

April 1, 2011

VIA E-MAIL & U.S. MAIL

Philip Isorena
Chief, NPDES Unit
Division of Water Quality
State Water Resources Control Board
1001 I Street, 15th Floor
Sacramento, CA 95814
pisorena@waterboards.ca.gov

RE: 11/17/10 letter RE: Special Studies and Immediate and Interim Requirements for the Once-Through Cooling Water Policy Applicable to the San Onofre Nuclear Generating Station (SONGS)

Dear Mr. Isorena,

Southern California Edison (SCE) is pleased to submit the following information to address requirements outlined in the above-referenced State Water Resources Control Board (SWRCB) letter regarding the Once-Through Cooling Policy (OTC Policy).

For ease of review, SCE's response document provides the reproduced section from the SWRCB correspondence, followed by a narrative description of the information. Supplemental information is attached.

1. No later than October 1, 2011, an existing power plant with an offshore intake (such as the San Onofre Nuclear Generating Station) shall install large organism exclusion devices having a distance between exclusion bars of no greater than nine inches, or install other exclusion devices deemed equivalent by the State Water Board. You must provide your planned method of compliance with this requirement, including the design and schedule for installation of the exclusion device by April 1, 2011.

On November 18, 2010, SCE representatives David Asti, Robert Heckler, Steve Lelewer, and Robert Yale met with SWRCB Chief Deputy Director Jonathan Bishop, Senior Environmental Scientist Dominic Gregorio, and Environmental Specialist Joanna Jensen. The purpose of the meeting was to open a dialogue with SWRCB staff about the OTC Policy requirement to install a large organism exclusion device for the offshore intake for San Onofre Nuclear Generating Station (SONGS). SCE representatives' goals for the meeting were to: 1) Provide a status report of SCE's studies made to date; 2) Discuss, in detail, the obstacles to SONGS' compliance with the Oct. 1, 2011 deadline for the exclusion device installation; and, 3) Propose possible solutions to SCE's need for a variance of the compliance deadline or modification of the policy. SCE representatives explained that they had taken a proactive approach and had hired a consultant in April 2010 to perform an exclusion device study even before the SWRCB had approved the OTC Policy. SCE representatives presented a conceptual design for a device that SCE continues to

study that meets the OTC Policy's requirement of nine-inch spacing between the exclusion bars. SCE representatives explained that there were a number of challenges, including:

- the potential for adjacent kelp beds to clog the device;
- difficulties in designing a device that would support reliable operations and not challenge steady state operations;
- long permitting timeframes that do not align with the OTC Policy deadlines; and
- the corresponding need for additional time in the implementation schedule.

SCE representatives explained that the exclusion device study was focused solely on the ability to provide a device at the intake that met the OTC Policy criteria. The study did not include an evaluation of the impact of the device on either plant operability or safety. Furthermore, the study did not address the feasibility of construction or permitting feasibility of such a device. SCE representatives explained the process used to assess feasibility of an engineering design change for implementation at the plant. SCE representatives also explained the schedule for the next refueling outages for SONGS and how the outage schedule affects the timing for implementing any design changes at the plant. Because the installation of the device could interrupt the intake of cooling water and thus affect plant operations, any engineering work on the cooling water intake structure would be required to take place during a scheduled outage approved by the California Independent System Operator (CAISO) to ensure grid reliability.

The session also included a discussion of the challenges of constructing off-shore and the safety concerns for the divers during construction and the subsequent maintenance of the device. SCE's conceptual designs for the exclusion device are included as Attachment 1 to the letter. Attachment 2 to this letter includes SCE's planned schedule for compliance with the exclusion device requirement; including the schedule if the exclusion device is determined to be infeasible. As discussed in the November 18, 2010 meeting and indicated in the proposed schedule, SCE will not be able to comply with the October 1, 2011 deadline for the exclusion device.

SCE representatives and the SWRCB staff agreed to hold regular meetings (approximately bimonthly) focused on the exclusion device. The goal of the meetings is to ensure timely discussions of status and any obstacles to the compliance with the policy.

2. No later than October 1, 2011, a unit that is not directly engaging in power generating activities or critical system maintenance must cease intake flows, unless you demonstrate to the State Water Board that a reduced minimum flow is necessary for operations. Therefore, by April 1, 2011, you must provide information regarding when it is likely that each unit in your facility may not be generating power, or when you are performing critical system maintenance that would result in the cessation of intake flows. This information may be provided in terms of likely months when there will be no intake flow, with the understanding that if a need for power arises, that intake flows will re-start, as long as appropriate documentation is later provided regarding that unexpected power demand. If a reduced minimum flow is necessary for operations during the period when power is not typically generated, then you must define specifically why that is the case and provide an estimate of minimum flows as compared to historic flows during corresponding months of 2000-2005, for periods when power is not typically generated.

SONGS not only provides baseload power to Southern California but also provides essential voltage support to the region.¹ As with most U.S. nuclear generating stations, it has a very high capacity utilization rate and is engaged in power-generating activities approximately 90% of the time or more.² Typically, the only time that SONGS is not engaged in power-generating activities is during scheduled refueling outages, when periodic maintenance activities are completed.

Planned outage timeframes for SONGS Units 2 and 3 are shown in the table below. These timeframes are subject to change.

| SONGS Unit | Tentative Outage Timeframe | | |
|-------------------|-----------------------------------|---------------------|---------------------|
| Unit 2 | First Quarter 2012 | Fourth Quarter 2013 | Second Quarter 2015 |
| Unit 3 | Fourth Quarter 2012 | Second Quarter 2014 | Fourth Quarter 2015 |

¹ California Energy Commission, 2008 Integrated Energy Policy Report (IEPR).

² Table 11, Final Substitute Environmental Document, Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling, May, 4, 2010.

3. If your facility has not achieved final compliance by October 1, 2015, or your final compliance date is later than October 1, 2015, you must, commencing on October 1, 2015, implement measures to mitigate the interim impingement and entrainment impacts resulting from the cooling water intake structure(s), and continuing up to and until the facility achieves final compliance with the requirements of the Policy. If you do not plan to achieve final compliance by October 1, 2015, you must submit, no later than April 1, 2011, the specific measures that will be undertaken to comply with this additional requirement. The options you may choose from include:
 - a. A demonstration that existing mitigation efforts, including any projects that are required by state or federal permits as of October 1, 2010, compensate for the interim impingement and entrainment impacts; or
 - b. A demonstration that the interim impacts will be compensated for by providing funding to the California Coastal Conservancy, which will work with the California Ocean Protection Council to fund an appropriate mitigation project. It is the preference of the State Water Board that this option be selected; or
 - c. A proposal for the development and implementation of a mitigation project for the facility, which would compensate for the interim impingement and entrainment

The Once-Through Cooling Policy compliance date for SONGS is December 31, 2022. As a result, SCE will address Item 3 through “option a” above by demonstrating its compliance with ongoing mitigation requirements required by and monitored through the California Coastal Commission. The SONGS Mitigation Monitoring Program is based at the Marine Science Institute, University of California Santa Barbara. Additional details on the program can be found at <http://marinemitigation.msi.ucsb.edu/>

In July 1991, based on the results of the independent Marine Review Committee’s (MRC) San Onofre impact studies, the California Coastal Commission (CCC) declined to require converting the units to closed-cycle cooling and instead added conditions to SCE’s permit (CCC Permit 6-81-330) to review and improve the extensive in-plant marine life protection systems and mitigate the remaining adverse impacts of the power plant on the marine environment. These conditions required SCE to:

- (1) Create or substantially restore at least 150 acres of southern California wetlands as a nursery for marine fish propagation to compensate fully for entrainment of small marine organisms such as fish eggs, larvae, and plankton;
- (2) Install fish barrier devices at the power plant; and
- (3) Construct a 300-acre kelp reef to compensate for the discharge of naturally turbid water that affected potential growth of a nearby kelp bed (Conditions A through C).

The 1991 conditions also required SCE to provide the funds necessary for CCC contract staff technical oversight and independent monitoring of the mitigation projects (Condition D). In 1993, the CCC added a requirement for SCE to partially fund construction of an experimental White Sea Bass hatchery, but, due to its experimental nature, the CCC did not assign mitigation

credit to the hatchery requirement. The CCC determined that completion of its required conditions fully mitigate all fish losses at SONGS.

SONGS is reducing impingement mortality and restoration measures are being implemented to offset entrainment losses for Units 2 and 3. The Wheeler North Reef off San Clemente and the San Dieguito Wetlands Project near Del Mar are two of SCE's major marine mitigation projects. The completion of both projects will create 174 acres of ocean kelp forest and 160 acres of restored fish spawning and bird habitat.

Predicted fish losses, based on the MRC studies, have been mitigated through the Wheeler North artificial reef, San Dieguito Lagoon restoration, and the Hubbs White Sea Bass hatchery in Carlsbad. These mitigation efforts will continue to offset fish losses due to entrainment, impingement, and discharge effects long after SONGS has ceased operation.

The CCC has also commented on the substantial mitigation work that SCE has undertaken. In a February 4, 2010 letter to the SWRCB, the CCC reiterated its position that "...the facility's adverse effects on marine life have been fully mitigated and will continue to be mitigated as long as the mitigation measures continue to perform as required." (Attachment 3)

The following paragraphs provide additional details and current updates for the San Dieguito Wetlands Restoration Project, the Wheeler North Reef Project, and the Hubbs White Sea Bass Hatchery project.

San Dieguito Wetlands

SCE is spending an estimated \$86 million for the construction, maintenance and monitoring for restoration of coastal wetlands specifically designed to offset Units 2 and 3 entrainment losses. These wetlands will continue to provide benefits to entrainable life stages long after the facility is decommissioned. The restoration, currently nearing completion, is projected to result in a net gain of approximately 115 acres of wetland, and an additional 35 acres of tidal wetland enhancement by maintaining the tidal entrance, for a total of 150 acres. Completion of construction is anticipated in late 2011.

Wheeler North Reef

In 2009, SCE announced the completion of the largest U.S. environmental project of its kind—a 174-acre artificial reef off San Clemente at a cost of approximately \$45 million. The Wheeler North Artificial Reef is located on a sandy bottom up coast of San Mateo Point about 4.9 km (3.0 mi) from SONGS. The project involved placement of 120,000 tons of rock in a precise pattern on the ocean floor. This project is expected to have produced the nation's first sustainable artificial giant kelp (*Macrocystis pyrifera*) forest. The new kelp forest is expected to produce as much as 28-50 tons of fish annually, significantly enhancing Southern California's coastal environment and recreational resources.

In its first year of existence, the Wheeler North Reef has shown great promise in its ability to support kelp forest biota. Nine of the 14 performance standards were met after only one year. An abundant and diverse fish assemblage exhibited reproduction and growth that was similar to or greater than that found on natural reefs.

Hubbs White Sea Bass Hatchery

In 1994, SCE gave \$1.2 million in seed money for hatchery construction, and an additional \$3.6 million in 1997 for facility operation and maintenance, to mitigate fish losses at the San Onofre Kelp Bed. In total, SCE has provided nearly \$5 million in funding for the establishment of the Hubbs Sea World Research Institute fish hatchery in Carlsbad. Established in 1995, the hatchery is capable of producing over 350,000 juvenile White Sea Bass annually. (See <http://www.hswri.org/Facilities.php>).

In total, SCE has spent approximately \$136 million on marine mitigation projects that fully mitigate marine impacts from SONGS. Water Board Members Tam Doduc and Frances Spivy-Weber, along with Chief Deputy Director Jonathan Bishop, have all toured the San Dieguito Wetlands Restoration Project as guests of SCE. If you have not had the opportunity to see the restoration work firsthand, we would like to offer you a guided tour of the Project at your earliest convenience.

Should you have any questions regarding the information in this response letter, please do not hesitate to contact me at (626) 302-9456, or David Asti at (626) 302-9732.

Very truly yours,



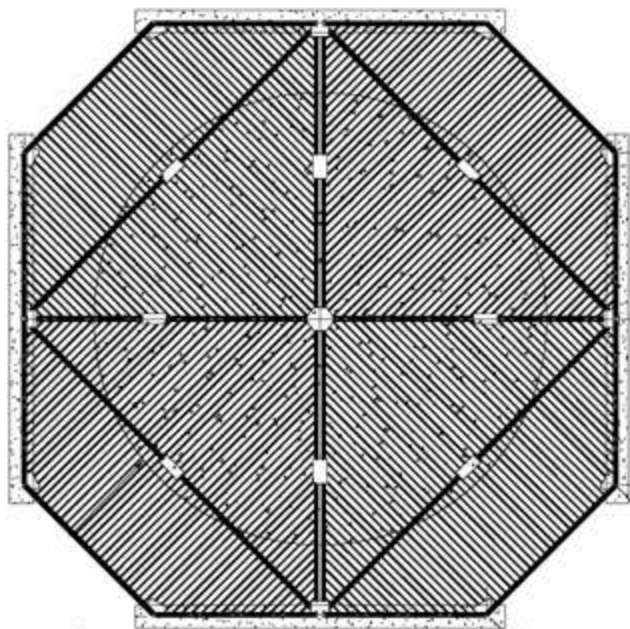
Michael M. Hertel, PhD
Director, Corporate Environmental Policy

Attachment 1 - Conceptual Designs for Large Mammal Exclusion Device
Attachment 2 - Proposed Compliance Schedule for Large Mammal Exclusion Device
Attachment 3 - February 4, 2010 California Coastal Commission Letter to State Water Board

cc: Charlie Hoppin
Frances Spivy-Weber
Tam Doduc
Dwight Russell
Thomas Howard
Jonathan Bishop
Michael Lauffer
Dominic Gregorio
Joanna Jensen
Renan Jauregui

ATTACHMENTS

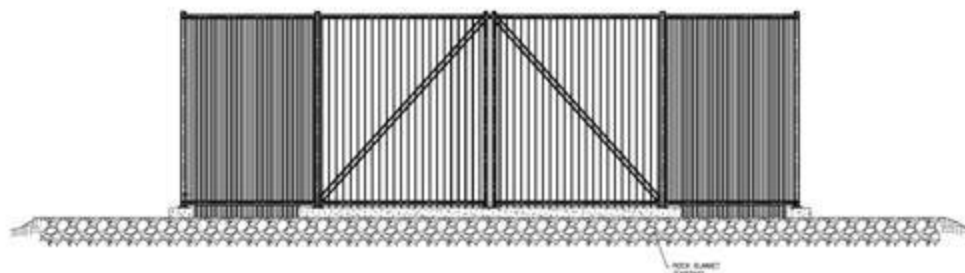
Conceptual Designs



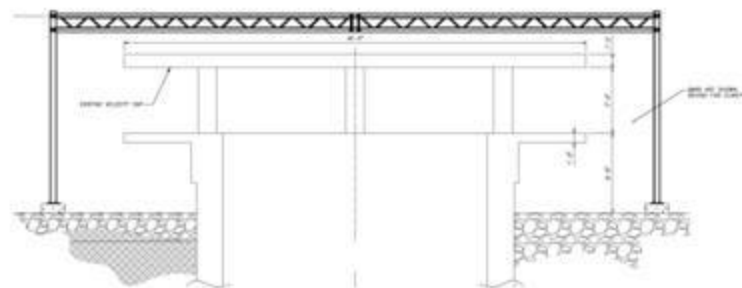
PLAN (OVERHEAD) VIEW
PRIMARY BARRIER

PRIMARY BARRIER

- 9-Inch bar spacing
- Completely Encloses Main Offshore Intake
- Structurally Independent
- Corrosion-Resistant Stainless Alloy

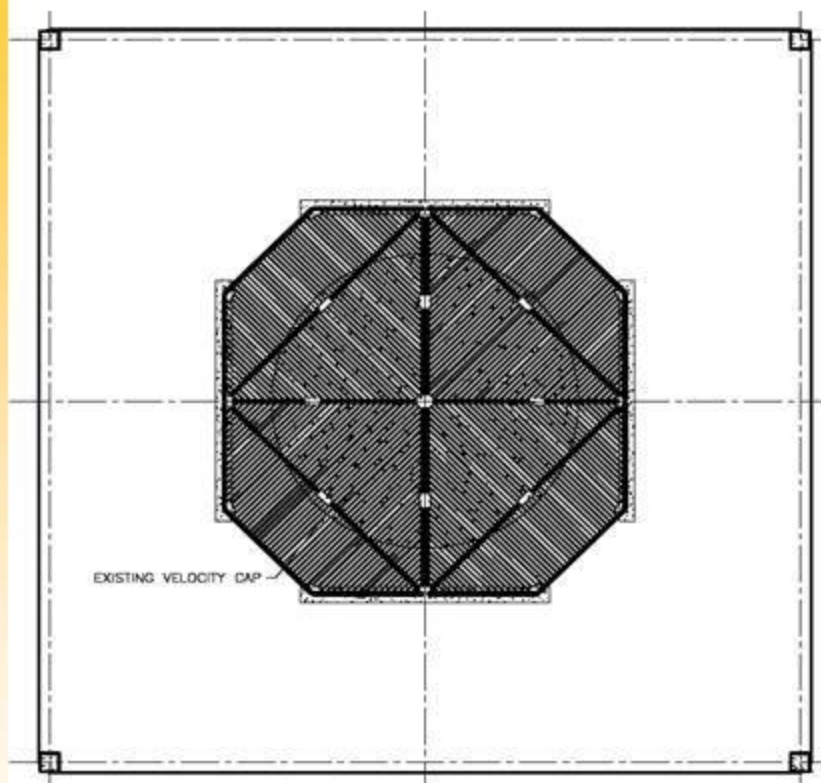


ELEVATION (SIDE) VIEW
PRIMARY BARRIER

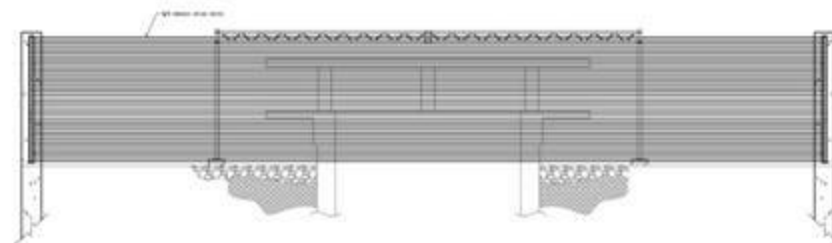


SECTION VIEW
PRIMARY BARRIER

Conceptual Designs



PLAN (OVERHEAD) VIEW
SECONDARY BARRIER



ELEVATION (SIDE) VIEW
SECONDARY BARRIER

SECONDARY BARRIER

- The purpose is to intercept kelp before it contacts the Primary Barrier
- Cable/Rope System Encircles the Primary Barrier
- Concrete Piles Driven at 4 corners

Marine Mammal Barrier Project Schedule

| ID | Task Name | Start | Finish | 2011 | | | | 2012 | | | | 2013 | | | | 2014 | | | |
|----|---------------------------------------------------------------|--------------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| | | | | Qtr 3 | Qtr 4 | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 | Qtr 1 | |
| 1 | | | | | | | | | | | | | | | | | | | |
| 2 | SONGS Large Organism Exclusion Device (LOED) | Mon 10/11/10 | Mon 11/18/13 | | | | | | | | | | | | | | | | |
| 3 | Feasibility Criteria | Thu 12/16/10 | Wed 2/16/11 | | | | | | | | | | | | | | | | |
| 4 | Design | Mon 10/11/10 | Mon 11/14/11 | | | | | | | | | | | | | | | | |
| 5 | Conceptual Design: Consultant Report | Mon 10/11/10 | Thu 12/23/10 | | | | | | | | | | | | | | | | |
| 6 | Obtain Funding: BRC | Mon 10/11/10 | Fri 10/15/10 | | | | | | | | | | | | | | | | |
| 7 | Evaluate Design | Mon 10/25/10 | Fri 11/19/10 | | | | | | | | | | | | | | | | |
| 8 | Issue Report | Tue 11/23/10 | Thu 12/23/10 | | | | | | | | | | | | | | | | |
| 9 | Conceptual Design Challenge Review Using Feasibility Criteria | Thu 2/17/11 | Fri 3/4/11 | | | | | | | | | | | | | | | | |
| 10 | Detail Design (Determines Feasibility) | Mon 2/7/11 | Mon 11/14/11 | | | | | | | | | | | | | | | | |
| 11 | Obtain funding | Mon 2/7/11 | Fri 5/27/11 | | | | | | | | | | | | | | | | |
| 12 | Develop design | Mon 5/30/11 | Fri 11/11/11 | | | | | | | | | | | | | | | | |
| 13 | Design Challenge Review Using Feasibility Criteria | Mon 11/14/11 | Mon 11/14/11 | | | | | | | | | | | | | | | | |
| 14 | Fabrication | Tue 11/15/11 | Mon 10/15/12 | | | | | | | | | | | | | | | | |
| 15 | Award Contract | Tue 11/15/11 | Mon 2/6/12 | | | | | | | | | | | | | | | | |
| 16 | Fabrication | Tue 2/7/12 | Mon 10/15/12 | | | | | | | | | | | | | | | | |
| 17 | Implementation | Tue 11/15/11 | Mon 11/18/13 | | | | | | | | | | | | | | | | |
| 18 | Permitting | Tue 11/15/11 | Mon 7/23/12 | | | | | | | | | | | | | | | | |
| 19 | Award Construction Contract | Tue 2/7/12 | Mon 4/30/12 | | | | | | | | | | | | | | | | |
| 20 | Construction | Mon 10/1/12 | Mon 11/18/13 | | | | | | | | | | | | | | | | |
| 21 | SONGS Unit 2 Outage | Tue 10/1/13 | Mon 11/18/13 | | | | | | | | | | | | | | | | |
| 22 | SONGS Unit 3 Outage | Mon 10/1/12 | Fri 12/14/12 | | | | | | | | | | | | | | | | |
| 23 | Monitoring | Mon 12/17/12 | Fri 8/23/13 | | | | | | | | | | | | | | | | |
| 24 | In-service Test Period: Unit 3 | Mon 12/17/12 | Fri 8/23/13 | | | | | | | | | | | | | | | | |
| 25 | SWRCB Regulatory Process | Wed 11/17/10 | Wed 2/15/12 | | | | | | | | | | | | | | | | |
| 26 | Meetings with SWRCB | Mon 3/7/11 | Mon 3/7/11 | | | | | | | | | | | | | | | | |
| 27 | Meeting with SWRCB | Mon 3/7/11 | Mon 3/7/11 | | | | | | | | | | | | | | | | |
| 28 | Extension to Implementation Date | Wed 11/17/10 | Fri 4/1/11 | | | | | | | | | | | | | | | | |
| 29 | Draft extension request letter | Wed 11/17/10 | Fri 3/25/11 | | | | | | | | | | | | | | | | |
| 34 | Submit extension request | Fri 4/1/11 | Fri 4/1/11 | | | | | | | | | | | | | | | | |
| 35 | Relief from LOED Requirement | Tue 11/15/11 | Wed 2/15/12 | | | | | | | | | | | | | | | | |
| 36 | | | | | | | | | | | | | | | | | | | |

Project: OTC_02182011-rev-sal-3-31- Date: Fri 4/1/11

Task Milestone Rolled Up Task Rolled Up Progress External Tasks Group By Summary

Progress Summary Rolled Up Milestone Split Project Summary

Project Support:
 Law: Linda Anabtawi
 Nuclear Reg Affairs: Kathy Yhip

CALIFORNIA COASTAL COMMISSION

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February 4, 2010

State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Re: Comments on "Draft Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling"

Dear Chair Hoppin and Board Members:

I am writing to add to the comments Coastal Commission staff provided to you in September and December 2009 regarding the above-referenced proposed policy. The Board's proposed policy includes provisions that would allow Southern California Edison's San Onofre Nuclear Generating Station (SONGS) to continue using once-through cooling if it met several site-specific requirements.

Over the past several decades, the Coastal Commission has reviewed the facility's operations and its adverse impacts on marine life. Through approval of several coastal development permits and amendments, the Commission has required Edison to mitigate for those impacts by restoring coastal wetlands, constructing offshore reef habitat, operating a sea bass hatchery, and other measures. The Commission has also periodically reviewed the performance and success of these mitigation measures.

Should the Board determine that SONGS may continue to operate its once-through cooling system, it is the position of Commission staff that the facility's adverse effects on marine life have been fully mitigated and will continue to be mitigated as long as the mitigation measures continue to perform as required.

Please contact me at 415-904-5200 if you have any additional questions or comments regarding this issue.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter Douglas".

PETER DOUGLAS
Executive Director

cc: Coastal Commissioners
James Boyd, Commissioner, California Energy Commission
Yakout Mansour, CEO, California Independent System Operator Corporation
Lester Snow, Secretary of Natural Resources
Michael Peevey, President, California Public Utilities Commission