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Mitigation Program Scientific Team–SF

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ADOPTED FINDINGS AND CONDITIONS PERMIT AMENDMENT AND CONDITION COMPLIANCE

APPLICANT: Southern California Edison Company (Edison) on behalf of Edison, San Diego Gas and Electric Company, and the Cities of Anaheim and Riverside, as Owners of San Onofre Nuclear Generating Station (SONGS) Units 2 and 3

PERMIT NO: 6-81-330-A (formerly 183-73)

PROJECT DESCRIPTION:

- 1) Permit Amendment: Request to amend 1991 permit conditions that require mitigation for adverse impacts to the marine environment caused by construction and operation of SONGS Units 2 and 3;
- 2) Condition Compliance: Request for approval of preliminary wetland restoration plans and plan for experimental artificial reef for kelp.

Permit 6-81-330-A (SONGS Units 2 & 3)

Commission Approval of Amendments: April 9, 1997

Commission Approval of Revised Findings & Conditions: May 14, 1997

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
COMMISSION ACTION.....	20
I. RESOLUTIONS.....	20
A. APPROVAL OF THE AMENDED COASTAL DEVELOPMENT PERMIT 6-81-330-A WITH CONDITIONS.....	20
B. DENIAL OF THE SAN DIEGUITO LAGOON PRELIMINARY WETLANDS RESTORATION PLAN.....	20
C. DENIAL OF ORMOND BEACH WETLAND RESTORATION AND MANAGEMENT PLAN	20
D. APPROVAL OF THE EXPERIMENTAL ARTIFICIAL KELP REEF PLAN WITH REVISIONS	20
II. STANDARD CONDITIONS (SEE ATTACHMENT 1)	20
III. SPECIAL CONDITIONS	21
A. CONDITION A: WETLAND MITIGATION	21
1.0 SITE SELECTION AND PRELIMINARY PLAN	21
2.0 FINAL PLAN AND PLAN IMPLEMENTATION	25
3.0 WETLAND MONITORING, MANAGEMENT AND REMEDIATION	26
4.0 FUNDING OPTION FOR WETLAND RESTORATION	29
B. CONDITION C: KELP REEF MITIGATION.....	30
1.0 EXPERIMENTAL REEF.....	30
2.0 MITIGATION REEF	32
3.0 FUNDING REQUIREMENT FOR MARICULTURE/FISH HATCHERY PROGRAM	37
4.0 FUNDING OPTION FOR KELP REEF MITIGATION	38
C. CONDITION D: ADMINISTRATIVE STRUCTURE	38
1.0 ADMINISTRATION	38
2.0 BUDGET AND WORK PROGRAM.....	38
3.0 ANNUAL REVIEW	40
4.0 FUNDING OPTION PACKAGE	40
IV. FINDINGS AND DECLARATIONS IN SUPPORT OF AMENDMENTS TO CONDITIONS	45
A. BACKGROUND ON COASTAL COMMISSION ACTIONS RELATING TO THE SONGS	45
1.0 THE PROJECT	45
2.0 PERMIT HISTORY.....	46
3.0 SONGS OWNERS RATE SETTLEMENT WITH THE CALIFORNIA PUBLIC UTILITIES COMMISSION.....	56
B. COASTAL ACT POLICIES AND PROVISIONS.....	58
C. FINDINGS FOR AMENDMENTS TO CONDITIONS	60
D. FINDINGS FOR DENIAL OF AMENDMENTS OF CONDITION A: WETLAND MITIGATION	60
1.0 PURPOSE OF CONDITION A.....	61
2.0 AMENDMENT OF CONDITION A PROPOSED BY THE PERMITTEE	61
3.0 FUNDING OPTION FOR THE WETLAND RESTORATION PROJECT	75

- E. FINDINGS FOR APPROVAL OF REVISED AMENDMENTS OF CONDITION C: KELP REEF MITIGATION 76
 - 1.0 PURPOSE OF CONDITION C..... 76
 - 2.0 AMENDMENTS TO CONDITION C PROPOSED BY PERMITTEE 77
 - 3.0 ANALYSIS OF KELP IMPACTS AND MITIGATION..... 78
 - 4.0 CONSISTENCY WITH THE COASTAL ACT..... 84
 - 5.0 FUNDING OPTION FOR THE MITIGATION REEF PROJECT 86
- F. FINDINGS FOR AMENDMENT OF CONDITION D: ADMINISTRATIVE STRUCTURE..... 87
 - 1.0 PURPOSE OF CONDITION D..... 87
 - 2.0 AMENDMENT OF CONDITION D PROPOSED BY THE PERMITTEE..... 88
 - 3.0 FUNDING OPTION..... 94
 - 4.0 COASTAL ACT CONSISTENCY: CONCLUSION..... 100
- V. CEQA FINDINGS FOR RECOMMENDED CONDITIONS 101
- VI. FINDINGS ON PRELIMINARY PLANS FOR COMPLIANCE WITH CONDITIONS A AND C 101
 - A. BACKGROUND 101
 - B. DENIAL OF THE SAN DIEGUITO WETLANDS PRELIMINARY PLAN 102
 - C. DENIAL OF THE ORMOND BEACH WETLAND SITE..... 102
 - D. COMPLIANCE OF THE EXPERIMENTAL ARTIFICIAL REEF PRELIMINARY PLAN WITH AMENDED CONDITION C 103
 - 1.0 THE ARTIFICIAL REEF PRELIMINARY PLAN COMPLIES WITH AMENDED CONDITION C. 103

ATTACHMENT, EXHIBITS, AND APPENDICES IN SEPARATE PACKAGE

ATTACHMENT 1 — STANDARD CONDITIONS

EXHIBIT 1 — LOCATION MAP

EXHIBIT 2 — LAY-OUT SONGS

EXHIBIT 3 — LETTER FROM ROBERT HOFFMAN TO PETER DOUGLAS, JUNE 26, 1996

EXHIBIT 4 — LETTER FROM CRAIG OSENBERG TO PETER DOUGLAS, OCTOBER 2, 1996

EXHIBIT 5 — LETTER FROM PAUL DAYTON TO COMMISSIONERS, OCTOBER 8, 1996

EXHIBIT 6 — LETTER FROM JPA TO CALCAGNO AND COMMISSIONERS, NOVEMBER 12, 1996

EXHIBIT 7 — CORRESPONDENCE RELATED TO THE CPUC SETTLEMENT

EXHIBIT 8 — LETTER TO SCE FROM SUSAN HANSCH, JANUARY 29, 1997

EXHIBIT 9 — LETTER FROM SCE TO SUSAN HANSCH, FEBRUARY 14, 1997

APPENDIX A — SUBSTANTIVE FILE DOCUMENTS

APPENDIX B — 1991 COASTAL PERMIT 6-81-330 (FORMERLY 183-73) TEXT OF ORIGINALLY APPROVED SPECIAL CONDITIONS A–F

APPENDIX C — PERMITTEE’S PROPOSED AMENDMENTS TO CONDITIONS A, C, & D

APPENDIX D — AN UPDATED ESTIMATE OF THE EXTENT OF SONGS’ IMPACT ON GIANT KELP BASED ON NEW INFORMATION

APPENDIX E — SONGS CPUC SETTLEMENT CALCULATIONS

APPENDIX F — COST ESTIMATES USED IN FUNDING

APPENDIX G — SUPPLEMENTAL ANALYSES

Guide to Reading this Report

This is a complex permit and a complicated amendment package involving a project with a long and involved history. All this makes for a large and detailed report. To make reading this report a manageable task we suggest the following steps:

1. Read the **Executive Summary**.
 2. Focus on the **Summary Table** in this Executive Summary. This Table provides a summary of:
 - The 1991 Commission conditions — the existing mitigation package.
 - The permittee's proposed amendments.
 - The Commission's adopted package of conditions.
 - Permittee's progress on condition compliance.
 3. Review the Table of Contents which provides a guide to locating the approved conditions, the findings, and the supporting materials, correspondence, and Appendices.
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EXECUTIVE SUMMARY

Southern California Edison (SCE)(the permittee) as majority owner and operating agent sought to amend the coastal development permit for the San Onofre Nuclear Generating Station (SONGS) Units 2 and 3. The permittee submitted an amendment package that contains numerous significant revisions to the conditions that were adopted by the Commission in 1991 to mitigate the adverse impacts of the power plant on the marine environment. The permittee's submittal also included for Commission review the preliminary plans intended to comply with the conditions as revised by the permittee. In its August, 1996 application, the permittee asked that the Commission consider the entire submittal as one amendment package.

On April 9, 1997, the Commission:

1. Adopted a resolution approving amended conditions as revised by the staff recommendation and by the Commission, and

2. Adopted a resolution: (1) rejecting the preliminary plan for San Dieguito Wetlands; (2) rejecting the preliminary plan for Ormond Beach Wetlands; and (3) approving the preliminary plan for the experimental kelp reef.

Although the Commission adopted a resolution approving amended conditions, most of the permittee's proposed revisions are not included in the amended conditions. The effect of the Commission's action is to deny most of the revisions proposed by the permittee on the ground that they are inconsistent with the Coastal Act. However, since the permittee submitted one amendment package and because the Commission approved some revisions to the conditions, the resolution the Commission adopted is structured as an approval of amended conditions.

The amendments approved by the Commission are primarily to Condition C—Kelp Bed Mitigation. The revisions reflect that the size of the mitigation kelp reef required by Condition C can be reduced, although not to the degree proposed by the permittee, consistent with the Coastal Act. The Commission found that the permittee's proposed revisions to Condition A—Wetland Mitigation and Condition D—Monitoring and Oversight would result in inadequate mitigation of the impacts of SONGS Units 2 and 3. The only revisions to Condition A that the Commission approved are the establishment of new deadlines for condition compliance, the allowance of up to 35 acres of partial credit for permanent inlet maintenance at San Dieguito, and the addition of a trust fund option to implement the wetland project. The only revision that the Commission approved for Condition D is the addition of a trust fund option that would enable the permittee to pay a specified amount of money into special accounts to enable all the permit conditions to be implemented by third parties.

The Commission denied the permittee's preliminary plans for wetlands restoration at San Dieguito and Ormond Beach. The plan for San Dieguito was rejected because the owners/managers of most of the property identified in the plan had withdrawn their authorization to use the land. The Ormond Beach plan lacks sufficient detail to evaluate its consistency with Condition A. Finally, the Commission conditionally approved the experimental kelp reef plan.

In summary, the Commission found that most of the permittee's proposed amendment package as submitted does not fully mitigate impacts to the marine environment caused by the construction and operation of SONGS Unit 2 and 3, and is therefore not consistent with the Coastal Act. The approved conditions incorporate elements of the permittee's submittal that are consistent with the Coastal Act, and retain most major elements of the 1991 conditions. The Commission adopted findings that deny the plans submitted in compliance with Condition A—Wetland Mitigation, and findings for approval for the experimental reef plan to implement a portion of Condition C—Kelp Bed Mitigation.

The Summary Table in this Executive Summary provides a compilation and comparison of the 1991 permit conditions, the permittee's requested amendments, key components of the Commission's approval, and the permittee's progress towards full condition compliance.

HISTORY AND BACKGROUND

In 1973, the California Coastal Zone Conservation Commission (CCZCC, now the California Coastal Commission) denied a permit for the construction of SONGS Units 2 and 3. In 1974, the Commission approved a permit for the construction of the SONGS Units 2 and 3 with conditions that:

- 1) established a three-member independent Marine Review Committee (MRC) comprised of members appointed by the Commission, the permittee, and an environmental coalition that had opposed the project, to carry out a comprehensive field study to predict and measure the impact of the SONGS on the marine environment; and
- 2) authorized the Commission to require the permittee to make future changes in the SONGS cooling system (as extensive as the installation of cooling towers) to address adverse impacts to the marine environment identified by the MRC.

The 1974 coastal development permit authorized the construction and operation of SONGS Units 2 and 3 prior to a complete analysis of, and mitigation for, marine resource impacts. In 1979, based on recommendations from the MRC, the Commission recognized that compensatory mitigation measures could be appropriate in addition to, or in-lieu of, changes to the SONGS cooling system (e.g., mitigation by avoidance, such as cooling towers).

In 1989 the MRC submitted its final report and recommendations. The recommendations in the MRC Final Report (concurrent with by the permittee's MRC representative) documented significant impacts to fish populations in the Southern California Bight, and to the San Onofre kelp bed community. The MRC's Final Report also included recommendations for mitigating adverse impacts to the marine environment caused by the SONGS.

The 1974 permit is still in full force and effect, and its conditions gave the Commission the authority in 1991 to further condition the coastal development permit to require the existing comprehensive mitigation package based on the findings and recommendations of the MRC.

The Commission's Adopted 1991 Conditions

The Coastal Commission staff presented a recommended mitigation package (based on the MRC's comprehensive study and final report) to the Commission at a public hearing on July 16, 1991. The Commission concluded that a compensatory mitigation program was the most cost-effective means of dealing with the impacts of SONGS Units 2 and 3. The Commission found that because costs would be lower, and unlike the impact avoidance options considered but rejected, compensatory mitigation would not interfere with plant operations or result in reduced plant efficiency. The Commission therefore further conditioned the SONGS permit to require implementation of the following mitigation program elements:

- creation or substantial restoration of at least 150 acres of Southern California wetlands (Condition A);
- installation of fish barrier devices at the power plant (Condition B); and
- construction of a 300-acre kelp reef (Condition C).

The permit conditions adopted by the Commission also require the permittee to fund administrative and scientific oversight and independent monitoring of the mitigation program (Condition D), to be conducted by a small mitigation monitoring program team and necessary scientific contractors under the direction of the Commission's Executive Director. Condition E requires public availability of the MRC data.

In approving the 1991 permit conditions, the Commission found the mitigation, monitoring, and remediation program to be a **minimum** package, and that the only way the permittee should be allowed to mitigate adverse impacts through compensation rather than to make extensive changes to the SONGS cooling system to prevent adverse impacts was through the full adopted mitigation package.

The Commission then directed the staff to consider the need for additional mitigation, identifying specifically that consideration be given to a fish hatchery program. On March 23, 1993, the Commission added a requirement (Condition F) for the permittee to partially fund (\$1.2 million) construction of an experimental white seabass hatchery program. Due to its experimental nature, the Commission did not assign mitigation credit for the hatchery.

In 1992, at the permittee's request and after an extensive selection process established by the 1991 permit conditions, the Commission approved the San Dieguito Lagoon as the site for 150 acres of wetland restoration.

1995 AMENDMENT APPLICATION

Criteria for Filing Amendment Application

The Commission's regulations governing permit amendments require that, in order to be accepted for processing, amendments to coastal development permits must not "lessen or avoid the intended effect of a ... conditioned permit" unless the applicant provides "newly discovered material information" that could not have been produced before the permit was granted (Section 13166(a)(1)).

In 1995, the permittee submitted an amendment request that was rejected by the Executive Director as not meeting this standard. After a public hearing at its November 1995 meeting, the Commission did not overturn the Executive Director's determination. The 1991 adopted conditions remain in full force and effect.

Commission Staff and Permittee Attempt to Develop a Consensus Alternative Mitigation Package

During the November 1995 hearing, the Executive Director stated his high priority objective of getting the mitigation implemented as soon as possible by working with the permittee to develop an alternative amendment package that could be accepted for filing and be brought to the Commission for a public hearing and decision. The Commission also gave the Commission staff and the permittee the charge to get the mitigation plan implemented as soon as possible.

Since November 1995, the staff has worked intensively with the permittee and others to try to develop an acceptable amendment package that is consistent with the Coastal Act. Numerous meetings with the permittee, staff from California Department of Fish and Game (CDFG), United States Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and other agencies, and outside scientists have been required to discuss the permittee's concerns relating to implementation of the 1991 permit conditions and the appropriateness of any amendments to the mitigation program. The permittee states that the staff has required numerous studies and technical meetings above and beyond what is required by the current permit. However, these studies and meetings were necessary to allow informed decisions regarding appropriate changes based on the permittee's desire to reduce the mitigation package stipulated in the 1991 permit. Some of the staff's attempts to develop a consensus alternative mitigation package include:

Partial Credit for Enhancement

- The staff has worked with the wetland resource agencies (CDFG, USFWS, NMFS) to try and meet the permittee's desire to satisfy some of the wetland mitigation obligation through partial credit for enhancement of existing functioning wetlands by

inlet maintenance. The 1991 permit calls for **creation or substantial restoration** of at least 150 acres of coastal wetland **and** the maintenance of continuous tidal flushing. Thus, allowing partial credit for enhancement activities (e.g., inlet maintenance at San Dieguito Lagoon that in the 1991 permit conditions is a required component) requires a permit amendment. The staff supported Commission approval of an amendment to allow partial credit toward the 150-acre requirement for enhancement activities. The permittee's amendment requests **full** credit for enhancement of existing wetlands by inlet maintenance.

The Commission **denied** the permittee's proposed amendments to the wetland conditions and the permittee's proposed wetland plan. The Commission approved revisions to Condition A that allow up to 35 acres of partial credit for enhancement at San Dieguito. This is also reflected in the cost figures used for wetland restoration for the optional trust fund.

Interagency Wetland Advisory Panel's Recommendations

- As a way to reach an agreement on the amount of partial credit for inlet maintenance at San Dieguito Lagoon, the staff and the permittee sought the advice and recommendations of the Interagency Wetland Advisory Panel (IWAP) (Exhibit 3). However, the permittee's mitigation plan for San Dieguito Lagoon has not addressed the IWAP recommendations and requests substantially more credit for inlet maintenance than either the IWAP or staff can support. Commission staff used the majority of the IWAP recommendations in developing the cost estimates used in the staff recommendation for wetland restoration in the optional trust fund.

Independent Review Panel for Kelp Studies

- The permittee collected additional data on the San Onofre kelp bed after the MRC field studies were terminated. The permittee used some of the same contractors that the MRC used. The permittee's contractors used the same methods as the MRC, but did not look at the same factors studied by the MRC. The permittee's contractors confined their work to documenting changes only in kelp abundance. The MRC's work was more comprehensive and included measurements of the influence of sea urchins, light levels, and turbidity, and looked at the entire kelp bed community.
- Commission staff sought (based on the 1993 Commission resolution regarding MRC dissolution) to have the MRC scientists review the permittee's new kelp data. The permittee objected and in the spirit of moving the mitigation project along staff agreed with the permittee's proposal to establish a three member Independent Review Panel. The permittee and the Commission staff jointly selected the three member scientific panel and jointly framed the questions for the panel to consider.

- The staff agrees with the Independent Panel's **qualitative** conclusion that the adverse impacts to the San Onofre kelp bed from the SONGS operation are less than originally estimated by the MRC. The staff also used the Panel's suggested methods to **quantitatively** determine the level of impact.

Design of Experimental Kelp Reef

- The staff has worked diligently with the permittee to develop a mutually acceptable design for the experimental artificial reef through meetings with the permittee, Department of Fish and Game staff, and potential construction contractors. The permittee's proposed experimental reef plan reflects this work.

Alternative Materials for Kelp Reef Construction

- Although the 1991 permit requires that the kelp mitigation reef be constructed of quarry rocks, the permittee has expressed interest in using concrete because it is cheaper. The staff has agreed to consider the possible use of concrete as a construction material for the kelp mitigation reef. The staff suggested the incorporation of concrete into the design of the experimental kelp reef to determine whether it would be a suitable building material for the larger kelp mitigation reef. Use of concrete to construct the artificial reef requires a permit amendment. The Commission's approval of the amendment package allows the consideration of the use of concrete in construction of the artificial reef, and thereby potentially reduces mitigation costs if the use of concrete proves successful in the experimental phase of the artificial reef.

Monitoring

- The staff has offered numerous revisions to the intensity and breadth of the required monitoring programs to reduce monitoring costs and to maximize the use of funds for construction of the mitigation projects. The staff has also suggested numerous monitoring strategies generally consistent with the extensive performance standards spelled out in and that uphold the intent of the 1991 permit, but do so at a lower overall cost to the permittee. Independent monitoring is critical in order to ensure that the mitigation works and that, if needed, remedial steps are taken.

Trust Fund

- The Commission and staff are mindful that although 23 years have passed since the 1974 approval of the SONGS, 14 years have passed since SONGS Units 2 and 3 began operating, and 6 years have passed since the Commission imposed mitigation requirements for SONGS, and still little significant mitigation for lost coastal resources has occurred. This delay in the implementation of mitigation led Commission staff to propose and the Commission to strongly endorse and approve a trust fund solution that would cap the permittee's total costs and provide the

means to effectively and efficiently build the required reef and wetland mitigation projects as quickly as possible.

- A trust fund approach has numerous advantages and is strongly supported and encouraged by staff. Once the trust funds are fully funded, the permittee would have no continuing responsibility for the wetland restoration components of the mitigation program. Utilization of the trust funds would provide the permittee with certainty with respect to the overall cost of the mitigation program. In particular, certain costs of the program, such as the remediation requirements for the wetland and kelp reef projects, are currently open-ended. The trust funds would establish a cap on the remediation costs for which the permittee would be responsible, as well as limit the permittee's financial responsibility for the overall project to a specified monetary amount.
- In adopting a trust fund approach, the risk to the implementing entities, the Coastal Commission, and the public is that there could be unanticipated costs. A resulting shortfall of funds would preclude full compensation for lost resources. However, there are costs and delays associated with the permittee's continuing disagreement with the Commission and others on condition interpretation and implementation that do not translate into public benefits. On balance, the staff believes and the Commission concurred through its action that the benefits to all parties outweigh the risks of a trust fund approach.
- The Commission's approved findings and conditions and Appendix F include details on costs used to determine the trust fund amounts and the proposed structure for implementation.

COMMISSION REVIEW OF 1996 AMENDMENT APPLICATION

The permittee's pending application for the proposed amendments to CDP 6-81-330 was submitted August 1996, filed on September 17, 1996 and placed on the Commission's October 8, 1996 agenda. In August of 1996, the staff reviewed the permittee's current amendment request for compliance with the regulations governing permit amendments and determined that, although many components of the proposed amendments do not meet the criteria for acceptance, the overall package does. The amendment application before the Commission now is different in several ways from the rejected 1995 amendment request. The current amendment request includes a review of the permittee's new kelp data by the Independent Technical Review Panel (a three-member panel jointly selected by the permittee and the Commission staff) who concluded that SONGS's effect on kelp abundance is less than originally predicted by the MRC. The CCC staff accepts this conclusion by the independent scientists and believes this new information reviewed

by a group of independent scientists warrants Commission approval of this part of the amendment as recommended.

The Commission heard public testimony and continued the item to its November 13, 1996 hearing. At the November 1996 hearing, the San Dieguito River Park Joint Powers Authority (JPA) cited deficiencies in the permittee's proposed plan for San Dieguito Lagoon that, in the JPA's view, invalidated agreements between the permittee and the JPA, thus nullifying the permittee's authorization to use key JPA owned and managed lands. Because the permittee's resultant lack of authority to use these lands rendered many aspects of the proposed amendments and mitigation plans unworkable, the Commission staff's written recommendation was withdrawn at the hearing and a verbal recommendation for denial was given. After a long public hearing the Commission continued the matter, to the February 1997 meeting to give the JPA, the State Coastal Conservancy and the staff time to review engineering information relating to the feasibility of a restoration plan more in keeping with the JPA preferred plan. The JPA representatives agreed to work with the permittee to resolve outstanding concerns during the intervening months. Due to delays in the engineering studies, the matter was further postponed to the April 1997 meeting.

In the wake of the Commission's November 1996 continuation, Commission staff requested that the permittee clarify whether its amendment application had been formally revised to reflect any of the modified proposals presented by the permittee at previous hearings. In the absence of any changes identified by the permittee, staff would conduct its review of the amendment based only on the permittee's August 1996 submittal. (See letter dated January 29, 1997, Exhibit 8.) On February 21, 1997 Commission staff received a letter from the permittee dated February 14, 1997 (Exhibit 9). The letter did not provide the requested information and instead sought further postponements.

The permittee and several other interested persons have asked for yet another postponement of this matter. The staff is of the opinion that further delay of a decision on this matter is not warranted. The issues relative to the kelp reef and administration conditions of the 1991 permit amendments have been fully reviewed and discussed and the permittee should now be directed to implement them. The information based on additional engineering work relative to wetland restoration at San Dieguito, is sufficient to enable staff to conclude that implementation of the Condition A at San Dieguito is feasible and should be carried forward with all deliberate speed. The JPA property is, unlike the situation in November 1996, now available to implement a wetland restoration project that meets the terms of Condition A.

Units 2 and 3 have been in operation for over 14 years and the public resources lost as a result have not been offset by the permittee. The Commission and the permittee have

been subjected to extensive criticism for delays in carrying out the required mitigation measures.

The Commission's April 9, 1997 action makes clear that the permittee is expected to promptly carry out the permit mitigation conditions or choose the trust fund option by June 8, 1997. Relative to the wetlands condition (Condition A), if the permittee elects not to utilize the trust fund option and does not believe a restoration project at San Dieguito for the full 150 acres of restored wetlands is feasible, the lengthy process of qualifying an additional mitigation site or sites could be requested. To avoid any misunderstanding on this point however, the Commission is of the strong opinion that the full mitigation identified in Condition A is feasible at San Dieguito and that any effort to identify an additional location would result in an unnecessary and unjustifiable expenditure of resources by the permittee, the Commission, the JPA, and everyone else having a direct interest in this matter.

Standard of Review: Coastal Act and the Original 1974 Coastal Development Permit

The Commission's standard of review for amendments is "whether the proposed development with the proposed amendment is consistent with the requirements of the Coastal Act of 1976" (Commission regulations section 13166(4)). In this case the "proposed development" — the SONGS Units 2 and 3 — already exists and through its construction and operation has been causing unmitigated impacts to the marine environment since the early 1980s.

The original 1974 coastal development permit (and later modifications), which authorized the construction and operation of the SONGS Units 2 and 3, is in full force and effect and enforceable. The Commission approved the permit with the unequivocal requirement that significant adverse impacts to the marine environment would be eliminated or mitigated through compensation when they were identified. The 1991 mitigation package provides for full mitigation of the adverse marine resource impacts caused by the SONGS, thereby keeping the original approval of the SONGS Units 2 and 3 consistent with the Coastal Act.

For the Commission to approve any amendments to the existing, adopted 1991 mitigation program, the Commission must find that the changes continue to fully mitigate all identified impacts to the marine environment caused by the construction and operation of SONGS Units 2 and 3. Then, and only then, can the amendments be found consistent with the Coastal Act and with the underlying original permit.

KEY COMPONENTS OF THE COMMISSION'S APRIL 9, 1997 ACTION ON AMENDMENT

Condition A – Wetland Mitigation

The Commission's April 9, 1997 action:

- Resulted in **denial** of SCE's August 1996 proposed amendments to the Condition A–Wetland Mitigation.
- Reaffirmed Commission's prior 1992 decision that San Dieguito is the site that best meets the standards and objectives of this Condition A.
- Allows up to 35 acres credit for enhancement of wetland habitat at San Dieguito Lagoon.
- Established a 6-month deadline for submission of a preliminary wetland mitigation plan.
- Offered an option for the permittee to pay \$55.63 million for wetland mitigation as part of the trust fund. If the permittee selects this option and pays the amount as specified, the permittee's obligations under Condition A will be completely satisfied. The amount specified for wetland restoration is based on a conceptual plan developed by the Coastal Conservancy and the San Dieguito JPA for the creation, enhancement, and substantial restoration of 150 acres of wetlands at San Dieguito (the permittee's selected and Commission approved site).

Condition B – Fish Behavioral Mitigation

- No requested amendments.

Condition C – Kelp Reef Mitigation

- The Commission **approved** conditions that revised SCE's August 1996 proposed amendments. The result is a recognition that new information shows kelp bed impacts of 179 acres caused by SONGS. Based on earlier information the MRC projected 200 acres of impact requiring 300 acres of kelp bed mitigation (included 1.5 multiplier).
- The permit conditions require (1) the design, construction, independent monitoring and remediation of 150 acres (at least 67% rock coverage) of medium to high density kelp bed community to be accomplished in two components: a 16.8 acre experimental reef to test reef design option, and at least 133.2 additional acres of mitigation reef, and (2) \$3.6 million payment to OREHP to fund a mariculture/marine fish hatchery program.

- Condition C also includes an option for the permittee to pay \$43.84 million for kelp reef mitigation as part of the trust fund. If the permittee selects this option and pays the amount specified the permittee's obligations under Condition C will be completely satisfied.

Condition D – Administrative Structure

- The Commission **denied** SCE's August 1996 proposed amendment to the scientific oversight and monitoring condition. SCE's amendment would eliminate the key component of the 1991 Commission permit condition that requires scientifically based monitoring and oversight independent of the permittee. The Commission's approval of the staff recommendation results in the 1991 version of permit Condition D remaining in full force and effect, except as modified to add the funding option.
- The Commission approved revised Condition D to offer the permittee an option to pay \$8.08 million for monitoring and \$6.50 million for scientific oversight that will be carried out for the operating life of SONGS. The costs in this trust fund are absolute minimums based on the best estimates of university costs and under the assumption that the trust funds for the wetland and kelp reef will be funded by the permittee and the permittee will no longer be involved in the implementation of the projects. As approved by the Commission, the funding option has to be accepted by the permittee in its entirety for wetland, reef, and monitoring and oversight. If the permittee selects this option by June 8, 1997 and funds the trust fund fully as specified, the permittee's obligations under Condition D will be completely satisfied.
- The total cost for the Trust Fund option is \$114.05 million. The cost for the separate mariculture/fish hatchery funding to OREHP is \$3.6 million. The total cost for all mitigation if the permittee chooses the trust fund option is \$117.65 million. (See Appendix F — Funding Option.)

SUMMARY TABLE

Existing Commission Conditions (1991), Permittee’s Proposed Amendments and Proposed Plans for Condition Compliance, and Commission Approved Revised Conditions.†

CONDITIONS IN THE COMMISSION’S 1991 SONGS PERMIT ACTION	PERMITTEE’S PROPOSED AMENDMENTS TO PERMIT CONDITIONS AND CONDITION COMPLIANCE	COMMISSION APPROVED REVISED CONDITIONS
<i>Condition A: Wetland Restoration Mitigation</i>		
<p><i>1991 Permit Condition:</i></p> <p>Permittee shall create or substantially restore 150 acres of coastal wetland habitat and maintain tidal flushing. No credit for enhancement of existing wetland. Condition includes detailed performance standards and independent monitoring to evaluate success and need for remediation for full operating life of the SONGS. Permittee to select mitigation site from specific list with approval of Commission. The Commission approved the San Dieguito Lagoon site in June 1992.</p>	<p><i>Proposed Amendments:</i></p> <p>Amendment proposes: 1) payment of costs up to \$3 million to fund wetland restoration at Ormond Beach to provide mitigation that permittee states is in excess of the required 150 acres; 2) the addition of an uncontrollable forces clause; 3) reductions in the size of buffer zones; 4) permittee to self-monitor and evaluate success; 5) reduce monitoring and remediation to 10 years; 6) to delete or change most performance standards; and 7) to change most reporting deadlines.</p>	<p><i>Commission Denial of Amendment and Approval of Funding Option:</i></p> <p>The Commission approved the staff recommendation with revisions resulting in denial of all of SCE’s proposed amendments to Condition A. The majority of 1991 Condition A remains in full force and effect.</p> <p>The Commission’s amendment of Condition A adds an option that would allow the permittee to pay \$55.63 million as a part of the trust fund for use by a third party or parties to carry out the wetland mitigation project. The fund would be used to create, enhance, and substantially restore 150 acres of wetlands at the permittee’s selected site, San Dieguito Lagoon approved by the Commission in 1992.</p> <p>The Commission revised Condition A to:</p> <p>1) Reaffirm the Commission’s 1992 selection of the San Dieguito River Valley as the site for the wetland restoration project; and</p>

† On August 19, 1996, the permittee submitted for Commission consideration a 3-volume combined package of proposed permit amendments and two plans (Experimental Kelp Reef and San Dieguito Wetlands) as condition compliance. The staff has analyzed the submittal as a package, but has separately developed findings and conditions: 1) for the proposed amendments; and 2) for approval of the plans and findings as condition compliance. The staff’s approach to analyzing this submittal is necessary because the standard of review for the condition amendments is the Coastal Act, while the standard of review for condition compliance (i.e., plan approval) is the wording of the adopted conditions.

<p>CONDITIONS IN THE COMMISSION’S 1991 SONGS PERMIT ACTION</p>	<p>PERMITTEE’S PROPOSED AMENDMENTS TO PERMIT CONDITIONS AND CONDITION COMPLIANCE</p>	<p>COMMISSION APPROVED REVISED CONDITIONS</p>
		<p>2) Approve up to 35 acres of enhancement credit for permanent inlet maintenance at the San Dieguito site;</p> <p>3) Add a funding option in the amount \$55.63 million to satisfy the permittee’s wetland restoration responsibilities; and</p> <p>4) establish October 9, 1997 as the new deadline for submission of a preliminary wetland mitigation plan.</p>
<p><i>Basis for 1991 Condition:</i></p> <p>The MRC Final Report documents significant ongoing fish losses caused by the operations of SONGS Units 2 and 3. Data available after the MRC completed its studies suggest fish losses may be higher than calculated by the MRC.</p> <p>The wetland mitigation component of the 1991 Commission-approved conditions is designed to provide valuable and balanced wetland ecosystem that compensates for bight-wide losses in marine fish standing stocks due to the SONGS operation.</p>	<p><i>Permittee’s Basis for Proposed Amendments:</i></p> <p>The permittee proposed these amendments to address cost and design constraints it identified during the development of a preliminary wetland mitigation plan for the initially selected site, San Dieguito Lagoon.</p> <p>Amendment does not request credit for enhancement of existing wetland because the permittee contends that enhancement is the same as substantial restoration.</p> <p>The permittee’s analysis of the San Dieguito project is that the 225-acre project yields 150 acres of newly created or substantially restored wetlands. Commission staff and the IWAP members dispute this analysis. To end this long-standing dispute, the permittee is proposing to augment the San Dieguito project with the additional obligations at Ormond Beach.</p>	<p><i>Basis for Commission Approval of Amendment:</i></p> <p>The permittee’s requested amendment would render the SONGS project inconsistent with the Coastal Act.</p>
	<p><i>Condition Compliance: Wetland Mitigation Plan</i></p> <p>The permittee submitted a preliminary mitigation plan for San Dieguito Lagoon, which the permittee evaluates as creating or substantially restoring at</p>	<p><i>Condition Compliance: Wetland Mitigation Plan</i></p> <p>The Commission denied the permittee’s wetland plan for San Dieguito Lagoon and Ormond Beach.</p> <p>In November 1996, the San Dieguito Joint Powers</p>

<p>CONDITIONS IN THE COMMISSION’S 1991 SONGS PERMIT ACTION</p>	<p>PERMITTEE’S PROPOSED AMENDMENTS TO PERMIT CONDITIONS AND CONDITION COMPLIANCE</p>	<p>COMMISSION APPROVED REVISED CONDITIONS</p>
	<p>least 150 acres of wetland.</p> <p>The staff’s evaluation — based in part on a recommendation from Interagency Wetland Advisory Panel (DFG, USFWS, NMFS, ACOE, Coastal Conservancy) — of the permittee’s plan shows the proposed project creates, or substantially restores approximately 92 acres of wetland. To address this dispute and the approximately 58-acre mitigation deficit, the permittee proposes to amend Condition A to provide up to \$3 million for the Coastal Conservancy to implement a mitigation project at Ormond Beach wetland.</p>	<p>Authority (JPA) withdrew their authorization for the permittee to use the JPA property the permittee needed to implement its proposed wetland mitigation project. At the November 1996 Commission meeting, the Commission staff made a verbal recommendation of denial of SCE’s wetland mitigation plan. SCE has not revised its plan since its original August 1996 submittal.</p> <p>The permittee’s proposed Ormond Beach plan is inadequate to meet the 150 acres of required wetland mitigation, is not a site approved by the Commission, and does not meet the requirements established by the 1991 permit for the wetland restoration plan. Also, based on new information supplied in March 1997 by the JPA and the Coastal Conservancy it appears that it is feasible to carry out the full 150 acres of needed wetland mitigation at the approved San Dieguito site.</p>
<p><i>Condition B: Fish Behavioral Mitigation</i></p>		
<p><i>1991 Permit Condition:</i></p> <p>Permittee responsible to install fish behavioral barrier devices within the power plant in order to reduce fish losses due to impingement, and monitor effectiveness; and retention or change of devices determined by the Executive Director.</p>	<p><i>Proposed Amendments:</i></p> <p>No requested amendments.</p>	<p><i>Condition:</i></p> <p>No changes.</p> <p>Conditions in 1991 permit remain as is.</p> <p>Progress towards compliance with this condition continues.</p>

<p>CONDITIONS IN THE COMMISSION’S 1991 SONGS PERMIT ACTION</p>	<p>PERMITTEE’S PROPOSED AMENDMENTS TO PERMIT CONDITIONS AND CONDITION COMPLIANCE</p>	<p>COMMISSION APPROVED REVISED CONDITIONS</p>
<p><i>Condition C: Kelp Reef Mitigation</i></p>		
<p><i>1991 Permit Condition:</i></p> <p>Permittee required to construct 300-acre artificial reef designed to grow kelp and establish a productive kelp bed ecosystem. Reef to be built in two phases. Information obtained from the smaller 1st phase shall be used to test designs for the larger 2nd phase. Conditions include detailed performance standards and independent monitoring with Coastal Commission oversight to evaluate success and need for remediation for full operating life of the SONGS. Permittee to select site within specific area with approval of Commission.</p>	<p><i>Proposed Amendments:</i></p> <p>Amendment request would replace requirement to construct a 300-acre kelp reef with an experimental 16.8-acre reef. Eliminates all performance standards, independent monitoring and remediation. All studies of experimental reef would be completed by permittee.</p>	<p><i>Commission’s Approved Revised Condition:</i></p> <p>The Commission approved amendment of this Condition C to: 1) accept the 16.8-acre experimental reef; 2) require an additional mitigation reef that will produce a total of 150 acres of kelp and associated biota to compensate for adverse impacts caused by the SONGS operation; 3) retain the requirement for independent monitoring with Commission staff oversight; 4) provide \$3.6 million to fund OREHP for the purpose of funding a mariculture/marine fish hatchery program; and 5) offer an option for the permittee to pay \$43.84 million for kelp mitigation as a part of the trust fund and thereby cap the permittee’s funding responsibilities for the reef project. Information obtained from the experimental reef shall be used to design the larger (133.2 acre) mitigation reef. The \$43.84 million is exclusive of the \$3.6 million to be provided to OREHP.</p>
<p><i>Basis for 1991 Condition:</i></p> <p>The MRC Final Report (1989) estimated that the area of medium to high density kelp in the San Onofre kelp bed is reduced on average by 200 acres as long as the SONGS continues to operate. The Commission required a 1.5 ratio for mitigation because of the uncertainty involved with re-creating a kelp bed community with resource values similar to a natural kelp bed community and the fact that kelp does not completely cover a rocky reef. Therefore, the total requirement in the 1991 permit conditions is for the construction of 300-acre kelp reef.</p>	<p><i>Permittee’s Basis for Amendment Request:</i></p> <p>Kelp studies prepared by the permittee’s own contractors and completed after the MRC studies support an estimate of 48–110 acres of kelp bed impacts.</p> <p>An Independent Panel of three scientists (jointly selected by permittee and Commission staff) came to the qualitative conclusion that the “impact of SONGS on kelp abundance is much less than originally predicted by the MRC.” The permittee believes that the adverse impacts to San Onofre kelp bed is decreasing to a level of insignificance.</p>	<p><i>Staff’s Basis for Revised Condition:</i></p> <p>Although the Independent Panel did not make a quantitative determination of the level of impact to the kelp bed caused by SONGS, the Panel recommended an approach to determine the number of acres of kelp bed lost as a result of operations of SONGS.</p> <p>Following the recommendations of the Independent Panel, Commission staff scientists calculated the size of the reduction in the San Onofre kelp bed based on the MRC data and the permittee’s data collected after the MRC was terminated. This calculation shows that the area of medium to high density kelp in the San Onofre kelp bed is reduced</p>

<p>CONDITIONS IN THE COMMISSION’S 1991 SONGS PERMIT ACTION</p>	<p>PERMITTEE’S PROPOSED AMENDMENTS TO PERMIT CONDITIONS AND CONDITION COMPLIANCE</p>	<p>COMMISSION APPROVED REVISED CONDITIONS</p>
		<p>by 179 acres as long as the SONGS continues to operate. (see Appendix D).</p> <p>Neither the permittee’s own studies nor staff’s estimates using the Independent Panel’s approach support the permittee’s estimate of 16.8 to 56 acres of kelp bed impact, or the conclusion that the adverse impact is decreasing to a level of insignificance.</p>
	<p><i>Condition Compliance: Experimental Kelp Reef</i></p> <p>The staff worked with the permittee to develop an experimental reef plan that would satisfy the 1991 experimental reef requirement. The permittee now requests that the 16.8 acre experimental reef be considered as complete condition compliance to offset all kelp bed impacts. During the November 1996 and April 1997 hearings the applicant verbally stated that the impact could be as much as 56 acres. The permittee did not officially revise its amendment request to reflect this testimony.</p>	<p><i>Condition Compliance: Experimental Kelp Reef</i></p> <p>The Commission approved the permittee’s current design for the 16.8 acre experimental reef as meeting the 1991 permit conditions for the Phase I reef. The Commission found that the impact to the kelp bed is well above 16.8 acres (179 acres). Therefore, the 16.8-acre reef only provides partial compliance with Condition C.</p>
<p><i>Condition D: Administrative Structure</i></p>		
<p><i>1991 Permit Condition:</i></p> <p>Permittee must pay for Commission retention of independent scientists to oversee and monitor the wetland and artificial reef mitigation projects; and public opportunity to review and comment on progress of mitigation projects.</p> <p>No specific cap on costs. Budgets require Commission approval.</p>	<p><i>Proposed Amendment:</i></p> <p>Permittee’s amendment would delete the administrative structure and replace independent monitoring of the entire mitigation program with self-monitoring. No funds would be provided for Commission oversight or technical advice. All monitoring to determine success in meeting performance standards and whether remediation is necessary would be completed by the permittee.</p>	<p><i>Revised Condition:</i></p> <p>The Commission denied all SCE proposals to amend Condition D. The 1991 condition remains in full force and effect.</p> <p>The Commission approved an amendment of Condition D to add an option that would allow the permittee to pay \$ 8.08 million for monitoring and \$ 6.50 million for scientific oversight as part of a trust fund. This covers monitoring and scientific oversight for the operating life of SONGS.</p>
<p><i>Basis for 1991 Condition:</i></p>	<p><i>Permittee’s Basis for Amendment Request:</i></p>	<p><i>Basis for Commission’s Revised Condition:</i></p>

CONDITIONS IN THE COMMISSION’S 1991 SONGS PERMIT ACTION	PERMITTEE’S PROPOSED AMENDMENTS TO PERMIT CONDITIONS AND CONDITION COMPLIANCE	COMMISSION APPROVED REVISED CONDITIONS
<p>In its findings for 1991 resolution, the Commission stated “[t]he most effective and reliable means of achieving the compensation objectives described in this permit is through independent, third party monitoring and adaptive management.”</p>	<p>Permittee states that it should be treated as other permittees carrying out similar mitigation projects. Permittee believes that self-monitoring with Commission review (without any funding from permittee) is adequate. Permittee believes independent monitoring would be too expensive.</p>	<p>The Commission found that independent monitoring removes all doubts and concerns about objectivity in judging the success of the mitigation program and is no more costly than self-monitoring. Further, the permittee fully embraced and supported the requirement for monitoring and remediation independent of the permittee at 1991 permit hearing.</p> <p>Permittee has already obtained the benefits of the original 1974 permit by the construction and operation of SONGS since the early 1980’s.</p> <p>To address permittee cost containment concerns the Commission’s approval offers the permittee the option to pay a grand total of \$114.05 million into a trust fund to cap the costs and satisfy the permittee’s responsibility for the wetland project implementation, the reef project implementation, and independent monitoring and Commission scientific oversight. The permittee is also required to pay \$3.6 million to OREHP for mariculture/marine fish hatchery program.</p>
<p><i>Condition E: MRC Data Maintenance</i></p>		
<p><i>1991 Permit Condition:</i></p> <p>Condition E requires that the permittee provide adequate funding to make MRC’s valuable scientific data available for public use.</p>	<p><i>Proposed Amendments:</i></p> <p>No proposed amendments.</p>	<p><i>Recommended Revised Condition:</i></p> <p>Permittee is in compliance with this condition.</p>
<p><i>Condition F: Marine Fish Hatchery*</i></p>		
<p><i>1991 Permit Condition:</i></p>	<p><i>Proposed Amendments:</i></p>	<p><i>Recommended Revised Condition:</i></p>

* The Marine Fish Hatchery condition was mislabeled as Condition E when approved. The Marine Fish Hatchery condition should actually be Condition F.

<p>CONDITIONS IN THE COMMISSION’S 1991 SONGS PERMIT ACTION</p>	<p>PERMITTEE’S PROPOSED AMENDMENTS TO PERMIT CONDITIONS AND CONDITION COMPLIANCE</p>	<p>COMMISSION APPROVED REVISED CONDITIONS</p>
<p>In November 1991 when the Commission adopted the mitigation package (Conditions A–E above) the Commission directed the staff to “explore and bring back to the Commission the possibility of a fish hatchery program for ocean release.”</p> <p>On May 13, 1992, the Commission required the permittee to provide \$1.2 million toward the construction of a marine fish hatchery.</p> <p>On March 17, 1993, the Commission adopted Condition F: Marine Fish Hatchery which includes a detailed description of how the \$1.2 million in funds will be paid and spent and specifies a required memorandum of agreement with Department of Fish and Game and others to assure that important protocols for the marine fish hatchery are implemented.</p> <p>The Commission found that a marine hatchery cannot serve as “stand-alone mitigation” because of insufficient scientific evidence regarding the effectiveness of a fish hatchery in enhancing marine fish populations.</p>	<p>No requested amendments.</p>	<p>No Changes. Permittee has paid the full \$1.2 million and therefore is in full compliance with this condition.</p> <p>The marine fish hatchery has been constructed (in part with funds from the permittee) and has begun operations.</p>

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COMMISSION ACTION

The Commission adopted the following **four** resolutions:

I. RESOLUTIONS

A. APPROVAL OF THE AMENDED COASTAL DEVELOPMENT PERMIT 6-81-330-A WITH CONDITIONS

The Commission hereby **grants**, subject to the standard and special conditions below, a permit amendment for 6-81-330 to revise Special Conditions A, C, and D on the grounds that the proposed development with the proposed amendments, as conditioned, conforms with the provisions of the California Coastal Act of 1976 and conforms with the California Environmental Quality Act.

B. DENIAL OF THE SAN DIEGUITO LAGOON PRELIMINARY WETLANDS RESTORATION PLAN

The Commission hereby **rejects** the San Dieguito Lagoon Preliminary Wetlands Mitigation Plan on the grounds that it does not conform with the requirements of Special Condition A.

C. DENIAL OF ORMOND BEACH WETLAND RESTORATION AND MANAGEMENT PLAN

The Commission hereby **rejects** the South Ormond Beach Wetland Restoration and Management Plan on the grounds that it does not conform with the requirements of Special Condition A.

D. APPROVAL OF THE EXPERIMENTAL ARTIFICIAL KELP REEF PLAN WITH REVISIONS

The Commission hereby finds that, if revised as set forth below, the Experimental Artificial Reef Plan conforms with the requirements of the Preliminary Plan for the experimental artificial reef of Special Condition C (as amended herein according to Resolution I-A).

II. STANDARD CONDITIONS (SEE ATTACHMENT 1)

III. SPECIAL CONDITIONS

NOTE: The following italicized text represents language from the 1991 permit conditions. The non-italicized text is the language added or revised by the 1997 amendment.

The Commission approved the amendment of permit 6-81-330 with Conditions A, C, and D of permit 6-81-330 amended as set forth below.¹ Condition A describes the requirements for a wetland mitigation project that compensates for past, present and future fish impacts from the SONGS Units 2 and 3. Condition C describes requirements for artificial reefs and funding for a mariculture/fish hatchery program necessary to mitigate/compensate for adverse impacts to the San Onofre Kelp bed community caused by the discharge of water used to cool SONGS Units 2 and 3. Condition D describes an administrative structure necessary to ensure independent monitoring and scientific oversight of the required mitigation projects. (Appendix C provides mark-up versions of the permittee's proposed condition amendments.)

A. CONDITION A: WETLAND MITIGATION

NOTE: The following italicized text is the original version of the Commission's 1991 permit Condition A. The non-italicized text is the language added or revised by the 1997 amendment. In its April 9, 1997 action, the Commission revised Condition A to: (a) reaffirm the Commission's 1992 selection of San Dieguito River Valley as the site for wetland restoration; (b) grant up to 35 acres of enhancement credit for inlet maintenance if wetland restoration is done at San Dieguito; and, (c) add an optional trust fund to satisfy the permittee's responsibilities (Condition A.4.).

1.0 SITE SELECTION AND PRELIMINARY PLAN

In consultation with Commission staff, the permittee shall select a wetland restoration site and develop a preliminary plan in accordance with the following process and terms.

Within 9 months of the effective date of this permit, the permittee shall submit the proposed site to the Commission for its review and approval or disapproval.² Within 6 months of the Commission's approval of this permit amendment and no later than October 9, 1997, the permittee shall submit the preliminary restoration plan to the Commission for its review and approval or disapproval.

¹ No amendments to Special Conditions B, E, and F were requested by the permittee, so these conditions apply as originally stated. Appendix B includes the original text for Special Conditions A through F.

² San Dieguito River Valley.

1.1 Site Selection

The location of the wetland restoration project shall be within the Southern California Bight. The permittee shall evaluate and select from sites including, but not limited to, the following eight sites: Tijuana Estuary in San Diego County, San Dieguito River Valley in San Diego County, Huntington Beach Wetland in Orange County, Anaheim Bay in Orange County, Santa Ana River in Orange County, Los Cerritos Wetland in Los Angeles County, Ballona Wetland in Los Angeles County, and Ormond Beach in Ventura County. Other sites proposed by the permittee may be added to this list with the Executive Director's approval.

The basis for the selection shall be an evaluation of the sites against the minimum standards and objectives set forth in subsections 1.3 and 1.4 below. The permittee shall take into account and give serious consideration to the advice and recommendations of an Interagency Wetland Advisory Panel, established and convened by the Executive Director. The permittee shall select the site that meets the minimum standards and best meets the objectives.

On June 11, 1992, the Commission approved the permittee's selected restoration site, the San Dieguito River Valley. On April 9, 1997, the Commission reaffirmed its prior determination that San Dieguito River Valley is the restoration site that meets the minimum standards and best meets the objectives of this Condition A. The permittee can propose an additional site for restoration prior to October 9, 1997, only if achieving all 150 acres of restoration at San Dieguito River Valley becomes infeasible due to hydrology or other engineering concerns. In that event, the additional substantial restoration or creation needed to meet the 150 acre requirement can be completed at another site subject to Commission approval in accordance with the site selection and planning processes set forth in this condition.

1.2 Preliminary Restoration Plan

In consultation with Commission staff, the permittee shall develop a preliminary wetland restoration plan for the wetland site identified through the site selection process. The preliminary wetland restoration plan shall meet the minimum standards and incorporate as many as possible of the objectives in subsections 1.3 and 1.4, respectively.

The preliminary wetland restoration plan shall include the following elements:

- a. Review of existing physical, biological, and hydrological conditions; ownership, land use and regulation.*
- b. Site-specific and regional restoration goals and compatibility with the goal of mitigating for SONGS impact to fish.*

- c. *Identification of site opportunities and constraints.*
- d. *Conceptual restoration design, including:*
 - 1. *Proposed grading and excavation; water control structures; planting; integration of public access, if feasible; buffers and transition areas; management and maintenance requirements.*
 - 2. *Proposed habitat types (including approximate size and location).*
 - 3. *Preliminary assessment of significant impacts of design (especially on existing habitat values) and net habitat benefits.*
 - 4. *Evaluation of steps for implementation e.g. permits and approvals, development agreements, acquisition of property interests.*
 - 5. *A graphic depiction of proposed plan.*

1.3 Minimum Standards

The wetland restoration project site and preliminary plan must meet the following minimum standards:

- a. *Location within Southern California Bight.*
- b. *Potential for restoration as tidal wetland, with extensive intertidal and subtidal areas.*
- c. *Creates or substantially restores a minimum of 150 acres (60 hectares) of wetlands, excluding buffer zone and upland transition area. If the full 150 acre restoration project is carried out at San Dieguito River Valley or if, pursuant to condition A.1.1., an additional site to complete the mitigation requirement is approved by the Commission, up to 35 acres of enhancement credit will be given for permanent, continuous tidal maintenance. The enhancement credit allows the permittee to satisfy up to 35 of the 150 required acres by permanently maintaining the tidal inlet. The 35 acres of enhancement credit is based upon the determination that 126 acres of existing wetlands at San Dieguito Lagoon will be enhanced by 28% if the tidal flows are continuously maintained. However, if the final restoration plan provides for enhancement of less than 126 acres through tidal maintenance, the exact amount of enhancement credit shall be equal to 28% of the total number of tidal wetland acres that are enhanced by tidal maintenance.*
- d. *Provides a buffer zone of a size adequate to ensure protection of wetland values, and not less than at least 100 feet wide, as measured from the upland edge of the transition area.*
- e. *Any existing site contamination problems would be controlled or remediated and would not hinder restoration.*

- f. *Site preservation is guaranteed in perpetuity (through appropriate public agency or nonprofit ownership, or other means approved by the Executive Director), to protect against future degradation or incompatible land use.*
- g. *Feasible methods are available to protect the long-term wetland values on the site, in perpetuity.*
- h. *Does not result in loss of existing wetlands.*
- i. *Does not result in impact on endangered species.*

1.4 Objectives

The following objectives represent the factors that will contribute to the overall value of the wetland. The selected site shall be that with the best potential to achieve these objectives. These objectives shall also guide preparation of the restoration plan.

- a. *Provides maximum overall ecosystem benefits e.g. maximum upland buffer, enhancement of downstream fish values, provides regionally scarce habitat, potential for local ecosystem diversity.*
- b. *Provides substantial fish habitat compatible with other wetland values at the site.*
- c. *Provides a buffer zone of an average of at least 300 feet wide, and not less than 100 feet wide, as measured from the upland edge of the transition area.*
- d. *Provides maximum upland transition areas (in addition to buffer zones);*
- e. *Restoration involves minimum adverse impacts on existing functioning wetlands and other sensitive habitats.*
- f. *Site selection and restoration plan reflect a consideration of site specific and regional wetland restoration goals.*
- g. *Restoration design is that most likely to produce and support wetland-dependent resources.*
- h. *Provides rare or endangered species habitat.*
- i. *Provides for restoration of reproductively isolated populations of native California species.*
- j. *Results in an increase in the aggregate acreage of wetland in the Southern California Bight.*
- k. *Requires minimum maintenance.*
- l. *Restoration project can be accomplished in a timely fashion.*

m. Site is in proximity to SONGS.

1.6 Restrictions

(a) The permittee may propose a wetland restoration project larger than the minimum necessary size specified in subsection 1.3(c) above, if biologically appropriate for the site, but the additional acreage must (1) be clearly identified, and (2) must not be the portion of the project best satisfying the standards and objectives listed above.

(b) If the permittee jointly enters into a restoration project with another party: (1) the permittee's portion of the project must be clearly specified, (2) any other party involved cannot gain mitigation credit for the permittee's portion of the project, and (3) the permittee may not receive mitigation credit for the other party's portion of the project.

(c) The permittee may propose to divide the mitigation requirement between a maximum of two wetland restoration sites, unless there is a compelling argument, approved by the Executive Director, that the standards and objectives of subsections 1.3 and 1.4 will be better met at more than two sites.

2.0 FINAL PLAN AND PLAN IMPLEMENTATION

2.1 Final Restoration Plan

Within 12 months following the Commission's approval of a site selection and preliminary restoration plan, the permittee shall submit a final restoration plan along with CEQA documentation generated in connection with local or other state agency approvals, to the Executive Director of the Coastal Commission for review and approval. The final restoration plan shall substantially conform to the approved preliminary restoration plan as originally submitted or as amended by the Commission pursuant to a request by the permittee. The final restoration plan shall include, but not be limited to the following elements:

- a. Detailed review of existing physical, biological, and hydrological conditions; ownership, land use and regulation.*
- b. Evaluation of site-specific and regional restoration goals and compatibility with the goal of mitigating for SONGS impacts to fish.*
- c. Identification of site opportunities and constraints.*
- d. Schematic restoration design, including:*
 - 1. Proposed cut and fill, water control structures, control measures for stormwater, buffers and transition areas, management and maintenance requirements.*

2. *Planting Program, including removal of exotic species, sources of plants and or seeds (local, if possible), protection of existing salt marsh plants, methods for preserving top soil and augmenting soils with nitrogen and other necessary soil amendments before planting, timing of planting, plans for irrigation until established, and location of planting and elevations on the topographic drawings.*
3. *Proposed habitat types (including approximate size and location).*
4. *Assessment of significant impacts of design (especially on existing habitat values) and net habitat benefits.*
5. *Location, alignment and specifications for public access facilities, if feasible.*
6. *Evaluation of steps for implementation e.g. permits and approvals, development agreements, acquisition of property rights.*
7. *Cost estimates.*
8. *Topographic drawings for final restoration plan at 1" = 100 foot scale, one foot contour interval.*
9. *Drawings shall be directly translatable into final working drawings.*

2.2 Wetland Construction Phase

Within 6 months of approval of the final restoration plan, subject to the permittee's obtaining the necessary permits, the permittee shall commence the construction phase of the wetland restoration project. The permittee shall be responsible for ensuring that construction is carried out in accordance with the specifications and within the timeframes specified in the approved final restoration plan and shall be responsible for any remedial work or other intervention necessary to comply with final plan requirements.

2.3 Timeframe for Resubmittal of Project Elements

If the Commission does not approve any element of the project (i.e. site selection, restoration plan), the Commission will specify the time limits for compliance relative to selection of another site or revisions to the restoration plan.

3.0 WETLAND MONITORING, MANAGEMENT AND REMEDIATION

Monitoring, management (including maintenance), and remediation shall be conducted over the "full operating life" of SONGS Units 2 and 3. "Full operating life" as defined in this permit includes past and future years of operation of SONGS units 2 and 3 including the decommissioning period to the extent there are continuing discharges. The number of past operating years at the time the wetland is ultimately constructed, shall be added to the

number of future operating years and decommission period, to determine the length of the monitoring, management and remediation requirement.

The following section describes the basic tasks required for monitoring, management and remediation. Condition II-D specifies the administrative structure for carrying out these tasks, including the roles of the permittee and Commission staff.

3.1 Monitoring and Management Plan

A monitoring and management plan will be developed in consultation with the permittee and appropriate wildlife agencies, concurrently with the preparation of the restoration plan, to provide an overall framework to guide the monitoring work. It will include an overall description of the studies to be conducted over the course of the monitoring program and a description of management tasks that are anticipated, such as trash removal. Details of the monitoring studies and management tasks will be set forth in a work program (see Section II-D).

3.2 Pre-restoration site monitoring

Pre-restoration site monitoring shall be conducted to collect baseline data on the wetland attributes to be monitored. This information will be incorporated into and may result in modification to the overall monitoring plan.

3.3 Construction Monitoring

Monitoring shall be conducted during and immediately after each stage of construction of the wetland restoration project to ensure that the work is conducted according to plans.

3.4 Post-Restoration Monitoring and Remediation

Upon completion of construction of the wetland, monitoring shall be conducted to measure the success of the wetland in achieving stated restoration goals (as specified in restoration plan) and in achieving performance standards, specified below. The permittee shall be fully responsible for any failure to meet these goals and standards during the full operational years of SONGS Units 2 and 3. Upon determining that the goals or standards are not achieved, the Executive Director shall prescribe remedial measures, after consultation with the permittee, which shall be immediately implemented by the permittee with Commission staff direction. If the permittee does not agree that remediation is necessary, the matter may be set for hearing and disposition by the Commission.

Successful achievement of the performance standards shall (in some cases) be measured relative to approximately four reference sites, which shall be relatively undisturbed, natural

tidal wetlands within the Southern California Bight. The Executive Director shall select the reference sites. The standard of comparison i.e. the measure of similarity to be used (e.g., within the range, or within the 95% confidence interval) shall be specified in the work program.

In measuring the performance of the wetland project, the following physical and biological performance standards will be utilized:

- a. *Long-term Physical Standards. The following long-term standards shall be maintained over the full operative life of SONGS Units 2 and 3.*
 - 1) *Topography. The wetland shall not undergo major topographic degradation (such as excessive erosion or sedimentation).*
 - 2) *Water Quality. Water quality variables [to be specified] shall be similar to reference wetlands.*
 - 3) *Tidal prism. The designed tidal prism shall be maintained, and tidal flushing shall not be interrupted. If the full 150 acre restoration project is carried out at San Dieguito River Valley or if, pursuant to condition A.1.1., an additional site to complete the mitigation requirement is approved by the Commission, up to 35 acres of enhancement credit will be given for permanent continuous tidal maintenance. The enhancement credit allows the permittee to satisfy up to 35 of the 150 required acres by permanently maintaining the tidal inlet. The 35 acres of enhancement credit is based upon the determination that 126 acres of existing wetlands at San Dieguito Lagoon will be enhanced by 28% if the tidal flows are continuously maintained. However, if the final restoration plan provides for enhancement of less than 126 acres through tidal maintenance, the exact amount of enhancement credit shall be equal to 28% of the total number of tidal wetland acres that are enhanced by tidal maintenance.*
 - 4) *Habitat Areas. The area of different habitats shall not vary by more than 10% from the areas indicated in the final restoration plan.*
- b. *Biological Performance Standards. The following biological performance standards shall be used to determine whether the restoration project is successful. Table 1, below, indicates suggested sampling locations for each of the following biological attributes; actual locations will be specified in the work program.*
 - 1) *Biological Communities. Within 4 years of construction, the total densities and number of species of fish, macroinvertebrates and birds (see table 1) shall be similar to the densities and number of species in similar habitats in the reference wetlands.*
 - 2) *Vegetation. The proportion of total vegetation cover and open space in the marsh shall be similar to those proportions found in the reference sites. The*

percent cover of algae shall be similar to the percent cover found in the reference sites.

- 3) *Spartina Canopy Architecture. The restored wetland shall have a canopy architecture that is similar in distribution to the reference sites, with an equivalent proportion of stems over 3 feet tall.*
- 4) *Reproductive Success. Certain plant species, as specified by in the work program, shall have demonstrated reproduction (i.e. seed set) at least once in three years.*
- 5) *Food Chain Support. The food chain support provided to birds shall be similar to that provided by the reference sites, as determined by feeding activity of the birds.*
- 6) *Exotics. The important functions of the wetland shall not be impaired by exotic species.*

Table 1: Suggested sampling locations.

	Salt Marsh			Open Water		Mudflat	Tidal Creeks
	Spartina	Salicornia	Upper	Lagoon	Eelgrass		
1) Density/spp:							
<i>Fish</i>				X	X	X	X
<i>Macroinverts</i>				X	X	X	X
<i>Birds</i>	X	X	X	X		X	X
2) % Cover							
<i>Vegetation</i>	X	X	X		X		
<i>algae</i>	X	X				X	
3) Spar. arch.	X						
4) Repro. suc.	X	X	X				
5) Bird feeding				X		X	X
6) Exotics	X	X	X	X	X	X	X

4.0 FUNDING OPTION FOR WETLAND RESTORATION

As part of the total funding option package provided in revised Condition D, the permittee has the option of satisfying the requirements of Sections 1, 2, and the remediation portion of Section 3 of Condition A by paying the amounts specified for wetland restoration in accordance with the provisions set forth in Sections 4.0 through 4.3 of Condition D.

B. CONDITION C: KELP REEF MITIGATION

NOTE: The following text of revised Condition C includes key elements of the Commission's 1991 permit condition. Site assessment, site selection, and performance standards and monitoring are substantially the same as the 1991 condition. The changes that the Commission approved on April 9, 1997 are:

1. Clarification and modification of the condition as it relates to the two phases of the reef (experimental and mitigation reef). These changes include more specifics about the goals of the experimental reef.
2. Reduction of the size of the reef required in the 1991 permit condition from 300 acres of medium-to high-density kelp to 150 acres of medium-to high-density kelp and the addition of \$3.6 million to OREHP to fund a mariculture/fish hatchery program.

Mitigation for losses to kelp bed resources through the construction of an artificial reef will occur in two phases, an initial experimental phase followed by a mitigation phase.

1.0 EXPERIMENTAL REEF

The permittee shall, using qualified professionals and in consultation with the Executive Director, select a site and construct an experimental artificial reef for kelp to determine the optimal reef design for mitigating resource losses at the San Onofre Kelp bed (SOK) caused by SONGS' operation. The experimental reef shall test the design parameters necessary to provide a persistent giant kelp forest and associated ecosystem.

1.1 Site Assessment

The permittee shall select at least three potential sites and conduct pre-construction site assessments at these potential sites.

The permittee shall obtain sufficient information about each potential experimental reef site to allow the permittee to determine which site best meets the final site selection criteria described below. This information shall be used in both the site selection and design of the experimental reef. Necessary information shall include: (1) a description of existing biota at the site, (2) a reasonable prediction of the likelihood that a healthy kelp bed will be established and persist at the site, (3) a reasonable prediction of the extent of rock burial due to sediment deposition and/or sinking into soft sediment that could be expected at the site, and (4) a prediction of the effect of the proposed reef on local sand transport and local beach profiles.

1.2 Final Site Selection

Selection of the actual experimental reef site from among the potential sites shall be based on, but not limited to, the following criteria:

1. Location as close as possible to the SOK, and preferably between Dana Point (Orange Co.) and Carlsbad (San Diego Co.), but outside the influence of the SONGS discharge plume and water intake, and away from Camp Pendleton.
2. Minimal disruption of natural reef or cobble habitats and sensitive or rare biotic communities.
3. Suitable substrate with low mud and/or silt content (e.g., hard-packed fine to coarse grain sand, exposed cobble or bedrock without a persistent kelp biological community, or cobble or bedrock covered with a thin layer of sand).
4. Location at a depth locally suitable for kelp growth and recruitment.
5. Location near a persistent natural kelp bed.
6. Location away from sites of major sediment deposition.
7. Minimal interference with uses such as vessel traffic, vessel anchorages, commercial fishing, mariculture, mineral resource extraction, cable or pipeline corridors.
8. Location away from power plant discharges, waste discharges, dredge spoil deposition sites, and activities of the U. S. Marine Corps.
9. Location that will not interfere with or adversely affect resources of historical or cultural significance such as shipwrecks and archeological sites.

1.3 Experimental Reef Design and Final Plan

The permittee shall submit a preliminary plan describing the location and design of the experimental reef to the Executive Director for review and approval. Following the Executive Director's approval of the preliminary plan, but no later than June 30, 1997, the permittee shall apply for a coastal development permit for construction of an experimental reef for kelp. The coastal development permit application shall include an experimental reef plan that specifies the design and construction methods of the experimental reef. The design of the reef shall allow for identification of those parameters important to the establishment of a persistent, healthy giant kelp forest and associated ecosystem.

The primary goal of the experimental reef shall be to test several different substrate types and configurations to determine which of these can best provide: (1) adequate conditions for giant kelp recruitment, growth, and reproduction and (2) adequate conditions to

establish a community of reef-associated biota. Information gained from the experimental reef will be used in designing the mitigation phase of Condition C. This will help to ensure full compensation for kelp bed losses in a cost-effective manner.

The total areal extent (as measured at the ocean bottom and equal to the surface area within the perimeter of the reef's outermost hard substrate/sand interface area, as installed by the permittee) of the experimental reef shall be a minimum of 16.8 acres.

1.4 Experimental Reef Construction

The experimental reef shall be constructed within 12 months of approval of the coastal development permit for the experimental reef. A post-construction survey shall be carried out by the permittee to demonstrate that the experimental reef was built to approved specifications. If the Executive Director determines that the reef was not built to specifications, the permittee shall modify the reef to meet the approved specifications within 90 days of the post-construction survey. Extension of this time limit may be granted by the Executive Director for good cause.

1.5 Experimental Reef Monitoring

The experimental reef shall be monitored independent of the permittee (as per Condition D) for 5 years. A monitoring plan will be developed by Commission scientists pursuant to Condition D. The independent monitoring program for the experimental reef shall be designed to assess the effectiveness of alternative reef designs, materials and management techniques. Monitoring shall be conducted with funds provided by the permittee through Condition D and shall include the monitoring and management of any additional experiments deemed necessary by the Executive Director. Successful completion of the experimental reef does not depend on the achievement of performance standards. However, information on the performance of different module designs will be used to identify those designs that would be likely to meet the performance standards for the mitigation reef. This information will be used to design the most cost-effective mitigation reef that is likely to meet the performance standards listed in Section 2 below.

2.0 MITIGATION REEF

In addition to construction of the 16.8-acre experimental reef, the permittee shall be responsible for the construction of at least 133.2 acres of artificial reef (yielding a minimum of 150 acres of artificial reef hereafter referred to as the "mitigation reef") that meets the performance standards listed below as mitigation for the resource losses at the San Onofre Kelp bed (SOK) caused by operation of the SONGS. The larger artificial reef may be an expansion of the experimental reef or may be established in a different location, provided that the larger reef shall be located in the vicinity of SONGS, but outside the

influence of SONGS discharge plume and water intake. The selection of a site for the larger artificial reef shall be based on the final site selection criteria stated in Section 1.2 above.

The purpose of the mitigation reef is to provide kelp bed community resources to replace the resources lost due to the operation of SONGS Units 2 and 3. Thus, the mitigation reef shall be designed to replace the lost and damaged resources at the San Onofre kelp bed and result in production of a persistent giant kelp forest and associated ecosystem.

2.1 Mitigation Reef Design and Planning

Within six months after completion of independent monitoring of the experimental reef, the permittee shall submit a preliminary plan describing the location and design of the mitigation reef to the Executive Director for review and approval. The type of hard substrate and the percent cover of hard substrate proposed in the preliminary plan for the mitigation reef shall be determined by the Executive Director.

The Executive Director will consult with the Coastal Commission scientists, scientific advisors, resource agencies, and others as appropriate to evaluate whether the preliminary plan meets the goals set forth in Section 2.2 below. Within one month following the Executive Director's determination that the preliminary plan meets the specified criteria, the permittee shall initiate development of a final mitigation plan along with appropriate CEQA and/or NEPA environmental impact analyses necessary in connection with local, State or other agency approvals.

Within twelve months of the Executive Director's approval of a preliminary plan for the mitigation reef, the permittee shall submit a final mitigation plan to the Coastal Commission in the form of a coastal development permit application. The final plan shall specify location, depth, overall hard substrate coverage, size and dispersion of reef materials, and reef relief and shall substantially conform to the preliminary plan approved by the Executive Director.

2.2 Mitigation Reef Goals

The primary goals of the mitigation reef shall be to provide adequate conditions for a community of reef-associated biota similar in composition, diversity and abundance to the San Onofre kelp bed that compensate for the losses incurred by SONGS operations.

2.3 Mitigation Reef Construction

The permittee shall construct the reef in accordance with the final plan in the approved coastal development permit. The permittee shall begin construction of the reef no later

than 6 months after Commission approval of a coastal development permit for the reef. The permittee shall complete a post-construction survey to demonstrate that the reef was built to approved specifications. If the Executive Director determines that the reef was not built to specifications, the permittee shall modify the reef to meet the approved specifications within 90 days of the post-construction survey. Extension of this time limit may be granted by the Executive Director for good cause.

2.4 Monitoring

After construction of the mitigation reef is completed, the reef will be monitored, managed, and, if necessary, remediated. The following sections describe the basic tasks required for monitoring the mitigation reef pursuant to this Condition. Condition D specifies that the permittee shall provide funds to the Commission or an independent entity designated by the Executive Director for the purpose of completing the monitoring, as specified below.

A monitoring plan for the mitigation reef shall be developed by the Commission staff scientists pursuant to Condition D. The monitoring plan shall be completed within six months of approval of a coastal development permit for the mitigation reef proposed in a final plan developed pursuant to this condition. The monitoring plan shall provide an overall framework to guide the monitoring work. The monitoring plan shall describe the sampling methodology, analytical techniques, and methods for measuring performance of the mitigation reef relative to the performance standards identified below.

Monitoring independent of the permittee shall be implemented in accordance with Condition D to: (1) determine whether the performance standards of this condition are met (i.e., whether the mitigation reef successfully replaces the lost and damaged resources in the San Onofre Kelp bed), (2) if necessary, determine the reasons why any performance standard has not been met, and (3) develop recommendations for appropriate remedial measures. The permittee shall be responsible for fully implementing any remedial measures deemed necessary by the Executive Director.

Following completion of construction the mitigation reef shall be monitored for a period equivalent to the operating life of SONGS. The independent monitoring program for the mitigation reef shall be designed to assess whether the performance standards have been met. If these standards are met after ten years following the completion of construction, then monitoring can be reduced to annual site inspections. The permittee shall undertake necessary remedial actions based on the monitoring results and annual site inspections for the full operating life of the SONGS Units 2 and 3.

The following performance standards shall be used in measuring the success of the mitigation reef to determine whether remediation is necessary:

a. Substrate

1. The reefs shall be constructed of rock, concrete, or a combination of these materials, as determined from results of the experimental reef to be suitable for sustaining a kelp forest and a community of reef-associated biota similar in composition, diversity and abundance to the San Onofre kelp bed.
2. The total areal extent of the mitigation reef (including the experimental reef and all larger artificial reefs) shall be no less than 150 acres.
3. At least two-thirds (67 percent) of the 150-acre mitigation reef area shall be covered by exposed hard substrate. Should the results of the experimental reef indicate that a different coverage of hard substrate is necessary or adequate to meet this goal (as determined by the Executive Director), the Executive Director may change the coverage requirement.
4. At least 90 percent of the exposed hard substrate must remain available for attachment by reef biota. The permittee shall be required to add sufficient hard substrate to the mitigation reef to replace lost or unsuitable hard substrate, if at any time the Executive Director determines that more than 10 percent of the hard substrate within the reef has become covered by sediment, or has become unsuitable for growth of attached biota due to scouring, and there is no sign of recovery within three years. The Commission scientists in accordance with Condition D shall initiate surveys to monitor the amount and distribution of exposed hard substrate. These surveys shall begin immediately after construction is complete and continue for at least ten years.

b. Kelp bed

The artificial reef(s) shall sustain 150 acres of medium-to-high density giant kelp. For purposes of this condition, medium-to-high density giant kelp is defined as more than 4 adult *Macrocystis pyrifera* plants per 100 m² of substrate, as determined by down-looking sonar surveys or equivalent monitoring techniques in accordance with Condition D. If the average area of medium to high density giant kelp falls below 150 acres, then the reason for this failure shall be determined by independent monitoring overseen by Commission scientists. The permittee shall implement any remedial measures deemed necessary by the Executive Director.

The permittee's remediation requirement shall include the funding of independent studies that are necessary to determine the reasons for lack of kelp coverage as well as feasible corrective action, as determined by the Executive Director. If the failure is due to insufficient hard substrate, the corrective action shall entail the permittee adding more hard substrate to the reef.

If sufficient hard substrate appears to be available but kelp recruitment is low, then corrective action could include the permittee funding independent studies of kelp recruitment that are designed to determine the best method of establishing kelp on the reef. The Executive Director shall determine whether such studies are necessary.

The method determined by the Executive Director most likely to be a successful and reliable corrective action for low kelp abundance shall be implemented by the permittee until kelp coverage meets this performance standard; however, kelp establishment or augmentation methods shall not be required for more than a total of five years. If oceanographic conditions are unfavorable to kelp during part of this period, the Executive Director may defer the effort to establish kelp.

c. Fish

The standing stock of fish at the mitigation reef shall be at least 28 tons and the following performance standards shall hold:

1. The resident fish assemblage shall have a total density and number of species similar to natural reefs within the region.
2. Fish reproductive rates shall be similar to natural reefs within the region.
3. The total density and number of species of young-of-year fish (fish less than 1 year old) shall be similar to natural reefs within the region.
4. Fish production shall be similar to natural reefs within the region.

d. Benthos

1. The benthic community (both algae and macroinvertebrates) shall have coverage or density and number of species similar to natural reefs within the region.
2. The benthic community shall provide food-chain support for fish similar to natural reefs within the region.
3. The important functions of the reef shall not be impaired by undesirable or invasive benthic species (e.g., sea urchins or *Cryptoarachnidium*).

Independent monitoring data collected concurrently at natural kelp bed reference sites within the region shall be used by Commission scientists to determine the similarity for each variable listed above. The standard of comparison (i.e., the measure of similarity to be used and the method for determining the statistical significance of differences) shall be specified in the monitoring plan. If the standards listed above are not met within ten years after reef construction, then the permittee shall undertake those remedial actions the Executive Director deems appropriate and feasible.

The permittee shall insure that the performance standards and goals set forth in this condition will be met for at least the length of time equivalent to the full operating life of SONGS Units 2 and 3.³ Upon completion of ten years of independent monitoring that demonstrate the mitigation reef is in compliance of the performance standards, the permittee shall be fully responsible for funding independent annual site inspections, which will serve to identify any noncompliance with the performance standards. The monitoring plan (specified above) shall describe the requirements and methods of the annual site inspections.

The Executive Director may also use any other information available to determine whether the performance standards are being met. If information from the annual site inspections or other sources suggests the performance standards are not being met, then the permittee shall be required to fund an independent study to collect the information necessary to determine what remediation is needed. The Executive Director shall determine the required remedial actions based on information from the independent study. The permittee shall be required to implement any remedial measures determined necessary by the Executive Director in consultation with state and federal resource agencies, as well as provide funds for independent monitoring that evaluates the success of the required remediation. As described under the funding option (Condition D) of this permit, the cost of remediation shall not be limited if the permittee elects to implement the mitigation reef.

3.0 FUNDING REQUIREMENT FOR MARICULTURE/FISH HATCHERY PROGRAM

No later than June 8, 1997, the permittee shall establish an interest-bearing account (internal or external) in the amount of \$3.6 million for a mariculture/marine fish hatchery program operated by the State of California through the Ocean Resource Enhancement and Hatchery Program (OREHP) to compensate for losses to the kelp bed community that are not mitigated by the artificial reef. The California Department of Fish and Game, the Ocean Resources Enhancement Advisory Panel, and the Coastal Commission shall enter into a Memorandum of Agreement to direct the expenditure of these funds, including provisions for continuation of the Joint Panel to oversee including, but not limited to the evaluation and genetic quality assurance of the hatchery program. Within thirty (30) days after the permittee receives written notice from the Executive Director of the establishment of an account with either a private foundation, in the form of a restricted account, or with the OREHP account, neither of which may charge more than 5% in administrative overhead on expenditures, the permittee shall deposit the entire \$3.6 million plus accrued interest in said account. Interest shall accrue from the date the permittee establishes its account. Until the permittee deposits the entire \$3.6 million plus accrued interest in said account, the permittee shall calculate interest using rates equivalent to the Federal

³ "Full operating life" as defined in this permit includes past and future years of operation of SONGS Units 2 and 3, including the decommissioning period to the extent there are continuing discharges.

Reserve Bank for 6-month U.S. Government Securities Treasury bills (discount rate). Interest shall be adjusted quarterly in accordance with the current rate and shall be compounded monthly.

4.0 FUNDING OPTION FOR KELP REEF MITIGATION

As part of the total funding option package provided in revised Condition D, the permittee has the option of satisfying the requirements of Sections 1 and 2 of Condition C by paying the amount specified for kelp bed mitigation in accordance with the provisions set forth in Sections 4.2 and 4.3 of Condition D.

C. CONDITION D: ADMINISTRATIVE STRUCTURE

NOTE: The following italicized text is the original version of the Commission's 1991 permit Condition D. The non-italicized text is the language added or revised by the 1997 amendment. In its April 9, 1997 action, the Commission revised Condition D to add an optional funding option package (D.4.0) to fully satisfy the permittee's responsibilities.

1.0 ADMINISTRATION⁴

Personnel with appropriate scientific or technical training and skills will, under the direction of the Executive Director, oversee the mitigation and monitoring functions identified and required by conditions II-A through C. The Executive Director will retain approximately two scientists and one administrative support staff to perform this function.

This technical staff will oversee the preconstruction and post-construction site assessments, mitigation project design and implementation (conducted by permittee), and monitoring activities (including plan preparation); the field work will be done by contractors under the Executive Director's direction. The contractors will be responsible for collecting the data, analyzing and interpreting it, and reporting to the Executive Director.

The Executive Director shall convene a scientific advisory panel to provide the Executive Director with scientific advice on the design, implementation and monitoring of the wetland restoration and artificial reef. The panel shall consist of recognized scientists, including a marine biologist, an ecologist, a statistician and a physical scientist.

2.0 BUDGET AND WORK PROGRAM

The funding necessary for the Commission and the Executive Director to perform their responsibilities pursuant to these conditions will be provided by the permittee in a form and manner determined by the Executive Director to be consistent with requirements of State

⁴ Text that is the same text as the 1991 Conditions is in italics.

law, and which will ensure efficiency and minimize total costs to the permittee. The amount of funding will be determined by the Commission on a biennial basis and will be based on a proposed budget and work program, which will be prepared by the Executive Director in consultation with the permittee, and reviewed and approved by the Commission. If the permittee and the Executive Director cannot agree on the budget or work program, the disagreement will be submitted to the Commission for resolution.

The budget to be funded by the permittee will be for the purpose of reasonable and necessary costs to retain personnel with appropriate scientific or technical training and skills needed to assist the Commission and the Executive Director in carrying out the mitigation and lost resource compensation conditions (II-A through C) approved as part of this permit action. In addition, reasonable funding will be included in this budget for necessary support personnel, equipment, overhead, consultants, the retention of contractors needed to conduct identified studies, and to defray the costs of members of any scientific advisory panel(s) convened by the Executive Director for the purpose of implementing these conditions.

Costs for participation on any advisory panel shall be limited to travel, per diem, meeting time and reasonable preparation time and shall only be paid to the extent the participant is not otherwise entitled to reimbursement for such participation and preparation. Total costs for such advisory panel shall not exceed \$100,000 per year adjusted annually by any increase in the consumer price index applicable to California.

The work program will include:

- a. A description of the studies to be conducted over the subsequent two year period, including the number and distribution of sampling stations and samples per station, methodology and statistical analysis (including the standard of comparison to be used in comparing the mitigation projects to the reference sites.)*
- b. A description of the status of the mitigation projects, and a summary of the results of the monitoring studies to that point.*
- c. A description of the performance standards that have been met, and those that have yet to be achieved.*
- d. A description of remedial measures or other necessary site interventions.*
- e. A description of staffing and contracting requirements.*
- f. A description of the Scientific Advisory Panel's role and time requirements in the two year period.*

The Executive Director may amend the work program at any time, subject to appeal to the Commission.

3.0 ANNUAL REVIEW

A duly noticed public workshop will be convened and conducted by the Executive Director or the Commission each year to review the status of the mitigation projects. The meeting will be attended by the contractors who are conducting the monitoring, appropriate members of the Scientific Advisory Panel, the permittee, Commission staff, representatives of the resource agencies (CDFG, NMFS, USFWS), and the public. Commission staff and the contractors will give presentations on the previous year's activities, overall status of the mitigation projects, identify problems and make recommendations for solving them, and review the next year's program. The permittee shall report on the status of the behavioral barrier devices.

The public review will include discussions on whether the artificial reef and wetland mitigation projects have met the performance standards, identified problems, and recommendations relative to corrective measures necessary to meet the performance standards. The Executive Director will utilize information presented at the annual public review, as well as any other relevant information, to determine whether any or all of the performance standards have been met, whether revisions to the standards are necessary, and whether remediation is required. Major revisions shall be subject to the Commission's review and approval.

The mitigation projects will be successful when all performance standards have been met each year for a three-year period. The Executive Director shall report to the Commission upon determining that all of the performance standards have been met for three years and that the project is deemed successful. If the Commission determines that the performance standards have been met and the project is successful, the monitoring program will be scaled down, as recommended by the Executive Director and approved by the Commission. A public review shall thereafter occur every five years, or sooner if called for by the Executive Director. The work program shall reflect the lower level of monitoring required. If subsequent monitoring shows that a standard is no longer being met, monitoring may be increased to previous levels, as determined necessary by the Executive Director.

The Executive Director may make a determination on the success or failure to meet the performance standards or necessary remediation and related monitoring at any time, not just at the time of the annual public review.

4.0 FUNDING OPTION PACKAGE

NOTE: The Commission imposed a new funding requirement that the permittee pay \$3.6 million toward the OREHP mariculture/fish hatchery program, as described in Condition C, Section 3.0. The \$3.6 million requirement is in addition to the costs

in the funding option for the mitigation requirements of Conditions A, C, and D. The \$3.6 million requirement is not optional and is therefore not included here in the funding option package. Refer to Appendix F for a full summary of the costs for SONGS mitigation.

The permittee has the option of satisfying the requirements of Condition A (wetland mitigation), Sections 1 and 2 of Condition C (kelp reef mitigation) and Sections 1.0 through 3.0 of Condition D by paying a total of \$114.05 million plus interest in accordance with the provisions set forth in Sections 4.0 through 4.3 of Condition D. To elect this option, the permittee must, within 60 days of the Commission's approval of this permit amendment (CDP No. 6-81-330-A), and no later than June 8, 1997, inform the Executive Director in writing of the permittee's election of this option. The funding option must be elected in its entirety. The permittee's election of the funding option is irrevocable.

Following the permittee's election of this funding option, the Executive Director will develop one or more Implementing Proposals that specify:

- (1) the Implementing Entities that will establish the Wetland Restoration Implementation Fund, the Kelp Reef Mitigation Implementation Fund, and the Independent Monitoring and Technical Oversight Fund (hereafter referred to as "the Funds"), which are described more fully in Sections 4.1 through 4.3 below, and
- (2) the processes for expenditure of monies in the Funds.

The Implementing Proposals shall reflect the purposes of the Funds and deadlines for permittee's payment into the Funds as set forth in Sections 4.1 through 4.3 below, and shall stipulate that the Funds will be used to implement the requirements of Condition A, Sections 1 and 2 of Condition C, and Sections 1.0 through 3.0 of Condition D.

Within six months of the permittee's election of this funding option, the Executive Director shall present the Implementing Proposals to the Commission for review and approval. Within 30 days of the Commission's approval of Implementing Proposals, the permittee shall enter into agreement(s) with the Implementing Entities providing for payment in accordance with Sections 4.1 through 4.3. Such agreements shall be subject to review and approval of the Executive Director. At the same time the permittee shall enter into one or more irrevocable letters of credit on terms acceptable to the Executive Director. The letter(s) of credit shall name as beneficiaries the Implementing Entities and shall be in the total amount of \$114.05 million.

The permittee shall pay monies into the Funds in accordance with the deadlines set forth in Sections 4.1 through 4.3 below. The permittee must pay not only the \$114.05 million but

all interest that would have accrued had the total amount been paid on the date the permittee elects the option. The interest shall be calculated using rates equivalent to the Federal Reserve Bank rate for 6-month U.S. Government Securities Treasury bills (discount rate), and shall be adjusted quarterly in accordance with the current rate. Interest shall be compounded monthly. Thus, each payment of a portion of the \$114.05 million shall include interest on that amount.

If the permittee fails to make a specified payment into a designated Fund by the applicable deadline, the permittee shall transfer into that Fund the entire remaining unpaid amount designated for that Fund. The permittee shall pay such entire amount within 10 days after the applicable deadline. The payment shall include the principal and all interest accrued as of that date on the remaining unpaid amount designated for that Fund.

The permittee may satisfy this funding option for Condition A, Sections 1 and 2 of Condition C, and Sections 1.0 through 3.0 of Condition D in full at any time by depositing into the Funds the entire amount (\$114.05 million or the amount remaining after payments made in accordance with Sections 4.1 through 4.3 below) plus interest accrued as of that date. Monies shall be allocated to the Funds in accordance with Sections 4.1 through 4.3 below.

At least sixty (60) days prior to cessation of operation (other than temporary cessation for repair or maintenance) or transfer of ownership, management or operation of SONGS Units 2 and 3, or abandonment of either or both units, the permittee shall deposit into the Funds the entire remaining balance of principal plus interest accrued on the remaining amount as of that date. Monies shall be allocated to the Funds in accordance with Sections 4.1 through 4.3 below.

4.1 Wetland Restoration Implementation Fund

In accordance with Section 4.0 above, the permittee shall pay monies to a Wetland Restoration Implementation Fund (hereinafter referred to as "the Wetland Fund") established by an Implementing Entity pursuant to the Implementing Proposal. The purpose of the Wetland Fund will be to enable the Implementing Entity to implement the requirements of Condition A. The Wetland Fund shall cover the costs of implementation, which include, but are not limited to: project design, environmental review, and permitting costs, construction costs, including construction management and contingencies, project management and administrative costs, maintenance costs, and remediation costs. The permittee shall pay \$55.63 million into the Wetland Fund in accordance with Provision 4.0 above and in accordance with the following deadlines:

- (1) Within thirty (30) days after the permittee receives written notice of the establishment of the Wetland Fund, the permittee shall pay \$9.92 million plus interest accrued on that amount.
- (2) Within thirty (30) days after the permittee receives written notice from the Implementing Entity that a request for construction bids has been scheduled, the permittee shall pay \$32.22 million plus interest accrued on that amount.
- (3) Within thirty (30) days after the permittee receives written notice from the Implementing Entity that construction has been completed, or by December 30, 2003, which ever occurs first, the permittee shall pay \$13.49 million plus interest accrued on that amount.

When construction has been completed, those monies (principal and interest) allocated for construction costs remaining in the Wetland Fund, if any, shall be transferred to the Southern California Coastal Wetlands Clearinghouse, the State Coastal Conservancy or other entity designated by the Executive Director and approved by the Commission for the sole purpose of funding additional wetland restorations within the Southern California Bight. At the end of the remediation period all unspent monies (principal and interest) remaining in the Wetland Fund shall be returned to the permittee.

4.2 Kelp Reef Mitigation Implementation Fund

In accordance with Section 4.0 above, the permittee shall pay monies to a Kelp Reef Mitigation Implementation Fund (hereinafter referred to as "the Reef Fund") established by the Implementing Entity pursuant to an Implementing Proposal. The purpose of the Reef Fund will be to enable the Implementing Entity to implement the requirements of Section 1 (experimental reef) and Section 2 (mitigation reef) of Condition C. The Reef Fund shall cover the costs of implementing the experimental and mitigation kelp reefs. For the experimental reef these costs include but are not limited to: preconstruction site surveys, environmental review and permitting costs, and construction costs, including contractor mobilization (start-up) costs, contingencies and post-construction surveys. For the mitigation reef, implementing costs include but are not limited to: preconstruction site surveys, project design, environmental review, and permitting costs, construction costs, including contractor mobilization (start-up) costs and contingencies, construction and post-construction monitoring survey costs, project management and administration costs, and remediation costs.

The permittee shall pay \$43.84 million into the Reef Fund in accordance with Section 4.0 above and in accordance with the following deadlines:

- (1) Within thirty (30) days after the permittee receives written notice of the establishment of the Reef Fund, the permittee shall pay \$2.7 million plus interest accrued on that amount.
- (2) Within thirty (30) days after the permittee receives written notice from the Executive Director that independent monitoring of the experimental reef is complete, or by December 30, 2003, whichever occurs first, the permittee shall pay \$41.14 million plus interest accrued on that amount.

When construction of the mitigation reef has been completed, those monies (principal and interest) allocated for construction costs remaining in the Reef Fund, if any, shall be transferred to the Department of Fish and Game or other entity designated by the Executive Director and approved by the Commission for the sole purpose of funding additional kelp reef creation. At the end of the remediation period all unspent monies (principal and interest) remaining in the Reef Fund shall be returned to the permittee.

4.3 Independent Monitoring and Technical Oversight Fund

In accordance with Section 4.0 above, the permittee shall pay monies to the Independent Monitoring and Technical Oversight Fund (hereinafter referred to as "the Monitoring and Oversight Fund") established by the Implementing Entity pursuant to an Implementing Proposal. The purpose of the Monitoring and Oversight Fund will be to enable the Implementing Entity to implement the requirements of Sections 1.0 through 3.0 of Condition D. The Monitoring and Oversight Fund shall cover the costs for: (1) independent monitoring of the mitigation projects as required by Conditions A and C, and (2) the Executive Director to retain persons with appropriate scientific or technical skills to assist the Commission's technical oversight of implementation, monitoring, and remediation of the mitigation projects as required by Condition A, Condition C, and Sections 1.0 through 3.0 of Condition D. Commission oversight costs include, but are not limited to the following: (1) review and evaluation of pre- and post-construction site assessment, project design, and project implementation, (2) development of monitoring plans, (3) oversight of monitoring activities, (4) evaluation of monitoring data for determining project compliance, (5) recommendations for remediation, if necessary, and (6) oversight of remediation. Commission oversight costs also include consultation with appropriate resources agencies and scientific experts, and the planning of and participation in annual public reviews on the status of the mitigation projects. Independent monitoring costs include costs for independent contractors to: (1) collect and manage the monitoring data, (2) transfer the data to the Commission, and (3) participate in annual public reviews on the status of the mitigation monitoring.

The permittee shall pay \$14.58 million into the Monitoring and Oversight Fund in accordance with Section 4.0 above and in accordance with the following deadlines:

- (1) Within thirty (30) days after the permittee receives written notice of the establishment of the Monitoring and Oversight Fund, the permittee shall pay \$3.58 million plus interest accrued on that amount.
- (2) On December 30 after the first payment, and on every December 30 for three years thereafter, the permittee shall pay \$2.75 million plus interest accrued as of the date of the payment.

At the end of the remediation period, any monies (principal and interest) remaining in the Monitoring and Oversight Fund shall be returned to the permittee.

IV. FINDINGS AND DECLARATIONS IN SUPPORT OF AMENDMENTS TO CONDITIONS

A. BACKGROUND ON COASTAL COMMISSION ACTIONS RELATING TO THE SONGS

This section provides an overview of: (1) the project (i.e., the San Onofre Nuclear Generating Station (SONGS)); (2) the affected habitat and resources; and (3) the major events and decisions affecting SONGS, which involved the California Coastal Commission or its predecessor the California Coastal Zone Conservation Commission (CCZCC). For a more complete description of the background on SONGS see the findings for permit 6-81-330 (formerly 183-73).

1.0 THE PROJECT

The San Onofre Nuclear Generating Station (SONGS) is located in north San Diego County (see Exhibit 1). SONGS Unit 1, which generated up to 436 megawatts of electric power, began operation in 1968 and stopped operating in the early 1990s. Construction of SONGS Units 2 and 3 began in 1974 and was completed in 1981. Operation of Units 2 and 3 began in 1983 and 1984, respectively. Each unit generates up to 1,100 MW of electric power, and draws in seawater at a rate of 830,000 gallons per minute from an intake pipe 18 feet in diameter, originating 3,400 feet offshore. The plant draws in almost 700 billion gallons per year.

The discharge pipe for Unit 2 terminates 8,500 feet offshore, while the discharge pipe for Unit 3 terminates 6,150 feet offshore (see Exhibit 2). The last 2,500 feet of the discharge pipes for Units 2 and 3 each consist of a multiport diffuser that rapidly mixes the cooling water with the surrounding water. The diffusers contain 63 discharge ports angled offshore

that increase the velocity of the discharge. The discharge water is approximately 19°F warmer than the intake water temperature. To cool the discharge water, the diffusers draw in ambient seawater at a rate about ten times the discharge flow and mix it with the discharge water. The surrounding water is swept up along with sediments and organisms and transported offshore at various distances, depending on the prevailing currents.

2.0 PERMIT HISTORY

Southern California Edison (SCE) and San Diego Gas and Electric (SDG&E) submitted a coastal development permit application to construct Units 2 and 3 of SONGS in 1973. On December 5, 1973, the California Coastal Zone Conservation Commission (CCZCC) denied the SONGS permit application primarily due to the anticipated adverse impacts of SONGS to the marine environment. SCE and SDG&E filed suit and the Commission stipulated in court to accept the permit on remand, thereby scheduling a new vote on the project.⁵

On February 28, 1974, the CCZCC approved a permit for the construction of SONGS Units 2 and 3. At that time, there was considerable debate concerning the potential adverse effects SONGS would have on the marine environment. In public hearings, SCE scientists testified that the environmental effects of the new generating units would be minimal. Opponents testified to the contrary. Little reliable scientific information was then available. The probability of any Commission decision resulting in additional litigation was high, and SCE and SDG&E contended that the costs of delay were substantial.

In this context the CCZCC approved coastal permit 183-73 to construct Units 2 and 3 of SONGS, subject to special conditions. The permit: (1) established a three-member independent Marine Review Committee (MRC) comprised of individuals appointed by the Commission, the permittees, and an environmental coalition that had opposed the project; (2) authorized the Commission to require the permittees to make future changes in the SONGS cooling system (as extensive as the installation of cooling towers) to address adverse impacts to the marine environment identified by the MRC; and (3) required the Commission to forward recommendations to the San Diego Regional Water Quality Control Board and the State Water Resources Control Board based on the findings of the MRC regarding water quality and Federal Clean Water Act National Pollutant Discharge Elimination System (NPDES) permit monitoring.

2.1 Mandate to the Marine Review Committee

The CCZCC directed the MRC, formed through Condition One, to carry out a comprehensive and continuing study of the marine environment offshore from SONGS to

⁵ The court remanded the decision on a technicality, finding that the Commission had exceeded its authority by basing its decision in part on nuclear safety considerations.

predict, and later to measure, the effects of SONGS Units 2 and 3 on the marine environment. Coastal development permit 183-73 specifically directed the MRC to: (1) determine the effects of the cooling system of the SONGS Unit 1 on the adjacent marine ecosystem; (2) predict the effects of SONGS Units 2 and 3; and (3) monitor the effects of Units 2 and 3. The aim was to obtain information that would allow the CCZCC to decide whether or not changes in the cooling system should be required to prevent or reduce any significant adverse impacts on the marine environment caused by operation of Units 2 and 3.

In November 1979, after a public hearing to review the status of the MRC studies, the Commission recognized that some effects might be mitigated without requiring extremely expensive changes in the cooling system. The Commission found that,

...Changes such as requiring cooling towers, extended diffusers or single point discharges could cost hundreds of millions of dollars and result in unit shutdown for a period of time. ...The Commission also recognizes that operational changes or mitigation measures might adequately compensate for any marine life damages resulting from the operation of Units 2 and 3. The Commission, therefore, requests the MRC to study the feasibility and effects of selected promising mitigation measures, including construction of an artificial reef, as suggested by Southern California Edison. The MRC should recommend what measures might be taken to assure there would be no net adverse effect on the marine environment from operation of SONGS Units 2 and 3.

2.2 MRC Submits Results and Recommendations for Mitigation

The MRC submitted its Final Report to the Commission in August 1989. The report concluded that the operation of SONGS was causing substantial adverse effects to the organisms in the San Onofre kelp bed, the fish stocks in the Southern California Bight, and to local midwater fish populations, kelp bed fish, kelp, and kelp bed biota.⁶ These effects are summarized below.

San Onofre Kelp Bed:

- The discharge plume from SONGS Units 2 and 3 results in a substantial reduction in the abundance and density of kelp plants.
- The discharge plume results in a substantial reduction in the abundance and biomass (total weight) of most of the kelp bed fish species that the MRC studied.
- The discharge plume results in a substantial reduction in the abundance of large invertebrates inhabiting the kelp reef.

⁶ Marine Review Committee. 1989. *Final Report of the Marine Review Committee to the California Coastal Commission*. MRC Document No. 89-02.

Fish stocks in the Southern California Bight:

- Intake loss of immature fish is projected to cause substantial reductions in Bight-wide adult fish populations.

Local midwater fish populations:

- Substantial reductions in local abundance of midwater fish populations were measured out to a distance of 3 km from SONGS.

The MRC recommended options for mitigation based on its analysis of the effects of SONGS on the marine environment. The MRC considered an array of techniques to mitigate for the adverse impacts of operating SONGS including: (1) creating a kelp bed artificial reef, (2) upgrading the existing fish exclusion/return systems at SONGS, and (3) restoration of a wetland.

Although the MRC studies were comprehensive and used state-of-the-art techniques, there is always some measure of uncertainty in quantifying the extent of adverse impacts where impacts are on-going and far reaching, and where environmental conditions are dynamic. The MRC could have, at considerable additional cost and time, continued its studies to more definitively determine the extent of SONGS' impacts on the marine environment. However, the Commission, **with the strong urging of the permittee**, terminated the field work of the MRC in 1988 and specified the mitigation measures required to offset the adverse impacts of SONGS. The MRC recommendations provided the basis for the mitigation measures required by the Commission.

2.3 MRC Costs in Perspective

In its summary of costs⁷ spent to date on mitigation for SONGS Units 2 and 3, the permittee includes the cost (\$48 million) of funding the MRC's work. The Commission recognizes that the MRC costs were substantial, but finds these costs are separate and distinct from the costs of mitigating the adverse impacts of SONGS. The MRC costs represented the cost of determining the impacts of SONGS Units 2 and 3 after construction. The MRC's results were used by the Commission to determine necessary and appropriate mitigation. The Commission has never considered the work completed by the MRC as compensatory mitigation. Moreover, the MRC's undertaking enabled the permittee to proceed with the construction and operation of SONGS and to thus generate substantial profits for shareholders, for more than a decade before any mitigation requirement was invoked.

⁷ Volume I, Section G, page 6, Table 1. In: *Submittal to Amend and Fulfill Certain Conditions of Coastal Development Permit No. 6-81-330 (SONGS Units 2 & 3)*. August 16, 1996 Submitted by Southern California Edison.

The costs of the MRC were justified based on the circumstances surrounding the application to construct SONGS Units 2 and 3. When the application came before the Commission, there was a great deal of controversy surrounding the question of whether the once-through ocean water cooling system should be permitted at all, given expected adverse impacts to the marine environment. The MRC was conceived as a way of dealing with this conflict, and as a way to avoid costly and time-consuming project delays and litigation.

In a 1973 letter to the Executive Director of the CCZCC, the permittee estimated that delays in construction of the power plant would cost the utility \$1.5 million **per week**. If, instead of setting up the MRC, the Commission had required the permittee to avoid adverse impacts by constructing cooling towers, the permittee's costs would have been increased by an estimated \$500 million to \$2 billion.⁸

Thus, given its comprehensive mandate, and given the financial benefit to the permittee of proceeding with the SONGS project while marine environmental impacts were studied, the MRC costs were reasonable. The MRC evaluated the effect of SONGS on all major components of the marine environment at an average annual cost of \$3 million. To put this cost in perspective, Southern California Edison currently spends \$12 million per year voluntarily on contributions to the Electric Power Research Institute, an industry-funded research institute charged with advancing the interests of the utility industry. (R. Kinosian, personal communication).⁹

2.4 Use of the MRC Results and Recommendations

Following issuance of the MRC's Final Report in 1989, the Commission staff worked extensively with the MRC scientists, the permittee, environmental groups, fish and wildlife agencies, the Coastal Conservancy, the San Diego Regional Water Quality Control Board, the State Water Resources Control Board, wetland and kelp scientists, and others to develop a mitigation package for recommendation to the Commission. The goal of the staff was to develop a set of findings and conditions for the Commission's consideration that followed the MRC's recommendations and addressed existing Coastal Commission and wildlife agencies practices and policies. The permittee agreed that the mitigation options recommended by the MRC and adopted by the Commission were the most cost-effective means of dealing with the impacts reported by the MRC.¹⁰

⁸ Ambrose R.F. 1990. *Technical Report to the California Coastal Commission: H. Mitigation*. Marine Review Committee, Inc.

⁹ Robert Kinosian. California Public Utilities Commission, Division of Ratepayer Advocates. Personal communication September 10, 1996.

¹⁰ Permittee's comments on CCC Staff Recommendation to further condition Permit No. 183-73, July 10, 1991.

2.5 1991 Coastal Commission Hearing

The staff presented its recommended mitigation package to the Commission at a public hearing on July 16, 1991. The Commission concluded that a compensatory mitigation program was the most cost-effective means of dealing with the adverse impacts caused by operation of SONGS Units 2 and 3 because costs borne by the permittee would be lower and, unlike the costlier prevention options considered but rejected, compensatory mitigation would not interfere with plant operations or reduce plant efficiency. The Commission therefore further conditioned permit 6-81-330 (formerly 183-73) to require implementation of the following mitigation program elements:

- creation or substantial restoration of at least 150 acres of Southern California wetlands, as compensatory mitigation for Bight-wide fish losses;
- installation of fish behavioral barrier devices at the power plant as avoidance mitigation for losses of local midwater fish; and
- construction of a 300-acre artificial reef, as compensatory mitigation for adverse impacts to the San Onofre Kelp community.

The permit conditions adopted by the Commission also required the permittee to provide the funds necessary to implement a specific administrative structure, which includes Commission staff oversight and independent monitoring of the wetland and artificial reef mitigation elements. The permit conditions require program oversight and monitoring to be conducted by a small mitigation monitoring program team and necessary scientific contractors under the direction of the Commission's Executive Director. This administrative structure was included because of the uncertainties associated with the use of compensatory mitigation to fully offset the adverse impacts of SONGS. The Commission found that the required administrative structure "addresses this uncertainty by providing information on the success of mitigation projects, and by providing a mechanism for 'adaptive management' of the created resource."

In adopting this mitigation package the Commission found:

The adopted conditions which set up a mitigation, monitoring, and remediation program is viewed as a minimum package. The Commission believes that the only way that Edison should be allowed to mitigate impacts rather than make extensive SONGS cooling system and operational changes to prevent impacts is through the fully adopted mitigation package... A lesser mitigation package would not fully address the impacts caused by SONGS and would not be in compliance with the coastal permit conditions. (July 1991 adopted Commission findings.)

The Commission then directed the staff to consider the need for additional mitigation, identifying specifically that consideration be given to a fish hatchery program. On

March 23, 1993, the Commission added a requirement for the permittee to partially fund (\$1.2 million) construction of an experimental white seabass hatchery. Due to its experimental nature, the Commission did not assign mitigation credit to this requirement.

2.6 NPDES Compliance and Earth Island Institute Lawsuit Settlement

In a separate action, the San Diego Regional Water Quality Control Board, which issues and administers the Federal Clean Water Act National Pollutant Discharge Elimination System (NPDES) permit for the SONGS, began proceedings to review the MRC's 1989 findings that the SONGS might not be in compliance with the NPDES permit conditions. Earth Island Institute intervened in these proceedings to encourage the Regional Board to take enforcement action against the permittee. Earth Island Institute also filed action in Federal District Court, alleging violations of the Clean Water Act as a result of SONGS operations. The Regional Board held a hearing in October 1991, after the Coastal Commission had acted to further condition permit 6-81-330.

In early 1992 the Board concluded that the evidence did not clearly indicate any NPDES permit violations and thus terminated the proceeding. Earth Island subsequently filed Petitions for Review with the State Board and prepared its case for trial. In June 1993, before the case went to trial, the permittee settled the matter with the Earth Island Institute. The resultant settlement agreement, approved by the District Court, includes the following obligations agreed to by the SONGS' owners:

- restoration of wetland acreage in addition to that required by the Coastal Commission near or adjacent to the San Dieguito wetlands project;
- funding for wetlands restoration research; and
- inclusion of a Marine Science Education Center and ongoing education program targeted for disadvantaged youths at SCE's existing marine laboratory at Redondo Generating Station.

2.7 Termination of the MRC

Though the MRC's field studies terminated in 1988, and its final report was published in 1989, the Commission continued the existence of the MRC until 1993 to assess outstanding issues pursuant to the RWQCB's NPDES compliance hearings and to provide public testimony at a series of hearings regarding the Earth Island Institute's federal Clean Water Act lawsuit against the permittee.

On December 15, 1993, the Commission adopted the following resolution to authorize termination of the MRC:

The Marine Review Committee for the San Onofre Nuclear Generating Station has completely and fully accomplished the mandate given to it under Permit No. 183-73 in an admirable and responsible manner. Accordingly, the California Coastal Commission (Coastal Commission) hereby authorizes the Marine Review Committee to terminate its existence. Although the Marine Review Committee will no longer exist as an entity, the Coastal Commission will maintain the ability to consult with its former members, consultants and staff to seek clarification or interpretation of any of its findings. Southern California Edison Company (Edison) shall fund such consultation. Should Edison propose a modification to Permit No. 183-73, Edison shall also fund the Coastal Commission's consultation with technical experts the Commission believes is necessary to evaluate such a proposal.

2.8 Implementation of the Adopted Mitigation Conditions

From 1992 to 1995 Commission staff worked with the permittee to implement the mitigation conditions adopted by the Commission and agreed to by the permittee. Initially, staff efforts focused on implementation of Condition D, Administrative Structure, by establishing the mitigation monitoring program team and establishing various advisory panels such as the Interagency Wetland Advisory Panel (IWAP).

During this time, staff also worked intensively with the permittee during the site selection processes for both the wetland mitigation and artificial reef projects. Staff attended numerous permittee-sponsored meetings to discuss design plans for the mitigation projects. Over time, however, much of the discussion initiated by the permittee began to focus on permit condition interpretation rather than condition implementation. As a result, the staff was increasingly re-directed to the review of increasing amounts of technical information concerning the permittee's changing interpretations of its permit obligations.

By 1994, implementation of the wetland and artificial reef conditions stalled. With the exception of Conditions B (behavioral barriers to repel fish and thereby reduce midwater fish impingement losses) and F (contribution of \$1.2 million for partial cost of the construction of a marine fish hatchery), none of the mitigation required in the 1991 permit had entered the implementation phase by 1995.

2.9 The 1995 Amendment Request

On September 11, 1995, the permittee submitted a request to amend certain conditions of Permit 6-81-330. This request proposed to amend four of the six conditions agreed to in

the 1991 permit for SONGS. The table below shows how some of the proposed amendments would have changed the original 1991 permit conditions.

Table 2: Comparison of 1995 Amendment Requests with the 1991 Permit

Conditions in the 1991 SONGS Permit	Permittee's proposed 1995 amendments (not accepted for filing)
<p>Condition A: Create or substantially restore 150 acres of coastal wetland habitat. Independently monitor to evaluate success and need for remediation for full operating life of SONGS (expected to be approximately 30 years).</p>	<p>Create or substantially restore approximately 65 acres at San Dieguito Lagoon. Remaining mitigation obligation (i.e., approximately 85 acres), provided through enhancement (e.g., maintenance of the lagoon inlet). Delete or change several performance standards, objectives, and design criteria. Permittee monitors at various times to evaluate success and need for remediation over a period of 10 years.</p>
<p>Condition B: Install fish behavioral barrier devices within the power plant with effectiveness and retention determined by the Executive Director.</p>	<p>Install fish behavioral barrier devices within the power plant with the permittee having sole discretion over the determination of effectiveness and decisions regarding the retention of the devices.</p>
<p>Condition C: Construction of a 300 acre artificial reef. Independently monitor to evaluate success and need for remediation for full operating life of the SONGS.</p>	<p>Construct a 12-acre experimental reef, with the permittee's obligation terminated after 10 years of experimental evaluation. Deletion of all performance standards and of all obligations to ensure project success (remediation).</p>
<p>Condition D: Implementation of a specific administrative structure, which includes permit oversight by the Executive Director and the independent monitoring of the wetland and artificial reef mitigation elements.</p>	<p>Independent monitoring of the entire mitigation program with self monitoring.</p>

The Executive Director's Determination:

The Commission's regulations (section 13166(a)(1)) provide that the Executive Director use the following standard to determine whether or not an application for an amendment to a previously approved coastal development permit shall be accepted for Coastal Commission review:

An application for an amendment shall be rejected if, in the opinion of the executive director, the proposed amendment would lessen or avoid the intended effect of a partially approved or conditioned permit unless the applicant presents newly discovered material information, which he could not, with reasonable diligence, have discovered and produced before the permit was granted.

The Executive Director determined on the basis of these criteria, that the proposed amendment would drastically reduce the mitigation requirements of the permit. As the

Commission had found these requirements to be the minimum necessary to address the adverse impacts of operating SONGS, the Executive Director concluded that the proposed amendments would have lessened or avoided the intended effect of the Commission's decision.

The Executive Director's determination was not overturned by the Commission; thus all of the 1991 permit conditions remain in full force. While upholding the Executive Director's determination, the Commission also directed the staff to work with the permittee to develop a mutually acceptable amendment package for Commission consideration.

2.10 The 1996 Amendment Request

Since November 1995 and in accordance with the Commission's direction, the staff has worked intensively with the permittee to develop a mutually acceptable amendment package. Numerous meetings with the permittee, staff from the CDFG, USFWS, NMFS, and other agencies, and outside scientists have focused on the permittee's concerns. The permittee's contentions regarding difficulties in implementing the 1991 permit mitigation conditions, and the permittee's proposed amendments, have been broadly considered. Nevertheless, the permittee claims the staff has required numerous studies and technical meetings above and beyond what is required by the current permit. More accurately, the studies and meetings were made necessary by the permittee's own assertions regarding the implications of past studies and the impact assessments underlying the existing permit conditions. In an effort to resolve these matters:

- The staff has worked with the wetland resource agencies (CDFG, USFWS, NMFS, etc.) to try to meet the permittee's desire to satisfy some of the wetland mitigation obligation through partial credit for the enhancement of existing wetlands that will result from inlet maintenance. The 1991 permit calls for creation or substantial restoration of at least 150 acres of coastal wetland, and the maintenance of continuous tidal flushing. Thus, allowing satisfaction of the requirement to create or substantially restore 150 acres by enhancement activities (e.g., inlet maintenance at San Dieguito Lagoon) requires a permit amendment. Through this approach, the staff has offered to support the permittee in seeking Commission approval for an amendment to allow partial credit for inlet maintenance. In spite of this offer, the permittee's amendment requests full credit for enhancement of existing wetland by inlet maintenance.
- As a way to reach an agreement on the amount of partial credit for inlet maintenance at San Dieguito Lagoon, the staff and the permittee sought the advice and recommendations of the Interagency Wetland Advisory Panel (IWAP) (Exhibit 3). However, the permittee's mitigation plan for San Dieguito Lagoon has ignored the IWAP recommendations and requests substantially more credit for inlet maintenance than either the IWAP or staff have recommended.
- The staff has worked diligently with the permittee to develop a mutually acceptable design for the experimental artificial reef. This work has entailed meetings with

Commission staff, the permittee, Department of Fish and Game staff, and potential construction contractors.

- Although the 1991 permit requires that the kelp mitigation reef be constructed of quarry rock, the permittee has expressed interest in using concrete because it is cheaper. The staff has agreed to consider the possible use of concrete as a construction material for the kelp mitigation reef. The staff suggested that concrete be incorporated into the design of the experimental kelp reef to determine whether it would be a suitable building material for the larger kelp mitigation reef. Use of concrete to construct the artificial reef requires a permit amendment. Through this compromise, the staff has agreed to support the permittee in seeking Commission approval for an amendment to allow for the use of concrete in construction of the artificial reef and thereby reduce mitigation costs.
- The staff has offered numerous compromises on the intensity and breadth of the required monitoring programs. The staff has also suggested numerous monitoring strategies that uphold the spirit and intent of the 1991 permit, but do so at a lower overall cost to the permittee.

2.11 Independent Review Panel for Kelp Studies

In addition to the above examples, the Commission staff has worked with the permittee to resolve concerns about the implications of further kelp studies conducted by the permittee.

The Commission's resolution authorizing the dissolution of the MRC (1993) states that if the permittee chooses to seek revisions to the mitigation requirements, the permittee must fund former MRC scientists to review any new data collected after the MRC studies if such data is the basis of the proposed amendment. In spite of this requirement, the permittee objected to the MRC scientists fully evaluating the new kelp data the permittee had collected post-MRC studies. The permittee offered an alternative that it believed was quicker and cost effective — establishment of a three-member scientific panel to review the permittee's kelp data.

The Commission staff believed that the MRC scientists were more qualified to evaluate the new data because of their in-depth understanding of the methods and analysis used on the existing data. Nevertheless, in the spirit of compromise and to move forward with the mitigation, the staff agreed to jointly select a three-member panel with the permittee and form the questions for the panel to consider.

The Independent Review Panel published its conclusions on June 26, 1996. The panel agreed with the permittee's qualitative conclusion that the impacts to the San Onofre Kelp Bed (SOK) were less than previously estimated but did not quantify the reduction.

2.12 Hearings in 1996

The permittee's pending application for the proposed amendments to CDP 6-81-330 was filed on September 17, 1996 and placed on the Commission's October 8, 1996 agenda. The Commission heard public testimony and continued the item to its November 13, 1996 hearing. At the November hearing, the San Dieguito River Park Joint Powers Authority (JPA) cited deficiencies in the permittee's proposed plan for San Dieguito Lagoon that invalidated agreements between the permittee and the JPA, thus nullifying the permittee's authorization to use key lands owned and managed by the JPA. As the permittee's resultant lack of authority to use these lands rendered many aspects of the proposed amendments and mitigation plans unworkable, the Commission staff recommendation was withdrawn and the staff made a verbal recommendation of denial. After a long public hearing, the Commission continued the matter, asking that a further hearing be held by the following February.

In the wake of the Commission's November, 1996 continuation, Commission staff requested that the permittee clarify whether its amendment application should now be revised to reflect any of the modified proposals put forth by the permittee at the previous hearings or whether staff should continue its review of the amendment based only on the permittee's August, 1996 submittal. (See letter dated January 29, 1997, Exhibit 8.) On February 21, 1997 Commission staff received a letter from the permittee dated February 14, 1997 (Exhibit 9). The letter did not provide the requested information and instead sought further postponements. Commission staff, mindful of the Commission's direction to ensure timely re-scheduling of this item, has therefore placed it on the Commission's April agenda. Staff has held numerous meetings and conference calls with the permittee, attended workshops and meetings on outstanding issues concerning the San Dieguito Lagoon Plan, and worked with numerous other interested parties to resolve concerns. Staff believes there is now adequate information for the Commission to consider this item.

3.0 SONGS OWNERS RATE SETTLEMENT WITH THE CALIFORNIA PUBLIC UTILITIES COMMISSION

3.1 SONGS Profits

SONGS Units 2 and 3 have been in operation since 1983 and 1984, respectively. During this time (through 1995), the CPUC advisory and compliance division has explained that the SONGS owners were regulated through traditional ratemaking procedures. Accordingly, the SONGS owners have received a roughly 10.5% average authorized rate of return on an average authorized rate base of at least \$2 billion per year, yielding total

authorized shareholder profits of approximately **\$3 billion** (\$210 million per year for 14 years).¹¹

Future profits from SONGS will be based in part on a new regulatory structure, in which the costs are divided into two categories: “Sunk Costs” and “Incremental Costs” (or ICIP — for Incremental Costs Incentive Pricing). Sunk costs include a utility’s previous investment in a nuclear facility and incremental costs are the costs associated with current plant operations (operations and maintenance, fuel, property taxes, employee costs, marine mitigation program, other capital additions, etc.).

Revenues are recovered from two categories, ICIP and Sunk, in the following ways. The ICIP revenues are earned via a new incentive mechanism in which SONGS electricity is sold to ratepayers at a pre-set price of approximately 4 cents per kilowatt-hour. If the plant runs at a 78% efficiency rate and forecasted operating expenses are accurate, the plant breaks even on operating costs at this rate. Superior operating performance or reduced costs would result in increased shareholder profits from the ICIP category. The Sunk Cost revenues are earned by the accelerated depreciation recovery of \$2.6 billion previously invested plus earnings at a 7.34% rate (a reduction from the previously authorized 9.8% rate of return, in exchange for the accelerated rate of sunk costs depreciation) annually on the undepreciated remainder.

The 8-year settlement time frame allows for an accelerated recovery of sunk costs; by the end of this period, all sunk costs will have been recovered. The total scheduled profits by Southern California Edison alone (a 75% owner of SONGS) on its sunk cost investment will equal roughly **\$.6 billion** during the period of 1996–2003. The SONGS owners can also increase profits by reducing costs in the ICIP category or by operating SONGS at a greater than 78% capacity, or both. In fact, the plant operated at 80% capacity in 1996 and expenses were somewhat lower than forecasted.¹²

The settlements affecting Southern California Edison’s 75% ownership interest in SONGS were formalized as CPUC Decisions 96-01-011 on January 10, 1996 and 96-04-059 on April 10, 1996.

3.2 Ratepayers Pay for Marine Mitigation

The ICIP formula incorporates the permittee’s full forecasted amount for outstanding SONGS marine mitigation, an amount forecasted by the permittee at approximately \$106 million.¹³ (An additional \$5 million was forecasted by the permittee for post-2003

¹¹ We have made a conservative estimate because actual rate base figures are not available during this time. Actual returns can vary slightly from authorized values.

¹² Robert Kinosian, CPUC Office of Ratepayer Advocates, personal communication, March 20, 1997.

¹³ Source: Table II-1 of Exhibit 39 to CPUC Decision 96-01-011, published January 10, 1996.

monitoring costs.) Through the ICIP formula, the ratepayers will pay for the full amount of mitigation costs forecasted by the permittee regardless of whether the money is actually spent by the SONGS owners for marine mitigation. Thus, any savings in SONGS mitigation costs, that is, expenditures less than the amount the permittee estimated to the CPUC would be necessary to comply with the permit, will **not** be returned to the ratepayers. The Commission notes that despite requests by the CPUC Division of Ratepayer Advocates (DRA), the settlement did not include any provision to return operating expense savings to the ratepayers. Any unspent monies will lead to increased shareholder profits (assuming that there is not a corresponding increase in other costs, in which case they would serve to offset these additional costs).

3.3 The Permittee's New Business Climate: Profit Incentive to Reduce Mitigation Costs

The changed business climate the permittee faces in light of the CPUC settlements changes the incentive for mitigation implementation by the permittee. There is now a clear incentive for the permittee to reduce its mitigation obligations: permittee shareholders will keep the unspent mitigation "costs" as profit or as offsets for other costs.

3.4 SONGS Mitigation Program is Not a Threat to Continued Plant Operations

The permittee contends that the CPUC settlement and SONGS profit disclosures are not relevant to the Commission's consideration of its permit amendment application. However, the Commission has directed staff to investigate this information due to widespread public interest in the subject and because the permittee has asserted previously that the required mitigation expense is so burdensome to ratepayers and to the owners of the SONGS that the mitigation costs might cause the permittee to close the plant. As explained above, the CPUC settlement authorizes the permittee to collect the permittee's full forecasted amount of mitigation costs from the ratepayers, even if the permittee reduces the actual expenditures for mitigation. As further explained above, the permittee appears able to generate continued profits on the operation of the SONGS and thus, continued successful plant operations appear to be unaffected by the mitigation requirements.

B. COASTAL ACT POLICIES AND PROVISIONS

The Commission finds, for the purpose of reviewing the proposed amendment, that applicable sections of the Coastal Act include:

Coastal Act Section 30230:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or

economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Coastal Act Section 30231:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Coastal Act Section 30233:

Coastal Act Section 30233 states in pertinent part:

(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities. ...

(7) Restoration purposes

Coastal Act Section 30240:

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Coastal Act Section 30107.5:

“Environmentally sensitive area” means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

Coastal Act Section 30108:

“Feasible” means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

C. FINDINGS FOR AMENDMENTS TO CONDITIONS

In its 1991 adoption of conditions to the 1973 coastal development permit for SONGS Units 2 and 3, the Commission found the required compensatory mitigation, monitoring, and remediation program to be a **minimum package**. The Commission found that full implementation of the minimum package was the only way that the permittee could mitigate the adverse impacts other than through making extensive changes to the structure of SONGS.

The permittee proposed to amend three conditions of the existing permit. The permittee believes the amendments are necessary to reflect information obtained since adoption of the conditions in 1991, to clarify various provisions of the conditions, and to extend various missed deadlines. Amendments are proposed to: **Condition A**, the wetland mitigation condition; **Condition C**, the kelp reef mitigation condition; and **Condition D**, the administrative structure condition.¹⁴

D. FINDINGS FOR DENIAL OF AMENDMENTS OF CONDITION A: WETLAND MITIGATION

This section presents the Commission’s findings in support of rejecting the permittee’s proposed changes to Condition A and amending Condition A to: (1) reconfirm the Commission’s approval of San Dieguito Lagoon as the site that meets the minimum standards and best meets the objectives of Condition A; (2) allow the permittee to receive partial substantial restoration/creation credit for enhancing existing tidal wetlands if the restoration is carried out at San Dieguito Lagoon; (3) extend the deadline of the submission of the preliminary plan from 9 months after approval of Condition A to 6

¹⁴ No amendments to Condition B, Behavioral Barrier Mitigation; Condition E, MRC Data Maintenance; or Condition F, Hatchery Program were submitted by the permittee. Thus, these conditions are not discussed in this staff report, and still apply as originally described. A copy of the adopted text of Conditions B, E, and F appears in Appendix B.

months after approval of this amendment (i.e., no later than October 9, 1997); and (4) add a funding option to the existing (1991) conditions. Condition A sets forth the requirement to substantially restore or create wetlands to mitigate the fish losses caused by SONGS Units 2 and 3.

1.0 PURPOSE OF CONDITION A

Complete findings for the purpose of Condition A are described in the findings for permit 6-81-330 (formerly 183-73) and incorporated here by reference. A summary of the key points of these findings is presented below.

The overall goal of the wetland mitigation program is to compensate for the Bight-wide losses of marine fish standing stocks that occur as a result of the operation of SONGS Units 2 and 3. Coastal Act Section 30230 states “[m]arine resources shall be maintained, enhanced, and where feasible, restored.” The non-recirculating water system for cooling SONGS Units 2 and 3 causes substantial losses of marine fish for the duration of its operation. Construction of Units 2 and 3 was found to be consistent with the Coastal Act only if these significant adverse impacts to fish would be fully mitigated. Condition A sets forth a process for restoring or creating 150 acres of wetlands in order to mitigate this impact. Condition A contains requirements regarding site selection, mitigation plan development, plan implementation, and project monitoring, management, and remediation. This comprehensive process was required to ensure the wetland mitigation project would compensate for the fish losses for the duration of the operating life of SONGS.

The Commission selected the option of coastal wetland mitigation for several reasons. Coastal wetlands provide valuable habitat for fish, including some of the species affected by SONGS and other economically important species, such as California halibut. In addition, coastal wetland mitigation provides numerous other estuarine, marine and coastal resource benefits. Finally, coastal wetlands currently comprise a rare habitat type. Less than 25 percent of the original coastal wetland area remains in Southern California, and much of the remaining wetlands are degraded.

2.0 AMENDMENT OF CONDITION A PROPOSED BY THE PERMITTEE

The permittee is proposing more than 26 revisions to Condition A: Wetland Mitigation (see Appendix C for the permittee’s complete amendment package). The significant proposed amendments fall into the following eight categories:

1. **Changes to permit deadlines** — extension of various deadlines that have not been met by the permittee;

2. **Additional mitigation at Ormond Beach wetland** — addition of a provision that allows the permittee to pay a maximum of \$3 million to implement a plan for restoration of wetlands at Ormond Beach;
3. **Reduction of the wetland buffer requirements** — allow the upland buffer between a restored wetlands and existing development to be less than 100 feet;
4. **Independent monitoring** — elimination of the provision that the permittee fund monitoring conducted by an independent entity;
5. **Length of monitoring** — reduction of the duration of post-construction monitoring of the restored wetland from “the full operating life” of SONGS to 10 years;
6. **Length of maintenance and remediation** — reduction of the duration of remediation of the restored wetland from “the full operating life” of SONGS to 10 years;
7. **Changes to performance standards** — elimination of the requirement that success of the restored wetland be based upon a comparison to concurrently monitored reference sites that are relatively undisturbed, natural tidal wetlands within the Southern California Bight; and
8. **Addition of an uncontrollable forces clause** — negates the requirement to remediate should the mitigation fail to meet a performance standard due to an uncontrollable force, such as a major flood.

2.1 Changes to the Permit Deadlines

The permittee is proposing several extensions to condition compliance deadlines contained in Condition A. The new deadlines proposed by the permittee are not likely to be met and some have already passed. These deadlines may have been realistic when the permittee submitted the amendment package in August 1996. For example, the permittee proposed to change the deadline for submittal of a preliminary plan from April 1992 to January 1, 1997. However, since submittal of the amendment package, the owners and managers of the proposed mitigation site withdrew their support for the preliminary plan. Thus, the January 1, 1997 deadline has passed without the permittee’s submittal of a feasible preliminary plan. All the other deadlines, which may have potentially been realistic if the January 1, 1997 deadline had been met, are now unrealistic and not likely to be met. Accordingly, the Commission finds it cannot amend Condition A to include the deadlines proposed by the permittee. The Commission finds that the deadline for submission of the preliminary plan can be extended from 9 months after approval of Condition A (i.e., April 16, 1992) to 6 months after Commission approval of the amendment (i.e., October 9, 1997). The Commission finds that the delays in development of a workable plan for

substantial restoration or creation of 150 acres at San Dieguito have been extensive and unwarranted. At this time, the Commission finds that the deadline can be extended only by the time reasonably necessary and only for the purpose of achieving permittee compliance without resorting to enforcement. However, no further delays beyond the new deadline will be allowed.

The Commission finds that 6 months is the length of time reasonably necessary for the permittee to submit a preliminary plan for the approved site that meets the requirements of Condition A. A preliminary plan can be developed from the alternative that has been prepared by Moffatt & Nichol. (See Wetland Restoration at San Dieguito Lagoon, Moffatt & Nichol Engineers, March 19, 1997). This alternative is a variation of a plan that the permittee had developed in 1994. Since the permittee has studied restoration at San Dieguito for many years, it should not be difficult to refine the Moffatt & Nichol alternative into a preliminary plan. Furthermore, the hydrological issues that require further study have been under analysis by the permittee and others since the Moffatt & Nichol alternative was distributed (March 28, 1997). The permittee previously estimated that it would take until the "latter half of April 1997" to complete its technical analysis of the alternative. (See Letter from Frank Melone, SCE to Councilman Harry Mathis (JPA), dated March 12, 1997). Thus, it is reasonable to expect that the permittee can complete and submit the Moffatt & Nichol alternative as a preliminary plan by October 9, 1997.

2.2 Mitigation at Ormond Beach Wetland

The permittee proposes to amend Condition A to allow the permittee to pay up to \$3 million to the State Coastal Conservancy or the City of Oxnard to fund restoration of wetlands at Ormond Beach. Specifically, the proposed amendment provides that the permittee would establish an internal interest-bearing account. The permittee would then enter into an agreement with the Conservancy or the City, depending upon which entity agrees to implement the restoration project, for expenditure of money from the account. The permittee would release money from the account when requested and to the extent the request is consistent with the agreement.

The permittee proposed this amendment of Condition A in conjunction with its preliminary plan (submitted August 16, 1996) for restoration at San Dieguito Lagoon. The permittee asserts that the Condition A requirement for creation or substantial restoration of 150 acres of wetlands to mitigate for the adverse fish impacts of SONGS Units 2 and 3 will be entirely satisfied by implementation of its preliminary plan for restoration at San Dieguito. The permittee further asserts that the payment of up to \$3 million for restoration at Ormond Beach is intended to resolve the dispute with the Commission staff over whether the San Dieguito Lagoon preliminary plan describes a project that provides 150 acres of created or restored wetlands, as required by Condition A.

The Commission cannot accept the proposed amendments relating to Ormond Beach. The permittee has not demonstrated that restoration of Ormond Beach can occur consistent with the performance standards of Condition A. The permit describes the elements that a preliminary plan shall include (Section 1.2) and the permittee's plan does not meet these requirements. The Ormond Beach plan requires further description of the physical, biological, and hydrological conditions, an evaluation of the feasibility of the tidal connection, and identification of site opportunities and constraints. This information is required as part of the basis upon which the Commission would decide whether the Ormond Beach plan could satisfy a portion of the permittee's obligation under Condition A.

In addition, further study and environmental review of restoration at Ormond Beach could reveal that the restoration is infeasible or has adverse environmental impacts that cannot be mitigated. In that case, the restoration at Ormond Beach would not occur because the proposed amendment does not provide for alternative restoration should restoration at Ormond Beach prove infeasible. Further, the permittee proposed the Ormond Beach Restoration Plan to augment the San Dieguito Plan. In its amendment proposal, the permittee states that "to address staff concerns" regarding the number of acres credit at San Dieguito Lagoon "Edison proposes an amendment to augment the San Dieguito project by providing funds and property to allow the completion of the South Ormond Beach Wetlands Restoration and Management Plan." The permittee proposed \$3 million as an amount that would achieve restoration of the number of acres necessary to reach 150 acres. However, the permittee's submitted plan for restoration at San Dieguito (*Preliminary Plan: San Dieguito Wetland Restoration Project (1996)*) cannot be implemented. The owners and managers of a majority of the affected property, the Joint Powers Authority (JPA), have refused to authorize use of their property for implementation of this plan. Therefore, whether the number of acres of substantially restored or created wetlands that will result from spending \$3 million at Ormond Beach is sufficient to result in a 150-acre project is unclear. In addition, the preliminary plan for restoration at Ormond Beach lacks the details necessary to evaluate whether restoration is feasible and whether \$3 million is sufficient to accomplish whatever restoration is necessary.

Finally, it would be premature to amend Condition A to allow restoration at Ormond Beach because it appears that the full 150 acre restoration requirement can be met at San Dieguito. In 1992, the Commission approved San Dieguito as the site that best meets the minimum standards and objectives of Condition A. The Commission continues to find that San Dieguito is the site that best meets the minimum standards and objectives of Condition A. Furthermore, since 1992, the permittee and Commission staff have devoted substantial time to researching and studying the hydrology and biology of San Dieguito Lagoon. During this time the permittee engaged in significant dialogue with the local land owners, local governments, the Joint Powers Authority (which manages most of the land in the lagoon area), and the interested public. All of these entities and the Commission and

the State Coastal Conservancy have invested a significant amount of time in considering, discussing and evaluating issues related to restoration at San Dieguito.

It appears that 150 acres of substantial restoration or creation can be achieved at San Dieguito. The JPA will allow use of their property for restoration by the permittee if the permittee develops a plan that will achieve major restoration at San Dieguito. The JPA found that the permittee's submitted plan, unlike several other alternative plans that the permittee had previously considered, did not achieve this goal.

The JPA and the Coastal Conservancy retained consultants Moffatt & Nichol to determine whether a plan for 150 acres would be feasible. Moffatt & Nichol concluded that an alternative to the permittee's plan can be developed and that there is one alternative that can result in the substantial restoration or creation of approximately 109 acres, and the enhancement of approximately 126 acres of existing tidal wetlands through permanent maintenance of a tidal opening. (See Wetland Restoration at San Dieguito Lagoon, Moffatt & Nichol Engineers, March 19, 1997¹⁵). Moffatt & Nichol also concluded that, with additional review, their plan could be supplemented to allow for substantial restoration or creation of 150 acres of wetland. Thus, although the exact acreage to be substantially restored or created under the Moffatt & Nichol plan is not yet determined, the plan demonstrates that it is likely that a feasible plan for substantial restoration or creation of 150 acres of wetland can be developed at San Dieguito.

At this time, the Moffatt & Nichol plan requires additional information and refinement before it can be reviewed by the Commission as a preliminary plan. There are some outstanding issues regarding whether the plan is technologically feasible. The technological feasibility issues relate to hydrology concerns. In particular, studies are required to determine whether implementation of the project will result in substantially increased river scouring at the bridges and substantially increased river flooding of adjacent properties. Moffatt & Nichol believe that additional studies will demonstrate that their plan will not have these impacts or that slight modifications to their plan can avoid these impacts. Further, Moffatt & Nichol also concluded that even if these impacts cannot be avoided, infrastructure work can be feasibly undertaken to mitigate these impacts. Since San Dieguito is the only site that has been approved pursuant to the Condition A site selection process, and because the Commission continues to find that San Dieguito is the site that meets the minimum standards and best meets the objectives of Condition A, the restoration required by Condition A must be carried out at San Dieguito unless the additional studies demonstrate that it is technologically infeasible to carry out the full 150 acres at San Dieguito. In that event, the Commission could consider approving a second site, pursuant to the site

¹⁵. Moffatt & Nichol refined their March 19, 1997 plan on March 26, 1997. The refinements were minor adjustments to the cost estimates. The restoration elements were identical to the March 19 version. Since staff had already evaluated the March 19, 1997 version, this staff report refers to the March 19, 1997 version.

selection process. The second site could be used to augment the restoration at San Dieguito to insure the permittee carries out the full 150 acres minimum requirement.

In light of the fact that the Commission has already determined that San Dieguito is the site that best meets the objectives of Condition A and in light of the significant amount of time and money that has been devoted to developing a restoration plan at San Dieguito, the Commission finds that it would be inconsistent with the Coastal Act to revise Condition A to allow the permittee to simply pay \$3 million towards an uncertain restoration at Ormond Beach. Accordingly, Condition A must be amended to reflect that at this time San Dieguito is the only site that has been approved by the Commission pursuant to the site selection process and therefore, the preliminary and final plans must be for restoration at San Dieguito unless restoration at the site becomes infeasible for hydrology or other technological reasons. Should it become clear that the permittee needs to propose restoration at an additional site in order to reach a total of 150 acres (i.e., if the Moffatt & Nichol plan cannot be modified to enable the entire 150 acres to be carried out at San Dieguito), the permittee can at that time seek approval to do work at two sites and proceed under the site selection process in accordance with provisions 1.1 of Condition A.

2.2.1 Enhancement Credit to be Awarded for Inlet Maintenance

Since undergoing restoration in 1984, the inlet at San Dieguito Lagoon has been mostly open to tidal flows. However, there have been periods, e.g., 1989 through 1992, when it was mostly closed. When the inlet is open, as it is now, water quality in the lagoon is good and the lagoon supports many species of estuarine plants, invertebrates, fish and birds. However, closure of the inlet for extended periods (more than six months), can result in significant deterioration of water quality, fish kills, and degradation of existing tidal wetland vegetation. Therefore if the San Dieguito tidal inlet can be maintained open on a permanent and continuous basis, the degradation of water quality, fish habitat, and wetland vegetation by reduced tidal flushing can be avoided.

All of the restoration plans for San Dieguito that have been considered by the permittee have included maintenance of the tidal inlet. This is because continuous tidal flow is necessary to achieve substantial restoration of existing non-tidal wetlands and to create new tidal wetlands at San Dieguito. The permittee asserts that by maintaining a permanent tidal inlet in order to achieve substantial restoration or creation of wetlands in the non-tidal areas, the permittee is also preventing the future degradation of existing tidal wetlands. The permittee asserts that it should be given credit for preventing the degradation of these existing wetlands, and that this prevention is substantial restoration.

Condition A requires the permittee to create or substantially restore at least 150 acres of wetlands. The enhancement of existing tidal wetlands by insuring that they are not

degraded through future inlet closures is not creation or substantial restoration of wetlands. However, the Commission recognizes that the inlet at San Dieguito must be maintained to facilitate substantial restoration and creation of wetlands at San Dieguito. This permanent maintenance of the inlet will result in the permanent maintenance of the quality of the existing tidal wetlands. Thus, even though preventing degradation of the existing tidal wetlands will not "increase the aggregate acreage of wetland in the Southern California Bight" (Objective 1.4.j of Condition A), if inlet maintenance is part of a major restoration program at San Dieguito Lagoon, these tidal wetlands will be enhanced in the long-term and there will be improvement in water quality, fish habitat and wetland vegetation. Accordingly, the Commission finds that if major restoration work is carried out at San Dieguito, the resulting enhancement of tidal wetlands at San Dieguito Lagoon can be counted to some limited extent, toward the substantial restoration/creation requirement.

While reviewing the permittee's 1995 plan for San Dieguito Lagoon the Commission staff and the permittee attempted, but were unable, to reach agreement as to how much credit to allocate for enhancement through inlet maintenance. As a result, the permittee and the Commission staff agreed to allow the Interagency Wetland Advisory Panel (IWAP)¹⁶ to serve as the arbitrator of this disagreement. Previously, the IWAP had been consulted on the issue of inlet enhancement, but now the IWAP was asked to make an official recommendation on the credit number.

The Commission staff, the permittee and its consultants presented to the IWAP during several meetings and follow-up discussions, the scientific arguments regarding an appropriate level of credit for enhancement of existing tidal wetlands through inlet maintenance. After considering these arguments, the IWAP decided that the existing tidal wetlands would be enhanced by 28.1 percent through inlet maintenance. The IWAP attached five conditions (see Exhibit 3) to its percent enhancement value, two of which were relevant to the calculation of the credit: (1) the area of enhancement is limited to those areas at or below the Mean High Water level; and (2) the area of enhancement excludes any property owned by the California Department of Fish & Game (CDFG). They added that the CDFG property could be used only if an agreement was reached with CDFG, which included compensation for the use of a public trust resource (State property) for mitigation purposes. Because there are approximately 45 acres of wetland below the Mean High Water level (2.1' NGVD) and outside the CDFG property, the IWAP recommended $28.1\% \times 45 \text{ acres} = 12.6 \text{ acres credit}$.

Consistent with the IWAP decision, the Commission finds that the existing tidal wetlands will be enhanced by 28.1 percent credit. However, the Commission will: (1) apply the

¹⁶ The IWAP, composed of wetland biologists from the resource agencies, was formed to advise the Commission on wetland mitigation issues related to the SONGS mitigation program.

percentage to all the areas below Mean Higher High Water (2.9' NGVD); and (2) include the CDFG Basin in the calculation. Therefore, at this time, the Commission's calculation of the enhancement credit for inlet maintenance is: $28.1\% \times 126 \text{ acres} = 35 \text{ acres}$.

This credit of 35 acres is the maximum credit the permittee can obtain for inlet maintenance at San Dieguito Lagoon. The credit could be less if the restoration plan ultimately provides less than 126 acres of enhancement. For example, if the mitigation plan called for some destruction of existing tidal wetlands, those wetlands would not be considered enhanced. For instance, if 16 acres of existing tidal wetlands were to be covered by fill in order to build a river training berm then those 16 acres would not be enhanced by the inlet maintenance. Therefore, the actual enhancement credit for inlet maintenance would be: $28.1\% \times 110 \text{ acres} = 31 \text{ acres}$. Thus, the actual credit given for enhanced acres will be determined by multiplying 28.1% by the total number of tidal wetland acres enhanced by the plan, but no more than 35 acres.

The purpose of the wetland mitigation project is to mitigate for fish losses caused by the operation of the SONGS Units 2 and 3 to ensure that the operation of the power plant is consistent with the Coastal Act. The enhancement of existing tidal wetlands at San Dieguito as a result of undertaking a major restoration project there will improve fish habitat (for example, by providing nursery areas and shelter for juvenile fish, such as halibut), leading to greater fish numbers. Therefore, amending Condition A to allow the permittee to obtain up to 35 acres of enhancement credit through permanent maintenance of a tidal inlet at San Dieguito is consistent with the Coastal Act.

2.3 Reduction in Buffer Requirements

The permittee's proposed amendments would replace the requirement for a buffer of "at least 100 feet" with a requirement to provide a buffer of "at least 100 feet...except in those areas where a smaller buffer is functionally adequate or otherwise appropriate (e.g., near existing development)." The effect of this change is to allow for the elimination or substantial reduction in the buffer requirements. This amendment would allow construction of wetlands directly adjacent to existing urban development without transitional upland habitat necessary to buffer the adverse impacts of adjacent development.

The Commission recognizes that a wetland created close to an existing structure, such as a freeway, will have less habitat value than a wetland that is separated from the adverse affects of human activity. For instance, polluted runoff from a freeway next to a wetland is likely to degrade the water quality of the wetland, while noise and vehicle movements will disturb some animals. Upland buffers therefore protect the wetland from human disturbances. Upland buffers also provide refuge habitat to wetland species escaping very high tides or floods.

In its findings in support of requiring a minimum 100-foot buffer the Commission stated: “An adequate buffer zone is necessary to protect and enhance adversity of wildlife values, to protect the wetland’s water quality and to prevent sediment deposition” (see 1991 Findings p. 38).

In prior actions, the Commission has found that a buffer of at least 100 feet is necessary to ensure that the biological productivity of the wetland is adequately maintained. Section 30240 mandates that development adjacent to environmentally sensitive habitat areas, such as wetlands, be sited and designed to prevent adverse impacts. Also, Section 30231 requires that biological productivity and the quality of coastal wetlands be maintained. In addition, the Commission’s Statewide Interpretive Guidelines for Wetlands suggest a minimum of a 100 foot buffer between new development and a coastal wetland.

Thus, for the restored wetlands to be biologically productive and achieve the goal of mitigating the adverse impacts of SONGS, they must be surrounded by an upland buffer of at least 100 feet. Therefore, to reduce the requirement for a 100-foot buffer in Condition A, as the permittee’s amendment requests, would result in a less productive wetland that would not fully mitigate for the fish loss caused by SONGS Units 2 and 3. The permittee has not demonstrated that a lesser buffer would be adequate to achieve the goals identified by the Commission in 1991. Therefore, the permittee’s amendment would make the development inconsistent with the Coastal Act.

2.4 Independent Monitoring

The permittee’s proposed amendment shifts the responsibility for monitoring of the restored wetlands from the Commission to the permittee.

The Commission finds that it must maintain responsibility to implement independent monitoring to ensure objective data collection and interpretation. In 1991, the Commission found there was a need for monitoring to be conducted independent of influence from the permittee. At that time the permittee fully supported this finding (testimony by M. Hertel before the Commission on July 16, 1991). The requirement of independent monitoring was first suggested to the Commission by the MRC because it is a powerful mechanism for maximizing the objectivity of the collection, analysis, and interpretation of the data used to assess compliance with the permit.¹⁷ As in 1991, the Commission finds that monitoring independent of the permittee is a necessary component of the required mitigation and therefore cannot accept the proposed condition amendments relating to monitoring.

¹⁷ The need for independent monitoring is discussed further in the findings for Condition D.

2.5 Length of Monitoring

The permittee has proposed amendments to reduce the length of monitoring the wetland mitigation from the full operating life of SONGS (~30 years) to 10 years. A goal of Condition A is to achieve wetland values over the long-term. To achieve this goal, the restored wetlands must be monitored. The purpose of monitoring is to evaluate the performance of the restored wetlands and to ensure that the wetland continues to produce the resources needed to mitigate for the impacts of SONGS. Condition A sets forth a series of performance standards that, when met, indicate the wetland is biologically productive. Monitoring enables evaluation of these performance standards. Performance must be evaluated so that any problems can be identified and remediated.

Condition D establishes a strategy to reduce monitoring costs when the performance standards have been met for three years. Specifically, the permit (Condition D, 3.0) states that: "The mitigation projects will be successful when all performance standards have been met each year for a three-year period...If the Commission determines that the performance standards have been met and the project is successful, the monitoring program will be scaled down...The work program shall reflect the lower level of monitoring required. If subsequent monitoring shows that a standard is no longer being met, monitoring may be increased to previous levels, as determined necessary by the Executive Director."

The permittee asserts that the Commission has not required monitoring of other wetland mitigation projects for more than 10 years. However, this project is unique in that it is intended to mitigate for large-scale fish losses — not wetland losses — that have been occurring and will continue to occur over the operating life of SONGS Units 2 and 3. To mitigate these losses, the restored wetlands need to sustain wetland value for at least the duration of the operating life of SONGS. Monitoring is the only way to insure such functioning. If the wetlands are monitored, problems that impede functioning can be identified and remediated.

The proposed amendment presumes that within 10 years of construction, the wetland project will meet the performance standards and the project will be considered a success. The Commission finds that achieving successful wetland mitigation within 10 years is possible but not guaranteed. The Commission is concerned that the mitigation project could fail to meet performance standards after year 10. This concern is also held by Dr. Joy Zedler, a coastal wetland expert. In her testimony to the Commission at the SONGS hearing on October 8, 1996, she stated that "As a veteran monitor of the San Diego Bay wetlands, where a 12-year old site has yet to begin to meet a 3-year mitigation requirement — 3 years of successful criteria — I would caution you that 10 years is probably not enough, that the life of the project is a better component, because

what we are trying to produce is self-sustaining systems. It takes a long [time] to demonstrate that a system is truly self-sustaining.”

To assure that the biological productivity and quality of wetlands are maintained so that fish habitat is provided over the full duration of the adverse impacts to fish, monitoring must occur for the full operating life of SONGS. Because the proposed amendments provide no way to determine whether the biological productivity and quality of the wetland mitigation is deteriorating prior to cessation of the impacts (i.e., power plant operation), the proposed amendments would make the development (i.e., SONGS) inconsistent with the Coastal Act.

2.6 Length of Maintenance and Remediation

The permittee also proposed amendments to reduce its responsibility for maintenance and remediation from the full operating life of SONGS (estimated to be approximately 30 years) to 10 years. The purpose of maintenance and remediation is to ensure that the mitigation site functions as a biologically productive wetland for at least the length of time that adverse impacts from SONGS occur.

Wetland construction and restoration is in its infancy. Those restoration projects that have been appropriately monitored have shown that problems are common.¹⁸ Some of these problems become apparent immediately whereas others become obvious only after several years. Problems that could become apparent only after many years include those relating to the effects of rare storm events on the constructed wetlands. For instance, a 1-in-30-year storm event could produce extensive scour or burial of the restored wetlands resulting in extensive habitat degradation. Because of the uncertainties about the sustainability of constructed wetlands over the long-term, remediation funds must be available over the long-term to ensure continued success. (Such is the case for the Batiquitos Lagoon enhancement project where two trust accounts have been set up to allow for remediation in perpetuity.)

The permit requires remedial action for "the full operating life of SONGS" (i.e., approximately 30 years) to ensure that if the mitigation project fails to meet performance standards anytime during the period of SONGS-caused adverse impacts, remedial action would be undertaken. The Commission finds that only in this way can full compensatory mitigation be achieved. Under the permittee's proposed amendment, if the mitigation project falls out of compliance after 10 years, no remedial action would be undertaken. Therefore, full mitigation over the term of adverse impacts from SONGS could not be assured. To assure that the biological productivity and quality of mitigation wetlands

¹⁸ Zedler, Joy B., Principal Author. 1996. Tidal Wetland Restoration: A Scientific Perspective and Southern California Focus. Published by the California Sea Grant College System, University of California, La Jolla, California. Report No. T-038.

are maintained (Section 30231), the Commission finds that remediation should occur over the full operating life of the power plant.

The permittee asserts that the Commission does not typically require remediation of a wetland mitigation project for the entire life of the development that triggered the need for the mitigation. However, the SONGS development differs from most typical development projects because of the scale of the impacts. SONGS adversely impacts some fish species well beyond the power plant itself; these fish populations are reduced **over the entire Southern California Bight**. The permittee proposed and the Commission agreed to mitigate these impacts not by changing the cooling system to avoid the fish losses but by creating or substantially restoring wetlands (i.e., compensation) to provide for increased production of fish. Wetland mitigation projects that mitigate fill of wetlands are not remediated forever, even though wetlands are filled forever, because arguably the filled wetlands might not have survived forever. However, the fish losses will occur for a known period of time — the operating period of SONGS Units 2 and 3. For these losses to be fully mitigated, the wetland mitigation intended to increase fish stocks must be successful for the entire operating period.

Thus, the Commission finds that the permittee's proposal to amend Condition A to reduce remediation to 10 years is inconsistent with the Coastal Act.

2.7 Changes to Performance Standards

The permittee has proposed several amendments to the performance standards. The most important proposed amendment would revise the performance standards for wetland mitigation so that success of the wetland restoration project would be based upon comparison of the newly restored wetland with existing data from any Southern California wetland, instead of with concurrently obtained data from relatively undisturbed, natural, tidal wetlands. There are two parts to this amendment change: (1) the change to using any wetland in Southern California as a reference site rather than using only relatively undisturbed, natural, tidal wetlands as reference sites, and (2) the change to a fixed standard derived from existing data rather than using concurrently obtained data.

In its amendment submittal, the permittee proposes to “use over 450 wetland literature references and existing data from 20–25 wetland sites in Southern California to develop a means to measure attainment of the performance standards.” Because most of these 20–25 sites are degraded, frequently non-tidal wetlands, the standards the permittee would develop would be substantially lower than those obtained from the “relatively undisturbed, natural tidal wetlands” as stipulated in the 1991 permit. Therefore, this amendment would allow the biological productivity and quality of the mitigation wetlands to be reduced.

Furthermore, using existing data to assess compliance of the wetland mitigation project is acceptable only if all of the following criteria are met:

1. the data are from relatively undisturbed tidal wetlands in Southern California and are for the variables listed as performance standards in the permit;
2. the data were collected using methods that allow for comparison of results;
3. the data exist for multiple years encompassing a wide range of environmental conditions; and
4. the values of the variables listed in the permit do not vary unpredictably over time.

After extensive review of the over 450 references from southern California wetlands cited by the permittee, the Commission found that in no case did the existing data meet all four of the above criteria; frequently the data did not meet any of the criteria. Therefore it is the Commission's opinion that these references are not useful in deriving standards for the mitigation wetland. These problems with the existing data were presented to the permittee during several meetings regarding the use of existing data.

Second, the permittee's amendments propose to evaluate the wetland mitigation project's performance against a fixed standard derived from existing data from reference sites rather than using concurrent sampling (i.e., simultaneous sampling) of reference and mitigation sites. The major advantage of using concurrent sampling is that changes that occur in the undisturbed tidal wetlands including long-term fluctuations, such as changes in the abundances of species will be accounted for. For instance, it is possible that an exotic species of fish could become very abundant over the next 10 years in all of the undisturbed sites and the mitigation site. The concurrent sampling program would show that the abundance of the species at the mitigation site is similar to that at the reference sites and that no remediation is necessary. On the other hand, a monitoring program that required sampling of only the mitigation site and involved comparison to a fixed standard derived from data collected prior to 1997 would conclude that the abundance of the exotic fish was very high in the mitigation site and that unnecessary remediation should be undertaken to eliminate it from the mitigation site.

Concurrent sampling would also account for temporary or short-term fluctuations that occur in the undisturbed sites. For example, if environmental forces (e.g., an unusually wet winter) cause the variables of interest (e.g., water quality, or the abundance of fish or salt marsh plants) to decrease in value in the mitigation wetland, the wetland could still be in compliance, because the values of these variables also would have decreased in the reference wetland. In this way the permittee could be spared the expense of unnecessary remediation. This approach assumes that the restored and reference sites will respond in similar ways to given changes in the environment and available information indicates that

natural coastal communities in southern California (including wetlands and reefs) do indeed respond similarly to regional changes in the environment.

Monitoring programs that use concurrent sampling are generally advocated by experts in experimental design and coastal wetlands (e.g., Dr. Joy Zedler at the November 13, 1996 SONGS hearing). The Commission concurs that monitoring the restoration and mitigation sites concurrently is the most scientifically defensible method for assessing compliance of the SONGS mitigation projects. This type of monitoring program ensures that the first three criteria listed above are met. Furthermore, since compliance is assessed using the present day condition of reference sites rather than conditions that existed in the past, it is not necessary for any changes in the values of performance standards to be predictable (criterion four).

Several other changes to the performance standards were proposed by the permittee, but in each case these would reduce the current standards. Specifically, all of the proposed amendments to Subsections 3.4.b.1 through 3.4.b.5 could reduce the level of benefit resulting from the required mitigation to a level below that required to achieve full compensation.

In conclusion, the Commission finds that the proposed amendments to the performance standards of Condition A would cause the SONGS Units 2 and 3 to be inconsistent with the Coastal Act.

2.8 Addition of an “Uncontrollable Forces” Clause

The permittee proposes to include an uncontrollable forces clause which will obviate the need for the permittee to remediate should failure to meet a performance standard occur due to an uncontrollable force, such as a major flood. In its rationale for this amendment, the permittee states “[a]s indicated in the Permit, the restoration design will take into account normal, expected natural occurrences, but catastrophic conditions should not cause remedial measures to be imposed upon the Permittee.” However, by using reference sites in the evaluation of project performance, the original permit condition provides the flexibility necessary to account for changes at the mitigation site due to many uncontrollable events. This is because the performance of the mitigation wetland is always determined relative to the performance of the reference sites. Thus, environmental catastrophes are accounted for through the concurrent monitoring of reference sites. For example, southern California wetlands are frequently subjected to heavy flooding. If a flood should occur at the mitigation site and the monitoring showed that fish abundances had declined to almost zero, remediation would not necessarily be required because similar concurrent information taken at the reference wetlands would show that fish abundances had declined there too. Because the mitigation wetland would still be performing similar to

the reference wetlands, no remediation of the mitigation site would be necessary, even though the catastrophe had a significant impact on fish abundance at the mitigation site.

As long as SONGS is operational, resources are being lost. For the restored wetlands to mitigate the adverse impacts of SONGS Units 2 and 3 the wetlands must provide substantial fish habitat within a balanced ecosystem. The wetlands must be a success for at least the duration of the adverse impacts. To ensure that the biological productivity and quality of the mitigation wetlands are maintained so that fish habitat is provided for the duration of the adverse impacts to fish, the Commission finds that an uncontrollable forces clause should not be added to Condition A.

2.9 Other Minor Changes

The permittee has proposed to make several minor changes to the 1991 permit due to proposed project-specific constraints. Specifically, revisions are proposed to Subsections 1.3(h), 1.3(i) and 1.4(e). These proposed amendments address project impacts to endangered species and existing functional wetlands. Because these are project specific issues and because of the uncertainty surrounding the permittee's proposed project at San Dieguito lagoon, it is not appropriate for the Commission to amend Condition A as proposed.

3.0 FUNDING OPTION FOR THE WETLAND RESTORATION PROJECT

Although not proposed by the permittee, the Commission finds that the requirements of Condition A can be satisfied as part of the total funding option package provided in revised Condition D, Sections 4.0 through 4.3. Of the total amount paid by the permittee under these provisions, \$55.63 million is designated to fund implementation of restoration of 150 acres of wetland. The Commission finds that its permit allowing development of SONGS Units 2 and 3 is consistent with the Coastal Act only if the adverse impacts to marine resources are fully mitigated. The Commission also finds that the adverse impacts to marine resources are fully mitigated only if, among other things, the coastal wetland mitigation requirements are implemented.

The Commission finds that Condition A can be amended consistent with the Coastal Act to allow the permittee to satisfy its mitigation obligation under Sections 1 through 3 of Condition A through payment of \$55.63 million as part of the total funding option package for the following reasons. First, cost estimates for implementation are based on information from the State Coastal Conservancy, JPA and professional engineering consultants (see cost breakdown in Appendix F). Thus, there is a reasonable certainty that \$55.63 million is a sufficient amount of money to fund restoration of 150 acres of wetland that fully compensates for the losses of marine fish standing stocks due to the operation of SONGS.

Second, independent entities, including the State Coastal Conservancy and University of California, have expressed interest in assuming some or all responsibility for the implementation of the wetland restoration required by Condition A. Thus, there is reasonable certainty that an independent entity exists that is capable of and willing to implement the required project.

Third, the feasibility of wetland restoration that successfully mitigates for the adverse effects of SONGS on fish remains unchanged whether implementation is carried out by the permittee or by an independent entity using funds provided by the permittee.

Finally, the funding option includes specific line items for wetland maintenance and remediation, with implementation and assessment completed by an independent entity, thus ensuring there are sufficient funds to successfully achieve wetland restoration that fully compensates for the fish losses due to the operation of SONGS Units 2 and 3 as required by Condition A.

E. FINDINGS FOR APPROVAL OF REVISED AMENDMENTS OF CONDITION C: KELP REEF MITIGATION

This section presents the Commission's findings in support of amending Condition C, as set forth in the Special Conditions to this permit amendment. Condition C describes the second element of the compensatory mitigation program required to offset the substantial adverse effects of SONGS Units 2 and 3 on the marine environment.

1.0 PURPOSE OF CONDITION C

Complete findings for the purpose of Condition C are described in the findings for permit 6-81-330 (formerly 183-73) and incorporated here by reference. A summary of the key points of these findings is presented below.

The overall goal of the mitigation reef is to compensate for the loss of kelp bed resources including giant kelp, kelp bed invertebrates, and kelp bed fishes. Coastal Act Section 30230 states "[m]arine resources shall be maintained, enhanced, and where feasible, restored." The operation of SONGS Units 2 and 3 has been shown to adversely impact the maintenance of marine species populations. Thus, SONGS Units 2 and 3 are consistent with the Coastal Act only if the significant adverse impacts to kelp bed resources identified by the Marine Review Committee (MRC) are fully mitigated. Condition C sets forth a process for site selection, mitigation plan development, plan implementation, project monitoring, and remediation. This comprehensive process was required by the Commission in 1991 to ensure the kelp reef mitigation project would compensate for the kelp bed resource losses over the full operating life of SONGS.

The MRC recommended and the Commission found that compensation for the kelp bed community losses, in the form of an artificial reef, was preferable to redesigning the SONGS cooling system to avoid the adverse impacts because: (1) the artificial reef is likely to replace the lost resources; and (2) the cooling system changes cause additional impacts, have engineering problems, and are costly. Condition C requires the permittee to construct a 300 acre artificial reef that develops and maintains a kelp bed community, and has a physical structure as similar as practicable to San Onofre kelp bed (SOK). The performance standards, monitoring, and remediation provisions set forth in Condition C are designed to ensure that the artificial reef will to the fullest extent possible replace the kelp bed community resources lost at SOK.

2.0 AMENDMENTS TO CONDITION C PROPOSED BY PERMITTEE

The permittee proposes to eliminate the requirement that it create a 300 acre artificial reef as compensatory mitigation for the SONGS' adverse impacts to the SOK community. Instead, the permittee proposes in its amendment request to construct a 16.8 acre "experimental artificial reef for kelp as mitigation for possible resource losses at SOK." In addition, the permittee proposes to eliminate the performance standards, independent monitoring program, and remediation requirements, which hold the permittee responsible for providing a successful kelp bed community for the full operating life of SONGS. Instead, the permittee proposes in its amendment request to "make scientific observations of the experimental reef over a 10-year period." The permittee would submit a report "that includes recommendations for future reef construction designs to the Commission" at the end of the observation period.

On November 4, 1996, the permittee submitted an alternative proposal for Condition C.¹⁹ The permittee also presented this alternative proposal to the Commission at its November hearing. However, the permittee did not characterize the alternative proposal as an amendment to its original amendment request. Thus, the alternative proposal is not specifically before the Commission and only the original permit amendment request is analyzed for consistency with the Chapter 3 policies of the Coastal Act. A summary of this alternative proposal is presented here, however, to provide a complete description of the Commission's understanding of the relevant issues.

The alternative proposal recommended the Commission accept the permittee's initially proposed experimental reef plan and allow self monitoring for ten years. The monitoring results would be used in designing a second 39.5 acre mitigation reef, for a total of 56.3 acres of kelp reef mitigation. The alternative proposal also included an option for the permittee to provide \$3.5 million to fund a third party to build the mitigation reef. Through

¹⁹ November 4, 1996 letter from Michael Hertel to Chairman Louis Calcagno and Members of the California Coastal Commission.

its alternative proposal the permittee also offered to provide funds for monitoring of the mitigation reef, although no funds were allocated for remediation.

Because of the discrepancies between the permittee's amendment request and its alternative proposal, the staff requested the permittee provide written clarification of its proposed project and Condition C amendments.²⁰ As of the date of this report, the permittee has not provided clarification of its proposed project and Condition C amendments, but instead offered "to undertake the engineering and other planning work for the experimental reef absent a resumption of the hearing in April."²¹ As a result, only the information submitted in the permittee's original (August 16, 1996) amendment request is analyzed for consistency with the Chapter 3 policies of the Coastal Act.

3.0 ANALYSIS OF KELP IMPACTS AND MITIGATION

This section presents an overview of the technical analyses completed to determine the adverse impacts of SONGS operation on the San Onofre kelp bed and the required mitigation.

3.1 MRC Studies of the Effects of the Once-Through Cooling System Discharges

The MRC's studies used an innovative research design called BACIP (Before-After/Control-Impact Paired) which was developed by the MRC. Most impact studies estimate effects by comparing the impact site to a control site or by comparing the impact site before and after the impact has occurred. The BACIP method combines both of these techniques and compared the change in kelp abundance, **before** and **after** SONGS began operating between a **control** and **impact** site.²² This design allowed the MRC to answer the question: **Did the average difference in kelp abundance between the control (SMK) and impact (SOK) sites change after SONGS began operating?** Where possible, the MRC used experimental studies to determine the mechanisms that lead to the measured adverse effects.

The BACIP technique was necessary to assess the potential impacts to the San Onofre kelp bed (SOK) because kelp abundance changes naturally over time. The MRC concluded that comparing the average size of SOK to a nearby control site over time was the most accurate way to objectively account for these natural changes in assessing the potential impacts of SONGS operation on SOK.

²⁰ January 29, 1997 letter from Susan Hansch to Michael Hertel and Frank Melone; Re: SONGS Permit Amendment Request.

²¹ February 14, 1997 letter from Michael Hertel to Susan Hansch, Re: SONGS Permit Amendment Request.

²² For a complete description of BACIP see MRC Interim Technical Report 2, Sampling Design and Analytical Procedures (BACIP).

The MRC studies concluded that a turbid plume produced by SONGS' once-through cooling water discharges adversely affected giant kelp, kelp-bed fish, and kelp-bed invertebrates within SOK. Based on these studies, the MRC estimated that as long as SONGS continued to operate, the area of medium to high density kelp in SOK would be on average 200 acres smaller than it would be in the absence of SONGS. The MRC concluded that this reduction in the area of giant kelp in SOK (relative to the control site — San Mateo kelp bed — hereafter referred to as SMK) resulted from increased turbidity and sedimentation that caused a decrease in the production of new kelp plants. The MRC also concluded that the turbid plume did not increase the death rate of existing adult plants in SOK. The reduction in giant kelp as well as increased turbidity and sedimentation were implicated as the major factors contributing to the relative loss of kelp-bed fish and kelp-bed invertebrates.

3.2 Effects of SONGS' Discharges Were Reanalyzed by the Permittee Using Additional Data

The MRC's findings on giant kelp were based on data collected between 1982 and 1988. During this period the MRC also collected data on kelp bed invertebrates, kelp-bed fish, and the physical variables that were most likely to influence these organisms (e.g., light, ocean temperature, nutrient concentrations, and rates of sedimentation). Moreover, the MRC conducted experiments to identify the specific mechanisms by which SONGS caused changes to the kelp bed community.

As part of its water quality compliance monitoring, the permittee has continued to collect data on giant kelp abundance using the same data collection methods employed by the MRC. The permittee, however, has not collected similar data for kelp-bed fish, kelp-bed invertebrates, temperature, light, nutrients, and sedimentation, nor has it continued the types of experimental studies that the MRC conducted.

In September 1995, the permittee submitted a report to the Commission staff that used its new information on kelp abundance, in addition to the MRC's data, to create an extended data set on giant kelp abundance (a revised version of this report, hereafter referred to as Dean and Deysher 1996, was submitted in April 1996). Dean and Deysher (1996) used a BACIP analysis on data collected through July 1995 that was similar, though not identical, to the one used by the MRC. The authors concluded that the average loss of medium to high density kelp at SOK over the operating life of SONGS was between 48 and 110 acres (the size of the impact varied depending on whether kelp abundance was calculated using downlooking or sidescanning sonar data and on the assumptions used concerning changes in potentially confounding factors such as sea urchin grazing and the amount of hard substrate). These estimates are less than the 200 acres estimated by the MRC using data collected through 1988. Because the permittee did not conduct experimental studies or collect data on other physical and biological components of the kelp bed, Dean and

Deysher (1996) could only speculate on the potential causes that could lead to a lessening of SONGS' impact on giant kelp as indicated by the extended data set.

Dean and Deysher (1996) was reviewed by an independent panel consisting of three scientists chosen jointly by the permittee and the Commission staff. The panel generally agreed with the approach (i.e., the BACIP approach) used by Dean and Deysher and the MRC for estimating the size of SONGS impacts. Although the panel criticized specific parts of Dean and Deysher's analyses, it agreed with their qualitative conclusion that the effects of SONGS' discharges on giant kelp were much less than those estimated by the MRC. The panel was not asked to provide a quantitative estimate of SONGS' impact on giant kelp; however, it made recommendations for future analyses aimed at quantifying the area of kelp lost at SOK (relative to SMK) as a result of SONGS' turbid discharge plume.

In its amendment request, the permittee cites the panel's review as evidence for "[the] lack of SONGS significant adverse impact on kelp" and proposes a 16.8 acre experimental reef "as more than adequate mitigation for any kelp impacts caused by SONGS".²³ This assertion by the permittee is flawed because: (1) the panel's review never claimed that there is a lack of SONGS significant adverse impact on kelp; (2) the size of the permittee's proposed kelp mitigation project (i.e., 16.8 acres) is not based on any scientific analyses that estimate the extent of SONGS impact on kelp; (3) the permittee's own kelp consultants (Dean and Deysher, 1996) found the average area of kelp loss was between 48 to 110 acres; and (4) the permittee provides no documentation that the proposed 16.8 acre experimental reef will fully compensate for the kelp-bed resources (including fish and invertebrates) lost through SONGS' operation.

3.3 Updated Estimate of Impacts to the San Onofre Kelp Bed Based on New Information

Staff scientists²⁴ have analyzed the permittee's extended data set on giant kelp abundance incorporating recommendations made by the Independent Review Panel and assumptions made by the permittee's consulting scientists (Dean and Deysher, 1996) concerning the confounding effects of sea urchin grazing. (See Appendix D for details on these analyses.) Following these recommendations and assumptions, the impact of the operation of SONGS was estimated to be an average loss of 122 acres of kelp. This estimate is based on kelp abundance data collected with sidescanning sonar. Using the same analytical methods with more accurate data on kelp abundance collected with downlooking sonar produced an estimated loss of 179 acres on average. Thus, the staff scientists' analyses of

²³Volume I, Section F, page 6,: *Submittal to Amend and Fulfill Certain Conditions of Coastal Development Permit No. 6-81-330 (SONGS Units 2 & 3)*. August 16, 1996 Submitted by Southern California Edison

²⁴ As required by the 1991 SONGS permit, the Commission has retained scientists for the purpose of assisting the Commission staff in overseeing permit condition compliance. These scientists are referred to as "staff scientists" throughout this permit.

the extended data set provided by the permittee estimates that SONGS' operation has caused an average loss of 122 to 179 acres of medium to high density kelp. There is a sound scientific basis for regarding the 179 acre estimate of loss as the more reliable (see Appendix D). This loss is expected to persist as long as SONGS continues to operate at historical levels.

In the San Onofre region sediment accumulation and erosion can cause the area of hard substrate to fluctuate over time. Such fluctuations can have important consequences on the distribution and abundance of kelp, because hard substrate is required for the establishment of kelp. Consequently, the manner in which changes in the area of hard substrate are accounted for can greatly influence estimates of the area of kelp lost as a result of SONGS' operations.

Much of the difference between the staff's estimates of kelp loss (122 to 179 acres) and Dean and Deysher's estimates (48 to 110 acres as reported in the permittee's August 1996 amendment request, as well as in its response to the October 1996 staff report) are due to whether adjustments were made for changes in the area of hard substrate. For example, Dean and Deysher's (1996) estimate of 48 acres and the staff scientists estimate of 179 are both based on kelp abundance data collected using downlooking sonar. The large discrepancy between these two estimates is due almost entirely to the fact that Dean and Deysher (1996) standardized kelp abundance to the area of hard substrate, while the staff scientists did not. By contrast, estimates of kelp loss using sidescanning sonar data by Dean and Deysher (110 acres) and the staff scientists (122 acres) are much closer because neither of these two estimates incorporates an adjustment for hard substrate. Overall, however, the permittee's amendment request ignores these estimates of kelp loss, arguing instead that a 16.8 acre artificial reef would fully compensate for any adverse impacts of SONGS on the San Onofre kelp bed.

Standardizing the area of kelp loss to the area of available hard substrate as done by the permittee's consulting scientists may greatly underestimate the overall effects of SONGS operation on kelp, because it implicitly assumes that SONGS has no effect on the area of available hard substrate. However, analyses using recently obtained information on hard substrate implicate SONGS as the cause of a 167 acre loss of hard substrate in the San Onofre kelp bed (see Appendix D for details). Estimates of kelp loss that are based on direct measures of kelp abundance (as done by the staff scientists) rather than on measures that are standardized to the area of hard substrate (as done by the permittee's consulting scientists) account not only for losses due to SONGS' direct effects on kelp, but also account for losses due to SONGS' indirect effects on kelp (via SONGS' adverse effects on area of hard substrate). The new data on hard substrate has the same scientific standing as the permittee's new data on kelp abundance. Further, this new information confirms the recommendation of the Independent Review Panel to focus estimates of kelp loss directly on kelp abundance **without** adjustments to area of hard substrate.

The Commission finds that the permittee's estimates of SONGS' impact on kelp abundance substantially underestimate SONGS' actual adverse impacts on the San Onofre kelp bed. The staff scientist's estimates of SONGS' effect on kelp provided in Appendix D use the recommended procedures of the Independent Review Panel and have been reviewed and corroborated by one member of the panel (Exhibit 4, 2 October 1996 letter from Craig Osenberg to Peter Douglas) and endorsed by another member of the panel (Exhibit 5, November 1996 letter from Paul Dayton). Thus, the staff scientists' estimates are credible and scientifically valid, showing that SONGS' operation results in an ongoing average reduction in the size of the San Onofre kelp bed of 122 acres using sidescanning sonar data and 179 acres using downlooking sonar data. Given the greater accuracy of the downlooking sonar data the Commission finds that the estimated kelp loss of 179 acres is the more reliable.

Therefore, the Commission finds that, as the permittee proposed, re-examination of the SONGS' impact on kelp abundance within the San Onofre kelp bed does show the effects of SONGS' operation are less than originally estimated by the MRC (ca. 200 acres), but far more than the zero impact postulated by the permittee. As a result, the mitigation required of the permittee pursuant to Special Condition C shall be based on an effect size of 179 acres of medium to high density kelp. The Commission finds this effect size is based on the most reliable science-based estimate of kelp loss..

3.4 Mitigation for Impacts to the San Onofre Kelp Bed

Condition C requires the permittee to mitigate for the kelp bed losses caused by SONGS operation through a combination of methods. The Commission finds that in order to compensate for the 179 acres of kelp bed loss, the permittee shall: (1) construct an artificial reef that develops and maintains a kelp bed community of 150 acres that has a physical structure as similar as practicable to that found in SOK; and (2) pay \$3.6 million to fund a mariculture/marine fish hatchery program. The artificial reef is intended to replace losses of kelp, kelp-bed fish and kelp-bed invertebrate at SOK caused by the operation of SONGS Units 2 and 3. The MRC based its mitigation requirement for these losses on the average relative loss in the area of medium to high density giant kelp at SOK (defined as greater than 4 plants per 100 m²). Due to the risks inherent in replacing a natural ecosystem with a designed ecosystem and because it was unlikely that kelp on average would cover the entire reef, the MRC recommended and the Commission approved a mitigation reef that was 50 percent larger than the estimated area of relative kelp loss.

In addition to constructing the artificial mitigation reef, Condition C requires the permittee to pay \$3.6 million to OREHP (Ocean Resources Enhancement and Hatchery Program) for the purpose of funding a mariculture/marine fish hatchery program. This requirement will provide compensation for resources not replaced by the artificial mitigation reef. The Commission recognizes that marine fish hatcheries have not yet been demonstrated to

enhance fish stocks. However, recent results from the Carlsbad white seabass hatchery are promising, and this technique has the potential for substantially enhancing coastal fish populations, including those utilizing kelp beds. Although there is uncertainty about the effectiveness of the fish hatchery there is also uncertainty about the success of the artificial mitigation reef; together, they “spread the risk” and raise the level of certainty that mitigation will actually be sufficient to compensate for the kelp bed resources lost due to the operation of SONGS.

The artificial reef component of Condition C is to be done in two phases: (1) a 16.8 acre experimental reef; and (2) a 133.2 acre mitigation reef. The experimental reef would be constructed first, and information gained from studies of the experimental reef will be used to design the mitigation reef. Thus, the primary goal of the experimental reef is to test several promising substrate surfaces and configurations to determine which of these can best provide: (1) adequate conditions for giant kelp recruitment, growth, and reproduction; and (2) adequate conditions to establish a community of reef-associated biota. Specifically, implementation of the experimental reef will allow for extended field testing of several reef designs. It is not expected, nor is it intended, that all designs tested in the experimental reef will meet all of the performance standards for the mitigation reef. The experimental reef will be studied for 5 years, which according to Commission staff and the California Department of Fish and Game’s artificial reef experts, is the minimum time needed to evaluate the different reef designs. During the 5 year monitoring period, mechanistic studies will be necessary to assess the effectiveness of the alternative reef designs, materials, and management techniques. Condition C requires the permittee to fund these mechanistic studies and any other studies that the Executive Director deems necessary to make reliable projections of reef performance over the long term. Results from monitoring and experimental studies will be used to determine the most cost-effective reef design (i.e., type and percent cover of hard substrate) that maximizes the chances for successful mitigation. That design will serve as the basis for designing the larger mitigation reef. All studies of the experimental reef will be designed and carried out by scientists chosen by the Executive Director to insure that the results and interpretation of these studies are independent of the permittee.

Following completion of independent monitoring of the experimental reef, the permittee must develop preliminary and final plans for construction of the full mitigation reef. Condition C sets forth the deadlines for submission of plans and initiation of construction of the full mitigation reef. These deadlines are necessary to insure timely implementation of the mitigation requirements.

The amended Condition C requires the kelp reef mitigation (i.e., the mitigation reef combined with the experimental reef) to support, on average, at least 150 acres of medium to high density kelp, 28 tons of fish, and invertebrate and fish assemblages that are similar to natural reference reefs. If the kelp reef mitigation does not achieve these standards,

then remediation shall occur (most likely by increasing the total area of reef) until the biological performance standards are met.

It should be noted that the average area of medium to high density kelp produced by a 150-acre reef will, in all probability, be less than 150 acres. This is because typically only a portion of the reef area (whether artificial or natural) supports a sustained population of medium to high density kelp. For example, on average only about 50 percent of the hard substrate in the control site, San Mateo kelp bed, has historically supported medium to high density kelp. If this turns out to be the case for the mitigation reef, then the appropriate remediation would be to double the size of the reef (to 300 acres) in order to meet the requirement of 150 acres of medium to high density kelp. If on the other hand it was determined that 75 percent of the mitigation reef area supported medium to high density kelp, then the appropriate remediation would be a reef that is 1.25 times as large as the 150 acre reef (i.e., the addition of 37.5 acres for a final reef size of 187.5 acres).

Rather than require a kelp reef mitigation project that is larger than the area of estimated kelp loss based on a predetermined level of resource enhancement (as required by the Commission's 1991 permit action), the permittee's artificial reef mitigation requirement in the Commission's revised Condition C is to compensate for 150 acres of kelp bed loss. Thus, depending on the performance of the mitigation reef, the mitigation ratio of [the final area of the mitigation reef] to [the area of medium to high density kelp lost] may be larger or smaller than the 1.5 ratio imposed by the Commission in its 1991 permit action. Given that the appropriate mitigation ratio cannot be accurately determined in advance of the mitigation project, the Commission finds it is most prudent to provide for the potential need to construct additional reef through the remediation provisions of Condition C.

To address the potential need to expand the reef to achieve 150 acres of medium to high density kelp, the Commission has included a provision in the revised Condition C for reef remediation over the full operating life of SONGS. Further, the revised Condition C fixes the cost of remediation only if the permittee chooses to provide funds for third party implementation of the mitigation reef through the funding option contained in revised Condition D. The Commission fully expects that the \$8.23 million designated for remediation in the funding option will be sufficient to fund augmentation of the reef if the kelp abundance performance standard is not met, and to fund other unforeseen deficiencies in the mitigation reef. Only after the reef has successfully performed for the full operating life of SONGS would any unspent remediation funds be returned to the permittee.

4.0 CONSISTENCY WITH THE COASTAL ACT

In the rationale for the proposed amendment the permittee claims that "[t]he proposed amendments are based largely on a reduction in the estimated impacts of SONGS on kelp,

made as a result of analysis of newly obtained data. Given that the estimates of impact are substantially reduced, and that any estimates of significant impact are uncertain, this new plan should serve as mitigation for any possible impacts.” The Commission agrees that new data collected since the MRC studies indicate that the estimated adverse effects of SONGS on SOK are less than previously estimated by the MRC.

In approving the coastal development permit for SONGS Units 2 and 3, the Commission found that the construction and operation of SONGS would be inconsistent with the Coastal Act unless the adverse effects of SONGS on SOK were fully mitigated. An objective, science-based analysis of the new data (Appendix D), based on the recommendations of the Independent Review Panel, shows that a mitigation reef substantially greater than that proposed by the permittee in its amendment proposal is needed to mitigate the adverse impacts of SONGS Units 2 and 3. Without adequate mitigation for the adverse impacts to the San Onofre Kelp bed community, past and continued operation of SONGS is inconsistent with the Coastal Act.

Applicable policies and provisions of the Coastal Act require mitigation to fully compensate for the adverse impacts of SONGS on the marine environment. Specifically, Coastal Act Section 30230 requires that marine resources be maintained, enhanced, and where feasible, restored, and that special protection be given to species of special biological or economic importance. Coastal Act Section 30231 requires the maintenance of optimum populations of marine organisms, and Coastal Act Section 30233(a) requires that qualifying development (such as SONGS) may only fill open coastal waters where, among other requirements, feasible mitigation measures have been provided to minimize adverse environmental effects.

Giant kelp is a species of special biological and economic importance, subject therefore to the special protection afforded by Coastal Act Section 30230. The harvest of giant kelp (*Macrocystis*) is a multi-million dollar industry in California. Moreover, giant kelp provides habitat and food for a diverse assemblage of animals, many of which also have high biological and economic importance. For example the red sea urchin fishery is one of the largest fisheries in California and is critically dependent on abundant kelp, which is the primary food of red sea urchins.

The MRC studies predicted that over its operating life SONGS would cause on average a 200-acre reduction in the size of the San Onofre kelp bed. Based on new information provided by the permittee and analyzed by staff, the Commission’s revised estimate of kelp loss is 179 acres per year on average over the operating life of SONGS. The Commission therefore finds that Condition C can be amended to address the permittee’s additional data regarding the impact of SONGS on SOK. However, for the amendment to be consistent with the Coastal Act, the revised Condition C must compensate for the adverse effects of SONGS Units 2 and 3 by, at a minimum, (1) providing for the

construction of an artificial reef which will produce 150 acres of medium-to-high density kelp and an associated healthy kelp bed community, and (2) providing \$3.6 million to fund a mariculture/marine fish hatchery program which will compensate for lost resources not replaced by the artificial reef.

For the reasons cited above, the Commission finds that only if Condition C is revised as set forth in the Special Condition C would the adverse effects caused by the operation of SONGS Units 2 and 3 since 1984 be adequately mitigated consistent with the applicable policies and provisions of Coastal Act Sections 30230, 30231 and 30233.

5.0 FUNDING OPTION FOR THE MITIGATION REEF PROJECT

The Commission finds that the requirements of Sections 1 and 2 of Condition C can be satisfied as part of the total funding option package provided in revised Condition D, sections 4.0 through 4.3. Of the total amount paid by the permittee under these provisions, \$43.84 million is designated to fund implementation of the experimental and mitigation reefs and remediation for the mitigation reef. (See the detailed cost breakdown in Appendix F.) The Commission finds that its permit allowing development of the SONGS Units 2 and 3 is consistent with the Coastal Act only if the adverse impacts to marine resources are fully mitigated. The Commission also finds that the adverse impacts to marine resources are fully mitigated only if, among other things, an artificial reef supporting at least a 150 acres of medium to high density kelp and associated biota is created and \$3.6 million is paid to OREHP to fund a mariculture/marine fish hatchery program to serve as compensation for lost resources not replaced by the artificial reef.²⁵

The Commission finds that Condition C can be amended consistent with the Coastal Act to allow the permittee to satisfy its mitigation obligation under Sections 1 and 2 of Condition C through payment of \$43.84 million as part of the total funding option package for the following reasons. First, cost estimates for implementation are based on information from the California Department of Fish and Game Artificial Reef Program and licensed contractors who have constructed artificial reefs in the Southern California Bight (see cost breakdown in Appendix F). Thus, there is reasonable certainty that \$43.84 million is a sufficient amount of money to fund construction of an artificial reef that compensates for the losses incurred by the kelp bed community due to the operation of SONGS.

Second, independent entities including the Department of Fish and Game, the University of California, and the United Anglers of Southern California have all expressed interest in assuming some or all responsibility for the implementation of the kelp reef mitigation required by Condition C. Thus, there is reasonable certainty that an independent entity exists that is capable of and willing to implement the required project.

²⁵ These hatchery funds are a separate requirement that is not optional and are therefore not included in the funding option in Condition D.

Third, the feasibility of an artificial reef that successfully mitigates for the adverse effects of SONGS on kelp remains unchanged whether implementation is taken on by the permittee or by an independent entity using funds provided by the permittee.

Fourth, implementation of the mitigation reef will be based on results from the experimental reef. Implementation and study of the experimental reef will provide much of the information needed to design a successful mitigation reef, thereby further ensuring that the reef so constructed compensates for the lost kelp bed resources.

Finally, the funding option includes a specific line item for reef remediation, with implementation and assessment completed by an independent entity. Additionally, any construction funds remaining after full implementation shall be used to construct additional kelp reefs in the Southern California Bight to further ensure full compensation for the kelp bed resources lost due to the operation of SONGS Units 2 and 3.

F. FINDINGS FOR AMENDMENT OF CONDITION D: ADMINISTRATIVE STRUCTURE

This section presents the Commission's findings in support of amending Condition D to include a funding option for the entire mitigation package for Condition A, Sections 1 and 2 of Condition C, and Sections 1 through 3 of Condition D that allows the permittee to fund other parties, as designated by the Executive Director and approved by the Commission, to undertake these responsibilities. Condition D describes the administrative structure for the permittee to fund independent monitoring, and the Coastal Commission's management and technical oversight required by Conditions A through C.

1.0 PURPOSE OF CONDITION D

Findings for the purpose of Condition D are described in the findings for permit 6-81-330 (formerly 183-73) and incorporated here by reference.

Condition D, as set forth in CDP 6-81-330, provides the administrative structure for the permittee to fund the monitoring, management, and technical oversight called for in Conditions A through C. The text of existing Condition D is unchanged with the exception of adding a funding option to allow the permittee to pay the costs of satisfying the requirements of Conditions A, C²⁶ and D. This change responds to the permittee's concerns about the uncertainty of potential increases in project costs in the future while providing the financial and administrative means for the Commission to ensure that full permit compliance is achieved.

²⁶ The \$3.6 million funding requirement for the mariculture/marine fish hatchery program is a separate requirement contained in Section 3 of Condition C that is not optional and therefore not included in the funding option.

Specifically, the condition as presently set forth:

- Enables the Commission to retain scientists and technical staff to assist the Commission in carrying out its oversight and monitoring functions for the requirements set forth in Conditions A through C;
- Provides for a scientific advisory panel to advise the Commission on the design, implementation, monitoring, and remediation of the mitigation projects;
- Assigns financial responsibility for the Commission's oversight and monitoring functions to the permittee and sets forth associated administrative guidelines; and
- Provides for periodic public workshops on the performance of the mitigation projects.

Condition D establishes an administrative structure and provides funding for the expertise necessary for objective, science-based decision-making and eliminates the potential for partiality of project evaluation that may arise when a permittee is required to choose between cost containment and the complete mitigation required to comply with the conditions of a permit. This expertise is presently provided to the Commission by a science advisory panel and a small technical oversight team. The current science advisory panel members include Richard F. Ambrose, PhD, Associate Professor, UCLA, William Murdoch, PhD, Professor, UC Santa Barbara, and Peter Raimondi, PhD, Assistant Professor, UC Santa Cruz. The technical oversight team members include John Boland, PhD, wetlands ecologist, Daniel Reed, PhD (half-time), kelp forest ecologist, and Stephen Schroeter, PhD (half-time), invertebrate ecologist.

2.0 AMENDMENT OF CONDITION D PROPOSED BY THE PERMITTEE

The permittee proposes to amend Condition D in the following ways:

1. Eliminate independent monitoring of the performance of wetland and marine mitigation projects and replace with monitoring by the permittee;
2. Substantially reduce the Commission's oversight and management role, and provide review-only or advisory roles for other state and federal agencies;
3. Eliminate all permittee funding for Commission oversight functions;
4. Shift annual project performance review responsibilities from Commission staff to the permittee;
5. Eliminate the requirement that performance standards be met for three (3) consecutive years to achieve successful condition compliance; and
6. Substantially reduce long-term monitoring requirements.

2.1 Equitable Treatment

In its amendment request, the permittee asserts that the monitoring and oversight provisions of Condition D constitute unfair treatment by the Commission and contends that its proposal to eliminate funding for Commission oversight of this permit and to allow the permittee to conduct its own monitoring with professional contractors would result in equitable treatment for this permittee as compared to other coastal development permit holders. The permittee contends that in the intervening years since the permit was conditioned to require the present mitigation program (1991), the Commission has not required other applicants to similarly pay for independent monitoring of mitigation programs.

The Commission's imposition of Condition D was not based on a supposition that future permittees of large-scale development would be subjected to the same provisions. Rather, the Commission included permittee funding of the Commission's oversight functions and independent monitoring as a means to effectively and reliably achieve the compensation objectives for the mitigation program. Further, the permittee **endorsed** the independent monitoring requirements of Condition D in 1991, calling the program "innovative", and emphasizing the fact that it would be "uninfluenced by Southern California Edison and its partners".

The permittee claims inequitable treatment by the Commission with respect to the requirement for independent monitoring. The facts are otherwise. Few mitigation projects of similar scope and magnitude have been approved by the Commission since 1991. However, for the few that have, independent monitoring has played a key role: (1) independent monitoring was recommended for Ballona wetland; (2) independent monitoring of physical performance was implemented through a trust fund for Batiquitos Lagoon; and (3) agencies proposing to purchase and restore the Bolsa Chica wetland have also proposed a trust fund for independent monitoring, management, and remediation. Thus, the Commission finds that independent monitoring of large scale mitigation programs is an emerging trend, not an anomaly as the permittee suggests, and that no inequity of permittee treatment exists.

Moreover, contrary to the permittee's assertions, the Commission has required other permittees to reimburse the Coastal Commission for the costs of permit compliance and enforcement (for example, Permit No. A-4-STB-92-16, Point Arguello Partners; Permit E-92-6, Gaviota Marine Terminal). The Commission notes that the requirement that large mitigation projects be subjected to independent monitoring programs is an emerging practice among local governments. Santa Barbara County, for example, requires independent mitigation project monitoring at the permittee's expense for all large energy projects. Additionally, several industrial facilities in San Francisco Bay voluntarily fund an

independent regional water quality monitoring program to comply with their NPDES permit requirements.

The SONGS permit is distinguished from other coastal development permit approvals in other important ways as well:

1. **Mitigation after-the-fact:** The potential adverse environmental impacts of proposed developments are typically reviewed, and mitigation measures imposed, **before** the development occurs. In the case of SONGS Units 2 and 3, a permit was granted, and the development — and associated adverse affects on marine resources — occurred first. In doing so, delays in construction estimated by the permittee to cost as much as \$1.5 million per week were avoided. However, mitigation was imposed **after-the-fact** by the Coastal Commission in 1991. This sequence is rare, particularly for a project of this magnitude. As a result, the adverse impacts of SONGS Units 2 and 3 operation, which began in 1983 have yet to be mitigated. It has been argued that the true inequity is that the SONGS owners have received favorable treatment unavailable to other permit holders: lower-bound estimates of shareholder profits on SONGS Units 2 and 3 since 1984 total approximately \$3 billion, yet none of SONGS' impacts have been mitigated.²⁷
2. **Unusual, complex mitigation program:** The mitigation for the adverse effects of SONGS is unique in other ways. The plant destroys millions of fish and fish larvae and adversely affects a large kelp bed community offshore of San Onofre. The innovative out-of-kind and in-kind compensatory mitigation program required by the Coastal Commission will mitigate these impacts through wetland habitat restoration and construction of an artificial reef. These projects are more complex and subject to greater uncertainty than some of the other projects cited by the permittee as evidence of inequitable treatment. The SONGS mitigation projects are also designed to be adaptively managed through science-based monitoring and oversight, and rely in critical ways upon objective decision-making — a feature which, the Commission notes, the permittee has enthusiastically endorsed previously.
3. **Impact assessment and mitigation recommendations provided by the MRC:** The Commission established a unique process for SONGS. In establishing impacts and evaluating mitigation alternatives, the MRC did the work staff might do on smaller, less complex problems. The 1974 permit provided a unique degree of responsibility to the MRC. The MRC (which included an SCE representative) provided very strong recommendations for independent monitoring.

²⁷ Source: CPUC Advisory and Compliance Division, March 18, 1997.

2.2 Transfer of Permit Compliance Costs from Permittee to Others

The changes proposed by the permittee would severely reduce the Commission's ability to oversee and manage compliance with this permit. The permittee contends that the Commission staff, with input and advice from other agencies, has the capability to review plans and monitoring reports and to make judgments about permit compliance. The Commission does not, in fact, have the necessary staff technical expertise or time to adequately oversee the SONGS mitigation projects and respond to the inevitable problems and changes expected to arise for the wetlands restoration and reef mitigation projects.

Further, under the permittee's amendment proposal, these additional demands on the permanent Commission staff would be borne exclusively by state taxpayers. Since the original permit was granted in 1974, the permanent staff of the Coastal Commission has spent a substantial amount of time monitoring this project. Since the early 1990s, Commission staff time devoted to this permit has intensified and it is likely that more regular Commission staff time has already been spent on this project than on any other individual project brought before the Commission.

The permittee also claims in its amendment proposal that without technical consultants, the Commission could instead obtain advice from other resource agencies. While the staff does consult with other resource agencies routinely on many issues, the permittee's proposal is unrealistic. Other public agencies operate under the same financial and staffing constraints faced by the Coastal Commission. Other agencies cannot be expected to provide, in addition to their existing functions, the scientific services necessary to adequately assess the permittee's monitoring results or to provide technical oversight for the Commission's benefit. Moreover, the Commission cannot delegate its responsibility for determining permit compliance to another agency.

For these reasons the Commission finds it cannot accept the permittee's proposal to eliminate permittee funding for technical assistance to the Commission because the proposed changes would leave Commission staff to evaluate permit compliance and the performance of unusually complex wetland and marine mitigation projects without the assistance of qualified technical advisors. The resultant deficit of qualified advisors would adversely affect the Commission's ability to ensure that the permit's objectives are achieved.

2.3 Impartiality of Independent Monitoring

As stated previously, the permittee proposes to eliminate the Commission's scientific consulting staff, to perform its own annual performance evaluations, and both to substitute self-monitoring for independent monitoring **and** to weaken mitigation project performance

standards. The permittee also contends that self-monitoring is cheaper than independent monitoring.

The Commission notes that the trend toward independent monitoring of large-scale projects is growing. Awareness has increased that successful mitigation implementation is best ensured where mitigation is evaluated by a qualified, independent entity with no vested interest in the results. An ideal monitoring program would be undertaken by a qualified party interested only in finding accurate answers to the questions posed by a well-prepared mitigation monitoring plan. The permittee, however, in its amendment proposal, seeks not only to eliminate the access of the Commission and its staff to necessary scientific resources, but also to require the Commission to rely on monitoring data collected and interpreted by the permittee. In other words, the permittee proposes to ask **and answer** its own questions about whether the restored wetland has achieved the specified performance standards. Because remediating the mitigation site to achieve these standards could be expensive, there is considerable profit incentive to interpret monitoring data in a way that precludes the need for remediation, thereby potentially reducing costs by avoiding remediation. The Commission finds that the permittee's proposal to eliminate independent monitoring would severely undermine the Commission's ability to ensure that objective, science-based decision-making guides the optimal implementation and management of the SONGS mitigation program.

At the April 9, 1997 hearing, the permittee suggested (in testimony and in an overhead) that the Commission amend Condition D to eliminate permittee funding of Commission oversight but retain independent monitoring. The permittee suggested that it be responsible for developing the monitoring programs and that it select the monitoring entity for the wetland and kelp reef mitigation projects. The permittee also suggested that the reports prepared by the selected monitoring entity be simultaneously submitted both to the permittee and to the Commission staff. The Commission finds that this proposed amendment of Condition D is inconsistent with the Coastal Act and an unwarranted change. The Commission finds that for monitoring to be truly independent, the monitoring plan must be developed by an entity other than the permittee. In addition, while the permittee can comment on the Commission's choice of independent monitor, the permittee cannot have a vote or any veto power in the final selection of independent monitor.

The Commission finds and the permittee provides no evidence that self-monitoring is cheaper than independent monitoring. In either case, contractors are generally selected on the basis of competitive bids and the cost of conducting the monitoring would depend on the requirements of the monitoring program. On the other hand, the Commission finds that any party whose reputation, business profit or other substantial interests may be adversely affected if a large-scale mitigation program is shown to be under-performing or failing should not be charged with the dual responsibilities of implementing mitigation measures and monitoring/reporting on the performance of these efforts. Therefore, the Commission

finds that there is continuing importance in the independent monitoring and technical oversight required by Condition D to ensure full mitigation required under Conditions A and C of this permit.

2.4 Innovative Mitigation Program is Consistent with the Coastal Act

As stated previously, the Commission in past decisions has determined that this permit warrants a distinctive, science-based package of mitigation measures, including independent oversight, monitoring, and objective remediation management. The Marine Review Committee, which included an SCE representative, identified the need for independent project management in 1991. The Commission concurred, and conditioned Coastal Development Permit 6-81-330 in 1991 to incorporate the Condition D administrative structure. The Commission found that permit compliance, consistent with the requirements of the Coastal Act, could best be achieved if the results of independent monitoring were used to implement any required remediation. As stated in the staff report for CDP 6-81-330, the required mitigation measures are compensatory in nature, and while the benefits of such measures are predicted to offset the identified impacts of SONGS, these benefits are uncertain. The monitoring, technical oversight, and remediation required by Conditions A, C and D address this uncertainty by providing information on the success of mitigation projects, and by providing a mechanism for “adaptive management” of the created resource, i.e., improving the likelihood of success by independent monitoring, and on the basis of the data collected, regularly re-evaluating the management plan and determining necessary remedial steps.

The Commission also notes that the SONGS mitigation package was designed with the permittee’s full support. When the Commission imposed the applicable special conditions in 1991, particularly the requirement for independent monitoring, the permittee understood that this was a unique package. The Commission notes that the permittee did not simply **accept** the permit conditions — the permittee **endorsed** these provisions. As Michael Hertel, Edison’s Manager of Environmental Affairs, testified to the Commission on July 16, 1991:

[I] think it is incumbent upon us, as part of our duty and our commitment that we made some seventeen years ago to follow through and implement the recommendations of the staff today. And so we strongly support, strongly support the staff’s recommendations to you with respect to mitigation and **especially with respect to the innovative mitigation monitoring which will be completely independent and uninfluenced by Southern California Edison and its partners.** (emphasis added)

The Commission has found in the past that the independent monitoring and technical oversight required by Condition D is necessary to ensure that the development of SONGS Units 2 and 3 is consistent with the Coastal Act. Thus, the Commission finds that to ensure

mitigation for the operating life of SONGS Units 2 and 3 as required by the permit, independent monitoring and technical oversight continue to be necessary and the permittee's amendment, which proposes the elimination of these permit features, can therefore not be approved.

3.0 FUNDING OPTION

The Commission finds that the conditions proposed to be amended by the permittee can be revised to include a funding option that allows the permittee to pay a specified amount to have the projects required in Condition A (wetland restoration) and Condition C (kelp reef mitigation), and the independent monitoring and technical oversight required in Sections 1 through 3 of Condition D carried out by third parties. This section presents the Commission's findings in support of the funding option.

3.1 Cost Containment and Conflict Resolution

The Commission finds that offering the permittee an option to fund the cost for implementation, independent monitoring, technical oversight, and remediation of the mitigation projects provides a solution to the permittee's concerns about the open-ended nature of these costs in the 1991 conditions. The permittee's basis, in part, for seeking amendment of the 1991 conditions is to identify and cap costs, resolve condition interpretation disagreements with Commission staff and establish new deadlines for compliance. The Commission finds that the conditions cannot be amended as proposed. However, these concerns underlying the proposed amendment can be addressed by establishment of a fund option. Under the fund option the permittee's outlay of funds at the outset is limited and subsequent outlays are tied to specified milestones. Thus, there are no surprises — the costs are fixed and the permittee's responsibility for Conditions A, C, and D are satisfied when the monies are provided in accordance with the funding option in Condition D.²⁸

In addition, the funding option will resolve long standing, costly, time consuming disputes between staff, other resource agencies, and the permittee as to permit interpretation, monitoring, analysis of results, and likely future conflicts over remediation. At the same time, the funding option eliminates the potential conflict of interest that may arise for the permittee if faced with the decision of whether to maximize profits by minimizing mitigation costs or provide full remediation. The SONGS owners have repeatedly expressed concern about the unpredictability and potential escalation of future costs for the marine mitigation program. The Commission has addressed this issue by incorporating into Condition D the

²⁸ The Commission added a requirement in Condition C for the permittee to pay \$3.6 million for a mariculture/fish hatchery program operated by the State (see Condition C, section 3). These hatchery funds are a separate requirement that is not optional and are therefore not included in the funding option in Condition D.

option for a \$114.05 million (plus interest) payment for the permittee's entire mitigation responsibilities for Condition A, Sections 1 and 2 of Condition C and Sections 1 through 3 of Condition D. The Commission finds that through the funding option the objectivity of the Condition D oversight and monitoring structure is retained and that cost certainty is provided to the permittee.

3.2 Balancing the Risk of Fixing the Permittee's Costs

As explained in IV-A, Section 3 above, the permittee now operates SONGS Units 2 and 3 under a new ratemaking paradigm. For the short-term (the next 8 years), SONGS is a relatively protected utility asset. By way of the funding option, the Commission provides the permittee with the means to fix its entire mitigation implementation, monitoring, oversight, and remediation costs for Condition A, Sections 1 and 2 of Condition C and Sections 1 through 3 of Condition D. In electing the funding option, the permittee gains the highest possible degree of financial certainty for the SONGS mitigation package. At the same time, since the Commission has carefully and thoroughly estimated the costs of implementing the conditions, the affected resources benefit by the implementation of the most appropriate, feasible mitigation.

On the other hand, as more fully explained elsewhere within these findings, whether the estimated costs will be sufficient to cover the actual costs of project implementation is uncertain. There is an unavoidable risk that the costs of full mitigation through this process will be higher than currently estimated. However, the Commission, by means of the funding option contained in revised Condition D, balances the uncertainty of future mitigation costs with the ability to move forward with the stalled mitigation projects. If remediation costs for the kelp bed and the wetland project site(s) exceed the permittee's payment provided in the funding option for unforeseen reasons, the Commission could not seek additional funds from the permittee in the future. On the other hand, the permittee would no longer have a profit motive to reduce mitigation obligations; thus, the Commission finds that on balance the resources would receive maximum benefits.

3.3 Funding Mechanism

In discussions with the permittee regarding the funding option concept, the permittee indicated that a funding option would be infeasible if it required the permittee to pay the entire cost estimate in one lump sum. The Commission's funding option addresses the permittee's request by allowing the permittee to make partial payments to the Funds established by Implementing Entities in accordance with specified deadlines. After the permittee elects the funding option, the Executive Director will enter into Memoranda of Agreement with the Implementing Entities to establish: (1) Funds into which the permittee will make payments and from which the Implementing Entities will pay project expenditures, (2) the responsibilities and authorities of each party, and (3) the approvals

required prior to expenditures of monies in the Funds to ensure that the mitigation projects and monitoring and oversight activities are carried out consistent with the requirements of Conditions A, C and D. After the designated Implementing Entities have created the accounts that will constitute the Funds, the permittee will be required to make scheduled payments into the Funds. The payments are based on when the Implementing Entities will need money to carry out aspects of the condition requirements. The permittee is responsible for paying the interest that would be accrued on the \$114.05 million had the permittee paid the amount in one lump sum upon the election of the funding option.

All of the funds from the permittee's internal accounting will be disbursed to the Implementing Entities not later than December 30, 2003, which coincides with the end of the CPUC settlement period during which the monies will be collected from the ratepayers. The wetland and reef mitigation projects will require large transfers of funds to initiate the construction phases. The monitoring and oversight activities will require approximately equal distribution of funds over the first five years of the projects. Interest will accrue to the funds to neutralize the effect of inflation during the period in which the funds are held. The interest rate used in the funding option, the 6-month U.S. Treasury bill rate, is a standard governmental rate and is a fair indicator of the effect inflation will have on the current-day cost estimates.

During the process of the October and November 1996 hearings, the permittee made two suggestions²⁹ concerning interest accruals for the funding option which the Commission finds it cannot accept. First, the permittee stated that the amount of the fund **includes** any and all interest. In other words, while interest would accrue to the funds held by the permittee, the specified total amount would be the **maximum** that the permittee would be liable to pay. The Commission's cost estimate of \$114.05 million is for the actual expected costs if the projects, monitoring and oversight — which span a period of approximately 30 years — were to occur in 1997. There is no "escalator" built into this estimate because it is not possible to accurately determine what economic effects will occur over the next 30 years. The purpose of interest accrual equivalent to the 6-month U.S. Treasury bill rate is to cover the anticipated increase in actual costs due to inflation. Thus, limiting the permittee's total pay-out to today's cost estimate would result in a fund amount that will not cover the actual costs of implementing the condition requirements.

Second, the permittee stated that the index used as the basis for interest accrual should be the annual percentage change in the Gross Domestic Product Implicit Price Deflator determined by the U.S. Department of Commerce, Bureau of Economic Analysis. This index is used in many contracts and in several laws as an escalator to adjust costs or prices from those relevant for one period to those relevant for another period, as is the overall Consumer Price Index. However, when commenting on the funding option the Bureau of Economic Analysis recommended that the Implicit Price Deflator not be used as

²⁹ SONGS Permit Amendment - Alternate Proposal and Conditions, November 4, 1996.

a measure of price changes because it is unsuitable for this type of project and because it reflects not only changes in prices but also changes in the commodities included in the deflator index.³⁰

The funding option also requires the permittee to enter into a letter of credit once the entities who will carry out the mitigation projects are identified. This is necessary because the implementing entities need assurance of funding before they begin major work. If the permittee were to pay the entire fund amount at the time it elects the funding option, the implementing entities would know they have the necessary monies before beginning the planning, permitting, and construction processes. However, to address the permittee's concerns, the funding option allows the permittee to pay the costs of the mitigation projects over time rather than in one lump sum. This has the potential to dissuade otherwise willing entities from seeking to implement the projects because they would be in the position of preparing plans and obtaining permits without knowing for certain that funds for construction would definitely be available. The letter of credit provides the necessary assurance to these entities and thereby insures that the Commission will be able to secure entities to implement the mitigation projects.

3.4 Estimated Costs

Cost estimates for the funding option are for the entire SONGS mitigation package for Conditions A, C, and D (except for the \$3.6 million required to be paid for the mariculture/fish hatchery program) and include: (1) the costs for designing, permitting and constructing a wetland restoration project or projects consistent with the requirements of Condition A, and a kelp reef mitigation project (including an experimental and mitigation reef(s)) consistent with the requirements of Condition C, including costs for any necessary remediation and such additional monitoring or site inspections as may be needed to evaluate the success of the remediation; (2) the costs for technical oversight and review incurred by technical personnel retained by the Executive Director of the Commission to assist in carrying out its oversight of the mitigation and monitoring activities, including costs for public review of the projects; and (3) the costs of planning and implementing the independent monitoring of both the wetland restoration mitigation project (Condition A) and the kelp reef mitigation project (Condition C). (See cost breakdown in Appendix F.)

The staff estimated costs in consultation with the State Coastal Conservancy, California Department of Fish and Game, JPA, University of California, Scientific Advisory Panel, independent consultants, and others, based on their past experience with these types of projects, and using the best information available at this time, including information

³⁰ Kurt Kunze, U.S. Department of Commerce, Bureau of Economic Analysis, personal communication, November 12, 1996; and Fact Sheet on Real Measures of GDP and Implicit Price Deflators, U.S. Dept. of Commerce, Bureau of Economic Analysis.

submitted by the permittee to the CPUC, and professional engineering estimates for San Dieguito Lagoon.³¹ The costs are summarized as follows:

Table 3: Funding Option Cost Estimates (in millions)

	Project Implementation	Remediation	Monitoring	Technical Oversight	TOTAL
Wetland Restoration	51.42	4.21	2.50	2.66	60.79
Experimental Reef	2.70	–	2.23	1.72	6.65
Mitigation Reef	32.91	8.23	3.35	2.12	46.61
GRAND TOTAL	\$87.03	\$12.44	\$8.08	\$6.50	\$114.05

The permittee states its reliance on the MRC and Commission staff's 1989 estimate of \$29 million, excluding monitoring costs, for the mitigation projects. These estimates were for construction and land purchase alone; they did not include the costs for planning, permitting, monitoring, technical oversight, and remediation. Further, the estimates were never intended to be precise cost estimates for implementing the mitigation projects, but were meant as a basis for comparing costs of mitigation with alternatives such as constructing cooling towers.

The funding option wetland costs are based on the alternative San Dieguito Lagoon wetland plan developed by Moffat & Nichol at the request of the State Coastal Conservancy and the San Dieguito River Park Joint Powers Authority (JPA). The San Dieguito plan provides the only sound, compelling basis for the fund valuation for five key reasons. The plan is:

1. Tailored to the site selected by the permittee and approved by the Commission specifically for compliance with the SONGS wetland mitigation requirements;
2. Based on critical, thoughtful input from the Department of Fish and Game, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and other resource agencies;
3. Strongly supported by the primary land owner and manager, the JPA;
4. Benefits from more refined engineering and other technical analyses than any other candidate site; and
5. Achieves efficient permit compliance after years of delay.³²

³¹ Wetland Restoration at San Dieguito Lagoon, Moffatt & Nichol Engineers, March 19, 1997..

³²The Commission has reviewed early drafts of the plan and it appears that the plan is likely to meet the Minimum Standards and Objectives of the permit. For instance, the plan includes extensive intertidal and subtidal areas, and results in minimal loss of existing wetlands. The plan also provides maximum overall ecosystem benefits and substantial fish habitat compatible with other wetland values at the site. Although the

The permittee contends that the San Dieguito site is too expensive and may seek permit compliance via an as yet unidentified project at a different site. While the permit provides a process to select a new site, Commission staff scientists have investigated other possible sites and identified significant deficiencies among the possible candidates. When these deficiencies are taken into account, it is apparent that the costs identified for the San Dieguito site are on par with costs that may be anticipated elsewhere. Potential alternative sites have other drawbacks:

1. The restoration plans of alternative sites (Example: Santa Ana River) are in extremely preliminary states and therefore costs estimates based on such plans may dramatically underestimate likely final costs; and
2. Restoration plans for alternative sites may not meet the SONGS permit requirements. (Example: Huntington Beach Wetlands where little "creation or substantial restoration of wetlands," as required by the SONGS permit, would occur. The plan would primarily result in enhancement of existing wetlands.)

Finally, the San Dieguito Lagoon site is the wetland site that meets the minimum standards and best meets the objectives of Condition A. No other site has been approved by the Commission pursuant to the site selection process. Condition A is being amended to reflect this to insure that the permittee proceeds with developing preliminary and final restoration plans for San Dieguito. Only if completion of the full 150 acres of substantial restoration or creation becomes infeasible at San Dieguito because of hydrology or other engineering concerns can the permittee pursue restoration at an additional site. Thus, the fund that is being established so that the Condition A requirements can be implemented by a third party is to be allocated in accordance with Condition A. The fund monies are to be spent on a wetland project that accomplishes 150 acres of substantial restoration or creation at San Dieguito unless technological feasibility issues require that part of the work occur at another site. Thus, since the restoration project must be carried out at San Dieguito even if it is conducted by a third party, it is appropriate to base the fund amount on the cost to implement the Moffatt & Nichol alternative plan at San Dieguito.

The Commission finds that the costs for the funding option to carry out the requirements of Condition A, Sections 1 and 2 of Condition C, and Sections 1 through 3 of Condition D have been reasonably estimated by professionals experienced with these types of projects, given the project information available at this time. Nevertheless, the Commission identifies the following limitations on the cost estimates for the funding option contained in Condition D:

total number of acres to be substantially restored or created is less than the 150 acres required, an allowance for partial credit for inlet maintenance (as approved by the Commission in its April 9, 1997 action) could bring the total to 150 acres.

1. All cost estimates are in 1997 dollars with no inflation or interest accrual adjustments. The estimates assume that the total amount of the monies required to be paid by the permittee begins to accrue compound interest at U.S. Government Treasury Bill rates upon the permittee's election of the funding option.
2. The cost estimates are based on costs necessary to carry out the wetland restoration and artificial reef mitigation projects and monitoring and technical oversight functions from this point in time. Funds already expended by the permittee or the Commission are not included in the estimates and cannot be deducted from the total amount.
3. The cost estimates are germane only to the funding option, and should not be relied on by the permittee to justify limits to its financial obligation for implementing the permit conditions should the permittee not elect the funding option, or for any other reason.

4.0 COASTAL ACT CONSISTENCY: CONCLUSION

The Commission acknowledges that the performance of large-scale mitigation projects such as wetland restoration and artificial reef construction are subject to a considerable degree of uncertainty. Project performance must be monitored thoroughly and objectively and the results impartially interpreted to guide remediation decisions. The need to make significant mid-stream corrections based on monitoring results is anticipated. The decision of whether to expend resources to perform remediation is, therefore, a function of the interpretation of — and quality of — monitoring results. To ensure adequate remediation, and thereby successful permit compliance, the Commission finds it necessary to protect the objectivity of the monitoring data collection and interpretation.

The Commission concludes that uncertainty is expected, and independent monitoring, oversight, and management are essential to achieve mitigation results consistent with the requirements of Coastal Act Sections 30230, 30231, and 30233. Therefore, the Commission finds that the independent administrative structure set forth in Condition D provides the best means to ensure that the permittee's mitigation program is adequate to mitigate the adverse environmental effects upon marine resources caused by the operation of SONGS Units 2 and 3, consistent with the requirements of Coastal Act Sections 30230, 30331 and 30233.

Further, based on the permittee's own forecasts and the operating record of SONGS, and on the settlement approved by the CPUC (see Background section above), the permittee has already anticipated paying an amount similar to the fund amount to comply with the requirement of the permit. The Commission finds that the costs of permit compliance will not result in increased costs to ratepayers (as explained previously, the ratepayers will pay

the cost of SONGS mitigation built into the permittee's settlement with the CPUC, regardless of the outcome of this permit amendment) nor will the costs of permit compliance impair the permittee's ability to profitably operate SONGS Units 2 and 3 now or in the future (as explained previously, savings the permittee realizes on the SONGS mitigation requirements will be retained by the permittee as shareholder profits). Therefore, the Commission finds that the entire SONGS mitigation package, as provided for in the funding option in revised Condition D constitutes **feasible mitigation** consistent with the definition of feasibility set forth in Coastal Act Section 30108.

V. CEQA FINDINGS FOR RECOMMENDED CONDITIONS

Pursuant to section 21080.5(d)(i) of the California Environmental Quality Act (CEQA) and section 15252(b)(1) of Title 14, California Code of Regulations (CCR), the Commission may not approve a development project "if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment." In addition, pursuant to section 21004 of the CEQA and section 15040 of Title 14, CCR, "in mitigating or avoiding a significant effect of a project on the environment, a public agency may exercise only those express or implied powers provided by law other than this division."

For the reasons indicated in the previous sections of these findings, the Commission finds that there are no feasible alternatives or feasible mitigation measures that, within the constraints imposed by applicable legal authority, are available which would substantially lessen any significant adverse impact which the activity may have on the environment, other than those identified herein.

VI. FINDINGS ON PRELIMINARY PLANS FOR COMPLIANCE WITH CONDITIONS A AND C

A. BACKGROUND

The permittee has submitted three mitigation plans along with the proposed amendment, stating that "[t]he mitigation plans are submitted with the amendment request due to the critical interrelationships between the conditions and the mitigation program. The rationale for the requested amendments can be understood only in the context of the plans intended to implement them, thus they must be reviewed and considered together."

Procedurally, however, the submitted plans must be evaluated separately. Separate consideration is required because the permit special conditions must be evaluated relative to the Coastal Act, whereas plans required by a special condition are evaluated relative to that special condition. This section addresses whether the plans comply with condition requirements. The Coastal Commission is not at this time approving a coastal

development permit for implementation of each plan. The Commission is simply determining whether the submitted plans comply with the respective condition requirements. For clarity, each plan is discussed separately.

B. DENIAL OF THE SAN DIEGUITO WETLANDS PRELIMINARY PLAN

The permittee submitted a preliminary plan for undertaking wetland mitigation within San Dieguito Lagoon. The preliminary plan is entitled *Preliminary Plan: San Dieguito Wetland Restoration Project*³³ (1996) (hereafter referred to as the “San Dieguito Wetlands Plan”). The San Dieguito Wetland Plan describes a project to create and substantially restore wetland habitat within San Dieguito Lagoon, as well as enhance existing wetland habitat. Enhancement is primarily achieved through maintenance of the lagoon inlet to allow for continual tidal flow through the lagoon (in perpetuity).

Prior to the first hearing on the amendment package the Commission staff reviewed and evaluated the preliminary plan and developed revisions to the plan. Subsequently, the owners and managers of a majority of the land (the San Dieguito River Park Joint Powers Authority or JPA) determined that the preliminary plan did not satisfy the agreement between the permittee and the JPA. The JPA therefore refused to authorize the permittee to carry out the plan at the San Dieguito Lagoon site (see Exhibit 6). Accordingly, the permittee has no authority to implement its preliminary plan at San Dieguito.

The Commission must approve a preliminary plan that can be finalized and eventually implemented. Thus, consideration of a preliminary plan that the permittee has no authority to implement would not be consistent with Condition A. The preliminary plan submitted by the permittee contains some of the elements required by Condition A, and has the potential to eventually be approved by the Commission if revised. However, in the absence of any evidence that the plan can ever be carried out, it would be premature for the Commission to suggest such revisions. Therefore, the Commission rejects the San Dieguito Wetland Plan on the grounds that it does not comply with Condition A.

C. DENIAL OF THE ORMOND BEACH WETLAND SITE

The permittee has proposed to fund restoration of the Ormond Beach wetland according to the South Ormond Beach Wetland Restoration and Management Plan (the “Ormond Plan”). Although Condition A identifies Ormond Beach wetland as one of the sites available for wetland mitigation, the plan as submitted does not contain many of the elements required in a preliminary plan, according to Condition A, Section 1.2, as revised. For example, the submitted plan does not provide a conceptual design that includes proposed

³³ Submitted by Southern California Edison Company August 16, 1996. In Submittal to Amend and Fulfill Certain Conditions of Coastal Development Permit No. 6-81-330 (SONGS Units 2 & 3); Volume II of III; Section I. 48 pp.

grading plans or proposed habitat types. In addition, critical components, such as establishing a tidal connection with Mugu Lagoon, are dealt with in a superficial way. Hydrologic studies to determine if tidal restoration is possible have not been completed, and there are no drawings of where the channel will go, or how much of Ormond Beach would become tidal wetland.

Furthermore, the plan lacks the authority of the U.S. Navy to establish a tidal channel between Ormond Beach wetland and Mugu Lagoon.

For all of these reasons, the Commission rejects the South Ormond Beach Wetland Restoration and Management Plan. Given that the preliminary plan lacks so much detail, the Commission cannot suggest revisions at this time. Furthermore, since the permittee proposed the Ormond Beach Plan in conjunction with the San Dieguito Plan, and because the San Dieguito Plan has been rejected by the Commission, it is unclear whether the permittee intends to proceed with the Ormond Beach Plan. For this additional reason, it is premature for the Commission to suggest revisions.

D. COMPLIANCE OF THE EXPERIMENTAL ARTIFICIAL REEF PRELIMINARY PLAN WITH AMENDED CONDITION C

The permittee submitted a plan for construction of an experimental artificial reef to fulfill Condition C. The plan, entitled *San Onofre Marine Mitigation Program: Experimental Reef for Kelp*³⁴ (hereafter referred to as the "Experimental Reef Plan"), describes a project to create a 16.8 acre artificial reef to test the design parameters necessary for providing a persistent giant kelp forest and associated ecosystem.

The Commission finds that the Experimental Reef Plan complies with the criteria and standards in amended Condition C, section 1.0 (experimental reef), only if revised. The following revisions are required to ensure the plan complies with Conditions C:

- 1) The plan shall be revised to include the results of a detailed side-scanning sonar and substrate profile survey necessary to determine the appropriate location and height of hard substrate deposited as part of the experimental reef.

1.0 THE ARTIFICIAL REEF PRELIMINARY PLAN COMPLIES WITH AMENDED CONDITION C

The plan proposes an experimental approach to determine the feasibility of various reef designs, construction materials, and locations near SONGS for the purpose of providing

³⁴ Submitted by Southern California Edison Company August 16, 1996. In Submittal to Amend and Fulfill Certain Conditions of Coastal Development Permit No. 6-81-330 (SONGS Units 2 & 3); Volume II of III; Section J. 12 pp.

suitable habitat to replace kelp bed resources. The plan is logical in its approach, and covers a wide range of options. Execution of this plan should provide much of the information needed to design a successful mitigation reef that compensates for the kelp bed resources lost due to the operation of SONGS Units 2 and 3 as required by Condition C, as amended.

The Commission finds the Experimental Reef Plan as revised meets many of the site assessment criteria established in Condition C. The Experimental Reef Plan proposes a project that: (1) is located as near as possible to the SOK, and between Dana Point (Orange Co.) and Carlsbad (San Diego Co.); (2) results in minimal disruption of natural reef or cobble habitats and sensitive or rare biotic communities; (3) is located at a depth locally suitable for kelp growth and recruitment; (4) is located near a persistent natural kelp bed; (5) is located away from sites of major sediment deposition; (6) would minimize interference with vessel traffic; (7) is located away from power plant discharges, waste discharges, dredge spoil deposition sites, and activities of the U. S. Marine Corps; and (8) will not interfere with known historic cultural sites. Revision of the plan to include a detailed substrate survey is required to determine if the proposed site contains substrate suitable for the deposition of rock and/or concrete.

ATTACHMENT, EXHIBITS, AND APPENDICES IN SEPARATE PACKAGE