



December 16, 2011

State Water Resources Control Board
Ms. Lori Webber
1001 I Street, 14th Floor
Sacramento, CA 95814

**Re: Request for Modification of State Water Resources Control Board Target
Elevation for Pinecrest Lake by Labor Day; Spring Gap-Stanislaus Hydroelectric
Project, FERC Project No. 2130**

Dear Ms. Webber:

On April 24, 2009, the Federal Energy Regulatory Commission (FERC) issued to Pacific Gas and Electric Company (PG&E) a new license for the Spring Gap-Stanislaus Hydroelectric Project, FERC Project No. 2130 (Project). The State Water Resources Control Board's (State Water Board) Water Quality Certification, issued pursuant to Section 401 of the Clean Water Act (401 Certification – Revised on June 16, 2009), was an appendix to the license.

Condition 4 of the State Water Board revised Certification states (in part):

Within nine months of license issuance the Licensee shall submit a Pinecrest Reservoir minimum lake-level study plan (Lake-level Study), developed in consultation with the USFS, DFG, State Water Board staff, and TUD, to the Deputy Director for modification and approval that will determine the minimum Pinecrest Reservoir elevation between End of Spill through Labor Day that protects recreational uses (specifically, Day-Use Area beaches, the marina to just east of the handicap fishing access, and other areas as directed by the State Water Board). Licensee shall complete the Lake-level Study as approved by the Deputy Director by the end of the first full calendar year after license issuance. The completed study shall be provided to the USFS, DFG, State Water Board staff, and TUD for review and comment. By March 1 of the year following completion of the Lake-level Study, the Licensee shall submit to the Deputy Director for approval the completed study, including any comments received.

Within six months of approval of the Lake-level Study by the Deputy Director, Licensee may request the State Water Board modify the target elevation of 5,608 feet based on the results of the Lake-level Study, after the State Water Board provides notice to affected parties.

PG&E prepared the Final Pinecrest Reservoir Lake Level Study Report (Report) identified in Condition 4, which, after consultation with the required parties, was approved by the

Deputy Director on June 17, 2011. Consequently, PG&E may request a modification of the target elevation of 5,608 feet (ft) within six months of the Deputy Director's approval of the Report on June 17, 2011. The due date for the modification is December 17th. Since December 17th is a Saturday, the State Water Board clarified that filing on Monday December 19th would suffice. This letter represents PG&E's request for a modification of that target elevation.

BACKGROUND

In addition to the 401 Certification, the USDA, Forest Service (Forest Service) Section 4(e) Conditions were an appendix to the License. Among other things, Section 4(e) Condition 34 requires PG&E to annually develop a proposed "Lake Pinecrest Drawdown Curve" in consultation with the Forest Service, State Water Board, California Department of Fish Game (CDFG), and Tuolumne Utility District (TUD). PG&E is then required to submit the drawdown curve to the Forest Service and the State Water Board by April 15th of each year for their approval.¹ Section 4(e) Condition 34 establishes a target lake level of 5,610 ft by Labor Day. As noted above, the State Water Board's target elevation for Pinecrest Lake by Labor Day is 5,608 ft, as stated in Condition 4 of the 401 Certification for the Project.

DISCUSSION

PG&E's Report analyzed whether lake elevations below the targeted 5,610 ft would protect the usability of certain recreational facilities identified in consultation with the Forest Service, CDFG, and TUD (and as agreed to and directed by the State Water Board). These facilities include day-use area beaches, swimming areas, the boat ramp and courtesy dock, the marina, and Americans with Disabilities Act (ADA) fishing access. The Report found that there were some potential impairments to the usability of recreational facilities at lake levels below 5,610 ft compared to baseline usability (5,610-5,617 ft elevations). The Report also concluded that these impairments were generally limited and that there were mitigation measures that could be implemented that would decrease impairments to baseline levels, thereby protecting the beneficial use of recreation, while providing the ability to protect the other beneficial uses of the reservoir including domestic water supply, hydroelectric power production, and providing environmental (minimum instream) flows.

TUD has prepared a Statement of Need to support the request for a lower lake level prior to Labor Day (Attachment A) to protect the beneficial use of domestic water supply. Included in this attachment are historical data of water-year types and lake elevations.

Following State Water Board approval of the Report, PG&E consulted with the State Water Board Staff, Forest Service, TUD, and CDFG with regard to appropriate mitigation measures to protect the recreational uses of the lake, as identified in the Report. Based on that consultation, the Mitigation Proposal was prepared (Attachment B). In the Mitigation Proposal, PG&E identifies measures to protect and mitigate recreation facilities and their

¹ Note that while the Water Board is identified in Section 4(e) Condition 34 as an approver of the annual drawdown curve, the Water Board's 401 Certification does not require PG&E to obtain the Water Board's approval of the drawdown curve.

use resulting from the decrease of water surface elevations below 5,610 ft in Pinecrest Lake prior to Labor Day.

Each year PG&E is required to prepare a drawdown curve for Pinecrest Lake and submit for approval by April 15th of each year, which estimates the lake level at Labor Day. This drawdown curve is a monthly plot of the median inflow forecast (50 percent probability) and water/reservoir management, reflected as an end-of-month value, for the current year until the next filling. The water management operations for the South and Middle Forks of the Stanislaus River are optimized for energy value while satisfying all downstream demands (water supply and FERC instream flow requirements), recreational and environmental conditions, contractual agreements, planned maintenance outage, etc.

Currently, the State Water Board's target elevation for Pinecrest Lake is 5,608 ft by Labor Day, as stated in Condition 4 of the 401 Certification for the Project. Based on the results presented in the Report, PG&E requests to modify this elevation to 5,606 ft in Wet water-year types, 5,604 ft in Normal-Wet water year types, and 5,600 ft in Normal-Dry and Dry water-year types prior to Labor Day. The water year types are identified in Condition 1 of the State Water Board's 401 Certification for the Project and in Forest Service Section 4(e) Condition 33.

PG&E's request is accompanied by a proposal to mitigate potential impairments to recreation facilities that would occur at the proposed lower lake levels, and thereby, protect their uses as required by the Water Quality Certification. If the aforementioned proposed lake level target elevation modifications are approved by the Water Board, PG&E would commence implementation of the proposed mitigation measures in the fall of the first year following State Water Board approval and upon receipt of all necessary permits and other approvals.² PG&E would consult with the Forest Service for site-specific mitigation.

If you have any questions regarding this request, please call me at (415) 973-5747.

Sincerely,



For:

Ross C. Jackson, Senior License Coordinator
Hydro Licensing

Attachments:

- A: Tuolumne Utility District Letter – Statement of Need
- B: Pinecrest Lake-level Mitigation Proposal

² PG&E will continue to prepare by April 15th each year the annual Pinecrest Lake Drawdown Curve targeting 5,610 ft by Labor Day, as conditioned by the Forest Service (and after consultation with the identified agencies). PG&E will also continue to submit the drawdown curve to the Forest Service and Water Board for approval each year.

ATTACHMENT A

**TUOLUMNE UTILITY DISTRICT LETTER –
STATEMENT OF NEED**



TUOLUMNE UTILITIES DISTRICT

18885 NUGGET BLVD. • SONORA, CA 95370

(209) 532-5536 • FAX (209) 536-6485

December 15, 2011

State Water Resources Control Board
Ms. Lori Webber
Water Quality Certifications
Division of Water Rights
1001 I Street
Sacramento, CA 95814

Re: Spring Gap-Stanislaus Hydroelectric Project; FERC Project No. 2130, Request for Modification of State Water Board Target Elevation for Pinecrest Lake by Labor Day

Dear Ms. Webber:

On April 24, 2009, the Federal Energy Regulatory Commission issued to Pacific Gas and Electric Company (PG&E) a new license for the Spring Gap-Stanislaus Hydroelectric Project, FERC Project No. 2130 (Project). The State Water Resources Control Board's (SWROB) Water Quality Certification, issued pursuant to Section 401 of the Clean Water Act (401 Certification – Revised on June 16, 2009), was attached as Appendix A to the license. The 401 Certification established a fixed elevation of Pinecrest Lake on Labor Day of 5,608. This elevation will reduce the amount of water that could be delivered to Tuolumne Utility District customers, possibly resulting in significant water shortages and reduced drinking water quality.

TUD is requesting a range of Pinecrest Lake elevations based on water year types. This proposal gives the SWROB a direct and efficient method to verify the correct lake elevation every year. This range of lake elevations will meet the water quality objectives of the SWROB and the water needs of the citizens of Tuolumne County. TUD is requesting a lake level of 5,606 feet in elevation for Wet water year types, a lake level of 5,604 feet in elevation for Normal-Wet water year types and a lake level of 5,600 feet in elevation for Dry to Normal-Dry water year types. Please understand that that these elevations are not a planned drawdown elevation, they are simply a minimum elevation to which we may draw down in the event of a water shortage.

Domestic water for roughly 44,000 people living in and around Sonora area comes from The South Fork Stanislaus River (SFSR), diverted at Lyons Reservoir. In the summer time, water comes from the storage volume residing in Lyons Reservoir and later in the summer season, water is supplemented from Pinecrest Lake. New Pinecrest Lake elevation restrictions in the State of California Section 401 Certification will no longer allow delivery of supplemental supply water prior to Labor Day if it causes Pinecrest Lake to drop below 5,608 feet at Labor Day. Modeling of the SFSR, using hydrologic records from 1974-1999¹ has determined that under the new restrictions of a lake level fixed at a minimum of 5608, domestic supply would be impacted if the same climate and hydrology were to occur in the future².

The justification for the revised lake level ranges is based on hydrological modeling and historical information. The justification is not based on future growth or expansion.

There have been years of hydrological information which clearly shows that a fixed elevation, unless it is set unnecessarily low, will not meet the consumptive needs of existing residents in Tuolumne County and the recreational needs at Pinecrest Lake.

The TUD need for water from Pinecrest Lake between end of spill at Pinecrest and Labor Day only occurs in approximately 30% of all water years.

The hydrologic record shows that Lyons reservoir required supplemental supply delivery in 11 out of the past 36 years prior to Labor Day, See Table 1. These deliveries occurred in Critically Dry, Dry and Normal-Dry water year types, See Table 2. The deliveries were primarily necessary due to an early end of spill, See Table 2. An end of spill prior to July 1 typically will result in the need for supplemental supply delivery from Pinecrest Lake for domestic supply. The task at hand is to determine the water year type and what the Pinecrest Lake elevation at Labor Day will be in years where Lyons reservoir may require supplemental support.

The end of spill has a significant impact on the demand curve and the Pinecrest Lake Level much more than TUD demand.

The corrected CHEOPS model indicates that the level in Pinecrest will vary on Labor Day to meet the new in-stream flow requirements. Therefore a range of lake levels are being proposed to meet all beneficial uses in all water year types.

¹ The hydrologic data record was distributed in 2002 and provided by Duke Engineering at the beginning for the collaborative process for the Spring-Gap Stanislaus Hydroelectric Project, FERC #2130

² See revised CHEOPS model description e-mail 12/1/2011 to Lori Webber

There are two primary hydrologic conditions that will cause the need for supplemental support from Pinecrest Lake for domestic supply; the new in-stream flow requirements and the end of spill date³.

The end of spill date determines the length of time and thus the amount of storage that will be available each year for domestic demand. An end of spill date prior to July 1 represents the approximate limit of the capacity of Lyons reservoir to support domestic demand and the new in-stream flow up to Labor Day. The hydrologic record demonstrates that the end of spill has occurred as early as June 13 in the hydrologic record for 1974-1999. However, the end of spill occurred on June 10th in 2007, even earlier.

A water year type that results in an end of spill date, earlier than July 1, will likely require supplemental support water from Pinecrest Lake. In addition, it is reasonable to expect that the end of spill date will occur earlier than June 10 in future years. Observations are provided below to compare past end of spill dates with the water year types and what can be expected in the future as related to water year types.

The table below compares the years 1981, 1988 and 2007. All three are classified as "Dry" water year types. Several concerning observations are made.

Year	DWR forecast X10004	Water Year Type	End of Spill Date	Predicted Pinecrest Lake El. at Labor Day	Actual Pinecrest Lake El. at Labor Day
1981	675	Dry	June 18	5603.1	5598.8
1988	360	Dry	June 28	5606.1	5603.9
2007	570	Dry	June 10	Not Analyzed	5604.7

1988 was a Dry water year and was the lowest DWR forecast volume of the three. However, the end of spill date was late enough in the summer that no Pinecrest Lake water was required to be delivered to Lyons. As a result, both Pinecrest Lake and Lyons reservoirs had less demand requirements between the end of spill and Labor Day. This Dry water year type can be deceiving and lead to the conclusion that a Dry water year type would support domestic supply. This is not the case.

1981 was very nearly a Normal-Dry water year type. The end of spill date in 1981 was very early, June 18. (The end of spill in 1977 was on July 4.) The storage

³ For this evaluation, it is assumed that domestic supply remains at 2001 withdrawal rates out of Lyons Reservoir.

⁴ As determined by the DWR Forecast Annual Unimpaired Inflow to New Melones Reservoir (acre-feet) table in the Forest Service 4(e) Conditions, Condition No. 33

volume in Lyons Reservoir cannot support the new in-stream flows required below Lyons and domestic demand for an end of spill date much earlier than July 1. 1,300 acre-feet of supplemental supply water was delivered from Pinecrest Lake to Lyons Reservoir in 1981. The actual records reflect that Pinecrest Lake was drawn down to 5598.8 feet and Lyons Reservoir was drawn down to about 1,000 acre-feet of storage at Labor Day (even below the 1,500 acre-feet target). By observation, these actual reservoir storage measurements demonstrate that Pinecrest Lake could not have been held much above 5,600 feet on Labor Day and still support domestic supply. Water planners must assume that these climate and hydrologic condition will occur again or be even worse within the next 30-40 years. It would be rare, but Pinecrest Lake may fall to as low as 5,600 feet in elevation and domestic demand require support from Pinecrest Lake in the same time frame. This was one occurrence in the 36 years analyzed.

2007 was not part of the hydrologic record used during the SPLAT process. This year clearly demonstrates that outlier climate conditions and the effects of potential climate change that must be considered when establishing the lake level. 2007 was the earliest end of spill in all years from 1974 to 2011. The effect of this was that the largest amount of water in history had to be delivered to Lyons from Pinecrest prior to Labor Day. The impact to the level of Pinecrest Lake would be between a 5 to 7 foot drop in elevation.

The higher in-stream flow requirements and unusually early end of spill will occur again in a Normal-Dry water year and could cause Pinecrest Lake to be drawn down to at least 5,600 feet at Labor Day.

This new in-stream flow requirement is an important factor to account for when observing the actual reservoir levels of the past. The new in-stream flow requirements in and out of Lyons Reservoir, as contained in the FERC license for the Phoenix project, place additional demand on the storage volume in Pinecrest Lake as compared to operations prior to 2011. Although, the license requires more flow into Lyons reservoir (roughly 3 Cubic Feet per Second (CFS)), the newly required in-stream flow out of Lyons reservoir will exceed this inflow rate when compared to past years. Prior to 2011, in-stream flow out of Lyons reservoir was about 2.8 CFS after the end of spill. The new flow is now 10 CFS in June, 8 CFS in July and 5 CFS in August⁵. For example, if the end of spill date at Pinecrest Lake occurs on July 1, there will be over 400 acre-feet more water released out of Lyons between July 1 and Labor Day than was actually released

⁵ The new in-stream flows below Lyons Reservoir were established under separate licensing and become active once the FERC #2130 flow regime starts.

in past years with similar end of spill date. The end of spill date occurs when the snow melt (runoff) into Lyons reservoir diminishes to the point where the withdrawals exceed the inflow.

The hydrologic data of the past is not a guarantee of the future.

Analysis of the actual hydrologic data record assumes that the same hydrologic conditions will occur again in the same form within the next 30-40 years. However, the climate and hydrologic conditions of the past 36 years are not a perfect measure of what the conditions will be in the future. Planning for a domestic water supply must assume that there will be unusual or outlier climate and hydrologic conditions occurring within the next 30 to 40 years of the FERC #2130 license. If the 401 certification requires that one set elevation be chosen as the lowest possible Pinecrest Lake elevation allowed over the span of the license, then as water supply planners we must request the lowest conceivable elevation that might occur over the span of the license or, as we have done, offer an alternative solution that can meet the water quality objectives, the recreational and consumptive needs.

The impacts of climate change are not completely known or understood and therefore as water supply planners setting long term goals we must have flexibility.

The U.S. Forest Service 4(e) conditions set a target elevation of Pinecrest Lake on Labor Day of 5610.

The elevations being requested are the minimums that the record indicates could occur. However, every year PG&E must also meet the 4(e) conditions set forth by the US Forest Service which calls for a target elevation of 5,610 on Labor Day. This condition requires the development of an annual drawdown curve for Pinecrest that must be approved by the US Forest Service. The recreational uses at Pinecrest are of the utmost importance to the Forest Service and it will work diligently to maintain and improve the recreational experience for all users of the lake.

This target elevation and drawdown consultation was reviewed and discussed at countless meetings through the SPLAT process. This diverse group of stakeholders understood that the selection of a single target elevation was not possible in a watershed with the numerous variables that occur in the south Fork of the Stanislaus River. The Forest Service 4(e) conditions match the outcome of the SPLAT process.

The impacts to recreation are minimal and can be mitigated.

The lake level study clearly shows that;

1. The gas docks are fully functional at 5,600.

2. The boat ramp is fully functional at 5,600.
3. All other impacted areas or experiences at 5,600 but can be mitigated.

PG&E and TUD are willing to address all needed mitigation as outline in the Lake Level Study that is on file with SRWQCB.

There are many documents on file with the SRWQCB that provide details to the request of a revised lake level. We are including all of them by reference.

Sincerely,

A handwritten signature in black ink, appearing to read 'Peter J. Kampa', with a long horizontal flourish extending to the right.

Peter J. Kampa
General Manager

TABLE 1. Volume of water delivered prior to Labor Day from Pinecrest to Lyons Reservoir to support domestic supply

■ Supplemental Supply delivered prior to Labor Day (AF)

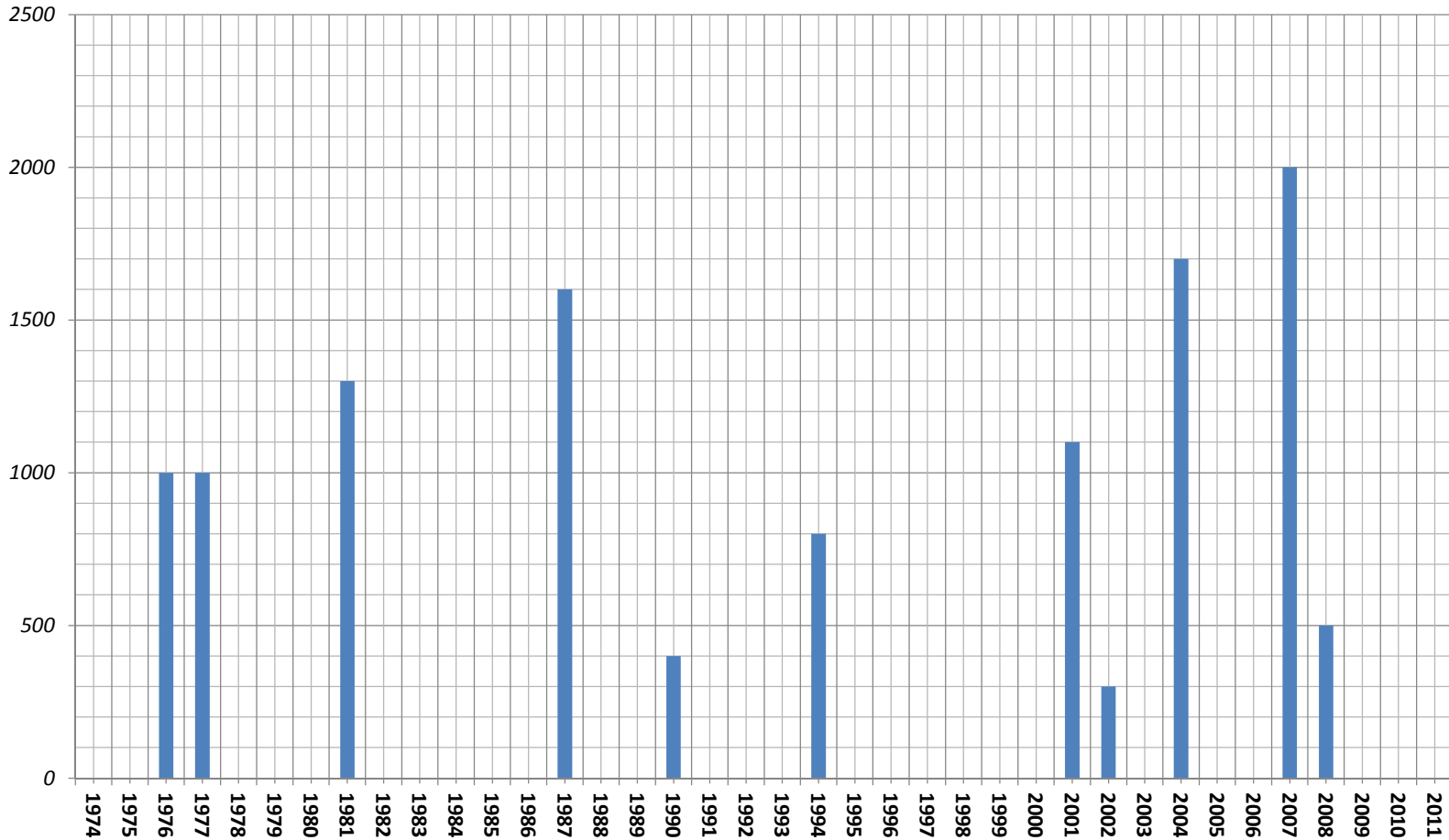
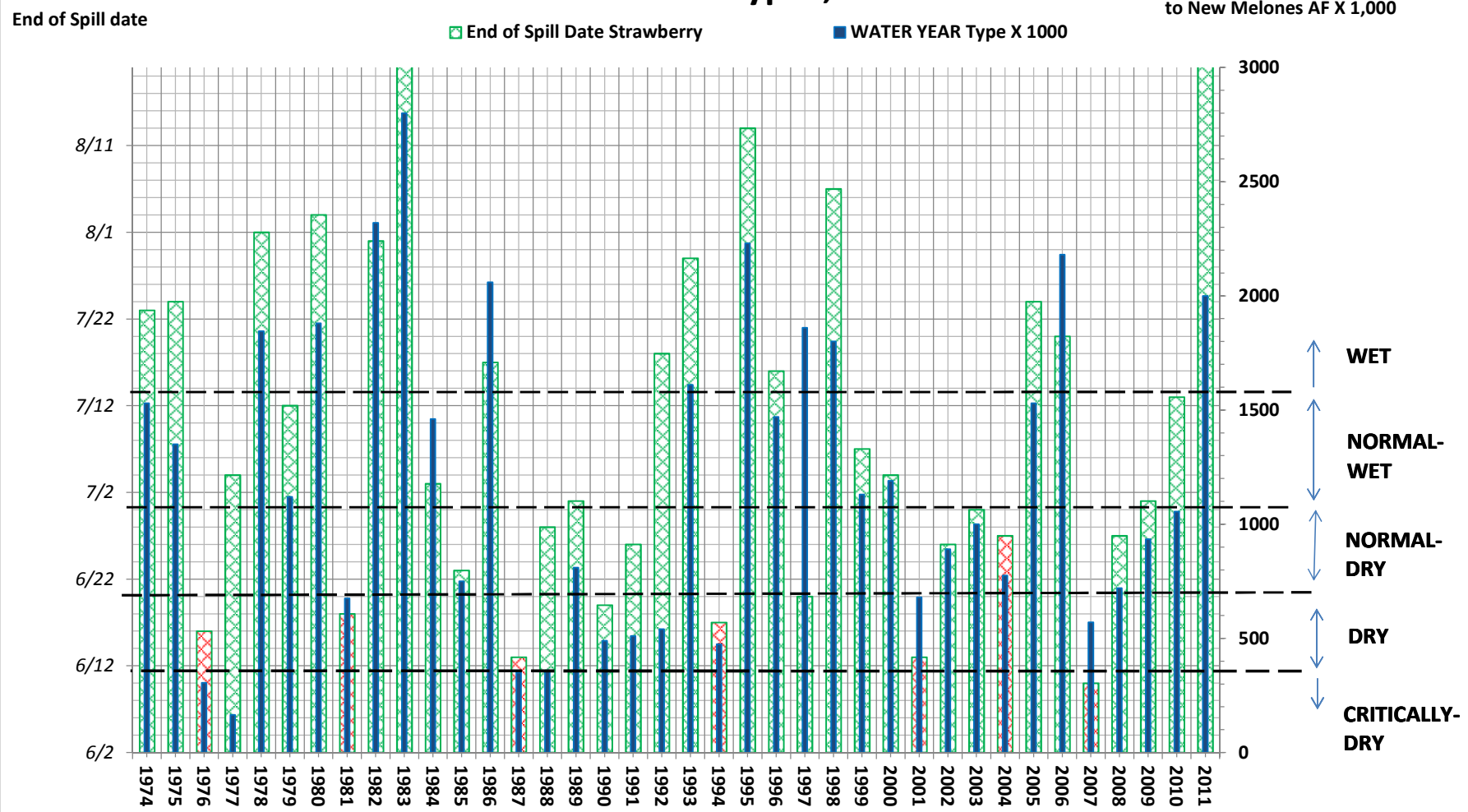


TABLE 2. End of Spill date compared to Water Year Types, 1974-2011

DWR Forecast Unimpaired Inflow
to New Melones AF X 1,000



ATTACHMENT B
PINECREST LAKE-LEVEL MITIGATION
PROPOSAL

PINECREST LAKE LEVEL STUDY MITIGATION PROPOSAL

2011

**Spring Gap-Stanislaus Project
(FERC Project No. 2130)**

Prepared By:



***Pacific Gas and
Electric Company™***

December 2011

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1.0 INTRODUCTION

On June 16, 2009, the State Water Resources Control Board (State Water Board) issued a revised Section 401 Water Quality Certification (Revised Certification) to PG&E for the Spring Gap-Stanislaus Hydroelectric Project (FERC Project No. 2130). The Revised Certification, among other conditions, required preparation of a study plan (Plan) to determine the minimum operating lake level elevation for Pinecrest Reservoir that protects certain specific recreational uses for the period ranging from the end of spill through Labor Day. The Plan was developed in consultation with the United States Department of Agriculture–Forest Service (Forest Service), California Department of Fish and Game (CDFG), State Water Board, and Tuolumne Utility District (TUD).

Accordingly, PG&E developed and provided a draft study plan to the agencies and consulted with them on its finalization. The final Plan (PG&E 2010) was approved by the State Water Board and filed with the Federal Energy Regulatory Commission (FERC) on June 8, 2010.

In 2010, a lake level study was completed in accordance with the Plan. The study evaluated protection of recreation uses at lower lake levels by assessing potential impairment to the usability of recreational facilities at Pinecrest Lake at lake levels below 5,610 ft msl¹, which is now maintained until Labor Day. The 2010 Pinecrest Lake Level Study (PG&E 2011, lake level report) was completed in consultation with the resource agencies, and approved by the Deputy Director of the State Water Board. The report provided information to the State Water Board and the consulting resource agencies about the effects of lower lake levels at the seven recreational facilities at Pinecrest Lake. Potential mitigation measures that could reduce recreational facility impairments at lake levels below 5,610 ft msl were identified as part of the report.

After discussions with TUD, Forest Service, and the State Water Board (Appendix B), PG&E decided to request approval from the State Water Board for minimum Pinecrest Lake target

¹ Mean Sea Level (msl). All elevations are relative to msl.

water level elevations of 5,606 ft msl prior to Labor Day² in wet water years, 5,604 ft msl in normal-wet water years, and a target water level elevation of 5,600 ft msl in normal-dry and dry water years, respectively. This proposal outlines potential measures that could be used to protect against and mitigate for potential impairments to recreation usability resulting from drawdown elevations down to 5,600 ft msl in Pinecrest Lake prior to Labor Day. Therefore, the proposed mitigation measures provide mitigation for wet, normal-wet, dry-normal, and dry water years under consideration in this proposal. The mitigation measures discussed in this proposal focus on improvements to characteristics of the recreational facilities evaluated in the lake level report that were observed to be impaired at lower lake levels (PG&E 2011). The specific goal of mitigation measures is to decrease potential impairments to the recreational facilities at lake levels between 5,610 and 5,600 ft msl to levels similar to those occurring in the baseline range of 5,617 to 5,610 ft msl. These mitigation measures would protect recreation uses at the identified recreational facilities. These mitigation measures include:

1. Improvements to beach usability as affected by obstructions and substrate;
2. Adjustment to offset the loss of area within the buoyed designated swimming area; and
3. A public communications plan to increase awareness and to inform the public in advance of the drawdown of lake levels to between 5,610 and 5,600 ft msl prior to Labor Day.

2.0 APPROACH

The lake level report (PG&E 2011) evaluated recreation usability at seven recreation facilities at Pinecrest Lake (Figure 2-1). These included:

1. Facility 1: Gas Dock and Slips
2. Facility 2: Boat Ramp and Courtesy Dock
3. Facility 3: Designated Buoyed Swim Area

² Drawdown curves each year require Forest Service approval.

4. Facility 4: Mixed Day-Use Area
5. Facility 5: ADA-Accessible Fishing Platform
6. Facility 6: Overflow Area, South Shore
7. Facility 7: Overflow Area, North Shore

Recreation usability criteria were developed for each facility in the lake level report. These criteria captured factors affecting each facility with respect to recreation usability. Data were collected for each facility from elevations 5,617 to 5,595 ft msl. An example of a criterion would be that the gas dock needs to provide sufficient depth to accommodate boat drafts. This requirement of the facility became a criterion when evaluating recreation usability for the gas dock. The criteria for each facility at each elevation evaluated were then compared to the baseline elevation range values.

Using the data collected for the lake level report (PG&E 2010), each elevation was categorized as “unimpaired”, “impaired” or “severely impaired” in regards to the recreation usability criteria. These categorizations were based on the percent variation from the baseline values. All criteria evaluated in the report were based on the usability of the recreation facility. For example, beach quality was determined by the condition of substrate. That is, the presence of rocks and or mud that would hinder a person from using the beach (e.g. laying down a towel). Such presence could lead to impairment of the facility. Table 2-1 presents an overview of the results indicating impairment to each facility due to lowered lake levels from the lake level report.

The facilities can be categorized into infrastructure facilities (Gas Dock, Boat Ramp and Fishing Platforms) and beach facilities (Buoyed Swim Area, Mixed Day Use and Overflow North/South). Infrastructure facilities that are impaired in the baseline range, to the extent that they unusable, are not considered to be further impaired by lowered lake levels. For example, if the fishing platform is unusable at elevation 5,611 ft msl, it will still be unusable at lower elevations, such as 5,604 ft msl. However, this is not an impact due to the lowered lake level; it is a condition of the infrastructure design. As such, infrastructure facilities that are impaired in the baseline range do not require mitigation for lower lake levels.

As the gas dock and slips, the boat launch ramp and courtesy dock are not impaired at any lake level considered in this proposal, mitigation is not proposed for these facilities. Further, the Americans with Disability Act (ADA)-Accessible fishing platform, which becomes unusable at elevation 5,611 ft msl, an elevation that is within the baseline range, does not require mitigation at lower elevations. As such, this proposal does not propose any mitigation for the marina slips and gas dock, boat launch ramp or the fishing platforms.

In comparison, due to natural fluctuations in rock locations and mud flat locations, the beach facilities are more variable in their characteristics at different elevations. That is, an area of beach may be impaired within the baseline range, but become unimpaired at a lower elevation. However, additional drawdown may expose mud and/or rocks, which degrade the recreation usability of the feature, and lead to the facility being impaired at those elevations. As this impairment is a result of the additional drawdown, mitigation measures are identified to enhance the beach facility and reduce the potential impairment found at lake levels lower than the baseline range.

The three beach facilities include three lake shore geographic areas. First, the Over-Flow North Area encompasses transects 7A and 7B from the lake level report (PG&E 2011). It includes the beach area north of the Gas Docks and Slips. Second, the Buoyed Swim Area is defined as the beach and water area within the buoy line, transects 3A, 3B, and 3C from the lake level report. Third, Over-Flow South Area encompasses the mixed-day use and over-flow south shore areas, transects 4 and 6 in the lake level report.

Proposed mitigation measures for lowered lake levels address reducing impairment at lower lake levels through implementing improvements based on the evaluation criteria used in the lake-level report. The following are the criteria that were evaluated for the beach facilities in the lake level report (PG&E, 2011).

1. Beach Quality

- a. Impaired By: Substrate Conditions (Rocks 0.5-1 ft diameter, mud)
- b. Mitigation Measure: Improve Substrate Conditions

2. Shoreline Access Quality:
 - a. Impaired By: Substrate Conditions (rocks 0.5-1 ft). Access Impairments (Stumps, Mud flats, Large Boulders)
 - b. Mitigation Measure: Improve substrate conditions, remove stumps and large boulders and remove mud flats
3. Net Usable Beach Area
 - a. Impaired By: Substrate Conditions (rocks, mud), greater water levels (not applicable to lower lake levels)
 - b. Mitigation Measure: Improve substrate conditions
4. Usable Wading Area
 - a. Impaired By: Substrate conditions (rocks 0.5 to 1 ft diameter)
 - b. Mitigation Measure: Improve substrate conditions
5. Swim Area
 - a. Impaired By: Lack of area within buoy line at lower lake levels
 - b. Mitigation Measure: Increase area within buoy line at lower lake levels.
6. Number of Submerged Objects (Potential Hazards)
 - a. Impaired By: Increased number of submerged objects within 2-6 ft of water surface.
 - b. Mitigation Measure: Remove rocks that protrude from the substrate surface by greater than 2 ft

Of all the above conditions, the number of submerged objects is the most variable. There is no predictable pattern for rocks that protrude by more than 2 ft from the lake bottom. In addition, larger rocks are often used by recreationalists as resting areas or seats. As such, mitigation by removing such rocks is difficult to quantify or predict spatially. Thus, as rocks 0.5 to 1 ft in diameter are being removed as mitigation for substrate impairment, any applicable rocks greater than 1 ft in diameter and protruding 2 ft or more from the beach surface will be considered for removal.³

³ Some large rocks are seen as beneficial recreation features as they provide places to sit or stand while using the beach. As such, removal of large rocks within the elevation range 5,610 and 5,600 ft msl will be determined onsite and removed as directed by the Forest Service.

3.0 MITIGATION MEASURES

3.1 MITIGATION MEASURE 1: SUBSTRATE IMPROVEMENT

As the lake level falls, rocks, stumps and mud flats become exposed. Cardno ENTRIX completed a field survey in 2010 (PG&E 2011), during which, objects that potentially impaired recreation usability were located. These were defined as rocks with an approximate diameter of 2 ft or greater, stumps, and mud flats. In addition to the survey, photographs were taken at each lake level along 10 transects. These photographs were comprised of substrate photos, conditions at the shoreline, and general beach conditions, as viewed from the top and bottom of the transects. Exposed mud also was noted and photographed.

The proposed mitigation measures serve to improve substrate conditions, so that all substrate within elevations 5,610 to 5,600 ft msl at the recreational facilities would be categorized as unimpaired when compared to baseline conditions.

Each substrate improvement action should be completed at low water levels, 5,600 ft msl or lower to avoid potential water quality impacts. Further, there are potential access issues for heavy equipment, especially in the Over-Flow North area as there is no access road. All construction activities should be completed to minimize the potential impacts to recreation (e.g. noise and dust) and water quality after Labor Day.

Proposed substrate improvements and obstruction removals only can be implemented after all necessary approvals and permits have been obtained. Permitting requirements and the need for additional approvals will be developed further, after mitigation measures are approved by the Deputy Director of the State Water Board.

3.1.1 Removal of Rocks 0.5-1 ft Diameter

Survey data compiled in 2010 and the orthophoto provided by TUD were used to quantify the rock size distribution and locations. During the 2010 survey, rocks with a 2 ft or greater diameter within 10 ft of the agreed upon transect lines were identified as potential impairments

to recreation usability. The orthophoto was then used to count rocks with approximately 1 ft diameter within the same boundaries as the survey. These data were combined to create a rock size distribution representative of the transects surveyed in 2010.

This distribution was used to predict the rock distribution for the entire beach for rocks within the 0.5-1.0 ft range. A detailed description of the rock quantity calculation methodology is presented in Appendix A.

As rocks greater than 1 ft in diameter serve as recreation features (e.g. places to sit), only rocks between 0.5 and 1 ft in approximate diameter will be considered for removal for substrate improvement to mitigate additional drawdown. Further, only rocks within elevations between 5,610 and 5,600 ft msl along the designated beach areas will be removed. See Figure 3-1 for approximate locations and areas that will receive treatment.

Rock removal potentially would be completed using front end loaders and dump trucks. Rocks with diameters between 0.5 and 1 ft would be excavated. Resulting holes will be filled with gravel, as deemed necessary to prevent potential hazards to beach users.

Excavated rocks would be placed in an agreed upon staging area for later removal from the site. See Table 3-1 for approximate quantities.

3.1.2 Stump Removal

During the fall 2010 survey, all stumps within 10 ft of transect lines were located. Similar to the analysis for the rock size distribution, stumps were counted resulting in a stump size distribution, with values for a 1-7 ft range in diameter (Figure A-2). This distribution was then used to quantify the number of stumps for the entire beach area (Table 3-2). See Appendix A for a detailed description on the quantity calculations. Stumps within elevations between 5,610 and 5,600 ft msl along the designated beach areas will be removed, or cut/ground down, as directed by the Forest Service in the field.

3.1.3 Mud Flats

As the water level drops, mud flats become exposed in certain areas. During photo monitoring conducted in 2010, the following transects were identified to have mud within the elevation range of 5,610 to 5,600 ft msl:

1. Transect 3A: Elevation 5,602 (Figure 3-2)
2. Transect 3B: None
3. Transect 3C: None
4. Transect 4:None
5. Transect 6:Elevations 5,610, 5,608, 5,607, 5,606, 5,605
6. Transect 7A: None
7. Transect 7B None

As mitigation, areas with excessive mud, approximate locations shown in Figure 3-3, will be excavated to a depth of 0.5 ft and back filled with rounded gravel (not crushed), as directed by the Forest Service.

3.2 MITIGATION MEASURE 2: BUOY LINE MODIFICATION

Currently, the existing buoy line delineating the swim area is stationary. Therefore, each drop in water surface elevation results in less protected swim area within the buoyed swim area. Using the orthophoto and surveyed points at elevation 5,610 ft msl the average distance from the waterline to the buoy line was 145 ft for the three transects within the buoyed swim area. At elevation 5,600 ft msl, the average distance from the waterline to the buoy line was 35 ft. The swim area found at elevation 5,610 ft msl represents the minimum swim area that currently occurs within the baseline water surface elevation range. Thus, to mitigate for the conditions due to drawdown to 5,600 ft msl, the area found at elevation 5,610 ft msl should be maintained at elevation 5,600 ft msl.

To provide equivalent protected swim area, the buoy line must be extended 110 ft further from shore. There are two possibilities to create the additional swim area needed for lake levels

between 5,610 and 5,600 ft msl. First, a movable buoy system can be constructed where the buoy line is moved horizontally as the water level drops. This requires creating removable links within the buoy cable and installing a marine winch that spools the excess cable when not in use. Additional mooring buoys would be located incrementally to allow the buoy line to be anchored further offshore.

The second possibility is to permanently extend the buoy line by anchoring the existing buoy line 110 ft msl further into the lake (Figure 3-4). This will provide additional buoyed swim area at both baseline (5,617 to 5,610 ft msl) and lower lake levels. This will maintain the existing buoyed swim area found at elevation 5,610 ft msl for lake levels down to 5,600 ft msl.

Currently, there is approximately 75 ft of clearance between the concrete boat launch ramp and the buoy line. This distance should be maintained as the buoy is extended as it is the minimum channel width as specified by the California Department of Boating and Waterways (CA Dept. of Boating & Waterways 1991). Further, the resulting extension moves the buoy line within 150 ft of the boat dock, which still provides sufficient access for boats to enter the launch ramp or docks.

Given both options, we recommend that the buoy line be actively moved, when draw down of the lake will result in lake levels of less than 5,610 ft msl prior to Labor Day. This will mitigate additional drawdown, but not provide excess swim area, when lake levels are maintained at or above 5,610 ft msl prior to Labor Day. Once the basic strategy is agreed to, the logistics and operations for this procedure need to be further developed.

3.3 MITIGATION MEASURE 3: INCREASED PUBLIC AWARENESS

To inform potential lake users and the Pinecrest Lake Resort of expected conditions at Pinecrest Lake the public will need to be notified in advance regarding anticipated drawdown conditions. As such, a public communications plan will be developed to meet this need. The communications plan will serve to mitigate the potential impact to public expectations for lake conditions. The communications plan would be used to address communications to the public

for those years in which drawdown below 5,610 ft msl prior to Labor Day is expected. The communications plan would be implemented upon Forest Service approval of a drawdown curve that would result in a drawdown below 5,610 ft msl prior to Labor Day. This will allow the public and local businesses to anticipate the upcoming lake conditions and plan accordingly.

The communications plan will include the following components:

1. Website Notifications: Possible URLs include the National Camp Reservations website.
2. Flyers posted at local business and facilities within Pinecrest Lake.
3. A permanent sign, centrally located, that describes both the anticipated water year and the timing of different lake levels.
4. A specific anticipated pre-Labor Day lake level that triggers the communication strategy.
5. Notification to the Pinecrest Lake Resort.
6. Schedule for communications.

Overall, the communications plan will outline how the public will be notified, when the public will be notified and who is responsible for ensuring proper notification. The draft communications plan would be prepared by PG&E within 90 days of the approval of this proposal by the State Water Board. It will be provided to State Water Board staff, Forest Service, TUD, and CDFG for consultation. After resolving the comments of the agencies, the final communications plan would be sent to the Deputy Director of the State Water Board for approval and filed with FERC upon approval.

4.0 RECREATION FACILITY SPECIFIC MITIGATION RECOMMENDATIONS

During the Pinecrest Lake Level Study (PG&E 2011), seven recreation facilities were evaluated with respect to potential recreation usability due to lowered lake levels. Section 3 of this proposal described general mitigation measures needed to enhance conditions resulting in impaired or severely impaired recreation usability criteria to an unimpaired status. This section focuses on how these measures apply to each of the seven recreation facilities.

The recreation usability criteria developed for the lake level study were unique to each facilities' recreational use. A brief summary of the results found for each facility and criterion are presented, as well as the recommended mitigation measures. The intent is to remove potential impairments to recreation usability for lake levels between 5,610 and 5,600 ft msl prior to Labor Day. As such, a facility that does not currently become impaired due to lowered lake level will not have proposed mitigation.

An overview of the recommended, facility specific, mitigation measures discussed in Section 3 of this proposal are presented in Table 4-1.

4.1 RECREATION FACILITY 1: GAS DOCK & SLIPS

4.1.1 Summary of Results:

Criterion No. 1 Number of Usable Dock Fingers: All boat dock fingers were usable up to elevation 5,603 ft msl. When the elevation reaches elevation 5,602 ft msl, a portion of one of the fingers is no longer usable and typically removed, resulting in a six percent reduction in the number of usable dock fingers. As greater than 75 percent of the dock fingers remain usable, as compared to the baseline values, this reduction was not defined as a potential impairment to recreation usability.

Mitigation Recommended: None

Criterion No. 2 Pedestrian Access to Boat Slips: At higher water elevations, pedestrian access is provided to the boat slips via a metal ramp that connects to the top of the stationary wooden deck to the floating main dock and dock fingers.

At elevation 5,611 ft msl, the platform holding the metal ramp is lowered and the adjacent stairway provides access from the wooden deck to the boat dock platform. Therefore, access to the boat slips was available at all elevations studied; however, at the lower elevations (below elevation 5,611 ft msl), access is provided by the staircase and ramp rather than by only the

metal ramp. Overall, usability is not impaired for this criterion at any study elevation when compared to the baseline average

Mitigation Recommended: None

Criterion No. 3 Boater Access to the Gas Dock: The depth of water was assessed for each studied elevation; depths ranged from a high of 26 ft at elevation 5,617 ft msl to a low of 4 ft at 5,595 ft msl. A boat draft of 4 ft was assumed as a maximum draft necessary for the typical boat that would access the gas dock. This provides a conservative estimate of the maximum draft needed by a typical boat found on Pinecrest Lake. This depth was applied to determine the clearance for boats accessing the gas dock. Based on this assessment, boats can access the gas dock down to the lowest studied elevation of 5,595 ft msl resulting in no impairment to recreation usability due to lowered lake level

Mitigation Recommended: None

Criterion No. 4 Site Assessment of Physical Obstructions: There were no physical obstructions observed during field observations for elevation 5,617 to 5,595 ft msl.

Mitigation Recommended: None

4.1.2 Summary of Mitigation Proposal for Facility 1

With respect to the recreation usability criteria evaluated for the Boat Dock and Slips, there is no mitigation proposed. However, as part of the communication plan proposed in Section 3 of this report, it is recommended that the Pinecrest Lake Resort receive annual notification of the approved drawdown curve, when drawdown to a lake level of less than 5,610 ft msl is proposed prior to Labor Day.

4.2 RECREATION FACILITY 2: BOAT RAMP AND COURTESY DOCK

4.2.1 Summary of Results:

Criterion No. 1 Pedestrian Access to the Boat Ramp: The overall slope of the boat ramp is approximately 12.5 percent. This corresponds with the guidelines set in the California Department of Boating and Waterways criteria for boat launching facilities (California Department of Boating and Waterways, 1991). Further, there was no observed grade break or obstruction that would prevent pedestrian access. Overall, there was no observed impairment for this criterion when compared to the baseline average.

Mitigation Recommended: None

Criterion No. 2 Pedestrian Access to the Courtesy Dock: At all lake levels studied, the courtesy dock was located at a sufficient distance from the waterline to provide access. Overall, usability is not impaired when compared to the baseline average.

Mitigation Recommended: None

Criterion No. 3 Assessment of Safety and Potential Recreational Use Conflict Issues: There was no observed safety or recreation conflict observed during the study period. Overall, usability is not impaired when compared to the baseline average.

Mitigation Recommended: None

4.2.2 Summary of Mitigation Proposal for Facility 2

No mitigation is proposed for the Boat Ramp and Courtesy Dock at this time.

4.3 RECREATION FACILITY 3: BUOYED SWIM AREA

4.3.1 Summary of Results

Criterion No. 1 Pedestrian Shoreline Access Quality: Transects 3A, 3B and 3C, all located within the Buoyed Swim Area, had observed impairments to recreation usability within the elevation range 5,610 to 5,600 ft msl.

Mitigation Recommended: Potential obstructions and hazards to pedestrian access should be removed between the elevations of 5,610 and 5,600 ft msl, as directed onsite by the Forest Service. This includes boulders and stumps 1 ft or greater in diameter and protruding from the beach surface by 1 ft or more.

Criterion No. 2 Beach Quality: Transects 3A and, all located within the Buoyed Swim Area had observed impairments to recreation usability within the elevation range 5,610 to 5,600 ft msl.

Mitigation Recommended: Substrate improvements, as described in Section 3.1 of this report, should be implemented for areas within the Buoyed Swim Area for elevations between 5,610 and 5,600 ft msl, as directed by onsite by the Forest Service.

Criterion No. 3 Net Usable Beach: There were no observed impairments to recreation usability when compared to the baseline average for this criterion.

Mitigation Recommended: None

Criterion No. 4 Available Swim Area: The available swimming area becomes impaired at elevation 5,608 ft msl and severely impaired at elevation 5,605 ft msl and below.

Mitigation Recommended: An adjustable buoy line should be installed as described in Section 3.2 of this report to increase area.

Criterion No. 5 Usable Wading Area: Usable wading area was observed to be either impaired or severely impaired for all elevations below 5,610 ft msl.

Mitigation Recommended: Usable wading area is dependent on both the location of the buoy line and the condition of the substrate. Therefore, it is recommended that the substrate improvement mitigation measures described in Section 3.1 be employed for elevations between 5,610 and 5,600 ft msl, as directed onsite by the Forest Service. Further, the adjustable buoy line, as described in Section 3.2, should be implemented to increase the amount of available wading area.

Criterion No. 6 Potential Swimming Hazards: Potential swimming hazards were found for transect 3B within the buoyed swim area for elevations between 5,608 and 5,596 ft msl. Further transects 3A and 3C had observed impairments, when compared to baseline values, for elevation 5,608 and 5,607 ft msl.

Mitigation Recommended: Due to the high variability in location of potential swimming hazards, it is recommended that potential hazards be identified and removed for selected elevations between 5,610 and 5,600 ft msl, as directed by the Forest Service onsite.

4.3.2 Summary of Mitigation Proposal for Facility 3

Substrate improvement, as defined in Section 3.1 and an adjustable buoy line, as described in Section 3.2 are proposed for elevations 5,610 to 5,600 ft msl. Further, potential hazards should be removed for elevations 5,610 to 5,600 ft msl, as directed onsite by the Forest Service.

4.4 RECREATION FACILITY 4: MIXED DAY-USE AREA

4.4.1 Summary of Results

Criterion No. 1 Pedestrian Shoreline Access Quality: Overall, usability was observed to be unimpaired at all study elevations for this criterion when compared to the baseline values

Mitigation Recommended: None

Criterion No. 2 Beach Quality: Overall, usability was observed to be unimpaired at all study elevations, except 5,600 ft msl, when compared to the baseline values.

Mitigation Recommended: Substrate improvements, as described in Section 3.1 of this report should be implemented at elevation 5,600 ft msl, as directed by the Forest Service.

Criterion No. 3 Net Usable Beach: Overall, usability was observed to be unimpaired at all study elevations, when compared to baseline values.

Mitigation Recommended: None

Criterion No. 4 Usable Wading Area: Overall, usability was observed to be unimpaired at all study elevations, when compared to the baseline values.

Criterion No. 5 Potential Swimming Hazards: For elevations 5,608, 5,606, and 5,600 to 5,595 ft msl, the number of submerged objects increases, resulting in impairment or severe impairment related to swimming hazards. The potential for swimming hazards worsens because more submerged objects are located up to six ft below the water surface within 10 ft of the transect line when compared to baseline values.

Mitigation Recommended: Due to the high variability in location of potential swimming hazards, it is recommended that potential hazards be identified and removed for selected elevations between 5,610 and 5,600 ft msl, as directed by an onsite Forest Service representative.

Criterion No. 6 Boating Access and Potential Hazards: The criterion for potential boating hazards was observed to be impaired at elevations 5,606, 5,599 and 5,598 ft msl and severely impaired at elevations 5,604, 5,603, 5,596 and 5,595 ft msl.

Mitigation Recommended: Due to the high variability in location of potential boating hazards, it is recommended that potential hazards be identified and removed for selected elevations between 5,610 and 5,600 ft msl as directed by an onsite Forest Service representative.

4.4.2 Summary of Mitigation Proposals for Facility 4

Substrate improvements, as described in Section 3.1 of this report, should be implemented for elevation 5,600 ft msl. Further, the removal of potential hazards to both swimming and boating should be identified and removed for selected elevations from 5,610 to 5,600 ft msl, as directed onsite by the Forest Service.

4.5 RECREATION FACILITY 5: ADA-ACCESSIBLE FISHING PLATFORMS

4.5.1 Summary of Results

Criterion No. 1 Fishing Opportunities from the Upper Platform: The Upper Platform was determined to be unusable (i.e. not in contact with the lake) within the baseline range. Thus, while still unusable at the study elevations, it is not impaired due to lowered lake level.

Mitigation Recommended: None

Criterion No. 2 Fishing Opportunities from the Lower Platform: The Lower Platform was determined to be inaccessible in the baseline range (i.e. below the water surface). Thus, while usable at between elevations 5,610 to 5,605 ft msl it is not impaired when compared to baseline values.

Mitigation Recommended: None

4.5.2 Summary of Mitigation Recommendations for Facility 5

No mitigation is recommended at this time.

4.6 RECREATION FACILITY 6: OVERFLOW AREA, SOUTH SHORE

4.6.1 Summary of Results

Criterion No. 1 Pedestrian Shoreline Access Quality: Overall, usability was observed to be impaired or severely impaired for this criterion at study elevations 5,608, 5,607, 5,605, and 5,597 ft msl when compared to the baseline average.

Mitigation Recommended: Potential hazards and impediments to pedestrian access should be identified and removed as directed by the Forest Service for selected elevations between 5,610 to 5,600 ft msl.

Criterion No. 2 Beach Quality: Overall, usability is impaired or severely impaired for this criterion at study elevations 5,608-5,604, 5,602, 5,600, 5,598 and 5,597 ft msl when compared to the baseline average.

Mitigation Recommended: Substrate improvements should be implemented, as described in Section 3.1 of this report for selected elevations from 5,610 to 5,600 ft msl, as directed by the Forest Service.

Criterion No. 3 Net Usable Beach: Overall, usability was observed to be unimpaired for this criterion at all study elevations when compared to the baseline average.

Mitigation Recommended: None

Criterion No. 4 Usable Wading Area: Overall, usability was observed to be impaired or severely impaired for this criterion at study elevations 5,608 to 5,605, 5,598 and 5,597 ft msl, when compared to the baseline average.

Mitigation Recommended: Substrate improvements, as described in Section 3.1 of this report, should be implemented for selected elevations between 5,610 and 5,600 ft msl, as directed by the Forest Service.

Criterion No. 5 Potential Swimming Hazards: Potential swimming hazards were observed to be impaired at elevation 5,608 and 5,607 ft msl. After elevation 5,607 ft msl, however, the

number of submerged objects falls within 25 percent of the baseline average and remains categorized as unimpaired until elevation 5,598 ft msl.

Mitigation Recommended: Due to the high variability in location of potential swimming hazards, it is recommended that potential hazards be identified and removed for selected elevations between 5,610 and 5,600 ft msl, as directed by the Forest Service representative onsite.

Criterion No. 6 Boating Access and Potential Hazards: Both elevations 5,608 and 5,607 ft msl were observed to be impaired or severely impaired for potential boating hazards. No other elevations contain both impaired access quality and potential hazards. This results for usability for Criterion No. 6 are categorized as impaired and severely impaired at elevations 5,608 and 5,607 ft msl, respectively.

Mitigation Recommendation: Due to the high variability in location of potential boating hazards, it is recommended that potential hazards be identified and removed for selected elevations between 5,610 and 5,600 ft msl, as directed by the Forest Service representative onsite.

4.6.2 Summary of Mitigation Proposals for Facility 6

Substrate improvements, as described in Section 3.1 of this report should be implemented for elevation 5,600 ft msl. Further, the removal of potential hazards to both swimming and boating should be identified and removed for elevations 5,610 to 5,600 ft msl, as directed by the Forest Service.

4.7 RECREATION FACILITY 7: OVERFLOW AREA, NORTH SHORE

4.7.1 Summary of Results

Criterion No. 1 Pedestrian Shoreline Access Quality: Overall, usability was observed to be impaired or severely impaired for this criterion at study elevations 5,608 and 5,600 to 5,597 ft msl, when compared to the baseline average.

Mitigation Recommended: Potential hazards to pedestrian access should be identified and removed for selected elevations between 5,610 and 5,600 ft msl, as directed by the Forest Service.

Criterion No. 2 Beach Quality: Overall, usability was observed to be impaired or severely impaired for this criterion at study elevations 5,608, 5,607, 5,604, 5,600 to 5,597 and 5,595 ft msl, when compared to the baseline average.

Mitigation Recommended: Substrate improvements, as described in Section 3.1 of this report, should be implemented for selected elevations between 5,610 and 5,600 ft msl, as directed by the Forest Service.

Criterion No. 3 Net Usable Beach: Overall, usability was observed to be unimpaired for this criterion at all study elevations when compared to the baseline average.

Mitigation Recommended: None

Criterion No. 4 Usable Wading Area: Overall, usability was observed to be impaired for this criterion at study elevations 5,608, 5,605, 5,601 to 5,598, 5,596 and 5,595 ft msl, when compared to the baseline average.

Mitigation Recommended: Substrate improvements, as described in Section 3.1 of this report, should be implemented for selected elevations between 5,610 and 5,600 ft msl, as directed by the Forest Service.

Criterion No. 5 Potential Swimming Hazards: Potential Swimming Hazards were found to be severely impaired for this criterion at study elevations 5,608 and 5,601 to 5,596 ft msl, when compared to the baseline average.

Mitigation Recommended: Due to the high variability in location of potential swimming hazards, it is recommended that potential hazards be identified and removed for selected elevations between 5,610 and 5,600 ft msl, as directed by an onsite Forest Service representative.

Criterion No. 6 Boating Access and Potential Hazards: Along Transect No. 7A, potential boating hazards were observed and the criterion was classified severely impaired at elevations 5,608, 5,607, and 5,604 ft msl and impaired at elevations 5,603, 5,598 and 5,597 ft msl. Potential boating hazards along Transect No. 7B were observed to be unimpaired within the study elevation range until the final three elevations studied (5,597 to 5,595 ft msl).

Mitigation Recommended: Due to the high variability in location of potential boating hazards, it is recommended that potential hazards be identified and removed for selected elevations between 5,610 and 5,600 ft msl, as directed by an onsite Forest Service representative.

4.7.2 Summary of Mitigation Proposals for Facility 7

Substrate improvements, as described in Section 3.1 of this report, should be implemented for elevation 5,600 ft msl. Further, the removal of potential hazards to both swimming and boating should be identified and removed for selected elevations between 5,610 and 5,600 ft msl, as directed by the Forest Service.

4.8 SUMMARY

The proposed mitigation measures address all identified impairments to the recreational facility usability that would occur at lake level elevations between 5.610 and 5,600 ft msl. These measures provide protective and mitigation measures that decrease impairments to baseline levels and thereby, protects recreational uses, specifically, Day-Use Area beaches, the marina to just east of the handicap fishing access, and other areas as directed by the State Water Board.

5.0 REFERENCES

California Department of Boating and Waterways. 1991. Layout, Design and Construction Handbook for Small Craft Boat Launching Facilities.

Pacific Gas and Electric Company (PG&E). 2010. Pinecrest Reservoir Lake Level Study Plan. Spring Gap-Stanislaus Project (FERC Project No. 2130). April 2010.

PG&E. 2011. Pinecrest Reservoir Lake Level Study Report. Spring Gap-Stanislaus Project (FERC Project No. 2130). February 2011.

TABLES

Table 5-1. Overview of Impairments to Recreation Usability at Recreation Facilities Evaluated in Lake Level Study.

Facility No.	Name	Impaired in Baseline¹	Impaired for Elevations 5,608-5,600 ft msl	Impaired for Elevations below 5,600 ft msl
1	Gas Dock and Slips	No	No	No
2	Boat Launch Ramp and Courtesy Dock	No	No	No
3	Buoyed Swim Area	Yes	Yes	Yes
4	Mixed Day-Use	Yes	Yes	Yes
5	ADA-Accessible Fishing Platforms	Yes	Yes	Yes
6	Overflow Area, South Shore	Yes	Yes	Yes
7	Overflow Area, North Shore	Yes	Yes	Yes

¹ Yes: Indicates that the facility was impaired or severely impaired for one or more criteria in this elevation range.

No: All criteria were unimpaired in this elevation range.

Table 5-2. Approximate Rock Quantities to be Removed from Beach Areas.

Diameter	Count/Area	Overflow North No. of Rocks	Buoyed Swim Area No. of Rocks	Overflow South No. of Rocks	Unit Volume ¹ (cubic feet)	Overflow North (tons)	Buoyed Swim Area (tons)	Overflow South (tons)	Overflow North (Cubic Yards)	Buoyed Swim Area (Cubic Yards)	Overflow South (Cubic Yards)
0.5	0.08242399	3,809	9,087	11,217	0.065	13	31	38	9	22	27
0.75	0.03245038	1,499	3,577	4,416	0.22	331	790	975	12	29	36
1	0.01674888	774	1,846	2,279	0.52	405	966	1,193	15	36	44
								Total (Cubic Yards)	36	87	107

¹. Assuming spheres with a volume of $\frac{4}{3}\pi r^3$

Table 5-3. Approximate Stump Quantities to be Removed from Beach Areas.

Diameter (ft)	Quantity¹	Count/ft²	Overflow-North Nos. of Stumps	Buoyed Swim Area Nos. of Stumps	Overflow South Nos. of Stumps
1	9	0.0002292	11	25	31
2	3	7.641E-05	4	8	10
3	2	5.094E-05	2	6	7
4	1	2.547E-05	1	3	3
5	1	2.547E-05	1	3	3
6	1	2.547E-05	1	3	3
7	1	2.547E-05	1	3	3
		Total	21	51	62

¹. Qty: Predicted quantity along surveyed transects using power equation

². Count/ft² = Predicted quantity divided by area survey along transects

Table 5-4. Overview of Recommended Mitigation Measures By Facility

Mitigation Measure	Recreation Facility						
	1-Gas Dock and Slips	2-Boat Ramp and Courtesy Dock	3-Buoyed Swim Area	4-Mixed Day-Use	5-ADA-Accessible Fishing Platforms	6-Overflow Area, South Shore	7-Overflow Area, North Shore
Mitigation Measure No. 1: Substrate Improvement							
Rock Removal¹	Not Recommended	Not Recommended	Recommended	Recommended	Not Recommended	Recommended	Recommended
Stump Removal	Not Recommended	Not Recommended	Recommended	Recommended	Not Recommended	Recommended	Recommended
Mud Removal	Not Recommended	Not Recommended	Recommended	Not Recommended	Not Recommended	Recommended	Not Recommended
Mitigation Measure No. 2: Buoy Line Modifications							
	Not Recommended	Not Recommended	Recommended	Not Recommended	Not Recommended	Not Recommended	Not Recommended
Mitigation Measure No. 3: Public Awareness Communication Plan							
	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended

¹ Rock removal includes rocks removed as part of substrate improvement (0.5 to 1.0 ft in diameter) and potential hazards to pedestrian access, swimming and boating. Potential hazards are identified onsite by the Forest Service and removed as directed by the Forest Service.

FIGURES



Figure 2-1. Pinecrest Reservoir Lake Level Study Recreational Features.

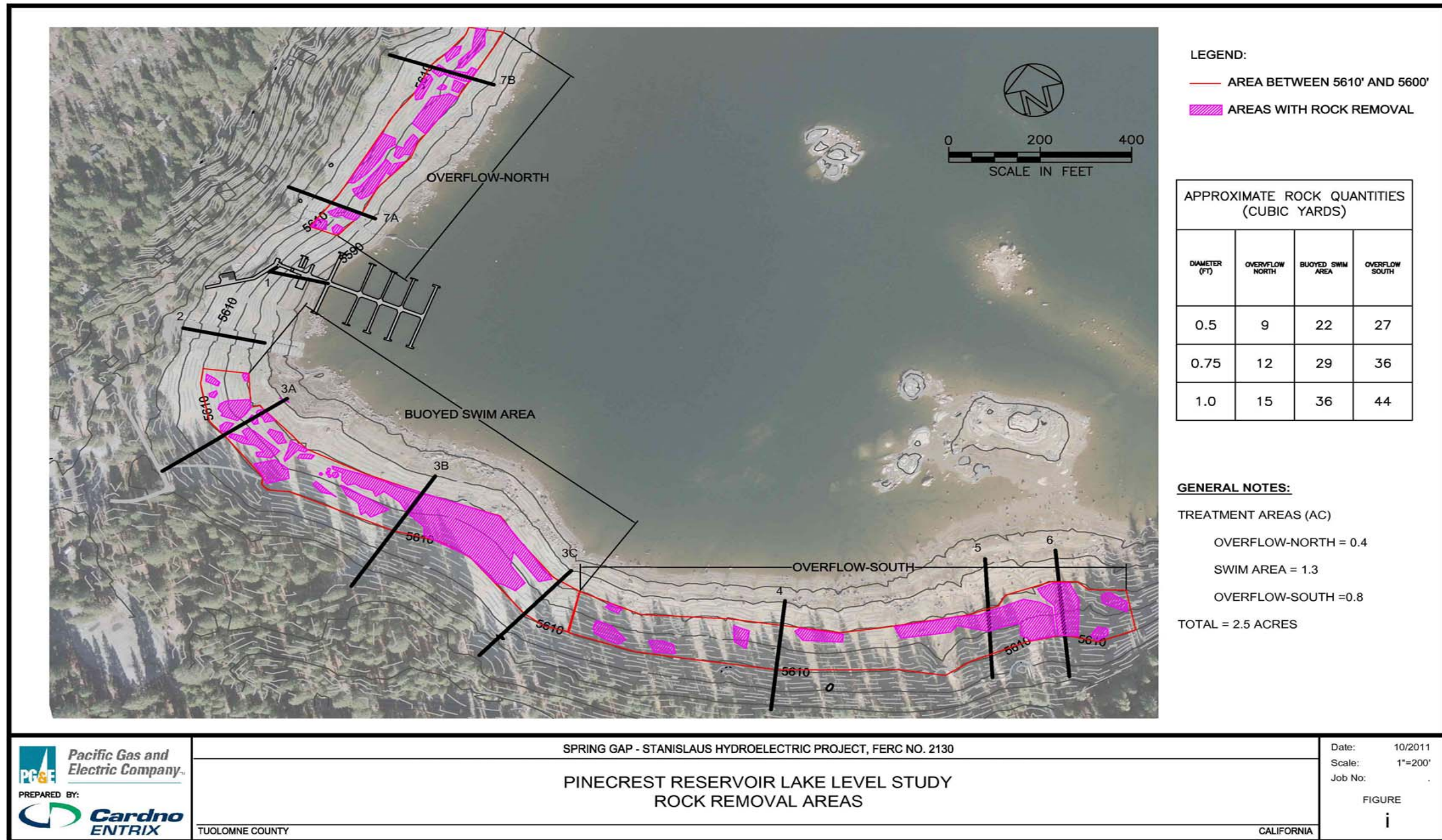


Figure 3-1. Approximate Locations of Rock Removal.



Figure 3-2. Typical Mud Flat.

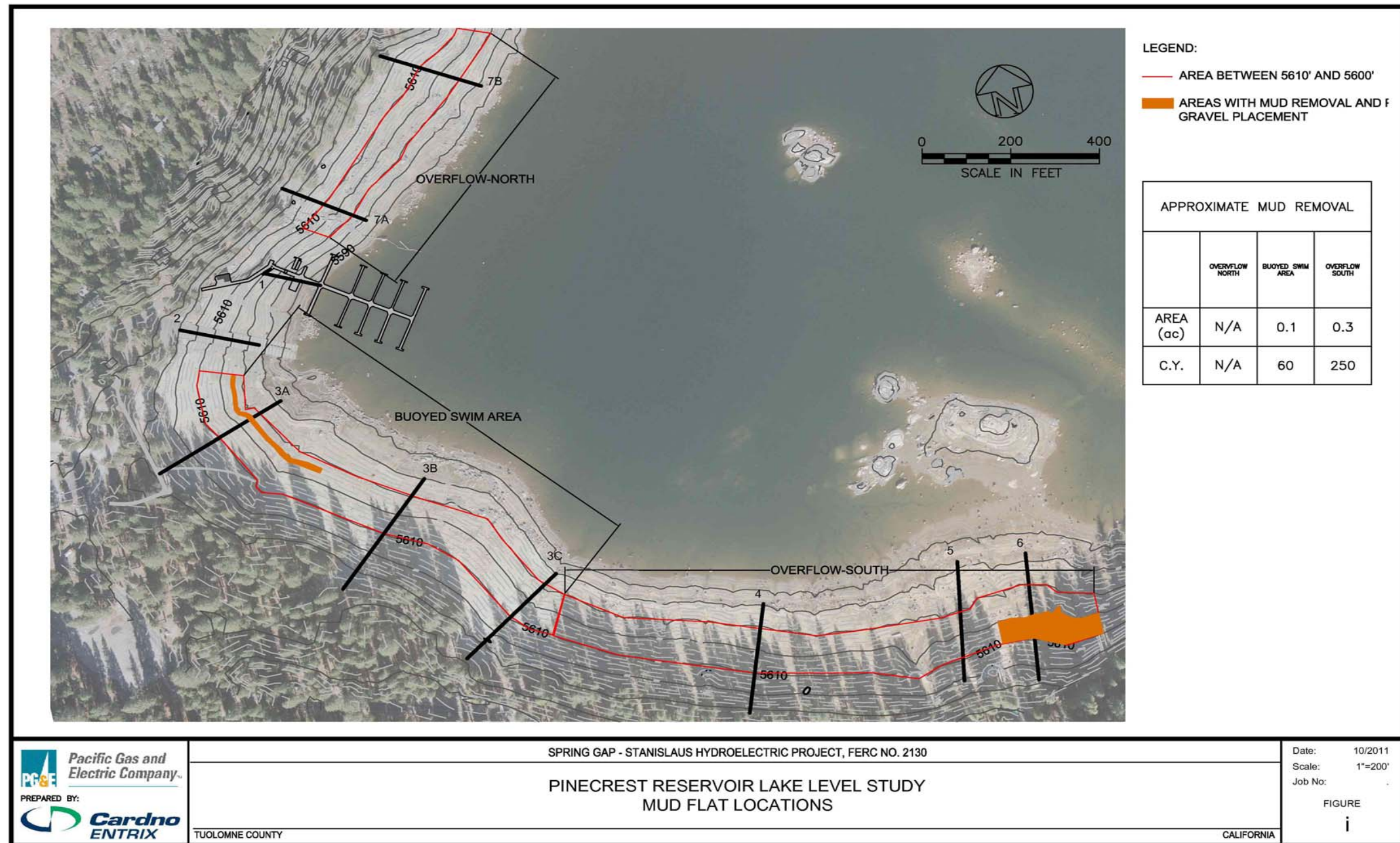


Figure 3-3. Approximate Locations of Mud Removal.

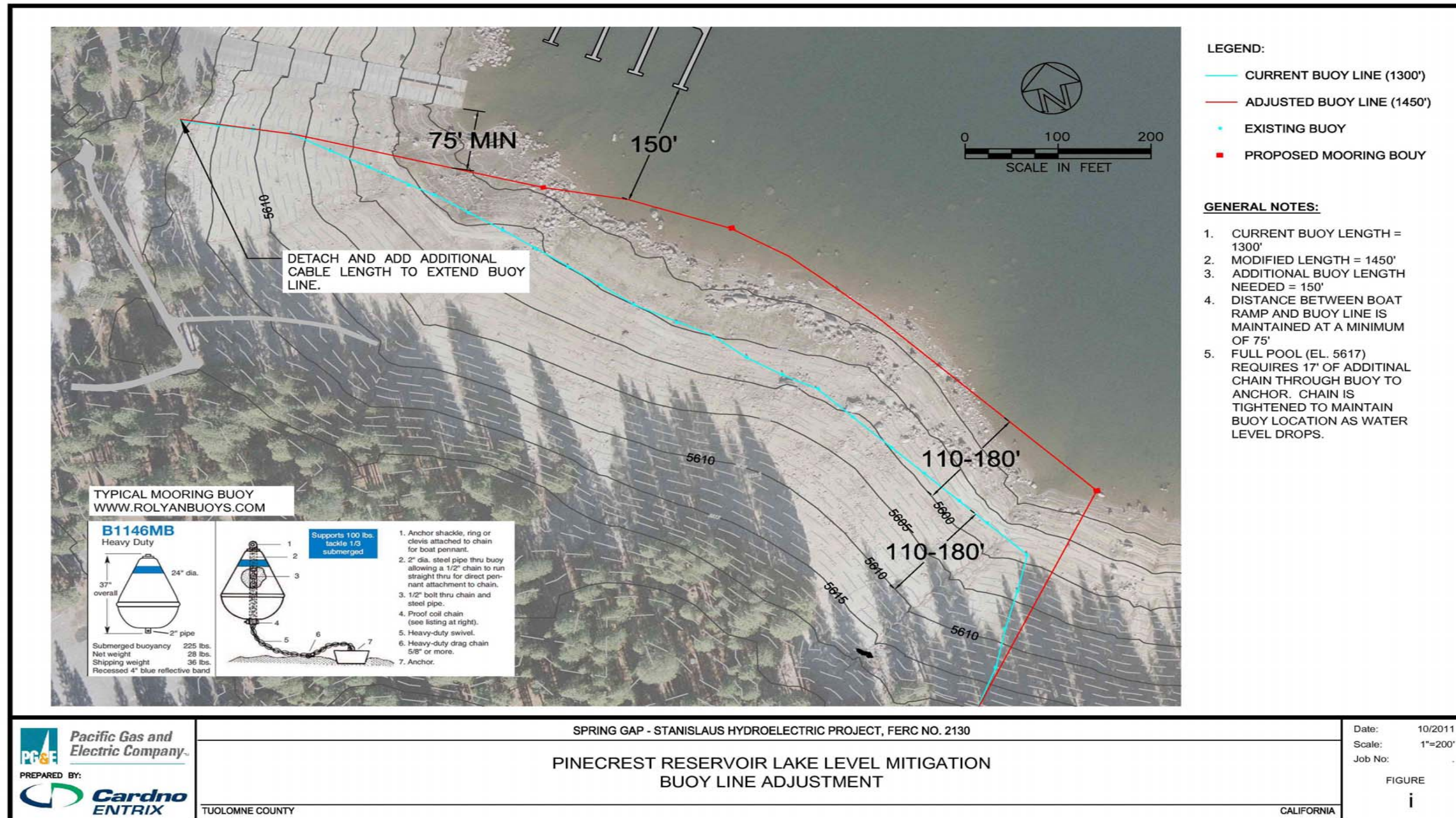


Figure 3-4. Proposed Buoy Line Modifications.

APPENDIX A
METHODS

During the fall of 2010, representative transects along the beach area (3A, 3B, 3C, 4, 6, 7A and 7B) were surveyed for potential hazards. These were defined as rocks with diameters greater than 2 ft and all stumps. Mitigation for substrate improvement requires the removal of rocks between 0.5 and 1 ft in diameter. Therefore, the existing survey and orthophoto data was used as a basis for estimating the quantity of rock within this range.

The distribution of rock sizes was first supplemented with manual counts, via the orthophoto supplied by TUD, of rocks approximately 1 ft in diameter along transect 3. This resulted in a rock size distribution ranging from 1 ft to 14 ft. This data was best fit with a power curve equation (Figure A-1).

Using this equation, the total for rocks with a 1 ft or less diameter can be predicted. First, the distribution from 0.5 to 14 ft for transect 3A was determined by applying the power equation. Next, each quantity was divided by the total area for transect 3A to obtain a rock size per unit area count. Finally, this value was scaled by the total beach area between elevations 5,610 and 5,600 ft msl to quantify the total quantity to be removed as a mitigation measure. When values from the power equation were compared to the known counts of rocks from the 2010 survey, the predicted counts were within 15 percent of the known values, on average (Table A-1).

The quantity of stumps for removal as mitigation was determined using a method similar to the rock analysis. As there were fewer overall stumps, all of the transects surveyed were used to create a stump size distribution (Figure A-2). As all observed stumps within 10 ft of the transect line were surveyed, this distribution did not need to be extended to a lower range, as was the case for the rock distribution.

For each diameter evaluated, the stump count was divided by the total transect area to provide a count per unit area. When compared to the surveyed quantities, the predicted values from the power equation are within 1 percent, on average (Table A-2).

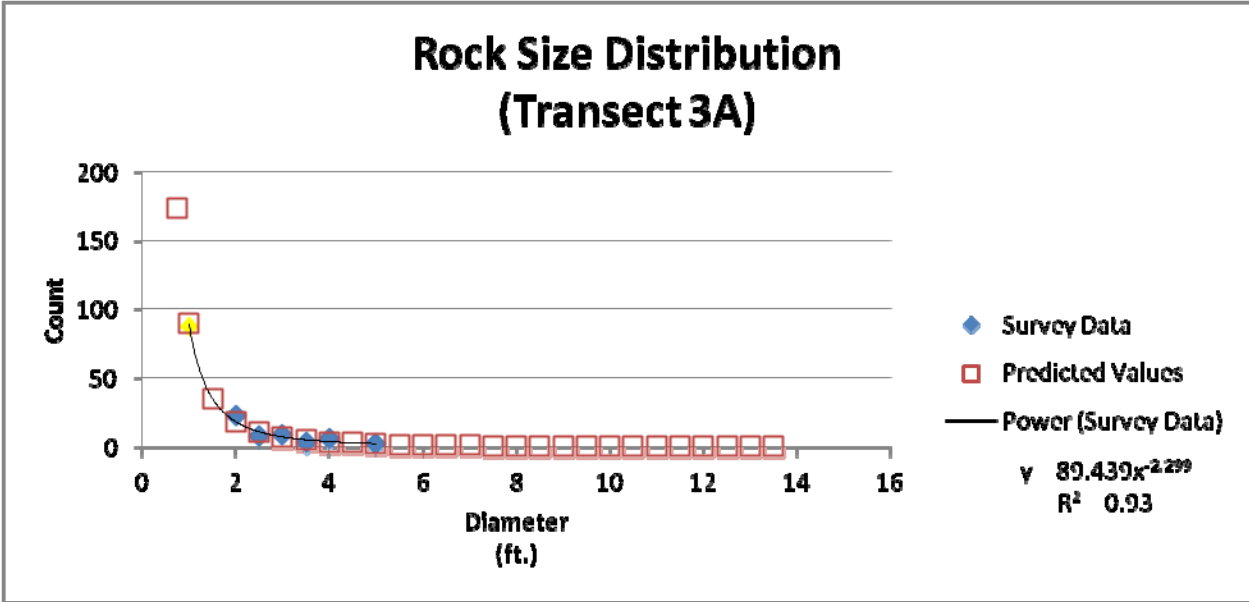


Figure A-1. Rock Size Distribution for Transect 3A within the Buoyed Swim Area.

Table A-1. Comparison of Predicted Values to Survey Counts along all Beach Transects.

Diameter (ft)	From Power Equation ¹ (Nos.)	Count/Area ² No./sq ft	Total ³ (Nos.)	Actual ⁴ (Nos.)	% Difference
0.5	440	0.08242399	3,236	#N/A ³	#N/A
0.75	173	0.03245038	1,274	#N/A	#N/A
1	89	0.01674888	658	#N/A	#N/A
1.5	35	0.00659404	259	#N/A	#N/A
2	18	0.00340344	134	187	-40
2.5	11	0.00203761	80	96	-20
3	7	0.00133994	53	89	-68
3.5	5	0.0009401	37	32	14
4	4	0.00069159	27	46	-70
4.5	3	0.00052753	21	1	95
5	2	0.00041405	16	13	19
5.5	2	0.00033258	13	1	92
6	1	0.00027228	11	5	55
6.5	1	0.00022652	9	#N/A	#N/A
7	1	0.00019103	7	1	86
7.5	1	0.00016301	6	#N/A	#N/A
8	1	0.00014053	6	3	50
8.5	1	0.00012225	5	#N/A	#N/A
9	1	0.0001072	4	#N/A	#N/A
9.5	1	9.4667E-05	4	#N/A	#N/A
10	0	8.4137E-05	3	5	-67
10.5	0	7.5209E-05	3	#N/A	#N/A
11	0	6.7581E-05	3	#N/A	#N/A
11.5	0	6.1016E-05	2	#N/A	#N/A
12	0	5.5328E-05	2	#N/A	#N/A
12.5	0	5.0372E-05	2	#N/A	#N/A
13	0	4.6029E-05	2	#N/A	#N/A
13.5	0	4.2203E-05	2	#N/A	#N/A
		Total	408	479	-
		Average	-	-	13

1. Calculated using equation: $\text{Count} = 89.439 \times \text{Diameter}^{(-2.299)}$.
2. Calculated as Power Equation value divided by Transect 3A area of 5,340 sq. ft.
3. Total is calculated as the count/area multiplied by the total area of the surveyed transects.
4. The “actual” values are the results of the 2010 survey data.
5. #N/A signifies that no values of this diameter were located in 2010 survey.

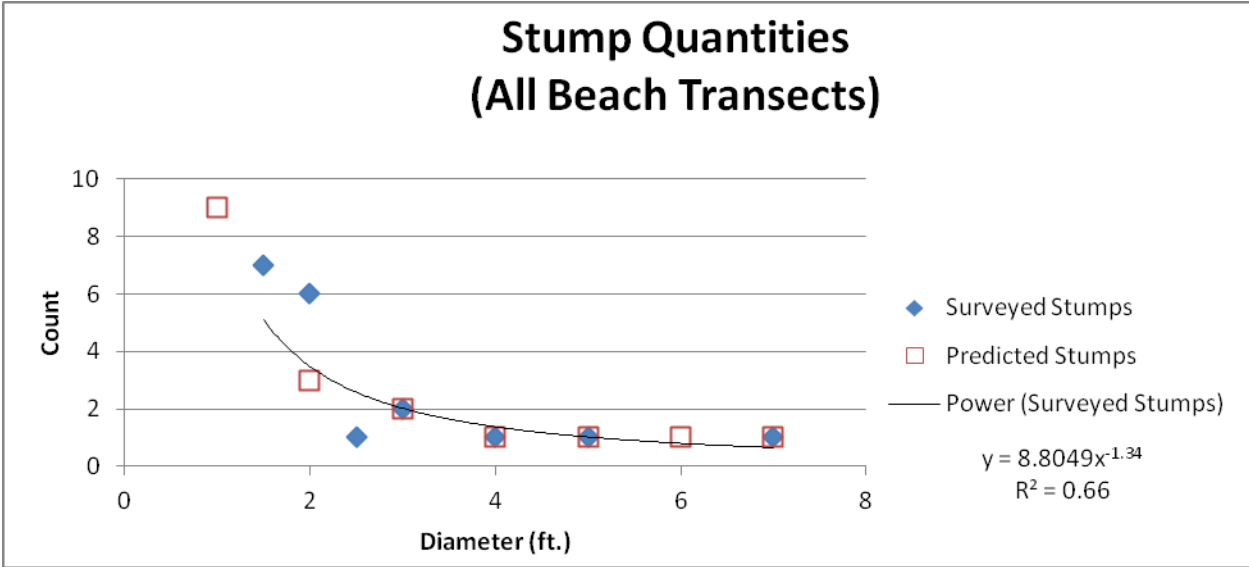


Figure A-2. Stump Quantities within 10 feet of Survey Transects.

Table A-2. Actual and Predicted Stump Quantities Along Transect Lines.

Diameter (ft)	From Power Equation¹ (Nos.)	Actual⁴ (Nos.)	% Difference
1	9	#N/A	#N/A
1.5	5	7	29
2	3	6	-100
2.5	3	1	67
3	2	2	0
3.5	2	#N/A	#N/A
4	1	1	0
4.5	1	#N/A	#N/A
5	1	1	0
5.5	1	#N/A	#N/A
6	1	#N/A	#N/A
6.5	1	#N/A	#N/A
7	1	1	0
Total	16	19	-
Average	-	-	-1

¹. Calculated using equation: $\text{Count} = 89.439 * \text{Diameter}^{(-2.299)}$.

². The “actual” values are the results of the 2010 survey data.

This value was then scaled by the total beach area found between elevations 5,610 and 5,600 ft msl to obtain the total predicted stumps for removal as mitigation for substrate improvement (Table 2.2).

APPENDIX B
CONSULTATION RECORD

Summary Table of Consultation for the Pit 3, 4, and 5 Project (FERC Project No. 233) Pinecrest Reservoir Lake-level Mitigation Proposal

CONTACT	DATE	TOPIC OF CONSULTATION
Correspondence		
To: R. Jackson (PG&E) cc: From: R. Brooke for K. Caldwell (Forest Service)	10-26-11	Forest Service comments on the Draft Pinecrest Reservoir Lake-level Mitigation suggestions.
Emails		
To: State Water Board, Forest Service, CDFG, TUD cc: From: R. Jackson (PG&E)	9-19-11	Email invitation to attend the Pinecrest Lake-level Mitigation Discussion to be held on for September 21, 2011.
To: R. Jackson (PG&E) cc: L. Webber (State Water Board) From: K. Kyler (State Water Board)	11-15-11	Emailing requesting a status update on the for the Pinecrest Lake-level Mitigation Proposal.
To: K. Kyler (State Water Board), L. Webber (State Water Board) cc: M. Fransz (PG&E), T. Moore (PG&E), W. Lifton (Cardno ENTRIX), M. Rudd (Cardno ENTRIX), P. Kampa (TUD) From: R. Jackson (PG&E)	11-15-11	Emailing containing a status update on the for the Pinecrest Lake-level Mitigation Proposal.
Telephone/Meeting Log		
	9-21-11	Summarized meeting notes from the Pinecrest Lake-level Study Results meeting
	12-2-11	Summarized meeting notes from the Pinecrest Lake-level meeting with State Water Board and TUD

CORRESPONDENCE



Forest
Service

Stanislaus National Forest
Summit Ranger District

#1 Pinecrest Lake Road
Pinecrest, CA 95364
(209) 965-3434
FAX: (209) 965-3372
TTY/TDD: (209) 965-0488
<http://www.fs.usda.gov/stanislaus>

File Code: 2770

Date: October 26, 2011

Ross Jackson
Senior License Coordinator
Pacific Gas and Electric
P.O. Box 770000
Mail Code N11C
San Francisco, CA 94177

Dear Mr. Jackson,

Thank you for the opportunity to provide suggestions for possible recreation mitigations related to the drawdown of Pinecrest reservoir. After reviewing the Pinecrest Reservoir Lake Level Study Report prepared by PG&E, which focuses on seven recreation facilities, I recommend the following mitigations:

Recreation Facility #1 – Gas Docks and Slips

- A. Provide annual notification to Pinecrest Lake Resort of the drawdown curve.
- B. Consult with Pinecrest Lake Resort on mitigation measures needed at various drawdown levels.

Recreation Facility #2 – Boat Ramp and Courtesy Dock

No mitigation is needed as the facility is not impaired due to lowered lake levels.

Recreation Facility #3 – Designated Buoyed Swim Area

- A. Maximize available swim area for as long as possible.
- B. Install a movable buoy line which can be adjusted as the water level falls.
- C. Remove safety hazards in Beach 1 & 2 (3a, 3b) from 5,608 to 5,604 OR minimal elevation for new buoy line, whichever comes first.

Recreation Facility #4 – Mixed Day-Use Area (adjacent to swim area)

- A. Remove safety hazards at 5,604 to 5,603 in designated boat mooring and launch area.

Recreation Facility #5 – ADA-Accessible Fishing Platforms

No mitigation is needed as the facility is not impaired due to lowered lake levels.

Recreation Facility #6 – Overflow Area, South Shore

No mitigation is needed as the facility is not impaired due to lowered lake levels.

Recreation Facility #7 – Overflow Area, North Shore



Caring for the Land and Serving People

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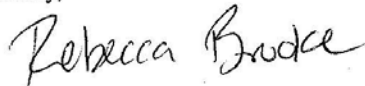
- A. Remove safety hazards from 5,610 to 5,607 in boat mooring area.

Additional Mitigations

- A. Develop a communication plan within 90 days of the issuance of a new certification that describes public notification actions when drawdown will be greater than 5,610 before Labor Day. Implement this communication plan in applicable years.
- B. The Lake Level Study Report did not address social/behavioral changes of users as the lake level decreases. The Forest Service is concerned about unanticipated consequences of drawdown due to changing visitor behavior. To mitigate this, we propose that PG&E monitor behavior as lake levels go down in order to develop and implement a mitigation plan. Social monitoring would be triggered by two or more consecutive years of levels at or below 5,607 OR more than 25 complaints on recreational impacts due to lake draw down.
- C. Any complaints received by the Forest Service regarding lake level will be forwarded to PG&E for response with a CC to the Forest Service.

Again, I appreciate the opportunity to provide suggestions. Please be advised that the Forest Service believes that the Lake Level Study validated the elevation requirements of the 4e condition.

Sincerely,



/s/ Rebecca Brooke (for):
KAREN JO CALDWELL
District Ranger

HYDRO LICENSING			
ORIG.		CC:	
OCT 27 2011			
FERC NO. 2130	TRACK NO. 2070692-001		
FILE NO.	ACTION:		

EMAILS

From: Jackson, Ross
Sent: Tuesday, September 19, 2011 3:32 PM
To: State Water Board, Forest Service, CDFG, TUD
Subject: Pinecrest Lake-level Study Discussion
When: Wednesday, September 21, 2011 1:00 PM-3:00 PM (GMT-08:00) Pacific Time (US & Canada).
Where: TUD's Conference Room

Added Genesys Call- In Number: 1-877-481-7042 Meeting number: *4159732749*

Update: I have added Kari Kyler of the State Water Resources Control Board to the invite list.

This meeting will be to discuss the results of the Pinecrest Lake-level study results and potential mitigation measures.

Matt: Could you please forward to Entrix and request Mike to attend to discuss mitigation.

Casey: Could you please reserve TUD's conference room and confirm with Pete whom should attend.

FS: I see that Karen, Beth and Julie are confirmed to attend. Is Sue Warren attending? If so please forward this invite.

Ross Jackson
Senior License Coordinator
Pacific Gas & Electric Co.
245 Market St.
San Francisco, CA 94105-1702
(415) 973-5747

From: Kari Kyler
Sent: Tuesday, November 15, 2011 8:16 AM
To: Jackson, Ross
Cc: Lori Webber
Subject: Draft Pinecrest Lake Level

Ross-

Just checking in with you to see how the draft recommendation for the Pinecrest Minimum Lake Level is coming along. Also, just to let you know Lori Webber has joined the FERC unit and is now the new lead for this project. All future correspondence should be directed to Lori with a cc: to me, if you have any questions please give us a call.

Thank you,

Kari Kyler
Environmental Scientist
Bay-Delta Unit
State Water Resources Control Board
P.O. Box 2000 Sacramento, CA 95812
(916) 445-5987

From: Jackson, Ross
Sent: Tuesday, November 15, 2011 9:48 AM
To: Kari Kyler; Lori Webber
Cc: Fransz, Matthew D; Moore, Terry; Wayne Lifton; Mike Rudd; petek; Jackson, Ross
Subject: RE: Draft Pinecrest Lake Level

Welcome Lori.

A quick update; just got back from an extended vacation. We have received comments from FS regarding mitigation on lake level. We have a conf call this afternoon to discuss "response to comments" of the comments WB received and start the draft request letter.

It looks like we will be requesting (as discussed) the 5608' elevation be replaced with a 5605' in Normal-Wet and Wet water year types and a 5600 in Normal-Dry and Dry water year types. Critical dry water-year types are addressed in Condition 5 of the 401 Cert and Condition 34 in the FS 4(e).

In our request, we will also be suggesting mitigation for lower lake levels.

Regards:

Ross Jackson
Senior License Coordinator
Pacific Gas & Electric Co.
245 Market St.
San Francisco, CA 94105-1702
(415) 973-5747

TELEPHONE/MEETING LOG

Pinecrest Lake-level Study Results - Next Steps

Wednesday, September 21, 2011

Time: 1:00 p.m. – 3:00 p.m.

Coordinator: Ross Jackson

Tuolumne Utility District
18885 Nugget Blvd. Sonora, CA 95370
Teleconference: **1-877-481-7043**, Meeting #***415-973-2749***

Note taker: Veronica Romero

Participants:

NAME	ORGANIZATION
<i>Via Teleconference</i>	
Tracy Weddle	U.S. Forest Service (Forest Service)
Kari Kyler	State Water Resources Control Board (State Water Board)
Ross Jackson	Pacific Gas & Electricity (PG&E)
Veronica Romero	Cardno ENTRIX
Karen Caldwell	Forest Service
Pete Kampa	Tuolumne Utilities District (TUD)
Tom Scesca	TUD
Matt Frasz	PG&E
Mike Rudd	Cardno ENTRIX
Wayne Lifton	Cardno ENTRIX
Rebecca Brodee	Forest Service
Julie Martin	Forest Service

Introductions (Group)

Ross Jackson kicked-off introductions.

Background (Ross Jackson, PG&E)

Cardno ENTRIX conducted the Pinecrest Lake level study in 2010 and completed the report in 2011; the report was reviewed and approved by the State Water Board Deputy Director June 17, 2011. The approved report has been reviewed by all interested and involved parties. The conditions identified in the report such as drawdown and water year types are in line with the Project's license conditions.

Ross provided clarification around the water year types: Even though six water year types are identified in the license (Forest Service (FS) 4(e) Condition 33 and State Water Board 401 Condition 1), five are of the six are functional: Normal-Dry and Normal-Wet are sub-types to "Normal". As required by the FS4(e) Condition 34 and State Water Board 401 Condition 2, once the water year type is identified, and by April 15th, PG&E shall submit a proposed drawdown curve; estimated streamflow regime; the previous year's flow gage daily data; and Relief Reservoir water surface elevations to the Forest Service and State Water Board's Deputy Director respectively.

The minimum lake level elevation identified in FS 4(e) Condition 34 is 5,610 ft msl, between the end of spill and Labor Day, and considers consumptive, ecological, and power generation usage. The revised State Water Board 401 Condition 4 identifies 5,608 ft msl as the minimum lake level. If a lake level less than 5,610 ft msl is proposed prior to Labor Day, the Forest Service will need to approve this level and the estimated drawdown curve.

TUD is engaged in these discussions as they pertain to the daily operations and consumer usage. TUD seeks to make sure the requirements between the 4(e) Condition and the 401 Certification are clear in these matters.

Karen Caldwell asked the State Water Board how the elevation of 5,608 ft msl was determined. Kari Kyler replied that according to her predecessor, Russ Kanz, it was determined during negotiations that occurred between all of the entities concerned. Ross Jackson added that the 401 Condition 5 grants a bit of wiggle room⁴. Karen said this means there is still an opportunity to modify the lake level with proper rationalization and data such as during a critically dry year.

Pete Kampa said the State Water Board wanted something fixed so they did not have to approve a lake level every year. The intent was to have a specific lake level. With the report, we now have some information that helps to eliminate having to make the same decisions each year as long as there is a matrix of agreed solutions in place and TUD operates within that range.

Recap on Study Results (Mike Rudd, Cardno ENTRIX)

All seven recreation facilities on Pinecrest Reservoir (see slide labeled “Recreation Facilities Studied”) were identified and the effects, if any, of the range of lake level elevations compared to baseline levels were reviewed using the identified evaluation criteria. Bands of ranges were measured along the shoreline to pinpoint impacts such as 5,605-5,608 ft msl and 5,604-5,600 ft msl. The transects analyzed included area offset 10 ft to each side including the substrate which was assessed for each facility. Karen asked what the impairments are at Facility 3 – the buoyed swim area – at lake level 5,605 ft msl. The impairments are boulders protruding through the water. Karen asked if this would still be the case if some of the prescribed large rocks were removed. Mike replied, looking at the baseline there are some areas that become impaired, but these are stumps or rocks which are part of the natural substrate typical of a Sierra lake.

- Facility 1 - Gas Docks and Slips – no impairment.
- Facility 2 - Boat Ramp and Courtesy Ramp – no impairment.

⁴ SWRCB 401 Certification Condition 5 (rev June 9, 2009). In Critically Dry water-years the Licensee may propose modifications to Condition #4 above. Licensee shall consult with the Deputy Director and provide justification for modifications to Condition #4. The Licensee shall maintain the dry year flows until modifications are approved by the Deputy Director.

In addition, until the State Water Board issues a decision modifying the target elevation, the Licensee may propose modifications to Condition #4. Licensee shall consult with the Deputy Director and provide justification for modifications to Condition #4.

- Facility 3 - Buoyed Swim Area – There is some impairment as lake level is dropped and there is less area within the buoys to recreate.
- Facility 4 - Mixed Day Use – some impairment as lake level drops.
- Facility 5 - Fishing Platform (both upper and lower platform) – Forest Service is planning to remove the lower fishing platform. The upper platform is usable, but fishing becomes impaired at lower lake levels due to distance to water’s edge.
- Facilities 6 and 7 - impairment as water level drops.

Accessibility Criteria: Looks at beach area accessible to recreationists.

Usability Criteria: Looks at beach quality and usability of the area.

Net Usable Beach Criteria: Looks at usable beach. If the area was not usable then it was not included. For instance, the Buoyed Swim Area at lake level 5,605-5,595 ft msl is severely impaired. Karen asked if it is maintained above 5,610 ft msl does this not occur and Ross confirmed. This is the target up to Labor Day. The observations were every two feet up to baseline and below baseline it is every foot.

Wading Area Criteria: Looks at the area that you can walk and wade through along the beach.

Potential Swim Hazards Criteria: Identifies potential hazards at elevations as the water line recedes.

Potential Boating Hazards Criteria: Looks at areas that became impaired and undesirable for boating due to obstructions.

Ross said a lot of the “impairments” are normal features of a Sierra lake. Mike added it is a high Sierra beach and not an ocean beach, so the quality of the sand is much different. Ross and Karen discussed that in a dry year or critically dry year – when lake levels may be lower before Labor Day – exposed/shallow boulders are not always a bad thing because recreationists will make use of them.

Discussion of Findings (Group)

Pete stated that there are a variety of impairments and from those identified, many of them can be addressed without raising any major issues. Mike asked if there is a mitigation level for stump and rock removal for lake level elevations between 5,616–5,617 ft msl. It was noted that mitigation stops at Facility 4 – Mixed Day Use. Karen commented in regards to beach recreationists in the Mixed Day Use area, there is a fine line between shade (mom and dad) and sun (kids). The parents stay in the upper portion of the beach or they bring tents to provide shade.

Pete said TUD’s objective is to meet their customer’s needs and is looking for concurrence on a minimum elevation prior to Labor Day.

Karen shared with Kari Kyler that part of the Forest Service rationale is to know in advance what the anticipated lake level will be for the given year is so they can share this information with the public and businesses that could be affected. Karen thought a public notification plan would be needed to help communicate with the public.

Ross explained that if PG&E, for any reason, needs to change the anticipated lake level elevation drastically, the process and mitigation is accounted for in 4(e) Condition 34. In the State Water Board revised 401 Certification Condition 5, this would hold until the Deputy Director approves the modified elevation.

Ross threw out a strawman scenario for discussion: for a Wet and Normal-Wet year, a lake level elevation of 5,605' msl would be acceptable. In a Normal-Dry and Dry year, a lake level elevation of 5,600' msl would be acceptable. In a Critically Dry year, 4(e) Condition 34 (in part) and Water Board Condition 5 allows PG&E to modify minimum streamflows with FS and WB approval.

Review of the four objectives: consumptive use, ecological, recreation, and power generation are taken into consideration when the drawdown curve is approved by FS. FS Condition 34 targets an elevation of 5,610 ft msl.

Brainstorm Alternative Proposals (Group)

Tom asked Kari what she thought about the proposed water year being used to determine the lake level elevation. Kari responded that basing the elevation on water year sounds like a good plan and she would consider recommending it as part of a proposal package with mitigation for lower lake levels.

Ross asked Kari if a list of mitigations were approved by the Forest Service and this was presented to State Water Board to support the proposal would this carry weight in the Deputy Director's decision. Kari could not say but she would take this into consideration for her recommendation. Pete asked if the proposal had to be tied to a fixed lake level range or could it instead be a drawdown curve. Kari does not think this would suffice; the preference is for a fixed lake level rather than a range. Pete said the only problem is that the water level can be flashy where it is not consistent and the concern is that the State Water Board did not authorize minimum lake levels for drought years. So, if trying to satisfy the State Water Board condition then the group should pick a fixed lake level. Ross said picking a lower lake level based on the water year type might be the better route... It does not seem logical to tie it up at an elevation range that may only a few feet in discrepancy.

Tom Scesa reviewed a hand-out that shows scenarios for the five elevations (based on September 5th) as modeled by the CHEOPS model for Pinecrest. This shows how the water year type factors into the lake level elevation. The amount of consumptive use is increasing but the ditch demands are decreasing. Karen asked how this fits into the hydropower equation. The graph showed options if no water is used for power generation. Karen asked if there is an expectation to mitigate impacts to recreation below 5,600 ft msl. In the discussion only five ranges were discussed up to the grey zone – drought year.

Ross asked Kari what she would prefer, and does it need to be presented with a recommendation and an alternative with mitigation for each proposed elevation. Ross asked the Forest Service, if 5,600 ft msl was recommended would their mitigation look significantly different. Karen said they are not going to change the 4(e) condition, so a lake level elevation of 5,600 ft msl is not up for consideration. Since there is a 4(e) condition in place it would be a waste of tax payer money to modify it. Ross replied it is important to have a process in place to address the time when the State Water Board needs to be brought in.

The Forest Service stated it is a FERC facility with the associated recreation managed by the Forest Service but they are not the decision-maker. We are here because TUD, PG&E, and State Water Board need to come together on the appropriate mitigation. Ross said PG&E is looking to the Forest Service to collaborate on the proposed mitigation. Ross asked Julie Martin if there was anything in a Critically Dry year that could be done to enhance the recreation experience for visitors. For instance, informing the public in advance especially if the elevation goes below 5,610 ft msl. Karen said it would be valuable to develop a public notification plan (such as posting notifications on the National Camp Reservations website) to get the word out. This could be applied to most elevations up to where it becomes more visible to the public such as at 5,606 ft msl or below. This could be the trigger used for the roll-out of a communication strategy.

Karen does not believe sand can be taken down to the lake level because it affects operations of the dam. Wayne suggested picking a gravel size/weight that is not as affected by water elevation levels. Ross said in regards to the rocks it seems the preference should be for a native rock versus landscape river rock. Karen suggested that substrate might only need to be applied in small specific areas.

Julie added that the study does not address social issues such as forcing people into the day use area, which shifts the concentrated areas being used. For instance, a dry year resulting and a hot season will bring more people to the beach- so there are unintended consequences that will result. Ross said chances are there are on average 2 out of 10 years that will be dry. Wayne added that not all dry water years are necessarily warmer, in terms of air temperature.

Next Steps/Meeting (Group)

Ross asked Kari that if a lake level proposal is submitted to the State Water Board will it open the process to CEQA. Kari replied it will not trigger CEQA, as long as the plan has been approved by the stakeholders. State Water Board will take into consideration how recreation would be affected. Also, there are about 19 approvers on the list who will potentially be commenting on the proposal. The plan and the report are on State Water Board's website. If backed by supporting agencies there is a good chance that it will be submitted to the State Water Board's Deputy Director. Karen shared with Kari that she is taking a bit of heat from cabin owners so she would like to share these comments with them as soon as possible. State Water Board agreed to use a comment period of 30-days and comments will be posted online with a notification sent to PG&E. Wayne requested raw comments be submitted as soon as they are received. PG&E will need to submit any lake level proposal recommendations by December 14, 2011.

Potential mitigations identified to date: public information, focused substrate improvement, buoy line, and the removal of stumps. The Forest Service will give this some additional thought. PG&E will work up proposed mitigations.

Ross asked Kari if the draft proposal should be addressed to the Deputy Director. Kari replied, when submitted to State Water Board for approval it must be labeled 'Final'. A draft lake level proposal sent to her directly by December 14, 2011 for review will be considered compliant with the 401 Condition; the final will need to be sent directly to the Deputy Director.

PG&E will work on a draft of a lake level proposal. For this proposal, a lake elevation of 5,600 ft msl will be considered. Stumps above 5,608 ft msl will be flagged for removal as part of other license requirements.

The group discussed the need for a second meeting or conference call to discuss the mitigation measures to be included in the proposal.

Pinecrest Lake-level Study Results - Next Steps

Friday, December 2, 2011

Time: 2:00 p.m. – 4:00 p.m.

Coordinator: Ross Jackson

State Water Resources Control Board
1001 I St. Sacramento, CA 95814

Note taker: Veronica Romero

Participants:

NAME	ORGANIZATION
Gail Cismowski	State Water Resources Control Board (State Water Board)
Ross Jackson	Pacific Gas & Electricity (PG&E)
Wayne Lifton	Cardno ENTRIX
Pete Kampa	Tuolumne Utilities District (TUD)
Glen Nunnelley	TUD
Kari Kyler	State Water Board
Lori Webber	State Water Board
Mike Rudd	Cardno ENTRIX
Erin Ragazzi	State Water Board
Veronica Romero	Cardno ENTRIX

Introductions (Group)

Ross Jackson kicked-off introductions for everyone present and a sign-in sheet was passed around.

Safety Minute (Ross Jackson, PG&E)

Ross asked for building exit information and this was provided by Erin Ragazzi. Also, CPR-certified individuals present in the meeting were identified.

Purpose of Meeting (Ross Jackson, PG&E)

Ross reviewed the Pinecrest Lake Level proposal history, which included Section 4(e) Condition 34 requiring the annual development an approval of the drawdown curve and target lake level of 5,610 feet (ft) by Labor Day. The drawdown curve cannot be implemented without Forest Service approval each year. This will still apply, even if the State Water Board approves PG&E's request. He also discussed the target lake level in Condition 4 of the 401 Certification, which is 5,608 ft by Labor Day and the requirement to do the Pinecrest Lake Level study

assessing lower lake levels prior to Labor Day that are protective of recreation. Through discussions with the Stanislaus Planning Action Team (SPLAT), a minimum lake level was discussed and a level of 5,610 ft came from those discussions, but many issues were left undecided. The SPLAT discussions took into consideration the four operational objectives: consumptive use, ecological, recreation, and power generation. The State Water Board agreed to drop this level to 5,608 ft, and potentially modify that to a lower elevation prior to Labor Day with a caveat on protecting usability of Pinecrest Lake recreation facilities, as directed by the State Water Board and this resulted in the Pinecrest Lake Level study. The study helped determine impacts on recreation usability related to elevations lower than 5,610 ft. The Forest Service's target elevation will remain 5,610 ft, regardless of the State Water Board's decision to modify the 401 Certification. If the State Water Board accepts PG&E's request, PG&E intends to keep to the 5,610 ft water level to the extent that they can. However, PG&E will still be required to submit the proposed draw down curve to the Forest Service each year for approval including any proposal to drawdown lake levels to below 5,610 ft before Labor Day.

State Water Board: Is this a new proposal? **PG&E:** Yes, to go to 5,604 ft in normal wet, and wet years, and 5,600 ft in normal dry and dry water years. In a normal wet water year the agreed upon elevation is still 5,610 ft. It is an attempt to be able to use the stored water when necessary and still protect recreation uses with proposed mitigations at lower lake levels.

State Water Board: Does this mean that even in dry water years it cannot go below 5,608 ft? **PG&E:** In essence a required level of 5,608 ft makes it challenging to deliver water to Tuolumne Utilities District (TUD) and still meet consumer energy needs. **TUD:** Pinecrest is the only source of water. There is storage in Lyons Reservoir and it is operated to be kept as full as possible for as late as possible, but if it is not, then the quality of the drinking water becomes horrible. The reservoirs are so small, pretty much before July 4th it is hard to meet needs while trying to maintain 5,608 ft, and it becomes an additional burden to Lyons to get through the summer. **PG&E:** When the hydrologist provides a forecast to prepare a drawdown curve each year, it is still difficult to guess the affects of the temperature and the weather will have on the availability of water.

PG&E: The proposed elevations are 5,604 ft by Labor Day in Wet and Normal Wet water year types and in Normal Dry and Dry water year types to 5,600 ft. This is an effort to address what elevation is acceptable for water supply, generation, and protecting recreation. Also, a mitigation plan and a schedule of when it would be implemented will be included in the proposal.

State Water Board: What was lake level analyzed for the license? **TUD:** None was identified because it was assumed the project would follow the same pattern identified in NEPA (National Environmental Protection Act). The CEQA (California Environmental Quality Assurance) document states the State Water Board does not have the ability to determine effects on recreation. **PG&E:** The study initially did look at 5,610 ft. When the SPLAT measures came out they mirrored the 4(e) conditions based on operational objectives. **State Water Board:** Therefore, the 5,608 ft came-out afterwards? **PG&E:** We are trying to cover historical elevations which may or not occur within the next ten years.

State Water Board: In most wet years will the 5,610 ft elevation be hit? **TUD:** It cannot be guaranteed because consumer demand and longer summer periods can affect it. **TUD:** It can be rebalanced but it is not predictable due to weather conditions and evaporation. The watershed is pretty strong so it should be possible to meet 5,610 ft, but it cannot be 100 percent guaranteed. It is virtually impossible to project out 20 to 50 years.

State Water Board: How can PG&E propose the target will be 5,610 ft, if it depends on the water year? **PG&E:** We are saying we will implement mitigation measures if it is not possible to meet the targeted elevation. **State Water Board:** For a normal dry water year the elevation would be 5,604 ft and then for a dry water year it would be also be 5,604 ft? **PG&E:** Those figures replace these numbers only if the water is below the elevation level. So if Lyons Reservoir is full no additional water will be sent. **TUD:** It is proposing two different water level elevation ranges based on the water year for the period between 'End of Spill' through Labor Day to provide multiple uses including to protect recreational uses.

State Water Board: The deadline to submit the proposal is December 17, 2011.

Review Pinecrest Lake-Level Study and Results (Mike Rudd, Cardno ENTRIX)

The Pinecrest Lake-level Study implementation timeline and the seven recreation facilities covered in the study were reviewed. The data elevation ranges for data collection were between 5,595-5,608 ft for the Study Range and 5,610-5,617 ft for Baseline Range to compare effects. The results were compiled from data sheets, evaluations, criteria, visualization, and interpretation of results (usable for recreation or not).

State Water Board: Did field staff do the scoring? **Cardno ENTRIX:** No, the pictures and data sheets were analyzed independently in the office.

State Water Board: Is boating impaired by lower lake levels? **Cardno ENTRIX:** We looked at hazards based on where boats would be moored as it is tied to the recreation facilities.

State Water Board: Are there issues with the platform at lower lake levels? **Cardno ENTRIX:** It is considered more of an overlook because it is not possible to fish at most lake elevations.

State Water Board: Where were public comments considered and/or captured? **Cardno ENTRIX:** During the May public meeting and in September meeting with the Forest Service.

PG&E: Prior to implementation of mitigation measures they will go back and review plans with the Forest Service for each recreation site.

State Water Board: Who would maintain the sites? **PG&E:** Forest Service would continue to maintain the sites and PG&E would contract out for the mitigation work to be done.

Cardno ENTRIX: The mitigations are targeted to maintain the lake to baseline level quality of recreation usability of the seven facilities at lower lake levels.

State Water Board: Are the mitigations a one-time deal? **Cardno ENTRIX:** Yes, they are on-time physical modifications except for the communications plan which is triggered by proposed lake levels below 5,610 ft before Labor Day.

Questions, Clarifications, and Discussion

PG&E: Is there any further clarification needed in the letter? **State Water Board:** Perhaps add justification for the 5,600 ft lake level elevation and the objective of the mitigations is to bring the lake recreation usability to the equivalent of baseline level. Also, there should be some reason why the levels of 5,600 and 5,604 ft were selected. PG&E should make sure they are okay with the information that is in the proposal letter. **PG&E:** Yes, for instance we did not point-out that the lake at 5,617 ft is too high for recreation and there is no beach available. **State Water Board:** Was there any input from the community? **TUD:** Comments were collected by the Forest Service who interacted with the public at Pinecrest.

State Water Board: After Labor Day how fast does PG&E want to go lower than 5,610 ft? Is there an advantage for PG&E to release additional water after Labor Day? **PG&E:** We do have to get the lake level down in the fall to meet cold weather energy needs. **TUD:** The water does not go down dramatically because ramping rates dictate the lake elevations and it can only go down 10 cfs a week for four weeks out. **State Water Board:** What are the dynamics and needs? **PG&E:** We want to start to use the water sooner so we do not spill and fill Lyons Reservoir. **TUD:** Lyons is also decreasing so there is more than one demand on Pinecrest.

PG&E: What is going to be the end result of the State Water Board's review? **State Water Board:** An amended water quality 401 certification, once the State Water Board reviews it with the public to obtain their comments. The 401 certification is adopted by the State Water Board, not the Deputy Director. The State Water Board Deputy Director can approve the study but when it comes to the 401 certification it is the State Water Board that has the ability to modify the elevations since the State Water Board is a public agency -- it needs to be run by the public. So, the State Water Board will review the recommendation and it will determine what is appropriate and what it decides to propose and PG&E can respond to it. The public notice process depends on the impacts and in this situation we would hold a workshop and collect public comments. **PG&E:** It needs to be made clear to the public that the intent is not to drain the lake. The 5,604 and 5,600 ft targets need to be explained because they pertain to specific circumstances and it is not PG&E's intent to go there every year.

PG&E: Will comments be restricted to recreation? **State Water Board:** It will be restricted to the changes to the cert. The State Water Board tries to restrict comments to the scope of what is being put forward but they will accept all comments and if not relevant, they are then noted as out of scope.

Cardno ENTRIX: As the 401 certification is now written it is focused on recreation and lake level. So, is the proposal being presented next week going to be put before the public or will the State Water Board put forth another proposal? **State Water Board:** We will evaluate it and the staff's recommendations will be presented to the public.

TUD: Will PG&E's proposal be part of the public record and will it be posted on the State Water Board's website? And will the State Water Board provide justification for any clarifications they make? **State Water Board:** We will identify the steps of what will happen so TUD can be represented at the State Water Board meeting.

PG&E will submit the proposal letter, recommendation, and attachment. State Water Board asked for one hard-copy with a CD so it can be posted to the website.

PINECREST RESERVOIR LAKE LEVEL STUDY REPORT

RESPONSE TO COMMENTS

Page #	Section	Paragraph or Bullet	Commented By:	Comments (if a direct edit, indicate with quotation marks)	Response to Comments
				Written Comments Received from Forest Service on October 26, 2011 (Comments made with Regards to Mitigation at Decreased Lake Level Based on Results of Pinecrest Reservoir Lake Level Study)	
			Forest Service Comment #1	<u>Recreation Facility #1 - Gas Docks and Slips</u> A. Provide annual notification to Pinecrest Lake Resort of the drawdown curve.	Adopted. Based on consultation with the State Water Board, Forest Service and Tuolumne Utilities District on September 21, 2011, a communications plan will be developed which details the approved drawdown curve. The contents of the plan are outlined in the Pinecrest Lake Level Study Mitigation Proposal. This information will be made public in accordance with the communication plan and will be specifically provided to the Pinecrest Lake Resort.
			Forest Service Comment #2	<u>Recreation Facility #1 - Gas Docks and Slips</u> B. Consult with Pinecrest Lake Resort on mitigation measures needed at various draw down levels.	Adopted with Modification. Potential need for mitigation for the gas docks and slips was evaluated in the Pinecrest Reservoir Lake Level Study Report and the need for mitigation was considered. It was determined that at 5,600 ft lake level, there was no impairment at this facility compared to baseline elevation range. Therefore, neither mitigation or additional consultation were needed.
			Forest Service Comment #3	<u>Recreation Facility #2 - Boat Ramp and Courtesy Dock</u> No mitigation is needed as the facility is not impaired due to lowered lake levels.	Adopted. No potential impairment is likely to occur at lake level down to 5,600 ft msl based on the Pinecrest Lake Level Study Mitigation Proposal (PG&E 2011). Therefore, no mitigation is warranted.
			Forest Service Comment #4	<u>Recreation Facility #3- Designated Buoyed Swim Area</u> A. Maximize available swim area for as long as possible.	Adopted. The Pinecrest Lake Level Study Mitigation Proposal recommends installing a movable buoy system to extend the buoyed swim area during normal-dry and dry water year that may implement drawdown below 5,610 ft msl before Labor Day.
			Forest Service Comment #5	<u>Recreation Facility #3- Designated Buoyed Swim Area</u> B. Install a movable buoy line which can be adjusted as the water level falls.	Adopted. See response to Comment #4.
			Forest Service Comment #6	<u>Recreation Facility #3- Designated Buoyed Swim Area</u> C. Remove safety hazards in Beach 1 & 2 (3a, 3b) from 5,608 to 5,604 OR minimal elevation for new buoy line, whichever comes first.	Adopted. The Pinecrest Lake Level Study Mitigation Proposal recommends all potential safety hazards be identified and removed as directed by the Forest Service for elevations between 5,610 to 5,600 ft msl.
			Forest Service Comment #7	<u>Recreation Facility #4- Mixed Day-Use Area (adjacent to swim area)</u> A. Remove safety hazards at 5,604 to 5,603 in designated boat mooring and launch area.	Adopted. See response to Comment #6.
			Forest Service Comment #8	<u>Recreation Facility #5- ADA-Accessible Fishing Platforms</u> No mitigation is needed as the facility is not impaired due to lowered lake levels.	Adopted. This is supported by PG&E's evaluation.
			Forest Service Comment #9	<u>Recreation Facility #6 - Overflow A1-ea, South Shore</u> No mitigation is needed as the facility is not impaired due to lowered lake levels.	Not Adopted. The Pinecrest Lake Level Study Report observed impairments to Pedestrian Shoreline Access Quality, Beach Quality and potential hazards for Facility #6. As such, the Pinecrest Lake Level Study Mitigation Proposal recommends mitigation measures that create unimpaired conditions for these criteria for elevations between 5,610 and 5,600 ft msl at Facility #6. Decisions to remove specific hazards will be made in the field with the Forest Service.
			Forest Service Comment #10	<u>Recreation Facility #7 - Overflow Area, North Shore</u> A. Remove safety hazards from 5,610 to 5,607 in boat mooring area.	Adopted. See response to Comment #6.

PINECREST RESERVOIR LAKE LEVEL STUDY REPORT

RESPONSE TO COMMENTS

Page #	Section	Paragraph or Bullet	Commented By:	Comments (if a direct edit, indicate with quotation marks)	Response to Comments
			Forest Service Comment #11	Additional Mitigations A. Develop a communication plan within 90 days of the issuance of a new certification that describes public notification actions when drawdown will be greater than 5,610 before Labor Day. Implement this communication plan in applicable years.	Adopted with Modification. See response to Comment #1, PG&E proposes to develop the draft communications plan within 90 days. However, consultation with the agencies may take require 60-90 days to finalize the plan and submit it to the Deputy Director for approval.
			Forest Service Comment #12	Additional Mitigations B. The Lake Level Study Report did not address social/behavioral changes of users as the lake level decreases. The Forest Service is concerned about unanticipated consequences of drawdown due to changing visitor behavior. To mitigate this, we propose that PG&E monitor behavior as lake levels go down in order to develop and implement a mitigation plan. Social monitoring would be triggered by two or more consecutive years of levels at or below 5,607 OR more than 25 complaints on recreational impacts due to lake draw down.	Not Adopted. Based on consultation with the State Water Board, Forest Service, Department of Fish and Game and Tuolumne Utilities District, PG&E developed and received approval for the Pinecrest Lake Level Study Plan (PG&E 2010). The purpose of the Lake Level Study was to determine potential impairments to recreation at various lake levels. Due to variance in recreational use due to factors not related to lake level (e.g. vacation dates or weekend vs. weekday use), the study relied on data collected on physical and measureable characteristics found for elevations between 5,617 and 5,595 ft msl for seven key recreational facilities based on consultation and as agreed to and directed by the State Water Board. As such, monitoring behavior changes as lake levels go down was and continues to be beyond the approved scope of the Lake Level Study.
			Forest Service Comment #13	Additional Mitigations C. Any complaints received by the Forest Service regarding lake level will be forwarded to PG&E for response with a CC to the Forest Service.	Not Adopted. While the Forest Service may take this action, it is beyond PG&E's responsibility to respond to individual complaints regarding lake level on behalf of the Forest Service.