SHASTA CRAYFISH STUDY PLAN

pursuant to the

California State Water Resources Control Board
Order WQ 2010-0009-Exec

Pit 1 Hydroelectric Project
FERC Project No. 2687

Final

Prepared By:

Pacific Gas and Electric Company™

March 2012

INTRODUCTION

The Federal Energy Regulatory Commission (FERC) issued a new license on 19 March 2003 to Pacific Gas and Electric Company (PG&E) for the continued operation of the Pit 1 Hydroelectric Project, FERC Project No. 2687 (Pit 1 Project). The license incorporates the State Water Resources Control Board (SWRCB) Clean Water Act 401 Water Quality Certificate (401 Certification) issued on 4 December 2001. Pursuant to License Article 401 and SWRCB 401 Certification Condition 13 (Appendix A), PG&E implemented flushing flows for seven years between 2003 and 2009 to control the growth of aquatic vegetation on Fall River Pond. Pursuant to License Article 401 and SWRCB 401 Certification Condition 14 (Appendix A), PG&E monitored surface aquatic vegetation on Fall River Pond from 2005 through 2010, and continues annual monitoring. Monitoring data since 2005 showed that flushing flows were not needed for vegetation control and that the continuous minimum base flows implemented pursuant to SWRCB 401 Certification Condition 8 (Appendix A) have been controlling the nuisance aquatic vegetation in Fall River Pond (PG&E 2010a; 2011).

The Shasta crayfish (*Pacifastacus fortis*) was listed as endangered under the Federal Endangered Species Act (ESA) on 30 September 1988 (53 FR38460-38465) and as endangered under the California Endangered Species Act (CESA) on 26 February 1988. Critical habitat has not been designated for this species.

On 26 May 2009, the United States Fish and Wildlife Service (USFWS) sent a letter to the SWRCB, with a copy to FERC and PG&E, expressing concern regarding a decline in Shasta crayfish in the Pit 1 Bypass Reach and requesting suspension of 2009 flushing flows at PG&E's Pit 1 Project. The letter stated that flushing flows are 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 (PG&E 2009a).

On April 15, 2010, FERC submitted a letter to the SWRCB requesting a temporary suspension of flushing flows for 2010. On 6 July 2010, SWRCB posted their Final Order Approving Temporary Suspension of Flushing Flow Requirements (Order WQ 2010-0009-EXEC, Appendix B), which temporarily suspended flushing flows for 2010 and 2011. On August 10, 2010, FERC issued an order temporarily amending the license and incorporating the amendment to the 401 Certification. SWRCB concluded that there would not be any significant impacts if the requirement for flushing flows is suspended for a limited period, with adequate safeguards to prevent the suspension from becoming permanent except after full compliance with the California Environmental Quality Act (CEQA). SWRCB also concluded that amendment of the 401 Certification to remove the flushing flows requires compliance with the California Environmental Quality Act (CEQA) based on the potential for a significant environmental impact by removing this requirement permanently. The following requirements are included in the SWRCB Order.

IT IS HEREBY ORDERED THAT:

1. *PG&E shall finalize the CEQA MOU within 60 days of issuance of this order.*

2. *PG&E shall continue monitoring the effectiveness of the higher base flows at controlling aquatic vegetation and mosquito production in Fall River Pond during 2010 and 2011 consistent with the procedures in the Flushing Flow Effectiveness Monitoring Plan.*

3. *Within 120 days of issuance of this order, PG&E shall submit a proposed Shasta crayfish study plan to the Deputy Director for Water Rights for modification or approval. The study plan shall be developed in cooperation with appropriate Resource Agencies, including State Water Board Staff. The study shall evaluate the impact of non-native crayfish, changes in Shasta crayfish habitat during flushing flows, the effect of daily peaking flows on Shasta crayfish, and other potential impacts to Shasta crayfish in the Pit 1 Peaking Reach and Bypass Reach. The goal of the study is to develop information on potential impacts of current operations on Shasta crayfish.*

Pursuant to first SWRCB Order requirement, PG&E submitted a draft CEQA MOU to SWRCB on 2 June 2010 for review and comment. On August 30, 2010, the SWRCB e-mailed comments on the draft CEQA MOU to PG&E. The e-mail requested that PG&E utilize a standard selection process for a CEQA document preparation. This process has been completed. PG&E and SWRCB have finalized the CEQA MOU, which has been signed by the contractor and PG&E. If, following their CEQA process, SWRCB reinstates summer flushing flows, Section 7 consultation under the Federal Endangered Species Act (ESA) may be required by the USFWS.

Pursuant to the second requirement of the Order, PG&E continues to monitor the effectiveness of the higher base flows at controlling aquatic vegetation and mosquito production in Fall River Pond during 2010 and 2011 consistent with the procedures in the Flushing Flow Effectiveness Monitoring Plan.

The third requirement of the Order is that PG&E submit a proposed Shasta crayfish study plan to the Deputy Director for Water Rights for modification or approval within 120 days of issuance of this order, which would have been 3 November 2010. This study plan addressed this requirement.

Consultation with appropriate resources agencies was implemented during Shasta Crayfish Technical Review Committee[1] (TRC) meetings on 14 September 2010 and 10 March 2011. SWRCB attended the 10 March 2011 meeting. The potential scope of a proposed Shasta crayfish study was discussed at these meetings.

At the September meeting, members of the TRC and Shasta Crayfish Recovery Team (Recovery Team) indicated that authorization of incidental take related to study implementation would depend on whether additional monitoring provided any benefit to the species. After discussing the goals of the study plan outlined in the SWRCB Order, the members determined that sufficient information was already available to evaluate these study components. The consensus

[1] Pursuant to License Article 410, the TRC was established in April 2003 to assist PG&E in the design and implementation of the terms and conditions of the project's biological opinion for Shasta crayfish. The TRC consists of representatives from USFWS, California Department of Fish and Game (CDFG), California Department of Parks and Recreation (CDPR), Spring Rivers, academia, and PG&E.

of the TRC/Recovery Team was that additional monitoring would not be beneficial to the species or necessary to address the SWRCB study plan goals. The USFWS stated that any disturbance related to additional monitoring would have to be justified as "wholly beneficial for the recovery of the species." Consequently, it was unlikely that additional monitoring would be approved, with the possible exception of additional mapping of the coldwater habitat associated with springs in the Pit 1 Bypass Reach. The TRC/Recovery Team concluded that these data would not benefit Shasta crayfish, because it is already known that summer flushing flows negatively affect Shasta crayfish habitat. Because summer flushing flows result in warmer water releases, these flows reduce coldwater habitat and increase warm habitat, adding stress on the species.

During the 10 March 2011 joint meeting of the TRC and Recovery Team, SWRCB participated in further discussions related to potential scope of a proposed Shasta crayfish study. SWRCB expressed a desire to be able to parse out the detrimental effects of non-native crayfish from the detrimental effects of summer flushing flows on Shasta crayfish habitat. USFWS and other TRC/Recovery Team members replied that the negative effects of summer flows on Shasta crayfish habitat, and the effects of non-native crayfish, which are both competitors and predators of Shasta crayfish (Ellis 1999), are additive and interrelated. In addition to the direct negative effect of the reduction in coldwater habitat, summer flushing flows have an indirect negative effect on Shasta crayfish because they create habitat more favorable to non-native crayfish.

In November 2011, PG&E requested and received concurrence from the TRC/Recovery Team, including California Department of Fish and Game (CDFG) and USFWS, regarding the Shasta crayfish study plan for the CEQA analysis.

GOALS AND OBJECTIVES

The goal of the Shasta Crayfish Study Plan is to develop information on the potential impacts of current operations on Shasta crayfish. The study will review, compile, and analyze existing literature and data to evaluate the impact of non-native crayfish, changes in Shasta crayfish habitat during flushing flows, the effect of daily peaking flows on Shasta crayfish, and other potential impacts to Shasta crayfish in the Pit 1 Peaking Reach and Pit 1 Bypass Reach. In addition, a field study will be undertaken to verify the number, location, and temperature of all

springs in the Pit 1 Bypass Reach and to estimate the amount of potential coldwater refugia habitat created by the springs.

As required by SWRCB Order, the Shasta crayfish study plan was developed in cooperation with the SWQCB, USFWS, CDFG, TRC, and Recovery Team.

SPECIES STATUS

Shasta crayfish, listed as endangered under the ESA and CESA, have been found in four locations in the mainstem Pit River, three upstream and one downstream of the Pit 1 Powerhouse. Two locations are upstream of the approximately 9-meter-high Pit River Falls, which is considered a barrier to non-salmonid fish passage. A third location was associated with a spring located 1.4 miles (2.3 km) downstream of the falls and 0.7 miles (1.1 km) upstream of the Pit 1 Powerhouse tailrace. Only two individuals, both dead, juvenile, male Shasta crayfish, were found at this location fifteen years apart. One was found in 1980 (Rode personal communication 1995), and the other was found in 1995. The fourth location is the only record of Shasta crayfish found downstream of the Pit 1 Powerhouse. Shasta crayfish were found sympatric with non-native northern crayfish downstream of the Highway 299 Bridge in 1978, but were not found at this site or any other location downstream of the Pit 1 Powerhouse in subsequent surveys (Ellis 1999, Spring Rivers 2009).

Recent monitoring results for Shasta crayfish have indicated a substantial, range-wide decline in Shasta crayfish distribution and abundance, including a dramatic decline in the abundance of Shasta crayfish in the Pit 1 Bypass Reach upstream of the Pit River Falls since 2005 (Spring Rivers 2009, PG&E 2009a). Additional studies found that flushing flows cause an abrupt change in water temperatures that may negatively affect crayfish and their habitat in that reach (Spring Rivers 2010).

FIELD STUDY AREA

The field study area is the 7.0-kilometer stretch of the Pit River in the Pit 1 Bypass Reach between Big Eddy and the Pit 1 Powerhouse tailrace, near Fall River Mills in Shasta County, California (Figure 1).

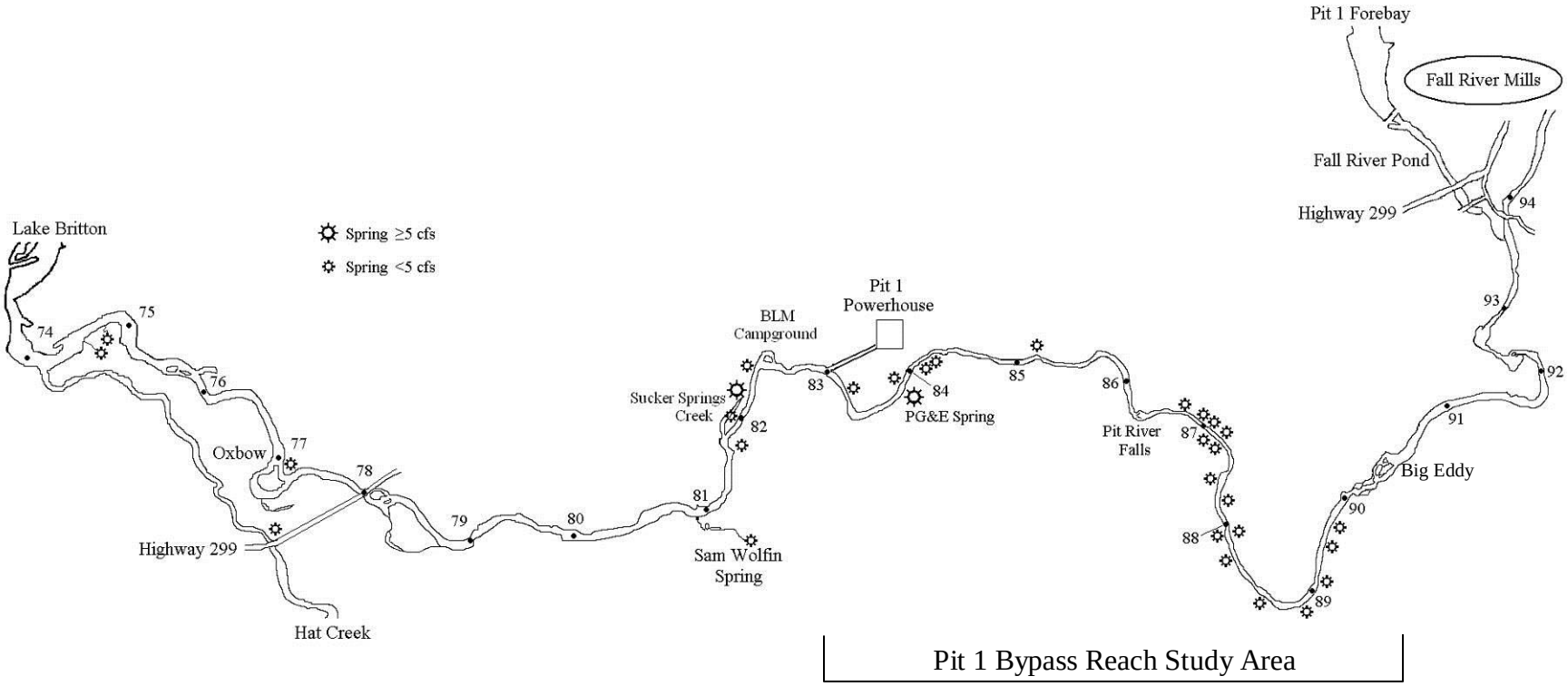

Figure 1 Pit 1 Bypass Reach Study Area showing the location of springs entering the Pit River between Fall Rivers Mills and Lake Britton (adapted from PG&E 2009b).

METHODS

Impact of Non-native Crayfish

The study will include a review of existing literature and studies (e.g., USFWS 1998, Mojica et al. 1993, Light et al. 1995, Ellis 1999) to evaluate and summarize the impact of non-native crayfish on Shasta crayfish.

Effect of Daily Peaking Flows

The study will compile, review, and analyze existing PG&E flow and temperature data (e.g., PG&E 2010b) to determine the effects of daily peaking flows on potential Shasta crayfish habitat downstream of the Pit 1 Powerhouse.

Effect of Project Operations on Shasta Crayfish in the Pit 1 Bypass Reach

Shasta crayfish are known to use the coldwater habitat created by springs within the Pit 1 Bypass Reach. Existing PG&E flow and temperature data will be analyzed to determine potential effects of Project operations on the species and their habitat in the bypass reach.

The Shasta Crayfish Study Plan includes a field survey of the Pit 1 Bypass Reach to document the area and quality of coldwater habitat and to evaluate changes in coldwater habitat in the Pit 1 Bypass Reach during flushing flows. Springs entering the Pit River between Fall Rivers Mills and Lake Britton were identified and mapped during previous studies (Figure 1, Ellis and Hesseldenz 1993, PG&E 1993, 2009b). Within the Pit 1 Bypass Reach, 22 springs were mapped in the 7.0-kilometer reach of the Pit River in the Pit 1 Canyon between Big Eddy and the Pit 1 Powerhouse tailrace (Figure 1). Temperature of the springs in the Pit 1 Bypass Reach were found to vary from 13.5 °C to 21 °C (PG&E unpublished data). This study will resurvey the bypass reach to locate, map, and accurately determine the water temperature in all of the springs and assess the amount of coldwater refugia habitat created by the springs.

An initial survey will be done of the Pit 1 Bypass Reach from the downstream end of Big Eddy to the Pit 1 Powerhouse tailrace during which all springs in the reach will mapped using GPS (if possible; use of GPS can be limited in tight canyons such as the Pit River Canyon) and photographed, and water temperatures accurately measured using a calibrated rapid-readout

digital thermometer. Following the initial survey, a crew will return to all springs with water temperatures less than or equal to 18 °C and assess the extent of the coldwater plume where the spring flows into the river. This assessment will be done by carefully approaching the coldwater refugia plume from the mainstem river side using the rapid-readout digital thermometer to locate the edge of coldwater habitat, taking care to avoid disturbance of potential Shasta crayfish habitat within the coldwater perimeter. The boundary of the coldwater habitat will be marked using survey flags or other temporary markers. Representative lengths and widths of coldwater refugia habitats will be measured so that total area of coldwater refugia habitat created by the springs under base flow conditions can be estimated

Characterization of the springs in the bypass reach from previous studies indicates that accurate measurements of spring discharges will not be possible in most cases, because most springs lack any measurable channel formation. Most springs flow in shallow sheets over bedrock or through gravel or sand into the river, with inadequate depth to be measured by any flow meter. Instead, careful estimation of the discharges of coldwater springs will be made based on the individual spring inflow characteristics.

A discharge measurement will be made, following standard methods (Harrelson et al. 1994), of the drinking water supply spring for Pit 1 Powerhouse (PG&E Spring in Figure 1). This is the spring whose coldwater refugia was studied to determine the effects of whitewater release flows (PG&E 2009a).

Field Data Analysis

Data from this effort will be analyzed relative to the previous field study and jet-plume modeling effort (PG&E 2009a) to determine the combined area and quality of coldwater (15-17°C) and marginally coldwater (17-18°C) habitat in the Pit 1 Bypass Reach under base flows. For those springs that create/maintain adequate habitat for Shasta crayfish, the results of previous studies of the effects of flushing flows on coldwater refugia created by springs will be used to estimate the amount of potential reduction of coldwater habitat in the Pit 1 Bypass Reach resulting from a flushing flow. The previous field study and modeling of the effects of flushing flows on coldwater refugia created by springs was done on the PG&E Spring, which has an estimated

discharge of 5 cfs and is the largest spring in the Pit 1 Bypass Reach (Figure 1). In that study, the 850-cfs flushing flow totally eliminated all 15-17 °C habitat and resulted in an almost two-thirds reduction in the area of coldwater Shasta crayfish habitat (less than or equal 18 °C) at the PG&E Spring, resulting in 62 percent of the substrate covered by water with temperatures of 19 °C or greater (PG&E 2009a). The reduction in size and quality of coldwater habitat created by springs smaller than the PG&E Spring will be even greater, because the warmer river water would more thoroughly mix with, and dilute, the smaller coldwater plumes created by those springs.

SCHEDULE

The spring inflow study is scheduled for August/September 2011.

PRODUCTS

A draft study report will be prepared and submitted to the SWQCB, USFWS, CDFG, TRC, and Recovery Team by January 31, 2012. PG&E will present the data, analyses, and any recommendations for discussion at the joint meeting of the Shasta Crayfish TRC and Recovery Team in Spring 2012. Written comments on the draft study report received prior to the TRC/Recovery Team meeting and PG&E responses to comments will be discussed at the meeting. The study report will be finalized and filed with the SWQCB within 30 days of the Spring 2012 Shasta Crayfish TRC/Recovery Team meeting.

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PG&E. 2010b. Pit 1 Hydroelectric Project, FERC Project No. 2687, Water quality monitoring results, 2009 annual report. Prepared by Timothy Sagraves, Sagraves Environmental, and Spring Rivers Ecological Sciences, LLC. Prepared for Pacific Gas and Electric Company, San Ramon, CA. March 2010.

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APPENDIX A

FERC Project No. 2687 License Articles and California State Water Resources Control Board Conditions

FERC Project No. 2687 License Articles

Article 401 (in part).

(a) Requirement to File Plans for Commission Approval.

The State Water Resource Control Board's (California Water Board) water quality certification requires the licensee to comply with terms and conditions and provide funding for measures contained in earlier agreements, without specifying that plans be developed and approved before implementing the measures; to develop plans and implement programs, without prior Commission approval; and report the results of monitoring studies, without submitting the reports to the Commission for approval. Each such plan and report shall also be submitted to the Commission for approval. These plans and reports are listed below.

California Water Board Condition No. (Appendix)	Plan/Report Name	Due Date from License Issuance
14	Flushing Flow Effectiveness Monitoring	Unspecified

The licensee shall submit to the Commission documentation of its consultation with the California Water Board, copies of comments and recommendations made in connection with the plan or report, and a description of how the plan or report accommodates the comments and recommendations. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information. The Commission reserves the right to make changes to the plan or report. Upon Commission approval, the plan or report becomes a requirement of the license, and the licensee shall implement the plan or report or changes in project operations or facilities, including any changes required by the Commission.

California State Water Resources Control Board Water Quality Certificate Conditions

8. The Licensee shall make continuous flow releases from the Pit 1 Forebay into the Lower Fall River thence the Pit River and maintain the following instantaneous flows downstream of the Fall River Pond as measured at the Fall River Weir:

Dates	Required Flow (cfs)
Nov 1 through Nov 15	75
Nov 16 through May 15	50
May 16 through May 31	75
June 1 through Oct 31	150

Due to the combination of physical constraints imposed by the release facilities at the Pit 1 Forebay, the Licensee is granted an allowable deviation of minus 10% flow variability in the instantaneous release requirements. This will allow daily flows to vary occasionally below the required 50-150 cfs instantaneous flow requirement. However, the monthly average daily flow shall meet or exceed the minimum flow requirement. At no time shall the Licensee intentionally release less than the proposed flow except for public safety or other emergencies.

13. 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.

14. The Licensee shall monitor the effectiveness of releasing flushing flows to control aquatic vegetation and mosquito production in Fall River Pond. The initial monitoring shall be for 5 years after the issuance of the new license. The Licensee shall develop a vegetation flushing monitoring program in consultation with the Fall River Mills Community Services District, Fall River Chamber of Commerce, the Pine Grove Mosquito Abatement District, and the Department of Fish and Game, and obtain written approval of the program by the Chief of the Division of Water Rights. The Chief of the Division of Water Rights may modify or terminate the flushing flow monitoring program after review of the 5-year monitoring report prepared by the licensee.

Article 403 (in part). Within 6 months of license issuance, the licensee shall file with the Commission, for approval, a plan to monitor flows below the Fall River Pond weir, flows in the Pit River downstream of the project tailrace, and ramping rates at the powerhouse to document compliance with the minimum flows required by California Water Board Conditions 8 and 13.

APPENDIX B

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

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

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

SOURCE: Pit River

COUNTY: Shasta

ORDER APPROVING TEMPORARY SUSPENSION OF FLUSHING FLOW REQUIREMENTS

BY THE EXECUTIVE DIRECTOR:

The State Water Resources Control Board (State Water Board) issued water quality certification for the Pit 1 Hydroelectric Project, Federal Energy Regulatory Commission (FERC or Commission) No. 2687 on December 4, 2001. This water quality certification was incorporated in the license issued March 19, 2003. Condition 13 of the water quality certification requires Pacific Gas and Electric Company (PG&E) to release flushing flows to control vegetation growth in the Fall River Pond. The 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. Condition 14 of the water quality certification requires PG&E to monitor the effectiveness of the flushing flows and allows the Deputy Director for Water Rights[1] to modify or terminate the monitoring requirements.

The U.S. Fish and Wildlife Service (FWS) submitted a letter (received May 21, 2009) to the State Water Board requesting suspension of the flushing flows for the summer of 2009 because of concerns the flows were facilitating the decline of Shasta crayfish (*Pacifastacus fortis*). The Shasta crayfish was listed as endangered under both the California and Federal Endangered Species Acts in 1988. In 2003, PG&E formed a technical review committee (TRC) to oversee management activities throughout the range of the crayfish. The FWS formed the Shasta Crayfish Recovery Team that includes a subset of the TRC members. According to The Recovery Plan for Shasta Crayfish the primary threats to Shasta crayfish are the introduction and expansion of non-native species of crayfish and fishes, and disturbances related to land use practices. The FWS Biological Opinion (BO) provided to the Commission on October 24, 2002, included an incidental take statement with terms and conditions to minimize incidental take of Shasta crayfish. The BO concluded that approval of a new license for operation of the Pit 1 Hydroelectric Project, as proposed in the final Environmental Assessment, would not

[1] The State Water Board now refers to the Chief of the Division of Water Rights as the Deputy Director for Water Rights.

Shasta C

jeopardize the continued existence of the Shasta crayfish. On June 17, 2009, the State Water Board responded to FWS's request, advising FWS that if PG&E determines the flushing flows are no longer necessary for controlling aquatic vegetation and mosquito production in Fall River Pond, PG&E could request termination of the flushing flows pursuant to Condition 14 of the water quality certification.

On June 24, 2009, PG&E submitted a request to the State Water Board to amend the water quality certification to remove Conditions 13 (flushing flows) and 14 (flushing flow effectiveness monitoring). The request is based on monitoring results showing that surface vegetation in the Fall River Pond has been reduced under new license conditions that require a higher base flow of 150 cubic feet per second. In addition to requiring PG&E to monitor the effectiveness of releasing flushing flows to control aquatic vegetation and mosquito production in Fall River Pond, Condition 14 also allows the Deputy Director for Water Rights to modify or terminate the flushing flow monitoring program after review of the 5-year monitoring report prepared by the licensee. PG&E monitored the effectiveness of flushing flows at reducing aquatic vegetation from 2005 to 2008. The results indicate that increased base flows may be more effective at reducing vegetation than flushing flows. Additional monitoring may be required to isolate the effectiveness of the base flows without flushing flows at reducing aquatic vegetation and mosquito production.

By letter dated August 28, 2009, State Water Board staff notified PG&E that before an amendment of the water quality certification can be considered, the State Water Board must comply with the California Environmental Quality Act (CEQA). State Water Board staff provided PG&E with a Memorandum of Understanding (MOU) for the preparation of environmental documents.

The FWS submitted a letter to the Commission dated December 17, 2009, stating that the BO issued on October 24, 2004 has expired, and there is no authorized incidental take for Shasta crayfish for the Project. FWS also stated its belief that flushing flows are likely resulting in take, and are facilitating the decline of the endangered Shasta crayfish in the Pit 1 Bypass Reach.

By letter dated April 15, 2010, Commission staff submitted a letter to the State Water Board requesting a temporary suspension of the flushing flows for 2010. The Commission's letter recognized that the Commission cannot unilaterally amend a water quality certification condition.

PG&E has monitored Shasta crayfish populations at multiple locations within the Project and the Hat Creek Hydroelectric Projects. The TRC Summary Report, May 2009, (Report) includes a summary of surveys that have been conducted on population characteristics. Three locations on the mainstem Pit River within the Pit 1 Project area have been surveyed. No live Shasta crayfish have been found at the Canyon Spring site. In 1978, eight Shasta crayfish were found at Sand Pit, none were found in 2004-2007 surveys, and the site was not surveyed in 2007-2009. At the Pit River Falls site, four Shasta crayfish and many fantail crayfish were observed in 1995, and 21 were found in 2004-2007 along with 10 signals and 12 fantails. During the 2008 survey, one dead Shasta crayfish was found along with 29 signals and 23 fantails. The Report states that there has been a general decline in Shasta crayfish distribution and abundance at all sites. Introduced Signal crayfish have continued to expand their range and are now abundant through almost all of the Shasta crayfish habitats. Most efforts at recovery have involved measures to exclude invasive crayfish species.

While the flushing flows have provided an incidental whitewater recreational opportunity, a precautionary approach to endangered species protection is warranted, and it is reasonable to temporarily suspend flushing flows for 2010 and 2011 while the CEQA process is completed for a permanent suspension of these flows. The State Water Board's conclusion that amendment of the water quality certification to remove the flushing flows requires compliance with CEQA was based on the potential for a significant environmental impact by removing this requirement permanently. If the requirement for flushing flows is suspended for a limited period, with adequate safeguards to prevent the suspension from becoming permanent except after full compliance with CEQA, there will not be any significant impacts. The State Water Board has determined the temporary suspension of flushing flows will not have a significant environmental effect and is categorically exempt from the requirements to prepare environmental documents under California Code of Regulations section 15307 (Actions by Regulatory Agencies for Protection of Natural Resources). A Notice of Exemption will be filed for this action.

This temporary amendment to the water quality certification shall be dependent on PG&E's timely completion of the required CEQA documentation (pursuant to the most recently provided MOU). In addition to undertaking sufficient studies, through the CEQA process, to determine whether there would be significant impacts due to permanent elimination of the requirement for flushing flows, PG&E shall conduct sufficient studies to evaluate the potential for flushing flows to cause a "take" in violation of either the federal or California Endangered Species Acts.

ORDER

IT IS HEREBY ORDERED THAT:

1. PG&E shall finalize the CEQA MOU within 60 days of issuance of this order.

2. PG&E shall continue monitoring the effectiveness of the higher base flows at controlling aquatic vegetation and mosquito production in Fall River Pond during 2010 and 2011 consistent with the procedures in the Flushing Flow Effectiveness Monitoring Plan.

3. Within 120 days of issuance of this order, PG&E shall submit a proposed Shasta crayfish study plan to the Deputy Director for Water Rights for modification or approval. The study plan shall be developed in cooperation with appropriate Resource Agencies, including State Water Board Staff. The study shall evaluate the impact of non-native crayfish, changes in Shasta crayfish habitat during flushing flows, the effect of daily peaking flows on Shasta crayfish, and other potential impacts to Shasta crayfish in the Pit 1 Peaking Reach and Bypass Reach. The goal of the study is to develop information on potential impacts of current operations on Shasta crayfish.

7.06.10
Date

Dorothy Rice
Executive Director