1 Hydroelectric Project addressing the proposed amendment to the existing 401 water quality certification to eliminate or modify the requirement for summer flushing flows, which may be detrimental to endangered Shasta crayfish (Proposed Project). The Proposed Project is owned by Pacific Gas and Electric Company and licensed under Federal Energy Regulatory Commission. State Water Board staff will hold scoping meetings at the time and location below to receive oral comments from trustee agencies and interested persons.

Tuesday June 11, 2013 from 9:00am to 11:00am  
Central Valley Regional Water Quality Control Board  
364 Knollcrest Drive, Suite 205  
Redding, CA 96002

and

Tuesday June 11, 2013 from 6:00pm to 8:00pm  
Intermountain Fair  
44218 A Street  
McArthur, CA 96056

The NOP may be viewed at:  
[http://www.swrcb.ca.gov/waterrights/water\\_issues/programs/water\\_quality\\_cert/docs/pit1\\_ferc2687/pit1\\_nop.pdf](http://www.swrcb.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/pit1_ferc2687/pit1_nop.pdf) or  
by contacting the staff below. General questions about this notice should be directed to Mr. Peter Barnes at (916) 341-5319 or [PBarnes@waterboards.ca.gov](mailto:PBarnes@waterboards.ca.gov).

May 24, & June 9, 2013

6782104

In the Superior Court of the State of California  
in and for the County of Shasta

CERTIFICATE OF PUBLICATION  
RECORD SEARCHLIGHT

CARDNO ENTRIX  
201 N CALLE CESAR CHAVEZ 2  
SANTA BARBARA CA 93103

REFERENCE: 287685            SHRUTI  
              6782104        NOTICE IS HEREBY GIV

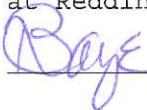
State of California  
County of Shasta

I hereby certify that the Record Searchlight is a newspaper of general circulation within the provisions of the Government Code of the State of California, printed and published in the City of Redding, County of Shasta, State of California; that I am the principal clerk of the printer of said newspaper; that the notice of which the annexed clipping is a true printed copy was published in said newspaper on the following dates, to wit;

PUBLISHED ON: 05/24 06/09

FILED ON:            05/24/13

I certify under penalty of perjury that the foregoing is true and correct,  
at Redding, California on the above date.



RECORD SEARCHLIGHT  
1101 Twin View Blvd, Redding, CA 96003

NOTICE IS HEREBY GIVEN THAT the State Water Resources Control Board (State Water Board) has issued a Notice of Preparation (NOP) for an Environmental Impact Report related to the Pit 1 Hydroelectric Project addressing the proposed amendment to the existing 401 water quality certification to eliminate or modify the requirement for summer flushing flows, which may be detrimental to endangered Shasta crayfish (Proposed Project). The Proposed Project is owned by Pacific Gas and Electric Company and licensed under Federal Energy Regulatory Commission. State Water Board staff will hold scoping meetings at the time and location below to receive oral comments from trustee agencies and interested persons.

Tuesday June 11, 2013 from 9:00am to 11:00am  
Central Valley Regional Water Quality Control Board  
364 Knollcrest Drive, Suite 205  
Redding, CA 96002

and

Tuesday June 11, 2013 from 6:00pm to 8:00pm  
Intermountain Fair  
44218 A Street  
McArthur, CA 96056

The NOP may be viewed at:  
[http://www.swrcb.ca.gov/waterrights/water\\_issues/programs/water\\_quality\\_cert/docs/pit1\\_ferc2687/pit1\\_nop.pdf](http://www.swrcb.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/pit1_ferc2687/pit1_nop.pdf) or  
by contacting the staff below. General questions about this notice should be directed to Mr. Peter Barnes at (916) 341-5319 or [PBarnes@waterboards.ca.gov](mailto:PBarnes@waterboards.ca.gov).

May 24, & June 9, 2013

6782104



Appendix A  
Newspaper Notices

---

## Mountain Echo Newspaper Notice



## CLASSIFIED/LEGAL NOTICES

### FICTITIOUS BUSINESS NAME STATEMENT FILED/ENDORSED April 3, 2013

FILE NO. 2013-0000411

The following persons are doing business as: CLEARWATER LODGE/CLEARWATER LODGE PIT RIVER, 24500 PIT ONE POWER HOUSE ROAD, FALL RIVER MILLS, CA 96028 County of SHASTA. 1. Clearwater Lodge Pit river, LLC, P.O. Box 920, Fall River Mills, CA 96028. State: CA. This business is being conducted by a Limited Liability Company. Registrant has begun to transact business under the name above: 4/1/2013. Statement expires on 4/3/2018. S/Clearwater Lodge LL C/Michelle Titus. This statement was filed in the office of Cathy Darling Allen, County Clerk of SHASTA County, April 3, 2013 by T. JENNINGS. NOTICE-This fictitious business name statement expires five years from the date it was filed in the office of the County Clerk. A new fictitious business name must be filed prior to that date. The filing of this statement does not itself authorize the use in this state of a fictitious business name in violation of the rights of another under Federal, State or Common Law (See Section 14400 Et seq Business and Professional Code.)

May 14, 21, 28, June 4, 2013

### FICTITIOUS BUSINESS NAME STATEMENT FILED/ENDORSED May 10, 2013

FILE NO. 2013-0000560

The following persons are doing business as: MOUNTAIN ECHO, 43152 SUITE A HWY 299E, FALL RIVER MILLS, CA 96028 County of SHASTA. 1. Caldwell, Donna E. 21693 Oregon St., Burney, CA 96013. 2. Caldwell, Walter, E. 21963 Oregon St., Burney, CA 96013. State: CA. This business is being conducted by a Married Couple. Registrant has begun to transact business under the name above: 10/3/1977. Statement expires on 5/10/2018. S/Donna E. Caldwell. This statement was filed in the office of Cathy Darling Allen, County Clerk of SHASTA County, May 10, 2013 by J. FRANCESOUT. NOTICE-This fictitious business name statement expires five years from the date it was filed in the office of the County Clerk. A new fictitious business name must be filed prior to that date. The filing of this statement does not itself authorize the use in this state of a fictitious business name in violation of the rights of another under Federal, State or Common Law (See Section 14400 Et seq Business and Professional Code.)

May 14, 21, 28, June 4, 2013

### INVITATION TO BID

The Pit River Tribal Housing Board will receive sealed bids from qualified American Indian and Non-Indian Licensed Contractors for the Construction of Community Water System Improvements, XL Ranch Housing Project, Pit River Indian Reservation, Modoc County, California, as part of ICDBG #B-11-SR-06-2788, until 2:00 pm local time on the 19th day of June, 2013 at the Pit River Tribal Housing Board Office, 37134 Main Street, Burney, CA.

Indian preference in the award of this contract and subcontracts will be as required by the policies of the Pit River Tribe and the Native American Housing Assistance and Self-Determination Act of 1996.

Bid Proposers may obtain copies of the documents from Charles C. Young III, Architect, 54 Hilltop Lane, Gravois Mills, MO 65037, Phone (573) 374-1762.

Allen Lowry  
Housing Coordinator  
Pit River Tribal Housing Board  
37118 Main Street  
Burney, CA 96013  
(530) 335-4809  
May 21, 28, June 4, 2013

**NOTICE IS HEREBY GIVEN THAT** the State Water Resources Control Board (State Water Board) has issued a Notice of Preparation (NOP) for an Environmental Impact Report related to the Pit 1 Hydroelectric Project addressing the proposed amendment to the existing 401 water quality certification to eliminate or modify the requirement for summer flushing flows, which may be detrimental to endangered Shasta crayfish (Proposed Project). The Proposed Project is owned by Pacific Gas and Electric Company and licensed under Federal Energy Regulatory Commission. State Water Board staff will hold scoping meetings at the time and location below to receive oral comments from trustee agencies and interested persons.

Tuesday June 11, 2013 from 9:00am to 11:00am  
Central Valley Regional Water Quality Control Board  
364 Knollcrest Drive, Suite 205  
Redding, CA 96002

and

Tuesday June 11, 2013 from 6:00pm to 8:00pm  
Intermountain Fair  
44218 A Street  
McArthur, CA 96056

The NOP may be viewed at: [http://www.swrcb.ca.gov/water-rights/water\\_issues/programs/water\\_quality\\_cert/docs/pit1\\_ferc2687/pit1\\_nop.pdf](http://www.swrcb.ca.gov/water-rights/water_issues/programs/water_quality_cert/docs/pit1_ferc2687/pit1_nop.pdf) or by contacting the staff below. General questions about this notice should be directed to Mr. Peter Barnes at (916) 341-5319 or [PBarnes@waterboards.ca.gov](mailto:PBarnes@waterboards.ca.gov).  
May 28, June 4, 2013

### NOTICE OF PUBLIC HEARING SHASTA COUNTY BOARD OF SUPERVISORS

**NOTICE IS HEREBY GIVEN** that the Board of Supervisors of the County of Shasta, State of California, will consider the following:

Annual rate adjustments for Burney Disposal, Inc. and USA Waste of California, Inc.

PLEASE NOTE that if you challenge the nature of the proposed action in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the appropriate authority at or prior to the public hearing.

**Run your  
Fictitious**

NOTICE IS FURTHER GIVEN that the hearing will be held at the  
County Administration Center, Board of Supervisors

Appendix A  
Newspaper Notices

---

## Intermountain News Notice





**In and For the  
County of Shasta  
CERTIFICATE OF PUBLICATION**

PUBLIC NOTICE  
CENTRAL VALLEY REGIONAL WATER  
QUALITY CONTROL BOARD  
NOTICE OF PREPARATION  
Environmental impact  
Pit 1 Hydroelectric Project

I hereby certify that the Intermountain News is a newspaper of general circulation with the Provisions of the Government Code of the State of California printed and published in The town of Burney, County of Shasta, State of California; that I am the principle Clerk of the printer of said newspaper, that The notice of which the annexed clipping is a true printed copy was published in said Newspaper on the following dates, to wit:

Published:

MAY 29, JUNE 5

I certify under the penalty of perjury that the Foregoing is true and correct, at Burney, California, on the day of:

JUNE 5, 2013

Signature



Katie Harrington

**The Intermountain News**

P.O. Box 1030,  
37318 Huron Ave., Burney, CA 96013  
Phone 530-725-0925; Fax 530-303-1528

NOTICE IS HEREBY GIVEN THAT the State Water Resources Control Board (State Water Board) has issued a Notice of Preparation (NOP) for an Environmental Impact Report related to the Pit 1 Hydroelectric Project addressing the proposed amendment to the existing 401 water quality certification to eliminate or modify the requirement for summer flushing flows, which may be detrimental to endangered Shasta crayfish (Proposed Project). The Proposed Project is owned by Pacific Gas and Electric Company and licensed under Federal Energy Regulatory Commission. State Water Board staff will hold scoping meetings at the time and location below to receive oral comments from trustee agencies and interested persons.

Tuesday June 11, 2013 from 9:00am to 11:00am  
Central Valley Regional Water Quality Control Board  
364 Knollcrest Drive, Suite 205  
Redding, CA 96002

and  
Tuesday June 11, 2013 from 6:00pm to 8:00pm  
Intermountain Fair  
44218 A Street  
McArthur, CA 96056

The NOP may be viewed at: [http://www.swrcb.ca.gov/waterrights/water\\_issues/programs/water\\_quality\\_cert/docs/pit1\\_ferc2687/pit1\\_nop.pdf](http://www.swrcb.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/pit1_ferc2687/pit1_nop.pdf) or by contacting the staff below. General questions about this notice should be directed to Mr. Peter Barnes at (916) 341-5319 or [PBarnes@waterboards.ca.gov](mailto:PBarnes@waterboards.ca.gov).  
(Pub. 5-29, 6-5)





APPENDIX

# B

SCOPING MEETING PRESENTATION



# Pit 1 Hydroelectric Project 401 Water Quality Certification Amendment Public Scoping Meetings

June 11, 2013

Redding & McArthur, California  
State Water Resources Control Board  
Division of Water Rights



# Meeting Set-Up

- Sign-in sheet and speaker cards
  - Fill out a speaker card if you wish to comment
- Comments may be limited to a set amount of time depending upon number of people wishing to speak
- Meeting is not intended to discuss comments
  - Staff will answer general questions
  - No decisions will be made today
- Please respect all speakers
  - All points of view are valid



# Presentation Outline

- Background
  - State Water Board's Mission
  - Pit 1 Water Quality Certification (WQC)
  - PG&E's Request for WQC Amendment
  - CEQA and State Water Board's Role
- CEQA Process
- Public Input
- Next Steps





# State Water Board Mission Statement

*To preserve, enhance, and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations*

More information can be found at:

<http://www.waterboards.ca.gov>



# State Water Board

- Joint authority over water rights and water quality in order to provide protection of California's waters
- Protect, enforce, and balance many beneficial uses of water including, but not limited to:
  - Irrigation
  - Power
  - Recreation
  - Municipal
  - Fish and Wildlife Preservation or Enhancement
- Prevent waste and unreasonable use of water





# Background: Pit 1 WQC

- WQC Issued: December 4, 2001
- Federal Energy Regulatory Commission (FERC)  
License Issued to PG&E: March 19, 2003





## Pit 1 WQC: Condition 13

- Requires PG&E to release flushing flows through Fall River Pond for two consecutive days (Saturday and Sunday), three times per year
  - Once in May or June, July and August
- Flushing flows to control aquatic vegetation and mosquito production in Fall River Pond



## Pit 1 WQC: Condition 14

- Requires monitoring of effectiveness of flushing flows in controlling aquatic vegetation and mosquito production at Fall River Pond
- Initial monitoring required for five years after the issuance of a new license
- After 5-year monitoring report, State Water Board may modify or terminate flushing flow monitoring program





## Request for WQC Amendment

- On May 21, 2009, State Water Board received a letter from United States Fish and Wildlife Service (USFWS) requesting suspension of flushing flows due to concerns that flows were contributing to decline of Shasta crayfish
  - Shasta crayfish listed as endangered under both California and Federal Endangered Species Acts in 1988



# Request for Amendment to WQC

- On June 14, 2009, PG&E submitted request to State Water Board to amend Pit 1 WQC to remove Conditions 13 and 14
  - Request based on monitoring results, which indicate higher base flow of 150 cubic feet per second may be more effective in controlling aquatic vegetation and mosquito production than flushing flows





# CEQA and State Water Board's Role

- As part of this WQC amendment, State Water Board must comply with CEQA (California Environmental Quality Act)
- Although flushing flows provided an incidental whitewater recreational opportunity, State Water Board temporarily suspended flushing flows out of an abundance of caution for endangered species protection while CEQA process is completed



# CEQA

- Amendment of WQC to eliminate or modify flushing flows is a discretionary action
- Since PG&E is not a public agency, the State Water Board is the CEQA lead agency
  - Determines type of document
  - Must represent State Water Board's independent judgment





## CEQA Objectives\*

- Disclose significant environmental effects of proposed activities
- Identify ways to avoid or reduce environmental damage
- Prevent environmental damage by requiring implementation of feasible alternatives or mitigation
- Disclose reasons for agency approval of projects with significant environmental effects
- Foster interagency coordination in review of projects
- Enhance public participation in planning process

\*From the CEQA Deskbook, 3<sup>rd</sup> Ed., Bass, Bogdan, Rivasplata





# CEQA Process

- State Water Board decided to prepare an environmental impact report (EIR)
- EIR is designed to identify significant impacts, and mitigation measures to reduce significant impacts
- Alternatives will be evaluated with regards to how they meet project objectives and overall feasibility
- Final feasibility of alternatives will be determined when State Water Board adopts the findings, based on final EIR



# Development of CEQA Documents

- State Water Board entered a three party Memorandum of Understanding with PG&E and Cardno ENTRIX
  - Cardno ENTRIX develops environmental documents under the sole direction of State Water Board
  - Cardno ENTRIX is compensated for its work by PG&E





# Public Input

- Comments regarding Notice of Preparation due by NOON (12:00pm) on June 24, 2013
- Draft EIR will also be released for public review and comment



# Additional Information

For additional information please visit the State Water Board's Pit 1 Hydroelectric Project WQC website at:

[http://www.waterboards.ca.gov/waterrights/water\\_issues/programs/water\\_quality\\_cert/ceqa\\_projects.shtml#ferc2687](http://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/ceqa_projects.shtml#ferc2687)





# Future Updates

- To receive future updates, please sign up to receive emails online at:

[http://www.waterboards.ca.gov/resources/email\\_subscriptions/](http://www.waterboards.ca.gov/resources/email_subscriptions/)

- Select “State Water Resources Control Board”
- Enter email address and full name
- Under Categories, select “Water Rights”
- Select Box for “Water Rights Water Quality Certification”
- Click “Subscribe” button at the top



# General Questions???

Following general questions we will proceed with  
public comment period



# Public Comments

- Please state and spell your name for the recorder prior to stating your comment



Pit 1 Hydroelectric Project  
401 Certification Modification EIR

APPENDIX

C

WRITTEN RESPONSES TO THE NOP



## Appendix C Written Responses to the NOP

---

# Public Agency Responses





June 18, 2013

Mr. Peter Barnes  
State Water Resources Control Board  
Division of Water Rights  
PO Box 2000  
Sacramento, CA 95812-2000

**Subject: Comments on Notice of Preparation of an Environmental Impact Report for the Pit 1 Hydroelectric Project 401 Water Quality Certification Amendment**

Dear Mr. Barnes:

The California Department of Fish and Wildlife (Department) received the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the Pit 1 Hydroelectric Project (Project) on May 17, 2013.

The Department respectfully submits the following comments:

The Department believes the below issues need to be addressed in the EIR in order for the State Water Resources Control Board to amend the existing 401 Water Quality Certification. The amendment proposes to permanently eliminate or modify the requirement for flushing flows that may be detrimental to the State and Federally-listed endangered Shasta crayfish (*Pacifastacus fortis*):

1. A new survey for Shasta crayfish and non-native crayfish in the Project Area is needed in order for the EIR to evaluate the potential effects. It is our understanding that the last survey was conducted in 2009, in the Pit 1 bypass reach, and few Shasta crayfish were found.

According to California Environmental Quality Act Guidelines section 15125(a), ENVIRONMENTAL SETTING: “An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published...” It further states: “This environmental setting will normally constitute the **baseline** (emphasis added) physical conditions by which a lead agency determines whether an impact is significant.”

The Department believes the 2009 survey results are outdated and new surveys are needed in order for the EIR to accurately define the current baseline conditions.



## Appendix C Written Responses to the NOP

---

# Non-Profit Organization Responses







Dave Steindorf  
California Stewardship Director  
4 Baroni Drive  
Chico, CA 95928  
530-343-1871  
[dave@americanwhitewater.org](mailto:dave@americanwhitewater.org)

[www.americanwhitewater.org](http://www.americanwhitewater.org)

June 24, 2013

State Water Resources Control Board  
Division of Water Rights  
Attention: Peter Barnes  
P.O. Box 2000  
Sacramento, CA 95812-2000

Sent via electronic mail to: [PBarnes@waterboards.ca.gov](mailto:PBarnes@waterboards.ca.gov)

Dear Mr. Barnes,

American Whitewater appreciates having the opportunity to provide comment in response to the State Water Resources Control Board's Notice of Preparation ("NOP") of an Environmental Impact Report for the proposed amendment to the Pit 1 Hydroelectric Project's (FERC #2687) 401 Water Quality Certification ("401 Certification").

American Whitewater is a 501(c)(3) non-profit organization whose mission is to conserve and protect America's whitewater resources and enhance opportunities to enjoy them safely. Founded in 1954, American Whitewater represents the conservation interests of tens of thousands of whitewater paddlers across the country. As avid whitewater recreationists, we place a high value on protecting naturally functioning river ecosystems and restoring their values. We have a strong membership base in Northern California, and our members recreate on the Pit River Bypass Reach when flows are high enough to enjoy the river by raft, kayak or canoe. We intervened in the FERC relicensing process for the Pit 1 Hydroelectric Project in 1995, and were a key stakeholder in the relicensing negotiations for the FERC license issued in 2003. We have also been involved in the process since we were made aware of the proposal to cancel the summer flushing/whitewater boating flows in 2009, and we have a strong interest in the outcome of these proceedings.

## **I. Introduction.**

Through the CEQA process, American Whitewater seeks to ensure that the daily operation of the Pit 1 Hydroelectric Project both protects endangered species and meets water quality goals and objectives outlined in the Basin Plan, including COLD water habitat, RARE preservation of rare and endangered species and REC-1 contact recreation opportunities. For reasons we outline below, and testified to at the public hearing in Redding on June 8<sup>th</sup>, 2013, American Whitewater does not believe that the CEQA Project as currently defined in the Notice of Preparation will accomplish these goals. We believe that the Water Board has a duty under CEQA and the Basin Plan to examine numerous reasonable alternatives that will protect the endangered Shasta crayfish in the Pit 1 Bypass Reach and address the ongoing temperature impacts of the Pit 1 Project. As

discussed below, these include developing barriers to keep invasive crayfish out of Shasta crayfish habitat, examining temperature control devices or ways to mitigate the temperature impacts of the project, and assessing a variety of minimum instream flow release scenarios, both with and without temperature mitigation in place.

Further, there are fundamental pieces of scientific information that need to be assessed before the Water Board can make an informed decision about the impacts of the Pit 1 Project on the Shasta crayfish. These issues include population surveys, temperature tolerances of the species, and an assessment of how cancelling the flushing flows will benefit Shasta crayfish when similar, and often more extreme population declines are seen in other populations outside of the influence of the flushing flows.

Finally, the summer flushing/whitewater flows provided a whitewater recreation opportunity between 2003 and 2009. This opportunity was in addition to the whitewater recreation flows required by the license in the fall. In the event that the Water Board determines, using the best available science, that cancelling the flushing flows will benefit the Shasta crayfish, CEQA requires the Water Board to consider full mitigation of the loss.

## **II. The State Water Board Should Ensure Power Operations Are Not Contributing to the Degradation of Shasta Crayfish.**

New information about water quality and the Shasta crayfish has been presented since the 401 Certification was issued for the Pit 1 Project in 2001 that suggests that the entire project as a whole is likely causing significant adverse environmental impacts. We believe that these issues should be analyzed by the Water Board during the reopening proceeding.

The 401 Certification for the Pit 1 Hydroelectric Project includes conditions preserving the Board's authority to reopen and amend the 401 Certification as necessary to assure the Project's continuing compliance with water quality standards, including new or modified designated uses. It appears to be undisputed that Shasta crayfish in the project area are in decline. We believe that this is prima facie evidence that the Pit 1 Project is not complying with the designated uses of cold freshwater habitat (COLD)<sup>1</sup> and preservation of rare and endangered species (RARE).<sup>2</sup> Accordingly, the Board has an

---

<sup>1</sup> Cold Freshwater Habitat is defined as "[u]ses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates." Basin Plan, p. II-2.00

<sup>2</sup> RARE is defined as "[u]ses of water that support aquatic habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered." *Id.* Based on our review the Basin Plan, it appears that the State Water

<sup>2</sup> RARE is defined as "[u]ses of water that support aquatic habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered." *Id.* Based on our review the Basin Plan, it appears that the State Water Board has not identified surface waters that support the designated use of RARE:

affirmative duty to reopen and amend the 401 Certification to assure that the Project is properly conditioned to protect these uses from further degradation and to contribute to the restoration of the physical, biological, and chemical integrity of project waters. In carrying out its duty, the Board should not limit itself to consideration of PG&E's proposal to eliminate flushing flows, but should consider changes to any controllable factors that may be necessary to protect the endangered Shasta crayfish and bring the Pit 1 Project into compliance with the Basin Plan. As discussed below, the available information indicates that eliminating flushing flows alone will not assure that the CEQA Project as currently defined protects Shasta crayfish.

**A. Daily Operations of the Pit 1 Hydroelectric Project Increase Water Temperatures.**

The primary sources of water for the Pit 1 Hydroelectric project are the spring waters that emanate near the town of McArthur. These springs, which come together into the Fall River, include Big Lake, Tule River, Ja-She Creek, and Lava Creek, forming one of the largest fresh water spring systems in the country.<sup>3</sup> These crystal clear springs provide high quality cold water habitat and are home to the largest remaining Shasta Crayfish populations in existence. These springs also support abundant populations of trout and other cold water species. The Fall River winds its way through the Fall River Valley until it is impounded by the Pit 1 Forebay, where approximately 90% of the flow is diverted and the remaining water is subject to thermal loading before being released into the Lower Fall and Pit Rivers.

The Pit River is a different story. It is listed as temperature impaired on the state's 303(d) list from the confluence of the North and South Forks to Shasta Lake.<sup>4</sup> Water quality monitoring data in reports by PG&E outline that the Pit 1 Project increases water temperatures throughout the summer during daily operations, playing a role in contributing to the water quality impairment. Between 1990 and 1992, for the period between June through September, the temperature of the Fall River below the Pit 1 Forebay and Fall River Pond was, on average, 2.9 °C (5.22 °F) warmer than the Fall River above project impoundments (with a maximum daily average of 4.8 °C (8.64 °F)), and between 2004 and 2008, the Fall River below project impoundments was 2.2 °C

---

Surface waters with the beneficial uses of Groundwater Recharge (GWR), Freshwater Replenishment (FRSH), and Preservation of Rare and Endangered Species (RARE) have not been identified in this plan. Surface waters of the Sacramento and San Joaquin River Basins falling within these beneficial use categories will be identified in the future as part of the continuous planning process to be conducted by the State Water Resources Control Board.

Basin Plan, p. II-5.00, note. However, this is a de facto use of project waters, as Shasta crayfish are present. CWA section 401(d) allows the Board to impose "other limitations" on the project in general to assure compliance with various provisions of the Clean Water Act and with "any other appropriate requirement of State law." *PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, 511 U.S. 700, 711-12 (1994).

<sup>3</sup> [http://www.parks.ca.gov/?page\\_id=464](http://www.parks.ca.gov/?page_id=464), last visited June 20, 2013.

<sup>4</sup> Information obtained from 2010 Integrated Report–303(d) List, available at: [http://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2010.shtml](http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml), last visited June 20, 2013.

warmer (3.96 °F) than above project impoundments (with a maximum daily average of 4.1 °C (7.38 °F)). PG&E 2009 Water Quality Monitoring 5-Year Summary Report, FERC eLibrary no. 20090701-5302, p. 35. PG&E's 2012 water quality report shows that the Pit 1 Project continues to increase water temperatures in the Fall River, with the maximum daily change in temperature being 3.0 °C warmer (5.4 °F). PG&E Pit 1 Water Quality Monitoring Results 2012 Annual Report, FERC eLibrary no. 20130531-5135, p. 16.

Based on our review, these temperature increases appear to violate the water quality objectives for temperature outlined in the Basin Plan, which state that “[a]t no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5 °F above natural receiving water temperature.”<sup>5</sup> Further, the Project appears to be out of compliance with water quality standards outlined in the Central Valley Region’s Basin Plan, harming COLD water habitat and RARE beneficial uses.<sup>6</sup>

The Water Board is required to examine the factors that are controllable by and related to the Pit 1 Hydroelectric Project that are impacting water quality standards. These “controllable factors” are defined as “those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State.”<sup>7</sup> The Pit River is listed as temperature impaired on the 303(d) list due to agricultural runoff. However, “controllable factors are not allowed to cause further degradation of water quality in instances where uncontrollable factors have already resulted in water quality objectives being exceeded. The Regional Water Board recognizes that man made changes that alter flow regimes can affect water quality and impact beneficial uses.”<sup>8</sup>

It would be most efficient for the Water Board to consider the impacts of the daily operations of the Pit 1 Project on the Shasta crayfish in the current proceedings. In the event that the Water Board does not examine the impact of the operations of the Pit 1 Project beyond the flushing flows on beneficial uses, water quality criteria, and potential ongoing take of a state and federally listed endangered species, American Whitewater reserves its right to file a Petition for Reconsideration to address these matters.

**B. The Record Does Not Include Adequate Information to show that the Elimination of Flushing Flows Will Protect Shasta Crayfish.**

The NOP outlines the CEQA Project Objective as to: “Amend the existing 401 Certification to permanently eliminate or modify the requirement for flushing flows that

---

<sup>5</sup> Basin Plan, Water Quality Objective III-8.00 (August 13, 2009).

<sup>6</sup> In their 2012 Annual Water Quality Report, PG&E cites to the Basin Plan which states that “the natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Quality Control Board that such alteration in water temperature does not adversely affect beneficial uses.” Basin Plan, p. III-8.00. However, to our knowledge the RWQCB has not found that the alteration in water temperature is not adversely affecting beneficial uses.

<sup>7</sup> Basin Plan, pp. III-1.00 to III-2.00—The 2<sup>nd</sup> important point that applies to water quality objectives (September 1, 1998).

<sup>8</sup> *Id.* (Emphasis added).

may be detrimental to endangered Shasta crayfish.” NOP, p. 3. As indicated on the face of this statement, the record does not contain adequate evidence to show that flushing flows are detrimental to Shasta crayfish, or that elimination of flushing flows will contribute to their recovery.

An EIR must be supported by substantial evidence in the record. *See, e.g., Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 C4th 412, 435; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 C3d 553, 566, 575. The substantial evidence standard applies to “conclusions, findings and determinations” and also to disputes regarding the scope of an EIR’s analysis of a given topic, the methodology used for studying an impact, and the reliability or accuracy of the data upon which the EIR relied. *City of Long Beach v. Los Angeles Unified Sch. Dist.* (2009) 176 Cal.App.4th 889, 898.

### **1. Population Trends Indicate That a Cause Other Than Flushing Flows Is Leading to Shasta Crayfish Decline.**

A decline in the number of Shasta crayfish found at a 600-meter reach just above Pit River Falls triggered concerns about Shasta crayfish populations in the Pit 1 Bypass Reach. There, 21 Shasta crayfish were found in October 2005, while one was found in September 2008. During this same time period in the same reach, the number of signal crayfish almost tripled and the number of fantail almost doubled. 2010 Shasta Crayfish Annual Report, FERC eLibrary no. 20110525-5070, pp. 11-13.

PG&E cites that this decline has occurred since the new flow regime was implemented with the new license in 2004, which included an increase in minimum instream flows and the summer flushing/whitewater flows. Evaluation of Thermal Effects from Summer Flushing/Whitewater Flows, FERC eLibrary no. 20100106-5009, p. 13. A decline in Shasta crayfish in the Pit 1 Bypass Reach and nowhere else would support this hypothesis. However, similar and often more extreme declines in Shasta crayfish, and corresponding increases in invasive crayfish populations, have been seen throughout the Pit River Basin in the same timeframe, all in areas *without* flushing flows. 2010 Shasta Crayfish Annual Report, FERC eLibrary no. 20110525-5070, pp. 11-13. In light of this information, there is insufficient basis to conclude that the flushing flows are a unique cause of the decline of Shasta crayfish populations in the Pit 1 Bypass Reach.

The Fish and Wildlife Service concluded in their 1998 Shasta Crayfish Recovery Plan (“Recovery Plan”) that “the non-native signal crayfish (*Pacifastacus leniusculus*), which is both a competitor and predator of the Shasta crayfish, is considered the greatest threat to the continued existence of the Shasta crayfish (USFWS 1998, Ellis 1999).” 2011 Shasta Crayfish Technical Review Committee Annual Report, FERC eLibrary no. 20120530-5174, p. 1. The Recovery Plan states that in order to prevent the extinction of the species, invasive signal crayfish must be removed immediately. 1998, USFWS, p. iv.

The inverse relationship between populations of Shasta crayfish and invasive crayfish outlined above further supports this finding.<sup>9</sup>

Shasta crayfish populations have benefitted where recovery efforts have focused on building barriers to keep invasive crayfish out. PG&E reported:

The two largest Shasta crayfish populations, which are in Thousand Springs and upper Spring Creek in the upper Fall River drainage, have not suffered the dramatic declines observed in other Shasta crayfish populations sympatric with signal crayfish (Spring Rivers 2009, 2011). The Shasta crayfish populations at Thousand Springs and upper Spring Creek have benefited from the crayfish barriers and signal crayfish removal surveys implemented as part of the Crayfish Barrier Plan (PG&E 2006a) developed for License Article 413.

PG&E, Pit 1 Shasta Crayfish Study Report, FERC eLibrary no. 20130131-5321, (Jan. 2013), p. 17.

PG&E's proposal to protect Shasta crayfish by eliminating flushing flows contradicts its own evidence that competition from and predation by nonnative crayfish species are the primary cause of Shasta crayfish decline. The Water Board should weigh PG&E's proposal to eliminate flushing flows accordingly, in light of the paucity of evidence supporting that it would benefit Shasta crayfish. It should consider alternatives to amending the 401 Certification to eliminate flushing flows as necessary to protect Shasta crayfish.

## **2. PG&E's Argument That Flushing Flows' Effect on Temperature Is Contributing to Shasta Crayfish Decline Is Not Supported by the Evidence.**

PG&E states that the flushing flows are harming Shasta crayfish because the species is not adapted to short-term fluctuations in temperature (Biological Evaluation, FERC eLibrary no. 20110316-5009, p. 100), and flushing flows reduce the size of coldwater habitat and eliminate diel temperature fluctuations and cooler nighttime water temperatures (2010 Shasta Crayfish Technical Review Committee Annual Report, FERC eLibrary no. 20110525-5070, p. 25). To date, there have not been any studies conducted which define the temperature tolerances of the Shasta crayfish. In combination with the population trends throughout the Pit River Basin, temperature tolerance data for Shasta and signal crayfish must be more substantial than what PG&E provides in order to amend the 401 Certification. Without specific quantitative information about critical and

---

<sup>9</sup> Numerous other studies support this finding: "Competition from exotic crayfish species remains a significant threat." Shasta Crayfish 5-Year Review, p. 10, USFWS, 2009; "Shasta crayfish have declined in both abundance and range since the previous comprehensive study (Daniels 1980). According to Light and Clarke (1991) and Erman et. Al. (1992), the rapid range-expansion of *P. Leniusculus* [signal crayfish] seems to be the most immediate threat to the persistence of Shasta crayfish populations." Mojica, C.L., Mire, J.B., Erman, D.C., "The effect of *Pacifastacus leniusculus* on the behavior of the endangered Shasta crayfish (*Pacifastacus fortis*) in an experimental setting," University of California, Berkeley (1993) (prepared for the California Department of Fish and Game), p. 2.



maximum temperature thresholds of Shasta and signal crayfish, temperature surveys and modeling information about the flushing flows, or discussion of other factors that might affect crayfish temperature tolerance, PG&E's citations in their Final Shasta crayfish study report released in January 2013 do not provide the substantial evidence needed.<sup>10</sup>

**C. The EIR Must Consider Significant Environmental Impacts.**

The EIR must analyze the significant environmental effects of the proposed action on any of the listed environmental factors. Pub. Res. Code § 21100(b)(1); 14 CCR §§ 15126(a), 15126.2(a), 15143. American Whitewater is particularly concerned that the proposed action, as defined in the NOP, will have significant environmental impacts on whitewater recreation.

The 2003 license called for *both* 6 days of summer flushing flows (401 Condition #13) and whitewater recreation flows between September 15<sup>th</sup> and October 30<sup>th</sup> (Article 424, which lead to 4 days of whitewater flows ordered by FERC in 2011. See FERC Order Approving Final Whitewater Boating Flow Schedule, eLibrary no. 20110614-3011). If not for the Pit 1 Hydroelectric Project, the Pit River could provide year-round whitewater recreation opportunities. The balance that was struck during relicensing restored a total of 10 days of whitewater recreation flows to the Pit River each year.

It is clear that the flushing flows were intended to provide a whitewater recreation opportunity in addition to controlling aquatic vegetation growth and mosquito production.<sup>11</sup> Between 2003 and 2009, the summer flushing flows provided an opportunity for six days of whitewater recreation on the Pit 1 Bypass Reach. The public enjoyed this intended purpose of the flushing flows for the whitewater recreation opportunity, and PG&E documented it during each flushing flow by recording the number of boaters on the reach.

In the event that the Water Board determines that the best available science supports a determination that cancelling the flushing flows will benefit the endangered Shasta crayfish, REC-1 beneficial uses of the Pit River, which include contact recreation and rafting and canoeing, will be significantly impacted. CEQA requires that the Water Board develop and analyze mitigation measures to replace the lost recreation opportunities. Pub. Res. Code § 21002.

---

<sup>10</sup> It is useful to look to other examples for the kind of quantitative information that is necessary to achieve scientific validity. For example, salmonids have been extensively studied, and an example of temperature tolerance data for salmon can be found at: <http://www.krisweb.com/stream/temperature.htm>. The referenced information speaks of lethality thresholds in terms of the upper incipient lethal temperature ("UILT"), and the critical thermal maxima ("CTM").

<sup>11</sup> Personal communications with Jim Canaday, former Water Board staff present at the relicensing negotiations and development of the 401, June 6, 2013. While the language was left out of the 401 at PG&E's request, all parties agreed to this fact. Canaday states that "there was an intended co-purpose, and even if the flushing flows were not necessary to control the vegetation and mosquitoes it was still incumbent on the project to provide the summer flushing flows for on-water recreation in the Pit 1 diverted reach.

**D. The EIR Should Consider a Reasonable Range of Alternatives to the Proposed Action.**

Under CEQA, the Board must develop and analyze a reasonable range of mitigation measures and alternatives. Pub. Res. Code § 21002. The Board has an obligation to develop and consider alternatives to PG&E's proposed action that include other changes to the controllable factors of the Pit 1 Project's operations and facilities. In addition to examining whether cancelling or modifying the flushing flows will benefit Shasta crayfish, the Water Board should analyze whether the following changes will improve Shasta crayfish habitat and protect beneficial uses.

- 1. Install barriers that will exclude invasive crayfish from the Shasta crayfish's preferred habitat in the Pit 1 Bypass Reach.**
- 2. Consider ways to eliminate thermal loading in the Fall River from the Pit 1 Project.** This could include a temperature control device; a pipe, tunnel or ditch to bring cold Fall River water directly into the Pit River; moving the inlet for the diversion to a point lower in the Forebay; or other solutions that would accomplish this goal of bringing colder spring water from the Fall River into the Pit. These solutions should also be considered in combination with a variety of increased flow levels, as outlined below.
- 3. Assess whether increasing minimum instream flows will protect beneficial uses.** 401 Certification Condition 17 states that reasonable protection of beneficial uses shall be measured by and limited to factors controllable by and related to the Pit 1 Hydroelectric Project operations. If initial streamflow releases are not found to be reasonably protective of the beneficial uses of the Fall and Pit Rivers, the Water Board has reserved the authority to make additional flow releases, up to 400 cfs between June 1 and October 31. As outlined above, the Pit 1 Project is contributing to the impairment of an already impaired water body, and fails to reasonably protect the beneficial uses of the Pit River due to controllable factors.

To date, there has not yet been a scientifically sound investigation into whether increasing minimum instream flows will help protect beneficial uses and mitigate the impacts of Pit 1 Project operations on the Fall and Pit Rivers. At the 5-Year Water Quality Review in 2009 required by Condition 17, PG&E recommended that additional flow releases not be required. The Water Board later agreed. 2012 Water Quality report, p. 3.

PG&E's recommendation was based on SNTTEMP modeling completed with data obtained from 1990-1992 and 2004-2008, including a flushing flow event between August 12<sup>th</sup> and August 18<sup>th</sup>, 2008. PG&E 5-Year Water Quality monitoring Report, 2009, p. 100. In their Draft Shasta Crayfish Study Report, PG&E cited this information as evidence for why increased minimum instream flows would not provide a benefit. The California Department of Fish and Wildlife provided comment on the Draft Report on December 21<sup>st</sup>, 2012, and the agency cited concerns with the SNTTEMP model and recommended an updated or a new model. PG&E removed the SNTTEMP model and

related results from their Final Shasta Crayfish Study and has not conducted additional monitoring or modeling of increased instream flows to support their recommendation. We urge the Water Board to revisit the adaptive flow release recommendation and seek an updated and comprehensive model of a variety of minimum instream flow release scenarios, including those that bring cooler Fall River water directly into the Pit River, as discussed above.

### **III. Conclusion**

In order to protect the Shasta crayfish and the beneficial uses of the Pit River, the Water Board must look beyond the question of flushing flows and examine the controllable factors of the Pit 1 Hydroelectric Project. We encourage the Water Board to consider the alternatives outlined above, and to seek ways to protect the Shasta crayfish based on substantial evidence.

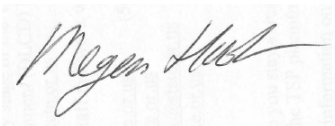
American Whitewater greatly appreciates your consideration of our comments and concerns on the proposed amendment to the 401 Certification for the Pit 1 Hydroelectric License. We look forward to continuing to be involved as the CEQA process moves forward.

Sincerely,



---

Dave Steindorf  
California Stewardship Director



---

Megan Hooker  
Associate Stewardship Director

2. The Department also believes the entire Project's flow regime (January 1 thru December 31) should be evaluated and compared to baseline conditions in order to avoid or minimize potential effects to Shasta crayfish and other fish and wildlife resources within the Project area. The NOP identifies only the flushing flows (May or June, July, and August) being evaluated in the EIR.
3. The NOP identifies that Pacific Gas and Electric (PG&E) would minimize or avoid unplanned outages and out-of-season pulse flows in the Pit 1 bypass reach by implementing new operational procedures that will lower the Pit 1 forebay by 0.5 feet. The Department agrees this will provide some flexibility to PG&E, but it does not eliminate unforeseen operational outages or natural events that will result in pulse flows in the Pit 1 bypass reach. The EIR needs to evaluate unplanned outages and out-of-season pulse flows for the entire flow regime and compare these to baseline conditions in order to avoid or minimize potential effects to Shasta crayfish within the Project area.
4. Other interested parties have expressed a need for a single table to summarize all the historic Pit 1 Project surveys and results, which have been conducted for Shasta crayfish and non-native crayfish. The Department supports the need for this table and it should be included in the EIR.

If you have any questions regarding these comments, please contact Mr. Matt Myers, Staff Environmental Scientist, at (530) 225-3846 or email [matt.myers@wildlife.ca.gov](mailto:matt.myers@wildlife.ca.gov). Thank you for the opportunity to comment on the subject document. The Department looks forward to working with the State Water Board and all other interested parties.

Sincerely,



Mr. Neil Manji, Regional Manager  
Region 1 - Northern

ec: Mr. Peter Barnes  
State Water Resources Control Board, Division of Water Rights  
[pbarnes@waterboards.ca.gov](mailto:pbarnes@waterboards.ca.gov)

Messrs. Neil Manji, Curt Babcock, Curtis Milliron, Michael Harris, Matt Myers, Steven Baumgartner and Mss. Donna Cobb and Annie Manji  
California Department of Fish and Wildlife  
[neil.manji@wildlife.ca.gov](mailto:neil.manji@wildlife.ca.gov), [curt.babcock@wildlife.ca.gov](mailto:curt.babcock@wildlife.ca.gov),  
[curtis.milliron@wildlife.ca.gov](mailto:curtis.milliron@wildlife.ca.gov), [michael.r.harris@wildlife.ca.gov](mailto:michael.r.harris@wildlife.ca.gov),  
[matt.myers@wildlife.ca.gov](mailto:matt.myers@wildlife.ca.gov), [steven.baumgartner@wildlife.ca.gov](mailto:steven.baumgartner@wildlife.ca.gov),  
[donna.cobb@wildlife.ca.gov](mailto:donna.cobb@wildlife.ca.gov), [annie.manji@wildlife.ca.gov](mailto:annie.manji@wildlife.ca.gov)

Appendix C  
Written Responses to the NOP

---

Landowner/Local Resident Responses



## Barnes, Peter@Waterboards

---

**From:** [REDACTED]  
**Sent:** Friday, May 24, 2013 4:22 PM  
**To:** Barnes, Peter@Waterboards; [REDACTED]  
**Subject:** Pit 1 flushing/whitewater flows

Hello Mr. Barnes,

It is my understanding that you are taking public comment on recreational flow releases for the Pit River above Pit Powerhouse #1. I would love to add my two cents and ask that it be made as part of public record for any official part of your decision making for the Pit and releases.

I have been paddling for over 42 years now and have always enjoyed paddling the Pit River. I have boated much of the drainage from as far east as the West Valley Lake and the river below that. Other runs I have done were from Highway 395 to 299. And from 299 to near Canby to Lookout Road. My regular runs are Fall River Mills to Pit 1 and below Pit 1 to Lake Britton. When you folks offered the opportunity to do Britton to Pit 3, Pit 3 to Pit 4 and Pit 4 to Pit 5 I also went and enjoyed those as well. Looking back it is an incredible shame that so much really enjoyable whitewater is behind dams and not available to the public for recreation in the Pit drainage. It seems to be that this issue should be larger than just Fall River Mills to Pit 1. You control one hell of a lot of water and basically only Pit 1 to Highway 299 is all you share with the paddling public.

Do you really think that is how it should be? #@%& the public, we only care about power generation and obscene profits that we make from publicly owned water? You folks need to re think your vision of the world. It should not be all about you and your profits at our expense.

You control one hell of a lot of publicly owned land and river bed, dry river bed, owned by the public. Maybe if you actually cared about crawfish and other river creatures you would allow them to live in an environment that predates your presence in the Pit River canyons.

Last time I looked all the river and creek beds of this state belong to the public. Not you, both of us, that means maybe you should learn to share more with your partners on this planet. That means fish, crawdads, river side environments, paddlers, campers and all the rest of us. Not just your share holders and overcharged power clients.

Thanks for your time. You probably think I am upset at your decision making options. I am. I realize that you are a state official and not a public utility but you also need to see that power companies are using our water and have for years de watered our rivers and creeks for profit and have incredible impunity from responsibility for the damage that they do to rivers and every creature and plant that they affect. They need to share what they call "their water" with the rest of us. PG and E need to start sharing water along the whole river with the public and riverside environment all the way to Lake Shasta. Not just Fall River Mills to Pit 1.



**Barnes, Peter@Waterboards**

---

**From:** Kyle Allred [REDACTED] >  
**Sent:** Monday, May 27, 2013 8:20 AM  
**To:** Barnes, Peter@Waterboards  
**Subject:** Please keep the summer flows going on the pit river

Hello-

I have gone to the pit river for a summer release several times. It is a wonderful recreation opportunity for boaters. Please keep these going if you can!

Thanks,  
Ke

Sent from my iPhone

Kyle Allred  
[REDACTED]

## **Barnes, Peter@Waterboards**

---

**From:** Barnes, Peter@Waterboards  
**Sent:** Friday, May 10, 2013 2:24 PM  
**To:** Bob Baiocchi  
**Subject:** RE: NOTICES POSTED - PIT 1 HYDROELECTRIC PROJECT (FERC #2687) AND FEATHER RIVER FISH SCREEN PROJECT

Mr. Baiocchi,

Thank you for the comment regarding the proposed Pit 1 Hydroelectric Project Water Quality Certification Amendment (Proposed Project). It has been placed in the record and will be taken into consideration. If you have any future questions or comments, I can be reached at this email address.

The State Water Resources Control Board will be issuing a Notice of Preparation for the Proposed Project shortly. This Notice will contain information regarding a scoping meeting and how to submit additional comments concerning potentially significant impacts of the Proposed Project, potential alternatives, and mitigation measures that should be analyzed. I will electronically send you a copy of this Notice when it is issued.

Peter Barnes

---

**From:** Crader, Phillip@Waterboards  
**Sent:** Thursday, May 09, 2013 4:27 PM  
**To:** Bob Baiocchi  
**Cc:** Ragazzi, Erin@Waterboards; Kassel, Jim@Waterboards; Barnes, Peter@Waterboards  
**Subject:** RE: NOTICES POSTED - PIT 1 HYDROELECTRIC PROJECT (FERC #2687) AND FEATHER RIVER FISH SCREEN PROJECT

Dear Mr. Baiocchi,

By copy, I am forwarding your message to Mr. Barnes. I am also copying Erin Ragazzi. Ms. Ragazzi is the Program Manager over the water quality certification program.

Best,  
Phil Crader

---

**From:** Bob Baiocchi [REDACTED]  
**Sent:** Thursday, May 09, 2013 4:23 PM  
**To:** Kassel, Jim@Waterboards  
**Subject:** Fw: NOTICES POSTED - PIT 1 HYDROELECTRIC PROJECT (FERC #2687) AND FEATHER RIVER FISH SCREEN PROJECT

May 9, 2013  
Mr. Jim Kassel  
Division of Water Rights

Regarding the amendment to water quality certification for the Pit 1 Project. The Board's notice did not provide the e-mail address of Peter Barnes of the Division. Please forward to Mr. Barnes the following:

Said amendment should include a daily bypass flow requirement from the Fall River Dam in compliance with California Fish and Game Code 5937 to protect fish species and their habitat in Fall River below PG&E's Fall River Dam and also fish species and their habitat in the Pit River below the dam in the Pit River. Taking all of the water from Fall River by PG&E is a direct violation of Article 10 X, Section 2 of the State Constitution because it is the unreasonable diversion of the state's water. The time has arrived to enforce state law to protect all beneficial uses of Fall River and Pit River as shown in the Basin Plan.

Place this letter into the records and forward a written response.

Respectfully Submitted

Bob Baiocchi  
California Fisheries and Water Unlimited

----- Forwarded Message -----

**From:** "lyris@swrcb18.waterboards.ca.gov" <lyris@swrcb18.waterboards.ca.gov>

**To:** Water Rights Water Quality Certification <waterights\_waterquality\_certification@swrcb18.waterboards.ca.gov>

**Sent:** Thursday, May 9, 2013 3:41 PM

**Subject:** NOTICES POSTED - PIT 1 HYDROELECTRIC PROJECT (FERC #2687) AND FEATHER RIVER FISH SCREEN PROJECT

**This is a message from the State Water Resources Control Board.**

The State Water Resources Control Board has posted the following Public Notices on our website:

- 1) Pit 1 Hydroelectric Project 401 Water Quality Certification Amendment (Federal Energy Regulatory Commission Project No. 2687)
- 2) Feather River Fish Screen Work Period Amendment

To view the complete notices, visit our website located at:

[http://www.waterboards.ca.gov/waterrights/water\\_issues/programs/water\\_quality\\_cert/wqcertnotices.shtml](http://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/wqcertnotices.shtml)

If you are receiving this notice in a forwarded message and would like to subscribe to the Water Rights Water Quality Certification notice list, go to:

[http://www.waterboards.ca.gov/resources/email\\_subscriptions/swrcb\\_subscribe.shtml](http://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.shtml)

---

You are currently subscribed to waterights\_waterquality\_certification as: [bobbaiocchi@yahoo.com](mailto:bobbaiocchi@yahoo.com).

To unsubscribe click here: [leave-474241-](mailto:leave-474241-510562.ee15f074fdfa5bb5a8af396afabbb049@swrcb18.waterboards.ca.gov)

[510562.ee15f074fdfa5bb5a8af396afabbb049@swrcb18.waterboards.ca.gov](mailto:510562.ee15f074fdfa5bb5a8af396afabbb049@swrcb18.waterboards.ca.gov)

## **Barnes, Peter@Waterboards**

---

**From:** Daniel Brasuell [REDACTED]  
**Sent:** Friday, June 07, 2013 3:00 PM  
**To:** Barnes, Peter@Waterboards  
**Subject:** Pit River Summer Releases

I recently heard that the State Water Resources Control Board is proposing permanent cancellation of summer flows on the Pit River on the Pit 1 section. I am a 20 year avid kayaker and author of [www.awetstate.com](http://www.awetstate.com) which provides kayakers and other river enthusiasts the information they need to access the rivers safely. I have enjoyed the Pit river for the past 6 years as a go to place for enjoyable summer boating.

I have seen many times, similar to the North Fork of the Feather River, the damage that the dewatering of these river channels causes on the habitat of native species and the resulting overgrowth of the riparian zone on these rivers. This is of course not to mention the affect that the artificial reservoirs have on the habitat. Drowning breeding areas of many species and permanently scarring the rocks and canyons around them.

So it is with this background that I am curious what studies have been done to show that summer releases are the cause of the Shasta Crayfish population decline. Has it been ruled out that unnatural water temperatures due to the powerhouses and reservoirs could have caused it? Or that the deviation from natural flow year round could have caused it? What direct knowledge do we have that a pulse of water a few weekends a year is the root cause? Also, if the recreational pulse of water is not allowed, what restrictions will be levied on the owners of the powerhouses and reservoirs? Will they be punished if they decide for whatever reason (turbine goes down, peak power generation, dam maintenance, whatever) they release water into the stream?

Without proper study to find that in fact these pulse weekends are the cause, and without proper due diligence to ensure that all parties controlling the river are legally bound to the same ruling, I do not see how it can be said that due diligence has been done nor that the Board is acting in good faith.

Thank you,

Daniel Brasuell  
[www.awetstate.com](http://www.awetstate.com)

## **Barnes, Peter@Waterboards**

---

**From:** Ida Crawford [REDACTED]  
**Sent:** Friday, June 07, 2013 5:14 PM  
**To:** Barnes, Peter@Waterboards  
**Subject:** Pit 1 Whitewater Flows

Hello,

I have kayaked above Pit 1 Powerhouse during the whitewater releases several years in a row. It is a fabulous class 3/4 run and very popular with my boating friends from Chico. It would be a shame to lose the summer releases forever. Please keep them coming.

Ida Crawford

**\*\*PLEASE SUBMIT TO STATE WATER BOARD STAFF\*\***  
**SPEAKER/COMMENT CARD - PIT 1 PROJECT SCOPING MEETING**

June 11, 2013

Please identify yourself before beginning your comments. Thank you.



Please check this box if you DO NOT wish to speak, but want to submit your written comments below for the record.

YOUR NAME: Virginia Dye TITLE (if applicable): Mom-grandmother & great-grandmother

ORGANIZATION (if applicable): A member of "We the People"!  
(Please identify, such as self, name of firm, public agency, environmental agency)

If you would like to provide written comments only, please provide them below either during this meeting or mailed to the address below (attach additional sheets as necessary)

REMARKS: I & there is a truthful concern over this Crayfish, as you people put bills, why have you not included the effects of: 1) the weather, War, done by heating the clouds, chemical sprays, and "E.L.F." waves and the various advances in Tech technology, such as H.A.A.R.P. stations in Alaska & elsewhere? That has & is causing this country to either dry up or drown! And then there is the Monsanto Co. That is polluting the hell out of us with Barium, Strontium & aluminum oxide poisoning + killing everything...!!

Your Contact Information:  
Name: Virginia Dye  
Address: [REDACTED]  
E-mail (optional): \_\_\_\_\_

**Please return comment card by Noon (12 PM) on June 24, 2013**

Peter Barnes  
State Water Resources Control Board, Division of Water Rights  
P.O. Box 2000, Sacramento, CA 95812-2000  
Or by e-mail to: [PBarnes@waterboards.ca.gov](mailto:PBarnes@waterboards.ca.gov)

more government  
hypocrisy!?  
where has all the intelligent people gone??!!

## **Barnes, Peter@Waterboards**

---

**From:** MARY ELLIOTT <MARY.ELLIOTT@patagonia.com>  
**Sent:** Thursday, June 27, 2013 9:35 AM  
**To:** Barnes, Peter@Waterboards  
**Subject:** Pit 1 Whitewater Flows

To: State Water Resources Control Board

As a kayaker, I love being able to paddle the Pit River! Over the past few years, the Pit has become one of my (and many other paddlers) favorite places. I would be unfortunate to lose the releases in the summer. I also like to do what is best for our environment. We need valid reports and data before losing an awesome recreational site

Mary Elliott  
PO Box 361  
Verdi, NV 89439



## **Barnes, Peter@Waterboards**

---

**From:** Travis Geddes [REDACTED]  
**Sent:** Monday, June 10, 2013 9:03 PM  
**To:** Barnes, Peter@Waterboards  
**Subject:** Pit 1 Releases

Dear State Water Resources Control Board,

My name is Travis Geddes, a 25 year old California resident and whitewater enthusiast. I am writing to express to you why I value the annual summer and fall releases on the Pit 1 reach of the Pit River near Fall River Mills, Ca.

For the last two years, I have made the pilgrimage to the Pit river for the fall releases on Pit 1. The whitewater and scenery in the Pit River Canyon are absolutely wonderful. My skills as a kayaker and my enjoyment of California whitewater have increased tremendously from the opportunity to paddle the Pit 1 reach twice each fall.

I have had the privilege of taking several less experienced kayakers down that canyon and the challenges of the rapids, beauty of the canyon, and majesty of Pit Falls are memories we will all share for the rest of our lives.

I beseech you to thoroughly consider the ramifications of cancelling the annual releases in the Pit 1 canyon. Not only would it force veteran Pit 1 boaters to find an alternative place to paddle in the fall, but it would prevent countless others from experiencing the beauty and excitement of that particular canyon.

It is my opinion that there is no other river in California that provides the opportunity for intermediate boaters to experience the magic that comes from

paddling off a large waterfall into a large pool where adequate safety can be set.

The Pit 1 reach is a classic destination for California boaters; Please help keep it that way!

The questions that I would request the CSWRCB please consider before making any permanent decisions regarding the Pit 1 releases are:

1. How are the releases causing the numbers of Shasta Crayfish to decline?
2. What were the methods used to gather the data about the dwindling crayfish numbers?
3. How does the state of the Shasta Crayfish population in the Pit 1 reach compare to Shasta Crayfish populations in other areas of the Pit

Thank you very much for considering the perspective of a recreational river user who values the beautiful natural environment of Northern California.

Sincerely,

Travis Geddes

--  
Travis Geddes



**Barnes, Peter@Waterboards**

---

**From:** connor herdt [REDACTED]  
**Sent:** Monday, June 03, 2013 1:15 PM  
**To:** Barnes, Peter@Waterboards  
**Subject:** Pit River releases

As I am sure you know, the Pit River releases are a wonderful resource for whitewater enthusiasts, and I just want to be another voice to oppose the proposed cancellation of the recreational releases. More and more we are losing the opportunity to run the world class rivers of California that we and visitors from all over the world are blessed with. Please hear our outcries and reconsider the decision to end the few releases that we do have. We are so lucky in California to have such fun and gorgeous rivers, and we must protect them before they are nothing but stories we tell our Grand children. Thank You.

Connor Herdt

**Barnes, Peter@Waterboards**

---

**From:** Roland McNutt [REDACTED]  
**Sent:** Monday, June 10, 2013 12:30 PM  
**To:** Barnes, Peter@Waterboards  
**Subject:** Pit River

Dear Mr. Barnes:

As an avid whitewater boater in northern California, I urge you in the strongest possible terms to continue the agreed upon releases on the Pit I reach. The NorCal boating community and boaters everywhere value this river, its ecological health, and its recreational benefits.

Drastic management action by eliminating flows altogether should be based on sound science, which we believe is lacking in this case. The summer flushing/whitewater flows were temporarily suspended when PG&E and the U.S. Fish and Wildlife Service expressed concern that the flows were harming the endangered Shasta crayfish. Monitoring showed a decline in the number of Shasta crayfish and an increase in invasive crayfish within the Pit 1 Reach after flushing flows started.

However, equally dramatic declines in Shasta crayfish and increases in invasive crayfish were also seen throughout the entire Pit River Basin in the same timeframe - *all in areas where summer flushing/whitewater flows do not occur* . NorCal boaters, including me, want Shasta crayfish populations to fully recover, but in light of the basin-wide monitoring data, we have little confidence that eliminating the summer flows will help.

In the past, PG&E has used shoddy science to further their economic gain. I SUGGEST CONTINUING SUMMER RELEASES AS A CONTOL GROUP TO COMPARE WITH CRAYFISH DECLINES IN OTHER AREAS.

I urge you to continue the agreed upon releases!

Thank you,  
Roland McNutt  
Chico, CA  
[REDACTED]

## Barnes, Peter@Waterboards

---

**From:** Phat [REDACTED] >  
**Sent:** Thursday, May 23, 2013 7:31 PM  
**To:** Barnes, Peter@Waterboards  
**Subject:** Pit 1 Whitewater Flows

Hello,

My name is Matthew Phillips of El Dorado County. I am a whitewater kayaker and enjoy the recreational use of the Pit river summer flows. I know many other whitewater enthusiasts and whitewater kayakers thoroughly enjoy these summer releases. Permanently canceling these summer releases would be extremely disappointing to me and many of my friends as well as the entire whitewater community. Many of us travel great distances to use the pit river for recreational purposes. It is very sad to see that invasive species have moved into this river from previous cancelations, and permanently canceling these flows would be doing a great amount of damage to the beautiful natural landscapes which have already been altered enough as it is by the dam. I am very concerned with the proposal to eliminate these flows completely especially since this river has already been degraded enough by the dam and canceling the flows would only further the degradation of mother nature. I strongly oppose canceling these special releases or any other release on a dammed river. We should be granted these flows forever.

If you have any questions feel free to call me 916 803 3737

Sent from my iPod

## **Barnes, Peter@Waterboards**

---

**From:** james reed <[REDACTED]>  
**Sent:** Monday, May 27, 2013 7:45 AM  
**To:** Barnes, Peter@Waterboards  
**Subject:** Pit 1 Whitewater Flows

Peter Barnes,

My name is James Reed and I am both a healthcare provider in the state of California and an enthusiastic whitewater kayaker. I have paddled the Pit River 1 section several times and enjoy it as a recreation resource immensely. The summer flushing flows afford area paddlers the opportunity to enjoy a beautiful river when little else is running. I hope that you recognize the value that this resource gives to the paddling community and continue the summer flows. The Pit is a river best seen from a whitewater craft and one that I hope will continue to be available to the paddling community in the summer months.

Thank You.

James Reed

**Barnes, Peter@Waterboards**

---

**From:** Eli Ren [REDACTED]  
**Sent:** Sunday, June 23, 2013 2:45 PM  
**To:** Barnes, Peter@Waterboards  
**Subject:** Pit River Summer Releases.

Dear Mr. Barnes,

I am writing in regards to the proposal to cancel summer releases on the Pit River. As a kayaker and resident of CA, I value the Pit as a source of whitewater recreation and would be severely disappointed if summer flows were to be permanently canceled. I also feel that the basis for canceling the flows is not based on sound scientific evidence. I value biological diversity more than most, but the evidence clearly does not point to summer releases as the cause of invasive crayfish out-competing the Shasta Crayfish. The decline in Shasta Crayfish populations throughout the Pit River basin (where no such releases occurred), should be clear evidence that other causes are to blame, and that canceling such releases would do nothing to solve the problem. I feel that PG&E's motives in requesting the cancellations are more about corporate profits than they are about saving native crayfish populations. If you reexamine the evidence, I think you will find that releases are not significantly contributing to the decline in native crayfish populations, and other factors play a far larger roll. I hope that PG&E's request will be denied, and ask that summer releases on the Pit resume as soon as further study shows that summer releases are not to blame. Thank you for your consideration.

Sincerely, Eli Ren

--

Eli Ren  
[REDACTED]  
[REDACTED]



**Barnes, Peter@Waterboards**

---

**From:** kenny rosecrance [REDACTED]  
**Sent:** Monday, June 10, 2013 10:28 PM  
**To:** Barnes, Peter@Waterboards  
**Subject:** Pit 1 Releases

To whom it may concern,

I have boated this section of whitewater many times though never done the waterfall. It would be a shame for me as well as the many other recreational boaters to lose this opportunity to boat during the summer months when nothing else is available.

Thanks,

Kenneth Rosecrance

## **Barnes, Peter@Waterboards**

---

**From:** Lee Schmelter [REDACTED]  
**Sent:** Friday, May 24, 2013 12:40 PM  
**To:** Barnes, Peter@Waterboards  
**Subject:** Pit+1+flushing/whitewater+flows -- Don't throw out the baby with the bathwater -- or diminish summer flushing flow w/o good reason

The decision to eliminate summer flushing flows to benefit the Shasta crawfish is illogical, because similar reductions in crawfish population in the water basin occurred regardless of water flushing .

It seems this decision is an attempt to conserve water (laudable, always), but at the expense of boaters who use the summer flows, and without logical reason.

Please reconsider.

Lee Schmelter  
Attorney at Law

E: [REDACTED]  
V: 916.457.9001  
F: 916.457.3200

## **Barnes, Peter@Waterboards**

---

**From:** Bob Simmons <[REDACTED]>  
**Sent:** Friday, May 24, 2013 5:39 AM  
**To:** Barnes, Peter@Waterboards  
**Cc:** David Payne  
**Subject:** Pit 1 Whitewater Flows

Has anyone done a financial analysis of shutting down the river flows? How many tourist dollars does it generate and where does it go? Sometimes they are made to care that way.

Also, just another example of bogus scientific hocus locus from the Feds! Demand real science to back up their claims if anyone really cares about the proportional decline of one class of crayfish vs. their cousins or crayfish vs. the boaters/rafters.

Bob Simmons Sent from my iPad

## Barnes, Peter@Waterboards

---

**From:** george williams <[REDACTED]>  
**Sent:** Thursday, May 23, 2013 4:16 PM  
**To:** Barnes, Peter@Waterboards  
**Subject:** Pit River Flows

It is disconcerting that this subject is constantly coming up. With all the information on how important that some of these fluctuations are to the community, environment, and to the river and its wild life with in and around it. This subject should be understood long before now. I have often looked at the river gauges. One thing I have seen is that there are numerous releases that occur through out the year above Pit 1. Unfortunately those releases happen in the middle of the night. Often people scream but have no solutions to many of these issues. So here is my voice with a possible solution.

Why not time many of the increased flows above Pit 1 for times that can be accommodating to many of the varied recreation industries in the area. If these releases are occurring anyway. Could it be timed to benefit a wider variety of the public. Much of this "power war" I see is not so much brought on by the power companies themselves. But appear to be spear headed by many of the fishing industry. I do not intend to get into a fight with them here. However, it is common knowledge among all rec. users outside of fishing that there lies an animosity to increasing flows from them. It simply baffles me that the Power Industry would buckle to the needs of this one group. Yet attempt to ignore a large percent of their energy using customers.

No one has asked that higher flows be a predominant feature of this river or any other river. But it should occur. We all know it is in the best interest of the health of the river itself. And that in turn is in the best interest of the community and all industries connected to it. This disconnect that the power companies are continually throwing out there. Will only lead to the end of their own company in the long run. So it stands to reason that the current governing people. Don't really care for the community in the long haul. It appears that they are only out to make what dollars they can now, and devil be hanged what happens after they retire.

Please keep the flows for Pit 1 and any other section of the Pit river system flowing. Changing a few time lines that these flows occur can and will be beneficial to all parties involved. This is a good thing for everyone.

Thank you for listening.  
George Williams Sr.  
[REDACTED]

## Barnes, Peter@Waterboards

---

**From:** Lisa Williams [REDACTED]  
**Sent:** Sunday, June 09, 2013 9:45 AM  
**To:** Barnes, Peter@Waterboards  
**Subject:** Pit I river flows

Dear Mr. Barnes:

As an avid whitewater boater in northern California, I urge you in the strongest possible terms to continue the agreed upon releases on the Pit I reach. The NorCal boating community and boaters everywhere value this river, its ecological health, and its recreational benefits.

Drastic management action by eliminating flows altogether should be based on sound science, which we believe is lacking in this case. The summer flushing/whitewater flows were temporarily suspended when PG&E and the U.S. Fish and Wildlife Service expressed concern that the flows were harming the endangered Shasta crayfish. Monitoring showed a decline in the number of Shasta crayfish and an increase in invasive crayfish within the Pit 1 Reach after flushing flows started.

However, equally dramatic declines in Shasta crayfish and increases in invasive crayfish were also seen throughout the entire Pit River Basin in the same timeframe - *all in areas where summer flushing/whitewater flows do not occur* . NorCal boaters, including me, want Shasta crayfish populations to fully recover, but in light of the basin-wide monitoring data, we have little confidence that eliminating the summer flows will help.

I urge you to continue the agreed upon releases!

Thank you,

Lisa Williams

Chico, CA

[REDACTED]

Pit 1 Hydroelectric Project  
401 Certification Modification EIR

APPENDIX

D

PUBLIC SCOPING MEETING  
TRANSCRIPT





Appendix D  
Public Scoping Meeting Transcript

---

Morning Meeting in Redding, CA  
June 11, 2013



**In The Matter Of:**  
*PIT 1 HYDROELECTRIC PROJECT*  
*REDDING, CA*

---

*June 11, 2013*

---





SCOPING MEETING FOR  
PIT 1 HYDROELECTRIC PROJECT  
401 WATER QUALITY CERTIFICATION AMENDMENT

Tuesday, June 11, 2013  
Central Valley Regional Water Quality Control Board  
364 Knollcrest Drive, Suite 205  
Redding, California  
9:00 a.m.

Meeting Presented by:

PETER W. BARNES, Environmental Scientist,  
State Water Resources Control Board

Also Present:

Susan Monheit, Senior Environmental Scientist,  
State Water Resources Control Board

Shruti Ramaker, Senior Project Scientist,  
Cardno ENTRIX

Steve Youge, Cardno ENTRIX

Cheryl K. Smith, CSR

License No. 5257

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

INDEX

PAGE

Opening remarks presented by PETER BARNES,  
State Water Resources Control Board 3

Public Comment Presented By:

MATT MYERS 14  
DAVE STEINDORF 16  
CHARLIE GUILBAULT 21  
MIKE MARTINI 22  
RON ROGERS 23  
DAVE STEINDORF 26

- June 11, 2013

1 SCOPING MEETING FOR PIT 1 HYDROELECTRIC PROJECT

2 401 WATER QUALITY CERTIFICATION AMENDMENT

3 Tuesday, June 11, 2013

4 9:00 a.m.

5 ---o0o---

6 MR. BARNES: I guess we'll get started. I think  
7 everybody who is going to show up has shown up already.

8 My name is Peter Barnes. I'm the project manager  
9 for this project, the Pit 1 Water Quality Certification  
10 Amendment on the Pit River. This is Susan Monheit, my  
11 supervisor.

12 MS. MONHEIT: Hi.

13 MR. BARNES: So the objective of this meeting is  
14 to solicit comments on potential impacts of the proposed  
15 Amendment of Pit 1, the Hydroelectric Project 401 Water  
16 Quality Certification. We have a pretty short and  
17 straightforward agenda. We're going to go over some ground  
18 rules, do a presentation which will go over the background  
19 and overview of the proposed Project. And we'll have a  
20 comment period in which you can submit verbal comments. And  
21 then we'll just have a little closing. I also will be able  
22 to answer any general questions you might have regarding the  
23 Project.

24 If you don't wish to submit verbal comments today,  
25 you can submit written comments up until noon on June 24th, 3



1 so that's about a week and a half from today. I know I've  
2 already gotten a substantial number of comments from the  
3 general public via email, so my email address is up there.  
4 It's also on the notice of preparation. I believe there's a  
5 stack of my cards in the back of the room. So if you have  
6 any questions regarding this Project, feel free to shoot me  
7 an email or a phone call.

8 I want to go over the ground rules real quick.  
9 Just makes the meeting go a little easier if everybody  
10 follows these rules.

11 First, concerns regarding the Project and  
12 suggestions regarding alternative project solutions should  
13 be raised during the public comment period so that they can  
14 be appropriately addressed when analyzing the facts of the  
15 Project in the Environmental Impact Report.

16 Comments may be limited to a set amount of time  
17 based on the number of people wishing to speak. I don't  
18 think we're going to have that problem today.

19 The purpose of the meeting is not to discuss  
20 comments, but we will answer general questions.

21 Please respect all speakers. All points of view  
22 are valid.

23 No decisions will be made today.

24 Everyone should agree to make a strong effort to  
25 stay on track with the agenda and move the discussion

1 forward.

2 Questions of clarification are encouraged.

3 Disparaging comments are discouraged.

4 And as you can see, we don't really have a  
5 microphone set up here, so if you can't hear me tell me to  
6 speak up. Also when you're giving your comments, please  
7 speak loudly and clearly and state your name.

8 So I'm going to start with the presentation.

9 ---o0o---

10 SLIDE SHOW IS PRESENTED ALONG

11 WITH THE FOLLOWING ORAL PRESENTATION

12 ---o0o---

13 So we're here for the Pit 1 Hydroelectric Project  
14 401 Water Quality Certification Amendment Public Scoping  
15 Meetings. All right. We're holding one here this morning  
16 in Redding, and we're going to hold one this evening up in  
17 McArthur near where the Project is located. And if anybody  
18 wants to attend that one, it's at the Intermountain  
19 Fairgrounds and should be starting at 6:00.

20 So the meeting is set up. We have a sign-in sheet  
21 in the back with speaker cards. Please fill out a speaker  
22 card and bring it up here if you'd like to speak. As we  
23 said before, comments may be limited to a set amount of  
24 time. We're not here to discuss comments, but I will answer  
25 general questions. No decisions will be made today. Please

1 respect all speakers. And all points of view are valid.

2 Just a little outline of the presentation. I'm  
3 going to go through a background and discuss the State Water  
4 Board's Mission, the original Pit 1 Water Quality  
5 Certification, and then PG&E's request for the Water Quality  
6 Certification Amendment. And then we're going to go talk  
7 about CEQA and the State Water Board's role, the CEQA  
8 process, the public input process, and then the next the  
9 step is moving forward.

10 State Water Board Mission Statement. The Mission  
11 of the State Water Board is to preserve, enhance, and  
12 restore the quality of California's water resources, and  
13 ensure their proper allocation and efficient use for the  
14 benefit of present and future generations.

15 And as always, more information will be found on  
16 our website at [waterboards.ca.gov](http://waterboards.ca.gov). You can always contact  
17 me by phone or email.

18 The State Water Board is a joint authority over  
19 water rights and water quality in order to protect --  
20 provide for protection of California's waters. And they  
21 basically -- we protect, enforce and balance the many  
22 beneficial uses of water. And some of these beneficials --  
23 beneficial uses include, but are not limited to, irrigation,  
24 power, recreation, municipal, whitewater boating, fish and  
25 wildlife preservation or enhancement. Additionally the

1 State Water Board is charged with preventing waste and  
2 unreasonable use of water.

3 So here's some background on the Pit 1 Water  
4 Quality Certification. It was issued December 4th, 2001 as  
5 a result of the Federal Energy Regulatory Commission  
6 relicensing of the Pit 1 Hydroelectric Project which is  
7 owned and operated by PG&E.

8 The Federal Energy Regulatory Commission, or FERC,  
9 issued their license on March 19th, 2003. And the Water  
10 Quality Certification was a part of that license.

11 In this Water Quality Certification there are two  
12 conditions which we're discussing today, it's Condition 13  
13 and 14.

14 Condition 13 requires PG&E to release flushing  
15 flows through Fall River Pond for two consecutive days, a  
16 Saturday and a Sunday three times per year. And those are  
17 to occur in May or June, and then July and August. And the  
18 flushing flows were put in place to control aquatic  
19 vegetation and mosquito production in Fall River Pond.

20 Condition 14 requires PG&E to monitor the  
21 effectiveness of flushing flows in controlling aquatic  
22 vegetation and mosquito production at Fall River Pond.  
23 Initial monitoring required for five years after the  
24 issuance of a new license. And after a five-year monitoring  
25 report, the State Water Board may modify it or terminate

1 the -- the flushing flow monitoring program as it sees  
2 necessary.

3 So PG&E has requested an amendment to that Water  
4 Quality Certification to eliminate those conditions. And  
5 this came about, it started first on May 21st, 2009 when the  
6 State Water Board received a letter from the United States  
7 Fish and Wildlife Service requesting the suspension of  
8 flushing flows due to concerns that the flows were  
9 contributing to the decline of the Shasta crayfish.

10 The Shasta crayfish is listed as endangered under  
11 both the California and Federal Endangered Species Acts.  
12 And they were listed in 1988.

13 On June 14th, 2009, PG&E submitted a request to  
14 the State Water Board to amend the Pit 1 Water Quality  
15 Certification to remove Conditions 13 and 14. And this  
16 request was based on monitoring results which indicate  
17 higher base flow of 150 cubic feet per second may be more  
18 effective in controlling aquatic vegetation and mosquito  
19 production than flushing flows; that fact, coupled with the  
20 belief that the flows were harming the endangered Shasta  
21 crayfish.

22 So CEQA and the State Water Board's role. In  
23 order to take action on a Water Quality Certification  
24 Amendment request, the State Water Board must comply with  
25 CEQA, the California Environmental Quality Act.

1           And although flushing flows provide an incidental  
2 whitewater recreational opportunity, the State Water Board  
3 has temporarily suspended flushing flows out of an abundance  
4 of caution for endangered species protection while CEQA  
5 process is completed. And those are orders that have been  
6 issued and they're available on our website. They've all  
7 been posted there.

8           And CEQA, or the California Environmental Quality  
9 Act. The Amendment of the Water Quality Certification to  
10 eliminate or modify flushing flows is a discretionary  
11 action. Since PG&E is not a public agency, the State Water  
12 Resources Control Board is the CEQA lead agency. Therefore,  
13 that means the State Water Board determines the type of  
14 document that must be completed in order to satisfy CEQA  
15 requirements. And this document must represent State Water  
16 Board's independent judgment.

17           The objectives of CEQA. To disclose significant  
18 environmental effects of proposed activities. Identify ways  
19 to avoid or reduce environmental damage. Prevent  
20 environmental damage by requiring implementation of feasible  
21 alternatives or mitigation. Disclose reasons for agency  
22 approval of projects with significant environmental effects.  
23 Foster interagency coordination in review of projects. And  
24 enhance public participation in the planning process.

25           For this proposed project, the State Water Board

1 has decided to prepare an Environmental Impact Report, or  
2 an EIR. An EIR is designed to identify significant impacts  
3 and mitigation measures to reduce those significant  
4 impacts. Excuse me. Alternatives will be evaluated with  
5 regards to how they meet project objectives and overall  
6 feasibility. Final feasibility of alternatives will be  
7 determined when the State Water Board adopts the findings  
8 based on the final EIR.

9 For the development of the CEQA documents, the  
10 State Water Board has entered a three party Memorandum of  
11 Understanding, or MOU, with PG&E and Cardno ENTRIX.  
12 Cardno ENTRIX is the environmental consultant and they will  
13 develop the environmental documents under the sole direction  
14 of the State Water Board. Cardno ENTRIX is compensated for  
15 its work by PG&E, but PG&E is not allowed to direct any of  
16 the work done by Cardno ENTRIX.

17 And then finally we have public input. In  
18 addition to this meeting, we'll -- we're accepting comments  
19 regarding the Notice of Preparation until noon of June 24th,  
20 2013. And the draft EIR will also be released for public  
21 review and comment. We'll take all those comments into  
22 consideration and review them carefully.

23 Additional information can be found on the  
24 website. The link is kind of long. I don't expect you to  
25 write it down, but it is available in the Notice of

1 Preparation.

2           And if you would like to receive future updates  
3 you can sign up for our emails online at this email address.  
4 You select "State Water Resources Control Board," enter  
5 email address and full name. Under category select "Water  
6 Rights," and then select box for "Water Rights Water Quality  
7 Certification," and click "subscribe" button at the bottom  
8 and that will put you on the email list and then you will  
9 get updates on all of our Water Quality Certification  
10 projects.

11           So I'm here to take any general questions you  
12 might have regarding the Project. And following those  
13 questions, we'll proceed with the public comment period.  
14 Any questions?

15           MR. STEINDORF: My name is Dave Steindorf,  
16 S-T-E-I-N-D-O-R-F.

17           So Peter, could you describe in a little more  
18 detail the -- what is on the Water Board's plate in terms of  
19 what is the actual amendment that you're evaluating.

20           MR. BARNES: Yes. Under CEQA, the scope of our  
21 project is we're looking at the removal of those two  
22 conditions from the Water Quality Certification, what are  
23 the impacts of doing that. So that's what our sole focus is  
24 on, and how do we mitigate any impacts that might come about  
25 from doing that, what would those impacts be and how do we



1 do that. So the removal of the flushing flows and the  
2 monitoring of those flushing flows, that's the focus of this  
3 EIR.

4 Any other questions?

5 MR. WILLIAMS: My name is George Williams.

6 Oh, at what time would the flushing flows be  
7 removed during the year?

8 MR. BARNES: They're -- right now they're  
9 required for one weekend in either May or June, July and  
10 August, and those are the ones we're looking at. We're not  
11 looking at any -- removing any of the fall flushing flows,  
12 just the summer ones that are used to control -- that were  
13 put in place to control aquatic vegetation and mosquito  
14 production in the fall.

15 MR. WILLIAMS: So the flows that would normally be  
16 seasonally flushing the river if the dam wasn't there would,  
17 generally speaking, still be done in the fall?

18 MR. BARNES: The fall flows that are in place now  
19 would remain. And then the base flows that are in place now  
20 would remain. It's just the -- the elimination of the  
21 flushing flows.

22 MR. WILLIAMS: And PG&E wants to increase the  
23 flows to 150 CFS?

24 MR. BARNES: It's already been increased to 150  
25 CFS.

1 MR. WILLIAMS: Continuously throughout the year?

2 MR. BARNES: As directed in the Water Quality  
3 Certification. But I believe in the summer months the 150  
4 CFS is being maintained, and that's what they're -- that is  
5 what is believed to be controlling aquatic vegetation and  
6 mosquito production.

7 MR. WILLIAMS: U.S. Fish and Wildlife has made  
8 that determination?

9 MR. BARNES: No, PG&E is monitoring the  
10 situation. As they have been doing monitoring for five  
11 years after implementation of the Water Quality  
12 Certification, they saw that it was most likely the -- it  
13 was the higher base flows are controlling the vegetation.  
14 They've continued to monitor -- as we've temporarily  
15 suspended flushing flows, they've continued to monitor  
16 vegetation, and it's my belief that -- excuse me -- 150 CFS  
17 has been adequately maintained.

18 MR. WILLIAMS: Okay. But there hasn't been any  
19 studies done by Cal. Fish and Game -- there hasn't been any  
20 studies done by Cal. Fish and Game or U.S. Fish and Wildlife  
21 on the Pit?

22 MR. BARNES: They've done substantial amount of  
23 studies, just nothing regarding --

24 MR. WILLIAMS: The crayfish.

25 MR. BARNES: No, the vegetation. They've studied

1 the crayfish to the best of their abilities which is allowed  
2 by law. Certain studies aren't allowed because it's  
3 believed that it would be too harmful to the crayfish.

4 Any other questions?

5 All right. We'll open up for public comment.

6 Prior to speaking, please state and spell your name for the  
7 recorder. Pretty straightforward. I know a couple of you  
8 have done this before, very similar.

9 We'll start off with Dave Steindorf.

10 MR. STEINDORF: I think I was going to let Matt go  
11 first.

12 MR. BARNES: All right. Well, Matt can go first  
13 and then Dave.

14 MR. MYERS: Do you want us to come up there or  
15 just --

16 MR. BARNES: Yeah, just the closer you can get  
17 would be the better. She does have a little microphone.

18

19 PUBLIC COMMENT SUBMITTED BY MATT MYERS

20 ---o0o---

21 MR. MYERS: Okay. I'm Matt Myers, M-Y-E-R-S, from  
22 California Department of Fish and Wildlife. I'm the Region  
23 1 FERC Coordinator. So I just have a couple of comments.

24 First one, the California Department of Fish and  
25 Wildlife believes that a new survey for Shasta crayfish and

1 non-native crayfish in the Pit 1 Project is needed in order  
2 for the EIR to evaluate the potential effects. It is our  
3 understanding that the last survey was conducted in 2009 in  
4 the Pit 1 Bypass Reach, and that very few Shasta crayfish  
5 were found.

6 According to CEQA guidelines, Section 15125  
7 Environmental Setting, an EIR must include the description  
8 of the physical and environmental conditions in the vicinity  
9 of the Project as they exist at the time the Notice of  
10 Preparation is published.

11 It further states this environmental setting will  
12 normally constitute the baseline physical conditions by  
13 which a lead agency determines whether an impact is  
14 significant.

15 The Department believes the 2009 survey results  
16 are outdated and new surveys are needed in order for the EIR  
17 to accurately define the current baseline conditions.

18 The Department also believes that the entire  
19 Project's flow regime should be evaluated and compared to  
20 the baseline conditions in order to avoid or minimize  
21 potential effects to Shasta crayfish within the Project  
22 area.

23 Other interested parties have expressed a need for  
24 a single table to summarize all the historic Pit 1 Project  
25 surveys and results which have been conducted for the Shasta

1 crayfish and non-native crayfish. The Department supports  
2 the need for this table, and it should be included in the  
3 EIR.

4 We have no other further comments. We will submit  
5 written comments if something else comes up by the June 24th  
6 deadline.

7 Thanks for your time.

8 ---o0o---

9

10 MR. BARNES: Thank you.

11 Dave.

12

13 PUBLIC COMMENT SUBMITTED BY DAVE STEINDORF

14 ---o0o---

15 MR. STEINDORF: My name is Dave Steindorf,  
16 S-T-E-I-N-D-O-R-F. I'm the California Stewardship Director  
17 for American Whitewater.

18 So 17 years ago American Whitewater began working  
19 on the Hydroelectric Project and its relicensing. Over the  
20 next seven years we attended numerous meetings and spent  
21 countless hours working on this Project for a variety of  
22 interests, including whitewater recreation.

23 The State Water Resources Control Board has an  
24 agency that had mandatory conditioning authority  
25 fortunately recognizing that whitewater recreation was a

1 beneficial use that needed to be considered. In fact, just  
2 last week I spoke with Jim Canaday, who wrote the 401  
3 Certification for this Project. C-A-N-A-D-A-Y.  
4 And Jim was very explicit that the flushing flows for this  
5 Project were there for a dual purpose.

6 One is that the purpose it was stated for flushing  
7 aquatic vegetation. The other one was that it was there  
8 specifically for the purpose of -- of providing for  
9 whitewater recreation. He said that the PG&E Project  
10 manager, Jim Holman, H-O-L-M-A-N I believe, he also  
11 corroborated that -- that version of events.

12 We do have a problem that is not explicitly stated  
13 within the 401; however, Jim is certainly willing to sign an  
14 affidavit to that point. The main thing there is looking at  
15 the fact that there were dual purpose for this, so just  
16 simply looking at the -- the aquatic vegetation component of  
17 the flushing flows we believe is inadequate, and we need to  
18 evaluate both of those. But also as -- as the Board has  
19 acknowledged under CEQA, you know, the baseline for this is  
20 with those recreational flows, flushing flows in place, that  
21 needs to be evaluated.

22 And in going to relicensing, we did come to this  
23 balancing where the six days of summer flushing flows was  
24 going to meet our interest. We determined that that was an  
25 acceptable balance, even though under the unimpaired flow

1 regime there would have been 365 days of flows on this  
2 particular Project. We did not contest the license, we said  
3 that that was acceptable, and our assumption was that these  
4 flows would be in place for the duration of the license.

5 And we also recognize that even though those were  
6 in the license, this proposed amendment would significantly  
7 reduce the amount of whitewater recreation on the Project,  
8 and that's something that -- that needs to be evaluated not  
9 only for the effect of removing that opportunity, but also  
10 it fundamentally changes the license and it changes the  
11 reason why we actually engaged in this relicensing in the  
12 first place.

13 Looking at the stated reason for this proposed  
14 amendment is that they're saying that the flushing flows via  
15 water temperature are actually causing harm to the Shasta  
16 crayfish.

17 Over Memorial Day weekend, a little thing of what  
18 I did on my summer vacation, I just had the chance to go  
19 paddle up to AjeMaui Springs, which is the headwaters for  
20 the Fall River. Pristine spring creek, the largest spring  
21 creek in California. Some of the best Shasta crayfish  
22 habitat that is still in existence. That water comes down  
23 the Fall River and eventually enters the -- the Pit 1  
24 Forebay. At this point the water enters the Forebay and is  
25 warmed substantially as it crosses the Forebay, then it's

1 mixed with the water from the Pit River which is warmer yet.  
2 And then because of the small minimum in-stream flows that  
3 are required to go in the channel, those flows go through  
4 the Pit River ponds adding additional thermal loading or  
5 warming of the water. In the summertime this reaches up  
6 to -- up to nine degrees during summer months, and it  
7 averages anywhere from three degrees Celsius to five degrees  
8 Celsius.

9           So the concept that the flushing flows are  
10 actually causing the harm to the Shasta crayfish we think  
11 is -- is completely erroneous. Clearly the Project is what  
12 is warming the water. The release of the actual natural  
13 flow from the Fall River back into the river system is just  
14 a short term conveyance of that warm water pulse. If you  
15 allow that pulse to continue, it will eventually drop water  
16 temperatures and the river would be returned to its natural  
17 condition, which again we know that the Shasta crayfish  
18 existed throughout this system when it was in its natural  
19 condition.

20           So we recommend that the Board conduct the  
21 modeling necessary to evaluate what would happen if you  
22 release that full flow of the Pit River back -- back into  
23 the Bypass Reach.

24           Additionally there is -- there is a provision  
25 within the 401 to evaluate 50 CFS flow increments to see



1 what those effects would be on not only Shasta crayfish, but  
2 other aquatic species all the way up to a minimum in-stream  
3 flow of 400 CFS. That recommendation was not adopted upon  
4 review, but we recommend that the Board revisit that  
5 particular certification requirement.

6           Unfortunately the water temperature effects on  
7 Shasta crayfish were not assessed when this -- the 401 was  
8 issued for this Project. In order to meet the water quality  
9 standards that are required, as we pointed out earlier, we  
10 feel that those temperature effects need to be assessed in  
11 this amendment process.

12           So the correct scope under CEQA should be for the  
13 protection of Shasta crayfish, not to evaluate the -- just  
14 the narrow effects of flushing flows. The real purpose for  
15 the debates, plans and standards, and really the mandate of  
16 the Water Board is to protect the water quality conditions.

17           Several weeks ago I actually went and spoke  
18 before the Board protecting -- or trying to support the  
19 Board in their ability to actually exercise their reserved  
20 authority for changing conditions just such as this -- this  
21 situation requires.

22           So we ask that the Board use that authority in  
23 this case to reevaluate this particular Project of whether  
24 it's meeting water quality conditions. If you do determine  
25 ultimately that limiting the flushing flows are necessary in

1 order to protect the Shasta crayfish, we're prepared to work  
2 with the Board to find other alternative mitigations in  
3 order to make up for lost whitewater opportunities on this  
4 Project.

5 Thank you.

6 ---o0o---

7 MR. BARNES: Thank you.

8 Any volunteers next? Charlie Guilbault.

9

10 PUBLIC COMMENT PRESENTED BY CHARLIE GUILBAULT

11 ---o0o---

12 G-U-I-L-B-A-U-L-T.

13 I'm Charlie Guilbault. I've known about the  
14 Project for probably ten years or more due to my association  
15 with Dave, and have been boating up there and bringing my  
16 family up there to recreate for at least seven years or so,  
17 and it's a wonderful, wonderful place. It started out as a  
18 beginner slash intermediate boater, and it's since grown my  
19 bag of tricks into at least advanced/intermediate so that I  
20 can go from foraging some of the rapids on the river to  
21 running just about everything except for the big falls,  
22 that's not in my interest.

23 But anyways, I'm concerned that, as Dave said,  
24 that if the Board decides to take this -- or -- or use  
25 science to investigate why the crayfish are declining, in

1 the same sense it seems like they should investigate the  
2 recreational uses as well in the same scope that were  
3 valued, and if this -- if this pulse flow is stopped do we  
4 get, you know, do we get recreation some other way. Is  
5 there a way that that can be channeled around in some other  
6 way, because obviously our recreational needs are best  
7 fitted by removing all the dams, but that's not, you know,  
8 we're not asking for that, we just want to consider if there  
9 is a loss of it, then can we regain that in some way.

10 So, thank you.

11 ---o0o---

12 MR. BARNES: Thank you.

13  
14 PUBLIC COMMENT PRESENTED BY MIKE MARTINI

15 ---o0o---

16 Mike Martini, M-A-R-T-I-N-I.

17 My name is Mike Martini. I've been going to the  
18 Pit Project for eight years, I believe, and it's just a  
19 really good recreational opportunity. It started off with  
20 the summer pulses, if I'm correct, in the very beginning. I  
21 didn't move to the fall until later on. And have gone from  
22 going up there by myself to go boating with friends to now  
23 my daughters have utilized the same resource, and have been  
24 able to do the Class 2 Reach, which is down below the  
25 campground. So you've got everything from Class 4, 5 down

1 to family fun, which is Class 2. And that's in the  
2 summertime when my daughters are off the same time these  
3 pulses are -- could be taken away.

4 So once again, we just want mitigation as far as  
5 if you're removing these recreational opportunities for an  
6 entire family, how do they get moved to another time. But  
7 don't just remove them because they're such a valuable  
8 resource for -- not just for whitewater boating, but for  
9 families and a myriad of people who are recreating on the  
10 river. So looking at the pulses and, you know, the removal  
11 of them, how is that going to be not removed, but mitigated  
12 to another time, or whatever. So that's what I would like  
13 to see.

14 So thank you.

15 ---o0o---

16 MR. BARNES: Thank you.

17 We got our last speaker. If anybody else would  
18 like to speak, you can still submit cards. But last we have  
19 Ronald Rogers.

20  
21 PUBLIC COMMENT PRESENTED BY RON ROGERS

22 ---o0o---

23 MR. ROGERS: Hi, my name is Ron Rogers, that's  
24 R-O-G-E-R-S.

25 I've lived in Shasta County since 1981, and I've

1 enjoyed boating the rivers in the North State, including the  
2 Pit River since 1981, so I'm very familiar with the river.  
3 It's an outstanding boating resource. The upper stretch  
4 that we're referring to, the Pit 1 stretch unfortunately has  
5 a major diversion on it that PG&E operates. As an avid  
6 whitewater kayaker we -- or I recognize the necessity for  
7 cheap hydroelectric power, and I'm all in favor of the  
8 operation of the power plant in an environmentally sensitive  
9 manner, and also in a manner that acknowledges that there  
10 are other competing uses of that water, including fishing,  
11 kayaking, nature study, the -- the environment of the river  
12 system itself, and the health of the river system itself.  
13 So I'm not in favor of precluding other uses just for the  
14 sake of whitewater.

15           Due to numerous summer diversions -- or diversions  
16 of other rivers in the state, the whitewater boating  
17 community depends on releases on -- from some of these  
18 hydroelectric facilities such as Pit 1. And we look forward  
19 to those releases when the rest of the rivers are dry either  
20 due to natural conditions or to dams. So it was very  
21 disappointing to hear that -- that our the summer releases  
22 are being curtailed.

23           American Whitewater spent a lot of time and effort  
24 working with the -- the FERC and the -- and the rest of the  
25 stakeholders with coming up with what we felt was a very

1 fair solution to the competing uses of -- of the Project.  
2 So I don't feel that the curtailments of that agreement  
3 should be taken very lightheartedly or without a lot of due  
4 consideration.

5 The -- it's questionable whether or not the Shasta  
6 crayfish even are in existence on that Pit 1 stretch. I --  
7 I agree with the previous speaker that better studies need  
8 to be conducted and to see if there are in fact any  
9 remaining populations down there. The water is generally  
10 just too warm due to the diversion of the Fall River to  
11 support a healthy population of crayfish in there.

12 Any threatened endangered protection standards  
13 should also apply across the board to other users such as  
14 PG&E. Maybe we should be looking at more -- at a higher  
15 base flow release continuously into the Pit River to -- to  
16 establish or maintain any -- any crayfish populations that  
17 are in there.

18 And lastly, if these releases are taken away, then  
19 other mitigations need to be considered such as better  
20 access for whitewater boating on that stretch.

21 Thank you.

22 ---o0o---

23 MR. BARNES: Thank you.

24 Are there any other people who wish to submit  
25 verbal comments at this time? All right, yes.

1 FURTHER PUBLIC COMMENT BY DAVE STEINDORF

2 ---o0o---

3 MR. STEINDORF: If I could just make one quick  
4 addendum. Is there anyone here from Fish and Wildlife  
5 Service?

6 MR. BARNES: No.

7 MR. STEINDORF: No. Okay. I would make the same  
8 comment either way. One, I appreciate the State Board  
9 providing this forum for people to express their concerns in  
10 having an open and transparent process whereby we can go  
11 through this amendment process and develop the necessary  
12 information.

13 The fact that the Fish and Wildlife Service, who  
14 is the entity that recommended this amendment has not showed  
15 up to explain their concerns, in my opinion as somebody who  
16 spends a lot of time protecting endangered species and  
17 fighting for resource agencies, I find their actions  
18 completely shameful. And they absolutely should be here to  
19 explain what their rationale is for making this amendment.

20 I appreciate the fact that both of our State  
21 agencies have showed up here to provide comment and provide  
22 this forum. The fact that both FERC and the Fish and  
23 Wildlife Service that we have requested meetings with them  
24 even under threat of lawsuit, and they refused to meet and  
25 discuss this topic.

1           So thank you to our State agencies. And a big  
2 pile of shame for our Federal agencies on this one.

3           Thank you.

4                           ---o0o---

5           MR. BARNES: Thank you. All right. Well, that  
6 wraps up our meeting. I'll be available in the back to  
7 answer any questions you might have regarding the rest of  
8 this process, how we're going to move through this.

9           Also if you know of anybody who couldn't attend  
10 this morning, we're having another Scoping Meeting up in  
11 McArthur at the Intermountain Fairgrounds this evening at  
12 6:00, so you can tell them to head up there if they would  
13 like to.

14           Also you can submit written comments until June  
15 24th - noon, June 24th. So please feel free to do so. I've  
16 already received a substantial number of comments, and I  
17 really appreciate it.

18           I appreciate those who came out today, this  
19 morning, because having collaboration makes this a better  
20 process. So thank you. Have a nice day. Thank you.

21           (The scoping meeting was adjourned at 9:47 a.m.)  
22  
23  
24  
25



1 STATE OF CALIFORNIA )  
2 ) ss.  
3 COUNTY OF SHASTA )  
4  
5  
6

7 I, CHERYL K. SMITH, Certified Shorthand Reporter,  
8 do hereby certify:

9  
10 That I acted as such Shorthand Reporter in the  
11 above-entitled scoping meeting; that I took down in  
12 shorthand notes the proceedings given and had at said time  
13 and place;

14  
15 That I thereupon caused my stenographic notes to  
16 be transcribed by computer-assisted transcribing, and that  
17 the foregoing 27 pages constitute a full, true and correct  
18 transcript thereof to the best of my ability.

19  
20 DATED: June 20, 2013.

21  
22  
23 \_\_\_\_\_  
24 CHERYL K. SMITH, CSR 5257

25

	<b>20:3</b>	<b>9:22</b>	<b>16:18</b>	<b>6:12,20</b>
<p style="text-align: center;"><b>A</b></p> <p><b>abilities (1)</b> 14:1</p> <p><b>ability (1)</b> 20:19</p> <p><b>able (2)</b> 3:21;22:24</p> <p><b>absolutely (1)</b> 26:18</p> <p><b>abundance (1)</b> 9:3</p> <p><b>acceptable (2)</b> 17:25;18:3</p> <p><b>accepting (1)</b> 10:18</p> <p><b>access (1)</b> 25:20</p> <p><b>According (1)</b> 15:6</p> <p><b>accurately (1)</b> 15:17</p> <p><b>acknowledged (1)</b> 17:19</p> <p><b>acknowledges (1)</b> 24:9</p> <p><b>across (1)</b> 25:13</p> <p><b>Act (2)</b> 8:25;9:9</p> <p><b>action (2)</b> 8:23;9:11</p> <p><b>actions (1)</b> 26:17</p> <p><b>activities (1)</b> 9:18</p> <p><b>Acts (1)</b> 8:11</p> <p><b>actual (2)</b> 11:19;19:12</p> <p><b>actually (5)</b> 18:11,15;19:10; 20:17,19</p> <p><b>addendum (1)</b> 26:4</p> <p><b>adding (1)</b> 19:4</p> <p><b>addition (1)</b> 10:18</p> <p><b>Additional (2)</b> 10:23;19:4</p> <p><b>Additionally (2)</b> 6:25;19:24</p> <p><b>address (3)</b> 4:3;11:3,5</p> <p><b>addressed (1)</b> 4:14</p> <p><b>adequately (1)</b> 13:17</p> <p><b>adjourned (1)</b> 27:21</p> <p><b>adopted (1)</b></p>	<p><b>adopts (1)</b> 10:7</p> <p><b>advanced/intermediate (1)</b> 21:19</p> <p><b>affidavit (1)</b> 17:14</p> <p><b>again (2)</b> 19:17;23:4</p> <p><b>agencies (4)</b> 26:17,21;27:1,2</p> <p><b>agency (5)</b> 9:11,12,21;15:13; 16:24</p> <p><b>agenda (2)</b> 3:17;4:25</p> <p><b>ago (2)</b> 16:18;20:17</p> <p><b>agree (2)</b> 4:24;25:7</p> <p><b>agreement (1)</b> 25:2</p> <p><b>AjeMaui (1)</b> 18:19</p> <p><b>allocation (1)</b> 6:13</p> <p><b>allow (1)</b> 19:15</p> <p><b>allowed (3)</b> 10:15;14:1,2</p> <p><b>ALONG (1)</b> 5:10</p> <p><b>alternative (2)</b> 4:12;21:2</p> <p><b>alternatives (3)</b> 9:21;10:4,6</p> <p><b>although (1)</b> 9:1</p> <p><b>always (2)</b> 6:15,16</p> <p><b>amend (1)</b> 8:14</p> <p><b>AMENDMENT (15)</b> 3:2,10,15;5:14;6:6; 8:3,24;9:9;11:19; 18:6,14;20:11;26:11, 14,19</p> <p><b>American (3)</b> 16:17,18;24:23</p> <p><b>amount (4)</b> 4:16;5:23;13:22; 18:7</p> <p><b>analyzing (1)</b> 4:14</p> <p><b>anyways (1)</b> 21:23</p> <p><b>apply (1)</b> 25:13</p> <p><b>appreciate (4)</b> 26:8,20;27:17,18</p> <p><b>appropriately (1)</b> 4:14</p> <p><b>approval (1)</b></p>	<p><b>aquatic (8)</b> 7:18,21;8:18;12:13; 13:5;17:7,16;20:2</p> <p><b>area (1)</b> 15:22</p> <p><b>around (1)</b> 22:5</p> <p><b>assessed (2)</b> 20:7,10</p> <p><b>association (1)</b> 21:14</p> <p><b>assumption (1)</b> 18:3</p> <p><b>attend (2)</b> 5:18;27:9</p> <p><b>attended (1)</b> 16:20</p> <p><b>August (2)</b> 7:17;12:10</p> <p><b>authority (4)</b> 6:18;16:24;20:20, 22</p> <p><b>available (3)</b> 9:6;10:25;27:6</p> <p><b>averages (1)</b> 19:7</p> <p><b>avid (1)</b> 24:5</p> <p><b>avoid (2)</b> 9:19;15:20</p> <p><b>away (2)</b> 23:3;25:18</p>	<p><b>beginner (1)</b> 21:18</p> <p><b>beginning (1)</b> 22:20</p> <p><b>belief (2)</b> 8:20;13:16</p> <p><b>believes (3)</b> 14:25;15:15,18</p> <p><b>below (1)</b> 22:24</p> <p><b>beneficial (3)</b> 6:22,23;17:1</p> <p><b>beneficials (1)</b> 6:22</p> <p><b>benefit (1)</b> 6:14</p> <p><b>best (3)</b> 14:1;18:21;22:6</p> <p><b>better (4)</b> 14:17;25:7,19; 27:19</p> <p><b>big (2)</b> 21:21;27:1</p> <p><b>Board (28)</b> 6:10,11,18;7:1,25; 8:6,14,24;9:2,12,13, 25;10:7,10,14;11:4; 16:23;17:18;19:20; 20:4,16,18,19,22; 21:2,24;25:13;26:8</p> <p><b>Board's (5)</b> 6:4,7;8:22;9:16; 11:18</p> <p><b>boater (1)</b> 21:18</p> <p><b>boating (8)</b> 6:24;21:15;22:22; 23:8;24:1,3,16;25:20</p> <p><b>both (4)</b> 8:11;17:18;26:20, 22</p> <p><b>bottom (1)</b> 11:7</p> <p><b>box (1)</b> 11:6</p> <p><b>bring (1)</b> 5:22</p> <p><b>bringing (1)</b> 21:15</p> <p><b>button (1)</b> 11:7</p> <p><b>Bypass (2)</b> 15:4;19:23</p>	<p><b>call (1)</b> 4:7</p> <p><b>came (2)</b> 8:5;27:18</p> <p><b>campground (1)</b> 22:25</p> <p><b>can (16)</b> 3:20,25;4:13;5:4; 6:16;10:23;11:3; 14:12,16;21:20;22:5, 9,23;18:26;10:27;12, 14</p> <p><b>Canaday (1)</b> 17:2</p> <p><b>C-A-N-A-D-A-Y (1)</b> 17:3</p> <p><b>card (1)</b> 5:22</p> <p><b>Cardno (4)</b> 10:11,12,14,16</p> <p><b>cards (3)</b> 4:5;5:21;23:18</p> <p><b>carefully (1)</b> 10:22</p> <p><b>case (1)</b> 20:23</p> <p><b>category (1)</b> 11:5</p> <p><b>causing (2)</b> 18:15;19:10</p> <p><b>caution (1)</b> 9:4</p> <p><b>Celsius (2)</b> 19:7,8</p> <p><b>CEQA (14)</b> 6:7,7;8:22,25;9:4,8, 12,14,17;10:9;11:20; 15:6;17:19;20:12</p> <p><b>Certain (1)</b> 14:2</p> <p><b>certainly (1)</b> 17:13</p> <p><b>CERTIFICATION (20)</b> 3:2,9,16;5:14;6:5,6; 7:4,10,11;8:4,15,23; 9:9;11:7,9,22;13:3, 12;17:3;20:5</p> <p><b>CFS (6)</b> 12:23,25;13:4,16; 19:25;20:3</p> <p><b>chance (1)</b> 18:18</p> <p><b>changes (2)</b> 18:10,10</p> <p><b>changing (1)</b> 20:20</p> <p><b>channel (1)</b> 19:3</p> <p><b>channeled (1)</b> 22:5</p> <p><b>charged (1)</b> 7:1</p>
			<b>B</b>	
			<b>C</b>	

<b>Charlie (3)</b> 21:8,10,13	<b>conduct (1)</b> 19:20	<b>curtailed (1)</b> 24:22	9:13;15:13	20:9
<b>cheap (1)</b> 24:7	<b>conducted (3)</b> 15:3,25;25:8	<b>curtailments (1)</b> 25:2	<b>develop (2)</b> 10:13;26:11	<b>easier (1)</b> 4:9
<b>clarification (1)</b> 5:2	<b>consecutive (1)</b> 7:15	<b>D</b>	<b>development (1)</b> 10:9	<b>effect (1)</b> 18:9
<b>Class (3)</b> 22:24,25;23:1	<b>consider (1)</b> 22:8	<b>dam (1)</b> 12:16	<b>direct (1)</b> 10:15	<b>effective (1)</b> 8:18
<b>clearly (2)</b> 5:7;19:11	<b>consideration (2)</b> 10:22;25:4	<b>damage (2)</b> 9:19,20	<b>directed (1)</b> 13:2	<b>effectiveness (1)</b> 7:21
<b>click (1)</b> 11:7	<b>considered (2)</b> 17:1;25:19	<b>dams (2)</b> 22:7;24:20	<b>direction (1)</b> 10:13	<b>effects (8)</b> 9:18,22;15:2,21; 20:1,6,10,14
<b>closer (1)</b> 14:16	<b>constitute (1)</b> 15:12	<b>daughters (2)</b> 22:23;23:2	<b>Director (1)</b> 16:16	<b>efficient (1)</b> 6:13
<b>closing (1)</b> 3:21	<b>consultant (1)</b> 10:12	<b>Dave (9)</b> 11:15;14:9,13; 16:11,13,15;21:15,23; 26:1	<b>disappointing (1)</b> 24:21	<b>effort (2)</b> 4:24;24:23
<b>collaboration (1)</b> 27:19	<b>contact (1)</b> 6:16	<b>Day (2)</b> 18:17;27:20	<b>disclose (2)</b> 9:17,21	<b>eight (1)</b> 22:18
<b>coming (1)</b> 24:25	<b>contest (1)</b> 18:2	<b>days (3)</b> 7:15;17:23;18:1	<b>discouraged (1)</b> 5:3	<b>EIR (9)</b> 10:2,2,8,20;12:3; 15:2,7,16;16:3
<b>comment (13)</b> 3:20;4:13;10:21; 11:13;14:5,19;16:13; 21:10;22:14;23:21; 26:1,8,21	<b>continue (1)</b> 19:15	<b>deadline (1)</b> 16:6	<b>discretionary (1)</b> 9:10	<b>either (3)</b> 12:9;24:19;26:8
<b>comments (19)</b> 3:14,20,24,25;4:2, 16,20;5:3,6,23,24; 10:18,21;14:23;16:4, 5;25:25;27:14,16	<b>continued (2)</b> 13:14,15	<b>debates (1)</b> 20:15	<b>discuss (4)</b> 4:19;5:24;6:3; 26:25	<b>eliminate (2)</b> 8:4;9:10
<b>Commission (2)</b> 7:5,8	<b>Continuously (2)</b> 13:1;25:15	<b>December (1)</b> 7:4	<b>discussing (1)</b> 7:12	<b>elimination (1)</b> 12:20
<b>community (1)</b> 24:17	<b>contributing (1)</b> 8:9	<b>decided (1)</b> 10:1	<b>discussion (1)</b> 4:25	<b>else (2)</b> 16:5;23:17
<b>compared (1)</b> 15:19	<b>control (6)</b> 7:18;9:12;11:4; 12:12,13;16:23	<b>decides (1)</b> 21:24	<b>Disparaging (1)</b> 5:3	<b>email (7)</b> 4:3,3,7;6:17;11:3,5, 8
<b>compensated (1)</b> 10:14	<b>controlling (4)</b> 7:21;8:18;13:5,13	<b>decisions (2)</b> 4:23;5:25	<b>diversion (2)</b> 24:5;25:10	<b>emails (1)</b> 11:3
<b>competing (2)</b> 24:10;25:1	<b>conveyance (1)</b> 19:14	<b>decline (1)</b> 8:9	<b>diversions (2)</b> 24:15,15	<b>encouraged (1)</b> 5:2
<b>completed (2)</b> 9:5,14	<b>coordination (1)</b> 9:23	<b>declining (1)</b> 21:25	<b>document (2)</b> 9:14,15	<b>endangered (6)</b> 8:10,11,20;9:4; 25:12;26:16
<b>completely (2)</b> 19:11;26:18	<b>Coordinator (1)</b> 14:23	<b>define (1)</b> 15:17	<b>documents (2)</b> 10:9,13	<b>endangered (6)</b> 8:10,11,20;9:4; 25:12;26:16
<b>comply (1)</b> 8:24	<b>corroborated (1)</b> 17:11	<b>degrees (3)</b> 19:6,7,7	<b>done (6)</b> 10:16;12:17;13:19, 20,22;14:8	<b>Energy (2)</b> 7:5,8
<b>component (1)</b> 17:16	<b>countless (1)</b> 16:21	<b>Department (5)</b> 14:22,24;15:15,18; 16:1	<b>down (5)</b> 10:25;18:22;22:24, 25;25:9	<b>enforce (1)</b> 6:21
<b>concept (1)</b> 19:9	<b>County (1)</b> 23:25	<b>depends (1)</b> 24:17	<b>draft (1)</b> 10:20	<b>engaged (1)</b> 18:11
<b>concerned (1)</b> 21:23	<b>couple (2)</b> 14:7,23	<b>describe (1)</b> 11:17	<b>drop (1)</b> 19:15	<b>enhance (2)</b> 6:11;9:24
<b>concerns (4)</b> 4:11;8:8;26:9,15	<b>coupled (1)</b> 8:19	<b>description (1)</b> 15:7	<b>dry (1)</b> 24:19	<b>enhancement (1)</b> 6:25
<b>Condition (5)</b> 7:12,14,20;19:17, 19	<b>crayfish (24)</b> 8:9,10,21;13:24; 14:1,3,25;15:1,4,21; 16:1,1;18:16,21; 19:10,17;20:1,7,13; 21:1,25;25:6,11,16	<b>designed (1)</b> 10:2	<b>dual (2)</b> 17:5,15	<b>enjoyed (1)</b> 24:1
<b>conditioning (1)</b> 16:24	<b>creek (2)</b> 18:20,21	<b>detail (1)</b> 11:18	<b>due (6)</b> 8:8;21:14;24:15,20; 25:3,10	<b>ensure (1)</b> 6:13
<b>conditions (12)</b> 7:12;8:4,15;11:22; 15:8,12,17,20;20:16, 20,24;24:20	<b>crosses (1)</b> 18:25	<b>determination (1)</b> 13:8	<b>duration (1)</b> 18:4	<b>enter (1)</b> 11:4
	<b>cubic (1)</b> 8:17	<b>determine (1)</b> 20:24	<b>during (3)</b> 4:13;12:7;19:6	<b>entered (1)</b> 10:10
	<b>current (1)</b> 15:17	<b>determined (2)</b> 10:7;17:24	<b>E</b>	<b>enters (2)</b> 18:23,24
		<b>determines (2)</b>	<b>earlier (1)</b>	<b>entire (2)</b> 15:18;23:6
				<b>entity (1)</b> 26:14

<b>ENTRIX (4)</b> 10:11,12,14,16	24:18	<b>fishing (1)</b> 24:10	13:19,20	<b>Holman (1)</b> 17:10
<b>environment (1)</b> 24:11	<b>fact (7)</b> 8:19;17:1,15;25:8; 26:13,20,22	<b>fitted (1)</b> 22:7	<b>general (5)</b> 3:22;4:3,20;5:25; 11:11	<b>H-O-L-M-A-N (1)</b> 17:10
<b>Environmental (13)</b> 4:15;8:25;9:8,18, 19,20,22;10:1,12,13; 15:7,8,11	<b>facts (1)</b> 4:14	<b>five (3)</b> 7:23;13:10;19:7	<b>generally (2)</b> 12:17;25:9	<b>hours (1)</b> 16:21
<b>environmentally (1)</b> 24:8	<b>fair (1)</b> 25:1	<b>five-year (1)</b> 7:24	<b>generations (1)</b> 6:14	<b>HYDROELECTRIC (7)</b> 3:1,15;5:13;7:6; 16:19;24:7,18
<b>erroneous (1)</b> 19:11	<b>Fairgrounds (2)</b> 5:19;27:11	<b>flow (10)</b> 8:1,17;15:19;17:25; 19:13,22,25;20:3; 22:3;25:15	<b>George (1)</b> 12:5	<b>I</b>
<b>establish (1)</b> 25:16	<b>Fall (12)</b> 7:15,19,22;12:11, 14,17,18;18:20,23; 19:13;22:21;25:10	<b>flows (34)</b> 7:15,18,21;8:8,8,19, 20;9:1,3,10;12:1,2,6, 11,15,18,19,21,23; 13:13,15;17:4,17,20, 20,23;18:1,4,14;19:2, 3,9;20:14,25	<b>giving (1)</b> 5:6	<b>Identify (2)</b> 9:18;10:2
<b>evaluate (5)</b> 15:2;17:18;19:21, 25:20;13	<b>falls (1)</b> 21:21	<b>flushing (25)</b> 7:14,18,21;8:1,8, 19;9:1,3,10;12:1,2,6, 11,16,21;13:15;17:4, 6,17,20,23;18:14; 19:9;20:14,25	<b>good (1)</b> 22:19	<b>Impact (3)</b> 4:15;10:1;15:13
<b>evaluated (4)</b> 10:4;15:19;17:21; 18:8	<b>familiar (1)</b> 24:2	<b>focus (2)</b> 11:23;12:2	<b>ground (2)</b> 3:17;4:8	<b>impacts (6)</b> 3:14;10:2,4;11:23, 24,25
<b>evaluating (1)</b> 11:19	<b>families (1)</b> 23:9	<b>FOLLOWING (2)</b> 5:11;11:12	<b>grown (1)</b> 21:18	<b>implementation (2)</b> 9:20;13:11
<b>even (4)</b> 17:25;18:5;25:6; 26:24	<b>family (3)</b> 21:16;23:1,6	<b>follows (1)</b> 4:10	<b>guess (1)</b> 3:6	<b>inadequate (1)</b> 17:17
<b>evening (2)</b> 5:16;27:11	<b>far (1)</b> 23:4	<b>foraging (1)</b> 21:20	<b>guidelines (1)</b> 15:6	<b>incidental (1)</b> 9:1
<b>events (1)</b> 17:11	<b>favor (2)</b> 24:7,13	<b>Forebay (3)</b> 18:24,24,25	<b>Guilbault (3)</b> 21:8,10,13	<b>include (2)</b> 6:23;15:7
<b>eventually (2)</b> 18:23;19:15	<b>feasibility (2)</b> 10:6,6	<b>fortunately (1)</b> 16:25	<b>G-U-I-L-B-A-U-L-T (1)</b> 21:12	<b>included (1)</b> 16:2
<b>everybody (2)</b> 3:7;4:9	<b>feasible (1)</b> 9:20	<b>forum (2)</b> 26:9,22	<b>H</b>	<b>including (3)</b> 16:22;24:1,10
<b>Everyone (1)</b> 4:24	<b>Federal (4)</b> 7:5,8,8:11;27:2	<b>forward (3)</b> 5:1;6:9;24:18	<b>habitat (1)</b> 18:22	<b>increase (1)</b> 12:22
<b>except (1)</b> 21:21	<b>feel (4)</b> 4:6;20:10;25:2; 27:15	<b>Foster (1)</b> 9:23	<b>half (1)</b> 4:1	<b>increased (1)</b> 12:24
<b>Excuse (2)</b> 10:4;13:16	<b>feet (1)</b> 8:17	<b>found (3)</b> 6:15;10:23;15:5	<b>happen (1)</b> 19:21	<b>increments (1)</b> 19:25
<b>exercise (1)</b> 20:19	<b>felt (1)</b> 24:25	<b>free (2)</b> 4:6;27:15	<b>harm (2)</b> 18:15;19:10	<b>independent (1)</b> 9:16
<b>exist (1)</b> 15:9	<b>FERC (4)</b> 7:8;14:23;24:24; 26:22	<b>friends (1)</b> 22:22	<b>harmful (1)</b> 14:3	<b>indicate (1)</b> 8:16
<b>existed (1)</b> 19:18	<b>few (1)</b> 15:4	<b>full (2)</b> 11:5;19:22	<b>harming (1)</b> 8:20	<b>information (3)</b> 6:15;10:23;26:12
<b>existence (2)</b> 18:22;25:6	<b>fighting (1)</b> 26:17	<b>fun (1)</b> 23:1	<b>head (1)</b> 27:12	<b>Initial (1)</b> 7:23
<b>expect (1)</b> 10:24	<b>fill (1)</b> 5:21	<b>fundamentally (1)</b> 18:10	<b>headwaters (1)</b> 18:19	<b>input (2)</b> 6:8;10:17
<b>explain (2)</b> 26:15,19	<b>Final (2)</b> 10:6,8	<b>further (3)</b> 15:11;16:4;26:1	<b>health (1)</b> 24:12	<b>in-stream (2)</b> 19:2;20:2
<b>explicit (1)</b> 17:4	<b>finally (1)</b> 10:17	<b>future (2)</b> 6:14;11:2	<b>healthy (1)</b> 25:11	<b>interagency (1)</b> 9:23
<b>explicitly (1)</b> 17:12	<b>find (2)</b> 21:2;26:17		<b>hear (2)</b> 5:5;24:21	<b>interest (2)</b> 17:24;21:22
<b>express (1)</b> 26:9	<b>findings (1)</b> 10:7		<b>here's (1)</b> 7:3	<b>interested (1)</b> 15:23
<b>expressed (1)</b> 15:23	<b>First (6)</b> 4:11;8:5;14:11,12, 24;18:12		<b>Hi (2)</b> 3:12;23:23	<b>interests (1)</b> 16:22
<b>F</b>	<b>fish (11)</b> 6:24;8:7;13:7,19, 20,20;14:22,24;26:4, 13,22	<b>G</b>	<b>higher (3)</b> 8:17;13:13;25:14	<b>intermediate (1)</b> 21:18
<b>facilities (1)</b>		<b>Game (2)</b>	<b>historic (1)</b> 15:24	<b>Intermountain (2)</b> 5:18;27:11
			<b>hold (1)</b> 5:16	<b>into (5)</b> 10:21;19:13,22;
			<b>holding (1)</b> 5:15	

<p>21:19;25:15 <b>investigate (2)</b> 21:25;22:1 <b>irrigation (1)</b> 6:23 <b>issuance (1)</b> 7:24 <b>issued (4)</b> 7:4,9;9:6;20:8</p>	<p><b>limited (3)</b> 4:16;5:23;6:23 <b>limiting (1)</b> 20:25 <b>link (1)</b> 10:24 <b>list (1)</b> 11:8 <b>listed (2)</b> 8:10,12 <b>little (6)</b> 3:21;4:9;6:2;11:17; 14:17;18:17 <b>lived (1)</b> 23:25 <b>loading (1)</b> 19:4 <b>located (1)</b> 5:17 <b>long (1)</b> 10:24 <b>look (1)</b> 24:18 <b>looking (8)</b> 11:21;12:10,11; 17:14,16;18:13; 23:10;25:14 <b>loss (1)</b> 22:9 <b>lost (1)</b> 21:3 <b>lot (3)</b> 24:23;25:3;26:16 <b>loudly (1)</b> 5:7</p>	<p>22:14,16,17 <b>M-A-R-T-I-N-I (1)</b> 22:16 <b>Matt (4)</b> 14:10,12,19,21 <b>may (7)</b> 4:16;5:23;7:17,25; 8:5,17;12:9 <b>Maybe (1)</b> 25:14 <b>McArthur (2)</b> 5:17;27:11 <b>means (1)</b> 9:13 <b>measures (1)</b> 10:3 <b>meet (4)</b> 10:5;17:24;20:8; 26:24 <b>MEETING (10)</b> 3:1,13;4:9,19;5:20; 10:18;20:24;27:6,10, 21 <b>Meetings (3)</b> 5:15;16:20;26:23 <b>Memorandum (1)</b> 10:10 <b>Memorial (1)</b> 18:17 <b>microphone (2)</b> 5:5;14:17 <b>might (4)</b> 3:22;11:12,24;27:7 <b>MIKE (3)</b> 22:14,16,17 <b>minimize (1)</b> 15:20 <b>minimum (2)</b> 19:2;20:2 <b>Mission (10)</b> 6:4,10,10 <b>mitigate (1)</b> 11:24 <b>mitigated (1)</b> 23:11 <b>mitigation (3)</b> 9:21;10:3;23:4 <b>mitigations (2)</b> 21:2;25:19 <b>mixed (1)</b> 19:1 <b>modeling (1)</b> 19:21 <b>modify (2)</b> 7:25;9:10 <b>Monheit (2)</b> 3:10,12 <b>monitor (3)</b> 7:20;13:14,15 <b>monitoring (7)</b> 7:23,24;8:1,16; 12:2;13:9,10 <b>months (2)</b></p>	<p>13:3;19:6 <b>more (5)</b> 6:15;8:17;11:17; 21:14;25:14 <b>morning (3)</b> 5:15;27:10,19 <b>mosquito (5)</b> 7:19,22;8:18;12:13; 13:6 <b>most (1)</b> 13:12 <b>MOU (1)</b> 10:11 <b>move (3)</b> 4:25;22:21;27:8 <b>moved (1)</b> 23:6 <b>moving (1)</b> 6:9 <b>municipal (1)</b> 6:24 <b>must (4)</b> 8:24;9:14,15;15:7 <b>MYERS (4)</b> 14:14,19,21,21 <b>M-Y-E-R-S (1)</b> 14:21 <b>myriad (1)</b> 23:9 <b>myself (1)</b> 22:22</p>	<p>27:20 <b>nine (1)</b> 19:6 <b>non-native (2)</b> 15:1;16:1 <b>noon (3)</b> 3:25;10:19;27:15 <b>normally (2)</b> 12:15;15:12 <b>North (1)</b> 24:1 <b>notice (4)</b> 4:4;10:19,25;15:9 <b>number (3)</b> 4:2,17;27:16 <b>numerous (2)</b> 16:20;24:15</p>
<p><b>J</b></p>				<p><b>O</b></p>
<p><b>Jim (4)</b> 17:2,4,10,13 <b>joint (1)</b> 6:18 <b>judgment (1)</b> 9:16 <b>July (2)</b> 7:17;12:9 <b>June (9)</b> 3:3,25;7:17;8:13; 10:19;12:9;16:5; 27:14,15</p>				
<p><b>K</b></p>				
<p><b>kayaker (1)</b> 24:6 <b>kayaking (1)</b> 24:11 <b>kind (1)</b> 10:24 <b>known (1)</b> 21:13</p>				
<p><b>L</b></p>	<p><b>M</b></p>		<p><b>N</b></p>	
<p><b>largest (1)</b> 18:20 <b>last (4)</b> 15:3;17:2;23:17,18 <b>lastly (1)</b> 25:18 <b>later (1)</b> 22:21 <b>law (1)</b> 14:2 <b>lawsuit (1)</b> 26:24 <b>lead (2)</b> 9:12;15:13 <b>least (2)</b> 21:16,19 <b>letter (1)</b> 8:6 <b>license (7)</b> 7:9,10,24;18:2,4,6, 10 <b>lightheartedly (1)</b> 25:3 <b>likely (1)</b> 13:12</p>	<p><b>main (1)</b> 17:14 <b>maintain (1)</b> 25:16 <b>maintained (2)</b> 13:4,17 <b>major (1)</b> 24:5 <b>makes (2)</b> 4:9;27:19 <b>making (1)</b> 26:19 <b>manager (2)</b> 3:8;17:10 <b>mandate (1)</b> 20:15 <b>mandatory (1)</b> 16:24 <b>manner (2)</b> 24:9,9 <b>many (1)</b> 6:21 <b>March (1)</b> 7:9 <b>MARTINI (3)</b></p>	<p>22:14,16,17 <b>name (9)</b> 3:8;5:7;11:5,15; 12:5;14:6;16:15; 22:17;23:23 <b>narrow (1)</b> 20:14 <b>natural (4)</b> 19:12,16,18;24:20 <b>nature (1)</b> 24:11 <b>near (1)</b> 5:17 <b>necessary (4)</b> 8:2;19:21;20:25; 26:11 <b>necessity (1)</b> 24:6 <b>need (6)</b> 15:23;16:2;17:17; 20:10;25:7,19 <b>needed (3)</b> 15:1,16;17:1 <b>needs (3)</b> 17:21;18:8;22:6 <b>new (3)</b> 7:24;14:25;15:16 <b>next (3)</b> 6:8;16:20;21:8 <b>nice (1)</b></p>	<p><b>o0o- (15)</b> 3:5;5:9,12;14:20; 16:8,14;21:6,11; 22:11,15;23:15,22; 25:22;26:2;27:4 <b>objective (1)</b> 3:13 <b>objectives (2)</b> 9:17;10:5 <b>obviously (1)</b> 22:6 <b>occur (1)</b> 7:17 <b>off (3)</b> 14:9;22:19;23:2 <b>once (1)</b> 23:4 <b>one (10)</b> 5:15,16,18;12:9; 14:24;17:6,7;26:3,8; 27:2 <b>ones (2)</b> 12:10,12 <b>online (1)</b> 11:3 <b>only (2)</b> 18:9;20:1 <b>open (2)</b> 14:5;26:10 <b>operated (1)</b> 7:7 <b>operates (1)</b> 24:5 <b>operation (1)</b> 24:8 <b>opinion (1)</b> 26:15 <b>opportunities (2)</b> 21:3;23:5 <b>opportunity (3)</b> 9:2;18:9;22:19 <b>ORAL (1)</b> 5:11</p>	

<p><b>order (9)</b> 6:19;8:23;9:14; 15:1,16,20;20:8;21:1, 3 <b>orders (1)</b> 9:5 <b>original (1)</b> 6:4 <b>out (5)</b> 5:21;9:3;20:9; 21:17;27:18 <b>outdated (1)</b> 15:16 <b>outline (1)</b> 6:2 <b>outstanding (1)</b> 24:3 <b>over (6)</b> 3:17,18;4:8;6:18; 16:19;18:17 <b>overall (1)</b> 10:5 <b>overview (1)</b> 3:19 <b>owned (1)</b> 7:7</p>	<p><b>PIT (23)</b> 3:1,9,10,15;5:13; 6:4;7:3,6;8:14;13:21; 15:1,4,24;18:23;19:1, 4,22;22:18;24:2,4,18; 25:6,15 <b>place (8)</b> 7:18;12:13,18,19; 17:20;18:4,12;21:17 <b>planning (1)</b> 9:24 <b>plans (1)</b> 20:15 <b>plant (1)</b> 24:8 <b>plate (1)</b> 11:18 <b>Please (6)</b> 4:21;5:6,21,25; 14:6;27:15 <b>point (2)</b> 17:14;18:24 <b>pointed (1)</b> 20:9 <b>points (2)</b> 4:21;6:1 <b>Pond (3)</b> 7:15,19,22 <b>ponds (1)</b> 19:4 <b>population (1)</b> 25:11 <b>populations (2)</b> 25:9,16 <b>posted (1)</b> 9:7 <b>potential (3)</b> 3:14;15:2,21 <b>power (3)</b> 6:24;24:7,8 <b>precluding (1)</b> 24:13 <b>preparation (4)</b> 4:4;10:19;11:1; 15:10 <b>prepare (1)</b> 10:1 <b>prepared (1)</b> 21:1 <b>present (1)</b> 6:14 <b>presentation (4)</b> 3:18;5:8,11;6:2 <b>PRESENTED (4)</b> 5:10;21:10;22:14; 23:21 <b>preservation (1)</b> 6:25 <b>preserve (1)</b> 6:11 <b>pretty (2)</b> 3:16;14:7 <b>Prevent (1)</b></p>	<p>9:19 <b>preventing (1)</b> 7:1 <b>previous (1)</b> 25:7 <b>Prior (1)</b> 14:6 <b>Pristine (1)</b> 18:20 <b>probably (1)</b> 21:14 <b>problem (2)</b> 4:18;17:12 <b>proceed (1)</b> 11:13 <b>process (9)</b> 6:8,8;9:5,24;20:11; 26:10,11;27:8,20 <b>production (5)</b> 7:19,22;8:19;12:14; 13:6 <b>program (1)</b> 8:1 <b>PROJECT (35)</b> 3:1,8,9,15,19,23; 4:6,11,12,15;5:13,17; 7:6;9:25;10:5;11:12, 21;15:1,9,21,24; 16:19,21;17:3,5,9; 18:2,7;19:11;20:8,23; 21:4,14;22:18;25:1 <b>projects (3)</b> 9:22,23;11:10 <b>Project's (1)</b> 15:19 <b>proper (1)</b> 6:13 <b>proposed (6)</b> 3:14,19;9:18,25; 18:6,13 <b>protect (4)</b> 6:19,21;20:16;21:1 <b>protecting (2)</b> 20:18;26:16 <b>protection (4)</b> 6:20;9:4;20:13; 25:12 <b>provide (4)</b> 6:20;9:1;26:21,21 <b>providing (2)</b> 17:8;26:9 <b>provision (1)</b> 19:24 <b>public (16)</b> 4:3,13;5:14;6:8; 9:11,24;10:17,20; 11:13;14:5,19;16:13; 21:10;22:14;23:21; 26:1 <b>published (1)</b> 15:10 <b>pulse (3)</b> 19:14,15;22:3</p>	<p><b>pulses (3)</b> 22:20;23:3,10 <b>purpose (6)</b> 4:19;17:5,6,8,15; 20:14 <b>put (3)</b> 7:18;11:8;12:13</p>	<p>18:7;22:4 <b>recreational (6)</b> 9:2;17:20;22:2,6, 19;23:5 <b>Redding (1)</b> 5:16 <b>reduce (3)</b> 9:19;10:3;18:7 <b>reevaluate (1)</b> 20:23 <b>referring (1)</b> 24:4 <b>refused (1)</b> 26:24 <b>regain (1)</b> 22:9 <b>regarding (8)</b> 3:22;4:6,11,12; 10:19;11:12;13:23; 27:7 <b>regards (1)</b> 10:5 <b>regime (2)</b> 15:19;18:1 <b>Region (1)</b> 14:22 <b>Regulatory (2)</b> 7:5,8 <b>release (4)</b> 7:14;19:12,22; 25:15 <b>released (1)</b> 10:20 <b>releases (4)</b> 24:17,19,21;25:18 <b>relicensing (4)</b> 7:6;16:19;17:22; 18:11 <b>remain (2)</b> 12:19,20 <b>remaining (1)</b> 25:9 <b>removal (3)</b> 11:21;12:1;23:10 <b>remove (2)</b> 8:15;23:7 <b>removed (2)</b> 12:7;23:11 <b>removing (4)</b> 12:11;18:9;22:7; 23:5 <b>Report (3)</b> 4:15;7:25;10:1 <b>represent (1)</b> 9:15 <b>request (4)</b> 6:5;8:13,16,24 <b>requested (2)</b> 8:3;26:23 <b>requesting (1)</b> 8:7 <b>required (4)</b> 7:23;12:9;19:3;</p>
<b>P</b>			<b>Q</b>	
<p><b>paddle (1)</b> 18:19 <b>part (1)</b> 7:10 <b>participation (1)</b> 9:24 <b>particular (3)</b> 18:2;20:5,23 <b>parties (1)</b> 15:23 <b>party (1)</b> 10:10 <b>people (4)</b> 4:17;23:9;25:24; 26:9 <b>per (2)</b> 7:16;8:17 <b>period (3)</b> 3:20;4:13;11:13 <b>Peter (2)</b> 3:8;11:17 <b>PG&amp;E (14)</b> 7:7,14,20;8:3,13; 9:11;10:11,15,15; 12:22;13:9;17:9;24:5; 25:14 <b>PG&amp;E's (1)</b> 6:5 <b>phone (2)</b> 4:7;6:17 <b>physical (2)</b> 15:8,12 <b>pile (1)</b> 27:2</p>		<p><b>QUALITY (25)</b> 3:2,9,16;5:14;6:4,5, 12,19;7:4,10,11;8:4, 14,23,25;9:8,9;11:6,9, 22;13:2,11;20:8,16,24 <b>questionable (1)</b> 25:5 <b>quick (2)</b> 4:8;26:3</p>	<b>R</b>	
			<p><b>raised (1)</b> 4:13 <b>rapids (1)</b> 21:20 <b>rational (1)</b> 26:19 <b>Reach (3)</b> 15:4;19:23;22:24 <b>reaches (1)</b> 19:5 <b>real (2)</b> 4:8;20:14 <b>really (4)</b> 5:4;20:15;22:19; 27:17 <b>reason (2)</b> 18:11,13 <b>reasons (1)</b> 9:21 <b>receive (1)</b> 11:2 <b>received (2)</b> 8:6;27:16 <b>recognize (2)</b> 18:5;24:6 <b>recognizing (1)</b> 16:25 <b>recommend (2)</b> 19:20;20:4 <b>recommendation (1)</b> 20:3 <b>recommended (1)</b> 26:14 <b>recorder (1)</b> 14:7 <b>recreate (1)</b> 21:16 <b>recreating (1)</b> 23:9 <b>recreation (6)</b> 6:24;16:22,25;17:9;</p>	<p><b>regards (1)</b> 10:5 <b>regime (2)</b> 15:19;18:1 <b>Region (1)</b> 14:22 <b>Regulatory (2)</b> 7:5,8 <b>release (4)</b> 7:14;19:12,22; 25:15 <b>released (1)</b> 10:20 <b>releases (4)</b> 24:17,19,21;25:18 <b>relicensing (4)</b> 7:6;16:19;17:22; 18:11 <b>remain (2)</b> 12:19,20 <b>remaining (1)</b> 25:9 <b>removal (3)</b> 11:21;12:1;23:10 <b>remove (2)</b> 8:15;23:7 <b>removed (2)</b> 12:7;23:11 <b>removing (4)</b> 12:11;18:9;22:7; 23:5 <b>Report (3)</b> 4:15;7:25;10:1 <b>represent (1)</b> 9:15 <b>request (4)</b> 6:5;8:13,16,24 <b>requested (2)</b> 8:3;26:23 <b>requesting (1)</b> 8:7 <b>required (4)</b> 7:23;12:9;19:3;</p>

20:9 <b>requirement (1)</b> 20:5 <b>requirements (1)</b> 9:15 <b>requires (3)</b> 7:14,20;20:21 <b>requiring (1)</b> 9:20 <b>reserved (1)</b> 20:19 <b>resource (4)</b> 22:23;23:8;24:3; 26:17 <b>resources (4)</b> 6:12;9:12;11:4; 16:23 <b>respect (2)</b> 4:21;6:1 <b>rest (3)</b> 24:19,24;27:7 <b>restore (1)</b> 6:12 <b>result (1)</b> 7:5 <b>results (3)</b> 8:16;15:15,25 <b>returned (1)</b> 19:16 <b>review (4)</b> 9:23;10:21,22;20:4 <b>revisit (1)</b> 20:4 <b>right (6)</b> 5:15;12:8;14:5,12; 25:25;27:5 <b>rights (3)</b> 6:19;11:6,6 <b>River (21)</b> 3:10;7:15,19,22; 12:16;18:20,23;19:1, 4,13,13,16,22;21:20; 23:10;24:2,2,11,12; 25:10,15 <b>rivers (3)</b> 24:1,16,19 <b>Rogers (4)</b> 23:19,21,23,23 <b>R-O-G-E-R-S (1)</b> 23:24 <b>role (2)</b> 6:7;8:22 <b>RON (2)</b> 23:21,23 <b>Ronald (1)</b> 23:19 <b>room (1)</b> 4:5 <b>rules (3)</b> 3:18;4:8,10 <b>running (1)</b> 21:21	<b>S</b> <b>sake (1)</b> 24:14 <b>same (5)</b> 22:1,2,23;23:2;26:7 <b>satisfy (1)</b> 9:14 <b>Saturday (1)</b> 7:16 <b>saw (1)</b> 13:12 <b>saying (1)</b> 18:14 <b>science (1)</b> 21:25 <b>scope (3)</b> 11:20;20:12;22:2 <b>SCOPING (4)</b> 3:1;5:14;27:10,21 <b>seasonally (1)</b> 12:16 <b>second (1)</b> 8:17 <b>Section (1)</b> 15:6 <b>seems (1)</b> 22:1 <b>sees (1)</b> 8:1 <b>select (3)</b> 11:4,5,6 <b>sense (1)</b> 22:1 <b>sensitive (1)</b> 24:8 <b>Service (4)</b> 8:7;26:5,13,23 <b>set (4)</b> 4:16;5:5,20,23 <b>Setting (2)</b> 15:7,11 <b>seven (2)</b> 16:20;21:16 <b>Several (1)</b> 20:17 <b>shame (1)</b> 27:2 <b>shameful (1)</b> 26:18 <b>Shasta (17)</b> 8:9,10,20;14:25; 15:4,21,25;18:15,21; 19:10,17;20:1,7,13; 21:1;23:25;25:5 <b>sheet (1)</b> 5:20 <b>shoot (1)</b> 4:6 <b>short (2)</b> 3:16;19:14 <b>show (2)</b>	3:7;5:10 <b>showed (2)</b> 26:14,21 <b>shown (1)</b> 3:7 <b>sign (2)</b> 11:3;17:13 <b>significant (5)</b> 9:17,22;10:2,3; 15:14 <b>significantly (1)</b> 18:6 <b>sign-in (1)</b> 5:20 <b>similar (1)</b> 14:8 <b>simply (1)</b> 17:16 <b>single (1)</b> 15:24 <b>situation (2)</b> 13:10;20:21 <b>six (1)</b> 17:23 <b>slash (1)</b> 21:18 <b>SLIDE (1)</b> 5:10 <b>small (1)</b> 19:2 <b>sole (2)</b> 10:13;11:23 <b>solicit (1)</b> 3:14 <b>solution (1)</b> 25:1 <b>solutions (1)</b> 4:12 <b>somebody (1)</b> 26:15 <b>speak (5)</b> 4:17;5:6,7,22;23:18 <b>speaker (4)</b> 5:21,21;23:17;25:7 <b>speakers (2)</b> 4:21;6:1 <b>speaking (2)</b> 12:17;14:6 <b>Species (4)</b> 8:11;9:4;20:2; 26:16 <b>specifically (1)</b> 17:8 <b>spell (1)</b> 14:6 <b>spends (1)</b> 26:16 <b>spent (2)</b> 16:20;24:23 <b>spoke (2)</b> 17:2;20:17 <b>spring (2)</b> 18:20,20	<b>Springs (1)</b> 18:19 <b>stack (1)</b> 4:5 <b>stakeholders (1)</b> 24:25 <b>standards (3)</b> 20:9,15;25:12 <b>start (2)</b> 5:8;14:9 <b>started (4)</b> 3:6;8:5;21:17; 22:19 <b>starting (1)</b> 5:19 <b>state (28)</b> 5:7;6:3,7,10,11,18; 7:1,25;8:6,14,22,24; 9:2,11,13,15,25;10:7, 10,14;11:4;14:6; 16:23;24:1,16;26:8, 20;27:1 <b>stated (3)</b> 17:6,12;18:13 <b>Statement (1)</b> 6:10 <b>States (2)</b> 8:6;15:11 <b>stay (1)</b> 4:25 <b>Steindorf (10)</b> 11:15,15;14:9,10; 16:13,15,15;26:1,3,7 <b>S-T-E-I-N-D-O-R-F (2)</b> 11:16;16:16 <b>step (1)</b> 6:9 <b>Stewardship (1)</b> 16:16 <b>still (3)</b> 12:17;18:22;23:18 <b>stopped (1)</b> 22:3 <b>straightforward (2)</b> 3:17;14:7 <b>stretch (4)</b> 24:3,4;25:6,20 <b>strong (1)</b> 4:24 <b>studied (1)</b> 13:25 <b>studies (5)</b> 13:19,20,23;14:2; 25:7 <b>study (1)</b> 24:11 <b>submit (7)</b> 3:20,24,25;16:4; 23:18;25:24;27:14 <b>submitted (3)</b> 8:13;14:19;16:13 <b>subscribe (1)</b> 11:7	<b>substantial (3)</b> 4:2;13:22;27:16 <b>substantially (1)</b> 18:25 <b>suggestions (1)</b> 4:12 <b>summarize (1)</b> 15:24 <b>summer (8)</b> 12:12;13:3;17:23; 18:18;19:6;22:20; 24:15,21 <b>summertime (2)</b> 19:5;23:2 <b>Sunday (1)</b> 7:16 <b>supervisor (1)</b> 3:11 <b>support (2)</b> 20:18;25:11 <b>supports (1)</b> 16:1 <b>survey (3)</b> 14:25;15:3,15 <b>surveys (2)</b> 15:16,25 <b>Susan (1)</b> 3:10 <b>suspended (2)</b> 9:3;13:15 <b>suspension (1)</b> 8:7 <b>system (4)</b> 19:13,18;24:12,12
		<b>T</b>		
		<b>table (2)</b> 15:24;16:2 <b>talk (1)</b> 6:6 <b>temperature (3)</b> 18:15;20:6,10 <b>temperatures (1)</b> 19:16 <b>temporarily (2)</b> 9:3;13:14 <b>ten (1)</b> 21:14 <b>term (1)</b> 19:14 <b>terminate (1)</b> 7:25 <b>terms (1)</b> 11:18 <b>Thanks (1)</b> 16:7 <b>Therefore (1)</b> 9:12 <b>thermal (1)</b> 19:4 <b>though (2)</b> 17:25;18:5		

<p><b>threat (1)</b> 26:24</p> <p><b>threatened (1)</b> 25:12</p> <p><b>three (3)</b> 7:16;10:10;19:7</p> <p><b>throughout (2)</b> 13:1;19:18</p> <p><b>times (1)</b> 7:16</p> <p><b>today (7)</b> 3:24;4:1,18,23; 5:25;7:12;27:18</p> <p><b>topic (1)</b> 26:25</p> <p><b>track (1)</b> 4:25</p> <p><b>transparent (1)</b> 26:10</p> <p><b>tricks (1)</b> 21:19</p> <p><b>trying (1)</b> 20:18</p> <p><b>Tuesday (1)</b> 3:3</p> <p><b>two (3)</b> 7:11,15;11:21</p> <p><b>type (1)</b> 9:13</p>	<p><b>users (1)</b> 25:13</p> <p><b>uses (6)</b> 6:22,23;22:2;24:10, 13;25:1</p> <p><b>utilized (1)</b> 22:23</p>	<p><b>waters (1)</b> 6:20</p> <p><b>way (6)</b> 20:2;22:4,5,6,9; 26:8</p> <p><b>ways (1)</b> 9:18</p> <p><b>website (3)</b> 6:16;9:6;10:24</p> <p><b>week (2)</b> 4:1;17:2</p> <p><b>weekend (2)</b> 12:9;18:17</p> <p><b>weeks (1)</b> 20:17</p> <p><b>whereby (1)</b> 26:10</p> <p><b>whitewater (15)</b> 6:24;9:2;16:17,18, 22,25;17:9;18:7;21:3; 23:8;24:6,14,16,23; 25:20</p> <p><b>wildlife (9)</b> 6:25;8:7;13:7,20; 14:22,25;26:4,13,23</p> <p><b>Williams (8)</b> 12:5,5,15,22;13:1,7, 18,24</p> <p><b>willing (1)</b> 17:13</p> <p><b>wish (2)</b> 3:24;25:24</p> <p><b>wishing (1)</b> 4:17</p> <p><b>within (3)</b> 15:21;17:13;19:25</p> <p><b>without (1)</b> 25:3</p> <p><b>wonderful (2)</b> 21:17,17</p> <p><b>work (3)</b> 10:15,16;21:1</p> <p><b>working (3)</b> 16:18,21;24:24</p> <p><b>wraps (1)</b> 27:6</p> <p><b>write (1)</b> 10:25</p> <p><b>written (3)</b> 3:25;16:5;27:14</p> <p><b>wrote (1)</b> 17:2</p>	<p><b>1 (16)</b> 3:1,9,15;5:13;6:4; 7:3,6;8:14;14:23; 15:1,4,24;18:23;24:4, 18;25:6</p> <p><b>11 (1)</b> 3:3</p> <p><b>13 (3)</b> 7:12,14;8:15</p> <p><b>14 (3)</b> 7:13,20;8:15</p> <p><b>14th (1)</b> 8:13</p> <p><b>150 (5)</b> 8:17;12:23,24;13:3, 16</p> <p><b>15125 (1)</b> 15:6</p> <p><b>17 (1)</b> 16:18</p> <p><b>1981 (2)</b> 23:25;24:2</p> <p><b>1988 (1)</b> 8:12</p> <p><b>19th (1)</b> 7:9</p>	<p><b>5</b></p> <p><b>5 (1)</b> 22:25</p> <p><b>50 (1)</b> 19:25</p> <p><b>6</b></p> <p><b>6:00 (2)</b> 5:19;27:12</p> <p><b>9</b></p> <p><b>9:00 (1)</b> 3:4</p> <p><b>9:47 (1)</b> 27:21</p>
<p><b>U</b></p>	<p><b>V</b></p>	<p><b>Y</b></p>	<p><b>2</b></p>	<p><b>2 (2)</b> 22:24;23:1</p> <p><b>2001 (1)</b> 7:4</p> <p><b>2003 (1)</b> 7:9</p> <p><b>2009 (4)</b> 8:5,13;15:3,15</p> <p><b>2013 (2)</b> 3:3;10:20</p> <p><b>21st (1)</b> 8:5</p> <p><b>24th (5)</b> 3:25;10:19;16:5; 27:15,15</p>
<p><b>ultimately (1)</b> 20:25</p> <p><b>under (8)</b> 8:10;10:13;11:5,20; 17:19,25;20:12;26:24</p> <p><b>Unfortunately (2)</b> 20:6;24:4</p> <p><b>unimpaired (1)</b> 17:25</p> <p><b>United (1)</b> 8:6</p> <p><b>unreasonable (1)</b> 7:2</p> <p><b>up (27)</b> 3:7,7,25;4:3;5:5,6, 16,20,22;11:3;14:5, 14;16:5;18:19;19:5,6; 20:2;21:3,15,16; 22:22;24:25;26:15, 21;27:6,10,12</p> <p><b>updates (2)</b> 11:2,9</p> <p><b>upon (1)</b> 20:3</p> <p><b>upper (1)</b> 24:3</p> <p><b>use (5)</b> 6:13;7:2;17:1; 20:22;21:24</p> <p><b>used (1)</b> 12:12</p>	<p><b>vacation (1)</b> 18:18</p> <p><b>valid (2)</b> 4:22;6:1</p> <p><b>valuable (1)</b> 23:7</p> <p><b>valued (1)</b> 22:3</p> <p><b>variety (1)</b> 16:21</p> <p><b>vegetation (10)</b> 7:19,22;8:18,12;13; 13:5,13,16,25;17:7,16</p> <p><b>verbal (3)</b> 3:20,24;25:25</p> <p><b>version (1)</b> 17:11</p> <p><b>via (2)</b> 4:3;18:14</p> <p><b>vicinity (1)</b> 15:8</p> <p><b>view (2)</b> 4:21;6:1</p> <p><b>volunteers (1)</b> 21:8</p>	<p><b>wants (2)</b> 5:18;12:22</p> <p><b>warm (2)</b> 19:14;25:10</p> <p><b>warmed (1)</b> 18:25</p> <p><b>warmer (1)</b> 19:1</p> <p><b>warming (2)</b> 19:5,12</p> <p><b>waste (1)</b> 7:1</p> <p><b>WATER (62)</b> 3:2,9,15;5:14;6:3,4, 5,7,10,11,12,18,19,19, 22;7:1,2,3,9,11,25; 8:3,6,14,14,22,23,24; 9:2,9,11,13,15,25; 10:7,10,14;11:4,5,6,6, 9,18,22;13:2,11; 16:23;18:15,22,24; 19:1,5,12,14,15;20:6, 8,16,16,24;24:10;25:9</p> <p><b>waterboardscagov (1)</b> 6:16</p>	<p><b>3</b></p> <p><b>365 (1)</b> 18:1</p> <p><b>4</b></p> <p><b>4 (1)</b> 22:25</p> <p><b>400 (1)</b> 20:3</p> <p><b>401 (7)</b> 3:2,15;5:14;17:2, 13;19:25;20:7</p> <p><b>4th (1)</b> 7:4</p>	
<p><b>1</b></p>	<p><b>W</b></p>	<p><b>1</b></p>	<p><b>1</b></p>	





Appendix D  
Public Scoping Meeting Transcript

---

Evening Meeting in McArthur, CA  
June 11, 2013



**In The Matter Of:**  
*PIT 1 HYDROELECTRIC PROJECT*  
*McARTHUR, CA*

---

*June 11, 2013*

---



**J.V. KILLINGSWORTH & ASSOCIATES**  
1422 Oregon Street, Redding, CA 96001

Phone 800-995-0447 or 530-241-2224 Fax 530-241-5992

*Original File 6-11-13B.TXT*

*Min-U-Script® with Word Index*



SCOPING MEETING FOR  
PIT 1 HYDROELECTRIC PROJECT  
401 WATER QUALITY CERTIFICATION AMENDMENT

Tuesday, June 11, 2013  
Intermountain Fair,  
44218 A Street  
McArthur, California 96056  
6:00 p.m.

Meeting Presented by:

PETER W. BARNES, Environmental Scientist,  
State Water Resources Control Board

Also Present:

Susan Monheit, Senior Environmental Scientist,  
State Water Resources Control Board

Shruti Ramaker, Senior Project Scientist,  
Cardno ENTRIX

Steve Youge, Cardno ENTRIX

Cheryl K. Smith, CSR

License No. 5257

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

INDEX

PAGE

Opening remarks presented by PETER BARNES,  
State Water Resources Board

3

Public Comment Presented By:

ROSS JONES

22

DOUG KNOX

23

- June 11, 2013

1 SCOPING MEETING FOR PIT 1 HYDROELECTRIC PROJECT

2 401 WATER QUALITY CERTIFICATION AMENDMENT

3 Tuesday, June 11, 2013

4 6:00 p.m.

5 ---o0o---

6 MR. BARNES: Get started here. My name is Peter  
7 Barnes, I'm the project lead for this for the State Water  
8 Resources Control Board. The Project we're discussing  
9 tonight is the Pit 1 Hydroelectric Project 401 Water  
10 Certification Amendment. This is a Public Scoping Meeting.  
11 It's part of the CEQA process and the California  
12 Environmental Quality Act process. This is my Supervisor  
13 Susan Monheit. She oversees me in this project. Struti is  
14 one of the consultants, as is Steve that's in the back.

15 So just go over the meeting setup real quick.  
16 There is a sign-in sheet and speaker cards. Fill out a  
17 speaker card if you wish to present verbal comments. And we  
18 may limit the comments to a set amount of time depending  
19 upon the number of people wishing to speak. I think we have  
20 enough time where everybody will have plenty of time to  
21 submit their verbal comments. I don't see us needing to  
22 limit that tonight.

23 MR. KNOX: What do you call plenty of time? Some  
24 places you go in and they say well you can talk about three  
25 minutes, and that's it.



1 MR. BARNES: How much time will you need? Well,  
2 I don't think --

3 AUDIENCE MEMBER: Oh, you shouldn't have asked  
4 him that.

5 MR. BARNES: You will have plenty --

6 MR. KNOX: I found her down on the road here,  
7 yeah.

8 MR. BARNES: We'll give you plenty of time to get  
9 your comments across.

10 What's your name, sir, so she can have for the  
11 record.

12 MS. MONHEIT: For the Court Reporter who is making  
13 a record.

14 MR. KNOX: My name?

15 MR. BARNES: Yes.

16 MR. KNOX: My name is Doug Knox, K-N-O-X.

17 AUDIENCE MEMBER: Just think of Fort Knox.

18 MR. KNOX: Also the head of the Voice of Freedom  
19 Radio out of Alturas, KCFJ 570 AM at 12 noon in 30 minutes.

20 MR. BARNES: That's a good voice there.

21 MR. KNOX: Yes.

22

23 (Court Reporter addresses audience to make  
24 sure they state their name as they speak.)

25

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

SLIDE SHOW IS PRESENTED ALONG  
WITH THE FOLLOWING ORAL PRESENTATION

---o0o---

MR. BARNES: The meeting is not intended to discuss comments, but I will answer any general questions you might have regarding the process. And we won't be making any decisions today, this is the beginning of the process. Please remember to respect all speakers, and all points of view are valid.

Here's the outline of the presentation. We're going to go over some background, we're going to go over the State Water Board's Mission. The Original Pit 1 Water Quality Certification. And then PG&E's request to amend that Water Quality Certification. And then the CEQA and State Water Board's role. Then we'll give you some background on the CEQA process and describe the public input process. And then we'll go over the next steps.

So the State Water Board, this is our mission statement, it's to preserve, enhance and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations.

You can find more information on our website at [waterboards.ca.gov](http://waterboards.ca.gov).

The State Water Board is a joint authority over

1 water rights and water quality in order to provide  
2 protection of California's waters. The State Water Board  
3 protects, enforces and balances the many beneficial uses of  
4 water including, but not limited to: Irrigation, power,  
5 recreation, municipal and industrial supply, and fish and  
6 wildlife preservation and enhancement.

7 The State Water Board also aims to prevent waste  
8 and unreasonable use of water.

9 So the reason we're here today is the Pit 1 Water  
10 Quality Certification. It was issued for the Pit 1  
11 Hydroelectric Project on December 4th, 2001 as part of the  
12 Federal Energy Regulatory Commission relicensing process.

13 On March 19th, 2003, the Federal Regulatory  
14 Commission issued a license for the Project incorporating  
15 the Water Quality Certification.

16 There are two main conditions of that Water  
17 Quality Certification that we'll be discussing today. The  
18 first is Condition 13. This requires PG&E to release  
19 flushing flows through the Fall River Pond for two  
20 consecutive days, a Saturday and a Sunday, three times per  
21 year, and these are to occur in May or June, July and  
22 August. And the flushing flows were put in place as part of  
23 this Water Quality Certification in an effort to control  
24 aquatic vegetation and mosquito production in Fall River  
25 Pond.

1           Condition 14 requires PG&E to monitor the  
2 effectiveness of the flushing flows in controlling aquatic  
3 vegetation and mosquito production in Fall River Pond. The  
4 initial monitoring is required for five years after the  
5 issuance of a new license. And after that five year  
6 monitoring report, the State Water Board may modify or  
7 terminate flushing flow monitoring program.

8           Well, on May 21st, 2009, the State Water Board  
9 received a letter from the United States Fish and Wildlife  
10 Service requesting the suspension of these flushing flows  
11 due to concerns that the flows were contributing to the  
12 decline of the Shasta crayfish. The Shasta crayfish is a  
13 crayfish that is native to these parts of the waters, and  
14 it's been listed as endangered under both the California and  
15 Federal Endangered Species Act since 1988.

16           On June 14th, 2009, PG&E submitted a request to  
17 the State Water Board to amend the Pit 1 Water Quality  
18 Certification to remove Conditions 13 and 14. This request  
19 was based upon monitoring results which indicate that a  
20 higher base flow of 150 cubic feet per second may be more  
21 effective in controlling aquatic vegetation and mosquito  
22 production than the flushing flows were. This, plus the  
23 belief that the flushing flows were contributing to the  
24 decline of the Shasta crayfish.

25           So CEQA and the State Water Board's role. In

1 order to take action on the Water Quality Certification  
2 Amendment request from PG&E, the State Water Board must  
3 comply with the California Environmental Quality Act. And  
4 although flushing flows provide an incidental whitewater  
5 recreational opportunity, State Water Board temporarily  
6 suspended the flushing flows out of an abundance of caution  
7 for endangered species protection while CEQA process is  
8 completed.

9 So CEQA, the California Quality Act. The  
10 Amendment to the Water Quality Certification to eliminate or  
11 modify the flushing flows is a discretionary action. Since  
12 PG&E is not a public agency, the State Water Board will be  
13 the lead for CEQA. The State Water Board will determine the  
14 type of document necessary to satisfy CEQA requirements.  
15 And the CEQA document must represent the State Water Board's  
16 independent judgment.

17 The objectives of CEQA. The objectives of the  
18 CEQA document, or the CEQA process, is to disclose any  
19 significant environmental effects of proposed activities.  
20 Identify ways to avoid or reduce environmental damage.  
21 Prevent environmental damage by requiring implementation of  
22 feasible alternatives or mitigation. Disclose reasons for  
23 agency approval of the projects with significant  
24 environmental effects. Foster interagency coordination in  
25 review of projects. And enhance public participation in the 8

1 planning process.

2 The CEQA process. For this project, the State  
3 Water Board decided to prepare an Environmental Impact  
4 Report, or an EIR. An EIR is designed to identify  
5 significant impacts and mitigation measures to reduce those  
6 significant impacts. Alternatives will be evaluated with  
7 regards to how they meet project objectives and overall  
8 feasibility. The final feasibility of alternatives will be  
9 determined when the State Water Board adopts the findings  
10 based on the final EIR.

11 For the development of CEQA documents, the State  
12 Water Board has entered into a three party Memorandum of  
13 Understanding, or MOU, with PG&E and Cardno ENTRIX, an  
14 environmental consulting firm. Cardno ENTRIX, excuse me,  
15 will develop the environmental documents under the sole  
16 direction of the State Water Board, but Cardno is  
17 compensated for its work by PG&E.

18 Public input. CEQA is a very transparent process  
19 that requires public input, so the comments regarding the  
20 Notice of Preparation, which you all have in hand, are due  
21 by noon on June, 24th, 2013. A draft EIR will also be  
22 released for public review and comment. And that will be  
23 available on our website, and notices will be sent out when  
24 that's available.

25 Additional information regarding the Pit 1

1 Hydroelectric Project Water Quality Certification can be  
2 found at our website. It's kind of long to write down, but  
3 it's also in the handouts you have today.

4 And future updates. If you want to receive future  
5 updates regarding this Project and other FERC Water Quality  
6 Certifications issued by the State Water Board, you can sign  
7 up for emails online by following these instructions. First  
8 you have to go to that website, select "State Water  
9 Resources Control Board," enter your email address and full  
10 name. And under category select "Water Rights" and select  
11 the box for "Water Rights Water Quality Certification" and  
12 click the "subscribe" button.

13 So that's the end of the presentation. Right now  
14 I'll open it up for general questions regarding the Project,  
15 and after those questions we'll proceed with the public  
16 comment period.

17 MS. MONHEIT: I would like you to describe the  
18 Court Reporter's duties as part of the transparency  
19 proceedings.

20 MR. BARNES: Oh, yeah. And so when you submit  
21 comments or when you're going to ask a question, we're  
22 transcribing all this for the record, and this will all be  
23 posted online. So when you speak we ask that you provide  
24 your first and last name so we know who's asking the  
25 question and who is submitting those comments. And she'll

1 ask you to probably spell your last name. If you can do  
2 that before asking any questions or submitting any further  
3 comments.

4 So does anybody have any general questions  
5 regarding the Project?

6 MR. KNOX: Don Knox.

7 What's that -- who is that environmental group  
8 that's preparing the document for PG&E, where are they  
9 located at and who are they?

10 MR. BARNES: Cardno ENTRIX is an environmental  
11 consulting firm. I don't know if you guys would like to  
12 speak.

13 MS. RAMAKER: Yes. We're representing Cardno  
14 ENTRIX tonight. And we're a global company, we're all over  
15 the world. We have presence in California and Sacramento  
16 and Concord, Santa Barbara, Los Angeles, we have offices all  
17 over California. And we have been hired to prepare the EIR  
18 for this -- for this Project.

19 Does that answer your question?

20 AUDIENCE MEMBER: Would you spell your company  
21 name.

22 MR. BARNES: C-A-R-D-N-O, Cardno, and then  
23 E-N-T-R-I-X.

24 AUDIENCE MEMBER: And PG&E is supposed to pay the  
25 bill is what it says?



1 MR. BARNES: Yes.

2 Are there any other general questions, or are you  
3 ready to move on to the comment period?

4 MR. JONES: One other question.

5 MR. BARNES: Yes, sir. Name please.

6 MR. JONES: Ross Jones, S-M-I-T-H (sic).

7 Have -- have you decided what type of research is  
8 required in order to achieve your end goal?

9 MR. BARNES: That's kind of part of what we're  
10 doing here today, is this is a scoping process, so we're  
11 getting information from the general public regarding the  
12 concerns of the proposed Project. We do have an idea of  
13 what's going to need to be assessed. Basically CEQA  
14 assesses impacts of the Project, so we will be following the  
15 CEQA process.

16 Most of the studies have already been done, and  
17 it's just going to be going through that literature and  
18 compiling the data and assessing what impacts are going to  
19 occur.

20 MR. KNOX: Don Knox.

21 What part of the Pit River are we discussing? Is  
22 it --

23 MR. BARNES: So the --

24 MR. KNOX: Are we discussing all the way from  
25 Shasta Lake up to --

1 MR. BARNES: No, sir.

2 MR. KNOX: What area?

3 MR. BARNES: We're discussing the Pit 1 -- it's  
4 what we call -- it's called the Pit 1 Bypass Reach. It's  
5 from the Pit 1 Forebay where PG&E takes water for their --  
6 the Pit 1 Powerhouse, so from that Forebay down through to  
7 the powerhouse.

8 MS. MONHEIT: It's in the yellow box.

9 MR. BARNES: Fall River Pond.

10 MS. RAMAKER: The red box actually refers to the  
11 FERC boundaries for the Project.

12 MR. KNOX: Right here.

13 MR. JONES: So -- again Ross Jones.

14 You mentioned that the U.S. Forest -- Fish and  
15 Wildlife Service has complained about the flows. What is  
16 the crux of their complaint.

17 MR. BARNES: So the Pit 1 Bypass Reach of the  
18 Project area is home to the endangered Shasta crayfish. And  
19 this crayfish is -- doesn't like warm water, and so the  
20 flushing flows bring an influx of warm water into the  
21 region, and they believe that this warm water might be  
22 causing the decline of the Shasta crayfish, might be  
23 negatively impacting them.

24 MR. JONES: So -- so how long has this crayfish  
25 been around here?

1 MR. BARNES: A very long time.

2 MR. JONES: Prior to the construction of Pit 1?

3 MR. BARNES: I'm not -- I would believe so. I'm  
4 not entirely sure. I'm not the expert on the Shasta  
5 crayfish. That's something that you could -- we can address  
6 through the comments. I would have to go and do research  
7 regarding that.

8 MR. JONES: Are you familiar with the yellow  
9 legged frog?

10 MR. BARNES: Yes, sir.

11 MR. JONES: Is the crayfish akin to the yellow  
12 legged frog?

13 MR. BARNES: No, it's a crayfish. And it's  
14 actually -- it's endangered, where I believe the yellow  
15 legged frog is a species of concern.

16 MR. KNOX: Yeah.

17 MR. BARNES: This is more impacting. It's less  
18 -- there is less Shasta crayfish than there are yellow  
19 legged frogs.

20 MR. CHANDLER: Yeah. Harold Chandler.

21 MR. BARNES: Can you spell your last name,  
22 sir.

23 MR. CHANDLER: C-H-A-N-D-L-E-R.

24 I noticed that there is a -- a non-indigenous  
25 species in there. Where in the world did that come from and

1 why are they concerned about it?

2 MR. BARNES: There is the signal crayfish, and  
3 that came -- it was probably introduced by fisherman.

4 MR. CHANDLER: Someone from Louisiana no doubt.

5 MR. BARNES: Probably. And they -- it's a  
6 heartier breed of crayfish that isn't affected by warm  
7 water. It's bigger, it's more aggressive. It --

8 MR. CHANDLER: Is it considered invasive?

9 MR. BARNES: Yes.

10 MR. CHANDLER: It is.

11 MR. BARNES: It is a non-native invasive.

12 MR. CHANDLER: So the cooling off of the water  
13 would affect its lack of --

14 MR. BARNES: It's not -- it's not affected by the  
15 influxes of temperatures as much as the Shasta crayfish.

16 MR. CHANDLER: Oh, they could care less.

17 MR. BARNES: Yeah, it's --

18 MR. CHANDLER: Why don't we trade them out for the  
19 ones we got, especially if they're there edible?

20 AUDIENCE MEMBER: Right.

21 MR. KNOX: Don Knox.

22 I've had an aquaculture license in the State of  
23 California, it's No. 36 in the middle of the 70s.

24 In this place down here where you say this Shasta  
25 crayfish is endangered --

1 MR. BARNES: Uh-huh.

2 MR. KNOX: -- is there any species of fish in  
3 there, is there any cormorants that land in there; are there  
4 any mergansers; are there any turtles; are there any snakes;  
5 or what is in that water that could possibly take the Shasta  
6 County -- the Shasta crayfish instead of blaming it on the  
7 warm water?

8 MR. BARNES: Um, I don't -- I'm not entirely  
9 sure. I don't -- I'm not the biologist that will be working  
10 on this Project. I'm not aware of any predators in that  
11 Reach that would be impacting the crayfish other than maybe  
12 the non-native signal crayfish.

13 MR. KNOX: Let me ask you this question. Don  
14 Knox. I'm not trying to be facetious with you, okay. But  
15 we come here to learn some information, and if we can't get  
16 it, where are we supposed to go?

17 MR. BARNES: Well, this is the beginning of the  
18 process. More information is going to be coming and be made  
19 available through this process. Today we're mainly going to  
20 discuss the proposed Project and the reason for that -- this  
21 Project, and take comments from the public regarding any  
22 concerns they have might with the Project in areas that they  
23 would like us to look at.

24 MS. MONHEIT: So it sounds like an area that you  
25 would like to have explored in the environmental document is

1 what potential predators to the cray -- the Shasta crayfish  
2 may exist in the Project Reach; is that correct?

3 MR. KNOX: Yes, ma'am, that's correct, because  
4 that Pit River has been there running longer than you and I  
5 and all of us in here put together. They put the Pit in --  
6 they put Pit 1 in what, the 30s, 1930s, and now all of a  
7 sudden it's endangered. That crayfish has been in that  
8 river since the starting of time, and for somebody to come  
9 up and say that the crayfish is endangered, how do they know  
10 that?

11 MR. BARNES: Well, the species has been  
12 declining.

13 MR. KNOX: But that doesn't mean -- that doesn't  
14 mean that the warm water is doing it. It means -- well, I  
15 would rather not say.

16 MR. JONES: It would -- Ross Jones.

17 It would appear to me that the research is  
18 designed to arrive at a foregone conclusion.

19 MR. CHANDLER: It even says it.

20 MR. BARNES: Your comment is noted. I can't  
21 really respond to that. It's more of a comment than a  
22 question.

23 MR. CHANDLER: Has anybody studied the raccoons  
24 to see if there's been an increase in population. They love  
25 the crayfish.

1 MR. BARNES: That's something we can look at, and  
2 we'll definitely be looking at that.

3 MR. CHANDLER: There's a decline in raccoons,  
4 there's a decline in crayfish, and vice versa.

5 MR. JONES: Am I correct in assuming that CEQA is  
6 the head organization for this effort?

7 MR. BARNES: No, CEQA is a law. It's the  
8 California Environmental Quality Act. It's a set of  
9 environmental laws that are put in place to protect  
10 California's natural resources. Before any project is  
11 implemented, or any actions taken by the state agency, it  
12 must be evaluated under CEQA. And that's to assess any of  
13 the potential impacts and mitigate those impacts where  
14 feasible.

15 MR. JONES: I agree with that. However, CEQA is  
16 overseen by some group of people; correct?

17 MR. BARNES: For this Project the State Water  
18 Board will be the lead agency, but there will be other  
19 resource agencies reviewing the CEQA documents.

20 MR. JONES: And those other agencies are?

21 MR. BARNES: I believe the California Department  
22 of Fish and Wildlife, formerly known as the California  
23 Department of Fish and Game. Any -- I mean, you guys will  
24 be -- if you choose to review the documents, the  
25 environmental documents and submit comments you're more than

1 welcome to. It's a public document that supports  
2 transparency and public input.

3 MR. JONES: We have been reviewing the Pit River  
4 IRWM. Are you familiar with that?

5 MR. BARNES: No, sir, I'm not. What does IRWM  
6 stand for?

7 MR. KNOX: Integrated Regional Water Management  
8 Program.

9 MR. BARNES: Okay. I believe that's administered  
10 by the Regional Water Quality Control Board.

11 MR. KNOX: Correct.

12 AUDIENCE MEMBER: And DWR.

13 MR. JONES: And DWR, right.

14 How is this project interrelated with that effort?

15 MR. BARNES: It's not.

16 MR. JONES: It totally stands alone?

17 MR. BARNES: Yes, sir.

18 MR. KNOX: Don Knox.

19 Who determined that those crayfish down there in  
20 that -- and the thing has been there since the starting of  
21 time has decreased, where did they -- what's their evidence  
22 of it?

23 MR. BARNES: Um, I believe it was determined by  
24 both -- well, since they're both listed -- listed under both  
25 the California and Federal Endangered Species Act, there is 19



1 probably both the United States Fish and Wildlife Service  
2 and the California Department of Fish and Wildlife through  
3 their surveys for the Shasta crayfish saw a decline in the  
4 populations. And the drop off became so precipitous that  
5 they decided to list them as endangered.

6 MR. KNOX: Tell me if Davis was -- University of  
7 California at Davis, the science department down there was  
8 involved in that?

9 MR. BARNES: I do not believe -- that's something  
10 we can look into and address. I don't -- I don't have that  
11 information available right now.

12 MR. JONES: If -- Ross Jones.

13 If flushing is reduced or minimalized --

14 MR. BARNES: Uh-huh.

15 MR. JONES: -- what's the impact on millifoil?

16 THE REPORTER: Excuse me?

17 MR. KNOX: Millifoil.

18 MR. BARNES: I can't answer that question right  
19 now because we haven't actually analyzed the Project yet.  
20 This is the beginning of the CEQA process, so these answers  
21 will come -- these questions will be answered hopefully  
22 through that process. That will be something that has to be  
23 determined through the CEQA process.

24 MR. JONES: That's exactly why I'm raising the  
25 question to make sure that it happens.

1           MR. BARNES:    Okay.  Well, maybe we should move on  
2 to the comment period and you guys can start submitting  
3 comments regarding what you would like to see in such a CEQA  
4 document.

5           Have you guys all submitted your cards to Shruti?

6           MR. KNOX:     I have.

7           MS. RAMAKER:  I have two.  Does anybody else wish  
8 to comment?

9           MR. CHANDLER:  Just a comment in general.  You  
10 got to understand you're awfully young.  These people have  
11 been through the spotted owl crap, the marble murrelet, the  
12 snail darter, the desert tortoise, all this crap, and it  
13 was -- it involved a -- in other words, it had the end, the  
14 end was to destroy custom, culture and the economy, that's  
15 all it's done.  It started back in the 70s, and it's gone  
16 through.  Highly suspicious of any of this stuff, especially  
17 U.S. Fish and Wildlife.

18          MR. BARNES:  And I understand.  But this is an  
19 action -- this action will be taken, so it's going to go  
20 through the CEQA process, and impacts to all of those will  
21 be assessed and evaluated and mitigated.

22          MR. CHANDLER:  Where is the California Fish and  
23 Game's biological section, how come they didn't do these  
24 studies?  That's what we're paying for.

25          MR. BARNES:  I can't answer that.  I am a

1 representative of the Start Water Board, so...

2 MR. CHANDLER: Somebody needs to yank their chain,  
3 because they should have all of this information, all of  
4 it, this is their bailiwick, this is their area, and that's  
5 what ought to be happening.

6 MR. BARNES: Well, I appreciate your comment.

7 MR. CHANDLER: Okay.

8 MR. BARNES: So who do we have submitting  
9 comments first?

10 MS. RAMAKER: We have Doug Knox.

11 MR. KNOX: Yeah, I got a lot of comment, but you  
12 don't want to hear them because I know what's going on.  
13 Why don't you go first.

14

15 PUBLIC COMMENT PRESENTED BY ROSS JONES

16 ---o0o---

17 MR. JONES: Ross Jones.

18 I have been in this valley for a little over 20  
19 years. Been associated with agriculture most of that time.  
20 We see the State of California reaching for our water  
21 rights. The creation of an endangered species, which is  
22 exactly what's happening right now on the Pit River, is --  
23 is an attempt to usurp our given rights. I feel that this  
24 is a scam. It's a waste of money. PG&E has been forced to  
25 pay for this, which means that we're paying for it. And it

1 is totally inappropriate.

2 That's my comment.

3 ---o0o---

4 MR. BARNES: Thank you.

5 I believe we have Doug Knox is the only other one.

6 MR. KNOX: Let somebody go. Let me think about  
7 this. I want to give it to you but can I pass it up to  
8 somebody else.

9 MR. BARNES: Is there anybody else who wishes to  
10 submit verbal comments at this time?

11 MR. KNOX: Am I the last one?

12 MR. BARNES: I think so.

13 MR. KNOX: Yeah, here I go. You got your seatbelt  
14 on?

15 MR. BARNES: I'm strapped in.

16

17 PUBLIC COMMENT PRESENT BY DOUG KNOX

18 ---o0o---

19 MR. KNOX: The Modoc Independent Tea Party has  
20 been studying this Pit River IRWM for some time, okay. We  
21 know the shakers and the makers in it. We know that they --  
22 that the water in Siskiyou County they want to take and get  
23 that -- the dams out, which will run the landowners out. We  
24 know that the basketful of -- in the science lab in Davis  
25 like Mr. Jeffers, Sari Arnel (phonetic spelling), Chad

1 Henson, Mr. -- Dr. Peter Moyle, who tried to run me and my  
2 wife in out of business in Sacramento County on a fish farm  
3 in the early 80s, they're all come -- they want to take this  
4 water.

5           You know what sustained development is,  
6 comprehensive planning, smart growth, smart meters, they  
7 call it Agenda 21. We know what they want. We know that  
8 the Department of Water Resources man, Mr. Gary Bardini,  
9 spoke in Lake Tahoe on the 17th and 18th of July last year  
10 at Kings Beach in California where he was sitting right next  
11 to Mr. Jim Branham of the Sierra Nevada Conservancy, and  
12 Mr. Gary Bardini informed 85 people in there that the  
13 information in the Pit River came from the United Nations  
14 and went to the feds. They didn't know what to do with it.  
15 They passed it off to the state. How do I know that,  
16 because we undermined it and we had people in that meeting  
17 to find out what they were doing. We have an audio of it.  
18 So Mr. Bardini can squeal like a pig all day long, but we  
19 know what they're up to.

20           Any time you want to come up here for an  
21 endangered species, our message to you people is get the  
22 hell out of town and go back to Sacramento.

23           Thank you.

24    ---o0o---

25           MR. BARNES: Thank you. Appreciate your

1 comments.

2 Is there anybody else who wishes to submit  
3 comments?

4 MR. JONES: No, I just want to throw my hat in  
5 with Doug. This is a -- simply a water grab.

6 MR. KNOX: That's all it is.

7 MR. JONES: And we just are fed up with it.

8 MR. KNOX: We're so fed up with it that our Tea  
9 Party up there in Modoc County, we got that radio program  
10 every Saturday at 12 noon on KCFJ 570 AM for 30 minutes.  
11 We're going to rout the people out, we know who they are.

12 We know that Katie Burdick, who was -- is the head  
13 of this IRWM facilitator -- (Reporter interrupts)  
14 Katie Burdick, she was the facilitator of the Pit River  
15 IRWM. Gary Bardini, the State Department of Water  
16 Resources, he is the manager of all the IRWMs up and down  
17 the Sierras, okay. We know that. We know what their plan  
18 is, and we're going to fight them. Yes, we're not going to  
19 -- and Katie Burdick was in that meeting down there on July  
20 17th and 18th when Bardini told Jim -- Jim Branham of the  
21 Sierra Nevada Conservancy that this came from the United  
22 Nations. We know what they're in for. We got the  
23 recordings of it. He said they ought to take all the state  
24 agencies and actually promote all this IRW crap to the  
25 people and get them all in pontoons so they can pass. Well, 25

1 they made one mistake. The people up here in Shasta County,  
2 and Modoc County --

3 MR. JONES: Siskiyou County.

4 MR. KNOX: -- and Siskiyou County, my friends up  
5 there that's up there, they're going to fight for their  
6 land. We're not going to give up because we know what you  
7 people are up to.

8 Anybody that will take and shut off water because  
9 of a two inch minnow, a delta smelt, now what can take that  
10 down there in the delta. Any bass that's in that water, any  
11 blue gill, crappie, snake, diver ducks, mergansers,  
12 cormorants on the East Coast, they're known as water  
13 turkeys, they're all around here. They'll clean out a pond.

14 But anybody that will shut the water off to over  
15 850,000 acres of ranch land, farm land in the San Joaquin  
16 Valley, they're not environmentalists, they're domestic  
17 terrorists, and we're going to fight 'em. We'll tell you  
18 right on the radio, we don't call those people  
19 environmentalists, we call them domestic terrorists, that's  
20 what the hell they are.

21 MR. BARNES: Well, thank you. We appreciate your  
22 comments.

23 MR. KNOX: Oh, I bet you do.

24 MR. BARNES: I would just like to reiterate that  
25 we will still be accepting written comments if you have any

1 additional comments in the future until noon on June 24th,  
2 2013, so... and also my card is on the table. If you have  
3 any questions feel free to contact me, it's got my email  
4 address and work phone number.

5 MR. KNOX: Don Knox.

6 You know there's more endangered species in this  
7 Pit River than just that one, that Shasta crayfish that  
8 you're talking about.

9 MR. BARNES: Yeah.

10 MR. KNOX: That was in the little brochure that  
11 they put out, the Shasta crayfish, the sculpin, the sucker,  
12 the western pond turtle. Oh, yeah. But the farmers and  
13 ranchers are going to wake up, because what they're going to  
14 have to do is fence off the whole Pit River all the way up  
15 to keep their cattle out of it.

16 And now the California Department of Fish and  
17 Wildlife, they want to put the salmon in above Shasta. What  
18 are we going to have, another KBRA up here for Christ's  
19 sakes.

20 MR. JONES: Watch your language.

21 MR. KNOX: Okay. I apologize. I get upset.

22 But people want to take my friend's land on  
23 something -- and they'll put a crayfish over you as a human  
24 being, whatever, that's a God's sin. Every farmer and  
25 rancher is the creators and they take care of this land up



1 here. And you want to run them off the land. Why? Because  
2 it's called the California Wildlands Project.

3 MR. BARNES: I understand.

4 MR. KNOX: You know what I'm talking, Agenda 21?

5 MR. BARNES: Yes, I've heard of Agenda 21.

6 MR. KNOX: Uh-huh.

7 MR. BARNES: But this has nothing to do with it.

8 MR. KNOX: Oh, yes, it does. Oh, it's a back  
9 door.

10 MR. JONES: Ross Jones.

11 Ignorance is bliss.

12 MR. BARNES: Well, I appreciate you all showing  
13 up here this evening and submitting your comments. Like I  
14 said before, we'll be accepting written comments until June  
15 24th at noon, so...

16 MR. CHANDLER: Understand something else. Just a  
17 few people are here representing hundreds of people.

18 MR. BARNES: I -- I understand that.

19 MR. CHANDLER: This is just a small crowd. But  
20 he talks to thousands of people every weekend. We're just  
21 an offshoot from the main Tea Party group down in Redding.  
22 They know what's going on.

23 MR. KNOX: The radio -- the radio program that I  
24 got is on for 30 minutes, it's an AM. It goes all the way  
25 up into Burns, Oregon.

1 MR. BARNES: Uh-huh.

2 MR. KNOX: It goes south to Carson City, Nevada.  
3 It goes west to Yreka. Northwest to Doris into Oregon. And  
4 also it goes I don't know how far into Nevada.

5 Also I am a strong supporter for the Rural  
6 Sheriffs of the Sheriffs Supporting Rural America. Yes.

7 MR. BARNES: Appreciate you all coming out here  
8 tonight. Thank you for your time.

9 MR. KNOX: We will put this on the -- on the  
10 radio on Saturday. We're going to -- we're going to --  
11 we're going to make you people famous in the Intermountain  
12 area down here. It's not personal.

13 MR. BARNES: I understand.

14 MR. KNOX: When you want to cut my throat I'm  
15 going to come back any way I can. Okay.

16 MR. BARNES: Yes, sir.

17 MR. KNOX: Pure, plain and simple.

18 And -- and you don't need to go to a dictionary to  
19 decipher just what the hell I said.

20 (The proceedings were adjourned at 6:44 p.m.)

21

22

23

24

25

1 STATE OF CALIFORNIA )  
2 COUNTY OF SHASTA ) SS.

3

4

5

6 I, CHERYL K. SMITH, Certified Shorthand Reporter,  
7 do hereby certify:

8

9 That I acted as such Shorthand Reporter in the  
10 above-entitled matter; that I took down in shorthand notes  
11 the proceedings given and had at said time and place;

12

13 That I thereupon caused my stenographic notes to  
14 be transcribed by computer-assisted transcribing, and that  
15 the foregoing 29 pages constitute a full, true and correct  
16 transcript thereof.

17

18 DATED: June 22, 2013.

19

20

21

22

23

24

25

---

CHERYL K. SMITH, CSR 5257

	<b>5:21</b> <b>alone (1)</b> 19:16	<b>AUDIENCE (7)</b> 4:3,17,23;11:20,24; 15:20;19:12	<b>5:7;16:17;20:20</b> <b>belief (1)</b> 7:23	<b>27:16;28:2</b> <b>California's (3)</b> 5:20;6:2;18:10
<b>A</b>	<b>ALONG (1)</b> 5:1	<b>audio (1)</b> 24:17	<b>beneficial (1)</b> 6:3	<b>call (5)</b> 3:23;13:4;24:7; 26:18,19
<b>above (1)</b> 27:17	<b>alternatives (3)</b> 8:22;9:6,8	<b>August (1)</b> 6:22	<b>benefit (1)</b> 5:21	<b>called (2)</b> 13:4;28:2
<b>abundance (1)</b> 8:6	<b>although (1)</b> 8:4	<b>authority (1)</b> 5:25	<b>bet (1)</b> 26:23	<b>came (3)</b> 15:3;24:13;25:21
<b>accepting (2)</b> 26:25;28:14	<b>Alturas (1)</b> 4:19	<b>available (4)</b> 9:23,24;16:19; 20:11	<b>bigger (1)</b> 15:7	<b>can (16)</b> 3:24;4:10;5:23; 10:1,6;11:1;14:5,21; 18:1;20:10;21:2;23:7; 24:18;25:25;26:9; 29:15
<b>achieve (1)</b> 12:8	<b>amend (2)</b> 5:13;7:17	<b>avoid (1)</b> 8:20	<b>bill (1)</b> 11:25	<b>card (2)</b> 3:17;27:2
<b>acres (1)</b> 26:15	<b>AMENDMENT (4)</b> 3:2,10;8:2,10	<b>aware (1)</b> 16:10	<b>biological (1)</b> 21:23	<b>Cardno (6)</b> 9:13,14,16;11:10, 13,22
<b>across (1)</b> 4:9	<b>America (1)</b> 29:6	<b>awfully (1)</b> 21:10	<b>biologist (1)</b> 16:9	<b>C-A-R-D-N-O (1)</b> 11:22
<b>Act (6)</b> 3:12;7:15;8:3,9; 18:8;19:25	<b>amount (1)</b> 3:18	<b>B</b>	<b>blaming (1)</b> 16:6	<b>cards (2)</b> 3:16;21:5
<b>action (4)</b> 8:1,11;21:19,19	<b>analyzed (1)</b> 20:19	<b>back (5)</b> 3:14;21:15;24:22; 28:8;29:15	<b>bliss (1)</b> 28:11	<b>care (2)</b> 15:16;27:25
<b>actions (1)</b> 18:11	<b>Anges (1)</b> 11:16	<b>background (2)</b> 5:11,16	<b>blue (1)</b> 26:11	<b>Carson (1)</b> 29:2
<b>activities (1)</b> 8:19	<b>answered (1)</b> 20:21	<b>bailiwick (1)</b> 22:4	<b>Board (21)</b> 3:8;5:18,25;6:2,7; 7:6,8,17;8:2,5,12,13; 9:3,9,12,16;10:6,9; 18:18;19:10;22:1	<b>category (1)</b> 10:10
<b>actually (4)</b> 13:10;14:14;20:19; 25:24	<b>apologize (1)</b> 27:21	<b>balances (1)</b> 6:3	<b>Board's (4)</b> 5:12,15;7:25;8:15	<b>cattle (1)</b> 27:15
<b>Additional (2)</b> 9:25;27:1	<b>appear (1)</b> 17:17	<b>Barbara (1)</b> 11:16	<b>both (5)</b> 7:14;19:24,24,24; 20:1	<b>causing (1)</b> 13:22
<b>address (4)</b> 10:9;14:5;20:10; 27:4	<b>appreciate (5)</b> 22:6;24:25;26:21; 28:12;29:7	<b>Bardini (5)</b> 24:8,12,18;25:15, 20	<b>boundaries (1)</b> 13:11	<b>caution (1)</b> 8:6
<b>addresses (1)</b> 4:23	<b>approval (1)</b> 8:23	<b>BARNES (70)</b> 3:6,7,4;1,5,8,15,20; 5:4;10:20;11:10,22; 12:1,5,9,23;13:1,3,9, 17;14:1,3,10,13,17, 21;15:2,5,9,11,14,17; 16:1,8,17;17:11,20; 18:1,7,17,21;19:5,9, 15,17,23;20:9,14,18; 21:1,18,25;22:6,8; 23:4,9,12,15;24:25; 26:21,24;27:9;28:3,5, 7,12,18;29:1,7,13,16	<b>box (3)</b> 10:11;13:8,10	<b>CEQA (26)</b> 3:11;5:14,16;7:25; 8:7,9,13,14,15,17,18, 18;9:2,11,18;12:13, 15;18:5,7,12,15,19; 20:20,23;21:3,20
<b>adjoined (1)</b> 29:20	<b>aquaculture (1)</b> 15:22	<b>base (1)</b> 7:20	<b>brochure (1)</b> 27:10	<b>CERTIFICATION (13)</b> 3:2,10;5:13,14; 6:10,15,17,23;7:18; 8:1,10;10:1,11
<b>administered (1)</b> 19:9	<b>aquatic (3)</b> 6:24;7:2,21	<b>based (2)</b> 7:19;9:10	<b>Branham (2)</b> 24:11;25:20	<b>Certifications (1)</b> 10:6
<b>adopts (1)</b> 9:9	<b>area (5)</b> 13:2,18;16:24;22:4; 29:12	<b>Basically (1)</b> 12:13	<b>breed (1)</b> 15:6	<b>Chad (1)</b> 23:25
<b>affect (1)</b> 15:13	<b>areas (1)</b> 16:22	<b>basketful (1)</b> 23:24	<b>bring (1)</b> 13:20	<b>chain (1)</b> 22:2
<b>affected (2)</b> 15:6,14	<b>Arnel (1)</b> 23:25	<b>bass (1)</b> 26:10	<b>brochure (1)</b> 27:10	<b>CHANDLER (18)</b> 14:20,20,23;15:4,8, 10,12,16,18;17:19,23; 18:3;21:9,22;22:2,7; 28:16,19
<b>again (1)</b> 13:13	<b>around (2)</b> 13:25;26:13	<b>Beach (1)</b> 24:10	<b>Burdick (3)</b> 25:12,14,19	<b>C-H-A-N-D-L-E-R (1)</b> 14:23
<b>agencies (3)</b> 18:19,20;25:24	<b>arrive (1)</b> 17:18	<b>became (1)</b> 20:4	<b>Burns (1)</b> 28:25	<b>choose (1)</b> 18:24
<b>agency (4)</b> 8:12,23;18:11,18	<b>assess (1)</b> 18:12	<b>beginning (3)</b>	<b>business (1)</b> 24:2	<b>Christ's (1)</b>
<b>Agenda (3)</b> 24:7;28:4,5	<b>assessed (2)</b> 12:13;21:21		<b>button (1)</b> 10:12	
<b>aggressive (1)</b> 15:7	<b>assesses (1)</b> 12:14		<b>Bypass (2)</b> 13:4,17	
<b>agree (1)</b> 18:15	<b>assessing (1)</b> 12:18		<b>C</b>	
<b>agriculture (1)</b> 22:19	<b>associated (1)</b> 22:19		<b>California (18)</b> 3:11;7:14;8:3,9; 11:15,17;15:23;18:8, 21,22;19:25;20:2,7; 21:22;22:20;24:10;	
<b>aims (1)</b> 6:7	<b>assuming (1)</b> 18:5			
<b>akin (1)</b> 14:11	<b>attempt (1)</b> 22:23			
<b>allocation (1)</b>				

27:18 <b>City (1)</b> 29:2 <b>clean (1)</b> 26:13 <b>click (1)</b> 10:12 <b>Coast (1)</b> 26:12 <b>coming (2)</b> 16:18;29:7 <b>comment (13)</b> 9:22;10:16;12:3; 17:20,21;21:2,8,9; 22:6,11,15;23:2,17 <b>comments (22)</b> 3:17,18,21;4:9;5:5; 9:19;10:21,25;11:3; 14:6;16:21;18:25; 21:3;22:9;23:10;25:1, 3;26:22,25;27:1; 28:13,14 <b>Commission (2)</b> 6:12,14 <b>company (2)</b> 11:14,20 <b>compensated (1)</b> 9:17 <b>compiling (1)</b> 12:18 <b>complained (1)</b> 13:15 <b>complaint (1)</b> 13:16 <b>completed (1)</b> 8:8 <b>comply (1)</b> 8:3 <b>comprehensive (1)</b> 24:6 <b>concern (1)</b> 14:15 <b>concerned (1)</b> 15:1 <b>concerns (3)</b> 7:11;12:12;16:22 <b>conclusion (1)</b> 17:18 <b>Concord (1)</b> 11:16 <b>Condition (2)</b> 6:18;7:1 <b>conditions (2)</b> 6:16;7:18 <b>consecutive (1)</b> 6:20 <b>Conservancy (2)</b> 24:11;25:21 <b>considered (1)</b> 15:8 <b>construction (1)</b> 14:2 <b>consultants (1)</b>	3:14 <b>consulting (2)</b> 9:14;11:11 <b>contact (1)</b> 27:3 <b>contributing (2)</b> 7:11,23 <b>Control (4)</b> 3:8;6:23;10:9; 19:10 <b>controlling (2)</b> 7:2,21 <b>cooling (1)</b> 15:12 <b>coordination (1)</b> 8:24 <b>cormorants (2)</b> 16:3;26:12 <b>County (8)</b> 16:6;23:22;24:2; 25:9;26:1,2,3,4 <b>Court (3)</b> 4:12,23;10:18 <b>crap (3)</b> 21:11,12;25:24 <b>crappie (1)</b> 26:11 <b>cray (1)</b> 17:1 <b>crayfish (29)</b> 7:12,12,13,24; 13:18,19,22,24;14:5, 11,13,18;15:2,6,15, 25;16:6,11,12;17:1,7, 9,25;18:4;19:19;20:3; 27:7,11,23 <b>creation (1)</b> 22:21 <b>creators (1)</b> 27:25 <b>crowd (1)</b> 28:19 <b>crux (1)</b> 13:16 <b>cubic (1)</b> 7:20 <b>culture (1)</b> 21:14 <b>custom (1)</b> 21:14 <b>cut (1)</b> 29:14	<b>Davis (3)</b> 20:6,7;23:24 <b>day (1)</b> 24:18 <b>days (1)</b> 6:20 <b>December (1)</b> 6:11 <b>decided (3)</b> 9:3;12:7;20:5 <b>decipher (1)</b> 29:19 <b>decisions (1)</b> 5:7 <b>decline (6)</b> 7:12,24;13:22;18:3, 4;20:3 <b>declining (1)</b> 17:12 <b>decreased (1)</b> 19:21 <b>definitely (1)</b> 18:2 <b>delta (2)</b> 26:9,10 <b>Department (7)</b> 18:21,23;20:2,7; 24:8;25:15;27:16 <b>depending (1)</b> 3:18 <b>describe (2)</b> 5:16;10:17 <b>desert (1)</b> 21:12 <b>designed (2)</b> 9:4;17:18 <b>destroy (1)</b> 21:14 <b>determine (1)</b> 8:13 <b>determined (4)</b> 9:9;19:19,23;20:23 <b>develop (1)</b> 9:15 <b>development (2)</b> 9:11;24:5 <b>dictionary (1)</b> 29:18 <b>direction (1)</b> 9:16 <b>disclose (2)</b> 8:18,22 <b>discretionary (1)</b> 8:11 <b>discuss (2)</b> 5:5;16:20 <b>discussing (5)</b> 3:8;6:17;12:21,24; 13:3 <b>diver (1)</b> 26:11 <b>document (7)</b> 8:14,15,18;11:8;	16:25;19:1;21:4 <b>documents (5)</b> 9:11,15;18:19,24, 25 <b>domestic (2)</b> 26:16,19 <b>Don (6)</b> 11:6;12:20;15:21; 16:13;19:18;27:5 <b>done (2)</b> 12:16;21:15 <b>door (1)</b> 28:9 <b>Doris (1)</b> 29:3 <b>doubt (1)</b> 15:4 <b>Doug (5)</b> 4:16;22:10;23:5,17; 25:5 <b>down (11)</b> 4:6;10:2;13:6; 15:24;19:19;20:7; 25:16,19;26:10; 28:21;29:12 <b>Dr (1)</b> 24:1 <b>draft (1)</b> 9:21 <b>drop (1)</b> 20:4 <b>ducks (1)</b> 26:11 <b>due (2)</b> 7:11;9:20 <b>duties (1)</b> 10:18 <b>DWR (2)</b> 19:12,13	8:10 <b>else (5)</b> 21:7;23:8,9;25:2; 28:16 <b>em (1)</b> 26:17 <b>email (2)</b> 10:9;27:3 <b>emails (1)</b> 10:7 <b>end (4)</b> 10:13;12:8;21:13, 14 <b>endangered (13)</b> 7:14,15;8:7;13:18; 14:14;15:25;17:7,9; 19:25;20:5;22:21; 24:21;27:6 <b>Energy (1)</b> 6:12 <b>enforces (1)</b> 6:3 <b>enhance (2)</b> 5:19;8:25 <b>enhancement (1)</b> 6:6 <b>enough (1)</b> 3:20 <b>ensure (1)</b> 5:20 <b>enter (1)</b> 10:9 <b>entered (1)</b> 9:12 <b>entirely (2)</b> 14:4;16:8 <b>ENTRIX (4)</b> 9:13,14;11:10,14 <b>E-N-T-R-I-X (1)</b> 11:23 <b>Environmental (15)</b> 3:12;8:3,19,20,21, 24;9:3,14,15;11:7,10; 16:25;18:8,9,25 <b>environmentalists (2)</b> 26:16,19 <b>especially (2)</b> 15:19;21:16 <b>evaluated (3)</b> 9:6;18:12;21:21 <b>even (1)</b> 17:19 <b>evening (1)</b> 28:13 <b>everybody (1)</b> 3:20 <b>evidence (1)</b> 19:21 <b>exactly (2)</b> 20:24;22:22 <b>excuse (2)</b> 9:14;20:16 <b>exist (1)</b>
	<b>D</b>		<b>E</b>	
	<b>damage (2)</b> 8:20,21 <b>dams (1)</b> 23:23 <b>darther (1)</b> 21:12 <b>data (1)</b> 12:18	<b>deserted (1)</b> 21:14 <b>deserting (1)</b> 3:18 <b>deserve (2)</b> 5:16;10:17 <b>desert (1)</b> 21:12 <b>designed (2)</b> 9:4;17:18 <b>destroy (1)</b> 21:14 <b>determine (1)</b> 8:13 <b>determined (4)</b> 9:9;19:19,23;20:23 <b>develop (1)</b> 9:15 <b>development (2)</b> 9:11;24:5 <b>dictionary (1)</b> 29:18 <b>direction (1)</b> 9:16 <b>disclose (2)</b> 8:18,22 <b>discretionary (1)</b> 8:11 <b>discuss (2)</b> 5:5;16:20 <b>discussing (5)</b> 3:8;6:17;12:21,24; 13:3 <b>diver (1)</b> 26:11 <b>document (7)</b> 8:14,15,18;11:8;	<b>early (1)</b> 24:3 <b>East (1)</b> 26:12 <b>economy (1)</b> 21:14 <b>edible (1)</b> 15:19 <b>effective (1)</b> 7:21 <b>effectiveness (1)</b> 7:2 <b>effects (2)</b> 8:19,24 <b>efficient (1)</b> 5:21 <b>effort (3)</b> 6:23;18:6;19:14 <b>EIR (5)</b> 9:4,4,10,21;11:17 <b>eliminate (1)</b>	

17:2 <b>expert (1)</b> 14:4 <b>explored (1)</b> 16:25	18:22,23;20:1,2; 21:17,22;24:2;27:16 <b>fisherman (1)</b> 15:3 <b>five (2)</b> 7:4,5 <b>flow (2)</b> 7:7,20 <b>flows (12)</b> 6:19,22;7:2,10,11, 22,23;8:4,6,11;13:15, 20 <b>flushing (12)</b> 6:19,22;7:2,7,10,22, 23;8:4,6,11;13:20; 20:13 <b>FOLLOWING (3)</b> 5:2;10:7;12:14 <b>forced (1)</b> 22:24 <b>Forebay (2)</b> 13:5,6 <b>foregone (1)</b> 17:18 <b>Forest (1)</b> 13:14 <b>formerly (1)</b> 18:22 <b>Fort (1)</b> 4:17 <b>Foster (1)</b> 8:24 <b>found (2)</b> 4:6;10:2 <b>free (1)</b> 27:3 <b>Freedom (1)</b> 4:18 <b>friends (1)</b> 26:4 <b>friend's (1)</b> 27:22 <b>frog (3)</b> 14:9,12,15 <b>frogs (1)</b> 14:19 <b>full (1)</b> 10:9 <b>further (1)</b> 11:2 <b>future (4)</b> 5:22;10:4,4;27:1	12:2,11;21:9 <b>generations (1)</b> 5:22 <b>gill (1)</b> 26:11 <b>given (1)</b> 22:23 <b>global (1)</b> 11:14 <b>goal (1)</b> 12:8 <b>God's (1)</b> 27:24 <b>goes (4)</b> 28:24;29:2,3,4 <b>good (1)</b> 4:20 <b>grab (1)</b> 25:5 <b>group (3)</b> 11:7;18:16;28:21 <b>growth (1)</b> 24:6 <b>guys (4)</b> 11:11;18:23;21:2,5	20:21 <b>human (1)</b> 27:23 <b>hundreds (1)</b> 28:17 <b>HYDROELECTRIC (4)</b> 3:1,9;6:11;10:1	<b>Integrated (1)</b> 19:7 <b>intended (1)</b> 5:4 <b>interagency (1)</b> 8:24 <b>Intermountain (1)</b> 29:11 <b>interrelated (1)</b> 19:14 <b>interrupts (1)</b> 25:13 <b>into (6)</b> 9:12;13:20;20:10; 28:25;29:3,4 <b>introduced (1)</b> 15:3 <b>invasive (2)</b> 15:8,11 <b>involved (2)</b> 20:8;21:13 <b>Irrigation (1)</b> 6:4 <b>IRW (1)</b> 25:24 <b>IRWM (5)</b> 19:4,5;23:20;25:13, 15 <b>IRWMs (1)</b> 25:16 <b>issueance (1)</b> 7:5 <b>issued (3)</b> 6:10,14;10:6
<b>F</b>				
<b>facetious (1)</b> 16:14 <b>facilitator (2)</b> 25:13,14 <b>Fall (4)</b> 6:19,24;7:3;13:9 <b>familiar (2)</b> 14:8;19:4 <b>famous (1)</b> 29:11 <b>far (1)</b> 29:4 <b>farm (2)</b> 24:2;26:15 <b>farmer (1)</b> 27:24 <b>farmers (1)</b> 27:12 <b>feasibility (2)</b> 9:8,8 <b>feasible (2)</b> 8:22;18:14 <b>fed (2)</b> 25:7,8 <b>Federal (4)</b> 6:12,13;7:15;19:25 <b>feds (1)</b> 24:14 <b>feel (2)</b> 22:23;27:3 <b>feet (1)</b> 7:20 <b>fence (1)</b> 27:14 <b>FERC (2)</b> 10:5;13:11 <b>few (1)</b> 28:17 <b>fight (3)</b> 25:18;26:5,17 <b>Fill (1)</b> 3:16 <b>final (2)</b> 9:8,10 <b>find (2)</b> 5:23;24:17 <b>findings (1)</b> 9:9 <b>firm (2)</b> 9:14;11:11 <b>first (5)</b> 6:18;10:7,24;22:9, 13 <b>fish (12)</b> 6:5;7:9;13:14;16:2;	<b>flow (2)</b> 7:7,20 <b>flows (12)</b> 6:19,22;7:2,10,11, 22,23;8:4,6,11;13:15, 20 <b>flushing (12)</b> 6:19,22;7:2,7,10,22, 23;8:4,6,11;13:20; 20:13 <b>FOLLOWING (3)</b> 5:2;10:7;12:14 <b>forced (1)</b> 22:24 <b>Forebay (2)</b> 13:5,6 <b>foregone (1)</b> 17:18 <b>Forest (1)</b> 13:14 <b>formerly (1)</b> 18:22 <b>Fort (1)</b> 4:17 <b>Foster (1)</b> 8:24 <b>found (2)</b> 4:6;10:2 <b>free (1)</b> 27:3 <b>Freedom (1)</b> 4:18 <b>friends (1)</b> 26:4 <b>friend's (1)</b> 27:22 <b>frog (3)</b> 14:9,12,15 <b>frogs (1)</b> 14:19 <b>full (1)</b> 10:9 <b>further (1)</b> 11:2 <b>future (4)</b> 5:22;10:4,4;27:1			
	<b>G</b>			
	<b>Game (1)</b> 18:23 <b>Game's (1)</b> 21:23 <b>Gary (3)</b> 24:8,12;25:15 <b>general (6)</b> 5:5;10:14;11:4;	<b>H</b>		
		<b>hand (1)</b> 9:20 <b>handouts (1)</b> 10:3 <b>happening (2)</b> 22:5,22 <b>happens (1)</b> 20:25 <b>Harold (1)</b> 14:20 <b>hat (1)</b> 25:4 <b>head (3)</b> 4:18;18:6;25:12 <b>hear (1)</b> 22:12 <b>heard (1)</b> 28:5 <b>heartier (1)</b> 15:6 <b>hell (3)</b> 24:22;26:20;29:19 <b>Henson (1)</b> 24:1 <b>Here's (1)</b> 5:10 <b>higher (1)</b> 7:20 <b>Highly (1)</b> 21:16 <b>hired (1)</b> 11:17 <b>home (1)</b> 13:18 <b>hopefully (1)</b>		
			<b>I</b>	
			<b>idea (1)</b> 12:12 <b>Identify (2)</b> 8:20;9:4 <b>Ignorance (1)</b> 28:11 <b>Impact (2)</b> 9:3;20:15 <b>impacting (3)</b> 13:23;14:17;16:11 <b>impacts (7)</b> 9:5,6;12:14,18; 18:13,13;21:20 <b>implementation (1)</b> 8:21 <b>implemented (1)</b> 18:11 <b>inappropriate (1)</b> 23:1 <b>inch (1)</b> 26:9 <b>incidental (1)</b> 8:4 <b>including (1)</b> 6:4 <b>incorporating (1)</b> 6:14 <b>increase (1)</b> 17:24 <b>independent (2)</b> 8:16;23:19 <b>indicate (1)</b> 7:19 <b>industrial (1)</b> 6:5 <b>influx (1)</b> 13:20 <b>influxes (1)</b> 15:15 <b>information (8)</b> 5:23;9:25;12:11; 16:15,18;20:11;22:3; 24:13 <b>informed (1)</b> 24:12 <b>initial (1)</b> 7:4 <b>input (4)</b> 5:16;9:18,19;19:2 <b>instead (1)</b> 16:6 <b>instructions (1)</b> 10:7	
				<b>J</b>
				<b>Jeffers (1)</b> 23:25 <b>Jim (3)</b> 24:11;25:20,20 <b>Joaquin (1)</b> 26:15 <b>joint (1)</b> 5:25 <b>JONES (30)</b> 12:4,6,6;13:13,13, 24;14:2,8,11;17:16, 16;18:5,15,20;19:3, 13,16;20:12,12,15,24; 22:15,17,17;25:4,7; 26:3;27:20;28:10,10 <b>joint (1)</b> 8:16 <b>July (3)</b> 6:21;24:9;25:19 <b>June (6)</b> 3:3;6:21;7:16;9:21; 27:1;28:14
				<b>K</b>
				<b>Katie (3)</b>

25:12,14,19 <b>KBRA (1)</b> 27:18 <b>KCFJ (2)</b> 4:19;25:10 <b>keep (1)</b> 27:15 <b>kind (2)</b> 10:2;12:9 <b>Kings (1)</b> 24:10 <b>known (2)</b> 18:22;26:12 <b>KNOX (54)</b> 3:23;4:6,14,16,16, 17,18,21;11:6,6; 12:20,20,24;13:2,12; 14:16;15:21,21;16:2, 13,14;17:3,13;19:7, 11,18,18;20:6,17; 21:6;22:10,11;23:5,6, 11,13,17,19;25:6,8; 26:4,23;27:5,5,10,21; 28:4,6,8,23;29:2,9,14, 17 <b>K-N-O-X (1)</b> 4:16	3:18,22 <b>limited (1)</b> 6:4 <b>list (1)</b> 20:5 <b>listed (3)</b> 7:14;19:24,24 <b>literature (1)</b> 12:17 <b>little (2)</b> 22:18;27:10 <b>located (1)</b> 11:9 <b>long (4)</b> 10:2;13:24;14:1; 24:18 <b>longer (1)</b> 17:4 <b>look (3)</b> 16:23;18:1;20:10 <b>looking (1)</b> 18:2 <b>Los (1)</b> 11:16 <b>lot (1)</b> 22:11 <b>Louisiana (1)</b> 15:4 <b>love (1)</b> 17:24	17:14;22:25 <b>measures (1)</b> 9:5 <b>meet (1)</b> 9:7 <b>MEETING (6)</b> 3:1,10,15;5:4; 24:16;25:19 <b>MEMBER (6)</b> 4:3,17;11:20,24; 15:20;19:12 <b>Memorandum (1)</b> 9:12 <b>mentioned (1)</b> 13:14 <b>mergansers (2)</b> 16:4;26:11 <b>message (1)</b> 24:21 <b>meters (1)</b> 24:6 <b>middle (1)</b> 15:23 <b>might (4)</b> 5:6;13:21,22;16:22 <b>millifol (2)</b> 20:15,17 <b>minimalized (1)</b> 20:13 <b>minnow (1)</b> 26:9 <b>minutes (4)</b> 3:25;4:19;25:10; 28:24 <b>Mission (2)</b> 5:12,18 <b>mistake (1)</b> 26:1 <b>mitigate (1)</b> 18:13 <b>mitigated (1)</b> 21:21 <b>mitigation (2)</b> 8:22;9:5 <b>modify (2)</b> 7:6;8:11 <b>Modoc (3)</b> 23:19;25:9;26:2 <b>money (1)</b> 22:24 <b>Monheit (5)</b> 3:13;4:12;10:17; 13:8;16:24 <b>monitor (1)</b> 7:1 <b>monitoring (4)</b> 7:4,6,7,19 <b>more (8)</b> 5:23;7:20;14:17; 15:7;16:18;17:21; 18:25;27:6 <b>mosquito (3)</b> 6:24;7:3,21	<b>Most (2)</b> 12:16;22:19 <b>MOU (1)</b> 9:13 <b>move (2)</b> 12:3;21:1 <b>Moyle (1)</b> 24:1 <b>much (2)</b> 4:1;15:15 <b>municipal (1)</b> 6:5 <b>murrelet (1)</b> 21:11 <b>must (3)</b> 8:2,15;18:12	3:19;27:4
<b>L</b>	<b>M</b>	<b>N</b>	<b>O</b>	
<b>lab (1)</b> 23:24 <b>lack (1)</b> 15:13 <b>Lake (2)</b> 12:25;24:9 <b>land (7)</b> 16:3;26:6,15,15; 27:22,25;28:1 <b>landowners (1)</b> 23:23 <b>language (1)</b> 27:20 <b>last (5)</b> 10:24;11:1;14:21; 23:11;24:9 <b>law (1)</b> 18:7 <b>laws (1)</b> 18:9 <b>lead (3)</b> 3:7;8:13;18:18 <b>learn (1)</b> 16:15 <b>legged (4)</b> 14:9,12,15,19 <b>less (3)</b> 14:17,18;15:16 <b>letter (1)</b> 7:9 <b>license (3)</b> 6:14;7:5;15:22 <b>limit (2)</b>	<b>ma'am (1)</b> 17:3 <b>main (2)</b> 6:16;28:21 <b>mainly (1)</b> 16:19 <b>makers (1)</b> 23:21 <b>making (2)</b> 4:12;5:7 <b>man (1)</b> 24:8 <b>Management (1)</b> 19:7 <b>manager (1)</b> 25:16 <b>many (1)</b> 6:3 <b>marble (1)</b> 21:11 <b>March (1)</b> 6:13 <b>may (6)</b> 3:18;6:21;7:6,8,20; 17:2 <b>maybe (2)</b> 16:11;21:1 <b>mean (3)</b> 17:13,14;18:23 <b>means (2)</b>	<b>name (11)</b> 3:6;4:10,14,16,24; 10:10,24;11:1,21; 12:5;14:21 <b>Nations (2)</b> 24:13;25:22 <b>native (1)</b> 7:13 <b>natural (1)</b> 18:10 <b>necessary (1)</b> 8:14 <b>need (3)</b> 4:1;12:13;29:18 <b>needing (1)</b> 3:21 <b>needs (1)</b> 22:2 <b>negatively (1)</b> 13:23 <b>Nevada (4)</b> 24:11;25:21;29:2,4 <b>new (1)</b> 7:5 <b>next (2)</b> 5:17;24:10 <b>non-indigenous (1)</b> 14:24 <b>non-native (2)</b> 15:11;16:12 <b>noon (5)</b> 4:19;9:21;25:10; 27:1;28:15 <b>Northwest (1)</b> 29:3 <b>noted (1)</b> 17:20 <b>Notice (1)</b> 9:20 <b>noticed (1)</b> 14:24 <b>notices (1)</b> 9:23 <b>number (2)</b>	<b>o0o- (6)</b> 3:5;5:3;22:16;23:3, 18;24:24 <b>objectives (3)</b> 8:17,17;9:7 <b>occur (2)</b> 6:21;12:19 <b>off (7)</b> 15:12;20:4;24:15; 26:8,14;27:14;28:1 <b>offices (1)</b> 11:16 <b>offshoot (1)</b> 28:21 <b>one (6)</b> 3:14;12:4;23:5,11; 26:1;27:7 <b>ones (1)</b> 15:19 <b>online (2)</b> 10:7,23 <b>only (1)</b> 23:5 <b>open (1)</b> 10:14 <b>opportunity (1)</b> 8:5 <b>ORAL (1)</b> 5:2 <b>order (3)</b> 6:1;8:1;12:8 <b>Oregon (2)</b> 28:25;29:3 <b>organization (1)</b> 18:6 <b>Original (1)</b> 5:12 <b>ought (2)</b> 22:5;25:23 <b>out (15)</b> 3:16;4:19;8:6;9:23; 15:18;23:23,23;24:2, 17,22;25:11;26:13; 27:11,15;29:7 <b>outline (1)</b> 5:10 <b>over (10)</b> 3:15;5:11,11,17,25; 11:14,17;22:18; 26:14;27:23 <b>overall (1)</b> 9:7 <b>overseen (1)</b> 18:16 <b>oversees (1)</b> 3:13 <b>owl (1)</b> 21:11	

<p><b>P</b></p> <p><b>part (6)</b> 3:11;6:11,22;10:18; 12:9,21</p> <p><b>participation (1)</b> 8:25</p> <p><b>parts (1)</b> 7:13</p> <p><b>party (4)</b> 9:12;23:19;25:9; 28:21</p> <p><b>pass (2)</b> 23:7;25:25</p> <p><b>passed (1)</b> 24:15</p> <p><b>pay (2)</b> 11:24;22:25</p> <p><b>paying (2)</b> 21:24;22:25</p> <p><b>people (16)</b> 3:19;18:16;21:10; 24:12,16,21;25:11,25; 26:1,7,18;27:22; 28:17,17,20;29:11</p> <p><b>per (2)</b> 6:20;7:20</p> <p><b>period (3)</b> 10:16;12:3;21:2</p> <p><b>personal (1)</b> 29:12</p> <p><b>Peter (2)</b> 3:6;24:1</p> <p><b>PG&amp;E (11)</b> 6:18;7:1,16;8:2,12; 9:13,17;11:8,24;13:5; 22:24</p> <p><b>PG&amp;E's (1)</b> 5:13</p> <p><b>phone (1)</b> 27:4</p> <p><b>phonetic (1)</b> 23:25</p> <p><b>pig (1)</b> 24:18</p> <p><b>PIT (24)</b> 3:1,9;5:12;6:9,10; 7:17;9:25;12:21;13:3, 4,5,6,17;14:2;17:4,5, 6;19:3;22:22;23:20; 24:13;25:14;27:7,14</p> <p><b>place (3)</b> 6:22;15:24;18:9</p> <p><b>places (1)</b> 3:24</p> <p><b>plain (1)</b> 29:17</p> <p><b>plan (1)</b> 25:17</p> <p><b>planning (2)</b> 9:1;24:6</p> <p><b>Please (2)</b></p>	<p>5:8;12:5</p> <p><b>plenty (4)</b> 3:20,23;4:5,8</p> <p><b>plus (1)</b> 7:22</p> <p><b>pm (2)</b> 3:4;29:20</p> <p><b>points (1)</b> 5:9</p> <p><b>Pond (6)</b> 6:19,25;7:3;13:9; 26:13;27:12</p> <p><b>pontoons (1)</b> 25:25</p> <p><b>population (1)</b> 17:24</p> <p><b>populations (1)</b> 20:4</p> <p><b>possibly (1)</b> 16:5</p> <p><b>posted (1)</b> 10:23</p> <p><b>potential (2)</b> 17:1;18:13</p> <p><b>power (1)</b> 6:4</p> <p><b>Powerhouse (2)</b> 13:6,7</p> <p><b>precipitous (1)</b> 20:4</p> <p><b>predators (2)</b> 16:10;17:1</p> <p><b>Preparation (1)</b> 9:20</p> <p><b>prepare (2)</b> 9:3;11:17</p> <p><b>preparing (1)</b> 11:8</p> <p><b>presence (1)</b> 11:15</p> <p><b>present (3)</b> 3:17;5:21;23:17</p> <p><b>PRESENTATION (3)</b> 5:2,10;10:13</p> <p><b>PRESENTED (2)</b> 5:1;22:15</p> <p><b>preservation (1)</b> 6:6</p> <p><b>preserve (1)</b> 5:19</p> <p><b>prevent (2)</b> 6:7;8:21</p> <p><b>Prior (1)</b> 14:2</p> <p><b>probably (4)</b> 11:1;15:3,5;20:1</p> <p><b>proceed (1)</b> 10:15</p> <p><b>proceedings (2)</b> 10:19;29:20</p> <p><b>process (20)</b> 3:11,12;5:6,8,16, 17;6:12;8:7,18;9:1,2,</p>	<p>18;12:10,15;16:18, 19;20:20,22,23;21:20</p> <p><b>production (3)</b> 6:24;7:3,22</p> <p><b>program (4)</b> 7:7;19:8;25:9; 28:23</p> <p><b>PROJECT (28)</b> 3:1,7,8,9,13;6:11, 14;9:2,7;10:1,5,14; 11:5,18;12:12,14; 13:11,18;16:10,20,21, 22;17:2;18:10,17; 19:14;20:19;28:2</p> <p><b>projects (2)</b> 8:23,25</p> <p><b>promote (1)</b> 25:24</p> <p><b>proper (1)</b> 5:20</p> <p><b>proposed (3)</b> 8:19;12:12;16:20</p> <p><b>protect (1)</b> 18:9</p> <p><b>protection (2)</b> 6:2;8:7</p> <p><b>protects (1)</b> 6:3</p> <p><b>provide (3)</b> 6:1,8;4;10:23</p> <p><b>Public (14)</b> 3:10;5:16;8:12,25; 9:18,19,22;10:15; 12:11;16:21;19:1,2; 22:15;23:17</p> <p><b>Pure (1)</b> 29:17</p> <p><b>put (9)</b> 6:22;17:5,5,6;18:9; 27:11,17,23;29:9</p>	<p><b>ranch (1)</b> 26:15</p> <p><b>rancher (1)</b> 27:25</p> <p><b>ranchers (1)</b> 27:13</p> <p><b>rather (1)</b> 17:15</p> <p><b>Reach (4)</b> 13:4,17;16:11;17:2</p> <p><b>reaching (1)</b> 22:20</p> <p><b>ready (1)</b> 12:3</p> <p><b>real (1)</b> 3:15</p> <p><b>really (1)</b> 17:21</p> <p><b>reason (2)</b> 6:9;16:20</p> <p><b>reasons (1)</b> 8:22</p> <p><b>receive (1)</b> 10:4</p> <p><b>received (1)</b> 7:9</p> <p><b>record (3)</b> 4:11,13;10:22</p> <p><b>recordings (1)</b> 25:23</p> <p><b>recreation (1)</b> 6:5</p> <p><b>recreational (1)</b> 8:5</p> <p><b>red (1)</b> 13:10</p> <p><b>Redding (1)</b> 28:21</p> <p><b>reduce (2)</b> 8:20;9:5</p> <p><b>reduced (1)</b> 20:13</p> <p><b>refers (1)</b> 13:10</p> <p><b>regarding (10)</b> 5:6;9:19,25;10:5, 14;11:5;12:11;14:7; 16:21;21:3</p> <p><b>regards (1)</b> 9:7</p> <p><b>region (1)</b> 13:21</p> <p><b>Regional (2)</b> 19:7,10</p> <p><b>Regulatory (2)</b> 6:12,13</p> <p><b>reiterate (1)</b> 26:24</p> <p><b>release (1)</b> 6:18</p> <p><b>released (1)</b> 9:22</p> <p><b>relicensing (1)</b></p>	<p>6:12</p> <p><b>remember (1)</b> 5:8</p> <p><b>remove (1)</b> 7:18</p> <p><b>report (2)</b> 7:6;9:4</p> <p><b>Reporter (4)</b> 4:12,23;20:16; 25:13</p> <p><b>Reporter's (1)</b> 10:18</p> <p><b>represent (1)</b> 8:15</p> <p><b>representative (1)</b> 22:1</p> <p><b>representing (2)</b> 11:13;28:17</p> <p><b>request (4)</b> 5:13;7:16,18;8:2</p> <p><b>requesting (1)</b> 7:10</p> <p><b>required (2)</b> 7:4;12:8</p> <p><b>requirements (1)</b> 8:14</p> <p><b>requires (3)</b> 6:18;7:1;9:19</p> <p><b>requiring (1)</b> 8:21</p> <p><b>research (3)</b> 12:7;14:6;17:17</p> <p><b>resource (1)</b> 18:19</p> <p><b>Resources (6)</b> 3:8;5:20;10:9; 18:10;24:8;25:16</p> <p><b>respect (1)</b> 5:8</p> <p><b>respond (1)</b> 17:21</p> <p><b>restore (1)</b> 5:19</p> <p><b>results (1)</b> 7:19</p> <p><b>review (3)</b> 8:25;9:22;18:24</p> <p><b>reviewing (2)</b> 18:19;19:3</p> <p><b>Right (9)</b> 10:13;13:12;15:20; 19:13;20:11,18; 22:22;24:10;26:18</p> <p><b>rights (5)</b> 6:1;10:10,11;22:21, 23</p> <p><b>River (14)</b> 6:19,24;7:3;12:21; 13:9;17:4,8;19:3; 22:22;23:20;24:13; 25:14;27:7,14</p> <p><b>road (1)</b> 4:6</p>
	<p><b>Q</b></p>	<p><b>QUALITY (20)</b> 3:2,12;5:13,14,19; 6:1,10,15,17,23;7:17; 8:1,3,9,10;10:1,5,11; 18:8;19:10</p> <p><b>quick (1)</b> 3:15</p>		
		<p><b>R</b></p>	<p><b>raccoons (2)</b> 17:23;18:3</p> <p><b>Radio (6)</b> 4:19;25:9;26:18; 28:23,23;29:10</p> <p><b>raising (1)</b> 20:24</p> <p><b>RAMAKER (4)</b> 11:13;13:10;21:7; 22:10</p>	



<p><b>role (2)</b> 5:15;7:25</p> <p><b>Ross (7)</b> 12:6;13:13;17:16; 20:12;22:15,17;28:10</p> <p><b>rout (1)</b> 25:11</p> <p><b>run (3)</b> 23:23;24:1;28:1</p> <p><b>running (1)</b> 17:4</p> <p><b>Rural (2)</b> 29:5,6</p>	<p>15:15,24;16:5,6;17:1; 20:3;26:1;27:7,11,17</p> <p><b>sheet (1)</b> 3:16</p> <p><b>Sheriffs (2)</b> 29:6,6</p> <p><b>SHOW (1)</b> 5:1</p> <p><b>showing (1)</b> 28:12</p> <p><b>Shruti (1)</b> 21:5</p> <p><b>shut (2)</b> 26:8,14</p> <p><b>sic (1)</b> 12:6</p> <p><b>Sierra (2)</b> 24:11;25:21</p> <p><b>Sierras (1)</b> 25:17</p> <p><b>sign (1)</b> 10:6</p> <p><b>signal (2)</b> 15:2;16:12</p> <p><b>significant (4)</b> 8:19,23;9:5,6</p> <p><b>sign-in (1)</b> 3:16</p> <p><b>simple (1)</b> 29:17</p> <p><b>simply (1)</b> 25:5</p> <p><b>sin (1)</b> 27:24</p> <p><b>Siskiyou (3)</b> 23:22;26:3,4</p> <p><b>sitting (1)</b> 24:10</p> <p><b>SLIDE (1)</b> 5:1</p> <p><b>small (1)</b> 28:19</p> <p><b>smart (2)</b> 24:6,6</p> <p><b>smelt (1)</b> 26:9</p> <p><b>S-M-I-T-H (1)</b> 12:6</p> <p><b>snail (1)</b> 21:12</p> <p><b>snake (1)</b> 26:11</p> <p><b>snakes (1)</b> 16:4</p> <p><b>sole (1)</b> 9:15</p> <p><b>somebody (4)</b> 17:8;22:2;23:6,8</p> <p><b>Someone (1)</b> 15:4</p> <p><b>sounds (1)</b> 16:24</p> <p><b>south (1)</b></p>	<p>29:2</p> <p><b>speak (4)</b> 3:19;4:24;10:23; 11:12</p> <p><b>speaker (2)</b> 3:16,17</p> <p><b>speakers (1)</b> 5:8</p> <p><b>Species (10)</b> 7:15;8:7;14:15,25; 16:2;17:11;19:25; 22:21;24:21;27:6</p> <p><b>spell (3)</b> 11:1,20;14:21</p> <p><b>spelling (1)</b> 23:25</p> <p><b>spoke (1)</b> 24:9</p> <p><b>spotted (1)</b> 21:11</p> <p><b>squeal (1)</b> 24:18</p> <p><b>stand (1)</b> 19:6</p> <p><b>stands (1)</b> 19:16</p> <p><b>start (2)</b> 21:2;22:1</p> <p><b>started (2)</b> 3:6;21:15</p> <p><b>starting (2)</b> 17:8;19:20</p> <p><b>State (30)</b> 3:7;4:24;5:12,15, 18,25;6:2,7;7:6,8,17, 25;8:2,5,12,13,15;9:2, 9,11,16;10:6,8;15:22; 18:11,17;22:20; 24:15;25:15,23</p> <p><b>statement (1)</b> 5:19</p> <p><b>States (2)</b> 7:9;20:1</p> <p><b>steps (1)</b> 5:17</p> <p><b>Steve (1)</b> 3:14</p> <p><b>still (1)</b> 26:25</p> <p><b>strapped (1)</b> 23:15</p> <p><b>strong (1)</b> 29:5</p> <p><b>Struti (1)</b> 3:13</p> <p><b>studied (1)</b> 17:23</p> <p><b>studies (2)</b> 12:16;21:24</p> <p><b>studying (1)</b> 23:20</p> <p><b>stuff (1)</b> 21:16</p>	<p><b>submit (5)</b> 3:21;10:20;18:25; 23:10;25:2</p> <p><b>submitted (2)</b> 7:16;21:5</p> <p><b>submitting (5)</b> 10:25;11:2;21:2; 22:8;28:13</p> <p><b>subscribe (1)</b> 10:12</p> <p><b>sucker (1)</b> 27:11</p> <p><b>sudden (1)</b> 17:7</p> <p><b>Sunday (1)</b> 6:20</p> <p><b>Supervisor (1)</b> 3:12</p> <p><b>supply (1)</b> 6:5</p> <p><b>supporter (1)</b> 29:5</p> <p><b>Supporting (1)</b> 29:6</p> <p><b>supports (1)</b> 19:1</p> <p><b>supposed (2)</b> 11:24;16:16</p> <p><b>sure (4)</b> 4:24;14:4;16:9; 20:25</p> <p><b>surveys (1)</b> 20:3</p> <p><b>Susan (1)</b> 3:13</p> <p><b>suspended (1)</b> 8:6</p> <p><b>suspension (1)</b> 7:10</p> <p><b>suspicious (1)</b> 21:16</p> <p><b>sustained (1)</b> 24:5</p>	<p>7:7</p> <p><b>terrorists (2)</b> 26:17,19</p> <p><b>thousands (1)</b> 28:20</p> <p><b>three (3)</b> 3:24;6:20;9:12</p> <p><b>throat (1)</b> 29:14</p> <p><b>throw (1)</b> 25:4</p> <p><b>times (1)</b> 6:20</p> <p><b>today (6)</b> 5:7;6:9,17;10:3; 12:10;16:19</p> <p><b>together (1)</b> 17:5</p> <p><b>told (1)</b> 25:20</p> <p><b>tonight (4)</b> 3:9,22;11:14;29:8</p> <p><b>tortoise (1)</b> 21:12</p> <p><b>totally (2)</b> 19:16;23:1</p> <p><b>town (1)</b> 24:22</p> <p><b>trade (1)</b> 15:18</p> <p><b>transcribing (1)</b> 10:22</p> <p><b>transparency (2)</b> 10:18;19:2</p> <p><b>transparent (1)</b> 9:18</p> <p><b>tried (1)</b> 24:1</p> <p><b>trying (1)</b> 16:14</p> <p><b>Tuesday (1)</b> 3:3</p> <p><b>turkeys (1)</b> 26:13</p> <p><b>turtle (1)</b> 27:12</p> <p><b>turtles (1)</b> 16:4</p> <p><b>two (4)</b> 6:16,19;21:7;26:9</p> <p><b>type (2)</b> 8:14;12:7</p>
<b>S</b>				
<p><b>Sacramento (3)</b> 11:15;24:2,22</p> <p><b>sakes (1)</b> 27:19</p> <p><b>salmon (1)</b> 27:17</p> <p><b>San (1)</b> 26:15</p> <p><b>Santa (1)</b> 11:16</p> <p><b>Sari (1)</b> 23:25</p> <p><b>satisfy (1)</b> 8:14</p> <p><b>Saturday (3)</b> 6:20;25:10;29:10</p> <p><b>saw (1)</b> 20:3</p> <p><b>scam (1)</b> 22:24</p> <p><b>science (2)</b> 20:7;23:24</p> <p><b>SCOPING (3)</b> 3:1,10;12:10</p> <p><b>sculpin (1)</b> 27:11</p> <p><b>seabelt (1)</b> 23:13</p> <p><b>second (1)</b> 7:20</p> <p><b>section (1)</b> 21:23</p> <p><b>select (3)</b> 10:8,10,10</p> <p><b>sent (1)</b> 9:23</p> <p><b>Service (3)</b> 7:10;13:15;20:1</p> <p><b>set (2)</b> 3:18;18:8</p> <p><b>setup (1)</b> 3:15</p> <p><b>shakers (1)</b> 23:21</p> <p><b>Shasta (18)</b> 7:12,12,24;12:25; 13:18,22;14:4,18;</p>	<p><b>Sierra (2)</b> 24:11;25:21</p> <p><b>Sierras (1)</b> 25:17</p> <p><b>sign (1)</b> 10:6</p> <p><b>signal (2)</b> 15:2;16:12</p> <p><b>significant (4)</b> 8:19,23;9:5,6</p> <p><b>sign-in (1)</b> 3:16</p> <p><b>simple (1)</b> 29:17</p> <p><b>simply (1)</b> 25:5</p> <p><b>sin (1)</b> 27:24</p> <p><b>Siskiyou (3)</b> 23:22;26:3,4</p> <p><b>sitting (1)</b> 24:10</p> <p><b>SLIDE (1)</b> 5:1</p> <p><b>small (1)</b> 28:19</p> <p><b>smart (2)</b> 24:6,6</p> <p><b>smelt (1)</b> 26:9</p>	<p><b>submit (5)</b> 3:21;10:20;18:25; 23:10;25:2</p> <p><b>submitted (2)</b> 7:16;21:5</p> <p><b>submitting (5)</b> 10:25;11:2;21:2; 22:8;28:13</p> <p><b>subscribe (1)</b> 10:12</p> <p><b>sucker (1)</b> 27:11</p> <p><b>sudden (1)</b> 17:7</p> <p><b>Sunday (1)</b> 6:20</p> <p><b>Supervisor (1)</b> 3:12</p> <p><b>supply (1)</b> 6:5</p> <p><b>supporter (1)</b> 29:5</p> <p><b>Supporting (1)</b> 29:6</p> <p><b>supports (1)</b> 19:1</p> <p><b>supposed (2)</b> 11:24;16:16</p> <p><b>sure (4)</b> 4:24;14:4;16:9; 20:25</p> <p><b>surveys (1)</b> 20:3</p> <p><b>Susan (1)</b> 3:13</p> <p><b>suspended (1)</b> 8:6</p> <p><b>suspension (1)</b> 7:10</p> <p><b>suspicious (1)</b> 21:16</p> <p><b>sustained (1)</b> 24:5</p>	<p><b>terrorists (2)</b> 26:17,19</p> <p><b>thousands (1)</b> 28:20</p> <p><b>three (3)</b> 3:24;6:20;9:12</p> <p><b>throat (1)</b> 29:14</p> <p><b>throw (1)</b> 25:4</p> <p><b>times (1)</b> 6:20</p> <p><b>today (6)</b> 5:7;6:9,17;10:3; 12:10;16:19</p> <p><b>together (1)</b> 17:5</p> <p><b>told (1)</b> 25:20</p> <p><b>tonight (4)</b> 3:9,22;11:14;29:8</p> <p><b>tortoise (1)</b> 21:12</p> <p><b>totally (2)</b> 19:16;23:1</p> <p><b>town (1)</b> 24:22</p> <p><b>trade (1)</b> 15:18</p> <p><b>transcribing (1)</b> 10:22</p> <p><b>transparency (2)</b> 10:18;19:2</p> <p><b>transparent (1)</b> 9:18</p> <p><b>tried (1)</b> 24:1</p> <p><b>trying (1)</b> 16:14</p> <p><b>Tuesday (1)</b> 3:3</p> <p><b>turkeys (1)</b> 26:13</p> <p><b>turtle (1)</b> 27:12</p> <p><b>turtles (1)</b> 16:4</p> <p><b>two (4)</b> 6:16,19;21:7;26:9</p> <p><b>type (2)</b> 8:14;12:7</p>	
			<b>T</b>	
			<p><b>table (1)</b> 27:2</p> <p><b>Tahoe (1)</b> 24:9</p> <p><b>talk (1)</b> 3:24</p> <p><b>talking (2)</b> 27:8;28:4</p> <p><b>talks (1)</b> 28:20</p> <p><b>Tea (3)</b> 23:19;25:8;28:21</p> <p><b>temperatures (1)</b> 15:15</p> <p><b>temporarily (1)</b> 8:5</p> <p><b>terminate (1)</b></p>	<p><b>Um (2)</b> 16:8;19:23</p> <p><b>under (5)</b> 7:14;9:15;10:10; 18:12;19:24</p> <p><b>undermined (1)</b> 24:16</p> <p><b>United (4)</b></p>
				<b>U</b>

<p>7:9;20:1;24:13; 25:21 <b>University (1)</b> 20:6 <b>unreasonable (1)</b> 6:8 <b>up (22)</b> 10:7,14;12:25;17:9; 23:7;24:19,20;25:7,8, 9,16;26:1,4,5,6,7; 27:13,14,18,25;28:13, 25 <b>updates (2)</b> 10:4,5 <b>upon (2)</b> 3:19;7:19 <b>upset (1)</b> 27:21 <b>use (2)</b> 5:21;6:8 <b>uses (1)</b> 6:3 <b>usurp (1)</b> 22:23</p>	<p>12;16:5,7;17:14; 18:17;19:7,10;22:1, 20;23:22;24:4,8;25:5, 15;26:8,10,12,14 <b>waterboardscagov (1)</b> 5:24 <b>waters (2)</b> 6:2;7:13 <b>way (4)</b> 12:24;27:14;28:24; 29:15 <b>ways (1)</b> 8:20 <b>website (4)</b> 5:23;9:23;10:2,8 <b>weekend (1)</b> 28:20 <b>welcome (1)</b> 19:1 <b>west (1)</b> 29:3 <b>western (1)</b> 27:12 <b>What's (8)</b> 4:10;11:7;12:13; 19:21;20:15;22:12, 22;28:22 <b>whitewater (1)</b> 8:4 <b>whole (1)</b> 27:14 <b>who's (1)</b> 10:24 <b>wife (1)</b> 24:2 <b>Wildlands (1)</b> 28:2 <b>wildlife (8)</b> 6:6;7:9;13:15; 18:22;20:1,2;21:17; 27:17 <b>wish (2)</b> 3:17;21:7 <b>wishes (2)</b> 23:9;25:2 <b>wishing (1)</b> 3:19 <b>words (1)</b> 21:13 <b>work (2)</b> 9:17;27:4 <b>working (1)</b> 16:9 <b>world (2)</b> 11:15;14:25 <b>write (1)</b> 10:2 <b>written (2)</b> 26:25;28:14</p>	<p>22:2 <b>year (3)</b> 6:21;7:5;24:9 <b>years (2)</b> 7:4;22:19 <b>yellow (5)</b> 13:8;14:8,11,14,18 <b>young (1)</b> 21:10 <b>Yreka (1)</b> 29:3</p>	<p>4:19;25:10;28:24 <b>30s (1)</b> 17:6 <b>36 (1)</b> 15:23</p>
<b>V</b>		<b>1</b>	<b>4</b>
<p><b>valid (1)</b> 5:9 <b>valley (2)</b> 22:18;26:16 <b>vegetation (3)</b> 6:24;7:3,21 <b>verbal (3)</b> 3:17,21;23:10 <b>versa (1)</b> 18:4 <b>vice (1)</b> 18:4 <b>view (1)</b> 5:9 <b>Voice (2)</b> 4:18,20</p>		<p><b>1 (14)</b> 3:1,9;5:12;6:9,10; 7:17;9:25;13:3,4,5,6, 17;14:2;17:6 <b>11 (1)</b> 3:3 <b>12 (2)</b> 4:19;25:10 <b>13 (2)</b> 6:18;7:18 <b>14 (2)</b> 7:1,18 <b>14th (1)</b> 7:16 <b>150 (1)</b> 7:20 <b>17th (2)</b> 24:9;25:20 <b>18th (2)</b> 24:9;25:20 <b>1930s (1)</b> 17:6 <b>1988 (1)</b> 7:15 <b>19th (1)</b> 6:13</p>	<p><b>401 (2)</b> 3:2,9 <b>4th (1)</b> 6:11</p>
<b>W</b>		<b>2</b>	<b>5</b>
<p><b>wake (1)</b> 27:13 <b>warm (6)</b> 13:19,20,21;15:6; 16:7;17:14 <b>waste (2)</b> 6:7;22:24 <b>Watch (1)</b> 27:20 <b>WATER (66)</b> 3:2,7,9;5:12,12,14, 15,18,20,25;6:1,1,2,4, 7,8,9,15,16,23;7:6,8, 17,17,25;8:1,2,5,10, 12,13,15;9:3,9,12,16; 10:1,5,6,8,10,11,11; 13:5,19,20,21;15:7,</p>		<p><b>1 (14)</b> 3:1,9;5:12;6:9,10; 7:17;9:25;13:3,4,5,6, 17;14:2;17:6 <b>11 (1)</b> 3:3 <b>12 (2)</b> 4:19;25:10 <b>13 (2)</b> 6:18;7:18 <b>14 (2)</b> 7:1,18 <b>14th (1)</b> 7:16 <b>150 (1)</b> 7:20 <b>17th (2)</b> 24:9;25:20 <b>18th (2)</b> 24:9;25:20 <b>1930s (1)</b> 17:6 <b>1988 (1)</b> 7:15 <b>19th (1)</b> 6:13</p>	<p><b>570 (2)</b> 4:19;25:10</p>
		<b>3</b>	<b>6</b>
			<b>7</b>
			<p><b>70s (2)</b> 15:23;21:15</p>
			<b>8</b>
			<p><b>80s (1)</b> 24:3 <b>85 (1)</b> 24:12 <b>850,000 (1)</b> 26:15</p>
	<b>Y</b>		
<p><b>yank (1)</b></p>			