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ADDENDUM TO COMMISSION PACKET

FOR

ENERGY, OCEAN RESOURCES and

FEDERAL CONSISTENCY

For Thursday, June 12, 2008

Item No. Th 17a **E-06-013**

Poseidon Resources (Channelside) LLC

- Staff Modifications
- Ex Parte Communications
- Correspondence

Item Th17a
Recommended Revised Findings for Coastal Development Permit E-06-013
Poseidon Resources (Channelside), LLC

STAFF MODIFICATIONS

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105- 2219
VOICE AND TDD (415) 904- 5200
FAX (415) 904- 5400

Th17a

June 11, 2008

TO: Coastal Commissioners and Interested Parties

FROM: Alison J. Dettmer, Deputy Director, Energy, Ocean Resources, and Federal Consistency Division
Tom Luster, Staff Environmental Scientist, Energy, Ocean Resources, and Federal Consistency Division

SUBJECT: Addendum to E-06-013 – Poseidon Resources (Channelside) LLC – Carlsbad Desalination Facility

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This addendum includes a Staff Note, several recommended modifications to the Revised Findings, correspondence received pursuant to those Findings, and a Commissioner *ex parte* form. The Staff Note discusses several of the main components of issues Poseidon raised in its May 29, 2008 letter to the Commission and Exhibit A of that letter (referred to herein as "*Requested Revisions*").

As shown in this Staff Note, staff has already included many of Poseidon's requested changes in staff's recommended Revised Findings. These Findings also include, to the extent allowed by the Commission's decision, suggested changes from Poseidon's November 15, 2007 *Suggested Basis for Adopted Findings* (attached following the Staff Note and recommended revisions). Staff modified or added to some of the language Poseidon requested be included in the Findings to more fully support the Commission's authority and its decision. Additionally, staff has recommended some relatively minor modifications to the Revised Findings as shown in this Addendum after the Staff Note. However, these recommended Revised Findings do not include a number of Poseidon's proposals as staff believes many of Poseidon's requested changes:

- Would conflict with the Commission's authority or with its decision on the project;
- Would limit the Commission's ability to review required mitigation plans;
- Are not supported by the record; or,
- Are otherwise not appropriate to include in the Commission's Adopted Findings.

Staff's current recommended Revised Findings reflect changes made pursuant to discussions with Poseidon since withdrawal and postponement of the previous proposed Findings in May. These current Findings incorporate many of the changes that Poseidon requested, although the changes were not always made verbatim and are sometimes accompanied with additional information needed to provide a more complete reading of the Project record and basis for the Commission's decision. When these most recent Findings were published, staff understood that there was just one area of contention Poseidon wished to address before the Commission – i.e.,

the Project's nonconformity to Coastal Act Section 30233(c) and the resulting use of the Section 30260 "override" – however, Poseidon's May 29, 2007 letter identifies several additional issues and requests numerous additional changes to the Findings.

Staff believe that Poseidon's proposed changes fall within four main areas of disagreement between Commission staff and Poseidon regarding the grounds for the Commission's action:

- First, staff believes the record indicates that the Commission found the project to be inconsistent with Section 30233(c)'s restrictions on alterations to certain coastal wetlands, which include Agua Hedionda Lagoon. The original staff recommendation stated that the project is inconsistent with Section 30233(c) and the hearing transcript does not indicate that any Commissioner disagreed with this conclusion.

- Second, as a consequence of staff's conclusion that the Commission found the project to be inconsistent with Section 30233(c), staff believe the "override" findings under Section 30260 are a necessary basis for the Commission's action, not simply an additional, but not legally required, reason for the Commission's action.

- Third, Poseidon has requested language regarding the regulatory jurisdiction of the air board and the water boards. Staff believe the record establishes that the Commission rejected Poseidon's arguments regarding how the "primary jurisdiction" of these other agencies might restrict the Commission's regulatory authority.

- Fourth, Poseidon has requested language that could have the effect of restricting the Commission's and Commission staff's evaluation of the required marine life mitigation plan and the energy minimization and greenhouse gas reduction plan. Commission staff does not believe the record supports restricting the Commission's future review of the plans.

Several of these concerns are described further in the accompanying Staff Note. Staff therefore recommends the Commission approve the Findings as submitted by staff on May 22, 2008 and as modified in this Addendum.

STAFF NOTE

The discussion below addresses some of the main issues Poseidon identified in its May 29, 2008 letter to the Commission.

POSEIDON'S ISSUE 1 – CHANGES NOT IN STAFF'S APRIL 24 RECOMMENDED REVISED FINDINGS: Poseidon makes the following claims in its May 29, 2008 letter, Issue 1, page 5:

1A) **POSEIDON CONTENDS:** That the Findings do not include changes staff indicated would be included in the Revised Findings.

STAFF RESPONSE: Although Poseidon's cover letter doesn't specify what changes it is referring to, the requested changes Poseidon identified under "Issue 1" in its *Requested Revisions* include the following:

- References to the Project EIR and to the Project entrainment study (see Poseidon's *Requested Revisions* at pages 4, 19, 27, 54, 55, 57, 58, and 85): these are addressed below under Issue 2.
- References to Project conformity with Coastal Act Section 30233(c) and associated dredging concerns (see Poseidon's *Requested Revisions* at pages 89 and 93): these are addressed below under Issue 3.
- References to the Project's expected greenhouse gas emission factor (see Poseidon's *Requested Revisions* at pages 114-15): these are addressed below under Issue 4.

As shown below, staff in some instances modified language requested by Poseidon or included additional information to more fully support the Commission's decision or more fully substantiate the record.

1B) **POSEIDON CONTENDS:** That the Findings include changes that were neither requested by Poseidon nor included in the previous version of the Findings.

STAFF RESPONSE: Some of the changes that Poseidon requested to the previous version of the Findings were incomplete, for example, Poseidon's references to the Project EIR that are discussed in greater detail below. Where staff believed that additional information was necessary in order to make Poseidon's requested change an accurate or complete reflection of the record, staff added that additional information to the Findings.

POSEIDON'S ISSUE 2 – ENTRAINMENT, IMPINGEMENT, DISCHARGE AND MARINE LIFE MITIGATION: Poseidon makes the following claims and requests in its May 29, 2008 letter, Issue 2, pages 5-6:

2A) **POSEIDON CONTENDS:** That the analyses in the Findings are based on the Project operating as a co-located facility rather than as a stand-alone facility.

STAFF RESPONSE: This is the opposite of what is used as the basis for the Findings. For example, staff's recommended Revised Findings at page 3 state:

> *" …the analyses in these Recommended Findings are based on these 'stand-alone' operations."*

Additionally, staff's recommended Revised Findings at page 17 state:

> *"These Findings evaluate Poseidon's proposal as a 'stand-alone' facility* ***and the analyses herein are based on the coastal resource impacts that would result from the 'stand-alone' projec****t."* [emphasis added.]

Staff therefore recommends the Commission adopt staff's recommended Revised Findings.

2B) **POSEIDON CONTENDS:** That the Findings "do not provide many citations to the numerous evidentiary submissions in the record that show the Project would not have a significant effect on marine life if operating as a stand-alone facility." Poseidon specifically cites the project EIR, which found that the Project would not cause significant impacts to marine life.

STAFF RESPONSE: The Findings include numerous references to the requested citations. Staff's recommended Revised Findings include at least ten references to the Project EIR's conclusions (including pages 3, 16, 22, 32-33, 42, 45, 46, 47, 65, and 105). In several instances, staff included in the Findings additional information Poseidon submitted that supports the Commission's decision to require mitigation for the Project's effects on marine life. For example, the Findings explain that the EIR had been certified before Poseidon provided results of its entrainment study showing its water use would result in a loss of estuarine productivity equal to about 37 acres – e.g., at page 22:

> "*The proposed project was the subject of CEQA review conducted by the City of Carlsbad, and the Final EIR, certified by the City on June 14, 2006, addressed the potential stand-alone operation of the facility and concluded that such a facility would not result in any new significant adverse environmental impacts. After the EIR was certified in June 2006, Poseidon provided Commission staff in 2007 with results of its entrainment study showing impacts roughly equal to the loss of productivity from 37 acres of wetlands and open water in Agua Hedionda Lagoon.*"

Staff believe it is appropriate and necessary to include this additional information in the Findings because the entrainment study was part of the record before the Commission and because the Commission required, through **Special Condition 8**, that Poseidon

submit the full study as part of the Commission's review and approval of a Marine Life Mitigation Plan.[1]

Staff therefore recommends the Commission adopt staff's recommended Revised Findings.

2C) **POSEIDON CONTENDS:** That the above references to the Project EIR support a Commission finding that the Project is consistent with Coastal Act Sections 30230 and 30231.

STAFF RESPONSE: Poseidon's contention is incorrect. As noted above, an entrainment study completed after certification of the EIR that Poseidon provided to the Commission shows the project would cause a 37-acre loss of estuarine productivity. As a result of this identified impact, the Commission required Poseidon through ***Special Condition 8*** to provide its full entrainment study and develop a mitigation plan for further Commission review and approval. Staff believe the Commission found the Project consistent with Coastal Act Sections 30230 and 30231 due to this additional information through imposition of ***Special Condition 8***, not simply due to the EIR's conclusions. Adopting Poseidon's position would detract from the Commission's ability to ensure the Project is adequately mitigated to minimize adverse effects on marine life.

Staff therefore recommends the Commission not adopt Poseidon's requested changes.

2D) **POSEIDON REQUESTS:** That the Findings state "the Project's design and technology features that are expected to substantially lessen any impacts to marine life..."

STAFF RESPONSE: The Findings describe those features. The Findings describe several of these features, including low flow velocities and screening to reduce impingement (see staff's recommended Revised Findings at pages 42-43). The Findings also describe three measures Poseidon requested be added to the Findings – its proposed reliance on ongoing power plant operations, potential modifications to the intake system, and differences in how estuarine water is processed through a power plant and through a desalination facility – however, as described in the Findings (at pages 43-44), these measures are not supported by the record.

Staff therefore recommend the Commission adopt staff's recommended Revised Findings.

[1] We note, too, that at least one of Poseidon's requested changes would misstate the facts before the Commission. At page 4 of its *Requested Revisions*, Poseidon recommends the Commission find that the EIR determined this 37-acre impact was less than significant. However, as shown in the record, the EIR did not address the entrainment study's conclusions regarding the 37-acre adverse effect.

2E) **POSEIDON REQUESTS:** That the Findings describe "how the Project will not have significant discharge-related impacts and that the Project's discharge is under the jurisdiction of the Regional Water Quality Control Board…" Poseidon also made a similar request on page 5 of its November 15, 2007 *Applicant's Suggested Basis For Findings*.

STAFF RESPONSE: The Findings include the requested statement. The Findings include several references to the Regional Board's jurisdiction over the Project's discharges and further state that in reliance on the Board's NPDES permit, the Commission finds the project's discharges will result in minimal adverse effects. For example, the Findings at page 68 state:

> "*The Regional Board studied the project's anticipated discharge before issuing the project's NPDES permit, and determined that permitted discharge levels would comply with applicable federal Clean Water Act criteria and the California Ocean Plan's water quality objectives and beneficial use requirements. The Board determined that an average daily effluent limitation of 40 ppt for salinity would protect the Plan's identified beneficial uses. The NPDES permit also includes monitoring and reporting requirements to ensure compliance with its effluent limitations.*[2]
>
> *As noted previously, Poseidon states in its November 9, 2007 letter that the project's NPDES permit and the Regional Board's eventual final approval of Poseidon's Flow, Entrainment and Impingement Minimization Plan will ensure that the proposed facility uses all feasible measures to avoid and reduce these discharge-related impacts. Further, the Board's approval is necessary before the facility can operate. Because the Board's final approval would include such findings and would ensure that the project's discharges conform to relevant requirements of the federal Clean Water Act and the water quality objectives of the state's Ocean Plan, the Commission therefore finds that project-related discharges result in minimal adverse effects to water quality and marine life.*"

Staff therefore recommends the Commission adopt staff's recommended Revised Findings.

2F) **POSEIDON REQUESTS:** That the Findings describe "how the alternative intake systems considered by the Commission are environmentally inferior to the Project and infeasible."

STAFF RESPONSE: The Findings include the requested conclusion. Staff's recommended Revised Findings include several pages describing various alternative intakes, including both subsurface and offshore systems (see pages 49-56). The Findings further state that those alternative systems are infeasible and/or would cause greater adverse impacts than

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[2] See Poseidon Resources Corporation, *Response to Staff Report, November 9, 2007*, Exh. A, at p. 12; NPDES Permit, Regional Board Order R9-2006-0065 at 12, F-18, F-37 (Attachment 1 to Poseidon Resources Corporation, *Response to California Coastal Commission's September 28, 2006 Request for Additional Information*, November 30, 2006).

the Project's proposed use of the power plant intake. For example, the Findings on page 54 state:

> "*In reviewing the EIR, Poseidon's documentation of potential environmental impacts, costs, and site-specific constraints of these alternative intakes, and based on the above**, the Commission finds that subsurface intakes would be infeasible and cause greater adverse impacts***." [emphasis added.]

Additionally, the Findings state on page 69:

> "*As noted above**, the Commission has determined that alternative intakes that might avoid or minimize environmental impacts are infeasible or would cause greater environmental damage***." [emphasis added.]

Staff therefore recommend the Commission adopt staff's recommended Revised Findings.

2G) **POSEIDON CONTENDS:** That the Findings "do not explain in detail the mitigation measures the Applicant has considered, and the habitat restoration plan that the Applicant has proposed…"

STAFF RESPONSE: The Findings include extensive discussion of these measures and plan. Staff's recommended Revised Findings include several pages of discussion of these measures and the proposed plan (see, for example, pages 48-64). Please note that the potential benefits of several of the measures and the plan Poseidon considered were not supported by the record and continue to be speculative, as Poseidon has not yet committed to them and the Commission has not yet required them through an approved plan. For example, as noted above in Comment 2D, the Findings describe three measures as being speculative or not supported by the record – its proposed reliance on ongoing power plant operations, speculative modifications to the intake system, and potential differences in entrainment mortality rates due to different processes in a power plant and a desalination facility.

Staff therefore recommends the Commission adopt staff's recommended Revised Findings.

2H) **POSEIDON REQUESTS:** That the Findings show that "with the imposition of Special Condition 8, which requires the Applicant to submit for approval a Marine Life Mitigation Plan that identifies specific mitigation measures, implementation plans and compliance monitoring, the Project's entrainment impacts will be more than fully mitigated and that biological productivity of coastal waters, wetlands, and estuaries will be enhanced and restored in compliance with Coastal Act Sections 30230 and 30231."

STAFF RESPONSE: The Findings include the requested conclusion. See staff's recommended Revised Findings, pages 69-70:

> "*Therefore, to ensure Poseidon provides adequate compensatory mitigation for the proposed project's marine life impacts and to conform to Coastal Act Sections*

*30230 and 30231, **Special Condition 8** requires Poseidon to submit to the Commission for review and approval a Marine Life Mitigation Plan. This Plan must document the project's expected impacts to marine life caused by entrainment and impingement and identify the types and amounts of mitigation best suited to address those impacts. It must also provide mitigation to the maximum extent feasible in the form of creation, enhancement, or restoration of aquatic and wetland habitat and must include standard mitigation measures, including acceptable performance standards, monitoring, contingency measures, and legal mechanisms to ensure permanent protection of the proposed mitigation site(s). The coastal development permit will not be issued until the Commission approves a mitigation plan meeting these requirements. Further, to ensure the identified marine life impacts do not exceed those identified through development of this mitigation plan, **Special Condition 9** requires Poseidon to obtain an amendment of its coastal development permit before any increase in its average seawater flows of 304 MGD.*

Therefore, based on the studies cited and the information provided above, the Commission finds that the project as conditioned, conforms to Coastal Act Sections 30230 and 30231."

Staff therefore recommends the Commission adopt staff's recommended Revised Findings.

POSEIDON'S ISSUE 3 – DREDGING AND LAGOON SEDIMENTATION:

Please note that staff has combined Issue 3 and Issue 5 from Poseidon's letter, as shown later in this Staff Note.

POSEIDON'S ISSUE 4 – ENERGY MINIMIZATION AND GREENHOUSE GAS REDUCTION: Poseidon makes the following claims and requests in its May 29, 2008 letter, Issue 4, page 7:

4A) **POSEIDON REQUESTS:** That the Findings include Poseidon's position that it is the California Air Resources Board rather than the Commission that has jurisdiction over the Project's indirect greenhouse gas emissions. Poseidon also requests the Findings describe the required *Energy Minimization and Greenhouse Gas Reduction Plan* as voluntary.

STAFF RESPONSE: Poseidon's requested language would not reflect the Commission's decision on this Project. Staff did not include Poseidon's requested language in the Findings, as it does not reflect the Commission's decision requiring Poseidon to prepare an *Energy Minimization and Greenhouse Gas Reduction Plan* for further Commission review and approval.[3] As shown in the Findings, the Plan is needed to reduce potential impacts to numerous coastal resources caused by greenhouse gas emissions. In the same vein, the Findings do not include Poseidon's request to characterize its Plan as "voluntary", as this would contradict the Commission's decision to not accept the Plan Poseidon proposed in November but to instead require submittal of a new Plan.

Staff therefore recommends the Commission not adopt Poseidon's requested changes.

4B) **POSEIDON REQUESTS:** That the Findings include additional documentation of Poseidon's position regarding its expected carbon dioxide emissions.

STAFF RESPONSE: The Findings include extensive documentation of Poseidon's position. Staff believes Poseidon is referring here to two areas of the Findings – one related to Poseidon's expected greenhouse gas emission factor and the other related to Poseidon's proposed "crediting" approach:

- **Re: the emission factor –** Staff's recommended Revised Findings at pages 85 and 92-95 already describe in detail the differences between Poseidon's figure (about 546 pounds of carbon per megawatt-hour) and staff's estimate (about 800 pounds per megawatt-hour). With the Commission's decision requiring Poseidon to submit an *Energy Minimization and Greenhouse Gas Reduction Plan*, this difference will be more fully detailed and resolved through the Commission's upcoming review and does not need to be resolve as part of these Findings. Additionally, the emission factor that will determine Poseidon's emissions will change every year. Therefore, the Findings now state, at page 95:

  "*…because SDG&E reports its overall emission rate on an annual basis and that rate changes based on the particular mix of electricity sources SDG&E uses each*

[3] For similar reasons, staff recommends the Commission not adopt Poseidon's requested language at pages 45-46 of its *Requested Revisions* that describe Poseidon's views on the regulatory authority of the Commission and the State and Regional Water Quality Boards. The Commission clearly disagreed with Poseidon's view, through both the Commission's discussion at the November 15, 2007 hearing and in its decision; therefore staff believe it is not appropriate to include Poseidon's view in the Commission's Adopted Findings.

year, the rate that would be used to determine Poseidon's greenhouse gas contributions each year is at this point unknown but will be determined through Commission review and approval of Poseidon's Energy Minimization and Greenhouse Gas Reduction Plan as described later in these Findings."

Staff notes that Poseidon has requested this statement be deleted and that the Commission instead adopt language referencing Poseidon's figure of 546 pounds per megawatt-hour. For several reasons, staff recommends the Commission not adopt this requested language. As noted above, staff's recommended Revised Findings correctly reflect that the emission factor is not a fixed number but is expected to change each year. This is illustrated most recently by the change in SDG&E's certified emission factor from last year's 546 pounds per megawatt-hour to the May 2008 publication of its CCAR-certified rate of about 780 pounds per megawatt-hour. This is within about 3% of the estimate staff provided in November 2007 and is about 43% higher than the figure Poseidon is requesting the Commission adopt in the Findings. Further, Poseidon has already cited this updated figure in its most recent (May 2008) draft *Energy Minimization and Greenhouse Gas Reduction Plan*, so Poseidon's above request would conflict with the approach it has already used in developing the Plan required by the Commission.

Staff therefore recommends the Commission adopt staff's recommended Revised Findings.

- **Re: Poseidon's proposed "crediting" approach** – Poseidon had proposed in its initial emission reduction plan in November that it be "credited" with emission reductions that could accrue if the State Water Project pumped less water to San Diego because of the Project; however, staff had noted a number of concerns with this proposed approach. Staff's recommended Revised Findings address this issue by stating that the Commission's imposition of **Special Condition 10** and its review and approval of a revised Plan will ensure that Project operations are "net carbon neutral." However, in recognition that the Commission's upcoming review of a revised Plan will include additional description of this "crediting" issue, staff recommend one change at page 95 of the Revised Findings, as shown later in this Addendum. This change would clarify that it is Commission staff rather than the Commission that concluded this approach was not warranted. This will allow the Commission to fully address the issue as part of its upcoming Plan review.

  For this "crediting" issue, staff therefore recommends the Commission adopt staff's recommended Revised Findings as modified in this Addendum.

4C) **POSEIDON REQUESTS:** That the Findings clarify that **Special Condition 10**, which requires Poseidon to submit for Commission review and approval an *Energy Minimization and Greenhouse Gas Reduction Plan*, will result in the Project's compliance with Coastal Act Section 30253(4).

STAFF RESPONSE: The Findings include the requested statement. See staff's recommended Revised Findings at pages 99-100:

> "*The Commission finds that imposition of **Special Condition 10** will ensure that Poseidon minimizes energy consumption of the project and mitigate any effects of the project's emissions on coastal resources. Therefore, as mitigated and conditioned, the project is consistent with the requirement of Section 30253(4) and other relevant Coastal Act provisions.*"

Staff therefore recommends the Commission adopt staff's recommended Revised Findings.

POSEIDON'S ISSUES 3 & 5 – DREDGING AND LAGOON SEDIMENTATION / SECTION 30260 COASTAL-DEPENDENT "OVERRIDE" Poseidon makes the following claims and requests in its May 29, 2008 letter, Issues 3 & 5, pages 6-7:

3A) **POSEIDON REQUESTS:** That the Findings clarify that the Commission's approval "does not authorize dredging of the Agua Hedionda Lagoon [and] that the Applicant will need to apply for a new Coastal Development Permit to conduct dredging activities in the Lagoon…"

STAFF RESPONSE: The Findings already reflect Poseidon's request, as shown in the examples below:

- **Special Condition 12** states:

  > "*This permit does not authorize dredging that may be needed to maintain flows to the desalination facility's intake structure. The Permittee shall submit separate coastal development permit applications for proposed dredging operations.*"

- Staff's recommended Revised Findings, at page 75, state:

  > "***Special Condition 12** clarifies that the Commission's approval at this time does not authorize Poseidon to conduct any dredging and that future proposed dredging activities will require submittal of new coastal development permit applications for the Commission's further review and approval.*"

Staff therefore recommends the Commission adopt staff's recommended Revised Findings.

3B) **POSEIDON REQUESTS:** That the Commission find "any dredging by the Applicant subject to the issuance of a separate CDP would serve to benefit the Lagoon because it would preserve existing marine resources, research, fishing, public access and recreational activities that would cease if regular dredging stopped and the Lagoon returned to its natural state of stagnant 'stinky water'". Poseidon cites previous Commission approvals for maintenance dredging in the Lagoon as the basis for this requested change.

STAFF RESPONSE: Poseidon's requested language is not consistent with the Commission's decision and is not supported by the record. Although Poseidon had asked in November 2007 that the Commission "pre-approve" future dredging projects Poseidon might need to implement, the Commission instead required through **Special Condition 12** that Poseidon submit separate CDP applications for any proposed dredging. With the above request, Poseidon is asking the Commission to pre-judge potential dredging proposals that are not yet before it.

Poseidon has additionally requested the Revised Findings describe a number of benefits it contends would result from future dredging activities. Although benefits may accrue due to dredging by Poseidon or other entities, those possible benefits are entirely speculative at this time. The actual realized benefits from a proposed dredging project depends on the specific location, timing, and volume of dredged materials, selection of a disposal site, and other components the Commission considers as part of its review of a proposed project. A given proposal may or may not support the benefits Poseidon cites – for example, dredging done primarily to maintain an intake channel is likely to result in entirely different benefits (and impacts) than dredging done to create or expand various habitat types. Poseidon is not at this time proposing a dredging project and has not provided a detailed dredging proposal; therefore, it is not possible to say what benefits (or impacts) might accrue. Poseidon refers to previous Commission approvals of dredging in Agua Hedionda; however, those previous approvals were based on the Commission reviewing specific, detailed dredging proposals to determine whether they conformed to applicable Coastal Act policies.

Additionally, there is nothing in the record showing that Poseidon has the ability or obligation to dredge. Instead, the record shows that the lagoon is owned by Cabrillo Power, the power plant owner, which, as noted on pages 77-78 of the Findings, has stated its intent "to continue its dredging and maintenance activities for the foreseeable future."[4]

Staff therefore recommends the Commission not adopt Poseidon's requested changes.

[4] We note that Poseidon acknowledges this on page 6 of its *Requested Revisions* where it states "dredging activities for the foreseeable future are the responsibility of the power plant owner."

3C) **POSEIDON REQUESTS:** That the Findings state that **Special Condition 12**, which requires a new CDP application for any proposed dredging, allows the Project to conform to Coastal Act Section 30233 and that it "is not otherwise inconsistent with Coastal Act Section 30233." Poseidon also contends that the Commission found the Project consistent with Coastal Act Section 30233, and that the Commission found it did not need to make "override" findings pursuant to Coastal Act Section 30260.

STAFF RESPONSE: Poseidon's requested language is not supported by the record or consistent with the Commission's decision. The Findings show that the Project is subject to Section 30233(c)'s limits on the types of alterations allowed in Agua Hedionda. Section 30233(c) states, in relevant part:

> "*Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures,[and] nature study…*"

As noted in the November 2, 2007 staff report, Poseidon presented information to the Commission showing that the Project would alter the lagoon by withdrawing estuarine water and organisms and cause an adverse effect equal to the loss of about 37 acres of the lagoon's productivity, and this alteration would not fall within any of Section 30233(c)'s three allowable uses – "very minor incidental public facilities", "restorative measures", or "nature study". Staff's current recommended Revised Findings reach the same conclusion.

For several reasons, Poseidon's requested language would not reflect the Commission's decision:

- The Project record supports staff's recommended Revised Findings and does not support Poseidon's proposed approach. As noted above, the original November 2007 staff report described the proposed project as not conforming to Section 30233(c)'s use limitations, and the current recommended Revised Findings make the same conclusion. The record shows that this nonconformity was not changed during the hearing. Additionally, as noted previously, staff has included in the current Revised Findings, to the extent supported by the Commission's decision, Poseidon's November 15, 2007 *Applicant's Suggested Basis For Findings*. That document suggested alternative findings related to dredging but did not suggest alternative findings to change this nonconformity to Section 30233(c)'s use limitations. As a result, in accordance with the Project record and in support of the Commission's decision, the current Revised Findings show that the Project does not conform to Section 30233(c)'s use limitations. However, the current Revised Findings do include, as suggested in Poseidon's *Applicant's Suggested Basis For Findings*, the Commission's conclusion that the Project is a "coastal-dependent industrial facility"

and that the Commission was therefore able to "override" the Project's nonconformity to Section 30233(c) through application of Section 30260.[5]

- It is not necessary for the Commission to adopt Poseidon's position in order to approve the Project. As noted above and in the Revised Findings, the Commission's determination that the Project is a "coastal-dependent industrial facility" allowed it to apply the three tests of Section 30260 and thereby approve the project despite its nonconformity to Section 30233(c). In applying those three tests, the Revised Findings show the Commission found (1) that alternative locations would be infeasible; (2) that the Project would be mitigated to the maximum extent feasible; and (3) that it would not be in the public welfare to deny the Project.

Staff therefore recommends the Commission adopt staff's recommended Revised Findings.

ISSUE 6 – OTHER MODIFICATIONS TO SUPPORT COMMISSION APPROVAL:
Poseidon's claims and requests in Issue 6, pages 7-8 of its May 29, 2008 letter include:

6A) **POSEIDON REQUESTS:** That the Findings include a section titled "Need for the Project."

STAFF RESPONSE: The Findings include the requested language. Poseidon had proposed language be included as part of the Project Description; however, to provide support for the Commission's decision, staff instead included it as part of the "Public Welfare" findings under Section 30260 (see pages 107-08 of the Revised Findings).

Staff therefore recommends the Commission adopt staff's recommended Revised Findings.

6B) **POSEIDON REQUESTS:** That the Findings change a reference to the costs of imported water and delete a description of additional infrastructure that would be needed to move the Project's produced water onto the regional distribution system.

STAFF RESPONSE: Poseidon's proposed changes to water costs are not supported by the record. Poseidon proposes the Findings state that the cost of imported water is $700. However, the record shows the water districts that have contracted with Poseidon have identified imported water costs ranging from about $250 to $700. Additionally, Poseidon's proposed deletion of the infrastructure description is also not supported by the record. As stated in the Findings, information from the San Diego County Water

[5] We note, too, that Poseidon's most recent request on this issue conflicts with what it presented at the November; however, staff's recommended Revised Findings resolve this inconsistency. Poseidon's *Applicant's Suggested Basis For Findings* suggests that Coastal Act Section 30233 does not apply because the Project does not include dredging. Not only does this suggestion ignore the use limitations of Section 30233(c) that apply to the Project, it conflicts with Poseidon's more recent request (at pages 6 and 92 of its Requested Revisions) that the Commission apply Section 30233(c) and find that Poseidon's dredging is an allowable use. Staff's recommended Revised Findings not only conform to the record before the Commission but also eliminate this inconsistency.

Authority shows that additional infrastructure would be needed to physically move water from the Project to the regional distribution system.

Staff therefore recommends the Commission adopt staff's recommended Revised Findings.

6C) POSEIDON REQUESTS: That the Findings state that with regards to CEQA, "there are no new significant adverse effects of the project, and no new information involving new significant adverse effects has been presented."

STAFF RESPONSE: The record does not support this change. As noted above, after the EIR was certified, Poseidon provided results of its entrainment study showing a 37-acre loss of productivity in Agua Hedionda lagoon. The City of Carlsbad, which was the CEQA lead agency, has confirmed that it did not consider this information in the EIR. As noted previously, the Commission considered this study in its deliberations and imposed **Special Condition 8** to address the identified impacts.

Staff therefore recommend the Commission not adopt Poseidon's proposed changes.

STAFF RECOMMENDED MODIFICATIONS TO THE REVISED FINDINGS

As shown below in ~~strikeout~~ and **bold underline**:

Cover Page, Attachment 4:

"April ~~14~~ **30**, 2008 letter**s** from Latham & Watkins regarding Recommended Revised Findings"

Page 97, first paragraph, first sentence:

For several reasons, however, ~~the~~ Commission ~~finds~~ **staff believe** this "crediting" approach does not appear warranted.

-

633 West Fifth Street, Suite 4000
Los Angeles, California 90071-2007
Tel: +213.485.1234 Fax: +213.891.8763
www.lw.com

LATHAM & WATKINS LLP

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November 15, 2007

VIA HAND DELIVERY

Chairman Kruer and Honorable Commissioners
California Coastal Commission
North Central Coast District
45 Fremont, Suite 2000
San Francisco, CA 94105-2219

Agenda Item Th7a

Re: CDP Application No. E-06-013 (Poseidon Resources (Channelside) LLC / Cabrillo Power II LLC, Construction and Operation of Seawater Desalination Facility)

Dear Chairman Kruer and Honorable Commissioners:

Late yesterday we received the Addendum to the Staff Report. Although we have had only limited time to review the Addendum, we note that it has numerous inaccuracies and inconsistencies with information previously submitted by the Applicant. We therefore are submitting in response at Exhibit A information intended to address issues that are raised in the Addendum and to provide the Commission with a basis for finding that the Project is consistent with all relevant Coastal Act and Carlsbad Local Coastal Plan policies. *See* Exhibit A, Applicant's Suggested Basis for Findings. We request that the Staff Report be modified to reflect the information contained in Exhibit A.

In addition, at Exhibit B we have attached an updated list of the Applicant's Requested Additions to Substantive File Documents. We originally included this document as Exhibit E to our November 9, 2007 Response to the Staff Report. We have updated the list to include our submissions since November 9, 2007.

We look forward to your consideration of this important Project today.

Sincerely,

Rick Zbur
of LATHAM & WATKINS LLP

Attachments:

Exhibit A	Applicant's Suggested Basis for Findings
Exhibit B	Requested Additions to Substantive File Documents

cc: Peter MacLaggan

EXHIBIT A

CDP Application No. E-06-013
Poseidon Resources (Channelside) LLC
Carlsbad Desalination Facility

Agenda Item
Th 7a

APPLICANT'S SUGGESTED BASIS FOR FINDINGS

The Commission finds that Coastal Development Permit Application No. E-06-013, Poseidon Resources Corporation's (the "Applicant") Carlsbad Desalination Project (the "Project"), is consistent with all relevant Coastal Act and Carlsbad Local Coastal Plan ("LCP") policies and should be approved subject to the Applicant's Proposed Coastal Development Permit Conditions submitted to the Commission on November 15, 2007. The Commission instructs Staff to prepare Revised Findings, including findings of consistency with all relevant Coastal Act and Carlsbad LCP policies, based upon the materials included by Applicant, including but not limited to those dated November 30, 2006, January 19, 2007, February 2, 2007, June 1, 2007, July 16, 2007, October 8, 2007, October 9, 2007, October 21, 2007, November 9, 2007, November 15, 2007 and the Proposed Special Conditions submitted herewith. In general, the Commission finds that the Project complies with all relevant Coastal Act and LCP policies and finds that, to the extent there is information in the original Staff Report or the Addendum to Staff Report that is contrary to the information provided by the Applicant, the substantial weight of the evidence supports the Applicant's position. Information from the Applicant's submissions should be added to the Revised Findings to support the Commission's findings. In addition to these general overall findings, the Commission makes the more specific findings described below.

2.5: CONFORMITY TO APPLICABLE COASTAL ACT POLICIES

2.5.1: Protection of Marine Life (Coastal Act Sections 30230 & 30231):

A *Anticipated Project Impacts and Coastal Act Conformity – Intake-Related*

1. **Adverse Impacts Caused by Poseidon's Intake:**

a) Impingement: The City of Carlsbad's Environmental Impact Report ("EIR") determined that under the "No Power Plant Operation" scenario, the Project would have an intake flow velocity that would not exceed 0.5 feet per second, and that under these operating conditions the Project "would not result in significant impingement effects." *See* EIR Section 4.3. The Applicant has prepared a Flow, Entrainment and Impingement Minimization Plan ("Minimization Plan") in accordance with its San Diego Regional Board Water Quality Control Board ("Regional Board") issued National Pollutant Discharge Elimination Service ("NPDES") Permit (Regional Board Order No. 2006-0065). The Minimization Plan provides that the Project,

when operating stand-alone, is expected to impinge approximately 1.92 pounds of fish per day, less than the average daily consumption of an adult pelican (more than 2.5 pounds per day).

b) Entrainment: The EIR determined that, under the No Power Plant Operation scenario, the Project would entrain between 0.6 – 34.1 % (depending on species) of the fish larvae in the source water and that this amount of loss of larval fish due to entrainment "would have no significant effect on the source water populations [ability] to sustain themselves." *See* EIR Section 4.3.

Similarly, the Applicant's Minimization Plan applies the Empirical Transport Model and concludes that the Project, when operating stand-alone, would entrain approximately 12% (average across species) of the fish larvae in the source water, and that, based on the Area of Production Foregone method, this corresponds to a maximum, conservative impact estimate of approximately 36.8 acres of lagoon habitat. The Minimization Plan concludes that this amount of entrainment "would have no effect on the species' ability to sustain their populations because of their widespread distribution and reproductive potential." The Minimization Plan also found that "none of the entrained organisms are listed as threatened or endangered species." The Applicant's submissions dated July 16, 2007 and November 9, 2007 provide additional analysis regarding potential entrainment-related impacts and the same conclusions.

2. **Mitigating the Impacts Caused by Poseidon's Use of an Estuarine Open Water Intake:**

a) **Avoiding and Minimizing Impingement / Entrainment Impacts:**

(1) **Alternative Intake Systems:** The EIR analyzed the feasibility and environmental impact of several types of alternative intake systems pursuant to the Modified Intake Design Alternative. The EIR concluded that the use of horizontal wells, vertical beach wells and infiltration galleries in lieu of the Project's proposed use of the EPS intake system was either infeasible and/or had greater environmental impacts than the proposed Project. *See* EIR at Section 6.3.

(a) Beach slant wells: As described in the Applicant's submissions dated November 30, 2006, February 2, 2007, June 1, 2007, October 17, 2007 and November 9, 2007 and the Minimization Plan, Poseidon reviewed and conducted analyses that show that site-specific conditions render subsurface slant wells infeasible for the Project, due to the poor quality and quantity of water available, and that construction of such an intake would require numerous above-ground structures on public beaches, having significant public access, viewshed, and other impacts to coastal resources.

(b) Seabed Infiltration Gallery: As described in the Applicant's submissions dated July 16, 2007, October 8, 2007, October 17, 2007 and November 9, 2007, construction of a seabed infiltration system would require construction and ongoing maintenance in over 3 miles of sensitive seabed that would cause the loss of 150 acres of offshore habitat and would cost more than $646 million.

(c) Offshore Intake: As described in the Applicant's submissions dated October 8, 2007, October 17, 2007 and November 9, 2007, an offshore intake would shift any Project-related impacts to a more environmentally sensitive area and construction and ongoing maintenance of such an intake would cause significant impacts to marine resources.

(d) **Alternative Intake Systems Conclusion**: Based upon the Project EIR, and the Applicant's submissions dated November 30, 2006, February 2, 2007, June 1, 2007, July 16, 2007, October 8, 2007, October 17, 2007 and November 9, 2007 and the Minimization Plan, the Commission finds that alternative intakes would result in greater environmental impacts than the proposed Project and/or are infeasible at the Project site due to site-specific water supply conditions and/or are infeasible due to increased costs of such intake systems.

(2) **Technological / Operational measures:** The Applicant's Minimization Plan provides that, upon Regional Board approval, Poseidon will implement as technological measures such as installing variable frequency drives on the desalination plant intake pumps to minimize the amount of intake flow entrained into the desalination plant, and operational measures including operating the intake pumps so as to minimize the flows collected for desalination. Poseidon is required to obtain the Regional Board's approval of the Minimization Plan. Implementation of the Minimization Plan and **Special Condition 4**, which requires Poseidon to obtain final approvals from the Regional Board prior to the commencement of construction, will ensure that marine resources are maintained and that the biological productivity of Agua Hedionda Lagoon is sustained in conformity with Coastal Act Sections 30230 and 30231.

b) **Mitigating Project-related Impacts:** The Applicant's Minimization Plan and submissions dated July 16, 2007 and November 9, 2007 provide that entrainment impacts, at a conservative maximum estimate, have the potential to impact 36.8 acres of lagoon habitat.

Special Condition 8 requires that Poseidon prepare and implement a Marine Life Mitigation Plan that shall provide for the restoration of no less than 37 acres of marine wetlands, more than the maximum 36.8 acres that may be impacted if the Project operates stand-alone in the future. Upon the Regional Board's approval, the Marine Life Mitigation Plan will provide for the restoration of 37 acres of marine wetlands within the San Dieguito Wetland Restoration Plan that was approved by the Commission on October 12, 2005 (CDP No. 6-04-88), or such substitute site or sites as approved the Regional Board. The Plan will provide for an implementation protocol that includes monitoring and annual performance review for five years or until performance criteria are met. **Special Condition 8** ensures that any Project-related entrainment impacts will be more than fully mitigated, and that marine resources and the biological productivity of coastal waters, wetlands and estuaries will be enhanced and restored in compliance with Coastal Act Sections 30230 and 30231.

B *Anticipated Project Impacts and Coastal Act Conformity – Discharge-Related*

1. **Description of Impacts:** The Regional Board studied the Project's discharge before issuing the Project's NPDES Permit (Regional Board Order No. 2006-0065). The Regional Board considered the discharge impacts of the Project and conditioned all potential discharge-related impacts to ensure compliance with Clean Water Act and California Ocean Plan requirements. The Ocean Plan contains water quality objectives and beneficial uses for ocean waters of California. The beneficial uses of ocean waters include industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated areas of special biological significance; rare and endangered species; marine habitat; fish migration; and fish spawning and shellfish-harvesting. The Regional Board determined that an average daily effluent limitation of 40 parts per thousand for salinity would protect beneficial uses of the Ocean (including protection of fish habitat) and ensure that no salinity-related toxicity effects would occur in receiving waters. The NDPES Permit establishes extensive monitoring and reporting requirements to ensure compliance with this effluent limitation.

2. **Commission Finding:** In reliance on the Regional Board's determinations in issuing the Project's NPDES Permit as is required pursuant to Coastal Section 30412, the Commission finds that the Project's discharge is conditioned such that it will not cause adverse impacts to marine resources. The Permit, along with its extensive monitoring and reporting requirements, ensures that the Project's discharge would not harm marine resources and thus would maintain marine biological productivity and resources and minimize entrainment in conformance with Coastal Act Sections 30230 and 30231.

C *Marine Impacts – Conclusion:* In accordance with the discussion above, the submissions of the Applicant's submissions dated November 30, 2006, February 2, 2007, June 1, 2007, July 16, 2007, October 8, 2007, October 17, 2007 and November 9, 2007, the Project EIR, the Minimization Plan, and the Regional Board-issued NPDES Permit, the Commission finds that the Project, as conditioned, will not result in any significant environmental impacts, and that imposition of **Special Condition 8** (which requires that the Applicant restore no less than 37 acres of marine wetlands) will mitigate any environmental impacts of the Project operating stand-alone, and improve the marine environment compared to existing conditions. Even if and when the Plant is to operate on a stand-alone basis, impingement and entrainment impacts would not have a significant impact

on marine biological species, will be minimized pursuant to **Special Condition 4** so that marine resources are preserved and protected in conformance with Coastal Act Sections 30230 and 30231, and the imposition of Project **Special Condition 8** will not only fully mitigate any impacts but also will restore and enhance the marine environment in conformance with Coastal Act Sections 30230 and 30231.

2.5.2: Use of Wetlands and Coastal Waters (Coastal Act Section 30233)

A ***Project impacts to wetlands:*** The imposition of Project **Special Condition 12** ensures that the Applicant will apply for a new, separate CDP for any future dredging projects that it initiates and that this CDP, CDP No. E-06-013, does not authorize any dredging of Agua Hedionda Lagoon.

B **Commission Finding:** The Commission finds that the imposition of Project **Special Condition 12** ensures that the Applicant will apply for a new, separate CDP for any future dredging projects that it initiates. Because the CDP for the proposed Project, CDP No. E-06-013, does not authorize any dredging of the Lagoon, Coastal Act Section 30233 does not apply to the Project.

2.5.3: Public access (Coastal Act Sections 30210, 30211, 30212, 30212.5 and 30213)

A No suggested changes to Staff Report.

2.5.4: Energy Use and Greenhouse Gas Emissions (Coastal Act Section 30253(4))

A **Commission findings:** Section 30253(4) of the Coastal Act requires that development permit applicants "minimize energy consumption and vehicle miles traveled." The Project is part of the San Diego Regional Water Supply Master Plan, which will reduce the energy used, and attendant greenhouse gas emissions, to produce potable water in the region by 5-8.4% by 2030. In addition, Poseidon proposes to implement several measures to reduce the energy consumption of the Plant itself. According to the Applicant's submissions dated November 30, 2006, October 9, 2007, October 21, 2007, and November 11, 2007, these measures include (i) installation of an energy efficient energy recovery turbine that will decrease the amount of energy required by the facility by 10% or about 1,103 kWh/AF; (ii) installation of variable frequency drives on the intake water pumps of the desalination plant to improve the energy efficiency of these pumps; (iii) use of low-friction piping materials (FRP and HDPE) whenever possible to reduce head losses and related energy consumption through the piping; and (iv) implementation of as many of the LEED (Leadership in Energy and

Environmental Design) checklist items as are reasonably possible. These measures are discussed in detail in the Applicant's Climate Action Plan, submitted November 11, 2007. With the implementation of these measures, as memorialized in the Poseidon's Climate Action Plan and **Special Condition 10**, the Commission finds that the Project complies with Section 30253(4) because it significantly minimizes the energy consumption of the Plant.

B The Commission notes that in addition to discussing energy efficiency measures that the Project will implement, the Applicant's Climate Action Plan provides a commitment that Poseidon will render the Project "net carbon neutral" through measures such as development or investment in solar energy, creation of wetland habitat and purchase of carbon offsets and/or renewable energy credits. Because the California Air Resources Board has not yet imposed emissions standards on industrial facilities such as the proposed Project, the Commission may not require implementation of this aspect of the Climate Action Plan. To the extent that the Commission cannot require implementation of certain elements of the Climate Action Plan pursuant to the Commission's limited authority under Coastal Act Sections 30253(4) and 30414(a), the Commission finds that these elements of the Climate Action Plan are voluntary measures proposed by the Applicant as part of the Project. Nevertheless, once the Commission approves the CDP, the voluntary measures will become enforceable by the Commission upon Poseidon's acceptance of the CDP because of **Special Condition 10**.

2.5.5: Development and Public Services (Coastal Act Sections 30250 and 30254)

A The Carlsbad EIR examined potential growth inducing impacts of the Project and concluded that the Project would not cause any growth not already planned for. *See* EIR at Section 9. Similarly, submissions of the Applicant dated November 30, 2006 and November 9, 2007 provide that the Project is a central component of state, regional and local water supply planning to meet already-identified demand. The Applicant's submissions also provide that the only entity within the coastal zone that the Project will serve with drinking water is the City of Carlsbad. All other entities that have contracted to purchase water from the Project will utilize the water outside of the coastal zone. The city of Carlsbad has adopted a Growth Management Plan that aggressively manages and controls growth in Carlsbad; the Plan caps existing and future development and the maximum size of Carlsbad at 54,600 dwelling units. Carlsbad Municipal Code § 21.90.185. For these reasons, the Commission finds that the Project will not have growth inducing impacts within the coastal zone and is consistent with Coastal Act Sections 30250 and 30254.

3.0: California Environmental Quality Act

At the Commission Staff's request, the Carlsbad City Council added a section to its Final EIR to address "stand-alone" operation of the Project. In several locations in the Final EIR, in the City staff report, and in the proceedings before the City Planning Commission and the City Council, the possibility of the desalination facility's stand-alone operations due to the potential cessation of once-through cooling by EPS was discussed and analyzed. The Commission finds that at this time there is no "new" information for which a supplemental EIR is required. Further, as a certified regulatory program pursuant to Public Resources Code Section 21080.5, the Commission has the authority under the California Environmental Quality Act ("CEQA") to analyze the Project through its own process, and the Commission Staff Report satisfies the Commission's CEQA obligations. Commission Staff asked Poseidon for additional information on the Project to supplement the analysis in the EIR, including information related to the Project's future stand-alone operations, and Poseidon responded to all of Staff's requests for information.

Additional Findings to the Extent Necessary and Relevant:

A The Commission finds that the Project is a coastal-dependent industrial facility, as it needs to be sited on or adjacent to the sea in order to function at all.

B The Commission finds that the proposed Project is the most environmentally sensitive site and intake structure alternative.

C The Commission finds that denying the Project would significantly harm the public welfare because the Project is urgently needed to provide a reliable regional water supply, is necessary to replace threatened supplies of imported water on a one-to-one basis, and the Project includes significant public benefits including but not limited to implementation of the Marine Life Mitigation Plan (**Special Condition 8**), implementation of the Climate Action Plan (**Special Condition 10**) and dedication of more than 15 acres of coastal lands for public access (**Special Condition 11**).

D The Commission finds that the Project is a public-private partnership and that pubic entities will be adequately protected because the entire plant output has been appropriated for public use by public agency partners through long-term contracts, ensuring that the water will remain in the public domain. Since the public agency partners will control the allocation and use of the water produced by the Project, local decision-making and governmental oversight will be preserved.

E The Commission finds that the Applicant has provided substantial, reliable information related to its expected Project costs.

F The Commission finds that the Project is consistent with state, regional and local water plans and that these plans include all presently feasible measures to increase water supply through water conservation, reuse and recycling.

G The Commission finds that its authority is limited to assure consistency with requirements of the Regional Board, California Air Resources Board and California State Lands Commission in areas within their respective jurisdictions.

EXHIBIT B
UPDATED REQUESTED ADDITIONS TO SUBSTANTIVE FILE DOCUMENTS

APPENDIX A: SUBSTANTIAL FILE DOCUMENTS E-06-013

Bay, Steven, and Darrin Greenstein. Toxic effects of elevated salinity and desalination waste brine, Southern California Coastal Water Research Project, 1994.

California Coastal Commission. Seawater Desalination and the California Coastal Act, March 2004.

California Department of Water Resources. California Water Plan Update, 2005.

California Energy Commission. Issues and Environmental Impacts Associated with Once-Through Cooling at California's Coastal Power Plants, June 2005.

California Public Utilities Commission. San Diego Gas and Electric Company's Divesture of Electric Generating Assets – Environmental Review (No. 97-12-039).

California Public Utilities Commission. Initial Study for San Diego Gas & Electric Company's Application No. 97-12-039, October 13, 1998.

California State Lands Commission and U.S. Army Corps of Engineers. Draft Environmental Impact Report / Environmental Assessment – Agua Hedionda Northern Inlet Jetty Restoration, January 2005.

Carlsbad Watershed Management Plan, 2002.

City of Carlsbad. Certified Land Use Plan, adopted August 27, 1982.

City of Carlsbad. Final Environmental Impact Report for Precise Development Plan and Desalination Plant, EIR 03-05 – SCH #2004041081.

City of Carlsbad. Master Water Plan Update, March 2003.

Cooley, Heather, Dr. Peter Gleick, and Gary Wolff. Desalination, With a Grain of Salt, Pacific Institute, June 2006.

Dale, Larry, Camilla Dunham Whitehead, and Andre Fargeix. Electricity Price and Southern California's Water Supply Options, in *Resources, Conservation and Recycling*, Volume 42, Issue 4, November 2004.

Del Bene, J.V., Gerhard Jirka, and John Largier. Ocean brine disposal, in *Desalination*, Volume 97, 1994.

Dickie, Phil. Desalination: Option or Distraction for a Thirsty World, World Wildlife Fund, June 2007.

Gleick, Dr. Peter H., Heather Cooley, and David Groves. California Water 2030: An Efficient Future, Pacific Institute, September 2005.

Imam, Dr. Abdelghani, Samir Dweiri, Diego Fernandez & Dr. Paul Kent. Annex III: Desalination Costs, for the United States Agency for International Development, March 2007

Latham & Watkins. Letter to State Lands Commission Re: CEQA Issues Raised for Poseidon Project By Coastal Commission Staff, October 31, 2007.

Latham & Watkins. Letter to Chairman Kruer and Honorable Commissioners transmitting Proposed Special Conditions and Proposed Instructions to Staff Regarding Preparation of Revised Findings, November 15, 2007.

Latham & Watkins. Letter to Chairman Kruer and Honorable Commissioners transmitting Applicant's Suggested Basis for Findings and Updated Requested Additions to List of Substantive File Documents, November 15, 2007.

Lilien, Ben. Public Versus Private Ownership of Seawater Desalination Facilities, Stanford Environmental Law Clinic, June 2005.

McRae, Timothy. Coastal Desalination, "Coastal-Dependency" and the California Coast: How today's desalination proposals could affect tomorrow's coastline, publ. In prep. 2007.

Metropolitan Water District of Orange County. Dana Point Ocean Desalination Project, April 2007.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. Recovery Plan for U.S. Pacific Populations of the East Pacific Green Turtle (*Chelonia mydas*), 1998.

Peters, Thomas, Domenec Pinto, and Esteve Pinto. Improved seawater intake and pre-treatment system based on Neodren technology, in *Desalination* #203, 2007.

Planning and Conservation League. Investment Strategy for California Water, 2004.

Poseidon Resources Corporation. Application for Coastal Development Permit, August 28, 2006, including (but not limited to) attachments:

- **11 - Final Environmental Impact Report**
- **12 - Verification of All Other Permits or Approvals Applied for by Public Agencies**
  - **City of Carlsbad Resolution No. 2006-156 - EIR 03-05**
  - **City of Carlsbad Resolution No. 420 - RP 05-12**
  - **City of Carlsbad Ordinance No. NS-805 - SP 144 (H)**

- City of Carlsbad Ordinance No. NS-806 - PDP 00-02
- Planning Commission Resolution No. 6093 - SUP 05-04
- Planning Commission Resolution No. 6092 - CDP 04-41
- Planning Commission Resolution No. 6090 - DA 05-01 / Development Agreement, Finding of Fact
- CEQA Mitigation Monitoring and Reporting Program for the FEIR
- Planning Commission Resolution No. 6094 - HMPP 05-08
- Planning Commission Resolution No. 6088 - PDP 00-02
- Planning Commission Resolution No. 6091 - RP 05-12
- Planning Commission Resolution No. 6089 - SP 144 (H)

Poseidon Resources Corporation. Response to California Coastal Commission's September 28, 2006 Request for Additional Information, November 30, 2006, including (but not limited to) attachments:

- 1 - San Diego Regional Water Quality Control Board, Order No. R9-2006-0065 ("NPDES Permit")

Poseidon Resources Corporation. Response to California Coastal Commission's December 28, 2006 Request for Additional Information (including attachments), January 19, 2007.

Poseidon Resources Corporation. Transmittal of Analysis of Alternative Subsurface Seawater Intake Structures, Proposed Desalination Plant, Carlsbad, CA, Wiedlin & Associates (January 30, 2007), sent February 2, 2007.

Poseidon Resources Corporation. Response to California Coastal Commission's February 20, 2007 Request for Additional Information (including attachments), June 1, 2007.

Poseidon Resources Corporation. Appeal of California Coastal Commission's July 3, 2007 Notice of Incomplete, July 6, 2007.

Poseidon Resources Corporation. Response to California Coastal Commission's July 3, 2007 Request for Additional Information (including attachments), July 16, 2007.

Poseidon Resources Corporation. Additional Analysis of Submerged Seabed Intake Gallery (including attachments), October 8, 2007.

Poseidon Resources Corporation. Analysis of Offshore Intakes, October 8, 2007, including attachments:

- Scott A. Jenkins, Ph.D. and Joseph Wasyl. Comparative Analysis of Intake Glow Rate on Sand Influx Rates at Agua Hedionda Lagoon: Low-Flow vs No-Flow Alternatives, September 28, 2007.

- J.B. Graham, S. Le Page and D. Mayer. Issues Related to the Use of the Agua Hedionda Inlet Jetty Extension EIR to Recommend An Alternative Seawater Intake for the Carlsbad Desalination Project, October 8, 2007.

Poseidon Resources Corporation. Coastal Habitat Restoration and Enhancement Plan (including attachments), October 9, 2007.

Poseidon Resources Corporation. Updated Response to Coastal Commission's September 28, 2006 Request for Additional Information, Section 13, CDP Energy Use, GHG Production & Mitigation, October 9, 2007.

Poseidon Resources Corporation. Transmittal of Intake Cost Estimates, October 17, 2007.

Poseidon Resources Corporation. Climate Action Registry CO2 Conversion Calculation, October 18, 2007.

Poseidon Resources Corporation. Updated Response to Coastal Commission's September 28, 2006 Request for Additional Information, Section 13, CDP Energy Use, GHG Production & Mitigation, October 21, 2007.

Poseidon Resources Corporation. Transmittal of GHG Emission Baseline Protocol, October 22, 2007.

Poseidon Resources Corporation. Transmittal of SDG&E GHG CCAR Report 2005, October 22, 2007.

Poseidon Resources Corporation. Carlsbad Desalination Project Briefing Package, CDP Application No. E-06-013, November 2007.

Poseidon Resources Corporation. Transmittal of Garibaldi Study and Coastal Development Permit for Southern California Edison and San Dieguito River Valley Joint Powers Authority's San Dieguito Wetland Restoration Plan, November 7, 2007.

Poseidon Resources Corporation. Letter to Chairman Kruer and Honorable Commissioners Attaching Draft Proposed Conditions of Approval, November 7, 2007.

Poseidon Resources Corporation. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use, November 8, 2007, including the following attachments:

- Carlsbad Municipal Water District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 7, 2007.

- Valley Center Municipal Water District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 6, 2007.

- Rincon del Diablo Municipal Water District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 6, 2007.

- Rainbow Municipal Water District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 6, 2007.

- Sweetwater Authority. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 6, 2007.

- Vallecitos Water District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 6, 2007.

- Santa Fe Irrigation District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 7, 2007.

- Olivenhain Municipal Water District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 6, 2007.

Poseidon Resources Corporation. Letter to T. Luster Transmitting State Lands Commission Hearing Presentation, November 8, 2007.

Poseidon Resources Corporation. Letter to Chairman Kruer and Honorable Commissioners: Response to Staff Report and Exhibits A-E, November 9, 2007.

Poseidon Resources Corporation. E-mail to Tom Luster transmitting updated Climate Action Plan, November 11, 2007.

San Diego County Water Authority. 2006-2007 Annual Report.

San Diego County Water Authority. Draft Integrated Regional Water Management Plan, xx

San Luis Rey Municipal Water District. Final Programmatic Environmental Impact Report – Master Water Plan, August 2007.

Soil/Water/Air Protection Enterprise, LLC. Desalination White Paper: Reverse Osmosis Product Water Quality Issues and Present Regulatory Status, prepared for Environment Now, August 24, 2006.

State Desalination Task Force. Draft Desalination Task Force Report, September 2003.

State Water Resources Control Board. California Ocean Plan, 2005.

Steinbeck, John, John Hedgepeth, Peter Raimondi, Gregor Cailliet, and David Mayer. Assessing Power Plant Cooling Water Intake System Entrainment Impacts, prepared for the California Energy Commission, October 2007.

U.S. EPA. Water Quality Standards Handbook (Publication EPA-823-B-94-005), August 1994 as revised June 2007.

Valley Center Municipal Water District. Comprehensive Annual Financial Report Fiscal Year Ended June 30, 2006, xx

Voutchkov, Nikolay. Challenges and Considerations when Using Coastal Aquifers for Seawater Desalination, in *Ultrapure Water*, Volume 23:6, September 2006.

Voutchkov, Nikolay. The "Inconvenient Truth" About Desalination, in *American Membrane Technology Associates Newsletter*, Summer 2007

Wolff, Gary. The Economics of Desalination, Pacific Institute, September 9, 2006.

World Health Organization. Desalination for Safe Water Supply: Guidance for the Health and Environmental Aspects Applicable to Desalination, 2007.

Item Th17a
Recommended Revised Findings for Coastal Development Permit E-06-013
Poseidon Resources (Channelside), LLC

EX PARTE COMMUNICATIONS

Commissioner Blank

FORM FOR DISCLOSURE OF EX PARTE COMMUNICATIONS

Name or description of project , LPC, etc: Poseidon Resources Corporation
Carlsbad Desalination Facility
CDP E-06-013, Agenda Item Th13a

Date and time of receipt of communication: May 10; 2008, 12:15 a.m.

Location of communication: Menlo Park, CA

Type of communication (letter, facsimile, etc.): Telecon

Person(s) initiating communication: Rick Zbur, Latham & Watkins LLP

Detailed substantive description of content of communication:

We discussed the meaning of section 13096 (b) of the Coastal Regulations. ...

> If the commission action is substantially different than that recommended in the staff report, the prevailing commissioners shall state the basis for their action *in sufficient detail to allow staff to prepare a revised staff report* with proposed revised findings that reflect the action of the commission...

We discussed what "sufficient detail" means and how the Commission Staff's Recommended Revised Findings for the project's Coastal Development Permit interpret that clause.

May 10, 2008
Date

Commissioner Steve Blank

FORM FOR DISCLOSURE OF EX-PARTE COMMUNICATIONS

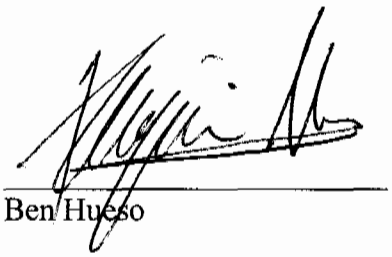
Name or description of the project:	Thursday 13.a. Application No. E-06-013 (Poseidon Resources (Channelside), LLC, Carlsbad)
Time/Date of communication:	12 pm, May 5, 2008
Location of communication:	San Diego
Person(s) initiating communication:	Gabriel Solmer, Bruce Reznik
Person(s) receiving communication:	Ben Hueso
Type of communication:	Meeting

Speakers urged denial of revised findings on the basis of:

- The findings do not support the decision
- The process must be reopened to provide Commissioners with accurate and new information

Requested that the prior project approval be rescinded and approvals stayed until a multi-agency process can be concluded.

Date: May 5, 2008



Ben Hueso

WED. ITEM 13A

DISCLOSURE OF EX PARTE COMMUNICATIONS

Name or description of project:
Poseidon Resources Carlsbad Desalination Facility (CDP# E-06-013)
Revised findings
Date and time of receipt of communication:
Saturday, May 3, 2008 @ 3:00 PM

Location of communication:
Santa Barbara

Type of communication:
Meeting

Person(s) in attendance at time of communication:
Susan McCabe, Rick Zbur (by phone)

Person(s) receiving communication:
Dan Secord

Detailed substantive description of the content of communication:
(Attach a copy of the complete text of any written material received.)

The applicant's representatives discussed concerns with the staff recommendation on the revised findings that followed the Commission's approval of the desalination project. They indicated that Poseidon Resources, the City of Carlsbad, and several of the public water district partners in the project have requested detailed revisions to the original findings for denial to reflect the substantial evidence in the record that was provided during the proceedings for the project supporting permit approval, to clarify how the permit is consistent with the Coastal Act, and to further reflect evidence that the special conditions will ensure the projects potential impacts to coastal resources are mitigated to the maximum extent feasible, all of which the applicant believes formed the basis for the Commission's approval of the permit. They explained that Poseidon is requesting that the Commission approve revisions to the findings jointly prepared by Poseidon, the City of Carlsbad, Carlsbad Municipal Water District and the Vallecitos Water District.

Date:

Signature of Commissioner: Dan Secord

Item Th17a
Recommended Revised Findings for Coastal Development Permit E-06-013
Poseidon Resources (Channelside), LLC

CORRESPONDENCE

Rick Zbur
Direct Dial: (213) 891-8722
rick.zbur@lw.com

633 West Fifth Street, Suite 4000
Los Angeles, California 90071-2007
Tel: +1.213.485.1234 Fax: +1.213.891.8763
www.lw.com

LATHAM & WATKINS LLP

FIRM / AFFILIATE OFFICES

Barcelona	New Jersey
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June 9, 2008

VIA EMAIL AND FEDEX

Mr. Tom Luster
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

File No. 036182-0006

Agenda Item Th17a

Re: Carlsbad Desalination Project Coastal Development Permit Application No. E-06-013, Item Th17a, June 12, 2008
Applicant's Response to May 6, 2008 Comments from Surfrider Foundation and San Diego Coastkeeper

Dear Tom:

On behalf of our client, Poseidon Resources (Channelside) LLC (the "Applicant"), we write to respond to Surfrider Foundation's and San Diego Coastkeeper's ("Opponents") May 6, 2008 comments (the "Opposition Letter") to Commission Staff's Recommended Revised Findings and the requested changes to those findings by the Applicant, the City of Carlsbad, Carlsbad Municipal Water District and Vallecitos Water District (the "Jointly Requested Findings"). We note that we received the Opposition Letter only recently from Commission Staff.

In the Opposition Letter, Opponents make numerous inaccurate and misleading claims, including the erroneous assertion that if Commission Staff does not address Opponents' prior comments in the findings for the Carlsbad Desalination Project's (the "Project") Coastal Development Permit (the "Permit"), then the Commission cannot approve the findings. No legal authority exists to support Opponents' contention; the Commission's obligation with respect to the findings is to adopt findings "that reflect the action of the commission."[1] Commission Staff prepared its Recommended Revised Findings and, to clarify the evidence supporting the approval, the Applicant made suggested changes to those findings in the Jointly Requested Findings that are consistent with the Commission's Permit approval and appropriate for adoption.

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[1] See Cal. Code Regs., tit. 14, § 13096, subd. (b).

In contrast to Opponents' claim that the Commission has approved only the Project's "concept," the Commission did in fact approve the Project's Permit at the November 15, 2007 hearing, along with Special Conditions requiring the Applicant to obtain Commission approval of certain mitigation plans before the Permit will issue. As we noted in our April 30, 2008 letter, it is consistent with Commission practice to approve a Coastal Development Permit ("CDP") and also to require subsequent review and approval of a mitigation plan by the Commission before the permit will issue.[2] Thus, it was proper and consistent with the Coastal Act regulations for the Commission to impose the Special Conditions at the November hearing, and to direct Staff to prepare revised findings that support the Commission's Permit approval.[3]

Commission Staff followed the Commission's instruction and prepared the Recommended Revised Findings, but the Applicant, the City of Carlsbad and the Applicant's municipal water district partners believed that the Recommended Revised Findings did not accurately and fully reflect all of the evidence supporting Commission's Permit approval. Accordingly, those parties prepared the Jointly Requested Findings to demonstrate clearly the significant amount of evidence the Commission considered and that formed the basis of its Permit approval. Rather than serving as a *post hoc* rationalization of the Commission's action, the Jointly Requested Findings provide a clearer, fuller and accurate articulation of the evidence supporting the Permit approval, and the Commission's action at the hearing, than the findings proposed by Commission Staff. Ultimately, it is up to the prevailing Commissioners to decide which proposed findings accurately reflect its action and the basis for its decision to approve the Permit.

We believe the Jointly Requested Findings accurately reflect the Commission's action at the November hearing, are supported by substantial evidence in the administrative record, and are appropriate for adoption by the Commission for the following reasons:

A. EIR References in Jointly Requested Findings

Opponents argue that the Commission cannot rely on the City of Carlsbad's Project EIR in making a determination about the Project's consistency with the Coastal Act, but that is not true. The Coastal Act does not prohibit the Commission from considering an EIR prepared by another agency in making its determinations, and the purpose of the Commission's findings is to

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[2] See CDP 1-06-022 (June 16, 2006), approving a CDP for a new state highway bridge over the Ten Mile River, but requiring the applicant to obtain subsequent Commission approval of various mitigation and compliance plans before that permit would issue.

[3] See Cal. Code Regs., tit. 14, § 13096, subd. (b) [requiring staff to prepare revised findings consistent with the Commission's decision if the Commission's action is substantially different from that recommended in the staff report]; Coastal Commission Reporter's Transcript of Proceedings, November 15, 2007, Agenda Item No. 7.a., at 319: 2-4 ["Commissioner Reilly: But, staff may need to look at [Applicant's] findings, and bring them into conformance with what we did, too."].

reflect the basis and rationale underlying its decision.[4] Moreover, it is the common practice of the Commission to review and consider CEQA documents prepared by the lead agency in connection with a project. The Project's EIR contains substantial evidence concerning the Project's environmental impacts, and it was therefore perfectly appropriate for the Commission to review and consider the EIR's factual and environmental conclusions. The EIR citations in the Jointly Requested Findings do not claim that the EIR is controlling over the Commission, but rather that it provides support for the Commission's finding that the Project is consistent with all applicable Coastal Act policies.

B. Compliance with Coastal Act Policies

Opponents argue that the Commission cannot both find the Project consistent with Coastal Act Section 30233 and with Coastal Act Section 30260, but they provide no basis in the law for their argument. The Coastal Act does not prohibit the Commission from making findings of consistency with both provisions. There is substantial evidence in the record supporting the fact that the Project is a coastal-dependent industrial facility subject to the benefits of Section 30260 and that supports all the findings required by Section 30260, and nothing prevents the Commission from finding the Project consistent with Section 30260 even if it also finds the Project consistent with all other applicable Coastal Act policies.

C. Role of the Regional Board

Contrary to Opponents' contention, the Jointly Requested Findings in no way limit the Commission's authority vis-à-vis the Regional Water Quality Control Board ("Regional Board") either with respect to the Project or future projects. The Jointly Requested Findings cite Coastal Act Section 30412(b), which expressly states that the State and Regional Board have "primary responsibility for the coordination and control of water quality," but the findings do not in any way modify the Commission's Special Condition 8, which allows the Commission to impose a mitigation plan to address the Project's marine impacts. Through Special Condition 8, the Commission has retained its authority to impose its own conditions and performance standards to address marine impacts and ensure conformity with the Coastal Act.

D. Lagoon Dredging

Opponents wildly speculate that if the existing power plant shuts down, then a "lagoon foundation" or an entity such as the State of California would step in to dredge Agua Hedionda Lagoon, or the power plant would dredge the Lagoon in perpetuity. Opponents provide no basis in the administrative record or otherwise for their speculation, nor have they shown in the administrative record or otherwise that any such entity has the legal obligation, financial capacity or inclination to continue dredging the Lagoon. In contrast, and as set forth in the administrative record and throughout the Jointly Requested Findings, the Applicant has committed to assuming

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[4] See *Topanga Ass'n for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 516 ["Among other functions, a findings requirement serves to conduce the administrative body to draw legally relevant sub-conclusions supportive of its ultimate decision . . ."].

stewardship of the Lagoon if and when the power plant ceases operations. Under those circumstances, it is perfectly reasonable for the Applicant to receive some credit for its beneficial maintenance of the Lagoon by dredging. Moreover, Permit Special Condition 12 prohibits dredging without a new Commission approval, and the Jointly Requested Findings therefore accurately show that the Applicant is not seeking any credit for dredging now.

E. The Project Will Not Induce Growth

The Opposition Letter presents a nonsensical argument that because the San Diego region may receive less water from the State Water Project and the Colorado River watershed in the future, water produced by the Project must therefore be growth inducing because, but for the desalinated water the Project would supply, there will be some "moratorium" on development in the Coastal Zone. First, Opponents ignore the fact that the administrative record demonstrates water from the Project will replace imported water from the State Water Project and therefore is necessary simply to maintain the water supply status quo given the State's emergency drought conditions. Second, Opponents overlook that the City of Carlsbad is the only city within the costal zone to which the project will supply potable water, and Carlsbad also has a Growth Management plan that limits its size to 54,600 dwelling units. Given that the water supplied by the Project would serve only this already planned and capped growth, the administrative record demonstrates that the Project cannot adversely affect coastal resources or induce growth in the Coastal Zone in a manner inconsistent with Coastal Act Sections 30250 and 30254. Third, any moratorium on development is pure speculation and was not discussed in the administrative record, and Opponents' argument that the Project would supply "new" rather than "replacement" water is without basis.

F. Water Pumping at Encina Power Station

Contrary to Opponents' assertions, the Jointly Requested Findings do not claim that the two units at the Encina Power Station, which will continue to operate indefinitely,[5] will require a consistent 528 MGD of water. The Jointly Requested Findings make clear that the two pumps have a capacity of 528 MGD, and that the Project will require 304 MGD of estuarine water to operate under its NPDES permit. Since the Project would continue to operate if the power plant drops below 304 MGD of intake, or if the plant ceases to operate, the Commission appropriately analyzed the Project's stand-alone impacts and concluded that the Project will be consistent with the Coastal Act under those conditions. Given the substantial evidence in the record that the power plant will continue to operate for some indefinite period, it was perfectly appropriate for

[5] At the October 2007 State Lands Commission hearing, a Cabrillo power plant representative stated that the generating units will be available for service indefinitely because the plant is subject to "Reliability Must Run" contracts with Cal-ISO, and that Cal-ISO would ultimately determine when the plant is no longer needed for grid reliability. See Staff's Requested Revised Findings, page 16.

the Commission to analyze and make findings of Coastal Act consistency with respect to both the Project's stand-alone operations and co-located operations with the power plant.

G. Porter-Cologne Act

Opponents wrongly contend that the Project's findings are invalid because they do not contain sufficient analysis with respect to Porter-Cologne Act Section 13142.5. As set forth in the Jointly Requested Findings and in the administrative record, the Regional Board has primary jurisdiction to determine the Project's compliance with the Porter-Cologne Act, and the Project's NPDES Permit states that the Board will determine whether the Project conforms to Porter-Cologne Act Section 13142.5. The Coastal Act expressly prohibits the Commission from taking any action in conflict with the Regional Board's ongoing jurisdiction over the Project.[6] The Commission imposed Special Condition 4 in its Permit approval to require the Applicant to submit the Regional Board's final Project approval to the Commission before construction can commence, and therefore ensured that the Regional Board will act on the Project before it is built. Opponents cite no authority for the position that the Commission cannot rely on the both the Regional Board's analysis and its own Special Condition 8, which will allow the Commission to impose mitigation measures to address the Project's potential impacts to marine life, in assuring compliance with the Porter-Cologne Act.

H. Garibaldi Will Not Be Significantly Impacted

Opponents argue that destruction of significant numbers of Garibaldi larvae would be illegal, and imply (without any foundation) that the Project would cause such destruction. As set forth in the Jointly Requested Findings, however, the Project's EIR found that any Project entrainment impacts on Garibaldi would be *de minimis*. Moreover, no state law prohibits a desalination facility that may unintentionally entrain Garibaldi, and the Commission imposed Special Condition 8 to ensure that any entrainment impacts are fully mitigated.

I. Carbon Neutrality

Contrary to Opponent's argument, Coastal Act Section 30253 does not require the Project to be net carbon neutral; it only requires minimization of energy consumption. The Applicant has agreed to minimize its energy consumption by imposing energy efficient technologies and energy recovery programs on site. Going beyond the requirements of Section 30253, the Project has voluntarily committed to render the Project net carbon neutral. Under this proposal, the Project would offset the carbon emissions related to the energy consumption used in the Project's desalination process, less the carbon emissions related to the energy consumption used in the pumping process for the imported water that the Project's water replaces. Opponents' confusing arguments about "new" water and "replacement" water are beside the point; the Jointly

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[6] See Coastal Act § 30412(b) ["The [Coastal] commission shall not . . . modify, adopt conditions, or take any action in conflict with any determination by the State Water Resources Control Board or any California regional water quality control board in matters relating to water quality..."].)

Requested Findings make clear that the Project will create water to replace water that is currently imported from the State Water Project and the Colorado River watershed. If water no longer needed by Poseidon's customers is imported for other purposes unrelated to the Project, responsibility for the associated carbon emissions are properly assigned to those other uses and not to the Applicant. Opponents' arguments to the contrary are meritless.

The Jointly Requested Findings are amply supported by substantial evidence in the administrative record, and accurately reflect the Commission's approval of the Permit. As demonstrated throughout this letter, Opponents' arguments concerning the record, the Permit approval and the Jointly Requested Findings are without merit and should be given no weight. Based on the aforementioned reasons, and the fact that the Jointly Requested Findings further support the Commission's basis and rationale for approving the Permit, the Applicant again requests that Commission Staff support and recommend the Commission adopt the Jointly Requested Findings.

Very truly yours,

Rick Zbur
of LATHAM & WATKINS LLP

Attachment

cc: Jan Driscoll, Esq.
Peter MacLaggan

These materials have been provided to the Coastal Commission Staff

June 2, 2008

Chairman Pat Kruer and Coastal Commissioners:
California Coastal Commission
25 Fremont Street, Suite 2000
San Francisco, California 94105-2219
Via Electronic Mail

Re: Revised Findings for Application No. E-06-013 (Poseidon Resources (Channelside), LLC, Carlsbad)

Dear Chair Kruer and Commissioners:

San Diego Coastkeeper (Coastkeeper) and the Surfrider Foundation (Surfrider) respectfully submit this request for postponement of the June 12th Agenda Item Thu17.a., for the adoption of revised findings for Application No. E-06-013. Coastkeeper is a locally based environmental non-profit that protects San Diego's bays, beaches, watersheds and ocean for the people and wildlife that depend on them. Surfrider is a non-profit grassroots organization dedicated to the protection and enjoyment of our world's oceans, waves and beaches. With Coastkeeper based in San Diego, and Surfrider in San Clemente, it is difficult for our staff and members to travel to hearings over 500 miles away. Although we have made every effort to attend all Commission hearings associated with the Coastal Development Permit for Poseidon Resources' Carlsbad Desalination Project (CDP), our staff will be unable to attend the Santa Rosa hearing due to travel costs and time.

In order to foster the public process and participation, it is important that the public has an opportunity to comment, both in written and oral form, on issues that affect the community in which a project is located. It is especially important to gather public input on issues such as the CDP, which not only affect local residents, but are precedent-setting statewide. Further, several related but distinct issues for CDP will be heard at Commission hearings in the near future. Specifically, CDP's Marine Life Mitigation Plan and Energy Minimization and Greenhouse Gas Reduction Plan have yet to be approved at a Commission hearing. Postponing the hearing for the consideration of Revised Findings until the August Commission hearing in Oceanside would enable the public to participate in the decision-making process and would allow the Revised Findings to be heard at the same time as the remaining issues associated with the CDP.

The Revised Findings have been amended several times, have only recently become available for public comment in their latest version, and are still subject to revision. In this context the expedited revision of the comments seems overly rushed. However, there is no need to hurry adoption as many outstanding issues associated with the CDP permit remain and the findings are not the limiting factor in the finalization of the CDP permit. While postponement would not pose an undue hardship to the applicant, hearing the item in Santa Rosa would hamper the ability of San Diegans to participate in the discussion.

San Diego Coastkeeper:
2825 Dewey Road, Suite 200, San Diego CA 92106 • p. (619)758-7743 • f. (619) 224-4638 • www.sdcoastkeeper.org
Surfrider Foundation:
PO Box 6010 San Clemente, CA 92674-6010 • p. (949) 492-8170 • f. (949) 492-8142 • www.surfrider.org

As active participants in the review process, and on behalf of the impacted members of the public, we respectfully request that consideration of the Revised Findings for the CDP coastal development permit be postponed until the August Commission hearing in Oceanside. Thank you for your time and consideration on this matter.

Sincerely,

Gabriel Solmer
Legal Director
San Diego Coastkeeper

Joe Geever
California Policy Coordinator
Surfrider Foundation

San Diego Coastkeeper:
2825 Dewey Road, Suite 200, San Diego CA 92106 • p. (619)758-7743 • f. (619) 224-4638 • www.sdcoastkeeper.org
Surfrider Foundation:
PO Box 6010 San Clemente, CA 92674-6010 • p. (949) 492-8170 • f. (949) 492-8142 • www.surfrider.org

2934 Gaviota Circle
Carlsbad, CA 92009
May 26, 2008

California Coastal Commission
Energy, Ocean, Res. & Fed. Consis. Division
San Francisco, CA 94105-2219

Dear Commissioners,

Reference: Hearing slated for June 10, 2008, Item 17, Application No. E-06-013 [Poseidon Resources].

It is recognized the referenced Application may have certain related environmental and cost-effective issues. However, the Commission should measure any potential negative features regarding such system vis-à-vis the critical need for potable water in Southern California and the likely further restrictions due to constraints on water supplies from the Sierras and Colorado River.

Water restrictions currently prevail due to recent legal actions and may be compounded by climate change, natural disasters [earthquakes], erosion of the fragile Sacramento Delta or terrorists acts. In such a scenario, the area economy would be devastated, and the population would be subject to lower living standards and health hazards.

Further, placing the Poseidon system on-line in the near term will provide a viable source of potable water well before alternatives can be completed, such as the proposed by-pass canal and added water storage areas. And those alternatives may prove useless if water can not be transferred from existing sources.

It is requested that Poseidon be authorized to proceed with the implementation of the Desalination Plant in Carlsbad.

Sincerely,

H. Lee Fisher

Cc: Poseidon Resources

May 27, 2008

California Coastal Commission
c/o Tom Luster
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

Re: Poseidon Resources' desalination project in Carlsbad, CA

Dear Commissioners,

I understand that the Poseidon/Carlsbad project findings from the Commission's November deliberations will be heard at the CCC meeting scheduled for June in Santa Rosa, CA.

I am concerned that adequate public participation will not be there for the hearing because Santa Rosa is so far from where those most affected live.

I ask that the Poseidon item be postponed until it can be heard at a location closer to Carlsbad. It is very important that citizens be able to attend without the additional expenses and hardship of undue travel.

Thank you for your consideration of the local citizens' concerns.

Armida H. Brashears

Armida H. Brashears
73 year old native Californian
21632 Hanakai Lane
Huntington Beach, CA 92646
(714) 962-9680
armidahb@verizon.net

David E. Hamilton
5401 Kenilworth Drive
Huntington Beach, CA 92649
Phone: (714) 840-8901
E-mail: dehamilton@earthlink.net

March 12, 2008

California Coastal Commission
c/o: Tom Luster
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219
Fax: (415) 904-5400

Re: Poseidon Resources' desalination project in Carlsbad, CA

Dear Commissioners,

Although an agenda for the June CCC meetings has not been yet released, I am aware that the Poseidon/Carlsbad project findings from the Commission's November deliberations will be heard at the June meetings in Santa Rosa, CA. My concern is that adequate public participation will not be there for the hearing due to its location far from those most affected by the Commission's actions on this important issue. Therefore, I request that the Poseidon item be postponed until it can be heard at a location closer to Carlsbad.

Please consider my request. This important item needs to be heard before all concerned parties without the hardship and expense of undue travel. Thank you.

Regards,

David E. Hamilton
California Homeowner &
Director, ***Residents for Responsible Desalination (R4RD)***

BEST BEST & KRIEGER ⚖
ATTORNEYS AT LAW

INDIAN WELLS
(760) 568-2611
IRVINE
(949) 263-2600
LOS ANGELES
(213) 617-8100
ONTARIO
(909) 989-8584

655 West Broadway, 15th Floor
San Diego, California 92101
(619) 525-1300
(619) 233-6118 Fax
BBKlaw.com

RIVERSIDE
(951) 686-1450
SACRAMENTO
(916) 325-4000
WALNUT CREEK
(925) 977-3300

C. Michael Cowett
(619) 525-1336
Michael.Cowett@bbklaw.com
File No. 60026.00033

May 6, 2008

VIA FEDEX

Chairman Kruer and Honorable Commissioners
California Coastal Commission
North Central Coast District
c/o Mr. Tom Luster
45 Fremont, Suite 2000
San Francisco, CA 94105-2219

Agenda Item Th13a

Re: Carlsbad Desalination Project CDP Application No. E-06-013
Requested Revisions to Commission Staff's Recommended Revised Findings

Dear Chairman Kruer and Honorable Commissioners:

On behalf of the Olivenhain Municipal Water District, the Sweetwater Authority, the Santa Fe Irrigation District, the Rainbow Municipal Water District, and the Valley Center Municipal Water District, the Applicant's Public Water District Partners, join the Applicant in requesting that the Commission approve the requested Revisions to the Coastal Commission Staff's Recommended Revised Findings, jointly submitted by the Applicant, the City of Carlsbad, Carlsbad Municipal Water District, and Vallecitos Water District.

The five Districts believe it is important that the Commission's Findings for the Permit be complete, and accurately reflect the substantial evidence in the Administrative Record that form the basis for the Commission's action at the November 15th hearing.

There is no requirement that the Findings contain only the statements made by the Commissioners at the hearing. Rather, the Findings are to be adopted by the Commission to provide an analysis of all of the evidence in the Record setting forth the basis for the Commission's decision (*Topenga Association for a Scenic Community v. County of Los Angeles*, (1974) 11 Cal.App. 3rd 506, 5151).

The production of desalinated seawater by the Applicant is vital to the five Public Agency Partners in their effort to replace water imported from Northern California and the Colorado River, with a reliable local supply.

Respectfully submitted,

C. Michael Cowett
of BEST BEST & KRIEGER LLP

CMC:mod

cc: Dennis A. Bostad
Kimberly Thorner
Gary T. Arant
Michael J. Bardin
Dave Seymour
Peter MacLaggan
Ron Ball

SDPUB\CCOWETT\364428.1

Rick Zbur
Direct Dial: (213) 891-8722
rick.zbur@lw.com

LATHAM & WATKINS LLP

633 West Fifth Street, Suite 4000
Los Angeles, California 90071-2007
Tel: +213.485.1234 Fax: +213.891.8763
www.lw.com

File No. 036182-0006

May 29, 2008

VIA OVERNIGHT DELIVERY

Chairman Kruer and Honorable Commissioners
California Coastal Commission
North Central Coast District
45 Fremont, Suite 2000
San Francisco, CA 94105-2219

Agenda Item Th17a

Re: Carlsbad Desalination Project CDP Application No. E-06-013
Requested Revisions to Commission Staff's Recommended Revised Findings

Dear Chairman Kruer and Honorable Commissioners:

On behalf of the Applicant, Poseidon Resources (Channelside) LLC, we request that the Commission approve the Requested Revisions to Coastal Commission Staff's Recommended Revised Findings jointly submitted by the Applicant, the City of Carlsbad, Carlsbad Municipal Water District and Vallecitos Water District, which are set forth as Exhibit A hereto (the "Jointly Requested Findings"). The Commission approved the Coastal Development Permit (the "Permit") for the Carlsbad Seawater Desalination Facility (the "Project") at its November 15, 2007 meeting, over Commission Staff's negative recommendation, and directed Staff to prepare proposed revised findings reflecting the Commission's action. Since the November approval, Commission Staff has prepared three iterations of its Recommended Revised Findings (the details of which are discussed in Section A, Procedural History, below), but we believe none of those versions accurately reflect all of the substantial evidence in the administrative record that formed the basis of the Commission's Permit approval.

We are disappointed that the findings proposed by Commission Staff continue to contain information that is inconsistent with the action taken by the Commission, and therefore threaten the ability to defend the Commission's action in litigation. As you know, on January 14, 2008, two project opponents (Surfrider Foundation and Planning and Conservation League) filed a petition for writ of mandamus in California Superior Court that challenged the approval and alleged, among other things, that the Commission's findings, determination and decision were not supported by substantial evidence in the administrative record. Under California law, substantial evidence is "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other

conclusions might also be reached."[1] A court will review the Commission's findings to determine if they "bridge the analytic gap between the raw evidence and ultimate decision or order."[2] While the Commission's findings do not need to be as formal as judicial findings, they must show that relevant issues were considered and resolved by the agency, and they may cite to the record to support the agency's conclusions. Accordingly, when adopting the findings for the Permit, the Commission should ensure that the findings contain the basis for and the information supporting the Permit approval.

We are especially disappointed in Commission Staff's Recommended Revised Findings because Poseidon agreed to postpone the hearing on the findings from May 8, 2008, based on representations from Staff that most of Poseidon's requested changes would be made. As the Jointly Requested Findings demonstrate, significant modifications to the findings remain necessary despite those efforts. As you are aware, the Applicant had provided the Commissioners with its Jointly Requested Findings on April 30, 2008, and asked the Commission to approve those findings over Commission Staff's April 24, 2008 Recommended Revised Findings.[3] (See Applicant's April 30, 2008 letter to Commissioners (without exhibits), attached hereto as Exhibit B.) On May 6, 2008, however, Commission Staff indicated that it would be prepared to include in the findings most of Poseidon's requested modifications if the hearing was postponed to the Commission's June 2008 meetings to allow Staff more time to address issues raised in the April 30 letter and the Jointly Requested Findings. The Applicant agreed to postpone the hearing based on Staff's representations that: (1) Staff would recommend approval of the Jointly Requested Findings with modifications in certain areas to assure the findings do not affect the Commission's future consideration of the Project's mitigation plans; (2) Staff would work with the Applicant to address the findings related to lagoon dredging and the coastal dependent override to ensure consistency with the Commission's Permit approval; and (3) Special Condition 1 would be consistent with the condition adopted at the November hearing.

After several discussions with the Applicant and its consultants, Commission Staff distributed a revised version of its Recommended Revised Findings on May 22, 2008. Despite Staff's representations, the Recommended Revised Findings deviated substantially from the Jointly Requested Findings in several substantive areas, including, (among other things):

- the Project's use of the power plant's intake system and the Project's discharge into Agua Hedionda Lagoon;

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[1] *Laurel Heights Improvement Assn. v. Regents of the University of California* (1988) 47 Cal.3d 376, 393) (quoting Cal. Code Regs., tit. 14, § 15384).

[2] *Topanga Assn. for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 515.

[3] Please note that the Jointly Requested Findings provided to the Commission on April 30, 2008 is a prior version of the Jointly Requested Findings attached to this letter as Exhibit A. The Jointly Requested Findings were revised to incorporate changes contained in Commission Staff's May 22, 2008 Recommended Revised Findings.

- the Project's entrainment impacts;
- the Project's implementation of technologies that will reduce entrainment and impingement impacts;
- the Applicant's proposed mitigation plans that will enhance marine resources and minimize greenhouse gas emissions; and
- the environmental and coastal resource benefits from continued dredging of Agua Hedionda Lagoon.

In addition, the Recommended Revised Findings contained entirely new statements that were not in Commission Staff's April 24, 2008 Recommended Revised Findings and that are inconsistent with the Commission's Permit approval.

In response, the Applicant, the City of Carlsbad, Carlsbad Municipal Water District and Vallecitos Water District prepared the Jointly Requested Findings set forth in Exhibit A, which contain suggested revisions to Commission Staff's May 22 Recommended Revised Findings to accurately reflect the evidence supporting the Commission's Permit approval. The Commission considered voluminous amounts of evidence regarding the issues underlying the Permit approval, and it is important that the Commission's Permit findings be complete and accurately reflect the substantial evidence in the administrative record that formed the basis for approval. Accordingly, the Applicant requests that the Commission consider the Jointly Requested Findings, and vote to adopt those findings if the Commission determines that they more accurately reflect the basis of the Commission's Permit approval than the findings presented by Staff. The substance of and rationale behind the suggestions in the Jointly Requested Findings are discussed in greater detail in Section B, below.

A. Revised Findings Procedural History

The Commission approved Coastal Development Permit Application No. E-06-013 at its November 15, 2007 meeting over Commission Staff's negative recommendation, and directed Staff to prepare proposed revised findings reflecting the Commission's action. Since the staff report recommended that the Commission deny the Permit, significant revisions were required so that the findings would accurately reflect and be consistent with the substantial evidence submitted by the Applicant, the City of Carlsbad, the Applicant's public water district partners and others into the administrative record that provided the basis for the Commission's Permit approval.

On February 21, 2008, Commission Staff released its Recommended Revised Findings, which generally reflected the conclusions reached by the Commission regarding the consistency of the Project, as conditioned, with the Coastal Act. Staff's revisions did not, however, incorporate much of the substantial evidence submitted into the record by the Applicant, the City of Carlsbad, the Applicant's public water district partners and others, or the competing theories advanced by the Applicant and others regarding Coastal Act consistency, which we believe formed the basis for the Commission's approval of the Permit. In response, on April 14, 2008,

the Applicant, the City of Carlsbad, Carlsbad Municipal Water District and Vallecitos Water District submitted their requested revisions to the February 21 Recommended Revised Findings, which demonstrated the substantial evidence in the record supporting the Permit approval, clarified how the Permit is consistent with the Coastal Act, and provided how the Commission's Special Conditions will ensure that the Project's potential impacts to coastal resources are mitigated to the maximum extent feasible.

Also on April 14, 2008, Surfrider Foundation and San Diego Coastkeeper submitted their comments to Staff's February 21 Recommended Revised Findings. The Applicant addressed those comments in its April 30, 2008 letter to Commission Staff, which is attached as Exhibit B hereto.

On April 24, 2008, Commission Staff released a second version of its Recommended Revised Findings, which addressed some of the issues raised by the Opponents, the Applicant, the City of Carlsbad, Carlsbad Municipal Water District and Vallecitos Water District. However, the April 24 Recommended Revised Findings did not incorporate most of the supplemental information from the administrative record submitted by the Applicant, the City of Carlsbad, and the Applicant's public water district partners. Specifically, the Recommended Revised Findings did not include the numerous citations to the administrative record that support the Commission's Permit approval, including references to the Applicant's responses to the staff report and Notices of Incomplete, and citations to expert reports and studies that were provided to the Commission in support of the Permit.

As discussed in greater detail above, on April 30, 2008, the Applicant, the City of Carlsbad, Carlsbad Municipal Water District and Vallecitos Water District submitted their Jointly Requested Findings, which contained suggested revisions to Commission Staff's April 24 Recommended Revised Findings. Based on Commission Staff's representation that Staff would support the Jointly Requested Findings with some modifications, the Applicant agreed to continue the May 2008 hearing on the Project's findings until the Commission's June 2008 meetings. On May 22, 2008, Commission Staff released a third version of the Recommended Revised Findings, which still did not incorporate most of supplemental information from the administrative record submitted by the Applicant, the City of Carlsbad, and the Applicant's public water district partners. Accordingly, the Applicant, the City of Carlsbad, Carlsbad Municipal Water District and Vallecitos Water District prepared a revised version of the Jointly Requested Findings, which is attached hereto as Exhibit A.

B. Substantive Changes in Jointly Requested Findings

To avoid confusion in making its suggested changes, the Applicant incorporated all of Staff's May 22, 2008 Recommended Revised Findings into a base document, and then added Applicant's proposed changes to that document. Therefore, only the Applicant's changes to Staff's proposals are shown in ~~strikeout~~ and underline in the Jointly Requested Findings set forth in Exhibit A. For the Commission's convenience, the Applicant has also identified how each of the Jointly Requested Finding's changes fall into one of six specific categories where the Applicant believes Staff's Recommended Revised Findings required clarification, revision or

supplemental information to more accurately reflect the basis for the Commission's approval of the Permit. Those categories are:

- 1: Changes Not in Staff's April 24 Recommended Revised Findings
- 2. Entrainment, Impingement, Discharge and Marine Life Mitigation
- 3: Dredging and Lagoon Sedimentation
- 4: Energy Minimization and Greenhouse Gas Reduction
- 5: Coastal Act Override (Coastal Act § 30260)
- 6: Other Modifications to Support Commission Approval

Below, the Applicant has described each of the six categories in detail, and how proposed revisions under each category support the Commission's action at the November 15 hearing. In Exhibit A, the Applicant has also placed a number (1 to 6) in the document's right margin next to each revision, which is a cross-reference to the category that provides the rationale behind the revision. The Applicant asks the Commission to review each of the categories below, so that it may clearly understand the basis and rationale supporting each of the proposed changes in the Jointly Requested Findings.

1. Changes Not in Staff's April 24 Recommended Revised Findings

Although Commission Staff indicated that it would recommend adoption of the Jointly Requested Findings with minimal modifications, Staff's May 22 Recommended Revised Findings ignored significant information contained in the Jointly Requested Findings that was submitted by the Applicant, the City of Carlsbad, and the Applicant's municipal water district partners. Moreover, the May 22 Recommended Revised Findings added new information and comments that were not previously included in Staff's April 24 Recommended Revised Findings, which are also inconsistent with the Commission's Permit approval. Those changes also directly conflict with the spirit of the agreement between Commission Staff and the Applicant to postpone the Commission's hearing on the findings so that Staff could revise the Recommended Revised Findings to incorporate proposed changes in the Jointly Requested Findings. Accordingly, the requested revisions under Category 1 seek to remove Commission Staff's changes to the May 22 Recommended Revised Findings that were not included in the April 24 Recommended Revised Findings and that are inconsistent with the Commission's Permit approval.

2. Entrainment, Impingement, Discharge and Marine Life Mitigation

While Staff's Recommended Revised Findings provide an analysis of the Project's impacts to marine resources when operating as a co-located facility, they do not provide many citations to the numerous evidentiary submissions in the record that show the Project would not have a significant effect on marine life if operating as a stand-alone facility. The Project's EIR, prepared by the City of Carlsbad, analyzed the Project's impacts as both a facility co-located

with the existing power plant, and as a stand-alone facility, and determined that the Project would cause considerably less entrainment and impingement losses as a stand-alone facility and would have no significant impacts under either operating scenario. The requested revisions under this category demonstrate the substantial evidence in the record that shows the Project will have an insignificant impact on entrainment and impingement, which supports the Commission's finding that the Project is consistent with the policies of Coastal Act Sections 30230 and 30231.

The requested revisions under Category 2 also seek to incorporate into Staff's Recommended Revised Findings additional information from the record regarding: (1) the Project's design and technology features that are expected to substantially lessen any impacts to marine life; (2) the numerous studies and evidentiary submissions showing that the Project would not have significant entrainment and impingement impacts; (3) how the Project will not have significant discharge-related impacts and that the Project's discharge is under the jurisdiction of the Regional Water Quality Control Board; and (4) how the alternative intake systems considered by the Commission are environmentally inferior to the Project and infeasible.

Although Staff's Recommended Revised Findings do describe some of the Applicant's marine life mitigation plans, they do not explain in detail the mitigation measures that the Applicant has considered, and the habitat restoration plan that the Applicant has proposed, in order to ensure the Project is consistent with Coastal Act Sections 30230 and 30231. Applicant's revisions under Category 2 also demonstrate that substantial evidence in the record shows that with the imposition of Special Condition 8, which requires the Applicant to submit for approval a Marine Life Mitigation Plan that identifies specific mitigation measures, implementation plans and compliance monitoring, the Project's entrainment impacts will be more than fully mitigated and that biological productivity of coastal waters, wetlands and estuaries will be enhanced and restored in compliance with Coastal Act Sections 30230 and 30231.

3. Dredging and Lagoon Sedimentation

The Jointly Requested Findings under this category clarify that the Permit does not authorize dredging of the Agua Hedionda Lagoon, that the Applicant will need to apply for a new Coastal Development Permit to conduct dredging activities in the Lagoon, that the Permit is not otherwise inconsistent with Coastal Act Section 30233, and that maintenance dredging of the Lagoon is also necessary to remedy sedimentation caused by urban run-off. The revisions in this category clarify Staff's Recommended Revised Findings to support the Commission's finding that, with the imposition of Special Condition 12, which requires a new CDP application for dredging, the Project is consistent with Coastal Act 30233. Proposed revisions under this category also clarify that the Commission has authorized maintenance dredging of the Lagoon on 17 prior occasions, most recently in 2006, and has consistently found this dredging to be consistent with Coastal Act 30233. In addition, the requested revisions in this category explain and cite to the substantial evidence in the record demonstrating that sedimentation in the Lagoon is primarily the result of urban run-off, and that any dredging by the Applicant subject to the issuance of a separate CDP would serve to benefit the Lagoon because it would preserve existing marine resources, research, fishing, public access and recreational activities that would cease if regular dredging stopped and the Lagoon returned to its natural state of stagnant "stinky water" due to run-off sedimentation.

4. Energy Minimization and Greenhouse Gas Reduction

Although Staff's Recommended Revised Findings present all of the original staff report's arguments concerning the Project's potential carbon dioxide emissions due to the Project's energy consumption, the findings do not include all of the competing evidence in the record supporting the Applicant's position that the Project's carbon dioxide emissions will be substantially lower than Staff's estimates. Staff's Recommended Revised Findings also do not incorporate substantial information regarding the Applicant's position that the California Air Resources Board has primary jurisdiction over issues relating to air quality and greenhouse gases, and that the Applicant has voluntarily committed that the Project will be net carbon neutral. In the Jointly Requested Findings, the suggested revisions under this category demonstrate that substantial evidence in the record supports the Applicant's carbon dioxide emissions calculations. Moreover, the revisions in this category also clarify the evidence in the record supporting the Commission's conclusion that with the imposition of Special Condition 10, which requires the Applicant to submit for approval an Energy Minimization and Greenhouse Gas Reduction Plan, the Project will minimize energy consumption in compliance with Coastal Act Section 30253(4), minimize greenhouse gas emissions to the maximum extent feasible, and be net carbon neutral.

5. Coastal Act Override (Coastal Act § 30260)

At the November 15, 2007 hearing, the Commission found the Project, as conditioned, will be consistent with all applicable Coastal Act policies, including Coastal Act Section 30233. While the Commission determined that it did not need to make the "override" findings under Coastal Act Section 30260, the Commission found that even if the Project had inconsistencies with Coastal Act policies, there is substantial evidence in the record to support the override findings. Although Staff's Recommended Revised Findings do discuss the Project's consistency with Coastal Act Section 30260, they omit information submitted by the Applicant and others into the record that provides important additional support for the Commission's conclusion that the Project satisfies the override requirements. The Jointly Requested Findings under this category demonstrate that substantial evidence in the record confirms that the Project meets Section 30260's three-part test: (1) that there are no feasible and less environmentally damaging locations for the Project; (2) that the Project's adverse environmental effects are mitigated to the maximum extent feasible; and (3) that not permitting the Project would adversely affect the public welfare. While some of the suggested revisions in this category are similar to revisions under other categories, all revisions relating to Category 5 explain and cite to substantial evidence supporting the Commission's conclusion that even though the Project, as conditioned, conforms with all applicable Coastal Act policies, the Project also complies with the requirements of Coastal Act Section 30260.

6. Other Modifications to Support Commission Approval

In certain other instances throughout Staff's Recommended Revised Findings, Staff retained arguments from the original staff report for which Staff did not provide supporting evidence, or Staff omitted the Applicant's countervailing arguments and their support in the record. In these instances, the Applicant, the City of Carlsbad, Carlsbad Municipal Water

District and Vallecitos Water District have proposed modifications to Staff's Recommended Revised Findings to more accurately reflect that the Commission considered competing legal theories – those of Commission Staff, as presented in the staff report, and those of the Applicant, as presented at the hearing and in various submittals in the record. The Jointly Requested Findings under Category 6 explain and cite to substantial evidence in the record that provides several clearly articulated, independent bases that support the Commission's action of approving the Permit.

We appreciate the Commission's consideration of these important issues and respectfully request that the Commission adopt the Jointly Requested Findings at its June 12, 2008 meeting.

Very truly yours,

Rick Zbur
of LATHAM & WATKINS LLP

Attachments

cc: Tom Luster
Jan Driscoll, Esq.
Michael Cowett, Esq.
Peter MacLaggan

APPLICANT'S REQUESTED REVISIONS
Marked to show changes to Commission staff's 5/22/2008 Recommended Revised Findings

STATE OF CALIFORNIA—THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *GOVERNOR*

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
FAX (415) 904-5400

Th17a

Date Filed:	July 25, 2007
49th Day:	Waived
180th Day:	January 21, 2008
Staff:	Tom Luster-SF
Hearing Date:	November 15, 2007
Approved:	November 15, 2007
Revised Findings:	May 22, 2008
Hearing Date:	June 12, 2008

RECOMMENDED REVISED FINDINGS
COASTAL DEVELOPMENT PERMIT APPLICATION

APPLICATION FILE NO.:	E-06-013
APPLICANT/ SITE OWNER:	Poseidon Resources (Channelside) LLC / Cabrillo Power II LLC
PROJECT LOCATION:	On the Encina Power Plant site, adjacent to Agua Hedionda Lagoon, in the City of Carlsbad, San Diego County.
PROJECT DESCRIPTION:	Construction and operation of a 50 million gallon per day seawater desalination facility.
COMMISSIONERS ON PREVAILING SIDE:	Commissioners Blank, Burke, Clark, Firestone, Hueso, Neely, Potter, Secord, and Chair Kruer
SUBSTANTIVE FILE DOCUMENTS:	See Appendix A
EXHIBIT 1:	Location Map
EXHIBIT 2:	Site Layout
EXHIBIT 3:	Aerial View of Site
EXHIBIT 4:	Diagram of Subsurface Intakes

ATTACHMENT 1:	November 15, 2007 Hearing Transcript. Note: attached transcript includes Commission deliberations only.
ATTACHMENT 2:	Staff Proposed Conditions of November 14, 2007 and Poseidon Proposed Conditions of November 15, 2007.
ATTACHMENT 3:	Ex Parte Forms and Correspondence
ATTACHMENT 4:	April 14, 2008 letter from Latham & Watkins regarding Recommended Revised Findings
ATTACHMENT 5:	April 14, 2008 letter from Coast Law Group regarding Recommended Revised Findings

STAFF NOTE:

Staff prepared these Recommended Revised Findings to reflect the Commission's November 15, 2007 decision to conditionally approve the proposed Poseidon desalination facility in Carlsbad, San Diego County (CDP #E-06-013).

Format of Revised Findings: Changes from the original November 2, 2007 staff recommendation are shown in ~~strikeout~~ and underline, with changes from the November 14, 2007 addendum shown in dotted underline.

Standard and Special Conditions: These Recommended Revised Findings include conditions the Commission adopted at its November 15, 2007 hearing. As shown in the Hearing Transcript (Attachment 1), some of the Commission's deliberations were about whether to adopt conditions that had been suggested by staff or those suggested by Poseidon. Attachment 2 includes staff's proposed conditions from November 14, 2007 and Poseidon's proposed conditions from November 15, 2007. The final amended motion approved by the Commission included staff's proposed **Standard Conditions 1 through 5**, **Special Conditions 1, 3, 4, 6, 7, 9, 10, 12, 13, 14, 15, and 16**, and a modified version of staff's **Special Condition 8**. It also included Poseidon's proposed **Special Conditions 2, 5, 11, and 17**.

During the Commission's deliberations about the requirement of **Special Condition 10** that Poseidon submit a proposed Energy Minimization and Greenhouse Gas Reduction Plan, Poseidon stated its commitment to purchase $1 million worth of native, non-invasive trees to plant in areas burned during the October 2007 wildfires in San Diego County. However, this commitment is included in the Revised Findings rather than **Special Condition 10**, since there was no motion to amend the condition. Finally, by imposing ~~these~~ **Special Conditions**~~, the Commission reserved a significant amount of its discretionary authority over this project for future review~~ **8 and 10, the Commission required that Poseidon submit two mitigation plans for Commission review and approval prior to issuance of the Coastal Development Permit**. Commission staff therefore expects that Revised Findings that may be adopted by the Commission at its June 2008 hearing may be subsequently ~~supplemented~~**modified** pursuant to the Commission's future decisions on those two mitigation plans. (1)

Conclusion: Staff recommends the Commission **approve** these Recommended Revised Findings.

EXECUTIVE SUMMARY

Project Description: The proposed project is a seawater desalination facility to be constructed and operated at the site of the Encina Power Plant in Carlsbad, San Diego County. The facility would be owned and operated by Poseidon Resources (Channelside) LLC. It would withdraw about 304 million gallons per day (MGD) of water from Agua Hedionda, a coastal estuary, to produce about 50 MGD of potable water for sale and distribution.

The project was originally proposed to co-locate with the power plant in order to use some of the several hundred million gallons per day of water the power plant pumped from Agua Hedionda. However, the power plant owner announced earlier this year that it intends to shut down the existing plant and build a new one elsewhere on the site that would not use seawater for cooling. During the last few years, the power plant has operated at a substantially reduced level over its historical rate of use, and it is expected to operate only sporadically for a few more years once the new facility is built. As a result, the desalination facility would now operate as a "stand-alone" facility, and the analyses in these Recommended Findings are based on these "stand-alone" operations.

Key Coastal Act Issues:

- *Protection of Marine Life and Water Quality*: The project as **proposed and** conditioned herein ~~would~~**will** be consistent with policies of Coastal Act Sections 30230 and 30231 meant to protect marine life and water quality. ~~The~~**As documented in the certified EIR prepared for the project by the City of Carlsbad, operating co-located with Encina Power Station (EPS), the project will not have significant entrainment or impingement impacts. The project's discharge of its waste stream into coastal waters would result in levels of salinity higher than the natural variability of these waters in an area ranging from about eight to over 40 acres of benthic habitat. The Commission finds that the certified EIR determined that the project's discharge of 40 ppt would not cause significant adverse impacts to marine life, and that the San Diego Regional Water Quality Control Board (Regional Board) studied the project's discharge before issuing the project's NPDES Permit, and that the Regional Board adequately conditioned all potential discharge-related impacts to ensure compliance with applicable Clean Water Act criteria and the California Ocean Plan. Operating stand-alone,** entrainment caused by the project's use of an open-water intake within Agua Hedionda would result in a loss of productivity **for certain species** in the lagoon ~~that Poseidon has estimated would be~~ equal to that produced in ~~approximately~~**no more than** 37 acres of wetland and open water habitat**, which the EIR determined is less than significant**. Although the project EIR concluded that the project would not have significant adverse entrainment impacts, the ~~EIR was certified before Poseidon made available~~**Commission is conducting further evaluation of** its entrainment study results showing the expected 37-acre productivity loss, and the Commission has ~~addressed that change in these Findings and through the imposition of~~ **imposed** Special Condition 8,

(2)

(1)

which ~~requires~~**assures** the adverse marine life effects be mitigated. ~~The project's discharge of its waste stream into coastal waters would result in levels of salinity higher than the natural variability of these waters in an area ranging from about eight to over 40 acres of benthic habitat. For the reasons set more~~ **For the reasons set** forth more fully below in these findings **and in Poseidon's submissions**, the Commission finds that alternative intakes are infeasible or would cause greater adverse impacts. Slant wells are infeasible because the water quality available from such intakes would make it difficult, if not impossible, to treat for desalination purposes, and ~~that~~ the construction impacts associated with this alternative render it environmentally inferior to the proposed project. The Commission also finds that an infiltration gallery is environmentally inferior to the proposed project because this alternative would disrupt public access to marine resources, require frequent dredging and cause other adverse effects to coastal habitat, and that it is economically infeasible. The Commission further finds that an offshore intake system would result in more extensive environmental impacts than the proposed project's use of the existing EPS intake. To address ~~these~~**potential** impacts, Poseidon submitted a conceptual plan to restore 37 acres of lost wetland and upland habitat. However, the plan lacks details necessary for the Commission to ~~determine~~**assure** that these adverse marine resource impacts will be mitigated fully, as required by the Coastal Act. Poseidon has also submitted the plan to the ~~San Diego~~ Regional ~~Water Quality Control~~ Board ~~(Regional Board)~~ as required by its conditional NPDES permit. The Regional Board ~~reviews~~**has primary jurisdiction over** various water quality issues and will ensure compliance with its regulations and policies via its review and approval of the plan. The Commission is therefore requiring through **Special Condition 8** that Poseidon develop a Marine Life Mitigation Plan for further Commission review and approval that fully documents the facility's anticipated entrainment and impingement impacts, mitigates those impacts to the maximum extent feasible through creation, enhancement, or restoration of aquatic and wetland habitat, and ensures long-term performance, monitoring, and protection of the approved mitigation measures in a manner consistent with the policies of Coastal Act Sections 30230 and 30231. **In addition to the enhancement to the marine environment from the Marine Life Mitigation Plan, Poseidon's obligation to undertake dredging of the Agua Hedionda Lagoon, which Poseidon would undertake should EPS cease utilizing its intake system, would enhance the marine environment in the Lagoon by preventing the loss of tidal circulation, preserving and protecting the Lagoon's ecosystem and existing Lagoon based research, aquaculture, fish hatching, sand replenishment and visual and aesthetic enjoyment.** The Commission is also requiring through **Special Condition 9** that Poseidon obtain an amendment to its coastal development permit if it proposes or is required to withdraw more than the currently anticipated 304 million gallons per day of estuarine water from Agua Hedionda lagoon. Further, the project is subject to continuing review by the Regional Board to ensure conformity to federal Clean Water Act and state Porter-Cologne Act requirements related to protection of water quality impacts. **Special Condition 4** requires Poseidon to submit, prior to construction, documentation that it has received final approvals from the Regional Board and other agencies for project construction and operations.

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With the implementation of these Special Conditions, the Commission finds the project will conform to applicable provisions of Coastal Act Sections 30230 and 30231 by ensuring that marine resources are maintained, enhanced~~,~~ and restored to the extent feasible.

- *Energy Use and Greenhouse Gas Emissions*: The project's electrical use would cause emissions of carbon dioxide of an estimated ~~200 million pounds~~**60,000 to 90,000 metric tonnes** per year,[1] which would result in adverse impacts to a wide range of coastal resources, as described in Section 2.5.5 of these Findings. Poseidon has agreed to "go carbon-neutral" – i.e., to reduce its emissions through various measures so that its facility would contribute net zero greenhouse gas emissions, but it has not yet demonstrated how it would implement this mitigation proposal. To ensure the project conforms to the policies of Coastal Act Section 30253(4) and other applicable Coastal Act provisions, and avoids or minimizes its effects on coastal resources, the Commission is requiring through **Special Condition 10** that Poseidon develop an Energy Minimization and Greenhouse Gas Reduction Plan for further Commission review and approval. (4)

- *Protection of Coastal Waters and Wetlands*: ~~The~~**Dredging activities associated with the** proposed project represents ~~a non-~~**an** allowable use of Agua Hedionda Lagoon, one of 19 coastal estuaries in which permitted alterations are limited, pursuant to Coastal Act Section 30233(c), to "…very minor incidental public facilities, restorative measures, [and] nature study~~…~~". ~~The Commission therefore finds the project cannot be found consistent with the use prohibitions of Coastal Act Section 30233(c). Additionally,~~ …". **Although** the project may require future dredging to ensure its continued use of the existing intake structure, ~~and the Commission, through imposition of Special Condition 12 requiring~~**dredging activities for the foreseeable future are the responsibility of the power plant owner. The Commission has approved dredging of Agua Hedionda Lagoon on 17 separate occasions since 1977. In January 2002, August 2004 and October 2006, the Commission approved dredging projects identical to those that would be required to support the stand-alone desalination facility, and on each occasion found the proposed dredging consistent with the Coastal Act.[2] Through Special Condition 12, which requires** Poseidon to obtain separate coastal development permits for any proposed future dredging activities, **the Commission** has ensured conformity to ~~other~~**those** portions of Coastal Act Section 30233(a)-(c) related to dredging. **The Commission therefore finds the project is consistent with Coastal Act Section 30233.** (3)

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[1] As described more fully in Section 4.5.5 herein, Commission staff estimates that the project will emit 90,000 metric tonnes (200,000,000 pounds) of carbon dioxide per year, while Poseidon, relying on the California Climate Action Registry's certified protocol, estimates 61,000 metric tonnes (134,500,000 pounds) of carbon emissions. (4)

[2] Poseidon Resources Corporation, *Response to California Coastal Commission's February 20 Request for Additional Information*, June 1, 2007, at p. 20. (3)

~~Because~~**Although the project, as conditioned, conforms to the above-listed Coastal Act policies, because** the proposed project is a coastal-dependent industrial facility, ~~its~~**the Commission may "override" any** inconsistencies with ~~Coastal Act Section 30233(c) may be "overridden"~~**those policies** pursuant to Coastal Act Section 30260. That policy allows the Commission to approve coastal-dependent industrial facilities that are not consistent with other Coastal Act policies contained in Chapter 3 if the proposal meets three tests. Those tests require: (1) that there be no feasible and less environmentally damaging location for the proposed project; (2) that the project's adverse environmental impacts be mitigated to the maximum extent feasible; and, (3) that not permitting the proposed project would adversely affect the public welfare. ~~In~~**Although the Commission finds consistency with all applicable Coastal Act policies, in** applying these tests to the proposed project, the Commission **also** finds, as discussed in detail in Section 4.5.7 of th~~ese report~~ **findings**, the following:

- There are no feasible and less environmentally damaging alternative ~~intake~~ locations to draw in the needed seawater (e.g., subsurface or offshore~~, as further described in Section 4.2.1 of these Findings) that would avoid nonconformity to the use prohibitions of Section 30233(c)~~). For **the** reasons set more forth more fully below in these findings, the Commission finds, pursuant to the EIR and Poseidon's documentation that slant wells are infeasible because the water quality available from such intakes would make it difficult, if not impossible, to treat for desalination purposes, and that these intakes would cause substantial construction-related impacts **that render this alternative environmentally inferior to the proposed project**. The Commission similarly finds that an infiltration gallery **is environmentally inferior to the proposed project because this alternative** would disrupt public access to the shoreline and marine resources, would adversely affect up to about 150 acres of coastal habitat, **would require frequent dredging,** and would be economically infeasible. The Commission also finds that an offshore intake system would result in ~~substantial~~**greater** environmental impacts **than the proposed project's use of the existing EPS intake,** and that construction of an offshore intake would be economically infeasible.

- **Special Conditions 4, 8, 9, 10, 11, 12, 15, 16,** and **17,** ensure ~~the project's~~**any potential** adverse effects to Agua Hedionda Lagoon are mitigated to the maximum extent feasible. The Commission finds that the required development of the necessary mitigation plans, the limitation on water withdrawals, prohibition of dredging without further Commission review and approval, and imposition of water quality best management practices, will ensure that the project is mitigated to the maximum extent feasible.

- Denial of the proposed project would adversely affect the public welfare for a number of reasons. As described herein and elsewhere in the Commission's record, **including the project's EIR,** the project would provide public benefits in the form of a local water supply in an area where current and anticipated water imports are expected to decline. Although it is a privately ~~-~~funded project, the water ~~it produces~~**produced by the project** will be put to public use by eight public water districts. The sale of water to public water districts is expected to both alleviate expected water supply shortfalls and augment other supply options such as recycled water and conservation. It also provides public benefits to those districts

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and their ratepayers because they will not be expected to pay directly for more than $300 million of the project's start-up and construction costs. The project also includes public benefits in the form of increased public access opportunities to both Agua Hedionda Lagoon and to the Pacific Ocean. **Further, in the absence of the project's maintenance dredging and stewardship of the Lagoon (if the EPS is decommissioned), sedimentation will cause the Lagoon to close within five to seven years, resulting in a loss of its beneficial uses.** (5)

The Commission therefore finds that the project, as conditioned, will conform to Coastal Act Section 30260.

~~GLOSSARY~~

GLOSSARY

Terms Used:

- Acre-foot: An acre-foot is equal to about 326,000 gallons, which is enough to supply from one to four households for a year.
- Kilowatt-hour (kWh): As used in these findings, it refers to the amount of electricity needed to produce one kilowatt for one hour.
- Megawatt-hour (mWh): As used in these findings, it refers to the amount of electricity needed to produce one megawatt for one hour. A megawatt is 1,000 kilowatts.
- Million gallons per day (MGD): A million gallons is equal to about three acre-feet.

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1.0 RECOMMENDED MOTION AND RESOLUTION

Motion

Staff recommends the Commission adopt the following findings in support of its actions on November 15, 2007 to approve Coastal Development Permit E-06-013.

I move that the Commission adopt the Revised Findings in support of the Commission's actions on November 15, 2007 concerning the Commission's Coastal Development Permit E-06-013.

Resolution

The Commission hereby adopts the Findings set forth below regarding Coastal Development Permit E-06-013.

2.0 STANDARD CONDITIONS

~~1)~~ 1) **Notice of Receipt and Acknowledgment:** This permit is not valid until a copy of the permit is signed by the Permittee or authorized agent, acknowledging receipt of the permit and the acceptance of the terms and conditions, and is returned to the Commission office.

~~2)~~ 2) **Expiration:** Construction activities for the proposed project must be initiated within two years of issuance of this permit. This permit will expire two years from the date on which the Commission approved the proposed project if development has not begun. Construction of the development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made at least six months prior to the expiration date.

~~3)~~ 3) **Interpretation:** Any questions of intent or interpretation of any condition will be resolved by the Executive Director of the Commission (hereinafter, "Executive Director") or the Commission.

~~4)~~ 4) **Assignment:** The permit may be assigned to any qualified person, provided the assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

~~5)~~ 5) **Terms and Conditions Run with the Land:** These terms and conditions shall be perpetual, and it is the intention of the Commission and the Permittee to bind all future owners and possessors of the subject property to the terms and conditions.

3.0 SPECIAL CONDITIONS

~~1)~~ 1) **Liability for Costs and Attorneys Fees:** The Permittee shall reimburse the Coastal Commission in full for all Coastal Commission costs and attorneys fees – including (1) those charged by the Office of the Attorney General, and (2) any court costs and attorneys fees that the Coastal Commission may be required by a court to pay – that the Coastal Commission incurs in connection with the defense of any action brought against the Coastal Commission, its officers, employees, agents, successors and assigns challenging the approval or issuance of this permit. The Coastal Commission retains complete authority to conduct and direct the defense of any such action against the Coastal Commission.

~~2)~~ 2) **Proof of Legal Interest:** PRIOR TO ISSUANCE OF THE PERMIT, the Permittee shall provide for Executive Director review and approval documentation of the Permittee's legal interest in all property within the coastal zone needed to construct and operate the project, including:

- Lease(s) from the California State Lands Commission for structures on state tidelands. Any conflicts between conditions of the lease(s) and those adopted by the Coastal Commission shall be presented to the Coastal Commission for resolution.
- Lease(s) or other forms of approval from the power plant owner allowing the Permittee to use portions of the power plant site and Agua Hedionda Lagoon.
- Lease(s) or other forms of approval from the City of Carlsbad and other local governments for the project's water delivery pipelines.

~~3)~~ 3) **Lease and Deed Restriction:** PRIOR TO ISSUANCE OF THE PERMIT, the applicant shall provide to the Executive Director for review and approval documentation demonstrating that the applicant ~~and~~ has executed and recorded against its leasehold interest(s) in the property governed by this permit a lease restriction (in which any private owner of the fee interest in such property shall join or to which it shall agree to be bound), in a form and content acceptable to the Executive Director (a) indicating that, pursuant to this permit, the California Coastal Commission has authorized development on the Property, subject to terms and conditions that restrict the use and enjoyment of the Property; and (b) imposing all of the Special Conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the Property. The restriction shall include a legal description of the Property. It shall also indicate that, in the event of an extinguishment or termination of the deed restriction for any reason, the Standard and Special Conditions of this permit shall continue to restrict the use and enjoyment of the Property so long as either this permit or the development it authorizes – or any part, modification, or amendment thereof – remains in existence on or with respect to the Property.

~~4)~~ 4) **Other Approvals:** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit to the Executive Director for review and approval documentation showing that the project has obtained final approvals for project construction and operation from the City of Carlsbad, the Regional Water Quality Control Board, the California Department of Health Services, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service, or documentation showing that these approvals are not needed.

~~5)~~ 5) **Assumption of Risk and Waiver of Liability:** The Permittee acknowledges and agrees, on behalf of itself and all successors and assigns: (i) that the project site may be subject to hazards from seismic events, liquefaction, storms, waves, floods and erosion; (ii) to assume the risks to the Permittee and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) that any adverse effects to property caused by the permitted project shall be fully the responsibility of the landowner.

~~6)~~ 6) **Limits of Development**: This permit authorizes the construction and operation of the Poseidon Carlsbad Desalination Project and associated infrastructure as described in the project description of this staff report, as clarified and modified by these conditions.

~~7)~~ 7) **Final Plans**: PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit to the Executive Director for review and approval final plans for the project components located in the coastal zone. The Permittee shall undertake development in accordance with the approved plans and any changes shall be reported to the Executive Director. No material changes within the coastal zone shall occur without a Commission-approved amendment to this coastal development permit unless the Executive Director determines that no amendment is necessary. Changes to the project requiring review for amendment would include changes in the physical, operational, or delivery capacity increases, or extension of water supply distribution pipelines beyond those shown on the final plans.

~~8)~~ 8) **Marine Life Mitigation Plan:** PRIOR TO ISSUANCE OF THE PERMIT, the Permittee shall submit to and obtain from the Commission approval of a Marine Life Mitigation Plan in the form of an amendment to this permit that includes the following:

~~a)~~ a) Documentation of the project's expected impacts to marine life due to entrainment and impingement caused by the facility's intake of water from Agua Hedionda Lagoon. This requirement can be satisfied by submitting a full copy of the Permittee's Entrainment Study conducted in 2004-2005 for this project.

~~b)~~ b) To the maximum extent feasible, the mitigation shall take the form of creation, enhancement, or restoration of aquatic and wetland habitat.

~~c)~~ c) Goals, objectives and performance criteria for each of the proposed mitigation sites. It shall identify specific creation, restoration, or enhancement measures that will be used at each site, including grading and planting plans, the timing of the mitigation measures, monitoring that will be implemented to establish baseline conditions and to determine whether the sites are meeting performance criteria. The Plan shall also identify contingency measures that will be implemented should any of the mitigation sites not meet performance criteria.

~~d)~~ d) "As-built" plans for each site and annual monitoring reports for no less than five years or until the sites meet performance criteria.

~~e)~~ e) Legal mechanism(s) proposed to ensure permanent protection of each site – e.g., conservation easements, deed restriction, or other methods.

~~9)~~ 9) **Change in Seawater Withdrawal:** If at any time during the life of the project Poseidon proposes or is required to withdraw more than an average flow of 304 MGD of seawater, it must obtain first an amendment to this permit.

~~10)~~ 10) **Energy Minimization and Greenhouse Gas Reduction Plan:** PRIOR TO ISSUANCE OF THE PERMIT, the Permittee shall submit to the Commission a Revised Energy Minimization and Greenhouse Gas Reduction Plan that addresses comments submitted by the staffs of the Coastal Commission, State Lands Commission and the California Air Resources Board. The permit shall not be issued until the Commission has approved a Revised Energy Minimization and Greenhouse Gas Reduction Plan after a public hearing.

~~11)~~ 11) **Public Access Enhancements:** PRIOR TO COMMENCEMENT OF OPERATIONS, Poseidon shall cause to be dedicated, in accordance with the City of Carlsbad's Precise Development Plan PDP 00-02, the below-described parcels of land. The dedications shall be in the form of easements, title transfers, and/or deed restrictions, whose purpose is to further Coastal Act goals of maximizing public access and recreational opportunities along the coast in the South Carlsbad Coastal Resource Redevelopment Area and maintaining, restoring and enhancing marine resources. The four sites are:

- Fishing Beach: public access and parking easement in favor of the City of Carlsbad covering approximately 2.4 acres of land along the west shore of Agua Hedionda Lagoon.

- Bluff Area: approximately 10.2 acres of land on the west side of Carlsbad Boulevard opposite the power plant, which shall be dedicated in fee title to the City of Carlsbad for recreational and coastal access uses.

- Hubbs Site: approximately 2 acres of land along the north shore of Agua Hedionda Lagoon to be used for a fish hatchery, aquatic research, and public access, which shall be deed restricted to uses such as fish hatchery, aquatic research, and trails.

- South Power Plant Parking Area: an access easement over approximately 0.3 acres of land on the east side of Carlsbad Boulevard near the south entrance of the power plant that shall be dedicated to the City of Carlsbad for public parking.

~~12)~~ 12) **Dredging:** This permit does not authorize dredging that may be needed to maintain flows to the desalination facility's intake structure. The Permittee shall submit separate coastal development permit applications for proposed dredging operations.

~~13)~~ 13) **Visual Resources:** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit to the Executive Director for review and approval a Screening Plan.

Desalination plant exterior mechanical equipment and facilities, including tanks, heating, air conditioning, refrigeration equipment, plumbing lines, duct work and transformers, shall be screened from view on all sides visible to the public. The design and material used for screening shall be architecturally compatible with the building.

~~14)~~ **14) Lighting Plan**: PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit a Lighting Plan to the Executive Director for review and approval. Exterior lighting for the desalination facilities shall serve the purpose of operations, security and safety only. The Lighting Plan shall demonstrate that project lighting is shielded from surrounding areas, and that only the minimum amount of lighting required for safety purposes is provided to avoid adverse effects on surrounding areas. In general, lighting fixtures shall be shielded downward and away from the ocean, lagoon and adjacent properties. Construction of the desalination plant and related facilities and improvements shall be in conformance with the approved plan.

~~15)~~ **15) Construction Plan:** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit to the Executive Director for review and approval a Construction Plan. The Construction Plan shall identify the specific location of all construction areas, all staging areas, and all construction access corridors in site plan view in the coastal zone. The Plan shall identify any expected disruptions to public access to the shoreline and shall include measures to avoid, minimize, or mitigate for those disruptions.

The Plan shall also identify the type and location of erosion control/water quality best management practices that will be implemented during construction to protect coastal water quality, including the following:

- Silt fences, or equivalent apparatus, shall be installed at the perimeter of the construction areas to prevent construction-related runoff and/or sediment from entering the dunes and/or the Pacific Ocean.

- Grading and land alteration outside of the approved construction zone is prohibited.

- Equipment washing, refueling, and/or servicing shall not take place on the beach or sandy dune area. All construction equipment shall be inspected and maintained at an off-site location to prevent leaks and spills of hazardous materials at the project site.

- The construction site shall maintain good construction housekeeping controls and procedures (e.g., clean up all leaks, drips, and other spills immediately; keep materials covered and out of the rain (including covering exposed piles of soil and wastes); dispose of all wastes properly, place trash receptacles on site for that purpose, and cover open trash receptacles during wet weather; remove all construction debris from the beach).

- All erosion and sediment controls shall be in place prior to the commencement of construction as well as at the end of each workday. A copy of the approved Construction

Plan shall be kept at the construction job site at all times and all persons involved with the construction shall be briefed on its content and meaning prior to commencement of construction. The Permittee shall notify the Executive Director at least three working days in advance of commencement of construction, and immediately upon completion of construction. The Permittee shall undertake construction in accordance with the approved Construction Plan. Any proposed changes to the approved Construction Plan shall be reported to the Executive Director. No material changes to the approved Construction Plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is necessary.

~~16)~~ 16) **Storm Water Pollution Prevention Plan:** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit for Executive Director review and approval a Storm Water Pollution Prevention Plan (SWPPP). At minimum the SWPPP shall include the following Best Management Practices (BMPs):

- Gravel bags, silt fences, etc. shall be placed along the edge of all work areas as determined appropriate by the City's construction inspector in order to contain particulates prior to contact with receiving waters.

- All concrete washing and spoils dumping will occur in a designated location.

- Construction stockpiles will be covered in order to prevent blow-off or runoff during weather events.

- A pollution control education plan developed by the General Contractor and implemented throughout all phases of development and construction.

- Severe weather event erosion control materials and devices shall be stored onsite for use as needed.

~~17)~~ 17) **Water Quality Technical Report:** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit for Executive Director review and approval a Water Quality Technical Report as specified in the City of Carlsbad Standard Urban Stormwater Mitigation Plan (April 2003) (Carlsbad SUSMP) for the post construction desalination facility, prepared by a licensed Civil Engineer, which shall include plans, descriptions and supporting calculations. The Storm Water Management Plan shall incorporate all feasible Best Management Practices (BMPs) designed to reduce, to the maximum extent practicable, the volume, velocity and pollutant load of stormwater leaving the developed areas of the site. The plan shall include the following criteria:

- Post-Development peak runoff rates and average volumes shall not exceed pre-development conditions.

- Runoff from all parking areas, turnouts, driveways and other impermeable surfaces (e.g., roofs) shall be collected and directed through a system of structural BMPs including vegetated and/or gravel filter strips or other media filter devices or other equivalent means. The filter elements shall be designed to 1) trap sediment, particulates and other solids and 2) remove or mitigate contaminants through infiltration and/or biological uptake. The drainage system shall also be designed to convey runoff in excess of this standard from the developed site in a non-erosive manner.

- Provisions for maintaining the drainage and filtration systems so that they are functional throughout the life of the approved development. Such maintenance shall include the following: 1) the drainage and filtration system shall be inspected, cleaned and repaired prior to the onset of the storm season, but not later than September 30th each year and 2) should any of the project's surface or subsurface drainage/filtration structures fail or result in increased erosion, the applicant/landowner or successor-in-interest shall be responsible for any necessary repairs to the drainage/filtration system and restoration of the eroded area.

- A drainage system approved by the City Engineer to ensure that runoff resulting from 10-year frequency storms of 6 hours and 24 hours duration under developed conditions, are equal to or less than the runoff from a storm of the same frequency and duration under existing developed conditions. Both 6-hour and 24-hour storm durations shall be analyzed to determine the detention basin capacities necessary to accomplish the desired results.

The Permittee shall implement and maintain the Plan for the life of the project.

4.0 FINDINGS AND DECLARATIONS

4.1 Project Purpose and Description

The proposed project is a seawater desalination facility proposed by Poseidon Resources (Channelside) LLC (referred to herein as Poseidon). Poseidon's proposed facility would use about 304 million gallons per day (MGD) of water drawn from Agua Hedionda Lagoon **(the Lagoon)** in Carlsbad, San Diego County (see Exhibit 1), to produce 50 MGD of potable water for local and regional use.[~~13~~ 3] At 50 MGD, Poseidon's proposed project would be the largest seawater desalination facility in the United States and in the Western Hemisphere. The proposed development also includes pipelines and pump stations necessary to deliver the produced water to a water reservoir in Carlsbad. The project's objectives include providing a local and reliable source of water, reducing local dependence on imported water, and providing water at or below

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[~~13~~ 3] The project would use about 100 MGD in the desalination process to create about 50 MGD of potable water and about 50 MGD of a high salinity discharge. The total amount would vary based on project operations – e.g., during maintenance, periods of start-up, etc. – and could be as high as 129 MGD. To reduce the salinity concentrations of its discharge, Poseidon would pump an additional 200 MGD into its intake and discharge system for dilution. This is discussed in more detail in Section 2.5.1 of these Findings.

the cost of imported water supplies. Poseidon has announced agreements to sell various amounts of its desalinated water to water districts in San Diego County for up to about 90 years.

Project Setting: The project would be located at the Encina power plant in Carlsbad on a site leased from the power plant owner, Cabrillo Power II, LLC (Cabrillo) (see Exhibit 2). During the past half-century, the power plant used water from Agua Hedionda Lagoon to cool its generating units. Poseidon's project as initially proposed in 1999 would have used some of the hundreds of millions of gallons of estuary water the power plant drew in from Agua Hedionda Lagoon to cool its generating units; however, Cabrillo recently proposed replacing the existing power plant with a new plant to be located elsewhere on the site, and which Cabrillo expects will be operating by 2010.[~~2~~4] This new power plant would use dry cooling instead of using water from Agua Hedionda. Cabrillo proposes to keep two of the five units in the existing plant available for a few years beyond 2010 to provide additional grid reliability if needed~~, and Cabrillo anticipates that these two units would operate only a few weeks per year.~~ **. These two units represent two-thirds of the generating capacity in the existing plant.**[5] The power plant's generating capacity is subject to "Reliability Must Run" status, as contracted by the California Independent System Operator (Cal-ISO), which is meant to provide electrical grid reliability. At the October 2007 State Lands Commission meeting, a Cabrillo representative testified that the units will remain in service indefinitely and that Cal-ISO would determine when they are no longer needed for grid stability. (6)

Cabrillo's announced change in the power plant's operations ~~represents a change in how Poseidon's facility was originally proposed. The~~**was studied extensively in the project's EIR prepared by the City of Carlsbad. Specifically, the** City's EIR evaluated the project both as a co-located and ~~standalone~~**stand-alone** facility (that is, operating both with and without concurrent power plant operations), and determined that a ~~standalone~~**stand-alone** facility would cause **considerably** less entrainment **and impingement losses** than the existing power plant operations and would have no significant ~~entrainment impacts. However, the City certified the EIR before Poseidon provided results of its entrainment study showing a new standalone desalination facility would cause a loss of biological productivity equal to about 37 acres of estuarine habitat in Agua Hedionda (see additional related Findings in Section 4.5.1). Poseidon's project would no longer function as a co-located desalination facility – that is, it would not re-use the estuarine water already used by the power plant – but instead would be a new "stand-alone" facility, drawing in water just for desalination.~~ **impacts.**[6] Poseidon's lease with the power plant owner would allow it to operate the power plant's pumps when the power plant is shut down and would allow the proposed desalination facility to operate for up to 90 years. These Findings (2) (1) (2)

[~~2~~4] On September 14, 2007, Cabrillo submitted to the California Energy Commission its *Application For Certification* to start the review process needed to replace the existing power plant (Application #07-AFC-06). (6)

[5] **Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. B, at p. 2.**

[6] **See also Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at pp. 9-11; see Project EIR Section 4.3.** (2)

evaluate Poseidon's proposal as a "stand-alone" facility and the analyses herein are based on the coastal resource impacts that would result from the "stand-alone" project.

A key environmental feature of the proposed project site is Agua Hedionda Lagoon. Several sections of these Findings address **potential** project-related impacts to the lagoon's water quality and habitat values and the measures imposed to mitigate those impacts and ensure conformity to the Coastal Act. The description below provides a brief introduction to the lagoon and subsequent sections provide additional relevant details.

Agua Hedionda Lagoon is a coastal estuary that extends about 1.7 miles inland and is up to about one-half mile wide. It is at the downstream end of Agua Hedionda Creek, which has a watershed of about 29 square miles. The lagoon has been altered substantially over the past century or so. It has been bridged several times – in the late 1800s for a railroad, in 1919 for the Pacific Coast Highway, and in 1967 for Interstate 5. It now consists of three main "lobes" – an Outer Basin of about 66 acres, a Middle Basin of about 23 acres, and an Inner Basin of about 167 acres. The lagoon's mouth is about 3,000 feet north of the power plant, and is maintained by two jetties extending a few hundred feet into the ocean. The jetties are on State tidelands and are leased by the State Lands Commission to Cabrillo. The power plant also has a State Lands lease for use of its discharge structure, which crosses a state beach and state tidelands to the south of the lagoon mouth (see Exhibit 3).

Before the mid-1950s, Agua Hedionda Lagoon was a shallow coastal wetland that was periodically shut off from tidal flows (the name is Spanish for "stinky water"). In the mid-1950s, Southern California Edison purchased much of the lagoon and dredged about four million cubic yards of material to create an intake channel for the power plant's cooling water system.[~~3~~7] Edison sold the power plant in 1999. The power plant has operated since the mid 1950s using up to about 850 million gallons per day of water from the estuary, although its water use has declined significantly in recent years. It has required regular dredging during that time to maintain the power plant's intake channel, with at least 25 separate dredging events occurring during the power plant's history. The estuary is also used for other purposes, including aquaculture (sea bass net pens, and a mussel farm), recreation (primarily boating and beach use), and ocean research (Hubbs-Seaworld Research Institute). Cabrillo, the current owner, also allows use of the lagoon for various scientific research and monitoring activities. **A study submitted by Dr. Scott Jenkins on September 28, 2007 on behalf of Poseidon indicates that if the Lagoon is not regularly dredged, the Lagoon would close in about five to seven years and slowly revert back to its natural state of stagnant "stinky water."[8] In its natural state, the Lagoon would be comprised of shallow marsh channels filled with hyper-saline water, and current recreational, fishing and aquaculture activities could no longer function.**

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[~~3~~7] In 1999, Southern California Edison sold most of the power plant property and Agua Hedionda Lagoon to Cabrillo, although it continues to own land along the lagoon's shoreline.

[8] ***Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon: Low Flow vs. No-Flow Alternatives*, Dr. Scott Jenkins, September 28, 2007.**

Dredging of the Lagoon also provides sand to maintain Carlsbad State Beach, grunion spawning habitat, and a popular surfing break. Without the sand provided by regular dredging, each of these uses would be severely impacted. ③

The state's water quality standards identify Agua Hedionda Lagoon's listed beneficial uses as the power plant's industrial use, recreational uses, aquaculture, and habitat. The estuary is also listed as impaired, pursuant to Section 303(d) of the federal Clean Water Act, due to excess sedimentation and coliform bacteria. Additionally, the Carlsbad Watershed Management Plan[4~~2~~] identifies the lagoon as being further impaired due to habitat fragmentation and the presence of invasive species. During the past several years, the lagoon experienced an outbreak of the highly invasive *Caulerpa taxifolia*, but in 2006 local and state efforts to eradicate *Caulerpa* from the lagoon were deemed successful. Monitoring for *Caulerpa* continues, however.

Despite these impacts and the degraded water quality, Agua Hedionda continues to provide significant habitat values. The California Department of Fish and Game (DFG) includes it in a list of 19 "high-priority" coastal wetlands and DFG manages a Marine Ecological Reserve within the lagoon that provides habitat for a number of listed sensitive species. These features are described in more detail in Section 4.5.1 of these Findings.

Need for the Project: The project would provide a much-needed source of potable water for Southern California. Since Poseidon filed its Coastal Development Permit ("CDP") application, the water supply situation in the State of California – already bad – has substantially deteriorated. Poseidon has provided the Commission with evidence demonstrating a looming water crisis that clearly identifies the need for California, and more specifically San Diego County, to lessen its demand on the State Water Project and Colorado River watersheds, which were critically dry in 2007.[10]

There is a convergence of warnings that California's water supply will continue to shrink. Climate change brought on by global warming could disrupt weather patterns, leaving the state vulnerable to drought. If 2008 offers hydrologic conditions similar to those of 2007, some significant sources of water for Southern California may not be available. A recent example of the deteriorating supply situation occurred in May 2007, when state water officials temporarily turned off the pumps that send water to Southern California from the ⑥

[4~~2~~] The Carlsbad Watershed Plan was published in 2002 pursuant to an NPDES permit issued in 2001 by the State Water Resources Control Board to the cities of San Diego County. The permit requires participating cities to develop a cooperative and coordinated watershed approach to address water quality issues. The Plan's goals include the following: "*Protect coastal and wetland resources*: Extra credit should be given to "Action Items" that serve to protect the wetland resources, sensitive species and fragile ecosystems associated with coastal lagoons and riverine resources. These resources are not only sensitive and highly valued, but they support a great diversity of species and tend to be "sink holes" where water quality problems become much greater."

[10] **See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at p. 5.**

Sacramento-San Joaquin Delta to protect the endangered smelt and salmon.[11] In addition, the Metropolitan Water District announced that it will cut agricultural water deliveries by 30 percent beginning January 1, 2008, which could have an enormous impact on San Diego County's large agricultural economy.[12]

Moreover, State, regional, and local water plans all have confirmed that the immediate and pressing water needs are so great, that they cannot be met by conservation and recycled water alone and that a substantial investment in seawater desalination, including the project, is required. The project's capacity of 56,000 AFY of new water supply for the San Diego region is about ten percent of 500,000 AFY of desalinated water identified by the California Department of Water Resources as needed by 2030, as stated in its 2006 Water Plan Update. This Update lists the project as a potential source of desalinated water. The Metropolitan Water District of Southern California's Integrated Water Resources Plan identified a need for 150,000 AFY of seawater desalination (including 56,000 AFY from the Carlsbad project) to ensure regional water supply reliability. In addition, the San Diego County Water Authority updated its 2005 Urban Water Management Plan in April 2007 specifically to reaffirm the need for 56,000 AFY of seawater desalination from the project by 2011. The project is a central component of state, regional and local water supply planning to meet already-identified demand.[13]

Recognizing the importance of the project, eight water agencies – Carlsbad Municipal Water District, Valley Center Municipal Water District, Rincon del Diablo Municipal Water District, Sweetwater Authority, Rainbow Municipal Water District, Santa Fe Irrigation District, Vallecitos Water District, and Olivenhain Municipal Water District – have already contracted to purchase 100% of the project's capacity, and have identified the project's water supply as a component of their water plans.[14] (6)

4.2 Background

Seawater Desalination's Role in California's Water Portfolio

Both California and the Coastal Commission have recognized that environmentally and economically appropriate seawater desalination is an acceptable method for providing part of the state's water supply. There are currently about a dozen facilities operating along the California coast, mostly providing relatively small amounts of water to local users or to certain industrial facilities. During the past few years there has been increased interest in seawater desalination, due largely to recent advances in desalination technology, concerns about increasing the

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[11] See *id.*

[12] See *id.*

[13] See *id.* at p. 6.

[14] See *id.* at p. 6-7.

reliability over local water supplies, and **interest in** reducing dependence on imported supplies. There are now about twenty proposals for new facilities to be built along the coast to serve both local and regional water needs.

The 2005 Update of California's State Water Plan expects seawater desalination to provide about 200,000 acre-feet of water by 2030. Both the Metropolitan Water District of Southern California (MWD) and the San Diego County Water Authority (SDCWA, or Authority) have included seawater desalination as part of their long-term water supply portfolio. The Authority has established a goal that seawater desalination provide 89,600 acre-feet of its water supply by 2030. Even the Southern Nevada Water Authority has identified seawater desalination as part of its long-term water supply, with its idea being that water from the Colorado River would be used in Nevada in exchange for the Nevada water users paying for desalinated water to be produced along the California coast.

Several recent initiatives in California illustrate this increased interest:

- **State Desalination Task Force:** In 2003, pursuant to AB 2717, the California Department of Water Resources convened an interagency task force[5~~15~~] to report to the Legislature on potential opportunities and impediments for using seawater and brackish water desalination, and to examine what role, if any, the state should play in furthering the use of desalination technology. Based on information provided during a series of workshops around the state, the task force developed recommendations and guidelines for desalination projects proposed in California. Some key task force findings applicable to this proposed project include:

  - *Desalination can provide a reliable supply during California's periodic droughts.*

  - *Many communities and water districts are interested in developing desalination facilities as a local, reliable source of water to reduce their dependence on imported water and/or to meet existing or projected demand. Some communities see desalination as a way to reduce their diversions from rivers and streams, thus contributing to ecosystem restoration.*

[5~~15~~] Task Force members included representatives from: State agencies – California Department of ~~w~~Water Resources, Coastal Commission, State Water Resources Control Board, Central Coastal Regional ~~w~~Water Quality Control Board, Energy Commission, ~~d~~Department of Health ~~s~~Services, Resources Agency, California Environmental Protection Agency, Department of Food and Agriculture, CALFED, Bay Conservation and Development Commission, Department of Fish and Game, University of California; federal agencies – Bureau of Reclamation, Monterey National Marine Sanctuary; local governments and water agencies – Monterey County Health Department, City of Long Beach Water Department, League of Cities, County Supervisor Association of California, Central Basin and West Basin Municipal Water Districts, Marin Municipal Water District, Inland Empire Utilities Agency; and interest groups – California Building Industry Association, Surfrider, American Membrane Technology Association, National Water Research Institute, Clean Water Action and Clean Water Fund.

- *Technologically, desalination is a proven, effective mechanism for providing a new source of water. A variety of desalination technologies have been applied in many locations throughout the world.*

- *Economically and environmentally acceptable desalination should be considered as part of a balanced water portfolio to help meet California's existing and future water supply and environmental needs.*

- *While they vary on a site-specific level, potential impediments to seawater desalination include the environmental impacts associated with the feedwater intake and brine/concentrate disposal. As is the case with many other water management strategies, other potential issues include cost, siting and growth-inducement.*

- *With proper design and location of outfalls, brine/concentrate disposal may not be a major impediment to desalination.*

- *Seawater desalination is more energy intensive, per acre-foot, than brackish water desalination or water recycling. For energy comparison purposes, current desalination systems using reverse osmosis technology require about 30 percent more energy than existing interbasin supply systems currently delivering water to parts of Southern California. Efforts including those supported by the Bureau of Reclamation, U.S Desalination Coalition, and the National Water Research Institute are underway to increase the energy efficiency of desalination through improved membranes, dual pass processes, and additional energy recovery systems.*

- *Advantages to co-locating desalination facilities with coastal power plants using once-through cooling may include: compatible land use, use of the existing infrastructure for feedwater intake and brine discharge, location security, use of the warmed power plant cooling water as the feedwater for the desalination facility, reduction of the power plant discharge thermal plume and the potential to purchase power from the host power plant at prices below retail rates.*

- *Co-locating a desalination facility with a coastal power plant may provide a justification for the continued use of once-through cooling technology. Once through cooling technology has well-documented environmental impacts, including impacts on marine organisms.*

- *The appropriate State regulatory agencies have indicated that the siting of a new desalination facility, which utilizes any new or existing open water feedwater intakes, will require a current assessment of entrainment and impingement impacts as part of the environmental review and permitting process.*

- *Various technologies exist that may avoid, reduce or minimize the impacts of feedwater intake.*

- *Drawing feedwater from beach wells is one way to avoid the ecological impacts of entrainment and impingement associated with open water intakes; however, the capacity of each well is limited and is subject to local hydrogeologic conditions.*

- *Low velocity intake systems, marine fish screens, sub-floor intakes and appropriate intake pipe design and location are methods that may reduce or minimize impacts of entrainment and impingement associated with open water intakes.*

- *Water, including ocean and estuarine water, is a public resource, subject to the public trust doctrine, and should be protected and managed for the public good.*

- *The extent to which private companies are involved in the ownership and operation of proposed desalination plants varies widely, from completely private projects that may be regulated by the State Public Utilities Commission, to public-private partnerships, to projects that would be wholly owned, operated and controlled by public entities. The involvement of private companies in the ownership and/or operation of a desalination plant raises unique issues.*

- *There are implications associated with the range of public-private possibilities for ownership and operation of desalination facilities. Local government has the responsibility to make the details of these arrangements available to the public.*

- *Recently adopted international trade agreements and international trade agreements currently being negotiated may affect how federal, State and local agencies adopt or apply regulations concerning activities of public agencies or private entities with multinational ties.*

- *Desalination proposals are subject to existing regulatory and permitting processes to ensure environmental protection and public health.*

- *Environmental justice considerations include the siting of desalination facilities, determining who accrues the costs and benefits of desalination and who has the opportunity to use higher quality (desalinated) water, and the possible impacts of replacing low-cost with high-cost water.*

- *Growth inducing impacts of any new water supply project, including desalination, must be evaluated on a case-by-case basis through existing environmental review and regulatory processes.*

- *Each desalination project involves different environmental characteristics, other water supply alternatives, proposed plant ownership/operation arrangements, demographics, economics, community values and planning guidelines.*

- **Coastal Commission Report – Seawater Desalination and the California Coastal Act:** In 2004, Commission staff published a report describing many of the issues associated with

seawater desalination along the California coast and discussing how proposed desalination facilities could conform to Coastal Act provisions. The report provides general information about desalination, describes the status of desalination in California, identifies key Coastal Act policies most likely to apply to proposed desalination facilities, and identifies much of the information likely to be required during review of a coastal development permit application for those facilities.

Its key conclusions recognize that each facility will require case-by-case review due to the unique operating characteristics and environmental settings, that Coastal Act policies do not suggest overall support of, or opposition to, desalination, that there may be differences in applying those policies to public or private proposals, that the most significant potential impacts to address are likely entrainment of marine organisms and growth-inducement, and that proposed co-located facilities raise unique issues regarding Coastal Act conformity.

- **Proposition 50 Grants:** As part of Proposition 50, which Californians approved in 2002 to provide funding for a number of water-related projects around the state, the state Department of Water Resources distributed about $50 million to public agencies for various types of desalination research projects. Several of the Commission's past decisions have been in support of these projects – for example, the Commission has approved projects conducted by the City of Long Beach Water Department to conduct pilot tests and subsurface intake methods and projects by the Metropolitan Water District of Orange County for its innovative and successful research on using slant-drilled wells for subsurface desalination intakes.

  There are also a number of initiatives at local or regional levels to support or research the potential for seawater desalination to provide part of an area's water supply. For example, Southern California's Metropolitan Water District (MWD), which represents most water agencies in coastal Southern California, established a program offering to its member agencies subsidies of up to $250 for each acre-foot of desalinated seawater produced. The agencies eligible for this subsidy include the San Diego County Water Authority, Long Beach Water Department, Los Angeles Department of Water and Power, West Basin Municipal Water District, and the Municipal Water District of Orange County. The MWD has also provided about $250,000 to its member agencies for desalination research.

Association with a power plant once-through cooling water intake system

Poseidon proposes to use the existing Encina power plant intake and discharge. Originally, Poseidon planned to reuse some of the estuary water the power plant drew in from Agua Hedionda Lagoon to cool its generating units. However, as discussed in Section 4.1 above, Cabrillo has applied to cease operations of its existing facility and to build a new power plant. In September 2007, Cabrillo applied to the California Energy Commission to build by 2010 a new, smaller, dry-cooled power plant on site that would not use water from Agua Hedionda. Cabrillo's proposal includes removing three of the existing plant's five generating units and operating the remaining two units only part time ~~(expected to be up to a few weeks per year)~~ for

several more years until replacement power becomes available.[6] **The two remaining generating units represent 528 MGD of pumping capacity.** As noted previously, the power plant is subject to "Reliability Must Run" contracts with Cal-ISO. At the October 2007 State Lands Commission hearing, a Cabrillo representative stated that the generating units will be available for service indefinitely and that Cal-ISO would ultimately determine when they are no longer needed for grid reliability. Once the power plant's operations cease, Poseidon would continue to use the existing power plant intake and discharge for its water supply. The proposed project was the subject of CEQA review conducted by the City of Carlsbad, and the Final EIR, certified by the City on June 14, 2006, addressed the potential stand-alone operation of the facility and concluded that such a facility would not result in any ~~new~~ significant adverse environmental impacts.[16] ~~After the EIR was certified in June 2006,~~ Poseidon **also** provided Commission staff ~~in 2007~~ with results of its entrainment study showing impacts roughly equal to ~~the loss of~~**reduced** productivity from 37 acres of wetlands and open water in Agua Hedionda Lagoon.[17] Poseidon also provided in December 2006 and May 2007 technical papers showing the amount of ~~l~~**L**agoon sedimentation caused by use of the intake.[7]**18**

As a stand-alone facility, Poseidon would operate the power plant**'s** pumps to take in approximately 304 MGD of estuarine water. The project would use about 100 MGD of that water in the desalination process to create about 50 MGD of potable water and about 50 MGD of a high salinity discharge. The **facility's** NPDES permit issued to Poseidon by the Regional Board requires that Poseidon's discharge not exceed a maximum salinity level of 40.1 parts per thousand. ~~To meet this discharge requirement,~~ Poseidon would use the additional 200 MGD of estuarine water it pumps in to reduce its discharge's salinity concentration to levels established in the NPDES permit.

Some other reverse osmosis desalination facilities can produce a particular amount of potable water by using about twice that amount of seawater (i.e., a 2:1 ratio), but because of the approach used in this project to dilute Poseidon's discharge and due to the Regional Board's requirements, this project would require a 6:1 ratio. This is discussed in more detail in Section 4.5.1 of these Findings.

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[6] ~~Although the power plant has been permitted in the past to use up to about 857 MGD of estuarine water, its recent average use has been well below that amount. In the first half of 2007, for example, its average use was 120 MGD, and it had more than sixty days with no operations.~~

[16] **See Project EIR Section 4.3, Appendix E.**

[17] **See Carlsbad Seawater Desalination Project Revised Flow, Entrainment, and Impingement Minimization Plan, June 1, 2007, Attachment 4, Tenera Environmental, Inc., *Assessment of Potential Impingement and Entrainment Attributed to Desalination Plant Operations and Associated Area of Production Forgone*, May 2007, at p. 4.**

[7]**18** See Carlsbad Seawater Desalination Project Revised Flow, Entrainment, and Impingement Minimization Plan, June 1, 2007: Attachment 6, Scott A. Jenkins and Joseph Wasyl, *Coastal Process Effects of Reduced Intake Flows at Agua Hedionda Lagoon*, December 13, 2006, Attachment 8, Steve Le Page, *Potential Adverse Changes in Agua Hedionda Lagoon Resulting From Abandonment of the Lagoon Intake*, May 18, 2007.

Poseidon's proposed operating scenario is to ~~operate~~**use** the power plant's Unit 4 pumps, which would provide the necessary 304 MGD.[~~8~~**19**]

A number of regulatory, policy, and legal challenges have been raised with respect to once-through cooling. Their relevance to the project is not yet certain, in part because while the ~~desalination facility~~**project** will use the existing power plant once-through cooling system, it will not be using that system for once-through cooling. Issues that may be relevant include:

- *Entrainment/impingement studies along California's coast*: California's coastal power plants have been studied over the past few years to determine what effects their use of seawater for cooling has on the marine environment.[~~9~~**20**] These power plants can use from several hundred million gallons per day to over two billion gallons per day of water from the nearshore ocean, open embayments, and enclosed estuaries. Each of the studies showed these cooling water intakes cause significant adverse effects to the marine environment that in some cases extended up to dozens of miles along the coast or covered up to hundreds of acres of nearshore waters.

- *California Ocean Protection Council's Once-Through Cooling Policy*: In response to these studies and in recognition of the degraded quality of California's ocean environment, the California Ocean Protection Council last year adopted a policy to reduce the adverse effects of once-through cooling systems.[~~10~~**21**] The resolution recognizes that such systems cause significant adverse impacts to the marine ecosystem. The Commission further directed its staff to complete by December 2007 a study of alternative cooling methods that would reduce impacts, urged the State Water Resources Control Board to implement the most protective controls to reduce entrainment and impingement impacts by 90-95%, and established an interagency coordinating effort to address once-through cooling issues.[~~11~~**22**]

[~~8~~**19**] The power plant has five separate generating units, each with two cooling water pumps and one or two service pumps. Each unit's pumps have a different capacity, from about 73 MGD to 326 MGD. Poseidon's preferred scenario would be to operate the Unit 4 pumps, which would provide the required 304 MGD rate. The Regional Board determined that 304 MGD would be necessary to adequately dilute Poseidon's 50 MGD high salinity discharge. On June 1, 2007, Poseidon submitted to the Board a *Revised Flow, Entrainment and Impingement Minimization Plan* that the Board is currently reviewing. The draft Plan states that operating the Unit 4 pumps would result in a discharge of 304 MGD with a salinity level of 40.1 parts per thousand, which is the limit established in the facility's ~~conditional~~ NPDES permit. This operating scenario serves as the basis of the various analyses in these Findings related to entrainment, impingement, greenhouse gas emissions, and others.

[~~9~~**20**] Since 1998, power plant entrainment/impingement studies done in California include South Bay (in San Diego), Huntington Beach (Orange County), Diablo Canyon and Morro Bay (San Luis Obispo County), and Moss Landing (Monterey County).

[~~10~~**21**] See *Resolution of the California Ocean Protection Council Regarding the Use of Once-through Cooling Technologies in Coastal Waters*, April 20, 2006.

[~~11~~**22**] Coastal Commission staff is active in the interagency coordinating group.

- *Changes in regulatory / legal status of seawater intake systems*: In January 2007, the 2nd Circuit Court of Appeals determined that U.S. EPA rules for regulating existing power plant cooling water intakes did not conform to Clean Water Act requirements (*Riverkeeper, Inc., v. United States EPA*, 475 F.3d 83, 97 (2d Cir. 2007).) The court's decision, known as *Riverkeeper II* and which applies nationwide, found that cooling water intakes had to reduce entrainment impacts through technological measures and could not use compensatory mitigation as a means of compliance. In response, the U.S. EPA rescinded its proposed requirements and directed state water quality agencies to use Best Professional Judgment in determining applicable NPDES requirements for once-through cooling systems. For most power plants, this *Riverkeeper II* decision means that continued use of their existing cooling water systems would not comply with the Act's requirements. As noted previously, five of California's coastal power plants have since announced that they will switch to a less environmentally damaging cooling method.

Poseidon contends that this decision has no effect on its ability to use the intake when the power plant shuts down because it would not use the intake for cooling water. ~~However, in conjunction with that ruling, the~~

Moreover, Poseidon contends, even though it is speculative how or whether future Phase II regulations might impact the EPS's use of the intake structures, the impacts of the project as a stand-alone facility already have been analyzed. These studies and analyses show that entrainment caused by a stand-alone project would be significantly less than that already caused by the EPS, which is a small amount that does not affect sustainability of the species. Similarly, the project, as a stand-alone facility, would impinge only a small mass of organisms. A stand-alone facility would also comply with a discharge limitation of 40 ppt, below which no salinity-related impacts would occur.[23] A study submitted by the applicant also shows that if the Lagoon is not regularly dredged, the Lagoon would close in about five to seven years and slowly revert back to its natural state of stagnant "stinky water," which consists of shallow marsh channels filled with hyper-saline water that would preclude current recreational, fishing and aquaculture activities.[24] Thus, Poseidon's commitment to continue operation and maintenance dredging of the Lagoon if EPS ceases to use its intakes and stops its regular Lagoon dredging would avoid greater marine impacts that would otherwise occur in the Lagoon if dredging ceased.[25]

Poseidon states, even if future Phase II regulations do impact the EPS's use of the intake structures – which is speculative – they would not prohibit Poseidon's use of them. As indicated in Section 316(b) and the Phase II regulations, as well as the State Board's

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[23] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at p. 15.

[24] *Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon: Low Flow vs. No-Flow Alternatives*, Dr. Scott Jenkins, September 28, 2007

[25] See Poseidon Resources Corporation, Response to Staff Report, November 9, 2007, Exh. A at pp. 25-26.

scoping document regarding its Section 316(b) policy, Section 316(b) does not apply to desalination facilities, such as the project. Section 316(b) applies only to "cooling water intake structures," which withdraw "water used for contact or non-contact cooling, including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content," intended "to absorb waste heat rejected from the process or processes used, or from auxiliary operations on the facility's premises."[26] The Phase II regulations apply only if the facility: (1) is a point source; (2) uses cooling water intake structures with a capacity to withdraw at least 50 MGD of cooling water; (3) generates electric power either to transmit or to sell for eventual transmission; and (4) uses at least 25 percent of water withdrawn exclusively for cooling purposes.[27] Poseidon contends that the regulations are not applicable to the project, as it is not an electrical generating facility and would not use water for cooling purposes. Poseidon relies on the State Board's Section 316(b) scoping document, which states that desalination plants are "outside the scope of the Clean Water Act [Section] 316(b)" and "would be more appropriately addressed through the other water quality control plans."[28] Thus, Poseidon contends it would not be prohibited by any future Section 316(b) regulations from using the EPS's existing intake structures.[29]

Furthermore, when petitioned to review the NPDES Permit issued by the San Diego Regional Water Quality Control Board ("Regional Board") for the Project, the State Water Resources Control Board ("State Board") determined that the petition, which included allegations that Section 316(b) is applicable, was without merit, and dismissed the petition.[30] Those petitioners alleged that the NPDES Permit should have contained a "reopener" requiring the Regional Board to reopen the permit upon finalization of the State Board's Section 316(b) policy.[31] Poseidon's response to the petition explained that neither the Section 316(b) regulations nor the State Board's policy were applicable to the Project, and a reopener related to Section 316(b) thus was not necessary.[32] Finding that the petition "fail[ed] to raise substantial issues that are appropriate for review," the State Board dismissed the petition. The State Board has, therefore, decided that the Regional Board's actions with respect to Section 316(b) were not appropriate for review. Regardless of whether EPS will, in the future, be prohibited from using its cooling water intake ②

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[26] 40 § C.F.R. 125.93.

[27] See *id.* at § 125.91.

[28] See State Board, Scoping Document: Proposed Statewide Policy on Clean Water Act Section 316(b) Regulations, at 28 (June 13, 2006).

[29] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at p. 15.

[30] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. B at p. 6.

[31] *Id.*

[32] *Id.*

structures, causing the Project to operate as a stand-alone facility, Poseidon contends that it would not be prohibited by Section 316(b) or future Phase II regulations from using the intake structures.[33]

The State Water Resources Control Board is developing a *Statewide Policy for Once-Through Cooling*[~~12~~34] that will incorporate the *Riverkeeper II* decision, which was a decision involving the federal Clean Water Act, but will also be based primarily on a state requirement that regulates more than just cooling water structures. Porter-Cologne Act Section 13142.5(b)[~~13~~35] states:

> *"For each new or expanded coastal powerplant or other industrial installation using seawater for cooling, heating, or industrial processing, the best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life."*

Although Poseidon's use of the power plant intake structure would not be for cooling purposes, ~~it would~~**and while it is possible that it may in the future** be subject to this Porter-Cologne Act provision~~and would cause the same type of entrainment and impingement impacts both the Clean Water Act and the Porter-Cologne Act require be avoided and minimized~~**, such a scenario is speculative. At this time, the Regional Water Quality Control Board is processing a plan to regulate Poseidon's use of the power plant intake structure for desalination purposes, and this plan is expected to fully comply with Water Code Section 13142.5(b). This plan is described in more detail in Section 4.5.1 of these findings**. ②

Without the mitigation measures in the Special Conditions contained herein, the proposed use of the existing intake and discharge facilities would be inconsistent with applicable Coastal Act policies. As mitigated and conditioned, the Commission finds the project will be consistent with the Coastal Act, as the Special Conditions will ensure Poseidon will implement all feasible mitigation measures to **reduce impacts and** ensure **that** marine resources are maintained and enhanced to the maximum extent feasible.

Public use of water

Poseidon has announced purchase agreements totaling 57,900 acre-feet of water per year with the following water agencies:

- Carlsbad Municipal Water Department: 22,000 acre-feet per year, or about 20 MGD

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[33] **See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at p. 16.**

[~~12~~34] In July 2006, the Board initiated CEQA review for the proposed policy and is expected to issue a draft policy sometime in early 2008, with a final policy later in 2008.

[~~13~~35] Pursuant to Coastal Act Section 30412(a), the Commission shares responsibilities with the State Board in implementing this section of the Porter-Cologne Act.

- Olivenhain Municipal Water District: 5,000 acre-feet per year, or about 4.5 MGD
- Rainbow Municipal Water District: 7500 acre-feet per year, or about 6.5 MGD
- Rincon Del Diablo Municipal Water District: 4,000 acre-feet per year, or about 3.5 MGD
- Sante Fe Irrigation District: 2000 acre-feet per year, or about 1.8 MGD
- Sweetwater Authority: 2400 acre-feet per year, or about 2 MGD
- Vallecitos Water District: 7500 acre-feet per year, or about 6.5 MGD
- Valley Center Municipal Water District: 7,500 acre-feet per year, or about 6.5 MGD

Poseidon's stated objective is to provide water to purchasers at or below the price they would pay for imported water, and its purchase agreements with these agencies are based on that objective. These agencies, all of which are members of the San Diego County Water Authority, currently purchase imported water from the Authority at rates ~~ranging from about $250 to~~**based on the Municipal & Industrial (M&I) treated water rate, which is approximately** $700 per acre-foot, which ~~are well~~**is** below the costs anticipated for water from the Poseidon project. Cost considerations are described in more detail later in this section.

Of the purchasers above, several would not be able to receive water directly from Poseidon's facility, as they are some distance from Carlsbad – for example, the Sweetwater Authority is about twenty miles away at the southern end of San Diego Bay and both Rincon and Valley Center are several miles inland. Instead, Poseidon's intent is to allow some of the agencies to trade water it has purchased from Poseidon to agencies closer to the facility in exchange for those nearby agencies' rights to imported water.

The project as currently proposed would allow for only limited exchanges, since it does not include several elements of public infrastructure needed to distribute the water beyond adjacent communities. Poseidon's proposal includes pipelines and pumps necessary to transport its produced water to Carlsbad's Maerkle Reservoir, which serves parts of Carlsbad ~~and neighboring Oceanside and Vista only~~, and its other pipelines would serve parts of some other neighboring communities. Poseidon's proposal includes several pipeline route alternatives, for the most part outside the coastal zone, that would allow it to provide water to portions of the cities of Carlsbad, Oceanside, Vista, San Marcos, Escondido, Encinitas, and Solana Beach. The project EIR examined facilities to connect with these local water delivery systems. ~~Getting water from this reservoir to the regional distribution system where it would be usable or tradable by other water agencies would require an additional pump station and pipeline between the reservoir and elements of the regional system located further inland and several hundred feet higher in elevation.~~ Poseidon does not currently plan to connect the desalination facility to the regional water distribution system. ~~This connection is not necessary to deliver water between the facility and the neighboring communities listed above. The new pump station and pipeline are~~

(6)

~~not a part of the proposed project, but instead are included in the SDCWA's 2007 *Draft Integrated Water Resource Management Plan.* This Plan shows that the anticipated capital costs for these facilities are $80 million and ongoing operations and maintenance costs would be $2.5 million. These costs would need to be added to any costs charged by Poseidon and would represent an additional cost to any purchaser needing to either obtain the desalinated water via the regional system or use that system to trade with other agencies. The Borego Water District, in its Board meeting minutes of September 26, 2007 describing its consideration of water purchases from the proposed desalination facility, identified the expected transmission costs as $140 per acre-foot. Cost issues are described in more detail later in this Section. Without the additional infrastructure, the actual usable water from Poseidon's proposed facility would be limited to water to those areas listed above in and near Carlsbad.~~**Because all of the water districts in San Diego County are connected to the same imported water delivery system, it is not necessary for the desalination facility to be connected to the regional system to exchange water among the agencies located in close proximity to the plant and those that are located outside the reach of the desalinated water delivery system.**[36] Further, Maerkle Reservoir is currently designated by Carlsbad as its required emergency storage reservoir – that is, water stored there is meant to provide the City with a 10-day emergency water supply during a shutdown of the regional delivery system – and, as noted in the City of Carlsbad Water ~~*Master Plan Update* (March 2003), that designation would have to be changed to allow Poseidon to use the reservoir to store or transport water to the regional distribution system. That change would also presumably have to identify an alternative 10-day emergency source for Carlsbad.~~**Purchase Agreement, Carlsbad's need for water from the regional delivery system would be significantly reduced after the project comes online; freeing up capacity in Maerkle Reservoir for operational storage of desalinated water.** (6)

Expected Project Costs

The Commission does not directly regulate costs; however, the Coastal Act includes consideration of project costs in an indirect ~~but important way. Some Coastal Act provisions require the Commission to determine whether~~**way, but only to the extent the Commission were to find that the project is inconsistent with one or more relevant Coastal Act policies and therefore was required to make findings under Coastal Act Section 30260 for Coastal Development Projects. If a project is inconsistent with one or more Coastal Act Policies, a coastal dependent use such as the project could be approved if the Commission finds that the** certain adverse impacts of the proposed project are mitigated to the **maximum** extent feasible or whether there are feasible and less environmentally damaging alternatives to aspects of a proposed project ~~(see, for example, Coastal Act Sections 30121.5, 30230, 30231, 30233(a), and 30260)~~. Coastal Act Section 30108 defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." Therefore, information about proposed project costs may sometimes be necessary to fully evaluate what project changes or mitigation measures

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[36] **See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at p. 32.**

may be economically feasible. The Commission includes the following discussion of the project's estimated costs to use in later sections of these Findings regarding feasible mitigation measures and alternatives.[37]

One of Poseidon's objectives and the basis of its purchase agreements is to provide water to water districts at or below the costs of imported water.[~~14~~38] Those costs ~~now range from~~**are** about ~~$300 to~~ $700 per acre-foot for water districts in the San Diego area.[~~15~~39] **Poseidon has provided the Commission with a detailed accounting of its expected costs.[40] Commission staff, however, contends that Poseidon's actual costs would be higher than what local water districts are paying for imported water.**

In July 2007, Poseidon provided the following figures for its expected project costs:[~~16~~]

~~**Total capital costs:** $300 million~~

~~**Annual gross revenues:** $53 million~~
~~(based on 56,000 acre-feet per year X ~$950 per acre-foot)~~

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[37] **However, as the Commission previously found, the Project is consistent with all applicable Coastal Act policies.**

[~~14~~38] More precisely, Poseidon's Water Purchase Agreements describe the price as: "The lower of (i) the sum of (A) $861/acre-foot [$0.70/m^3] (the "Base Price" in 2004 dollars) and (B) a delivery charge for transportation of the desalinated water to the Exchange Partner; and (ii) the sum (the "Avoided Cost") of (A) Buyer's cost of water supplied by the SDCWA and (B) any subsidy received by Buyer from MWD or any other third party for the purchase of water from the Project. To the extent the Base Price plus the delivery charge is less than the Avoided Cost, the savings shall be shared equally between the Parties."

The "Avoided Cost" method is equal to the sum of costs charged by the San Diego County Water Authority. The "Base Price" method is tied to the Consumer Price Index and is based on the following formula:

$$\text{Current Base Price} = (\text{Base Price}_{\text{initial}})(70\%(\text{CPI}_i / \text{CPI}_{\text{initial}}) + (30\%(\text{EC}_i / \text{EC}_{\text{initial}})))$$

[~~15~~39] The MWD, from whom SDCWA purchases most of its imported water, expects its imported water price to go up from 4-6% per year for the next ten years. In the shorter term, SDCWA expects its costs to increase next year by about 10%.

[40] **Poseidon has provided the Commission with the following documents supporting its projections of expected costs: Poseidon Resources Corporation, *Response to California Coastal Commission's September 28 Request for Additional Information*, November 30, 2006 pp. 46-51; Poseidon Resources Corporation, *Response to California Coastal Commission's July 3 Request for Additional Information*, July 16 2007, at pp. 11-13; Poseidon Resources Corporation, *Transmittal of Intake Cost Estimates*, October 17, 2007.**

[~~16~~] ~~Poseidon had additionally provided the Commission with the following documents supporting its projections of expected costs: Poseidon Resources Corporation, *Response to California Coastal Commission's September 28 Request for Additional Information*, November 30, 2006 pp. 46-51; Poseidon Resources Corporation, *Response to California Coastal Commission's July 3 Request for Additional Information*, July 16 2007, at pp. 11-13; Poseidon Resources Corporation, *Transmittal of Intake Cost Estimates*, October 17, 2007.~~

(6)

~~Annual operations and maintenance costs:~~	~~$30 million~~	~~$535 per acre-foot~~
~~Debt service and taxes:~~	~~$21 million~~	~~$375 per acre-foot~~
~~Anticipated net annual revenues:~~	~~$2 million~~	~~$ 36 per acre-foot~~
~~Total:~~		~~$946 per acre-foot~~

Total capital costs:	**$300 million**	
Annual gross revenues: (based on 56,000 acre-feet per year X ~$950 per acre-foot)	**$53 million**	
Annual operations and maintenance costs:	**$30 million**	**$535 per acre-foot**
Debt service and taxes:	**$21 million**	**$375 per acre-foot**
Anticipated net annual revenues:	**$2 million**	**$36 per acre-foot**
Total:		**$946 per acre-foot**

Commission staff ~~analysis showed, however, that the overall cost would likely~~**believe actual costs would** be somewhat higher and, in fact, for some components of the proposed project could only verify higher costs. These higher costs would make Poseidon's water cost substantially more than the expected $950 per acre-foot and even higher than current or expected costs for imported water. Poseidon disagreed with several of staff's cost estimates, as described below~~.~~**:**

- *Overall trend of desalination costs*: Over the past couple of decades, desalination costs have declined significantly, due largely to advances in technology such as increased energy efficiency, extended membrane and filter operating life, and other improvements. More recently, however, the trend appears to have reversed. Despite continued advances in some areas of desalination technology and energy efficiency, overall costs of desalinated water have increased during the past few years largely due to increased cost for energy and materials. Of all significant sources of water, seawater desalination is the most energy intensive and the most cost-sensitive to energy prices. Poseidon's expected costs in Carlsbad have ~~gone up, not down,~~**increased** over the past several years. In 2004, Poseidon estimated its water would cost $800 per acre-foot; its most recent estimate is $950 per acre-foot. Its overall capital costs have increased from $270 million to about $300 million during the same period.

  Further, although it is difficult to compare the cost of water from different desalination facilities, **in Commission staff's view,** Poseidon's purported costs are ~~much~~ lower than estimates at other seawater desalination facilities now operating or being developed. For example, testimony by the California-American Water Company before the state Public Utilities Commission shows that it expects water from a similar proposed seawater desalination facility at the Moss Landing Power Plant to cost from $1600-1800 per acre-foot. This proposed facility would be somewhat smaller than Poseidon's (between 10 and 20

⑥

MGD), but even allowing Poseidon a 10% "economy of scale" benefit would result in its costs being closer to $1500 per acre-foot.

- *Additional mitigation costs*: As noted later in these Findings, several mitigation measures are needed for the proposed project to conform to various Coastal Act provisions, and ~~it appears~~**Commission staff does not believe** these costs are ~~not yet~~ included in Poseidon's estimates. For example, Poseidon stated it is considering purchasing "carbon offset" credits for its greenhouse gas emissions. At a current average cost of $20 per megawatt-hour, these credits would cost Poseidon over $5 million per year to fully offset its emissions, which would add about $95 to the cost of each acre-foot produced. Poseidon indicated that it has taken all of these costs into consideration in assessing the feasibility of the project~~.~~**, and addressed these costs in its Climate Action Plan.**

- *Poseidon's reliance on ~~a not-yet-obtained~~**MWD** subsidy*: Poseidon's anticipated costs are also based in part on it being eligible to benefit from the $250 per acre-foot subsidy available from the MWD. As described previously, the MWD several years ago adopted a policy to provide up to $250 per acre-foot to selected water agencies ~~(the San Diego County Water Authority, Long Beach Water Department, Los Angeles Department of Water and Power, West Basin Municipal Water District, and the Municipal Water District of Orange County). To be eligible for the subsidy, Poseidon would have to enter an agreement with one of the five eligible entities (presumably, the San Diego County Water Authority) to transfer its subsidy rights. Without this subsidy, Poseidon's stated costs would be $250 per acre-foot higher. Poseidon responded,~~ **Poseidon responds** that, in a June 22, 2007 letter to the Commission's Executive Director, the MWD affirmed its intent to provide the $250 per acre-foot incentive to the water agencies that have contracted to purchase water from Poseidon.[~~17~~41] ⑥

- *Present and future costs for electricity*: Poseidon estimates its average cost for electricity will be $0.0749 per kWh. It bases this estimate on the rates available from the San Diego Gas & Electric Company (SDG&E) for large industrial customers (SDG&E Tariff Sheet #AL-TOU), which provides a range of energy prices based on the time-of-use~~,~~ (e.g., higher costs at peak afternoon hours, lower costs at night; generally higher costs in summer than in winter)**, and its eligibility for a discount due to its participation in SDG&E's emergency response program**. Poseidon states that it determined its expected $950 per acre-foot water cost in part by applying expected rates from that Tariff Sheet. ~~Poseidon also stated that the SDG&E tariff sheet provides a discounted rate for entities able to reduce electrical use during peak demand periods. However, it is not clear what cost savings might result from this~~

[~~17~~41] See also Poseidon Resources Corporation, *Response to California Coastal Commission's September 28, 2006 Request for Additional Information*, November 30 2006: (Attachment 3) Water Purchase Agreement by and between The Carlsbad Municipal Water District and Poseidon Resources (Channelside) LLC, September 28, 2004, at § 3.1.2; (Attachment 4) Water Purchase Agreement by and between Rincon del Diablo Municipal Water District and Poseidon Resources (Channelside) LLC, March 14, 2006, at § 3.1.2; (Attachment 5) Water Purchase Agreement by and between Valley Center Municipal Water District and Poseidon Resources (Channelside) LLC, December 20, 2005, at § 3.1.2.

~~discount, since Poseidon's proposed project and the analyses herein are based on the facility producing water at a relatively continuous 50 MGD rate.~~

~~It~~**However, to Commission staff, it** appears that applying the rates from that Tariff Sheet would result in an actual annual average rate of no less than $0.10 per kWh. The cost of desalinated water is highly sensitive to energy costs, with each penny increase in the rate per kilowatt-hour resulting in about a $50 per acre-foot increase in the end cost, so this average $0.10 rate**, if applicable,** would increase Poseidon's expected costs per acre-foot by about $125.[~~18~~42] **Poseidon responds that the applicable SDG&E tariff is subject to a discount due to the Project's ability to reduce demand during peak periods, and to shed up to 95 percent of the Project's energy load during local utility emergencies.**[43]

Additionally, Poseidon's anticipated costs do not recognize likely future rate increases for electricity, which **in Commission staff's view** are likely to help maintain the gap between Poseidon's production costs and the costs of imported water. For 2008, SDG&E has already proposed an increase of about 5% increase for its industrial users. Even though imported water sources would also be subject to future rate increases, at least two characteristics suggest that Poseidon would have disproportionally higher increases compared to imports. First, as noted above, seawater desalination is more sensitive to energy costs than are other sources; and second, Poseidon would obtain its electricity from the SDG&E service area, whereas much of the water imported to San Diego County is subject to the lower rates available to the state's water transport systems. Although Poseidon may be able to "hedge" all or part of its electricity costs through the purchase of natural gas futures, such hedges are relatively short-term, so Poseidon's costs would eventually be subject to rate increases similar to those experienced by other electricity users in the region. At this point, **in Commission staff's view,** the expected 5% increase next year by SDG&E would add about $25 per acre-foot to Poseidon's costs. In response **to these staff assertions**, Poseidon ~~has~~ confirmed **that** it has considered these costs in assessing the feasibility of the project.[~~19~~44] (6)

- *Additional costs to pump water into SDCWA distribution system*: As noted above, Poseidon's current proposal includes installing the pipelines and pumps needed to deliver

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~~18~~42 Poseidon stated that it could take advantage of lower off-peak electricity rates by reducing its production during peak hours and increasing it during non-peak hours – it proposed, for example, that it could operate at 80% capacity (40 MGD) during the highest rate periods and at 108% capacity (54 MGD) during lower rate periods. However, it appears this scenario would have little effect on average electrical costs, since Poseidon would use even more electricity during the longer low-rate periods and less during the much shorter high-rate periods. Further, this "start/stop" operating scenario would likely increase Poseidon's operations and maintenance costs due to shortening the operating life of the various membranes, filters, and other facility components.

43 See Poseidon Resources Corporation, *Updated Response to Coastal Commission's September 28, 2006 Request for Additional Information*, Section 13, CDP Energy Use, GHG Production & Mitigation, October 21, 2007, at p. 3.

~~19~~44 See Poseidon Resources Corporation, *Response to California Coastal Commission's July 3, 2007 Request for Additional Information*, July 16, 2007.

water only to Carlsbad's Maerkle Reservoir and parts of Vista and Oceanside. Transporting water to other entities would require an additional pipeline from the reservoir to the regional distribution system along with an additional pumping station and additional electricity costs. ~~SDG&E's most recent cost estimates for these components are $80 million in capital costs and $2.5 million per year in operations and maintenance costs (which presumably include electricity costs), which would have to be reflected in the costs of water for any entity other than Carlsbad, Vista, or Oceanside. The additional operations and maintenance costs alone would add about $125 per acre-foot to the approximately 20,000 acre-feet that may need to reach the regional distribution system. As noted above, recent minutes of the Borrego Water District identify the Authority's expected distribution charge as $140 per acre-foot. Although Poseidon's project does not propose connecting to this regional distribution system, these costs would be borne by any entities other than the neighboring cities noted above that wish to use or trade the desalinated water. Again, however, Poseidon has~~**In response, Poseidon** confirmed **that** it has ~~considered~~**taken** these costs **into consideration** in assessing the feasibility of the project.[45]

- *Additional costs for dredging Aqua Hedionda Lagoon*: The power plant owner is currently responsible for dredging the ~~l~~**L**agoon and is expected to maintain that responsibility as long as the power plant uses its once-through cooling system. When the power plant ends its use of that system, Poseidon is expecting to take on responsibilities for dredging the ~~l~~**L**agoon. Poseidon would not need to dredge as large an area, since it would use less water than past power plant operations~~; even so, .~~ Poseidon~~'s costs could be higher. The power plant has in the past dredged about every other year, with its most recent operations costing about two million dollars (or an average of one million dollars per year); however, it owns the barge and sand delivery pipelines it uses for dredging operations. A similar one million dollar per year average would add about $20 per acre-foot to Poseidon's water costs, which [?] again, Poseidon stated it has considered these costs~~ **has demonstrated that it has taken this cost into consideration** in assessing the feasibility of the project.[46]

In sum, **Commission staff estimates that** the additional costs described above could add ~~up to~~**a worst-case maximum of** about $450 to Poseidon's stated $950 per acre-foot costs. ~~This~~**Staff's calculated** approximate cost of $1400 per acre-foot is more in line with ~~credible~~ cost estimates available from other seawater desalination facilities operating or being developed in California. In response, Poseidon stated at the Commission's November 15, 2007 hearing that it intends to operate at a loss for some unknown number of years until the costs of imported water increase to match Poseidon's costs for constructing and operating the desalination facility. **Regardless of which cost estimates are more accurate – those provided by Poseidon or by Commission**

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[45] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Ex. B, at p. 7; see Poseidon Resources Corporation, *Response to California Coastal Commission's July 3, 2007 Request for Additional Information*, July 16, 2007, at p. 13.

[46] *Coastal Process Effects of Reduced Intake Flows at Agua Hedionda Lagoon*, Dr. Scott Jenkins, December 13, 2006.

staff – the Commission finds that the proposed project is consistent with all applicable Coastal Act policies (see Section 4.5, herein) and the Commission finds that the project, as conditioned herein, incorporates all feasible mitigation measures and that there are no feasible alternatives that would further reduce impacts to coastal resources. There are no feasible and less environmentally damaging alternative locations to draw in the needed seawater (e.g., subsurface or offshore). The Commission finds that slant wells are infeasible because the water quality available from such intakes would make it difficult, if not impossible, to treat for desalination purposes, and that the construction impacts associated with this alternative render it environmentally inferior to the proposed project.[47] The Commission also finds that an infiltration gallery is environmentally inferior to the proposed project because this alternative would disrupt public access to marine resources, require frequent dredging and require the destruction of 150 acres of coastal habitat, and that the alternative is economically infeasible.[48] The Commission further finds that an offshore intake system would result in greater environmental impacts than the proposed project's use of the existing EPS intake, and that construction of an offshore intake would render the project infeasible.[49]

Should Poseidon's costs or other concerns make the project unsuccessful, measures exist to protect coastal resources. First, under the water purchase agreements between Poseidon and the Carlsbad Municipal Water District, the Water District at its option can assume operation or ownership of the facility. Second, if the Water District chooses not to assume either of those options, or if operations ceased for some reason, Poseidon is required to remediate the site and remove the facility. To accomplish this, and as described in the Water Purchase Agreement between the Water District and Poseidon, Poseidon is required to post a security in the form of either a letter of credit or an irrevocable bond with the property owner.[50]

4.3 Coastal Commission Jurisdiction ~~A~~and Standard ~~Of~~of Review

The proposed desalination facility and portions of its associated pipelines would be located in the coastal zone within the City of Carlsbad. Carlsbad has a certified Local Coastal Program (LCP), and the Agua Hedionda area is one of six segments of that LCP. Although most of the city's coastal zone is fully certified, the Agua Hedionda segment has only a certified Land Use

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[47] See Poseidon Resources Corporation, *Response to California Coastal Commission's Letter of September 28, 2006*, November 30, 2006, at pp. 24-51; Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at pp. 16-17.

[48] See Poseidon Resources Corporation, *Additional Analysis of Submerged Seabed Intake Gallery*, October 8, 2007; Poseidon Resources Corporation, Response to Staff Report, November 9, 2007, Exh. A at pp. 17-18.

[49] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at pp. 19-20; Issues Related to the Use of the Agua Hedionda Inlet Jetty Extension EIR to Recommend An Alternative Seawater Intake for the Carlsbad Desalination Project, Graham, Le Page and Mayer, October 8, 2007.

[50] See *Water Purchase Agreement by and between The Carlsbad Municipal Water District and Poseidon Resources (Channelside) LLC*, September 28, 2004, at § 14.2.

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Program (LUP), not a certified implementation program. Therefore, review and permitting authority within this segment remain with the Commission, with the standard of review being Chapter 3 of the Coastal Act. The Commission may also use provisions of the certified LUP as guidance.

4.4 Other Permits ~~A~~and Approvals

City of Carlsbad:

- **Precise Development Plan:** As part of its project review and approval, the City of Carlsbad approved a Precise Development Plan for the project site, which modified the allowable uses on the site to include the proposed desalination facility.

- **Environmental Impact Report:** On June 14, 2006, the City of Carlsbad certified a Final EIR for the project. At the request of the Coastal Commission staff, the City added a discussion to the Final EIR to address stand-alone operations of the project. In addition, the potential for stand-alone operations was evaluated in the City's staff reports to the City Planning Department and City Council. The EIR found that all but one of the project-related impacts would be nonsignificant or through mitigation would be less than significant. The EIR found that the project would contribute to significant cumulative air quality impacts due to emissions resulting from its electrical use but also found that there were no feasible mitigation measures to reduce these impacts.[~~20~~51]

State:

- **Lease of state tidelands from the State Lands Commission:** The proposed project would require a lease from the State Lands Commission due to its use of two sets of structures built on state tidelands – the jetties at the mouth of Agua Hedionda and the discharge structure built across a state beach about 3000 feet south of the ~~l~~Lagoon mouth.

  The power plant currently has a lease from the State Lands Commission allowing it to use those structures until 2026; however, that lease allows use of those structures only for power plant cooling operations and for minor use by Poseidon's test desalination facility (up to 200

[~~20~~] ~~As described elsewhere in these Findings, the EIR concluded that the project would not cause significant adverse impacts to marine life; however, Poseidon's entrainment study results showing a 37-acre productivity loss in the lagoon were not made available until after the EIR was certified. These study results are incorporated as part of these Findings and **Special Conditions**.~~[51] **Note: The EIR found that the project would indirectly contribute to a significant cumulative impact to air quality because it is likely that at least part of the mix of electricity that the desalination plant uses will come from pollutant-emitting sources in the San Diego air basin. However, the EIR also found that there were no feasible mitigation measures to reduce this impact. (See Project EIR, Chapter 5, p. 5-9.) Emissions from power generation, which are the main source of emissions associated with project operation, would be within permitted emission levels for the electrical plants which are planned for and regulated by the San Diego Air Pollution Control District, South Coast Air Quality Management District, and other local air pollution control districts. (See Project EIR, Chapter 4.2, p. 4.2-20.)**

(4)

gallons per minute) only when the power plant is operating. The power plant's lease also states that the "Commission has expressed concerns regarding Once-Through Cooling (OTC) of power plants and the environmental impacts to the waters of California that may be caused by OTC systems", and further states that the lease includes provisions that authorize the State Lands Commission to amend the lease if the State or Regional Water Boards modify Cabrillo's NPDES permit. This lease requires additional written approval from the State Lands Commission for use of the intake or discharge by a future desalination project. Poseidon submitted its lease application in February 2007. ~~On October 30, 2007,~~**As Commissioner Thayer explained at the hearing,** the State Lands Commission held a hearing on Poseidon's lease application~~, but~~ **on October 30, 2007. Staff recommended approval of the lease but the Commission** took no action and continued the hearing **at the request of the public because the hearing was held just days after the San Diego Region fires and at least one individual who wanted to participate in that hearing had been evacuated. Commissioner Thayer said a second hearing would be scheduled in December 2007 or at a later date**. ⑥

Coastal Act Section 30601.5[21~~52~~] requires in part that an applicant demonstrate its ability to comply with all conditions of a coastal development permit prior to issuance of that permit. This demonstration includes landowner approval, which in this case would take the form of Poseidon obtaining the necessary State Lands Commission leases. To ensure Poseidon complies with this requirement, **Special Condition 2** requires Poseidon, prior to the Commission's issuance of the coastal development permit, to submit for Executive Director review and approval all necessary leases from the State Lands Commission, local governments, and the power plant owner showing that it has the necessary legal interest in all property within the coastal zone necessary to construct and operate the project. **Special Condition 3** further requires Poseidon to execute and record against its leasehold interests restrictions that bind both Poseidon and any future holders of those interests to the terms and conditions of the Commission's approval. This, too, requires review and approval by the Executive Director before issuance of the coastal development permit.

- **National Pollutant Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board:** Poseidon's project ~~would be subject to a provisional~~**already has an** NPDES permit issued ~~in August 2006~~ by the San Diego Regional Water Quality Control Board~~.~~ **in August 2006 pursuant to the Clean Water Act (33 U.S.C. § 1251 et seq.) and the Porter-Cologne Water Quality Control Act (Cal. Water Code § 13000 et seq.). The NPDES Permit, issued after the Regional Board reviewed** ②

[21~~52~~] Coastal Act Section 30601.5 states: "Where the applicant for a coastal development permit is not the owner of a fee interest in the property on which a proposed development is to be located, but can demonstrate a legal right, interest, or other entitlement to use the property for the proposed development, the commission shall not require the holder or owner of any superior interest in the property to join the applicant as coapplicant. All holders or owners of any other interests of record in the affected property shall be notified in writing of the permit application and invited to join as coapplicant. In addition, prior to the issuance of a coastal development permit, the applicant shall demonstrate the authority to comply with all conditions of approval."

multiple studies and analyses of the project, covers discharges to the Pacific Ocean from the project. The NPDES Permit addresses marine impacts of the project by requiring compliance with applicable water quality control plans, water quality objectives, performance goals, effluent limitations, and other receiving water and discharge limitations. In September 2006, Surfrider Foundation and Orange County CoastKeeper filed a petition with the California State Water Resources Control Board ("State Board") challenging the NPDES Permit on several grounds. In June 2007, the State Board dismissed the petition because it "fails to raise substantial issues that are appropriate for review" by the State Board.[53] The permit requires Poseidon **to** submit additional documentation for Board approval before starting operations and is based on Poseidon operating with or without concurrent power plant operations, as long as either entity ensures a discharge of at least 304 MGD to provide adequate dilution of the desalination facility's high salinity discharge. ②

One of the required documents is a *Flow, Entrainment and Impingement Minimization Plan*, which Poseidon first submitted in February 2007 and revised in June 2007 and which the Board is ~~still~~ reviewing. This plan is described in more detail in Section 4.5.1 of these Findings. The NPDES Permit states that the Board will determine through its review of this Plan whether the proposed project conforms to Porter-Cologne Act Section 13142.5.

Additionally, Poseidon's operations ~~would~~**may** cause ~~additional~~ sedimentation in Agua Hedionda, which is listed by the State and Regional Boards as an impaired water body due in part to high rates of sedimentation. **Poseidon states, citing documentation by the Regional Board, that the 303(d) listing of Agua Hedionda Lagoon as an impaired body is based on fine-grained sedimentation discharged by urban run-off into the Lagoon from the neighboring watersheds (predominantly Agua Hedionda Creek), impacting 6.8 acres primarily located in the east basin of the Lagoon.**[54] The federal Clean Water Act requires that states develop a plan to restore waterbodies that are listed as impaired by removing or limiting the causes of impairment. The NPDES permitting program, at 40 CFR~~22~~ **22,** prohibits issuance of a permit where a new source would contribute a pollutant to a waterbody already listed as impaired due to that pollutant, unless a plan is in place that demonstrates how the waterbody would be brought back in to compliance with the water quality standards (see also, for example, the U.S. Ninth Circuit Court's decision on *Friends of Pinto Creek vs. U.S. EPA*, October 4, 2007). The Board has not yet developed the required plan (known as a Total Maximum Daily Load, or TMDL) for Agua Hedionda. As noted in the *Carlsbad Watershed Plan*, developed pursuant to an NPDES Permit issued in 2001 to a number of local jurisdictions by the State Water Quality Control Board, continued use of the power plant intake by either Poseidon or Cabrillo would contribute to the high ③

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[53] **See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, at Exh. B p. 6; see also SWRCB/OCC File A-1773, June 5, 2007.** ②

[54] ***2006 Clean Water Act 303(d) List of Water Quality Limited Segments Requiring TMDLs*, San Diego Regional Water Quality Control Board, June 28, 2007.** ③

sedimentation rate in the ~~l~~Lagoon. The intake is only partially responsible for this sedimentation, as the Inner Basin fine-grained sediments largely come from urban runoff in the Agua Hedionda watershed.[~~22~~55] However, as described later in these Findings, Poseidon's studies show that sedimentation at the mouth of the ~~l~~Lagoon caused by use of the intake results in increased sedimentation within the area of the Inner Basin identified as impaired. For example, in describing sedimentation caused by the intake, Poseidon states that the build-up of sediment near the ~~l~~Lagoon mouth restricts the tidal prism so that outflows from the Inner Basin are both reduced and slowed, resulting in the ~~l~~Lagoon having insufficient transport capacity to reduce the sediment load in the Inner Basin. **Poseidon cites San Diego Coastal Lagoons TMDL Monitoring Workplan[56] in support of its position that Poseidon's operations (and associated maintenance dredging of the Lagoon) would have a beneficial impact on the sedimentation problem in Agua Hedionda Lagoon. In the absence of Poseidon's operations and its assumption of the responsibility for maintenance dredging and stewardship of the Lagoon after the Encina power station is decommissioned, the Lagoon sedimentation will result in closure of the Lagoon in five to seven years, and nearly complete loss of existing beneficial uses thereafter.**[57] This issue will likely require further consideration by the Regional Board as part of its ongoing review of Poseidon's provisional NPDES permit, which was issued in June 2006 before these studies were provided. The Commission expects that action by the Regional Board will result in conformity to these applicable NPDES requirements. ③

Federal:

- **Federal "incidental take" permits:** Poseidon's proposed project may result in the "take" of species protected under the Marine Mammal Protection Act through entrapment of seals or other marine mammals in the power plant intake. In a June 4, 2007 letter to Commission staff, Poseidon indicated it would apply for an independent "Incidental Harassment Authorization" ("incidental take" permit) under the Marine Mammal Protection Act for any impacts to sea lions, seals, or any other protected marine mammals resulting from construction or operation of the project. During review of Poseidon's application, the National Marine Fisheries Service would engage in consultation under Section 7 of the federal Endangered Species Act to ensure that the project will not jeopardize the continued existence of any species listed as threatened or endangered under the Act. Past power plant operations have caused documented entrapment of species protected under the federal Endangered Species Act, including two endangered East Pacific green turtles *(Chelonia mydas)* **over a 53-year period**. Poseidon's operations of the intake system at velocities of

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[~~22~~55] *Final San Diego Coastal Lagoons TMDL Monitoring Workplan*, June 18, 2007, McLaughlin et al.

[56] ***Id.***

[57] ***Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon :Low Flow vs. No-Flow Alternatives*, Dr. Scott Jenkins, September 28, 2007.** ③

less than 0.5 feet per second are expected to decrease the likelihood of future sea turtle impingement.

Agua Hedionda historically provided habitat for the tidewater goby (*Eucyclogobius newberryi*) a species listed as endangered by the U.S. Fish and Wildlife Service in 1999. The goby is also listed as a Special Status Species by the California Department of Fish and Game. The Service was developing a critical habitat designation for the species about the same time as publication of Commission staff's recommended Findings to the Commission.[~~23~~58] In November 2006, the USFWS issued a proposed designation that did not include Agua Hedionda as critical habitat ~~and stated~~**, stating** that the ~~l~~**L**agoon has not been occupied by ~~the~~ goby for many years.[~~24~~]**; the last goby specimen from Agua Hedionda was collected in 1940.**[59] ②

To ensure Poseidon conforms to these other coastal resource protection requirements, **Special Condition 4** requires Poseidon, prior to starting construction, to submit documentation of other permits and approvals needed for project construction and operation, including those from the City of Carlsbad, the Regional Water Quality Control Board, the California Department of Health Services, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service, or documentation showing that these approvals are not needed.

4.5 Conformity ~~To~~to Applicable Coastal Act Policies

4.5.1 Protection of Marine Life (Coastal Act Sections 30230 & 30231)

Coastal Act Section 30230 states:

> *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.*

[~~23~~58] In 1994, the U.S. Fish and Wildlife Service listed the goby as endangered. In 1999, the Service published in the Federal Register a proposed rule to retain the goby as a listed endangered species in Orange and San Diego County coastal waters and to establish Agua Hedionda as part of the critical habitat for the goby. The goby had been listed as endangered in February 1994. In November 2000, the Service published its final rule, which designated Agua Hedionda as critical habitat for the goby. In August 2001, Cabrillo Power L.L.C., owner of the Encina power plant, filed a lawsuit challenging that designation. The Service later filed a consent decree with U.S. District Court in which it agreed to vacate that designation and reconsider the entire critical habitat designation in the rule. That consent decree also established that the Service would publish a revised proposal for critical habitat by November 15, 2006 and a new final rule by November 1, 2007. The USFWS had not issued its final habitat designation as of the date of the Commission's decision.

[~~24~~59] See Poseidon Resources, *Response to Staff Report*, November 9, 2007, Exh. B, at p. 9.

Coastal Act Section 30231 states:

> *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 waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

These Coastal Act provisions require generally that marine resources be maintained, enhanced, and where feasible, restored. They also require that the marine environment be used in a manner that sustains biological productivity and maintains healthy populations of all marine species. Coastal Act Section 30231 requires that biological productivity be maintained, and where feasible, restored, including by minimizing the adverse effects of entrainment.[~~25~~60]

Other policies as guidance

In applying the above-quoted Chapter 3 policies, the Commission may be guided by Porter-Cologne Act Section 13142.5, pursuant to Coastal Act Section 30412(a).[~~26~~61] Subsection (b) of Section 13142.5 states:

> *For each new or expanded coastal powerplant or other industrial installation using seawater for cooling, heating, or industrial processing, the best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life.*

Poseidon contends that the State and Regional Water Quality Control Boards have primary authority over water quality related marine life issues. As set forth in Coastal Act Section 30412(b):

> ***The State Water Resources Control Board and the California regional water quality control boards are the state agencies with primary responsibility for the coordination and control of water quality . . . The [Coastal] commission shall not . . . modify, adopt conditions, or take any action in conflict with any***

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[~~25~~60] "Minimize," as used in these Findings, means "to reduce to the smallest possible amount, extent, size, or degree" as defined in the American Heritage® Dictionary of the English Language: Fourth Edition (2000).

[~~26~~61] Coastal Act Section 30412(a) states: "In addition to Section 13142.5 of the Water Code, this section shall apply ~~to~~ the commission and the State Water Resources Control Board and the California regional water quality control boards."

determination by the State Water Resources Control Board or any California regional water quality control board in matters relating to water quality . . .

Coastal Act Section 30412(b).

In exercising its responsibility for coordination and control of water quality, the Regional Water Quality Control Board must also ensure compliance with the California Ocean Plan, which is part of the Board's jurisdiction and provides that:

Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded.

California Ocean Plan Section II.E.1. The Regional Board has already reviewed the project's discharged-related impacts and is currently reviewing the project's intake-related impacts pursuant to the federal Clean Water Act and California's Porter-Cologne Act. Thus, Poseidon argues, the Coastal Commission may not take any action in conflict with the Regional Board's ongoing jurisdiction over the project. (See Coastal Act § 30412(b) ["The [Coastal] commission shall not . . . modify, adopt conditions, or take any action in conflict with any determination by the State Water Resources Control Board or any California regional water quality control board in matters relating to water quality..."].) (2)

State, regional and local water plans all have confirmed that immediate and pressing water needs cannot be met without a substantial investment in seawater desalination.[62] To that end: (1) the proposed project will provide 56,000 AFY of new water supply for the San Diego region; (2) the California Department of Water Resources' 2006 Water Plan Update identifies the need for 500,000 AF of desalinated water by 2030; (3) the Metropolitan Water District of Southern California's Integrated Water Resources Plan identified a need for 250,000 AFY of seawater desalination (including 56,000 AFY from the Carlsbad project) to ensure regional water supply reliability; (4) the San Diego County Water Authority (SDCWA) updated its 2005 Urban Water Management Plan in April 2007 specifically to reaffirm the need for 56,000 AFY of seawater desalination from the Carlsbad project by 2011; and (5) Carlsbad Municipal Water District, Valley Center Municipal Water District, Rincon del Diablo Municipal Water District, Sweetwater Authority, Rainbow Municipal Water District, Santa Fe Irrigation District, Vallecitos Water District, and Olivenhain Municipal Water District have entered into long-term water purchase agreements with the

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[62] See Poseidon Resources Corporation, *Response to California Coastal Commission's February 20 Request for Additional Information*, June 1, 2007, at pp. 7-9.

Carlsbad Desalination Project.[63] Collectively, these water districts will use 100% of Poseidon's capacity.[64]

The agencies that have or are planning to acquire water from the Carlsbad Desalination Project have organized the "San Diego Desal Partners" and meet on a regular basis to coordinate efforts to advance the project. In a communication to Commission Chairman Kruer, the San Diego Desal Partners described the Carlsbad Desalination Project as "one of the most important water infrastructure projects currently being planned for the state of California."[65]

The SDCWA's April 18 Update of 2007 Metropolitan Water District supply assessment projected 2007 to be a critically dry year in both the State Water Project and Colorado River watersheds.[66] Among key findings of the SDCWA 2006 Public Opinion Survey, when asked what the most critical things the SDCWA could do to ensure a safe and reliable water supply, the top response by respondents was to develop seawater desalination.[67]

Certified Agua Hedionda Land Use Plan: Because the proposed project is within the Commission's retained jurisdiction, the standard of review is Chapter 3 of the Coastal Act. However, in such instances, the Commission may use as guidance adjacent certified Local Coastal Programs (LCPs). The proposed project would be in the coastal zone within the City of Carlsbad. Although the City has a certified LCP, the Commission has not yet certified the LCP for the portion of the City, known as the Agua Hedionda segment, where the project would be. ②

The Commission, however, has certified the Land Use Plan (LUP) for the Agua Hedionda segment. The certified Land Use Plan recognizes the ~~l~~Lagoon's unique environmental status and designates the entire ~~l~~Lagoon as a "special treatment area". The Plan's goals for the ~~l~~Lagoon include the following:

- *Protect and conserve natural resources, fragile ecological areas, unique natural assets, and historically significant features of the community.*

- *Preserve natural resources by protecting fish, wildlife, and vegetation habitats; retain the natural character of waterways, shoreline features, hillsides, and scenic areas; safeguard areas for scientific and educational research; respect the limitations of our air and water*

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[63] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A, at p. 6-7.

[64] See *id.*

[65] See Poseidon Resources Corporation, *Response to California Coastal Commission's February 20 Request for Additional Information*, June 1, 2007, at pp. 7-9.

[66] See *id.*

[67] See *id.*

resources to absorb pollution; and encourage legislation that will assist in preserving these resources.

Agua Hedionda is also one of 19 coastal wetlands identified in the California Department of Fish and Game report, *Acquisition Priorities for the Coastal Wetlands of California.* This report identifies high priority wetlands for acquisition, based primarily on their values for fish and wildlife habitat and threats to their continued existence as a natural resource.[~~27~~68] Coastal wetlands identified in this report are subject to the additional protections of Coastal Act Section 30233(c), which are described in Section 4.5.2 of these Findings.

Other policies and requirements applicable to the proposed project

Marine Reserve Designation: Additionally, part of Agua Hedionda has been designated by the California Department of Fish and Game as the Agua Hedionda Lagoon State Marine Reserve. Pursuant to Section 1580 of the state Fish and Game Code, the Reserve is to be managed to:

> *"...protect threatened or endangered native plants, wildlife, or aquatic organisms or specialized habitat types, both terrestrial and nonmarine aquatic, or large heterogeneous natural gene pools for the future use of mankind through the establishment of ecological reserves."*

NPDES permit: Activities within the City of Carlsbad affecting Agua Hedionda Lagoon are in part subject to an NPDES permit issued in 2001 by the State Water Resources Control Board to several San Diego County cities to address significant water quality impacts in several coastal watersheds. The permit in part requires the cities to develop a comprehensive plan to manage the region's watersheds and to avoid and solve surface water quality problems. The *Carlsbad Watershed Management Plan*, published in 2002 pursuant to these NPDES requirements, includes a number of goals and objectives to implement the NPDES permit requirements. Its goals include, for example:

> *Protect Beneficial Water Uses: To be considered supportable by this plan, all "Action Items" must protect, restore, or enhance beneficial water uses within the watershed. The action should focus on the protection of human public health first and then on the health of wildlife and natural ecosystems. The action item should recognize that public health includes flood protection and should strive to balance natural restoration with water quality improvements and flood control.*
>
> *Protect Coastal and Wetland Resources: Extra credit should be given to "Action Items" that serve to protect the wetland resources, sensitive species and fragile ecosystems associated with coastal lagoons and riverine resources. These resources are not only sensitive and highly valued, but they support a great diversity of species and tend to be "sink holes" where water quality problems become much greater.*

[~~27~~68] See also the California Coastal Plan, December 1975.

Multiple Habitat Conservation Program: The Multiple Habitat Conservation Program (MHCP) is a comprehensive habitat conservation planning process that addresses multiple species needs and the preservation of native vegetation communities for the cities of Carlsbad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista, California. The MHCP is established in part to develop coordinated habitat preserve system. In Carlsbad, the MHCP is focused on preserving eight vegetation types, including marsh and estuarine wetlands. The covered species for this plan include invertebrates, birds, and plants found in and near Agua Hedionda and use the ~~l~~**L**agoon as habitat.

Marine Life Management Act: The California Marine Life Management Act (MLMA) was established to ensure the conservation, sustainable use, and restoration of California~~'~~**'**s marine life. This includes the conservation of healthy and diverse marine ecosystems and marine living resources. To achieve this goal, the MLMA calls for allowing and encouraging only those activities and uses that are sustainable. Although most of the MLMA is devoted to fisheries management, it also recognizes that non-consumptive values such as aesthetic, educational, and recreational are equally important. Unlike previous law, which focused on individual species, the MLMA recognizes that maintaining the health of marine ecosystems is important in and of itself. The MLMA also holds that maintaining the health of marine ecosystems is key to productive fisheries and non-consumptive uses of marine living resources.

One of the MLMA's primary goals is to provide for sustainable fisheries. A sustainable fishery is defined in the MLMA as one in which fish populations are able to replace themselves. The MLMA recognizes that populations of marine wildlife may fluctuate from year to year in response to external environmental factors, such as climate and oceanic conditions. Unlike traditional definitions of sustainability in fisheries, a key feature of the MLMA definition calls for maintaining biological diversity~~.~~**;** "*Essential Fish Habitat*": Agua Hedionda Lagoon is also considered "Essential Fish Habitat" (EFH), pursuant to provisions of the federal Magnuson-Stevens Fishery Conservation and Management Act. The Act defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and establishes that activities that would affect this habitat require consultation with the National Marine Fisheries Service pursuant to Section 305(b) of the Act.

Proposed Project Location and Site Conditions

Poseidon's proposed facility would be located on the site of the Encina power plant adjacent to Agua Hedionda. The facility would pump approximately 304 million gallons per day (MGD) of estuarine water from the ~~lagoon.~~[28] **Lagoon.**[69] Although Poseidon's proposal is to use 100 MGD of seawater to produce 50 MGD of potable water, the Regional Water Quality Control Board has required through its issuance of an NPDES permit that Poseidon discharge no less than 254

~~28~~**69** To provide a sense of scale, the 304 million gallons of estuarine water Poseidon would use each day equals about 932 acre-feet, or the amount of water that would cover 932 acres (about 1.5 square miles) with a foot of water. Over the course of a year, Poseidon would use more than 100 billion gallons of water from the estuary, or about 340,000 acre-feet, which would cover over 500 square miles up to a foot deep.

MGD to dilute its high salinity discharge.[~~29~~**70**] These proposed project characteristics and issues associated with this discharge are discussed later in these Findings.

Characteristics of Agua Hedionda Lagoon: Agua Hedionda Lagoon is located within the City of Carlsbad and is used for a wide variety of activities. It is used recreationally, it includes extensive aquaculture operations, and it has served as the location for the power plant's cooling water intake structure since the mid-1950s.

The vast majority of the water in the estuary is from tidal sources. Each semi-diurnal tide brings in or discharges about 500 million gallons of seawater, so Poseidon's water withdrawals would represent about 30% of the estuary's daily water influx.[~~30~~**71**] The ~~l~~**L**agoon receives a relatively small amount of freshwater from Agua Hedionda Creek, from twenty-three storm drains, and from urban and agricultural runoff. The ~~l~~**L**agoon's three basins have very different habitat characteristics, based largely on the hydrodynamics of the tidal flow and the resulting different substrates – finer materials in the Inner Basin grading to coarser materials in the Outer Basin.

Agua Hedionda Lagoon is listed by the Regional Board as having impaired water quality due to the presence of indicator bacteria and because of siltation and sedimentation.[~~31~~**72**] As noted in the *Carlsbad Watershed Plan*, part of the excess sedimentation within the estuary has been due in part to the power plant's water intake causing an imbalance between sediment inflow and outflow, and Poseidon's proposed project ~~would~~**may** cause similar sedimentation problems. ~~Much of the sedimentation is due to fine-grained sediments~~**But Poseidon contends, citing documentation by the Regional Board, that the 303(d) listing of Agua Hedionda Lagoon as an impaired body is based on fine-grained sedimentation** discharged ~~from~~**by** urban ~~runoff in~~**run-off from** the Agua Hedionda watershed.[~~32~~] **into the Lagoon (predominantly Agua Hedionda Creek).[73] A study submitted by the applicant also indicates that due to sedimentation and in the absence of the power plant, if the Lagoon is not regularly dredged** ③

[~~29~~**70**] 304 MGD is an average volume. Poseidon's NPDES Permit limits the facility's salinity discharge to no more than about 40 parts per thousand, which requires Poseidon to pump from up to about 320 MGD at various times.

[~~30~~**71**] Poseidon's Flow Plan states that the tidal cycle brings in about 475 million gallons. The San Diego County Water Authority estimated in its recent Draft EIR for a similar proposed desalination facility that tidal inputs were about 528 million gallons. The average of these two estimates would result in a twice-per-day influx of about 1003 MGD, so Poseidon's 304 MGD withdrawal would represent about 30% of the average tidal inputs.

[~~31~~**72**] As noted in Section 4.4 of these Findings, pursuant to provisions of the federal Clean Water Act, states are required to identify polluted surface water bodies that do not meet water quality standards. States are to then prioritize those waterbodies for cleanup activities through developing a "Total Maximum Daily Load" (TMDL) for those waterbodies that identifies the cleanup steps needed to allow the waterbodies to meet the standards. California has not yet developed a TMDL for Agua Hedionda Lagoon.

[32] ~~*2006 Clean Water Act 303(d) List of Water Quality Limited Segments Requiring TMDLs*, San Diego Regional Water Quality Control Board, June 28, 2007.~~

[73] ***2006 Clean Water Act 303(d) List of Water Quality Limited Segments Requiring TMDLs*, San Diego Regional Water Quality Control Board, June 28, 2007.**

the Lagoon would close in about five to seven years and slowly revert back to its natural state of stagnant water.[74] Therefore, based on the evidence that has been submitted, sedimentation from urban run-off, not the power plant's water intake, is the predominant cause of sedimentation in the Lagoon, and but for the continued dredging of the Lagoon, it would revert to its stagnant natural state. This issue is described in more detail in Section 4.5.2 of these Findings. (3)

Despite these water quality concerns, Agua Hedionda provides extensive habitat values for a wide variety of marine biological resources and other wildlife. Surveys from 1994-95 found that the ~~H~~Lagoon and nearby wetlands supported 29 fish species and 143 species of benthic invertebrates[~~33~~ 75] Agua Hedionda provides habitat for important commercial and recreational fish species, special listed species, and forage fish used by these other species. Fish in the ~~H~~Lagoon include California halibut, which use the ~~H~~Lagoon as an important nursery area, garibaldi, Northern anchovy, and various gobies, blennies, and others. The ~~H~~Lagoon formerly provided habitat for the endangered tidewater goby (*Eucyclogobius newberryi*). The U.S. Fish and Wildlife Service determined in 2006 that the goby's absence from the ~~H~~Lagoon is due to habitat loss and other anthropogenic factors.[~~34~~76] The ~~H~~Lagoon is also identified as Essential Fish Habitat (EFH), pursuant to the Magnuson-Stevens Act described above.

The surveys also identified 81 different bird species in these areas, including 12 listed as sensitive: Belding's Savanna sparrow, California least tern, Western snowy plover, Brown pelican, White-faced ibis, California gull, Osprey, Cooper's hawk, Long-billed curlew, Loggerhead shrike, Northern harrier, and Black skimmer. In the coastal scrub sage habitat adjacent to many of its wetlands, the surveys found additional sensitive bird species, including the California gnatcatcher, the least Bell's vireo, and the light-footed Clapper rail. Many of these species rely on marine life within the ~~H~~Lagoon and adjoining wetlands.

Anticipated Project Impacts and Coastal Act Conformity – Intake-Related

Findings in this section evaluate the proposed project's impacts on marine biological resources associated with its intake of estuarine water. Findings in subsequent sections describe discharge-related impacts caused by the proposed facility's discharge of highly saline wastewater into nearshore ocean waters and its cumulative impacts. All analyses are based on Poseidon's proposed use and discharge of an average of 304 MGD of estuarine water, and on Poseidon's use of the existing power plant pumps as a stand-alone desalination facility.

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[74] ***Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon :Low Flow vs. No-Flow Alternatives*, Dr. Scott Jenkins, September 28, 2007** (3)

[~~33~~75] From California Wetlands Information System database at: http://ceres.ca.gov/wetlands/geo_info/so_cal/agua_hedionda.html.

[~~34~~76] From *Federal Register*, November 28, 2006, proposed rule pursuant to 50 CFR 17 (see: http://www.epa.gov/fedrgstr/EPA-SPECIES/2006/November/Day-28/e9291.htm). Additionally, as noted in Section 4.4 of these findings, Agua Hedionda Lagoon is not listed as critical habitat for the species.

Adverse Impacts Caused by Poseidon's Intake: The project's proposed withdrawal of 304 MGD of estuarine water through the power plant intake structure ~~would~~**could** cause several types of impacts to marine biological resources, including impingement, entrainment, and potential "take" of protected species. With implementation of the mitigation measures and Special Conditions described ~~later~~ in these Findings, **however,** the impacts would be mitigated to ~~a~~**an insignificant** level allowing conformity to Coastal Act Sections 30230 and 30231.

- **Impingement:** Impingement occurs when fish or other organisms are caught on an intake's screening system and are either killed or injured. The impingement rate for an intake is primarily a function of water velocity. The current Clean Water Act regulations (at 40 CFR 125) applicable to cooling water systems establish a maximum velocity of 0.5 feet per second as the required Best Available Technology. When velocities are below that level, fish are usually able to swim away from the pull of the intake. Impingement rates may also vary seasonally or when schools of fish get close to the intake.

  Regarding Poseidon's expected impingement impacts, the project EIR concluded that the project would not cause any additional impingement impacts beyond those caused by the power plant. **See Project EIR Section 4.3.** Additionally, Poseidon's 2004-05 study, described below, showed that its use of the power plant intake ~~would~~**may** impinge about 20,000 fish per year (or about 55 per day) weighing a total of about 4500 pounds (or about 12 pounds per day). During the study period, however, most of this impingement – about 80% – was caused by power plant heat treatments, which Poseidon would not have to do as a stand-alone desalination facility. ~~Further, as described in the City's EIR~~**Therefore, Poseidon's impingement rate would be much less.** ②

  The City of Carlsbad's EIR determined that under the stand-alone "No Power Plant Operation" scenario, the project would have an intake flow velocity that would not exceed 0.5 feet per second, ~~consistent with the U.S. EPA guidance for "best available technology" for this aspect of the project. Therefore, Poseidon's impingement rate would be much less, averaging less than 2.5 pounds per day. Poseidon contends its study shows that impingement caused by its 304 MGD flow would be about 1.92 pounds per day~~**which is consistent with the U.S. EPA guidance for "best available technology" for cooling water intakes, and that under these operating conditions the project "would not result in significant impingement effects." See Project EIR Section 4.3. Poseidon has prepared a *Flow, Entrainment and Impingement Minimization Plan* in accordance with its Regional Board issued NPDES Permit (Regional Board Order No. 2006-0065). The *Flow, Entrainment and Impingement Minimization Plan* provides that the project, when operating stand-alone, is expected to impinge approximately 2.12 pounds of fish per day, which Poseidon provides is less than the average daily consumption of an adult pelican (more than 2.5 pounds per day)**, which for this project the Commission considers *de minimis* and insignificant. [77] **Under stand-alone operations, the project will also enhance the marine**

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[77] **See also Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at pp. 9-10.**

environment in the Lagoon, because Poseidon will be required to conduct maintenance dredging that will prevent the Lagoon from reverting to anaerobic hyper-saline water, which would not support fish species currently present in the Lagoon.[78] ③

Moreover, **Special Condition 8** requires Poseidon to submit a Marine Life Mitigation Plan for Commission approval, and implementation of that Plan will mitigate to the extent feasible any expected impingement impacts. Past impingement at the power plant has included entrapment and "take" of the endangered Eastern Pacific green turtle a protected species. During the ~~past several decades~~**last 53 years** of power plant operations, one green sea turtle ~~was~~**has been** entrained and released unharmed and ~~a second~~**one** was found dead at the intake structure. Sea turtles ~~have been~~ rarely **have been** seen within Agua Hedionda Lagoon. ~~Further, only adult turtles would be expected in the lagoon, since~~**, or in the intake or outflow bays of the EPS. The flow rate of the water in the Lagoon and intake and outflow bays is very low; therefore, death of healthy sea turtles after entering these areas is highly unlikely. Because there will be either no change to the existing conditions, or in the case of the project operating by itself a substantial reduction in the seawater pumping rate, it is not anticipated that continued operation of the power plant or the needs of the project will have significant adverse impacts upon sea turtle species. The current design of the power plant's intake minimizes the possibility of entrainment of sea turtles in the power plant structures. The intake structure is outfitted with metal guard rails (trash racks) that prevent animals from entering the forebay area on the plant side. The slow moving water in the Lagoon and through the intake trash racks allow the sea turtles to easily get out of the area if they enter.**[79] **Since** the turtles do not breed in this area**, only adults would be susceptible to potential "take"**, and adult turtles are too large to fit through the bar racks at the intake entrance. ~~Poseidon has documented that stand-alone operation of the facility would result in intake water velocities at or below 0.5 feet per second, which is consistent with the U.S. EPA guidance for "best available technology" for cooling water intakes. As noted above, Poseidon will also apply for an incidental take permit from NMFS to mitigate any such impacts.~~[80] Based on the above, and with **Special Condition 8**, the Commission finds the impingement impacts and the potential for an incidental take associated with stand-alone operations will be **fully** mitigated and will be consistent ~~with the~~ Coastal Act. ②

- **Entrainment:** Entrainment occurs when small organisms, such as plankton, fish eggs, larvae, etc., are pulled into an open-water intake. Once-through cooling systems like the one at the Encina power plant are considered to cause essentially 100% mortality due to the organisms being subjected to high temperatures or high pressures within the system. Even if

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[78] See *Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon :Low Flow vs. No-Flow Alternatives*, Dr. Scott Jenkins, September 28, 2007 ③

[79] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. B at p. 14.

[80] See *id.* ②

some organisms survive the initial heat and pressure-induced stresses of passing through these systems, the **conservative** assumption used in entrainment studies is that the organisms that survive these initial stressors will die soon after due to injury, increased rates of predation, or other related causes. A stand-alone desalination facility using the same type of water intake structure ~~is expected~~**could conservatively be assumed** to cause the same level of mortality, due to its use of filters and high pressures to remove most particles from seawater. **The assessment that a stand-alone facility will result in 100 % mortality is an extremely conservative assumption, because it ignores the design and technology features that have been incorporated in the proposed project to reduce entrainment impacts.** Those organisms in the water drawn in to the structure just to dilute the desalination discharge may experience somewhat less than 100% immediate mortality~~; however, there are insufficient data and peer-reviewed scientific studies to conclude that the overall mortality from desalination processes and discharges would be any less than the approximately 100% mortality experienced by organisms going through the power plant processes and discharges. This assumption of 100% mortality is a standard protocol for power plant entrainment studies done to determine conformity to federal Clean Water Act requirements and well as California Coastal Commission, Energy Commission and Regional Board requirements. Entrainment causes direct impacts by killing the small organisms that are pulled through the cooling system and causes indirect impacts to the larger marine community by altering the food web and removing part of the community's productivity. Seawater is not just water, but is habitat, and along the California coast an acre-foot of seawater (about 326,000 gallons) can contain an average of about 500 different species of fish, invertebrates, plankton, and other marine life. Large intake systems such as the one Poseidon proposes to use can kill millions of organisms each day and cause a loss or change in ecosystem resources and alterations in community structure. While impingement rates are largely a function of water velocity and can be reduced when velocities are reduced, the amount of entrainment is primarily associated with the amount of water used, so the main way to reduce entrainment impacts is to reduce water volumes pulled into an intake system.~~ **As discussed in greater detail below, the following project design and technology features are expected to substantially lessen the impacts to marine life:**

~~Poseidon has described several project components that it expects will reduce entrainment; however, because they will not substantially change the expected 304 MGD average water intake, they are not likely to substantially change the expected amount of adverse entrainment impacts. For example, Poseidon states that it expects the power plant to operate indefinitely; however, the power plant owner has stated that it expects to operate only sporadically or operate at partial power for up to several weeks each year for the next several years. Additionally, its recent average operating levels have been below 304 MGD, so Poseidon would need to pull in additional water beyond what the power plant has recently used. Poseidon also states that its use of estuarine water and the power plant intake would not result in added heat, would have lower velocity and turbulence, and would use about 200 MGD only for diluting its high salinity discharge. However, as noted above, there are no peer-reviewed scientific studies showing the rate of survivability of organisms entrained through such a system, and it is assumed that a desalination facility would cause the same~~

~~100% mortality assumed for power plants, either immediately due to high pressures, exposure to high salinity, turbulence, or shortly after discharge due to injury, increased predation, or other factors. As noted previously, the evaluation in these Findings of adverse effects to marine biology are based on Poseidon operating as a stand-alone facility. If the power plant operates at times when Poseidon is operating, the combined overall adverse entrainment impacts would be greater, though Poseidon's "share", or proportion, of the impacts could be decreased.~~ ①

- **EPS once-through cooling system is expected to continue operating indefinitely. The magnitude of the entrainment losses identified in Chapter 3 of Poseidon's Revised Flow, Entrainment and Impingement Minimization Plan, dated June 1, 2007, is estimated for continuous operation of the desalination plant on a stand-alone basis notwithstanding the fact that the EPS generating units will be available for service indefinitely. EPS has proposed removing three of the existing plant's five generating units and operating the remaining two units only part time for several more years until replacement power becomes available. The two remaining generating units represent 528 MGD of pumping capacity. Cal-ISO would ultimately determine when the remaining units are no longer needed for grid reliability. In the meantime, seawater pumping by the EPS would likely meet a substantial portion of the CDP flow requirements, resulting in a comparable reduction of entrainment and impingement impacts attributable to the CDP.[81]**

- **The desalination facility will reduce impacts due to modified use of existing facilities. Potential entrainment mortality that occurs within the existing power plant screens, pumps and condensers upstream of the desalination facility intake would be substantially reduced under stand-alone operations due to the relatively lower temperature, volume, velocity and turbulence of the desalination operations compared to that of the power plant.[82]** ②

- **Two-thirds of the water is returned to the ocean without further processing. Only 35 percent of the seawater (104 MGD) actually enters the desalination plant and is subjected to additional processing that would potentially add to the entrainment mortality. The reminder of the seawater (200 MGD) bypasses the desalination facility and is returned to the ocean.[83]**

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[81] See Poseidon Resources Corporation, *Response to California Coastal Commission's Letter of February 20, 2007*, June 1, 2007, at Attachment 25.

[82] See *Carlsbad Seawater Desalination Project Revised Flow, Entrainment, and Impingement Minimization Plan*, June 1, 2007, at p. 26.

[83] See *Carlsbad Seawater Desalination Project Revised Flow, Entrainment, and Impingement Minimization Plan*, June 1, 2007, at pp. 1-19.

Entrainment causes direct impacts by killing the small organisms that are pulled through the cooling system and causes indirect impacts to the larger marine community by altering the food web and removing part of the community's productivity. Seawater is not just water, but is habitat, and along the California coast an acre-foot of seawater (about 326,000 gallons) can contain an average of about 500 different species of fish, invertebrates, plankton, and other marine life. While impingement rates are largely a function of water velocity and can be reduced when velocities are reduced, the amount of entrainment is primarily associated with the amount of water used, so the main way to reduce entrainment impacts is to reduce water volumes pulled into an intake system. ②

Background – How to Determine Entrainment Effects: Determining the scale and the extent of entrainment impacts generally requires a study that includes obtaining at least one year's worth of regular sampling data and application of any of several modeling approaches. The samples are taken from waters near the intake and from nearby source waters. Organisms captured are identified to the lowest possible taxon. In most cases, all organisms cannot be identified, so the known taxa serve as indicators or surrogates for the full set of affected species. Of the various models available, the most acceptable is known as the Empirical Transport Model (ETM). It is used to provide an estimate of the proportion of organisms lost due to entrainment compared to the overall number of organisms in a source water body. The ETM approach allows estimates of loss for each identified species, in part by recognizing that each species is subject to entrainment during particular life stages. Once the species subject to entrainment are identified, the ETM approach then determines what period of time each of the species are subject to entrainment – that is, based on local currents, it determines how many days an egg stage or larval stage of a particular species is subject to being pulled into the cooling system rather than be able to move away and escape from it. This period varies by species, ranging from just a few days to several weeks. It will also vary by whether it is calculated using the maximum or mean duration of larvae in the source water. As a very simple example, if individuals of a species are "entrainable" for the first five days of their lives and the average currents in the area move past the cooling system intake at half a mile per hour, that species has a source water area of sixty miles (5 days x 24 hours x 0.5 mph = 60 miles). Determining source water areas may be complicated by seasonal changes in current speed or direction and whether the species are from nearshore or offshore areas, and for intakes proposed in enclosed estuaries, the calculations must incorporate the hydrologic pattern of the estuary.

The proportion of larvae lost to larvae in the source water (known as "proportional mortality") is then multiplied by the source water area to provide an estimate of how much overall production of the species in this area is lost due to entrainment. This result of this calculation, known as "habitat production foregone" (HPF) can be expressed in acres or in miles of shoreline. Even a low "proportional mortality" figure can result in a large impact if the loss occurs over a large stretch of shoreline. Using the example above, if 5% of the larval stage of that species is lost due to entrainment, that represents that species' production along about three miles of shoreline (0.05 x 60 miles = 3 miles). The HPF for the various species can be kept separate or can be combined as an overall average figure.

Results of entrainment studies such as this do not reflect all the variables that may affect populations within a given area – for example, populations may decrease or increase due to seasonal or long-term changes, the habitat within the source water areas is likely to include characteristics that affect particular species and may be of variable quality within the same source water area, etc. These methods do, however, provide a good sense of scale of the overall impacts of a given intake system during the period sampled.

(1) *Poseidon's anticipated entrainment effects*: As noted previously, the certified EIR determined that, under the No Power Plant Operation scenario, the project "would have no significant effect on the source water populations [ability] to sustain themselves." See Project EIR Section 4.3.; [findings made by the City of Carlsbad under CEQA]. Poseidon also evaluated potential entrainment impacts should it operate on a stand alone basis, through a comprehensive Revised Flow, Entrainment, and Impingement Minimization Plan, as part of its compliance with its NPDES Permit.[84] To prepare this Plan, in 2004-05, Poseidon conducted a study to determine the entrainment impacts that would be caused by continuous 304 MGD water use, which was based on a published study plan reviewed and approved by the Regional Water Quality Control Board, representatives of the California Department of Fish and Game, the National Marine Fisheries Service, and by an EPA-appointed independent consultant.[85] ②

~~*Poseidon's anticipated entrainment effects:* As noted previously, the certified EIR determined that the project would have no significant effects on marine life within Agua Hedionda; however, this conclusion was reached before Poseidon provided results of its entrainment study. In 2004-05, Poseidon conducted a study to determine the entrainment impacts that would be caused by continuous 304 MGD water use.~~ ①

In May 2007, Poseidon provided a technical memorandum summarizing the results of ~~that study~~**the Revised Flow, Entrainment, and Impingement Minimization Plan** and stating that the ~~study~~**Plan** used Regional Board-approved protocols for sampling and analysis. **Entrainment samples collected during the study were consistently dominated by larvae of three lagoon-dwelling species and contained relatively few numbers of ocean-dwelling species.** The ~~summary showed that the desalination facility's water withdrawals would kill about 12% of three types of fish larvae in Agua Hedionda subject to entrainment – gobies, blennies, and garibaldi – in addition to smaller percentages~~**three dominant species were gobies, a mud dwelling group of fish ubiquitous to all California lagoons and bays;[86] blennies, fish that are crevice dwellers in fouling communities on pilings and bottles and cans on the seafloor; and garibaldi, a typical rocky reef dweller in** ②

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[84] See *Carlsbad Seawater Desalination Project Revised Flow, Entrainment, and Impingement Minimization Plan*, June 1, 2007.

[85] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at p. 9-10.

[86] Note: this is an entirely different species than the tidewater goby discussed earlier in these findings.

open ocean habitat, but in this case occupying the rocky reef of rock rip-rap armoring the Lagoon side of the Carlsbad Boulevard jetty. None of the species entrained is listed as threatened or endangered. In addition, entrainment would affect about 0.2% of other species, including white croaker, Northern anchovy, California halibut, and queenfish. ~~Poseidon~~**The Plan** identified these species as coming from about 302 acres of Agua Hedionda's open water habitat (253 acres) and its mudflat/tidal channel habitat (49 acres). Applying the ETM and HPF methods described above suggests that Poseidon's entrainment would cause a ~~loss~~**reduction** of productivity about equal to that created by ~~37~~**36** acres of Agua Hedionda's open water and mudflat/tidal channel habitat (i.e., 12% of 302 acres = ~~~37 acres). Because the Commission has not yet been provided the full study for review, and to~~**36 acres). The vast majority of the species that may be entrained as a result of stand-alone desalination plant operations are not commercially or recreationally fished. Since they are not harvested, the low levels of mortality imposed by entrainment are being imposed on populations that are at a level close to the natural carrying capacity of the coastal environment. Therefore, mortality due to entrainment would not affect such populations. In all, any potential impingement or entrainment impacts of the project, if it should operate stand-alone in the future, would have no significant adverse effects on marine biology. To** ensure Poseidon's study accurately assesses the project's entrainment impacts, **Special Condition 8** requires that Poseidon provide a full copy of its study for further Commission review and approval.

~~Poseidon has argued that this expected entrainment impact does not constitute a significant adverse impact. It states, for example, that because there are large numbers of planktonic organisms in estuarine water and because they experience a very high natural mortality rate, the effects of entrainment are generally similar to what these organisms already experience. Poseidon further states that the "cropping" of these organisms via entrainment is actually beneficial and should not be viewed as an adverse impact in that it allows remaining individuals to have less competition. However, the Commission finds that the project's entrainment impacts, which Poseidon currently estimates as representing about 37 acres of lost estuarine productivity, will require mitigation to ensure conformity to Coastal Act Sections 30230 and 30231. Although the Final EIR found the project would cause no significant entrainment impacts pursuant to CEQA, Poseidon provided the results of its study showing the extent of the expected impacts only after the EIR was certified. Further, Poseidon's arguments that these impacts are insignificant are not supported by findings from the past several years of entrainment studies conducted at power plants along the California coast and elsewhere in the U.S. In all entrainment studies done at California's coastal power plants, and per guidance from the U.S. EPA, entrainment mortality is assumed to be 100%. Although small numbers of live organisms may emerge from the discharge, they are expected to be injured and suffer mortality shortly after being discharged. Each of the studies done in California since 1998 concluded that the power plant intakes caused adverse impacts to local or regional marine biota.[35] Some studies evaluated intake volumes in the same range as those~~

~~[35] Since 1998, entrainment studies completed at California coastal power plants include those done at Moss Landing, Morro Bay, Diablo Canyon, Huntington Beach, and South Bay (e.g., *Morro Bay Power Plant 316(b)*~~

~~proposed by Poseidon – for example, the entrainment study for the Huntington Beach power plant determined that its use of 253 MGD of ocean water resulted in Habitat Production Foregone of over 100 acres. Each of the three recent studies done for intakes within estuarine environments identified adverse entrainment impacts and substantial mitigation needs. For example, the Moss Landing study showed that its 1224 MGD estuarine intake resulted in Habitat Production Foregone of 1135 acres. If applied proportionally to Poseidon's 304 MGD intake, the HPF would be about 281 acres. Similarly, the study of Morro Bay's 668 MGD intake showed an HPF of from 230 to 759 acres, which is applied proportionally to Poseidon's expected flow would result in an HPF of from 104 to 345 acres. In each of these power plant siting cases, the Commission found that mitigation was necessary to allow Coastal Act conformity. Finally, the South Bay power plant study of a 601 MGD intake resulted in an HPF of 1003 acres, which if applied to Poseidon's flow would require 507 acres of mitigation. Poseidon's contentions that its entrainment effects would be minimal or even beneficial are further refuted by both Coastal Act and Porter-Cologne Act requirements that call for entrainment to be minimized to protect marine biology and water quality.~~

~~Having seen only the summary Poseidon provided, rather than the full study, the Commission is requiring through **Special Condition 8** that Poseidon provide the full study to confirm these contentions, especially in comparison to these other recent entrainment studies, all of which found significant adverse impacts and resulted in HPF and mitigation needs well above Poseidon's proposal. The previous entrainment study done at the Encina power plant in 1979 found that there was an average of more than 1400 individuals of just the ten most abundant fish species in each 100 cubic meters of estuarine water.[36] The results Poseidon provided of its more recent study did not include this information, but if the current densities are similar, Poseidon's 304 MGD intake would cause entrainment to at least 16 million fish larvae per day (i.e., 304 MGD / 100 cubic meters (or 26,400 gallons) = 11,515 x 1400 = 16,121,000). That 1979 study also found that the power plant's 795 MGD intake would cause annual entrainment losses of identified zooplankton (including Crustacea, copepods, Mysidacea, Decapoda, etc.) of 30.9×10^9, or more than 30 billion organisms per year. When applied to Poseidon's 304 MGD flow volume, this would be about 11 billion of these identified organisms per year.~~

~~Along with the lost productivity that would result from Poseidon's estuarine water use, the water use would also cause significant adverse effects to specific species. The species identified in the study as subject to entrainment include several subject to "take" prohibition or fishing limits and others that provide important functions in the estuarine food web. Of the species that would be entrained, most have a role in the estuary's food web as prey species for higher trophic level species, including many that are important for commercial or recreational fishing.[37]~~ **Poseidon's**

~~*Resource Assessment*, 2001; *AES Huntington Beach Generating Station Entrainment and Impingement Study*, 2005 and *California Energy Commission Entrainment and Impingement Final Staff Analysis*, August, 2006, etc.).~~

~~[36] See Cabrillo Power I LLC, *Proposal for Information Collection Clean Water Act Section 316(b) Encina Power Station*, April 1, 2006.~~

experts (Tenera Environmental, Shaw Environmental & Infrastructure, Inc., Dr. Scott A. Jenkins and Joseph Wasyl) have concluded that this expected entrainment impact does not constitute a significant adverse impact and would be consistent with Coastal Act policies because the level of entrainment would have no effect on the species' ability to sustain their populations, and thus would maintain marine biological resources.[87] First, while the number of larvae produced by most fishes during their reproductive years as adults can be enormous, only two of those larvae need to survive to adult to maintain a stable population level.[88] Second, from a population stability perspective, the CDFG stated in its 2002 Nearshore Fisheries Management Plan that an overfished stock is one that has been reduced to 30% of its unfished biomass, and that controls would need to be enacted whenever a stock is reduced to 60% of its unfished biomass. Thus, Poseidon's experts demonstrated that, because the ETM indicates the species entrained by the power plant intake average only 12.2% of the species at risk, even if these proportional loses of larvae were the same as losses of adults of the species, the CDFG fishery management practice recognizes that losses to the population of up to 40% are safely sustainable and would have no adverse impacts on the population. Third, Poseidon contends that the vast majority of the species that may be entrained as a result of stand-alone operations are not commercially or recreationally fished. Since they are not harvested, Poseidon contends, as confirmed by the EIR, the low levels of mortality imposed by entrainment would not affect the populations.[89] Moreover, Carlsbad's Final EIR considered potential entrainment impacts of the stand-alone facility, and determined that entrainment would not cause any significant adverse impacts. However, although the Final EIR found the project would cause no significant entrainment impacts pursuant to CEQA, the Commission finds that the project's entrainment impacts will require mitigation to ensure conformity to Coastal Act Sections 30230 and 30231. Having seen only the summary Poseidon provided, rather than the full study, the Commission is requiring through Special Condition 8 that Poseidon provide the full study to confirm these contentions. ②

State law prohibits any commercial or recreational ~~take~~**fishing** of the garibaldi (*Hypsopops rubicundus*), which is also California's state marine fish. The project EIR stated that entrainment of garibaldi should be considered a *de minimis* impact~~; however, this does not mesh~~. **Poseidon confirmed that garibaldi currently live in the rocks immediately adjacent to the power plant intake structure, and that biological surveys of the species indicate that it is thriving**

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[87] See *Carlsbad Seawater Desalination Project Revised Flow, Entrainment, and Impingement Minimization Plan*, June 1, 2007.

[37] ~~The recently published report by the Environment California Research and Policy Center, *Net Loss: Overfishing Off the Pacific Coast* (October 2007) identifies significant overfishing along the coast of California and other states. Among the populations identified as overfished (i.e., reduced to below 20-25% of its original population) are several that rely on fish that would be entrained by Poseidon's project~~[88] See *Electric Power Research Institute Comment Letter regarding the Proposed Statewide Policy for Once-Through Cooling*, dated September 14, 2006, submitted to SWRCB.

[89] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at pp. 10-11.

and has thrived during the operation of the power plant, notwithstanding the fact that historically the pumping rate of the power plant has been twice the rate at which Poseidon's project proposes to operate.[90] However, project opponents argue that, even if the species is thriving, entrainment may be inconsistent with the provision of Coastal Act Section 30230 requiring that special protection be provided to species of biological or economic significance, or with California state law, which establishes a total prohibition on taking the species.[~~38~~91] ~~About 6% of the organisms identified in Poseidon's study were garibaldi. Using the entrainment figures from above, this would total about one million of the 16 million fish larvae entrained each day (6% x 16,121,000 = 967,260). This adverse~~**Poseidon counters that the California law prohibiting take of garibaldi is inapplicable here, as it relates to fishing garibaldi, not operating a desalination facility that may unintentionally entrain garibaldi. This** impact will require ~~species specific~~ mitigation as part of the Marine Life Mitigation Plan required through imposition of **Special Condition 8**, described below. **Poseidon has proposed restoration of 37 acres of wetland habitat, which will significantly enhance the marine environment by creating habitats for species unaffected in any manner by intake flows. Operating as a stand-alone facility, the project will also enhance the marine environment because in the absence of the project's maintenance dredging and stewardship of the Lagoon, sedimentation from urban run-off will cause the Lagoon to close within five to seven years, resulting in a loss of its beneficial uses.[92]**

The California halibut (*Paralichthys californicus*) would also be subject to entrainment. The study showed that about 0.15% of the entrained fish would be halibut; however, this may be considered a significant number, given the steep decline in California halibut populations over the past several decades. ~~Using the entrainment figures from above, more than 24,000 halibut larvae per day would be lost to entrainment (i.e., 0.15% x 16,121,000 = 24,181.5).~~ The California Department of Fish and Game associates this decline with the loss of nursery habitat in shallow bays such as Agua Hedionda and has established strict limits for commercial and recreational halibut fishing.[~~39~~93] Similarly, the Northern anchovy (*Engraulis mordax*) is subject to state fishing regulations and additionally serves as an important forage fish for a number of species, including the California halibut.

These three important species – the garibaldi, California halibut, and Northern anchovy – make up about 6% of the identified organisms collected during entrainment sampling. They would constitute a similar percentage of the ~~millions of~~ organisms that Poseidon's project would

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[90] **See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at p. 10.**

[~~38~~91] 14 CCR 28.05 states that Garibaldi may not be taken or possessed. ~~14 CCR 1.80 defines "take" as "Hunt, pursue, catch, capture or kill fish, amphibians, reptiles, mollusks, crustaceans or invertebrates or attempting to do so."~~

[92] **See *Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon :Low Flow vs. No-Flow Alternatives*, Dr. Scott Jenkins, September 28, 2007.**

[~~39~~93] See CDFG's information at: http://www.dfg.ca.gov/mlpa/response/halibut.pdf

entrain, and therefore represent an adverse impact to marine biological resources protected under the Coastal Act.

Overall, Poseidon's entrainment study results show that its proposed use of an estuarine intake would ~~causes a substantial loss of important~~**cause a reduction in** individual species and ~~substantial loss of~~**a reduction in** production within Agua Hedionda. It may also cause losses in nearby nearshore waters due to the intake entraining organisms that would otherwise enter nearshore areas due to tidal discharges; however, the study results did not identify whether that hydrodynamic-related effect was included. **But, even in the absence of any mitigation, the project will also enhance the marine environment because in the absence of the project's maintenance dredging and stewardship of the Lagoon, sedimentation from urban run-off will cause the Lagoon to close within five to seven years, resulting in a loss of its beneficial uses for organisms currently living in the Lagoon.**[94] (2) (3)

Mitigating the Impacts Caused by the Poseidon's Use of an Estuarine Open Water Intake:

Mitigation Background: The standard approach for identifying, selecting, and implementing appropriate mitigation for project impacts is to first *avoid* the impacts, to then *minimize* the impacts, and to finally *compensate* for the impacts that remain.[40~~95~~] Mitigation sequencing, as it is known, requires that mitigation measures to achieve the first step be considered and selected (or be determined infeasible) before moving to the next step. If the third step, compensatory mitigation, is necessary to address remaining impacts, it also includes a preferred sequence – to first create environmental conditions similar to those being lost; to next restore or enhance conditions similar to those being lost; and to finally preserve or protect an area that provides habitat value. It is generally preferable to select "in-kind" mitigation; that is, to develop mitigation sites with habitat similar to that being adversely affected, rather than to develop "out-of-kind" mitigation. Similarly, it is generally considered better to develop mitigation on-site rather than off-site.

Avoiding and Minimizing Impingement Impacts: As noted above, Poseidon's study showed that its use of the power plant intake would impinge less than 2.5 pounds of fish per day, which the Commission considers a de minimis impact.

The primary method of avoiding and minimizing impingement is to maintain intake water velocities below 0.5 feet per second (fps), a rate that the U.S. EPA considers to be "best available technology" for cooling water intakes. This velocity represents the rate from which most fish species are able to swim away from intake screens and avoid being impinged. Poseidon showed in its draft *Revised Flow, Entrainment, and Impingement Minimization Plan* that its use of the power plant pumps would create intake velocities higher than 0.5 fps and that

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[94] **See *Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon ;Low Flow vs. No-Flow Alternatives*, Dr. Scott Jenkins, September 28, 2007.** (3)

[40~~95~~] See, for example, the CEQA Guidelines at Section 15370.

its preferred operating scenario – using the power plant's Unit 4 pumps—would result in rates between 1.8 and 2.8 fps, or from more than three to five times the acceptable rate. However, in Exhibit B of its November 9, 2007 letter to Commission staff, Poseidon states that water velocities at the intake bar racks during stand-alone operations would be less than 0.5 fps, which would conform to the U.S. EPA's "Best Technology Available" standard for minimizing impingement impacts. ~~Poseidon has also stated~~**Furthermore, Poseidon's Exhibit B and its *Revised Flow, Entrainment, and Impingement Minimization Plan* state** that it will install variable frequency drives on its intake system to further decrease water velocities~~. Additionally, as noted previously, Poseidon has stated it intends to apply for an "incidental take permit" from NMFS. With these measures, the project is not likely to cause substantial adverse impingement effects.~~ **and any related impingement. At this low velocity and with variable frequency drives, the already de minimis impacts that Poseidon's project may cause will be further reduced, and thus mitigated to an insignificant level with no impact on the species, in conformity with Coastal Act Sections 30230 and 30231.**

Avoiding Entrainment Impacts: The most direct way to avoid Poseidon's expected adverse entrainment effects would be, if feasible, to use an alternative intake structure that avoids those effects. ~~Subsurface~~**Certain types of subsurface** intakes may avoid these effects by drawing in water through an overlying layer of sand. As discussed below, however, the Commission finds that these alternatives are infeasible.

The four main types of intakes are vertical beach wells, Raney-type wells, slant-drilled wells, and infiltration galleries (see Exhibit 4). Vertical beach wells are essentially the same as wells located at inland locations, drilled to a depth where they intercept an underlying aquifer, or for beach wells, where they intercept the seawater "wedge" underlying the beach. Raney-type wells are vertical wells with an additional series of horizontal collector wells extending out from the bottom of the vertical well shaft. This type of well can significantly add to the yield obtained from a vertical well shaft. Slant-drilled wells are drilled at an angle from the beach or from further inland, with a perforated well casing that extends below the seafloor to intercept water from below the substrate. An infiltration gallery consists of a series of perforated pipes that are placed in a trench dug on the seafloor, which is then backfilled with sand. As described more fully below, the most common adverse effects of ~~these systems~~**wells** would be caused by construction or would be related to groundwater quality or quantity. For example, an improperly located subsurface intake could draw down aquifers or could intercept areas of contaminated groundwater or water with naturally high mineral content~~ that is~~**, excessive salinity concentrations or high levels of suspended solids that are** difficult ~~and expensive~~ to treat, ~~which could render an alternative~~**rendering the project practically and** economically infeasible**. Adverse effects of galleries include significant environmental impacts relating to construction and destruction of over 150 acres of coastal habitat**. Although subsurface intakes can, like open water intakes, cause adverse environmental effects, they may be less severe and temporary, and a properly designed subsurface system can be environmentally benign. At least four desalination facilities along the California coast use beach wells as their feedwater system, and the Commission recently approved two pilot studies to determine the applicability of both a slant-drilled intake and an infiltration gallery for desalination.

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The amount of water subsurface intakes can take in depends on the permeability of the overlying substrate and other geotechnical characteristics. With an infiltration gallery, the substrate can be engineered to allow much higher permeability than would occur with the natural substrate. Subsurface intakes also offer additional operational advantages, such as reduced chemical use and reduced operating costs. Water from subsurface intakes generally has lower concentrations of solids, organic material, oil and grease, and other constituents that would have to be removed before the water contacts a desalination facility's reverse osmosis membranes. The natural filtering effect of the overlying substrate can buffer changes in the open water column caused by storms, runoff, or spills, and they may be able to operate during times when facilities with open water intakes would have to shut down. Subsurface intakes also provide some of the pre-treatment needed before seawater goes through desalination filters or membranes, thus eliminating part of the chemical or physical treatment that would otherwise be required at the desalination facility. While subsurface intakes may have higher initial construction costs, they can result in long-term operational savings due to their lower pre-treatment and chemical costs, and because water quality from those intakes is generally less variable, which allows for more efficient desalination operations. These characteristics are likely more evident from intakes that extend under the nearshore ocean water column than those that intercept aquifers that may be affected by surface infiltration from inland areas or have high mineral content.

The project EIR evaluated the feasibility and environmental impact of several types of alternative intake systems **pursuant to the Modified Intake Design Alternative**. It concluded that the use of horizontal wells, vertical beach wells, and infiltration galleries were either infeasible or would cause greater ~~adverse~~ environmental impacts than ~~would~~ the project's proposed use of the existing power plant intake.[**96**] It stated that those alternative intakes would result in adverse construction, noise, traffic, and air pollution impacts during construction, as well as adverse effects on public access. Poseidon also provided documentation that subsurface intakes would cause more significant impacts than those caused by the existing power plant intake and that they would be economically infeasible. In support of this ~~contention, it~~**position, Poseidon** has submitted ~~several documents and cost estimates described below.~~[**41**] **extensive analysis and cost estimates it prepared at the request of Commission staff. This information provides further confirmation that alternative intake systems were infeasible and not the environmentally preferred alternative.**[**97**] Regarding economic infeasibility,

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[**96**] **See Project EIR at Section 6.3.**

[**41**][**97**] See Poseidon Resources Corporation Response to California Coastal Commission's Letter of September 28, 2006, November 30, 2006, at pp. 24-51; See Poseidon Resources Corporation Response to California Coastal Commission's December 28 Request for Additional Information, February 2, 2007, at pp. 2-4; See Poseidon Resources Corporation Response to California Coastal Commission's February 20 Request for Additional Information, June 1, 2007, at pp. 2-7, 10-11; See Poseidon Resources Corporation Response to California Coastal Commission's July 3 Request for Additional Information, July 16, 2007, at pp. 4-8, 11-14; Poseidon Resources Corporation, Additional Analysis of Submerged Seabed Intake Gallery, October 7, 2007; Poseidon Resources Corporation, Issues Related to the Use of the Agua Hedionda Inlet Jetty Extension EIR to Recommend an Alternative Seawater Intake for the Carlsbad Desalination Project, October 8, 2007; Poseidon Resources Corporation, Intake Cost Estimates, October 2007.

Poseidon believes that subsurface intake options would be infeasible in part because they would raise the anticipated cost of desalinated water from Poseidon's current estimate of $950 per acre-foot to about $1300 per acre-foot.

Regarding slant-drilled wells, a recent study conducted by the Municipal Water District of Orange County (MWDOC) showed that that type of intake could be used to draw in 30 MGD of seawater for its proposed desalination facility near Dana Point.[~~42~~98] The facility would draw 30 MGD from nine 500-foot long wells extending under the seafloor at about a 20~~°~~° angle. Poseidon submitted evidence stating slant wells ~~would be~~**are infeasible because pilot testing indicates that the quality of the water available from them would be so low as to be difficult, if not impossible, to treat due to salinity concentrations twice that of seawater, excessive iron, and high suspended solids.**[99] **Poseidon's studies also confirmed that, at best, one slant well could provide only 5% of the water required by the project. Thus, numerous slant wells would be needed to meet project objectives and address the well-documented water needs in Southern California. As a result of the necessity for multiple slant wells in public areas, this option is** infeasible due to their ~~presence on the beach,~~ **noticeable presence on the beach and** disruption of public access and recreation~~, and because of water quality characteristics such as high iron, salinity, and suspended solid concentrations that would make the water more difficult and expensive to treat. Poseidon also determined that well yields in the Carlsbad area would be lower than those of the Dana Point example above and that its 304 MGD water use would require up to about twenty wells, which would result in even greater adverse construction and public access-related impacts~~. The project EIR concluded that construction and use of subsurface intakes for the project would cause adverse environmental impacts to coastal resources at Carlsbad beach, including **but not limited to** traffic, noise, and air pollution ~~during~~**impacts for** a two-year**s** construction period**,** and ongoing loss of public access to the beach area occupied by the wells both during and after construction.[100] The EIR also concluded that **the** slant wells would require **the** construction of permanent access ramps from the Pacific Coast Highway to the beach to transport equipment during construction and to permit well inspection during the life of the project. It further concluded that because the project would require multiple smaller ~~wells~~**well facilities** to meet its ~~proposed capacity~~**needs**, the wells would result in far greater adverse environmental impacts **and costs** than the proposed project**,** and ~~that~~

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[~~42~~98] See Boyle Engineering's *Dana Point Ocean Desalination Project – Engineering Feasibility Report* (March 2007), prepared for the Municipal Water District of Orange County.

[99] See Poseidon Resources, Transmittal *of Analysis of Alternative Subsurface Seawater Intake Structures, Proposed Desalination Plant, Carlsbad, CA*, Wiedlin & Associates (January 30, 2007), sent February 2, 2007; Poseidon Resources Corporation, *Response to California Coastal Commission's September 28, 2006 Request for Additional Information*, November 30, 2006, at pp. 31-41.

[100] See Project EIR Section 6.3.

they would be ~~infeasible.~~**neither feasible to address water needs nor consistent with Coastal Act policies.**[101]

An infiltration gallery is another potential alternative. These systems are in place at a number of locations around the world, including one that provides water for a 45 MGD desalination facility, with plans for other galleries that would provide up to several hundred million gallons per day for power plant cooling water use. While these systems would result in seafloor disturbance during construction, they would cause few, if any, impacts to marine life once in operation. When installed in an area of open sandy seafloor, the post-construction benthic habitat conditions would be essentially the same as pre-construction conditions. The initial construction impacts to the offshore sandy bottom habitat would be similar to the continual offshore sand deposition and movement already experienced by that type of habitat~~and would be far less severe than the ongoing entrainment losses caused by open water intakes~~.

~~Poseidon's concerns about infiltration galleries are similar to those it expressed about slant drilled wells – that galleries would be environmentally and economically infeasible. Poseidon initially contended that a gallery needed for its facility would irreversibly destroy about 46 acres of seafloor and it describes this impact as significantly greater than that caused by its anticipated estuarine entrainment. Poseidon also contends that constructing the system would require that a 15-foot thick layer of sand be removed from this 46-acre area and loaded on trucks to be taken to a landfill, and that operating the system would trap marine organisms on the seafloor due to the pull of the intake pumps.~~[43] ~~However, these two contentions are invalid.~~ As noted above, once a gallery is installed, it is essentially invisible from the surface of the seafloor, both in terms of its structure and any effects on marine life. The systems are designed so that the pull of the pumps are undetectable at the seafloor, thus making it highly unlikely that organisms would be "trapped~~.~~". **While Poseidon's initial geophysical surveys of an area offshore of Agua Hedionda showed an area of over 200 acres of featureless bottom with fine-grained sand, which may be suitable for such a system, recent surveys of the area indicated that 70% of the inspected area would contain sensitive basement and high relief reefs.**[102] During construction, not all the seafloor material within the gallery area would need to be removed, and it certainly would not require being transported to a landfill. Most material would likely be suitable for the ongoing longshore sand movement in this area of the coast. ~~Poseidon's initial geophysical surveys of an area offshore of Agua Hedionda show an area of over 200 acres of featureless bottom with fine grained sand, which may be suitable for such a system. However,~~ ~~in~~**The largest infiltration gallery used for desalination, at San Pedro del Pinatar in Spain, was selected in recognition of its location next to the highly sensitive marine environment of a regional nature reserve. That installation was also able to use horizontal directional drilling, which significantly reduced its installation impacts. However, based on testimony**

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[101] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at pp. 16-18.

~~[43] See Poseidon's July 16, 2007 letter to Commission staff.~~

[102] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Ex. B, p. 18.

provided at the Commission's November 15, 2007 hearing, the facility in Spain is now having significant fouling problems with the intake; the plant and a future expansion will rely on an open ocean intake for its primary source of seawater.

Infiltration galleries would cause even greater environmental impacts than slant wells, and would be and economically infeasible. In Exhibit B of its November 9, 2007 letter to Commission staff, Poseidon ~~states~~**confirmed** that over 70% of this area offshore of Carlsbad actually consists of more sensitive basement and high relief reefs. ~~It further states~~**Poseidon also provided evidence demonstrating** that an adequately-sized subsurface system would require about 150 acres of seafloor, which would be irreversibly damaged by gallery installation and operations. ~~Poseidon's documentation suggests that a 150-acre gallery in this area would therefore be physically and environmentally infeasible. Such a system would also result in extensive construction-related impacts along area beaches, which would reduce public access to the shoreline. Poseidon also noted in its presentation at the November 15, 2007 Commission hearing that a desalination facility in Spain, which constructed a relatively large infiltration gallery as its intake system due to its location next to a highly sensitive marine reserve, is experiencing fouling problems and will use an open water intake for its future expansion.~~**Based on this information, the environmental impact of the loss of 150 acres of offshore habitat is far greater than the impacts from the proposed existing intake for the following reasons:**

~~Poseidon further notes that an infiltration gallery at this location would cause substantial environmental impacts during construction due to the excavation of about 150 acres offshore for placing pipes and associated infrastructure and due to constructing up to several dozen intake wells and trenches for collector piping along about three miles of beach. These activities would also result in substantial adverse effects to public access and recreation along the shoreline and would result in adverse air quality impacts caused by construction equipment. Any aboveground elements of the system might also create adverse visual impacts along the shoreline.~~

First, construction of an infiltration gallery would result in an actual physical removal and destruction of 150 acres of coastal habitat, such that a 15-foot thick layer of ocean bottom shelf with all living organisms in it would be removed. On the other hand, the estimated 36.8 acres of HPF associated with the proposed project is acknowledged by the experts to represent a worst-case impact, extremely conservative measure of potential impact of loss of marine organisms that relies on a number of conservative assumptions, which are not likely to occur in practice.[103]

Second, it would be necessary to excavate and construct 76 intake water collection wells and trenches for collector piping along a three-mile beach strip of the City of Carlsbad shore, which would limit public access to the beach for a period of 2 to 4 years, result in significant loss of recreational activities for the City of Carlsbad, and result in a permanent

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[103] See Poseidon Resources Corporation, *Additional Analysis of Submerged Seabed Intake Gallery*, October 8, 2007.

loss in public access and visual resources impacts where the unsightly collection wells are located.[104]

Third, excavation of three-mile long by 400 feet wide strip of seafloor will make this area of the ocean unavailable for recreational activities such as fishing and diving and will result in additional NOx and carbon dioxide gas emissions associated with operation of barges and platforms and equipment needed to excavate and remove the ocean shelf material over this vast area.[105]

Fourth, in order to secure consistent operation of the filter bed, this bed would require dredging every one to three years to remove the sediment and entrained marine life that would accumulate in the intake filter bed and which, over time would plug the bed. The dredged material would require disposal away from the one-mile strip of the intake filter bed to prevent the removed solids from returning to the area of the bed. This would not only result in frequent adverse impacts to the marine flora and fauna in the area but would also render the area unavailable for recreational activities during maintenance activities.[106] **Based on the foregoing, a 150-acre gallery in this area would be physically and environmentally infeasible.**

Poseidon also ~~contends~~**submitted evidence demonstrating that** such a system would be economically infeasible. Its October 2007 cost estimates show that an infiltration gallery for its Carlsbad facility would cost $646 million. ②

In reviewing the EIR, ~~Poseidon's documentation of~~**Commission staff's presentation, and Poseidon's submissions about alternative intake systems, including the** potential **significant** environmental impacts, ~~costs, and~~ site-specific constraints**, and costs** of ~~these alternatives~~**subsurface** intakes, and based on the above, the Commission finds that **the substantial weight of the evidence is that** subsurface intakes ~~would be~~**are an** infeasible **alternative** and **would** cause greater adverse impacts **for two reasons. First, the proposed alternatives would result in greater environmental impacts than the proposed project due to destruction of coastal habitat from construction of the intake systems, the loss of public use of coastal land due to numerous intake collector wells that would be located on the beach, and the adverse environmental impacts to coastal resources during construction, including but not limited to the creation of negative traffic, noise, and air pollution impacts. Second, the alternative intake systems are infeasible at the project site due to site-specific geologic and/or water quality conditions, which render the water untreatable, and the increased and prohibitive costs of such intake systems**.

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[104] *Id.*

[105] *Id.*

[106] *Id.*

Minimize or reduce entrainment impacts: Another alternative considered that would reduce but not eliminate adverse entrainment and impingement impacts would be to move the intake offshore into open coastal waters.

However, similar to its ~~views on~~**position on the environmental inferiority of** subsurface intakes, Poseidon ~~contends~~**provided evidence** that this alternative would cause even more significant impacts than its proposed use of the existing power plant intake, and that it is economically infeasible. It characterizes the impacts caused by an offshore intake as "significant and irreversible." In Exhibit B of its November 9, 2007 letter to Commission staff, Poseidon states that using an offshore intake would likely require ~~installing~~**installation of** a large diameter pipe over one thousand feet long which, depending on placement, might cross areas of rocky reef habitat, and ~~end~~**terminate** in an area near some kelp beds. It also states that the effects of this pipe's placement and operations on habitat, sand flow, and sedimentation are not known. Poseidon ~~further states~~**'s experts concluded** that entrainment and impingement **caused by** this intake ~~would cause~~ could potentially affect a greater diversity of organisms than those affected by the existing intake in Agua Hedionda.~~[44]~~ **and that organisms colonizing the inside of the pipe would consume much of the entrained plankton.**[107]**

Poseidon also provided ~~documentation showing~~**evidence that** such an intake would **also** be economically infeasible. On October 18, 2007, Poseidon provided cost estimates showing that a 1000-foot long offshore intake would cost about $150 million. ②

One measure Poseidon offered to include in its facility to reduce entrainment would be to install variable speed pumps (see Poseidon's June 2007 *Flow, Entrainment and Impingement Minimization Plan*); however, since the entrainment rate is primarily a function of the amount of water used, this measure would not likely reduce entrainment as long as Poseidon continued to pump the anticipated 304 MGD into the desalination facility.

~~Other available mitigation options that would avoid or reduce entrainment impacts include the use of a zero-discharge system or routing more of Poseidon's discharge to the sanitary sewer system, as either of these options would reduce the amount of estuarine water needed for dilution. A zero-discharge system uses either mechanical means or evaporation to re-use and reduce discharge volumes. Some of these systems may also allow some cost savings through their recovery of salts or minerals from the seawater. Although the scale of the proposed project may prevent use of a zero-discharge system for the entire amount, it could possibly used for some of the discharge, perhaps in conjunction with routing additional volumes to the sanitary sewer system at the nearby Encina Wastewater Pollution Control Facilities. However, the sewer system has limited capacity, and this option would be feasible only if additional capacity were to be made available.~~

~~44~~**107** See *Issues Related to the Use of the Agua Hedionda Inlet Jetty Extension EIR to Recommend An Alternative Seawater Intake for the Carlsbad Desalination Project*, Graham, Le Page and Mayer, October 8, 2007.

As noted in Exhibit B of its November 9, 2007 letter, Poseidon has submitted to the Regional Board a *Flow, Entrainment and Impingement Minimization Plan* meant to identify feasible methods to minimize the remaining entrainment impacts. The Board's ~~eventual final~~ approval of that Plan is to be based on Poseidon identifying the best available and feasible operational, technological, and mitigation measures to meet that standard. Poseidon further notes that a proposed condition of the draft State Lands Commission lease would require, ten years after the lease is issued, that Poseidon be subject to further environmental review to ensure its operations at that time are using technologies that may reduce any impacts. Regarding the potential to route all or part of its discharge to the nearby sewer treatment system, Poseidon notes that the system is not designed to handle highly corrosive concentrated seawater.

Therefore, based on the above, the Commission finds that Poseidon's proposal is using all feasible methods to minimize or reduce its entrainment impacts. Even so, project operations will result in ~~ongoing substantial~~ entrainment impacts that require compensatory mitigation, as described below.

Compensatory mitigation: The third main step in mitigation sequencing is to provide compensatory mitigation – that is, creating, restoring, or enhancing the same or similar types of habitats as those a project would adversely affect. This mitigation step has its own sequence – it should first be "in-kind," if possible – that is, it should result in the same type of habitat as that being lost; it should be "on-site" – that is, it should be at or near the site of the affected habitat; and it should be "in time" – that is, the mitigation site should provide habitat functions at the same time the affected habitat is losing its habitat value. As mitigation options move away from any of these three characteristics, the amount of mitigation needs to increase to reflect that the mitigation is not fully providing the habitat functions and values being lost. For example, if a mitigation site is not expected to provide its expected habitat functions for several years – due to the need to construct it, plant the necessary vegetation, let the vegetation take hold, etc. – that time lag is addressed by requiring mitigation at greater than a 1:1 ratio to make up for the time period between when the habitat impact starts and when the mitigation site begins providing the anticipated habitat function. Similarly, when mitigation is intended to replace lost high-quality habitat, a restoration or enhancement mitigation site will often be larger than the project site to reflect the overall lower quality of the habitat that comes about through mitigation. Mitigation ratios can range from as low as 1:1 when mitigation is certain, immediate, and of equivalent value as the lost habitat, to 30:1 or higher for lower quality or delayed mitigation to make up for the loss of high-quality habitat. (2)

On October 10, 2007, Poseidon provided to Commission staff its proposed *Coastal Habitat Restoration and Enhancement Plan* that it ~~intends~~**prepared** to submit to the Regional Board. This Plan described seven possible mitigation options at various locations in Agua Hedionda or elsewhere in northern San Diego County. Commission staff evaluated it to determine whether it would provide adequate mitigation for Poseidon's anticipated entrainment and impingement impacts. As discussed below, the Plan does not yet include the level of information or certainty to determine that any of the possible measures would be implemented, would provide adequate mitigation, or would conform to Coastal Act provisions. However, with the Commission's imposition of **Special Condition 8**, ~~requiring that Poseidon submit for further Commission~~

~~approval a revised Plan that fully documents Poseidon's entrainment study, identifies~~**which, as described more fully below, requires that the Plan identify** specific mitigation measures, implementation plans, performance criteria, monitoring measures~~,~~ and other standard mitigation ~~plan~~ elements, the Commission ensures that the project will provide adequate mitigation for Coastal Act conformity.

~~Poseidon contends that the Commission has no authority to require mitigation for the anticipated entrainment impact since it expects the Regional Board to address any mitigation needs. The Commission disagrees. Coastal Act Sections 30230 and 30231 confer on the Commission authority to regulate impingement and entrainment impacts of processes that involve the intake of seawater. This authority is not affected by the limitation of Section 30412(b) that prohibits the Commission from taking any action that is "in conflict with" any determination by the State Water Quality Control Board or a Regional Board "in matters relating to water quality…." The Commission's position is that adverse entrainment and impingement effects on marine organisms are not matters of "water quality." This interpretation of the "no conflict" language of Section 30412(b) is supported by the second paragraph of that provision which provides that nothing in Section 30412(b) "shall be interpreted *in any way*…as…limiting the Commission…from exercising" its authority under the Coastal Act "except as provided in this section." (Emphasis added.)~~

~~Past Commission decisions have included findings and conditions based in part on entrainment and impingement impacts to marine resources. Recently, for example, the Commission denied the proposed BHP Billiton Liquefied Natural Gas terminal (CC # 079-06) due in part to its inadequate entrainment mitigation. In several power plant siting cases during the past seven years, the Commission found that the predicted adverse entrainment effects would be significant and would require mitigation to conform to Coastal Act policies. As noted previously, these include Moss Landing, Morro Bay, and South Bay, which have intakes in estuaries. One of Poseidon's possible mitigation sites is adjacent to the San Dieguito Wetlands Restoration Project. This restoration project results from Commission's Coastal Development Permit #6-81-330 that required Southern California Edison to mitigate for the marine resource impacts caused by the San Onofre Nuclear Power Station (SONGS), which include entrainment.~~

Poseidon stated in its proposal that it would provide up to $2.79 million for various potential mitigation projects in northern San Diego County. ~~It~~**The Plan** identified those potential projects based on responses to Poseidon's distribution in August 2007 of a "Request For Expressions of Interest" (REI). The REI asked interested parties to submit mitigation proposals that would "preserve, restore or enhance existing wetlands, lagoons, or other high-productivity near-shore coastal areas" in San Diego County. The proposals were also to be consistent with requirements of the Coastal Commission, Regional Board, National Marine Fisheries Service, and other federal, state, and local agencies. Poseidon asked that the proposals cover areas of from five to 37 acres, that they hold promise for long-term benefits, and that they be technically feasible.

In its October 10, 2007 proposal, Poseidon presented to Commission staff a description of seven possible mitigation options **from the responses received**:

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- *San Dieguito Coastal Habitat Restoration*: This proposal describes possible mitigation measures at San Dieguito Lagoon, about 12 miles south of Agua Hedionda. This mitigation site would be adjacent to a 115-acre mitigation site being developed by Southern California Edison pursuant to Coastal Development Permit #6-81-330. The proposal describes two options, each of which would create about 37 acres of various wetland and upland habitat types – e.g., high salt marsh, seasonal salt marsh, native grasslands, etc. – for about $2.4 million to $2.79 million. Both options would rely in part on water quality treatment ponds that have been funded but not yet constructed. It is unclear from the description how either option would be selected or implemented.

  ~~In Fall 2007, the San Dieguito watershed experienced major fire damage, which has greatly affected the Lagoon. The San Dieguito River Valley Regional Open Space Park Joint Powers Authority estimates the recent fires burned over 60% (45,000 of 74,000 acres) of the land adjacent to the river and within the park planning area. These upstream conditions suggest that landslides, sedimentation, and other phenomena resulting from the fire will create substantial disturbances downstream in the area of both the existing San Dieguito restoration area and Poseidon's possible mitigation site. These will likely affect the performance and success of existing mitigation and will affect how future proposed mitigation is implemented.~~ ②

- *Loma Alta Lagoon Restoration*: This proposal describes acquiring two privately-owned parcels that total 0.89 acres and restoring those and three other publicly-owned adjacent parcels to add 3.01 acres of wetlands to an already restored 2.0 acre lagoon in Oceanside. The overall project, proposed by the City of Oceanside, would cost about $5.6 million. It is not clear from the proposal whether other funds have been provided or what amount is being requested from Poseidon. The proposal does not provide specific descriptions of the expected habitat types.

- *Agua Hedionda Lagoon Ecological Reserve Expansion*: This proposal describes acquiring and preserving a parcel of land near the existing Ecological Reserve on the north shore of Agua Hedionda's Inner Basin. The subject parcel is apparently being considered for a housing development, but provides wildlife habitat adjacent to the ~~l~~**L**agoon's wetlands. However, the proposal does not identify details about expected mitigation benefits or project costs. Additionally, it is apparently contingent on first determining whether the current owner is interested in selling and then raising other needed funds for the purchase. It describes Poseidon's potential contributions as helping with a down payment or helping to secure a loan for the property.

- *Agua Hedionda Lagoon Invasive Plant Eradication and Native Plant Restoration*: This proposal would involve removing invasive, exotic species from the Agua Hedionda watershed and planting native species. It proposes a one-year, $1 million project that would locate and map non-native, invasive plants, remova~~l~~**ls** some number of those plants, revegetate those areas with native plants, measure water quality and habitat parameters before and after site treatments to determine ecosystem improvements, and provide public

education and outreach. However, the proposal does not specify how many acres of invasive plants would be removed or how many acres of native plants would be planted, and does not include any monitoring or contingency plans to ensure the areas are maintained.

- *Agua Hedionda Lagoon Abalone Stock Enhancement*: This proposal by the Carlsbad Aquafarm would involve growing and planting about 100,000 abalone at unspecified sites in Agua Hedionda and other nearby waters. It would require $910,000 and is expected to take from three to five years.

- *Buena Vista Lagoon Environmental Analysis*: This proposal consists of a request that Poseidon fund the completion of a Restoration Plan and Environmental Impact Report for the Buena Vista Lagoon Foundation.

- *Frazee State Beach Coastal Bluff Habitat Restoration*: This proposal, from the California Department of Parks and Recreation, would restore about 5.8 acres of coastal bluff habitat near Agua Hedionda. The project would cost $508,330 and would involve removing non-native vegetation, performing unspecified habitat restoration, and providing public interpretation.

Poseidon's ~~subsequent modification of its proposal~~ **analyzed these options and** in its November 9, 2007 submittal to the Commission ~~and at the November 15, 2007 Commission hearing included just the San Dieguito restoration project. Poseidon stated it believed this project would be the best option to preserve, restore,~~**it determined that San Dieguito Coastal Habitat Restoration is best fit to preserve, restore** and enhance existing wetlands ~~as mitigation for its impacts to marine life in Agua Hedionda lagoon. This updated proposal included the creation of about~~**, lagoons or other high-productivity near-shore coastal areas located in the vicinity of Agua Hedionda Lagoon and/or elsewhere in San Diego County.**[108] **The source of numerous environmental benefits, this option will generate** 40.71 acres of coastal wetlands ~~similar to those affected at Agua Hedionda. It would occur at a site adjacent to other wetlands being restored as part of the SONGS restoration project mentioned above.~~ **habitat comparable to that found in and around Agua Hedionda Lagoon (exceeding Poseidon's proposal to restore and enhance 36.8 acres of coastal habitat), is supported by a broad array of local, state, and federal agencies, and will provide sustainable, comprehensive environmental benefits for water quality, habitat diversity for species abundance and for sensitive and endangered species.**[109]

Overall, although **Poseidon contends** this proposal ~~has the potential to partially~~**will more than** mitigate for Poseidon's anticipated entrainment impacts, ~~it~~**Commission staff contends that the**

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[108] Poseidon Resources, *Carsbad Desalination Project, Coastal Habitate Restoration and Enhancement Plan*, November 2007, at p. 3.

[109] *Id.* at p. 7.

Plan does not **currently** provide enough information or certainty to determine what mitigation would actually occur. ~~Its~~**The staff's position regarding its** shortcomings include the following:

- ~~The proposal~~**Staff contends that the Plan** provides no certainty that the potential project would occur**, as Poseidon states the mitigation is contingent upon possible Regional Board approval**.

  The proposal does not include the type or level of information needed to determine what mitigation benefits would accrue, what performance standards or contingency measures would be used to ensure mitigation success, or other similar descriptions generally required for determining the adequacy of a mitigation proposal. ~~At best, the~~**The** proposal has the potential to ~~partially~~ mitigate for entrainment impacts, but the Commission would need a substantially more detailed proposal to determine whether it would meet Coastal Act mitigation standards.

  The Commission notes, for example, that Poseidon's proposed mitigation area would be adjacent to a wetland mitigation site the Commission required as part of its approval of the San Onofre Nuclear Generating Station (SONGS). The Commission has previously determined the San Dieguito restoration site to be part of an acceptable mitigation portfolio for the adverse marine life impacts caused by the SONGS cooling water intake system. To ensure the Commission's approval of the SONGS mitigation plan conformed to Coastal Act policies, it required extensive scientific study, substantial amounts of data collection, and detailed impact analyses to determine the appropriate types and amount of mitigation needed to compensate for the identified adverse effects of the SONGS once-through cooling system – for example, the mitigation required not only wetland restoration to benefit species affected by entrainment, but also included creation of new kelp beds to address the SONGS' impacts to nearby kelp beds. The Commission's approval also required Southern California Edison to meet specific performance standards and to provide ongoing monitoring efforts to ensure the mitigation area functions as intended. Mitigation necessary to address Poseidon's impacts will need to include a similar approach and level of detailed information to ensure Coastal Act conformity. ~~For example, to conform to Coastal Act Sections 30230 and 30231, Poseidon's mitigation plan should include compensatory habitat mitigation for the species of biological or economic significance affected by entrainment (e.g., garibaldi, halibut, etc.)~~

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- ~~The proposal~~**Commission staff further comments that the Plan** does not include projects that may be available within Agua Hedionda **Lagoon**, which is already the subject of extensive mitigation work. There are a number of initiatives already occurring or planned that involve enhancing or restoring water quality or habitat in Agua Hedionda, many being implemented with substantial amounts of public funding. Poseidon's planned use of the estuarine intake and its proposed compensatory mitigation approach away from Agua Hedionda would diminish many of the water quality benefits and habitat values that these other mitigation efforts are expected to provide.

  ~~As noted previously, for example, Carlsbad and other nearby cities are subject to requirements of an NPDES permit issued by the Regional Board to improve stormwater~~

~~management practices affecting Agua Hedionda. Also, the State Water Resources Control Board is funding development of an Agua Hedionda Watershed Management Plan by the Carlsbad Watershed Network. That plan calls for coordinated and integrated planning for watershed management initiatives.[45] As part of this plan, the Network is establishing a comprehensive and prioritized list of mitigation opportunities in the watershed, which it expects to complete in August 2008. The Network recently completed research identifying shortcomings in the mitigation approach used thus far in the lagoon that has resulted in low success rates and recommending steps to improve mitigation success.[46] The Network requested that any mitigation the Commission may require of Poseidon be integrated with this existing state-funded effort.[47] Thus far, however, Poseidon's possible mitigation projects do not show the necessary level of coordination with these other ongoing efforts.~~

- ~~Poseidon states that its proposal is based on providing 1:1 mitigation for the loss of about 37 acres of habitat within Agua Hedionda. However, the potential project would not provide "in-kind," on-site mitigation – that is, it would not replace the habitat or organisms lost in Agua Hedionda due to entrainment – and so the individual project or any combination of projects would have to provide mitigation at more than a 1:1 ratio.~~

- ~~The proposal~~**Commission staff also comments that the Plan** appears to be based more on cost than mitigation needs. Poseidon has established an upper limit of $2.79 million for mitigation costs, but that does not appear to reflect the cost to provide adequate mitigation for its expected impacts. For example, the October 10, 2007 ~~proposal~~**Plan** assumed wetland restoration in Southern California would cost about $75,000 per acre, but it included several proposals where the costs are unspecified or are well above that figure. The San Dieguito proposal comes closest to Poseidon's assumed cost figure, but about a quarter of the mitigation at that site would be uplands. The Oceanside proposal, to restore about three wetland acres for about $2.5 million is well beyond Poseidon's expected costs. Even the completely out-of-kind mitigation that could result from the Frazee coastal bluff restoration would cost about $100,000 per acre.

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Poseidon contends, however, that the Plan adequately resolves the concerns raised by Commission staff, will more than fully mitigate any project-related entrainment impacts,

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[45] ~~For example, the Carlsbad Watershed Management Plan includes the following objectives:~~
- ~~"*Coordinate watershed efforts:* "Action Items" should facilitate coordinated efforts between municipalities, regulatory agencies, and environmental organizations to implement watershed management policies and physical improvements at the most functional locations and in the most effective manner, without the restriction of political boundaries.~~
- ~~*Integrate various planning efforts:* Planning for land use, transportation, watershed protection and habitat conservation need to be integrated and coordinated. "Action Items" related to planning must look for as many overlapping benefits between these planning topic areas as possible."~~

[46] ~~*Case Study: Systemic Evaluation of Compensatory Mitigation Sites Within the Carlsbad Hydrologic Unit*, by Nicholas R. Magliocca, UCSD~~

[47] ~~See September 24, 2007 letter from Carlsbad Watershed Network to Commission staff.~~

and ensures that the productivity of coastal waters, wetlands and estuaries will be enhanced and restored in compliance with Coastal Act Sections 30230 and 3023, based on the following:

- **Regarding the concerns about Regional Board approval of the Plan, Poseidon's position is that Carlsbad and other nearby cities are subject to requirements of an NPDES permit issued by the Regional Board to improve stormwater management practices affecting Agua Hedionda. Also, the State Water Resources Control Board is funding development of an Agua Hedionda Watershed Management Plan by the Carlsbad Watershed Network. That plan calls for coordinated and integrated planning for watershed management initiatives.[110] As part of this plan, the Network is establishing a comprehensive and prioritized list of mitigation opportunities in the watershed, which it expects to complete in August 2008. The Network recently completed research identifying shortcomings in the mitigation approach used thus far in the Lagoon that has resulted in low success rates and recommending steps to improve mitigation success.[111] The Network requested that any mitigation the Commission may require of Poseidon be integrated with this existing state-funded effort.[112]**

- ~~Poseidon contends, however, that its proposal would adequately mitigate for its project-related entrainment impacts. Regarding the concerns about mitigation in Agua Hedionda and the Regional Board's approval of the proposal, Poseidon states that Carlsbad and other nearby cities are subject to requirements of a Regional Board issued NPDES permit to improve stormwater management practices affecting Agua Hedionda. Poseidon also states~~**Poseidon has also stated** that it would be very interested in collaborating on a habitat restoration project for Agua Hedionda ~~l~~Lagoon, but that it has not yet received proposals from entities interested in doing marine wetlands mitigation in the ~~lagoon. Of the proposals Poseidon described in October 2007, three were within Agua Hedionda but involved work other than wetland restoration. Poseidon states that while it is currently proposing to restore wetlands at the San Dieguito site, it is also continuing to investigate feasible mitigation opportunities with Agua Hedionda.~~ **Lagoon. On-site mitigation has not yet been identified as a feasible mitigation option for the project, but the revised Plan provides**

(2)

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[110] For example, the Carlsbad Watershed Management Plan includes the following objectives:

- *"Coordinate watershed efforts*: "Action Items" should facilitate coordinated efforts between municipalities, regulatory agencies, and environmental organizations to implement watershed management policies and physical improvements at the most functional locations and in the most effective manner, without the restriction of political boundaries.

- *Integrate various planning efforts*: Planning for land use, transportation, watershed protection and habitat conservation need to be integrated and coordinated. "Action Items" related to planning must look for as many overlapping benefits between these planning topic areas as possible."

[111] *Case Study: Systemic Evaluation of Compensatory Mitigation Sites Within the Carlsbad Hydrologic Unit*, by Nicholas R. Magliocca, UCSD.

[112] See September 24, 2007 letter from Carlsbad Watershed Network to Commission staff.

for further research into on-site mitigation opportunities. The revised Plan contains a detailed description of Poseidon's efforts to identify feasible restoration projects on-site in Agua Hedionda Lagoon. In August 2007, Poseidon sent "Requests for Expressions of Interest" to 77 public and private entities and individuals that are involved in, have jurisdiction over, or interest in wetlands restoration in the San Diego region, including the Carlsbad Watershed Network. Through this effort, Poseidon received a total of eight mitigation proposals. Three proposals involved proposed mitigation projects in the Agua Hedionda Lagoon watershed; however, none of these proposals addressed the primary purpose of the mitigation project – restoration of marine wetlands. Because these proposals did not meet the mitigation project objective, they were not considered further.

Because investigations to date have not resulted in the identification of any mitigation opportunities within Agua Hedionda Lagoon that meet the basic marine wetlands restoration objectives of the Plan, Poseidon's proposed mitigation includes a core off-site project that meets the Plan goals and objectives. This mitigation project, located in the San Dieguito River Valley adjacent to the marine wetlands restoration project implemented by Southern California Edison as mitigation for the entrainment and impingement impacts from its San Onofre Power Plant, is being developed in parallel with continued efforts to identify feasible mitigation opportunities in Agua Hedionda Lagoon. ②

In addition to the core off-site mitigation project, Poseidon's Flow, Entrainment and Impingement Minimization Plan sets forth a mitigation plan that includes additional coordination activities either (1) to identify if new mitigation options within Agua Hedionda Lagoon have arisen since Poseidon's last Requests for Expressions of Interest or (2) to confirm the lack of on-site mitigation opportunities. If mitigation opportunities within Agua Hedionda Lagoon have arisen, and such mitigation is determined to be feasible, Poseidon will coordinate with regulatory agencies – including the Commission – to implement such mitigation.[113] If Agua Hedionda Lagoon mitigation that meets the objectives is confirmed to be unavailable and infeasible, Poseidon will implement the proposed off-site mitigation project.[114] In the meantime, however, on-site mitigation remains as an option to be further explored after approval of the Plan.

- Poseidon also contends that the Plan provides more than 1:1 mitigation for the reduced productivity in about 37 acres of habitat within Agua Hedionda. However, in Commission staff's view, none of the potential projects offered would provide "in-kind", on-site mitigation – that is, none would replace the habitat or organisms lost in Agua Hedionda due to entrainment – and so the individual projects or any combination

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[113] *Id.*

[114] *Id.*

of projects may have to provide mitigation at more than a 1:1 ratio. In contrast to Commission staff's view, Poseidon contends that the wetlands in the Plan's proposed off-site mitigation are of the same type of habitat that would be impacted by desalination plant operations (i.e., gobies, blennies, anchovy, topsmelt, white croaker, etc.), based on the biological survey of the existing tidal wetlands of the San Dieguito Lagoon completed as a part of the Southern California Edison Restoration Project.[115] Therefore, the implementation of the proposed restoration project will create in-kind replacement habitat, which has 1:1 restoration value. The 1:1 restoration ratio of the proposed project is consistent with the methodology used by the California Energy Commission for establishing mitigation requirements for the entrainment effects associated with the operation of the AES Huntington beach and Morro Bay power generation plants. The Coastal Commission also found the San Dieguito Lagoon to be acceptable for mitigation of the entrainment and impingement impacts of the San Onofre Nuclear Generating Station, which is 45 miles away from San Dieguito Lagoon and is impacting open water fish species that don't necessarily reside in a lagoon environment. The proposed desalination facility is much closer to the proposed mitigation site (12 miles) and Poseidon is proposing to replace tidally exchanged coastal lagoon habitat with in-kind habitat.

- Regarding **Commission staff's** concerns about ~~costs, Poseidon states that it is committing to provide 37 acres of tidally~~ **the Plan's relationship to costs rather than mitigation needs, at the November 15, 2007 hearing Poseidon did confirm that it commits to providing 37 acres of tidally** exchanged marine wetlands ~~and will also propose additional marine resource.~~ **Poseidon also voluntarily proposes additional marine resources** restoration and enhancement **above and beyond the Plan, including stewardship of Agua Hedionda Lagoon and dredging, which would have significant public access and recreational benefits**.

At this point, Poseidon has ~~described several mitigation options, but has not yet identified the level or type of mitigation that it would implement to address impacts caused by its use of the estuarine intake. Poseidon has currently~~ identified the need to restore no less than about 37 acres of marine wetlands. However, as described in these Findings and through imposition of **Special Condition 8**, which requires Poseidon to submit for Commission review and approval a Marine Life Mitigation Plan that includes a full entrainment study and contains the specific mitigation measures, implementation plans, and compliance monitoring needed to mitigate the impacts identified in that study, the Commission is ensuring that Poseidon will provide the mitigation adequate to address those impacts in a manner consistent with applicable provisions of Coastal Act Sections 30230 and 30231. ~~Based on the~~**The** Commission's ~~review of the entrainment study Poseidon is required to submit, this Plan is expected to~~ **finds that the Plan will** provide for the restoration of no less than 37 acres of coastal marine wetlands and will include performance criteria, implementation plans, monitoring measures, and other elements necessary to ensure that

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[115] SCE, *San Dieguito Wetlands Restoration Project, Final Restoration Plan*, November 2005.

the project's entrainment impacts are fully mitigated and that **marine resources and** the biological productivity of coastal waters, wetlands~~,~~ and estuaries ~~are~~**will be** enhanced and restored~~.~~ **in compliance with Coastal Act Sections 30230 and 30231.**

Anticipated Project Impacts and Coastal Act Conformity – Discharge-Related

Description of Impacts: The proposed project would result in a discharge of about 250 MGD from the desalination facility to the outfall currently used by the power plant, which is located on state tidelands and on Carlsbad State Beach. The discharge would contain at least 50 MGD of high salinity water from the facility along with at least about 200 MGD of estuarine water pumped into the intake system to provide dilution for the high salinity discharge. The expected "end of pipe" salinity of the blended discharges is expected to be about 40 parts per thousand (ppt) of salinity. This would be about twenty percent higher than the naturally occurring average salinity of about 33.5 ppt in these nearshore waters. Because the discharge would be immediately adjacent to the shoreline, the plume of higher salinity water would extend along the beach and nearshore waters. Poseidon's discharge would be subject to conditions of an NPDES permit that allows discharges at an average daily concentration of up to 40 ppt and an average hourly concentration of up to 44 ppt. The NPDES permit additionally requires Poseidon to conduct monitoring, identify additional methods to minimize its discharge-related impacts, and to implement many of those methods. (2)

Poseidon's desalination process would also include adding a number of chemicals to the water during desalination. The chemicals used would be those commonly used in water treatment plants, such as coagulants, alkalinity adjusters, and various membrane cleaning chemicals such as hydrochloric acid, detergents, or caustic soda. Poseidon stated in Exhibit B of its November 9, 2007 Response to Staff Report that chemicals used would be neutralized or sent to the sanitary sewer system instead of the seawater discharge. The discharge would also include biological matter – i.e., the entrained organisms from the intake.

Poseidon's project as originally proposed – that is, co-located with an operating power plant cooling water system – would have withdrawn 100 MGD of the several hundred million gallons used by the power plant, processed that water to produce 50 MGD of potable water, and discharged about 50 MGD of its high salinity waste stream back into the up to eight hundred million gallons of seawater being discharged by the power plant. Blending the desalination discharge with the much larger power plant discharge would have resulted in an overall discharge with salinity levels very close to the natural background levels in the nearshore ocean waters. Without the power plant discharge, however, ~~Poseidon's approximately 50 MGD high salinity~~**a** discharge **of only 50 MGD** would cause salinity levels twice that of seawater and cause significant adverse impacts to marine life in the nearshore waters and on the seafloor.

Mitigation measures: To address this issue, Poseidon proposes to maintain a discharge of at least 254 MGD when the power plant is not operating or is discharging less than that amount. Poseidon determined that an overall 254 MGD discharge would dilute its ~~approximately 50 MGD~~ desalination discharge so that salinity levels near the outfall would be about 40 ppt instead of 67 ppt. This 40 ppt level is about 20 percent higher than the average receiving water salinity

and about 15 percent higher than the level of natural variation in local seawater salinity. Local seawater averages about 33.5 ppt and varies naturally up to about 34.4 ppt, due to phenomena such as upwellings, changes in freshwater inputs, and others. The project EIR ~~identified the 40 ppt as the level above which discharges~~**determined that a discharge of 40 ppt salinity** would **not** cause significant adverse impacts to marine life.[48][116] Guidance from the U.S. EPA recommends that salinity levels from a discharge should not vary more than 4 ppt from the range of natural variation in areas permanently occupied by food and habitat forming plants (e.g., kelp beds, hard bottom habitat, etc.). Using the EPA guidance would result in a maximum allowable discharge level of about 38.4 ppt in kelp beds located about 2,000 feet offshore. Poseidon's NPDES permit allows an average daily concentration of 40 ppt and an average hourly concentration of up to 44 ppt. Poseidon's hydrodynamic modeling indicated that ~~with~~**as long as the** discharge ~~concentrations~~**remains** at or below these ~~levels,~~**concentrations, the** salinity ~~levels~~ in the ~~nearest~~ kelp bed ~~about 2000 feet away~~ would be **well** below 36.8 ppt.

Poseidon also submitted modeling results showing the expected extent of the salinity plume based on local historical data for characteristics such as ocean temperatures, currents, and salinity levels. The extent of the high salinity in the discharge would vary based on how these characteristics interact at any given time. Poseidon's models show that salinity concentrations above the level of natural variation would cover about 8.3 acres of the nearshore seafloor during average conditions (i.e., a frequency of 50%) and would cover up to about 44 acres during extreme conditions (i.e., a frequency of less than 0.1%). ②

The **salinity range of the discharge would never exceed 40 ppt at the point of discharge, and the** discharge would be **rapidly** diluted to near 36.5 ppt within the zone of initial dilution, which is within 1000 feet of the discharge channel. While the discharge would create conditions beyond the range experienced by the local biota ~~and would cause some level of adverse impacts.~~ Poseidon has provided test results showing that a 40 ppt salinity level would cause no acute or long term effects to several test organisms. The **site-specific, peer-reviewed** *Comprehensive Salinity Tolerance Study* completed for ~~Poseidon~~**the project** by Dr. Steven Le Page and Dr. Jeffrey Graham indicates that the proposed discharge will not result in acute or chronic toxicity. The ~~site-specific~~ Study included long term (5.5 months) exposure of 18 marine species inhabiting the discharge area to a typical discharge salinity of 36 ppt. According to the project's EIR, all of the test species were chosen due to their known existence in the subject area, and several of the species (abalone, sand dollar and red sea urchin) were chosen for their susceptibility to environmental stress. (See Project EIR, at Appendix E.) Poseidon provides that the results of the 5.5 month test of exposure of the 18 species to typical discharge salinity of 36 ppt ~~showed no~~**indicate that all organisms remained healthy throughout the test period. No** mortality **was encountered** and all species showed normal activity and feeding behavior. Poseidon further provides that additional acute and chronic toxicity studies completed

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[48][116] The EIR stated that elevated salinity levels would cause significant impacts if they had a substantial adverse effect on marine biota, included extended exposure to salinity levels above 40 ppt or permanent elevation of salinity levels above 38.4 ppt on hard bottom habitat.

subsequently for the project using the United States Environmental Protection Agency's standard whole effluent toxicity (WET) test have confirmed the validity and results of this Study.

However, **in Commission staff's view,** the organisms ~~used~~**studied** in the Study are not representative of the full suite of marine life living in these nearshore waters and benthic habitat that would experience this level of salinity. Further, several species used in these tests are generally considered more salinity tolerant than others, so the test results likely do not reflect actual effects that would occur to species exposed to these high salinity levels in the natural environment. For example, a State Board proposal to establish a salinity limit in the state's Ocean Plan includes a proposed limit of 36.5 ppt based on study results showing that level caused adverse effects to sea urchin embryos, which is one of standard test species more sensitive to salinity differences.[49~~117~~] Other studies show that slight differences in salinity levels can affect the population density of various species, their ability to tolerate various environmental stressors, reproductive rates, and other effects.[50~~118~~]

In addition to higher than natural levels of salinity, Poseidon's discharge would include some as-~~-~~of-~~-~~yet unknown amounts of other constituents that would enter the discharge from various materials or methods used in the proposed facility. As noted above, these include ~~various chemicals and~~ the dead organic matter from organisms entrained in the intake. ②

Based on the above, Poseidon's proposed discharge would likely result in salinity levels higher than the natural range in from about eight to 44 acres of nearshore benthic habitat. Although the extent of the areas would vary continually based on environmental conditions, some areas would be subject to nearly continual salinity concentrations higher than natural salinity variations.

The Regional Board studied the project's ~~anticipated~~ discharge before issuing the project's NPDES ~~permit, and determined that permitted discharge levels would comply~~**Permit (Regional Board Order No. 2006-0065). The Regional Board considered the discharge impacts of the project and conditioned all potential discharge-related impacts to ensure compliance** with applicable federal Clean Water Act criteria and the California Ocean Plan's water quality objectives and beneficial use requirements. The **beneficial uses of ocean waters include industrial water supply; water contact and non-contact recreation, including aesthetic**

[49~~117~~] The State Board is considering an amendment to the state's Ocean Plan that would establish an upper salinity limit for discharges into California's coastal waters. The Ocean Plan at this time does not have a specific salinity limit, but requires in general protection of beneficial uses and water quality objectives for other contaminants and physical water quality characteristics. In June 2007, the State Board issued a Scoping Document for its proposed policy that included three proposed alternatives: "No Action" – that is, do not add a salinity limit to the Plan; "No discharges above natural variation" – that is, limit salinity in discharges to the range of natural variation which is about 10% above average; or, "Numeric water quality objective of 36.5 ppt~~;~~", based on study results showing that salinity levels above than 36.5 ppt caused adverse effects to sea urchin embryos.

[50~~118~~] See, for example, *Technical Report 39: San Francisco Estuary Regional Monitoring Program for Trace Substances, Result of the Benthic Pilot Study*, August 2000; and Voyer, R.A., and Glen Modica, *Influence of salinity and temperature on acute toxicity of cadmium on Mysidopsis bahia*, in *Environmental Contamination and Toxicology*, Vol. 19:1, January 1990.

enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated areas of special biological significance; rare and endangered species; marine habitat; fish migration; and fish spawning and shellfish harvesting. The Regional Board determined that an average daily effluent limitation of 40 ~~ppt~~**parts per thousand** for salinity would protect ~~the Plan's identified beneficial uses. The NPDES permit~~**beneficial uses of the Ocean (including protection of fish habitat) and ensure that no salinity-related toxicity effects would occur in receiving waters. The NDPES Permit** also includes **extensive** monitoring and reporting requirements to ensure compliance with its effluent limitations.[~~51~~119]

As noted previously, Poseidon states in its November 9, 2007 letter that the project's NPDES permit and the Regional Board's eventual ~~final~~ approval of Poseidon's *Flow, Entrainment and Impingement Minimization Plan* will ensure that the proposed facility uses all feasible measures to avoid and reduce ~~these~~**any** discharge-related impacts. ~~Further,~~ (2)

The Commission concurs that Poseidon's Plan will ensure that the proposed facility uses all feasible measures to avoid and reduce any discharge-related impacts, in part because the Board's approval **of the project's NPDES permit, which requires such a finding,** is necessary before the facility ~~can~~**could** operate. ~~Because the Board's final approval would include such findings and would ensure that the project's discharges conform to relevant requirements of the federal Clean Water Act and the water quality objectives of the state's Ocean Plan, the Commission therefore finds that project-related discharges result in minimal adverse effects to water quality and marine life.~~**In reliance on the Regional Board's determinations in issuing the project's NPDES Permit as is required pursuant to Coastal Act Section 30412, the Commission finds that the project's discharge is conditioned so that it will not cause adverse impacts to marine resources. The Permit, along with its extensive monitoring and reporting requirements, ensures that the project's discharge would not harm marine resources and thus would maintain marine biological productivity and resources and minimize entrainment in conformance with Coastal Act Sections 30230 and 30231.**

Anticipated Project Impacts and Coastal Act Conformity – Cumulative Impacts

In addition to the adverse marine biological effects the proposed project would cause to Agua Hedionda Lagoon and the nearshore waters off of Carlsbad, the project would contribute to cumulative impacts already occurring in those waters. As noted above, Agua Hedionda Lagoon is listed as an impaired waterbody due in part to excess sedimentation. The impairment affects a number of beneficial uses of the waterbody and requires the ongoing dredging described in the next section of these Findings. ~~The~~**In Commission staff's view, the** sedimentation is due **largely** in part to the intake drawing in water from the ~~l~~Lagoon that would otherwise exit (3)

[~~51~~119] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A, at p. 12; NPDES Permit, Regional Board Order R9-2006-0065 at 12, F-18, F-37 (Attachment 1 to Poseidon Resources Corporation, *Response to California Coastal Commission's September 28, 2006 Request for Additional Information*, November 30, 2006).

through the ~~l~~Lagoon mouth and take much of the sediment with it. The source of this sediment is the longshore sand movement off the coast of Carlsbad, and as a result of the jetties and the intake, sediment pulled into the ~~l~~Lagoon is removed from that longshore process, resulting in the need for beach nourishment that causes effects to coastal resources in the form of ongoing dredging every few years and the accompanying disruption of public access to areas of the nearby beaches. **In Poseidon's view, as documented in by the Regional Board, the 303(d) listing of Agua Hedionda Lagoon as an impaired body is based on fine-grained sedimentation discharged by urban run-off into the Lagoon from the neighboring watersheds (predominantly Agua Hedionda Creek), impacting 6.8 acres primarily located in the east basin of the Lagoon.**[120] As noted previously in Section 4.4 of these Findings, sedimentation concerns will be addressed through the Regional Board's NPDES review and through ongoing Coastal Commission permit review of future dredging proposals. ③

Conclusion

Regarding entrainment and impingement, Poseidon's proposed project would use 304 MGD of estuarine waters (equal to about 932 acre-feet of water per day, which over a year would cover more than 500 square miles up to one foot deep in water). This water use ~~is~~**, for purposes of analysis, is conservatively** assumed to kill all the larval and planktonic organisms in that water, which Poseidon estimates represent about 37 acres worth of wetland and open water productivity in Agua Hedionda. Poseidon has proposed a compensatory mitigation approach to mitigate these impacts.

The assessment of the impacted area due to the desalination facility operation is based on a conservative assumption that the project will cause 100 percent mortality to the marine organisms in the seawater diverted from Agua Hedionda Lagoon. This approach to establishing the impact of the desalination plant operation is extremely conservative in that it ignores the design and technology features that have been incorporated in the proposed project. As discussed above, the project has incorporated several technology features that will substantially lessen the impacts to marine life, including: mortality will be reduced due to the lower temperature, volume, velocity and turbulence of the desalination facility's operations compared to the power plant; and only 35 percent of the seawater in the desalination plant's intake will actually enter the desalination facility and be subject to processing that could result in entrainment mortality, while the rest of the water will be returned directly to the ocean. ②

As noted above, the Commission has determined that alternative intakes that might avoid or minimize environmental impacts are infeasible or would cause greater environmental damage. Therefore, to ensure Poseidon provides adequate compensatory mitigation for the proposed project's marine life impacts and to conform to Coastal Act Sections 30230 and 30231, **Special**

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[120] **2006 Clean Water Act 303(d) List of Water Quality Limited Segments Requiring TMDLs, San Diego Regional Water Quality Control Board, June 28, 2007.** ③

Condition 8 requires Poseidon to submit to the Commission for review and approval a Marine Life Mitigation Plan. This ~~P~~**p**lan must document the project's expected impacts to marine life caused by entrainment and impingement and identify the types and amounts of mitigation best suited to address those impacts. It must also provide mitigation to the maximum extent feasible in the form of creation, enhancement, or restoration of aquatic and wetland habitat and must include standard mitigation measures, including acceptable performance standards, monitoring, contingency measures, and legal mechanisms to ensure permanent protection of the proposed mitigation site(s). The coastal development permit will not be issued until the Commission approves a mitigation plan meeting these requirements. Further, to ensure the identified marine life impacts do not exceed those identified through development of this mitigation plan, **Special Condition 9** requires Poseidon to obtain an amendment of its coastal development permit before any increase in its average seawater flows of 304 MGD.

Therefore, based on the studies cited and the information provided above, the Commission finds that the project, as conditioned, conforms to Coastal Act Sections 30230 and 30231.

4.5.2 Use of Wetlands and Coastal Waters (Coastal Act Section 30233)

Coastal Act Section 30233(a) states, in relevant part:

> *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...*

Coastal Act Section 30233(b) states:

> *Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.*

Coastal Act Section 30233(c) states, in relevant part:

> *"In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California," shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division...*

Coastal Act Section 30233 requires in general that dredging in coastal wetlands and estuaries be limited to certain types of uses, that it be allowed only where there are no feasible less environmentally harmful alternatives, and that it be mitigated to the extent feasible. It also requires that dredging be implemented in a manner that avoids significant disruption to marine and wildlife habitats and to water circulation. Section 30233(c) further imposes a more limited set of allowable uses in some wetlands, including Agua Hedionda Lagoon. Because Agua Hedionda Lagoon is one of the coastal wetlands subject to the use limitations in Coastal Act Section 30233(c), that subsection serves for this proposed project as the standard of review for allowable uses.

Description of the project's potential alteration of, and its effects on, Agua Hedionda Lagoon

Agua Hedionda Lagoon is one of 19 coastal wetlands identified in the California Department of Fish and Game report, *Acquisition Priorities for the Coastal Wetlands of California*. This report identifies high priority wetlands for acquisition, based primarily on their values for fish and wildlife habitat and threats to their continued existence as a natural resource. Areas of the ~~l~~Lagoon where the plant and animal life is especially valuable due to its special nature in the ecosystem include the Agua Hedionda Lagoon State Marine Reserve and Ecological Reserve, which cover about 180 acres extending along about a half-mile of the ~~l~~Lagoon's Inner Basin. The ~~l~~Lagoon includes extensive areas of open water habitat, eelgrass beds, and various types of wetlands, and provides significant habitat benefits to a number of species, as described previously in these Findings. These Findings also show that Poseidon ~~expects its~~**'s proposed** use of estuary water would create adverse entrainment effects equal to the ~~loss of about~~**reduced productivity of no more than** 37 acres of Agua Hedionda's wetland and open water areas. ~~As noted above, Poseidon's proposed water use and the resulting adverse effects would be an alteration of Agua Hedionda subject to review under Coastal Act Section 30233(c).~~ (1)

Agua Hedionda Lagoon as it currently exists is a highly engineered coastal lagoon. During the past half-century of power plant operations, the power plant's cooling water intake created an imbalance between tidal inflow and outflow, resulting in more sediment entering the estuary than leaving. Agua Hedionda Lagoon is on the state's list of impaired waterbodies due to high rates of sedimentation, which are caused ~~in part~~**primarily by fine-grained sedimentation discharged** by urban ~~runoff~~**run-off** into the ~~l~~Lagoon and in part by the power plant's intake, which would continue due to Poseidon's proposed use of the intake. As an existing coastal-dependent industrial facility operating in the ~~l~~Lagoon since the mid 1950s, the power plant has dredged its cooling water intake channel at least 25 times over the last half-century.[~~52~~121] Since 1954, dredging is estimated to have removed about eleven million cubic yards of material from the ~~lagoon.~~**Lagoon.** (3)

[~~52~~121] Poseidon's proposed project would be a new, rather than an existing, facility, and with the pending power plant shutdown, would result in new dredging-related impacts not necessary to maintain operations of an existing facility.

Starting in 1977, the Commission has issued a number of coastal development permits to allow various amounts of dredging for one-year or multiple-year periods. During Commission review of the last several permits, there was considerable debate about where to deposit the dredged spoils. Much of the material was sand suitable for being placed on beaches and used for recreation; however, it was believed that material placed on some of the nearby beaches, particularly those to the north of the ~~l~~Lagoon mouth where recreational benefits were higher, would be quickly transported by tide and currents back into the ~~l~~Lagoon where it would need to be dredged again.

The Commission required that some material be placed at various beaches in and near the ~~l~~Lagoon where it would serve a recreational purpose; however, the Commission also required the power plant owner to pay for an independent study to assess sediment transport conditions along the ocean shoreline in and near Agua Hedionda.[~~53~~122] That 1999 study found that, on average, about 80% of the sand trapped within the ~~l~~Lagoon comes from longshore transport from north and the rest comes from the south. It recommended that most of the dredged spoils be placed to the south of the ~~l~~Lagoon to reduce the need for "re-dredging" the same material. At about the same time, the San Diego Association of Governments (SANDAG) was implementing another program to increase the amount of sand on nearby beaches with a focus on providing sand to enhance recreational uses of beaches to the north (See CDP 6-06-061).

Based in part on the results of the 1999 study, and in an effort to reduce the need for dredging within the ~~l~~Lagoon, the power plant owner in 2001 requested that the State Lands Commission allow a 200-foot extension of the north inlet jetty to reduce the amount of sand entering the ~~l~~Lagoon. The State Lands Commission conducted environmental review of the proposal and published in January 2005 a Draft EIR that provided a comprehensive and independent assessment of the effects caused by dredging in Agua Hedionda.[123] **As detailed below, Poseidon disagrees that the State Lands Commission Draft EIR (Draft EIR) comprehensively analyzed dredging impacts**. It evaluated not only the proposed jetty extension and associated dredging, but also assessed how best to meet related objectives, including: ③

- Mitigating the expected cumulative sedimentation impacts to the ~~l~~Lagoon that would result from implementing the SANDAG Regional Beach Sand Project;
- Maintaining the longshore sediment transport process and increasing the amount of sand that bypasses the ~~l~~Lagoon and is made available to downcoast beaches;
- Minimizing potential adverse effects on biological resources; and,
- Limiting the frequency of needed maintenance dredging in the ~~l~~Lagoon.

The Draft EIR evaluated five alternatives and concluded that the environmentally superior alternative would be to significantly reduce the need for dredging within the ~~l~~Lagoon by moving

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[~~53~~122] Elwany, Dr. Hany. *Study of Sediment Transport Conditions in the Vicinity of the Agua Hedionda Lagoon*, 1999.

the power plant's intake offshore. The Draft EIR found that by ending the power plant's estuarine water withdrawals, this alternative would avoid the significant adverse impacts identified for the proposed project related to aesthetic resources, recreation, hydrology, water quality, and biological resources. It also found that maintenance dredging of about 20,000 cubic yards per year from near the ~~l~~Lagoon's mouth would be adequate to maintain tidal flows in the ~~l~~Lagoon, which would help continue the ~~l~~Lagoon's other existing beneficial uses. This alternative would also allow for at least partial removal of the jetties to re-establish a more natural longshore transport system. However, the State Lands Commission did not certify a Final EIR because the power plant owner withdrew its application request shortly after the ~~d~~Draft EIR was published in February 2005. As noted in Section 4.5.1 of these Findings, the Commission has determined **that** alternative intake locations, including an ~~offshore~~**off-shore** open intake ~~described by Poseidon~~, would be infeasible.

Additionally, Poseidon has noted that **this Draft EIR was withdrawn by the applicant prior to public review and comment and that** the analysis of the offshore intake in the Draft EIR is minimal **and would probably not pass peer review**. While its ~~E~~executive ~~S~~summary gives five paragraphs of discussion about the environmentally preferred alternative, the Draft EIR elsewhere includes just two paragraphs providing further description: one paragraph on page 3-6 that describes it as 30 foot diameter, 3,000-foot-long pipeline with an offshore intake structure placed at an ocean depth of 30 feet; and a second paragraph in the Hydrology and Water Quality Section on page 4.2-20 that acknowledges its construction would disturb the ocean bottom and increase turbidity. ~~The Draft EIR does not reference more detailed~~**There are no references anywhere in the text of the Draft EIR to more detailed studies about the environmentally preferred alternative, and inspection of the reference list in Section 8.0 reveals no** reports having anything about offshore intakes in the titles. Thus, Poseidon ~~believes~~**states, there are clearly inadequacies with** the Draft EIR ~~would be inadequate to serve as the basis for a standalone~~**documentation of this alternative that preclude it from being applied to a stand alone** desalination facility at Agua Hedionda. Poseidon evaluated the Draft EIR and concluded that it does not analyze the full extent of the biological impacts of installing a large diameter pipe 1000 feet offshore, which depending on placement, would potentially destroy existing rocky reef outcroppings occurring offshore.[~~54~~124] In addition, the Draft EIR did not evaluate the down coast effects of an intake structure on habitat, sand flow, or sedimentation.[~~55~~125]

Further, the Draft EIR did not adequately evaluate entrainment and impingement impacts of an offshore intake. In their analysis, Graham, Le Page and Mayer point out that an offshore intake has the potential to affect a greater diversity of adult and juvenile organisms as well as both phyto and zooplankton species than the species currently

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[~~54~~124] See *Issues Related to the Use of the Agua Hedionda Inlet Jetty Extension EIR to Recommend An Alternative Seawater Intake for the Carlsbad Desalination Project*, Graham, Le Page and Mayer, October 8, 2007.

[~~55~~125] See *id.*

impacted by EPS's existing intake.[126] The biofouling community of organisms that will take up residence in the intake pipe will consume virtually all of the entrained plankton. According to the analysis, this has negative implications for the survival potential of organisms that can survive passage through the EPS. ②

The impact of an offshore intake takes on even greater significance when considered in the context of stand-alone operation of the project. Operating stand-alone, the project will draw far less water than EPS and two-thirds of the drawn volume would function for dilution of the concentrated desalinated stream and would not be otherwise affected during its circulation through the plant, an offshore intake and conduit, and the cropping mortality associated with this could have significantly greater entrainment and impingement effects than the present intake located in the Lagoon.[127]

In 2006, Poseidon provided a technical paper **authored by Dr. Scott Jenkins and Joseph Wasyl** that modeled expected differences in sand influx into Agua Hedionda under two scenarios – with the power plant operating at 530 MGD (the average from 1981 until 2000), and with the desalination facility operating at 304 MGD.[~~56~~128] It found that stand-alone desalination operations at 304 MGD would reduce sand influx by 42.5% compared to the influx caused by the power plant during those years. The paper found that during those years, power plant operations resulted in a cumulative total of about three million cubic yards of sediment staying in the ~~l~~Lagoon (an average of about 159,000 cubic yards per year). Had the desalination facility been operating during those years at 304 MGD, the paper estimated sand influx would have been just over two million cubic yards (or about 106,000 cubic yards annually).[~~57~~129] ③

More recently, Poseidon provided another technical paper[~~58~~130] that modeled another two scenarios – the expected difference in sand influx into the ~~l~~Lagoon with a stand-alone desalination plant using 304 MGD versus complete cessation of the intake use. Using similar assumptions as the previous paper, this paper concluded that had there been no flow of water from the ~~l~~Lagoon to the power plant during the same 1981-2000 period, the net sand influx would have been about 1.7 million cubic yards, or about 316,000 cubic yards less than ~~that~~**the amount** that would have been caused by a stand-alone 304 MGD desalination facility. The paper also concluded that the difference between sand influx caused by historic power plant operations and influx that would have been caused solely by desalination operations would have

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[126] ***Id.***

[127] ***Id.***

[~~56~~128] Jenkins, Dr. Scott, and Joseph Wasyl. *Coastal Processes Effects of Reduced Intake Flows at Agua Hedionda Lagoon*, December 2006.

[~~57~~129] These figures assume a 14.7% "backpassing" rate to reflect sand dredged from the lagoon and deposited on nearby beaches so that it returns to the lagoon.

[~~58~~ ~~Jenkins, Dr. Scott, and Joseph Wasyl.~~ [130] *Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon : Low- Flow vs. No-Flow Alternatives*, **Dr. Scott Jenkins**, September 28, 2007.

reduced the need to dredge from an average of every two years (which had been the pattern for the power plant during that time period) to every three years. The paper also concluded that the difference in sand influx between stand-alone desalination operations and "no flow" – i.e., about 316,000 cubic yards total, or about 16,000 cubic yards per year – would have resulted in no discernable difference between having a desalination facility use water from the ~~l~~**L**agoon and not having this water use.

~~While it is clear that continued use of the intake will require some level of dredging, it is unclear at this time how much dredging will be needed and whether dredging would be done just to ensure the intake channel remains open or would also be done to protect or enhance other lagoon functions. Further, it is expected that the power plant owner, rather than Poseidon, would be responsible for dredging during the next several years while the existing power plant continues to use its once-through cooling system. To address these uncertainties, **Special Condition 12** clarifies that the Commission's approval at this time does not authorize Poseidon to conduct any dredging and that future proposed dredging activities will require submittal of new coastal development permit applications for the Commission's further review and approval. However, Poseidon's proposed withdrawal of approximately 304 MGD of estuarine water and the resulting loss of marine life and estuarine productivity caused by entrainment represent an alteration to Agua Hedionda subject to review pursuant to Coastal Act Section 30233(c).~~ (3)

~~***Analysis of Conformity to Coastal Act Section 30233(c)***~~

~~Coastal Act Section 30233(c) establishes that alterations to certain wetlands included in the report, *Acquisition Priorities for the Coastal Wetlands of California*, must be limited to "…very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay…". The report lists 19 of California's most productive coastal wetlands, which include Agua Hedionda.~~

~~The proposed project would alter these wetlands in a manner not allowed by Section 30233(c). As stated in Section 30233(c), the allowable activities in Agua Hedionda are "very minor incidental public facilities, restorative measures, [and] nature study…". The project's proposed development activity – i.e., alteration in the form of removal and use of about 304 MGD of estuarine water for desalination that results in a loss of estuarine productivity equal to about 37 acres of the lagoon, along with other lost biological functions and associated adverse impacts – is not for a "very minor incidental public facility," and is not a restorative measure or nature study. Further, although not currently proposed, dredging is expected to be necessary in the future to allow the facility to use water from the lagoon, and this alteration would also be subject to review under Section 30233(c) (see below). Therefore, the project's proposed use of these wetlands does not conform to this section of the Coastal Act.~~[59] (1) (3)

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[59] ~~Past Commission decisions have interpreted "minor" and "incidental" activities as those that are temporary in nature and for which no alternatives exist. For example, in a recent decision approving the placement of pilings~~

~~The Commission further notes that Section 30233(c) does not allow other uses in exchange for offsetting mitigation; therefore, the mitigation Poseidon has offered for its entrainment impacts does not provide the needed conformity to this section.~~

~~However, because the proposed project would be considered a "coastal-dependent" industrial facility, the Commission may evaluate it under Coastal Act Section 30260, which allows such projects to be approved in some instances even when they are found to be inconsistent with other Coastal Act provisions. The analysis and findings related to Section 30260 are in Section 4.5.7 of these Findings.~~

~~**Additional evaluation of the proposed project's dredging component**~~

~~Coastal Act Section 30233 also includes other provisions that are applicable to projects involving fill or dredging. These include Section 30233(a), which imposes a three-part test to determine whether proposed dredging is for an acceptable use, whether there are feasible and less damaging alternatives, and if feasible mitigation measures are included to minimize adverse environmental effects. Additionally, Coastal Act Section 30233(b) requires dredging and spoils disposal be implemented in a manner that avoids significant disruption to habitat and water circulation. Further, Coastal Act Section 30233(c), in addition to the use limitations noted above, includes a provision that dredging maintain or enhance the functional capacity of wetlands or estuaries. However, with the Commission's imposition of **Special Condition 12** requiring Poseidon to submit separate coastal development permit applications for any proposed future dredging, the project as currently reviewed does not include dredging activities that would be subject to these provisions. Further, as noted above, there is substantial uncertainty about how much dredging Poseidon would be required to perform, where the dredging would occur, its effects, and the mitigation needed to address those effects. It is therefore appropriate to conduct the necessary review for Coastal Act conformity when these aspects of any needed dredging are better known.~~ ③

~~within Agua Hedionda Lagoon to support an existing rail line (Consistency Certification #CC-52-05), the Commission found that determining whether to allow an "incidental" public use under Section 30233(c) should also consider whether there are feasible alternatives to the proposed wetland use. The Commission approved the project in part because there were no alternatives, because the project would not affect the functional capacity of the lagoon, and because it did not increase the capacity of the rail line.~~

~~In another example, the Court of Appeal recognized the Commission's approach as a permissible interpretation of the Coastal Act and supported the Commission's interpretation of "incidental" public service. In the case of *Bolsa Chica Land Trust et al., v. The Superior Court of San Diego County* (1999) 71 Cal.App.4th 493, 517, the court found that:~~

> ~~*... we accept Commission's interpretation of sections 30233 and 30240... In particular we note that under Commission's interpretation, incidental public services are limited to temporary disruptions and do not usually include permanent roadway expansions. Roadway expansions are permitted only when no other alternative exists and the expansion is necessary to maintain existing traffic capacity.*~~

~~As noted above, Poseidon's proposed dredging would not be temporary, as it would occur every three or four years for 30 to 90 years.~~

~~At that time, proposed dredging activities would be reviewed to determine their conformity to applicable Coastal Act provisions.~~

Poseidon **further** contends that ~~its proposed~~ dredging of the ~~lagoon would be~~**Lagoon is** a permitted use under Coastal Act Section ~~30233. It states~~**30233** that ~~its dredging would~~**will serve to** *benefit* the ~~l~~**L**agoon and the marine resources, scientific research, fishing, public access and recreational activities that rely on the ~~lagoon.~~[60]**Lagoon. In order to protect the Lagoon in its current state,** Poseidon ~~further~~ contends that there is no feasible alternative to ~~its proposed~~ dredging and that dredging is a project benefit that is fully consistent with the Coastal Act. ~~It states that the~~**The** Commission has approved dredging of the Lagoon on at least 17 separate occasions since 1977, most recently in November 2006 (see CDP 6-06-061)~~.~~**, and on each occasion the Commission has found dredging to be fully consistent with the Coastal Act as a permitted use under Coastal Act Section 30233.** Poseidon further ~~contends~~**notes** that, because Cabrillo Power, the owner of the EPS, currently dredges the Lagoon on a routine basis and has done so for the past fifty years, the existing environmental baseline from which the Commission must review the project is an environment in which dredging occurs routinely.[61][131] Poseidon states that it would voluntarily take over this responsibility if, at some point in the future, the EPS were to shut down and Poseidon would do nothing to change this existing dredging activity other than reduce the frequency of the dredge cycle as described in Dr. Scott Jenkin's report, Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon: Low-Flow vs. No-Flow Alternatives, September 28, 2007.

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Poseidon ~~further contends that routine~~**provided information that the Lagoon is an important location for recreation, fishing, and aquaculture. The City of Carlsbad issues about 400 recreational permits for the Lagoon per year, and data from CDFG indicate that the Lagoon attracts 79% of the local recreational fishing. The Lagoon also supports an extensive aquaculture operation, the Hubbs Seaworld White Sea Bass Fish Hatchery, and youth camps operated by California Water Sports and the YMCA. Routine** dredging is required to maintain the Lagoon in its current state and prevent it from reverting to its original state—**:** a slough comprised of shallow marsh channels filled with anaerobic hyper-saline water—~~and that the~~**. The** recreational, fishing, and aquaculture activities would halt if the EPS shut down and Poseidon did not volunteer to continue maintenance dredging of the Lagoon.[132] ~~Poseidon also contends~~

In addition to maintaining the Lagoon itself, dredging provides the additional public benefit of providing sand to maintain Carlsbad State Beach, grunion spawning habitat, and a popular surfing break. Without the necessary quantities of sand, the beach would revert

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[60] ~~See Poseidon Resources Corporation, Response to Staff Report, November 9, 2007, Exh. A at p. 25.~~

[61][131] See, e.g., *Fat v. County of Sacramento*, 97 Cal. App. 4th 1270 (2002) (environmental baseline consists of environmental conditions as they exist prior to the commencement of environmental review of the project).

[132] **See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at p. 25.**

to its historic cobblestone condition, grunion spawning would cease, the surfing break would be substantially reduced, and the quality of the waves would diminish.[133]

Poseidon's position is that, under site-specific facts at Agua Hedionda, dredging offers myriad public and environmental benefits and is thus an allowable use under Coastal Act Section(s) 30233(a)(1) [new coastal-dependent facilities], 30233(a)(2) [maintaining existing, or restoring previously dredged depths], 30233(a)(7) [restoration purposes], 30233(a)(8) [nature study, aquaculture, or other similar resource dependent activities], 30220 [protection of water-oriented recreational activities], 30224 [recreational boating use of coastal waters], 30222.5 [coastal dependant aquaculture], 30210 [enhancing opportunities for public access], 30223 [dedication of upland area to support coastal recreational uses], 30255 [priority coastal dependent development, 30230 [preservation of marine resources], and/or Section 30233(c) [minor incidental public facilities (which the Commission deemed operation of EPS in approving CDP 6-06-061); restorative measures, and nature study]. Because one of Poseidon's project objectives is "to increase opportunities for public access to the coastal area through public enhancements and dedications of coastal property,"[134] Poseidon has proposed Lagoon-front property dedications for coastal access, fishing and recreation in furtherance of this objective. Without dredging the Lagoon will revert back to its natural state of "stinky water" and Poseidon would not be able to meet this objective.[135] ③

Poseidon states that, while dredging may have minimal short-term environmental impacts, the long-term environmental benefits that dredging provides, including protecting the valuable Lagoon in its current state, far outweigh the minimal short term impacts.[62~~136~~] Poseidon relies on *Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon: Low-Flow vs. No-Flow Alternatives*, Jenkins and Wasyl, September 28, 2007, to demonstrate that there is no alternative to dredging to protect the Lagoon from returning to "stinky water." In the absence of Poseidon's operations and its assumption of the responsibility for maintenance dredging and stewardship of the Lagoon after the Encina power station is decommissioned, Lagoon sedimentation from urban run-off will result in closure of the Lagoon in five to seven years, and nearly complete loss of existing beneficial uses thereafter.[63~~137~~] ~~Poseidon believes its~~**The** project will therefore enhance marine habitat because it will preserve the Lagoon for both existing organisms and current recreational, fishing and aquaculture activities.

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[133] See *id.* at pp. 25-26.

[134] Project EIR at 3-31.

[135] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at p. 26.

[62~~136~~] See *Sierra Club v. California Coastal Commission*, 19 Cal. App. 4th 547, 562 (4th Dist. 1994) (finding that "the Commission has the power in particular cases to permit significant short-term disruption [from dredging] in order to provide long-term benefits [to coastal resources]" under Coastal Act Section 30233.)

[63~~137~~] *Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon: Low Flow vs. No-Flow Alternatives*, Dr. Scott Jenkins, September 28, 2007.

~~For several reasons, however, the Commission does not concur. Poseidon does not own or control lagoon areas subject to dredging or the various activities described above. Cabrillo, the power plant owner, owns the lagoon, including the underlying aquatic lands, and has stated it intends to continue its dredging and maintenance activities for the foreseeable future. It is therefore not apparent that Poseidon would be able to conduct dredging without permission from Cabrillo and approval from the State Lands Commission, and the Commission is not aware of such any agreements or approvals that could be incorporated into these Findings or **Special Conditions.**[64] The Commission also notes that the original power plant owner dredged the lagoon and started operating in the 1950s, well before adoption of the Coastal Act, and that Poseidon's proposal would represent a new use of the lagoon. The Commission notes, too, that it approved previous power plant-related dredging activities on a case-by-case basis by reviewing detailed dredging proposals provided by the power plant owners and making findings on those specific proposals. Poseidon has not yet proposed or submitted a detailed dredging plan that describes how it would conduct dredging or how it would maintain these lagoon functions and activities. Such a plan would not only require landowner approval and other regulatory approvals, but would require detailed analyses of the amounts and locations of dredging needed to maintain the water intake channel, additional dredging that may be needed to maintain these various functions and activities, and further analyses to determine whether there are feasible and less environmentally damaging alternatives to dredging for both the intake and the other functions. Additionally, Cabrillo's existing State Lands Commission lease for the lagoon inlet structure on state tidelands is limited to use for power plant operations only and would require modification to allow Poseidon's proposed use or subsequent dredging in areas subject to State Lands Commission jurisdiction. It would therefore be speculative for the Commission at this time to concur with Poseidon's contentions, and the Commission is therefore requiring these issues be appropriately addressed through **Special Condition 12**, which will ensure the Commission has the opportunity in the future to determine whether proposed dredging activities conform to applicable Coastal Act provisions.~~ (1)

The Commission finds that, based on the evidence that has been submitted, it is clear that continued use of the intake will require some level of dredging but that the project will require no more frequent dredging than has been the case under the power plant's operations. Poseidon has submitted evidence that from 1981 to the present, the average dredging frequency of the Lagoon was approximately every two years.[138] For the stand-alone desalination facility, the dredging frequency would be reduced to approximately every three years.[139] It is expected that the power plant owner, rather than Poseidon, would be responsible for dredging during the next several years while the existing power plant continues to use its once-through cooling system. To address any uncertainties (3)

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[64] ~~As Described previously, Coastal Act Section 30601.5 requires in part that an applicant demonstrate, prior to issuance of a coastal development permit, its ability to comply with all conditions of approval.~~ (1)

[138] ***Id.*** (3)

[139] ***Id.***

associated with the timing or frequency of dredging, Special Condition 12 clarifies that the Commission's approval at this time does not authorize Poseidon to conduct any dredging and that future proposed dredging activities will require submittal of new coastal development permit applications for the Commission's further review and approval. Thus, with the Commission's imposition of Special Condition 12 requiring Poseidon to submit separate coastal development permit applications for any proposed future dredging, the current project does not include activities that would be subject to Coastal Act Section 30233.

Additional evaluation of the proposed project's dredging component

Coastal Act Section 30233 includes several other provisions that are applicable to projects involving fill or dredging. These include Section 30233(a), which imposes a three-part test to determine whether proposed dredging is for an acceptable use, whether there are feasible and less damaging alternatives, and if feasible mitigation measures are included to minimize adverse environmental effects. Additionally, Coastal Act Section 30233(b) requires dredging and spoils disposal be implemented in a manner that avoids significant disruption to habitat and water circulation. Further, Coastal Act Section 30233(c) includes a provision that dredging maintain or enhance the functional capacity of wetlands or estuaries. However, with the Commission's imposition of Special Condition 12 requiring Poseidon to submit separate coastal development permit applications for any proposed future dredging, the current project does not include activities that would be subject to these provisions. ③

Conclusion

The ~~proposed project would represent a use and alteration of the Agua Hedionda wetlands not permitted by~~**Commission finds that the imposition of project Special Condition 12 ensures that the Applicant will apply for a new, separate CDP for any future dredging projects that it initiates. Because the CDP for the proposed project, CDP No. E-06-013, does not authorize and dredging of the Lagoon,** Coastal Act Section 30233~~(c); therefore, based on the studies cited and the information provided above, the Commission finds that the project as proposed does not conform to this Coastal Act provision. However~~ **does not apply to the project. In addition**, because the proposed project would be considered a "coastal-dependent" industrial facility, the Commission may ~~therefore~~**also** evaluate it under Coastal Act Section 30260, which allows such projects to be approved in some instances even when they are found to be inconsistent with other Coastal Act provisions. **Although the project is found to be consistent with Section 30233, the Commission also notes that the project can be assessed under Section 30260.** The analysis and findings related to Section 30260 are in Section 4.5.7 of these Findings.

4.5.3 Public Access

Coastal Act Section 30210 states:

> *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Coastal Act Section 30211 states:

> *Development shall not interfere with the public~~'~~s right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Coastal Act Section 30212(a) states:

> *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or (3) agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.*

Coastal Act Section 30212.5 states:

> *Wherever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.*

Coastal Act Section 30213 states, in relevant part:

> *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred...*

The proposed project would be built largely on a site already occupied by industrial uses and would not ~~at that location~~ affect public access to the shoreline at th~~is~~**at** location. The project also includes constructing pipelines under roads within the coastal zone, although the pipeline construction would be similar to other road construction projects and its temporary impacts would likely not result in adverse effects on public access to the shoreline.

The project's proposed use of estuarine water from Agua Hedionda Lagoon, and its reliance on intake jetties and a discharge structure on State tidelands would affect public access by limiting accessibility to those areas. However, as noted previously in these Findings, no feasible alternatives exist that would allow cessation of use of these structures. Further, the project

would require ongoing dredging within the ~~l~~Lagoon and deposition of the dredged spoils (which would be subject to subsequent submittal of coastal development permit applications and Coastal Commission review), which will allow for beach nourishment along nearby beaches. While these activities would cause temporary disruptions to public access, they would have a long-term public benefit by adding sand to the beach. The alternatives determined by the Commission to be infeasible would cause impacts to public access during construction and possibly during operations.

To address the public access impacts of its project as proposed, Poseidon has offered to dedicate to the City of Carlsbad the following sites to be used for public access:

- A site of about two acres, known as the Hubbs Site, on the north side of the ~~l~~Lagoon's Outer Basin that would include a trail system and expansion of the existing fish hatchery and aquatic research uses;

- A site of about ~~42.4~~**2.4** acres on the west shore of the ~~l~~Lagoon's Outer Basin to be used as a fishing beach;

- A site of about 10.2 acres of bluffs west of the power plant site and adjacent to the shoreline to be used for recreation and coastal access; and,

- A parking area covering about 0.3 acres at the south end of the power plant for public parking.

These sites total about 15 acres, and are described in more detail in the City's precise development permit for the project, and Poseidon's coastal development permit application submittals. To ensure these sites are made available for public use, **Special Condition #11** requires that, prior to starting operations of the desalination facility, Poseidon ensure these parcels are dedicated for public access and recreation as described in the City's Precise Development Plan #PDP 00-02. These public access dedications provide adequate conformity to the Coastal Act's public access provisions.

Conclusion

Based on the above, the Commission finds that the project as conditioned conforms to the Coastal Act's public access provisions.

4.5.4 Scenic and Visual Resources

Coastal Act Section 30251 states:

> *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in*

> *visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.*

The proposed project would be built largely within the existing developed area of the Encina power plant. The desalination facility site is currently occupied by large oil tanks that are no longer in use and that have been proposed for demolition. The desalination facility would create less of a visual impact than the currently existing tanks.

Poseidon's project plans include a number of measures to minimize any adverse visual effects of the proposed facility. The facility would be a relatively low profile building of about 44,000 square feet and reaching about 35 feet above the existing grade. Its appearance would be similar to **a** large warehouse. As part of the facility design, Poseidon has added both vegetative and architectural screening to ensure that exposed pipelines, tanks, and other industrial-type equipment are screened from public view.

The Commission additionally considered several intake alternatives, including slant wells and an intake gallery, and ~~has determined~~**concluded that they are environmentally inferior to the proposed project and that** they could create additional adverse visual impacts due to ~~their potential~~**the** development of structures on the beach. ~~According to Poseidon's presentations, the~~**Each of the alternatives would require development of permanent structures on the beach that would result in a permanent impact to visual resources. The** slant well alternative ~~could~~**would** require between 20 and 200 beach wells along a two mile stretch of coast, and associated access roads, parking, pipelines and electrical supply.[~~65~~140] The intake gallery alternative ~~could~~**would** require ~~up to~~ 78 beach wells, ~~which could result in a loss of some area of beach.~~[~~66~~]**each of which would require approximately 2,800 square feet of beachfront property, for a combined loss of seven acres of beachfront property.**[141] Construction of the intake gallery alternative ~~could~~**would** also require trenches for collection piping and ~~could~~**would** limit access to the beach for a period of 2 to 4 years, and ~~could~~**would** require the creation of permanent access ramps from the Pacific Coast Highway to the beach to transport equipment during construction and to permit well inspection during the life of the wells.[~~67~~142] Therefore, ~~pursuant to these presentations,~~ the proposed project ~~would be~~**is** the environmentally superior alternative.

To ensure the facility conforms to the Coastal Act's scenic and visual resource policies, **Special Conditions 13 and 14** require Poseidon to submit, prior to starting construction, a Screening Plan and a Lighting Plan showing the planned appearance of the facility. The plans must

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[~~65~~140] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. B at p. 16.

[~~66~~141] *Id.* at 17-19.

[~~67~~142] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at pp. 17-18.

describe how Poseidon will screen the facility's industrial and mechanical equipment and how the facility and surrounding area will be lighted to provide the necessary level of safety and security while minimizing offsite glare and other adverse affects. Both plans must be submitted to the Executive Director for review and approval before construction can begin.

Conclusion

Based on the above, the Commission finds that the project, as conditioned, will conform to the Coastal Act's scenic and visual resource provisions.

4.5.5 Energy Use and Greenhouse Gas Emissions (Coastal Act Section 30253(4))

Coastal Act Section 30253(4) states:

> *New development shall: ... (4) Minimize energy consumption and vehicle miles traveled.*

Section 30253(4)'s requirement to minimize energy consumption reduces impacts to coastal resources caused by greenhouse gas emissions. Most of the electricity Poseidon would use would be produced by natural gas-fired power plants, with some produced by coal, hydroelectric, or renewable sources. According to methods developed by the California Climate Action Registry (CCAR), Poseidon's proposed electrical use would result in ~~approximately~~**no less than** 200,000,000 pounds (~~about~~ 90,000 metric tonnes) of carbon dioxide emissions per year.[68][143] ~~Poseidon has stated, however, that it believes~~**In response to the Commissions September 28, 2006 Request for Additional Information, Poseidon submitted a study on October 9, 2007 that indicates** its net emissions will be substantially lower, about 134,400,000 pounds (~~about 60,000~~**61,000** metric tonnes) per year.[144] The difference between the Commission's conclusion and Poseidon's estimate is further described below.

> **Note:** The anticipated emissions described herein**, in the Commission staff's view,** likely represent the very low end of the range of actual greenhouse gas contributions

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[68][143] Protocols developed by the California Climate Action Registry estimate carbon dioxide emissions from California's electricity sources total 804.54 pounds per megawatt-hour. Poseidon's expected electrical use of about 250,000 megawatt-hours per year would therefore total just over 200,000,000 pounds of carbon dioxide. These calculations are described in more detail below.

For comparison, 200,000,000 pounds of carbon dioxide is about the same amount produced during 235 million vehicle miles traveled or is the amount of carbon stored each year in 75,000 acres of growing forest (see the U.S. EPA and U.S. Agency for International Development *Climate Technology Gateway* at www.usctcgateway.net).

[144] See Poseidon Resources Corporation, *Updated Response to Coastal Commission's September 28, 2006 Request for Additional Information*, Section 13, CDP Energy Use, GHG Production & Mitigation, October 9, 2007; see also Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. D (Climate Action Plan).

Poseidon would generate. These analyses evaluate only those carbon emissions that would be generated by Poseidon's electrical use for pumping and desalinating water and transporting it to Maerkle Reservoir, and do not include emissions that would result from project construction, manufacture of reverse osmosis membranes, dredging needed to maintain the intake channel, etc. Also, they include only carbon dioxide emissions, not emissions of other greenhouse gases generated by power plants. ~~The~~**Commission staff's** analyses also credit Poseidon with emission reductions that may occur through its potential use of a high-efficiency energy recovery device that is still being tested and that Poseidon has not yet committed to use.

~~Emissions~~**Commission staff contends that emissions** from this facility's electrical use would be greater than those created by other water sources and would contribute to California's greenhouse gas emissions. ~~They would also~~**Commission staff also contends that these emissions would** cause significant adverse effects to many coastal resources the Coastal Act is meant to protect. The global heating, sea level rise, and ocean acidification resulting from greenhouse gas emissions affects public access (Coastal Act Sections 30210-30214), recreation (Sections 30212.5, 30213, 30220-30222), marine resources (Sections 30230-30231), wetlands (Sections 30231, 30233), ESHA (Section 30240), agriculture (Sections 30241-30242), natural land forms (30251), and existing development (Sections 30235, 30253).

Poseidon's position is that it shares the Governor's commitment to address climate change, but disagrees with Commission staff that the project will be a contributing factor to climate change for several reasons: the project is consistent with its proposed Climate Action Plan, which will actually result in a *reduction* in regional greenhouse gas emissions, and the project includes numerous components to ensure that it will utilize only the minimum energy necessary.[145] Moreover, Poseidon maintains that the Commission's authority to impose greenhouse gas emission standards or emissions-related mitigation is limited.[146] Due to the importance of the project and Poseidon's stewardship of the environment, Poseidon has voluntarily proposed a precedent-setting Climate Action Plan pursuant to which Poseidon commits to measures to offset the project's minimal net carbon emissions so that the project is net carbon neutral.[147]

The Commission may assure compliance with CARB and air pollution control district requirements:

> ***The State Air Resources Board and air pollution control districts established pursuant to state law and consistent with requirements of federal law are the principal public agencies responsible for the establishment of ambient air quality***

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[145] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at pp. 20-21

[146] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at pp. 20-25

[147] See *id.*

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and emission standards and air pollution control programs. The provisions of this division do not authorize the commission or any local government to establish any ambient air quality standard or emission standard, air pollution control program or facility, or to modify any ambient air quality standard, emission standard, or air pollution control program or facility which has been established by the state board or by an air pollution control district.

Coastal Act § 30414(a).

With regard to greenhouse gas emissions specifically, Assembly Bill 32, the California Global Warming Solutions Act of 2006, establishes a new air pollution control program that clearly places the authority to regulate and control greenhouse gas emissions, and to protect coastal resources from greenhouse gas emissions-related impacts, with CARB:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include . . . a rise in sea levels resulting in displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment . . .

. . .

The State Air Resources Board is the state agency charged with monitoring and regulating sources of emissions of greenhouse gases that cause global warming in order to reduce emissions of greenhouse gases

Cal. Health & Safety Code §§ 38501(a), 38510 (emphasis added). Though primary jurisdiction over air quality and greenhouse gases rests with CARB, Poseidon is willing to address the Commission staff's concerns with a voluntary Climate Action Plan. CARB has the option to "recommend ways in which actions of the commission or any local government can complement or assist in the implementation of established air quality programs," but CARB has not imposed any greenhouse gas emission requirements applicable to the proposed project, nor has it requested that the Commission assist it in implementing greenhouse gas emissions-based standards or mitigation. There are no existing CARB promulgated greenhouse gas emissions standards that would apply to the project.

Due to the importance of the project and Poseidon's stewardship of the environment, Poseidon has voluntarily proposed a precedent-setting Climate Action Plan pursuant to which Poseidon commits to measures to offset the project's minimal net carbon emissions

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so that the project is net carbon neutral. Poseidon's Climate Action Plan is a voluntary project component.[148]

As described below, Poseidon will demonstrate that its proposed project will conform to the Section 30253(4) requirement to minimize energy consumption to avoid or mitigate adverse effects to coastal resources caused by energy-related greenhouse gas emissions through its conformity to **Special Condition 10.** ~~**Special Condition 10**, as described below.~~ (4)

Issue Background

One of California's biggest overall energy uses, and one of its most intensive energy uses, is moving water around the state. With most of its water in the north and most of its population in the south, California has established conveyance systems to move water hundreds of miles and over hundreds of feet of elevation gain. Because water is relatively heavy, it requires significant amounts of electricity to transport – for example, the State Water Project uses up to about 5 billion kilowatt-hours each year to move millions of acre-feet of water from Northern to Southern California. Its average demand per acre-foot is about 3,400 kilowatt-hours, which is about the same as the annual residential use for each person in the U.S.

Compared to California's existing water supply systems, seawater desalination is an even more energy intensive source of water. Although desalination's energy needs have decreased significantly in the past several years, reverse osmosis facilities such as Poseidon's proposed project still require much more electricity than is needed for other water sources. For example, Poseidon's proposal is expected to require no less than about 4,400 kilowatt-hours per acre-foot, about ~~30~~29% more than the State Water Project~~, which provides a part of the water imported to the San Diego area. It would require about 120% more kilowatt-hours per acre-foot than water imported to the area from the Colorado River, which requires about 2000 kilowatt-hours per acre-foot and provides an additional amount of imported water to the area~~. (1)

In many parts of the state, the electrical grid needed to provide water is under a great deal of strain. Southern California, in particular, will be challenged to meet its energy needs due to its need to reduce its reliance on aging power plants and to develop new energy sources, developing updated transmission infrastructure, and other similar difficulties.[~~69~~149] Poseidon's proposal would rely on the local and regional electrical grid, which generates most of its electricity from fossil fuel-fired power plants. The proposed facility's electrical use would therefore result in substantial greenhouse gas emissions due to its use of this type of electricity. In response, Poseidon has proposed a Climate Action Plan, which is discussed in greater detail later in these ~~F~~findings.

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[148] **See *id.* at pp. 22-25.** (4)

[~~69~~149] See, for example, the California Energy Commission's 2007 *Draft Integrated Energy Policy Report.*

Background of Greenhouse Gas-related Issues and Impacts: The Fourth Assessment Report of Working Group I of the Intergovernmental Panel on Climate Change (IPCC) (2007) represents the consensus of fifty top international scientists working in fields related to climate change. More than one hundred national governments, including the United States, have approved the report. The report concludes that the evidence of global climate system warming is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global mean sea level (IPCC, 2007). Further, the report concludes that "most of the observed increase in globally averaged temperatures since the mid-20th century is very likely [greater than 90% probable] due to the observed increase in anthropogenic greenhouse gas concentrations." The report cites numerous long-term changes in climate, including changes in Arctic air temperatures, decreases in the amount of Arctic sea ice, widespread changes in precipitation amounts, increase in ocean salinity, changes in wind patterns and increased incidences of extreme weather including droughts, heavy precipitation, heat waves and tropical storms.

Many studies consider a climate heating of more than 2 degrees Celsius above pre-industrial temperatures as representing "dangerous" level of climate disruptions. Based on six emissions scenarios ranging from "business as usual" to aggressive shifts to cleaner technologies, the best estimates of global average temperature increase are between 1.8 and 4.0 degrees Celsius by 2099. A more recent study has found that comparing actual "on the ground" data compiled during the last ten years shows that the model used to develop these scenarios has vastly underestimated the rate and degree of global warming effects. It suggests that limiting global heating to no more than 2 degrees Celsius will require measures that result in the equivalent of complete elimination of industrial emissions (see Weaver et. al. *Long term climate implications of 2050 emission reduction targets*, in Geophysical Research Letters, October 6, 2007).

These six emission scenarios also estimate that sea level will rise between 0.18 and 0.59 m. This amount of sea level rise does not include contributions from rapid melting of either the Greenland or Antarctic ice caps. (Bindschadler, 2006; Ekström et al., 2006; Joughin, 2006; Kerr, 2006). In addition, the ocean's absorption of carbon dioxide leads to a reduction in ocean pH with concomitant consumption of dissolved carbonate ions, which adversely affects calcite-secreting marine organisms, marine water quality and the abundance and distribution of marine species (The Royal Society, 2005).

Impacts to the California Coastal Zone: In July 2006, the California Climate Change Center released a series of reports describing ongoing and future effects of global warming on the California environment (Baldocchi and Wong, 2006; Battles et al., 2006; Cavagnaro et al., 2006; Cayan et al., 2006a; Cayan et al., 2006b; Cayan et al., 2006c; Drechsler et al., 2006; Franco and Sanstad, 2006; Fried et al., 2006; Gutierrez et al., 2006; Joyce et al., 2006; Lenihan et al., 2006; Luers et al., 2006; Luers and Moser, 2006; Medellin et al., 2006; Miller and Schlegel, 2006; Moritz and Stephens, 2006; Vicuña, 2006; Vicuña et al., 2006; Westerling and Bryant, 2006). Drawing on three projected warming scenarios (low, medium, and high), the reports projected severe impacts by the end of the century in the areas of public health, water resources, agriculture, forests and landscapes, and sea level. Many of these effects will adversely impact resources of the coastal zone. The adverse effects include worsened air quality, changes in

species distribution, significant reductions in plant and animal diversity, loss of various kinds of agriculture (such as fruit trees), expansion of invasive plant and animal species, increase in plant pathogens, increase in number and severity of wildfires, rising sea level, coastal flooding, and increased coastal erosion. In addition, absorption of carbon dioxide by the ocean is causing a reduction in ocean pH with concomitant consumption of dissolved carbonate ions, which is adversely impacting calcite-secreting marine organisms. The warming of ocean waters is also adversely affecting marine resources.

As identified in the 2006 Climate Change Center reports, air quality will be compromised by soot from wildfires, which the report predicts will increase. Coastal agriculture, already threatened by land development and habitat fragmentation, will be subject to further impacts from climate change. Impacts to coastal agricultural will include impacts to wine grapes, which will be subject to premature ripening and decreased fruit quality; adverse impacts to fruit and nut trees, many of which will no longer be able to produce once the number of "chill hours" per day drops below that necessary for proper ripening; and adverse impacts to milk production. Other threats to coastal agriculture identified by the Climate Change Center reports include the expansion of the ranges of agricultural weeds and an increase in plant pests and pathogens. Coastal forests and scrublands will be increasingly susceptible to wildfires due to longer and warmer periods of summer drying. This, together with the warmer climate itself, will lead to shifts in vegetation type, probably resulting in the loss of coastal scrub as it is converted to grasslands. Inasmuch as suitable habitat exists, species requiring cooler climates can migrate northward or to higher elevations. Their ability to do this, however, will be limited by the speed with which they are able to disperse, the suitability and interconnectivity of available habitat, and their ability to compete with non-native invasive species which, by definition, are able to disperse and exploit habitat efficiently. All of these effects will lead to a decline in forest productivity, with a concomitant loss in habitat.

The most direct impacts of global warming focused on the coastal zone are sea level rise and its associated impacts, ocean warming, and ocean acidification:

- **Sea Level Rise:** According to tide gage data, global mean sea level has been rising at the rate of approximately 1.8 mm/yr for the past century (IPCC, 2001). Although no acceleration of this rate is apparent from the tide gage data (IPCC, 2001), satellite measurements starting in the early 1990s indicate an annual rate of approximately 2.8 mm/yr (Church and White, 2006). Sea level is clearly rising, and the rate of increase may in fact be accelerating. Since land can also change elevation due to either uplift or subsidence, global sea level change affects various coastal areas differently. Much of the California coast is rising; however the rate of uplift is, everywhere except northernmost California, lower than the rate of sea level rise. The *relative* historic rate of sea level rise (relative sea level rise is global sea level minus local land uplift or plus local land subsidence) has been calculated by Commission staff to range from a high of 2.16 ± 0.11 mm/yr in San Diego to a low of 0.92 ± 0.17 mm/yr in Los Angeles. Relative sea level is actually falling at Crescent City due to the high rates of tectonic uplift at that locality. (California Coastal Commission, 2001).

Even the 0.18 to 0.59 meter rise in sea level by 2100 predicted by the IPCC will have a large impact on the California coast. The effects of a much larger increase in sea level due to large contributions from the Greenland and/or Antarctic ice sheet would be truly catastrophic. The 2001 Coastal Commission report concluded:

> *The most obvious consequence of a large rise in sea level will be changes in areas that are submerged. Lands that now are only wet at high tide could be wet most of the day. Structures that are built above the water, like docks and piers, will be closer to the water, or eventually submerged. A second consequence will be an increase in wave energy. Wave energy is a factor of wave height. Wave heights along the California coast are influenced greatly by bottom depths and for most locations along the coast, the heights of nearshore waves are "depth limited". When the water depth increases, the wave height can be higher. Thus, higher waves impact the coast during high tide than during low tide. Wave energy increases with the square of the wave height. Thus, a 2-foot (0.6-meter) wave would have 4 times the energy of a 1-foot (0.3-meter) wave. Small changes in water level can cause significant changes in wave energy and the potential for shoreline damage from wave forces. A 1-foot to 3-foot (0.3 to 0.9 meter) rise in sea level, such as projected to occur over the next 100 years, would cause enormous changes in nearshore wave energy. The consequences of a 1-foot to 3-foot (0.3 to 0.9 meter) rise in sea level are far reaching. Along the California coast, the best analogy for sea level rise is thought to be El Niño, where a significant rise in sea level will be like El Niño on steroids. One of the factors that contributed to the amount of damage caused by the 1982/83 El Niño was that several storms coincided with high tide events and the elevated water levels (from tides and low pressure system combined) brought waves further inland than would have occurred otherwise...*
>
> *Beaches and Coastal Bluffs: Open coastal landforms like beaches and bluffs will be exposed to greater and more frequent wave attack. There will more potential for erosion and shoreline retreat. For gently sloping beaches, the general rule of thumb is that 50 to 100 feet of beach width will be lost from use for every foot of sea level rise... Some global circulation models predict significant increases in run-off from coastal watersheds in California (Wolock and McCabe, 1999) ...*

In general, erosion of the landward edge of a beach, dune, or coastal bluff creates additional beach area, and so even in a period of sea level rise such as the present, in which the seaward extent of the beach is reduced by flooding and erosion, new beach creation can result in a relatively constant beach width. However, when threats to existing development from erosion lead to the construction of shoreline protective devices that halt the landward migration of the back beach, continued flooding of the seaward beach results in a reduction in beach width. Thus, on beaches experiencing erosion due to rising sea level, the protection of threatened structures will result in the loss of beaches wherever property owners choose to harden the coast to prevent coastal erosion. This loss of beach has immense negative impacts, including loss of recreational value, tourism, marine mammal haul-out area, sandy beach habitat, and buffering capacity against future bluff erosion.

The 2001 Coastal Commission report goes on to indicate other potential impacts of sea level rise on the California coast:

> *Wetland changes also will be affected by inland development. Historically, wetland areas migrated both upward and landward as they were inundated. If the inland area has a slope and soil composition that can support a wetland and is not already developed, then inland migration may be possible. If there is a steep bluff or some type of fixed development, such as a highway or bulkhead, inland of a wetland, inland migration will not be possible and the wetland area will diminish over time.*
>
> *Another physical change to wetland in response to a rise in sea level is an increase in the tidal currents, with the potential for increased scour. Also, for estuarine systems there will be a shift in the location of the salt water-freshwater interface, and an inland movement of the zone of brackish water...*
>
> *Ports, Harbors and Marine Facilities: Much of the infrastructure of a port or harbor will be affected by a change in sea level. So too will marine terminals and offshore structures. All of the horizontal elements, such as the decking of wharves and piers, will be exposed more frequently to uplift forces larger than those occurring now. Compared to current conditions, ships will ride higher at the dock and cargo-handling facilities will have less access to all parts of the ship. Loading and unloading may have to be scheduled for low tide periods to allow greatest access into the ship, or else mooring and cargo handling facilities will need to be elevated.*
>
> *If breakwaters or jetties protect the harbor, these structures will become less efficient as water levels increase. The breakwaters and jetties will need to be enlarged and heightened to keep up with the rise in sea level, or the harbor will have to accept a higher level of overtopping and storm surge, and a higher probability of storm damage. The increase in water level could also increase the tidal prism of the harbor, resulting in increased scour at the foundations of any structures in the harbor. So, it may also be necessary to reinforce the base of the breakwater or jetty to insure stability. Benefits that could occur from a rise in sea level would be the opportunity for harbors to accommodate deeper draught ships and a decrease in dredging to maintain necessary channel depths.*
>
> *Seawalls and other engineered shoreline protection: [Seawall] foundations would be exposed to greater scour and the main structure would be exposed to greater and more frequent wave forces. As with breakwaters and jetties, these structures will need to be reinforced to withstand these greater forces, or a lower level of protection will have to be accepted for the backshore property.*

- **Ocean Warming:** In December 2006, the Commission held the first in a series of workshops on global warming. One of the well-recognized connections between the atmosphere and the ocean is heat exchange. Global warming of the atmosphere is expected to cause an increase in ocean warming as the ocean absorbs greater amounts of thermal

energy from the atmosphere. At the workshop, Dr. James Barry (Associate Scientist, Monterey Bay Aquarium Research Institute) presented a summary of observed and predicted effects of ocean warming on California coastal ecosystems. Dr. Barry inventoried intertidal animals along the Monterey coast, and compared his results to a 1932 baseline inventory. He found that species that increased in abundance in southern California had increased markedly since the baseline study. Over the same time, there was a dramatic decline in species more associated with northern California. This demonstrates that the observed warming of the ocean over the past 60 years has resulted in a shift in the geographic ranges of species. With continued warming, species can be expected to continue to migrate northward as long as suitable habitat is available.

Some instances of remarkable biodiversity are due to the fortuitous combination of suitable ocean temperature and suitable geomorphic conditions. For example, one of the most diverse shallow water habitats in California is found in the rocky-bottom waters around the northern Channel Islands. This is a zone of mixing of species characteristic of a "southern California realm" and a "northern California realm." The abundant rocky bottom habitat in the shallow waters ringing the islands provides a niche in which this diversity is expressed. If, because of global warming, the suitable temperature zone migrates northward, it will be moved off of the abundant rocky bottom habitat and the diversity and ocean productivity might decrease significantly.

Declines in ocean productivity due to habitat shifts are an indirect consequence of ocean warming. Ocean warming can cause a direct loss of primary productivity as well. Warming of the surface of the ocean results in increased ocean stratification, limiting the upwelling of deep, nutrient-rich waters that are responsible for California's rich coastal productivity. Roemmich and McGowan (1995) report a 1.2 to 1.4 degree centigrade increase in ocean temperature between 1950 and 1994. This was accompanied by a 75% reduction in zooplankton biomass. Reductions in phytoplankton and zooplankton biomass have profound cascading effects throughout the food chain. Short term warming events, such as El Niño events, have resulted in abrupt decline in commercial fish species, marine mammals, and birds (Laws, 1997; Nezlin et al., 2005). Similar effects might accompany global warming on a longer time scale, vastly affecting California's coastal resources.

Ocean warming could also create a disconnect between historic feeding and breeding grounds for many species. Welch and others (1998) reported on potential changes in sockeye salmon distribution due to future global warming. Sockeye salmon, which spend 2-3 years in waters of the northern Pacific, migrate northwards to areas of high productivity, such as the Bering Sea, in the summer. Productivity decreases with temperature increase, however, and as the Bering Sea warms, migration routes would have to be longer. Eventually, the metabolic cost of migrating further northwards to feeding grounds could make the migration infeasible. When summer feeding grounds are disconnected from winter breeding grounds, a population crash may be anticipated. A population crash in such species would not only impact commercial fishing in California, but would ripple up through the food chain, impacting protected coastal resources such as marine mammals and birds.

- **Ocean Acidification:** Just as there is an exchange of thermal energy between the atmosphere and the oceans, there is an ongoing exchange of gases between the atmosphere and the ocean. Each year some 92 billion metric tonnes of CO_2 annually are directly absorbed by the ocean from the atmosphere. At the same time, approximately 90 billion metric tonnes are released back to the atmosphere (Schlesinger, 1997). The net increase in dissolved CO_2 in the ocean is a direct result of increases in the atmosphere related to changes humans are making to the carbon cycle—most notably fossil fuel burning and land use changes (deforestation, mostly in the tropics). The ocean is an enormous reservoir that can absorb a vast amount of CO_2, although the rate of ocean mixing is too slow to prevent the current buildup in the atmosphere. Without this net absorption of CO_2 by the oceans, the atmospheric buildup—and global warming—would be far greater than it is now.

  Over the past 200 years, the oceans have taken up approximately half of the industrial age CO_2 emissions, substantially reducing the net atmospheric concentrations of CO_2. This effect does not come without a cost, however. When CO_2 is absorbed by the ocean, some of it combines with water to form carbonic acid (H_2CO3). This results in only a modest decrease in ocean pH, however, because most of the carbolic acid recombines to form bicarbonate ions (HCO_3). In the process, carbonate ions (CO_3^{-2}) are consumed, with the net result being that absorption of CO_2 by the ocean consumes carbonate ions and reduces the pH of the ocean. The decrease in pH is minor because of the "buffering capacity" of these carbonate reactions, but appears to have decreased mean average surface water pH by 0.1 pH units over the past 200 years (Caldeira and Wickett, 2003). Because the pH scale is logarithmic, this decrease in ocean pH (commonly called "ocean acidification," but more properly referred to as a decrease in alkalinity) means that hydrogen ion activity (which defines acidity) has increased by some 30% in this time frame (The Royal Society, 2005).

  The effects of decreasing ocean alkalinity and carbonate ion concentration are twofold. First, many species are directly affected by the reduction in pH. In his presentation before the Commission in December 2006, Dr. Barry identified several physiologic stresses to which some species are susceptible. These stresses include respiratory stress (reduced pH limits oxygen binding and transport by respiratory proteins, such as hemoglobin, leading to reduced aerobic capacity), acidosis (disruption of acid/base balance which impairs function and requires energy to restore or maintain optimal pH balance), and metabolic depression (reduced pH associated with increased environmental CO_2 can cause some animals to enter a state of torpor or semi-hibernation). In addition to these physiologic effects, calcite-secreting organisms (including many phytoplankton, zooplankton, clams, snails, sea stars, sea urchins, crabs, shrimp, and many others) have more difficulty secreting their shells or tests under reduced carbonate ion concentrations. Deep-sea species will be particularly affected because increasing CO_2 levels in seawater decreases the saturation state of seawater with respect to calcium carbonate ($CaCO_3$) and raises the saturation horizon closer to the surface. The $CaCO_3$ saturation horizon is a depth in the ocean above which $CaCO_3$ can form, but below which $CaCO_3$ dissolves. Increasing surface CO_2 levels could have serious consequences for organisms that make external $CaCO_3$ shells and plates (The Royal Society, 2005). The consequences of reduced calcification are not fully known, but are likely to include changes

to plankton communities, higher metabolic costs for water-breathing species, resulting in lower growth, survival and reproduction, and higher metabolic costs for calcite secreting organisms. The effect on food webs is unclear, but it is very likely that these effects will result in a loss of biodiversity and complexity in California's coastal marine ecosystems.

Analysis of Poseidon's Anticipated Greenhouse Gas Emissions and Poseidon's Response

As noted above, Commission staff estimates that Poseidon's electricity use would generate about 200,000,000 pounds (approximately 90,000 metric tonnes) of carbon dioxide emissions each year, based on Poseidon's use of approximately 250,000 megawatt-hours per year from the San Diego Gas & Electric Company (SDG&E) energy portfolio. **On the other hand, Poseidon, relying on the California Climate Action Registry (CCAR) Protocol, estimates that its electricity use would generate approximately 61,004 metric tons of carbon dioxide emissions each year, based upon its use of 246,156 megawatt-hours per year from SDG&E, which has a CCAR certified emissions factor of 546.46 lbs of CO2/MWH. Since Poseidon intends to buy all of its energy from SDG&E system power, Poseidon states that the appropriate emission factor to use for the project's indirect carbon emissions from its electricity purchases is SDG&E's annual emission factor for delivered electricity as stated in its CCAR Annual Emissions Report.[150] SDG&E last filed an Annual Emissions Report with the CCAR on March 7, 2007, and it provides an emission rate of 546 lbs of CO2/MWH.** In October 2007, Poseidon submitted several letters and memoranda to Commission staff describing a proposed Climate Action Plan, with the proposed facility's expected electricity use, some possible measures that would reduce its expected use, and measures that Poseidon may use to address its greenhouse gas emissions. These are described in more detail below.

④

Poseidon's most recent estimates show that it expects the project would use 4,833 kilowatt-hours to produce each acre-foot of potable water, but that this figure would be lowered to about 4,400 kilowatt-hours by implementing measures described below. This includes using the power plant's ~~Unit 4~~ pumps to bring water into the intake channel, pumping that water into the proposed facility, ~~pretreating~~**pretreating** the water, producing desalinated water using reverse osmosis membranes, and pumping the water from the water from the facility to **the** delivery points in Carlsbad and ~~nearby communities~~**beyond**. At 4,833 kilowatt-hours per acre-foot, Poseidon's electrical use would total 270,648 megawatt-hours per year.[~~70~~151] Poseidon's estimates also show that its expected continual electrical demand would be between 28.1 and 33.8 megawatts, with an average demand of about 30 megawatts. Using these figures,

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[150] See Poseidon Resources Corporation, Response to Staff Report, November 9, 2007, Exh. A at pp. 23-24.

[~~70~~151] 4,833 X 56,000 acre-feet per year / 1,000 kilowatts per megawatt = 270,648.

Poseidon's electrical use would range from 246,156 to 296,088 megawatt-hours per year, with an average annual use of 262,800 megawatt-hours.[~~71~~152]

Poseidon ~~also described~~**'s Climate Action Plan describes** several measures that it may use to reduce its electrical use. Those measures include a high-efficiency energy recovery device that Poseidon is still testing, but which could reduce its electrical use by about 10%, to about 4400 megawatt-hours per acre-foot of production. Although Poseidon has not yet committed to using this device, the emissions analysis in these Findings credits Poseidon with the emission reductions that would occur due to its use. Using the 4400 megawatt-hour per acre-foot figure would result in Poseidon's electrical use being 246,400 megawatt-hours per year, or approximately 250,000 megawatt-hours per year, which is used as the basis for the analyses in these findings. ~~This~~**On Commission staff's calculation, this** would result in carbon dioxide emissions of about 200,000,000 pounds (~~about~~ 90,000 metric tonnes) per year.[~~72~~153]

As noted above, the analyses in these Findings do not include several emission sources that could add significantly to Poseidon's total. The analyses do not include emissions resulting from project construction and manufacture of materials used.

Recent letters and memoranda from Poseidon (see October 21 and 22, 2007) provide a much lower estimate of its anticipated greenhouse gas emissions. Poseidon **contends**, relying on the most recent SDG&E submittal to the California Climate Action Registry (CCAR), ~~contends~~ that its emission rate should be based on 546 pounds of carbon dioxide emissions per megawatt-hour, based on emissions expected from the energy sources in SDG&E's energy supply portfolio and as described in the most recent CCAR-certified emissions annual report. This would result in about 134,400,000 pounds (~~about 60,000~~**61,000** metric tonnes) of carbon dioxide per year instead of 200,000,000 pounds (~~about 90,000 metric tonnes). Since Poseidon intends to buy all of its energy from SDG&E system power, Poseidon states that the appropriate emission factor to use for the project's indirect carbon emissions from its electricity purchases is SDG&E's annual emission factor for delivered electricity as stated in the annual CCAR Report.[73] SDG&E last filed an Annual Emissions Report with the CCAR on March 7, 2007, and it provides an emission rate of 546 lbs of CO2/MWH~~**90,000 metric tonnes)**. However, **in Commission staff's view,** in comparing the SDG&E portfolio with the CCAR's average California portfolio, the SDG&E portfolio appears to result in an even higher emission figure than the California average.[~~74~~154] For

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[~~71~~152] At a steady rate of electrical use, 30 megawatts X 24 hours per day X 365 days per year = 262,800.

[~~72~~153] Based on the CCAR average rate of 804.54 pounds per megawatt-hour of carbon dioxide emissions from California's electrical sources.

[73] ~~See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at pp. 23-24.~~

[~~74~~154] Poseidon provided the following percentages of SDG&E's electricity sources, and the California averages are from the California Energy Commission's *2006 Gross System Power Report*:

Resource Type:	SDG&E Percent:	State Percent:

example, coal and natural gas, which have average emission rates much higher than 804.54 pounds per megawatt-hour,[~~75~~155] make up a larger proportion of San Diego's portfolio than the state portfolio. Additionally, SDG&E testimony before the California Public Utilities Commission suggests its carbon dioxide emissions are in the range of 1100 pounds per megawatt-hour, based on an average of a range of natural gas technologies and heat rates.[~~76~~156] Elsewhere, SDG&E's emissions are cited as 915 pounds per megawatt-hour for electricity it purchases.[~~77~~157] ~~It appears~~**Commission staff**, therefore, **contends** that ~~Poseidon's proposed use of the CCAR factor is not adequate to describe its expected emissions. Poseidon disagrees, stating that Commission staff did not follow the CCAR protocol or rely on the CCAR-certified SDG&E emission factor. Poseidon believes that because CCAR is the only state agency authorized by the Legislature to establish protocols for determining carbon emission baselines, Poseidon contends the Commission staff analysis is in error. The CCAR-certified figure Poseidon uses~~**the CCAR certified emissions rate for SDG&E may be in error. The CCAR certified figure** is derived from SDG&E's 2005 self-reported Annual Entity Emissions report, which states that SDG&E expects emissions of 546 pounds per megawatt-hour from owned and purchased generation sources; however, that figure is not supported by other SDG&E sources or by other agencies, including the California Energy Commission and State Lands Commission, in their determinations related to emissions from different types of electricity sources. For example, the State Lands Commission in its October 30, 2007 hearing used 815 pounds per megawatt-hour as the basis of its review, with a "best-case" low emission rate of 690 pounds and a high rate of 1100 pounds. **Poseidon submitted evidence demonstrating that the CCAR calculations of 546 pounds per megawatt-hour are not in error, however, since CCAR is the only state agency that is authorized by the California State Legislature to establish protocols for establishing carbon emission baselines, and the source of the derivation comes from SDG&E's credible self-reported Annual Entity Emissions report.**[158]

In selecting an appropriate rate to use for these analyses, Commission staff **states that it** used the standard figure from the Climate Action Registry~~, which is the lowest of these credible emission~~

Coal	18.0	15.7
Natural Gas	50.0	41.5
Large Hydro	10.0	19.0
Nuclear	15.0	12.9
Biomass	3.0	2.1
Geothermal	2.0	4.7
Small Hydro	<1	2.1
Solar	<1	0.2
Wind	3.0	1.8

[~~75~~155] Natural gas emissions range from about 800-1200 lbs/megawatt-hour, and coal emissions are more than 2000 lbs/megawatt-hour.

[~~76~~156] See page 12 of the *Prepared Rebuttal Testimony of San Diego Gas & Electric Company – J. Strack*, in the CPUC's Application No. 06-08-010 for the Sunrise Powerlink Transmission project, June 25, 2007.

[~~77~~157] See Powers, Bill, *Assessment of Energy Intensity and CO2 Emissions Associated with Water Supply Options for San Diego County*, October 12, 2007.

[158] **See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at pp. 23-24.**

~~rates,~~ to establish Poseidon's 200 million pound contribution to greenhouse gas emissions.[~~78~~159] ~~Based on the above, the Commission believes the basis of Commission staff's calculations are an appropriate, if not a low, estimate of carbon dioxide emissions resulting from Poseidon's proposed electricity use. Even so, because SDG&E reports its overall emission rate on an annual basis and that rate changes based on the particular mix of electricity sources SDG&E uses each year, the rate that would be used to determine Poseidon's greenhouse gas contributions each year is at this point unknown but will be determined through Commission review and approval of Poseidon's *Energy Minimization and Greenhouse Gas Reduction Plan* as described later in these Findings.~~ **Poseidon disagrees, stating that Commission staff did not follow the CCAR protocol or rely on the CCAR certified SDG&E emissions factor.[160] Because CCAR is indeed the only state agency that is authorized by the California State Legislature to establish protocols for establishing carbon emission baselines, Poseidon contends that the Commission staff's analysis is in error.**

In its October 21, 2007 memorandum, Exhibit D to its November 9, 2007 letter to the Commission, and in its ~~November 15, 2007~~ presentation to the Commission **at the November 15, 2007 hearing**, Poseidon presented its **voluntary** proposal to offset or reduce the proposed project's energy use and greenhouse gas production so that the facility's operations would be net carbon neutral. Poseidon states that it will develop a Climate Action Plan that **(1) would ensure the project minimizes energy consumption in compliance with Coastal Act Section 30253(4), and (2) would voluntarily render the project net carbon neutral. Poseidon's Climate Action Plan** may include the following, which are described in more detail below:

Energy ~~m~~Minimization ~~m~~Measures:

- Installing a state-of-the-art high efficiency energy recovery system~~, including improved energy efficiency for the proposed project that would~~ **that will** decrease the **amount of energy required by the** facility~~'s expected electrical demand~~ by **10% or** about ~~10% of 433 kilowatt-hours per acre-foot~~**433 kWh/AF**.

- Evaluating the proposed project through a LEED-type process, and implementing as many of the LEED Checklist items as feasible ("LEED" is the "Leadership in Energy and Environmental Design" program).

- Installing variable- frequency drives on the desalination facility's intake water pumps to improve their energy- efficiency.

[~~78~~159] Using the next higher credible estimate (1100 pounds per megawatt-hour) would result in Poseidon's emissions being closer to 300,000,000 pounds per year.

[160] **See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at pp. 23-24.**

- ~~Installing~~**Installation of** low-friction piping materials (e.g., FRP and HDPE) where**ver** possible to reduce head losses and related energy consumption ~~needed to move water~~ through the pip~~eline~~**esg**.

Carbon ~~n~~Neutrality ~~m~~Measures:

- Acquiring renewable power ~~by installing solar photovoltaic~~**through installation of PV array** and other renewable ~~energy~~ sources.
- Acquiring Renewable Energy Credits (RECs) or purchasing carbon offset projects.
- Restoring and preserving coastal wetlands for carbon sequestration.
- Providing $1 million worth of trees ~~to reforest burned areas~~**for reforestation** in the San Diego area.

(4)

As noted previously, Poseidon initially estimated that its facility would require 4,833 kilowatt-hours of electricity to produce each acre-foot of potable water (kWh/AF) and transport that water to delivery points in Carlsbad and ~~nearby communities~~**elsewhere**. This figure would otherwise be somewhat higher – about 5,990 kWh/AF – however, Poseidon plans to use an energy recovery turbine to reduce electricity demand by about 1,103 kWh/AF. Poseidon is also exploring the use of a relatively new energy recovery device known as a pressure exchanger, which it expects could reduce electrical use by an additional 10%. This would result in electrical usage of about 4,400 kWh/AF and would reduce Poseidon's expected carbon dioxide emissions to ~~about~~**somewhat greater than** 200 million pounds ~~per year~~**(90,000 metric tonnes) per year according to Commission staff's calculations, or 134 million pounds (61,000 metric tonnes) per year per CCAR**. It would clearly be to Poseidon's advantage to use any cost-effective energy efficiency devices available to reduce its operating costs, and ~~although~~ Poseidon has ~~not yet~~ committed to use this device, **and** the emission estimates in these Findings ~~already~~ credit Poseidon with the emission reductions that would result from its use.

Poseidon is also exploring a number of other energy efficiency measures, including installing variable speed pumps, installing high efficiency lighting and motors throughout the facility, and using low-friction piping material and installing larger diameter piping where possible. It is proposing to implement as many LEED items as feasible, including providing bicycle storage, using water efficient landscaping, providing recycling capability, using low-emission adhesives and sealants, etc. It is also considering installing a rooftop solar energy system. The Commission supports Poseidon's proposed use of the LEED guidelines, as implementing LEED-related measures would likely provide numerous benefits; however, those guidelines would not result in significantly lower emissions from Poseidon's anticipated electrical use. Further, Poseidon has not yet committed to these measures.

Poseidon also states that it could further reduce its energy use by operating at 80% capacity during the eight hours per day of peak electricity demand and then operate at 108% of its average capacity during the remaining hours each day.[~~79~~161] This proposed operating scenario, however, would not necessarily reduce energy use or emissions; it would instead shift energy use from one time of day to another. This would be beneficial in that it would lower Poseidon's electricity costs and reduce demand on the electricity grid during those peak hours, but Poseidon would still produce about the same amount of water each day requiring the same amount of electricity for each acre-foot.

Poseidon further contends it should be credited with emission reductions because its project would result in less water being transported to the San Diego region from the State Water Project. Although the State Water Project emits fewer emissions per acre-foot than Poseidon's project would, applying a credit for this foregone use would lower Poseidon's overall greenhouse gas contributions by about 4~~0~~77% (i.e., the difference between Poseidon's 4400 kilowatt-hour per acre-foot energy use and the State Water Project's 3400 kilowatt-hour per acre-foot).[162] Poseidon states that the Carlsbad facility will supply 56,000 acre-feet of water per year to the San Diego region, water that would otherwise have to be pumped into the region through either the State Water Project or the Colorado River Aqueduct. Poseidon further ~~contends~~**provides**, as stated by all Carlsbad desalination project water agency partners in letters to the State Lands Commission dated November 6 and November 7, 2007, which were also provided to the Coastal Commission, that water from the desalination plant will provide direct, one-for-one replacement of imported water to meet the requirements of their Urban Water Management Plans, thus eliminating the need to pump 56,000 acre feet of water into the region.[~~80~~163] Conversely, ~~Poseidon contends that~~ if the project is not approved the demand for imported water by the eight public water agencies will increase by 56,000 AF/Y starting in 2010. Additionally, ~~the~~ Metropolitan Water District of Southern California (MWD) has committed to pay Poseidon's customers $250/AF for each acre-foot of water purchased from the project that offsets a demand on MWD. The availability of MWD funding is subject to annual audit demonstrating that the desalinated water was used to offset a demand for imported water that would otherwise have to be delivered by MWD. Poseidon concludes that, if the replaced water is pumped into the region for other uses, then the associated carbon emissions from such pumping should be and is the responsibility of the proponents of those other uses. ~~Poseidon asserts that any~~**Any** other result

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[~~79~~161] An annual daily average of 50 MGD equals 2,083,333 million gallons per hour. Operating at 80% capacity for eight hours would produce about 16.6 million gallons, and operating at 108% capacity for sixteen hours would produce about 33.3 million gallons, for an overall total of about 49.9 MGD. Since the energy required to produce each acre-foot is about 4400 kilowatt-hours, the overall energy difference between continual production of 50 MGD (153.4 AF) and variable production of 49.9 MGD (153.1 AF) would be minimal.

[162] **See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. D (Climate Action Plan) at p. 4.**

[~~80~~163] See Poseidon Resources Corporation. Letter to Paul Thayer Re: Desalination Project~~'~~s Impact on Imported Water Use, November 8, 2007, including attachments from eight water agencies.

would be an unfair and unwarranted "double counting" of carbon emissions, requiring Poseidon to offset emissions caused by other activities not associated with its own operations.[~~81~~164]

For several reasons, however, the Commission ~~finds~~**staff believes** this "crediting" approach does not appear warranted. First, Poseidon's proposed ~~"crediting" is not based on verifiable reductions in greenhouse gas emissions, but on speculative changes in water delivery. Poseidon's proposed~~ project does not ensure a decrease in imported water supplies ~~from the State Water Project or to the San Diego Region.~~[~~82~~]**to the San Diego Region.**[165] Other factors may contribute to such a decrease – e.g., supply cutbacks imposed by court order, a shift in water prices, etc. – but Poseidon's project itself does not include measures that would implement such a decrease, such as retiring distant water rights or assigning water rights to instream uses. ~~Similarly, other factors out of Poseidon's control and not part of its proposal could result in increased water imports to the region – e.g., price changes, increased availability of agricultural water for urban use, etc. – which would result in any "credits" to Poseidon being based on increased rather than decreased emissions from imported water.~~ Poseidon acknowledges that the State Water Project would continue to pump available water to Southern California users, but then argues that it should still be credited for what would then be a non-existent reduction in emissions. Additionally, because Poseidon's water would be more expensive than imported sources, available imported water would likely remain the water of choice for most users ~~in the region~~, and so Poseidon's project would not likely affect the cost preference for imported water (e.g., the San Diego County Water Authority has contracted with the Imperial Irrigation District for up to 200,000 acre-feet per year – about 175 MGD – at less than $300 per acre-foot). Further, much of the water imported to San Diego comes from the Colorado River, which requires about a third less electricity than water imported from the State Water Project (approximately 2,000 kilowatt-hours per acre-foot versus ~~3,400~~**3,100** kilowatt-hours per acre-foot), so even if "crediting" was appropriate, it would ~~likely~~ be at a much lower level than Poseidon proposes. ~~All these factors result in a high degree of uncertainty as to if or when Poseidon's "crediting" approach would be based on, or would contribute to, a reduction of emissions.~~

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Poseidon further contends that its project should be seen as part of a proposed regional water supply portfolio that would result in an overall reduction of electrical use and greenhouse gas emissions from the area's water use. Poseidon states that the planned shift in the San Diego region's water portfolio – using less imported water, gaining water through conservation, recycling, and canal lining projects, using seawater desalination, etc. – will result in an overall 19% reduction in the energy use per acre-foot now used for the region's water supply. ~~However, while~~**While** such a shift would likely reduce overall electrical use and emissions, those measures are not a part of Poseidon's proposal and those components of the proposed future portfolio would not reduce Poseidon's ~~200 million pounds of~~ carbon dioxide emissions. ~~Further, seawater~~

[~~81~~164] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at p. 24.

[~~82~~165] We note that the San Diego County Water Authority continues to seek out additional imported water sources that would be used regardless of Poseidon's project.

~~desalination would represent the most energy-intensive of the water sources identified in the portfolio; therefore, using imported water or any other sources instead of seawater desalination would result in the portfolio have even lower overall energy usage and lower greenhouse gas emissions.~~

In sum, ~~and with or without the speculative and potential changes in water delivery described above~~**in Commission staff's view**, the electrical demand of Poseidon's proposed project~~, which is the current proposal before the Commission,~~ would contribute ~~approximately~~**no less than** 200 million pounds **(90,000 metric tonnes)** of carbon dioxide annually. ~~However, to mitigate the effects of these emissions on coastal resources,~~ **, and Poseidon's calculations, based on the CCAR protocol, estimate approximately 134,400,000 pounds (61,000 metric tonnes) of carbon dioxide emissions annually.** Poseidon and **the** Commission staff will consult with CCAR~~, the California Air Resources Board,~~ **and CARB** and other agencies to ensure that the carbon emissions will be neutralized regardless of the actual output, and **Special Condition 10** will ~~ensure that the Commission can review and approve a revised submittal from Poseidon to assure emissions resulting from~~**assure that all net greenhouse gas emissions will be offset.** ①

As described above, Poseidon's Climate Action Plan presents a variety of measures it is exploring to reduce the plant's energy consumption, in compliance with Coastal Act Section 30253(4). Although the Plan does not currently commit to specific energy minimization measures, Poseidon is still exploring its options in regard to energy minimization, and the Plan does commit to specific energy reductions. ④

To ensure Poseidon's proposal will minimize energy consumption in conformance with Coastal Act Section 30253(4), Special Condition 10 requires Poseidon, prior to issuance of its coastal development permit, to submit to the Commission for review and approval a revised Energy Minimization and Greenhouse Gas Reduction Plan. That Plan is to be developed in conjunction with Coastal Commission staff and staff of other interested agencies and is to describe the procedures and mitigation measures that will be implemented to minimize energy consumption of the desalination facility~~'s electrical demand will be offset~~.

~~Poseidon states that it will develop a plan to reduce the facility's energy consumption and to identify other energy minimization and greenhouse gas reduction measures. The Plan may include several types of "offsets", such as:~~
As noted above, Poseidon's Climate Action Plan further voluntarily provides a commitment that Poseidon will render the project "net carbon neutral" through measures including:

- Acquiring Renewable Energy Credits (RECs)
- Purchasing carbon offset projects
- Restoring and preserving coastal wetlands for carbon sequestration

- Providing $1 million worth of trees for reforestation in the San Diego area.

Poseidon states that it would consider purchasing RECs, which are credits bought and sold in an open market and used to fund renewable energy sources. For example, a renewable energy provider can be credited with one REC for every megawatt it produces, and can sell its RECs to make up some of the difference between the generally higher-cost energy produced from the renewable source and the generally lower-cost energy produced by a conventional fossil fuel source.[~~83~~166] Carbon offsets are similar, in that they can be purchased through various market systems – non-profit or for-profit organizations, formal trading systems, etc. – and used for projects that reduce atmospheric carbon, such as energy conservation projects, methane capture, reforestation, etc. One method of offsetting carbon emissions involves sequestering carbon in growing plants, either through reforestation, or as Poseidon describes, through restoring and preserving coastal wetlands.[84] As part of its proposal, Poseidon has committed to purchase one million dollars worth of native and non-invasive trees to be planted in areas of San Diego County that were burned during the October 2007 wildfires. However, Poseidon has not provided further details about the type or amount of emission credits it would purchase or what kinds of emission reduction projects it would undertake. An additional concern is that there are only limited methods currently available for offsetting emissions, and it may be necessary to commit those offsetting measures to existing and critically needed facilities rather than a proposed and highly energy-intensive use such as this desalination facility. ~~Further, rather than use offsets, Poseidon would be better able to conform to the Coastal Act Section 30253(4) requirement by including with its proposed project an energy conservation plan that commits to specific measures it will take to minimize energy use and its associated greenhouse gas emissions. A plan focusing on onsite and offsite energy conservation measures that result in an annual 200 million pound decrease in carbon dioxide emissions would be most closely related to Section 30253(4)'s mandate to minimize energy use. If those measures are inadequate, the plan could then provide offsets for the remaining emissions.~~

~~Conclusion~~

To ensure Poseidon's proposal will avoid and offset the adverse coastal resource impacts noted above ~~and will conform to applicable Coastal Act provisions~~, **Special Condition 10** requires Poseidon, prior to issuance of its coastal development permit, to submit to the Commission for review and approval a revised Energy Minimization and Greenhouse Gas Reduction Plan. That

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[~~83~~166] Recent REC prices have ranged from about $5 to $90 per megawatt-hour, with an average cost in 2006 of about $20 (see U.S. Department of Energy, Energy Efficiency and Renewable Energy website at: http://www.eere.energy.gov/greenpower/markets/certificates.shtml?page=1). Based on the average 2006 cost, offsetting Poseidon's anticipated use of 250,000 megawatt-hours per year would require it to purchase $5 million worth of RECs, equal to about $90 for each acre-foot of water it produced.

[84] ~~To provide a comparison, the U.S. EPA and U.S. Agency for International Development Climate Technology website calculates that sequestering 200,000,000 pounds of annual carbon emissions each year requires about 75,000 acres of growing forest (see www.usctcgateway.net).~~

Plan is to be developed in conjunction with Coastal Commission staff and staff of other interested agencies and is to describe the procedures and mitigation measures that will be implemented to determine the amount of carbon dioxide emitted due to Poseidon's electrical use and to ensure that that project operations are "net carbon neutral". These may include measures described above and others, such as confirmed use of renewable energy sources like solar or wind power that would reduce the project's carbon footprint.

Conclusion

Special Condition 10 requires Poseidon to submit to the Commission for review and approval a Revised Energy Minimization and Greenhouse Gas Reduction Plan that addresses comments submitted by the staffs of the Commission, State Lands Commission and the Air Resources Board prior to issuance of the permit. The Commission finds that imposition of **Special Condition 10** will ensure that Poseidon minimizes energy consumption of the project and mitigates any effects of the project's emissions on coastal resources. ~~Therefore~~ **and that**, as mitigated ~~and conditioned~~, the project is consistent with the requirements of Section ~~30253(4) and other relevant Coastal Act provisions.~~**30253.** The proposed project is meant in part to respond to the threat of drought and dwindling water supplies, and with adequate minimization and compensatory mitigation measures, the project will help achieve those goals. Poseidon's revised plan shall establish that the project will avoid, minimize, or mitigate adverse impacts to a wide range of coastal resources~~, including public access, recreation, marine resources, wetlands, ESHA, agriculture, natural land forms, and existing development associated with its minimized and mitigated energy consumption~~. Based on the above, the Commission finds that the project, as conditioned, will conform to Coastal Act provisions related to minimizing energy use and ~~mitigating~~ any adverse effects on coastal resources from greenhouse gas emissions.

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4.5.6 ~~4.5.6~~ Development and Public Services (Coastal Act Sections 30250 and 30254)

Coastal Act Section 30250(a) states:

> *New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels.*

Coastal Act Section 30254 states:

> *New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural areas of the coastal zone remain a scenic two-lane road. Special districts shall not be formed or expanded except where assessment for, and provision of, the service would not induce new development inconsistent with this division. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal-dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.*

Coastal Act Section 30250(a) generally requires that new industrial development, such as the proposed project, be sited in developed areas able to accommodate it or in areas with adequate public services and where it will not result in significant adverse effects to coastal resources. The facility would be located on an existing industrial site in an area with public services provided. Coastal Act Section 30254 requires in part that development not preclude public works facilities able to accommodate only limited new development from providing essential public services. Taken together, these policies are meant to ensure, in part, that new development not outpace the ability of communities to provide necessary public services and that development be supportive of other coastal resources.

The project's capacity of 56,000 ~~acre-feet per year~~**AFY** of new water supply for the San Diego region ~~would represent a substantial portion of the future supply portfolio identified in~~**is about ten percent of 500,000 AFY of desalinated water identified by the California Department of Water Resources as needed by 2030, as stated in its 2006 Water Plan Update. This Update lists the project as a potential source of desalinated water. The Metropolitan Water District of Southern California's Integrated Water Resources Plan identified a need for 250,000 AFY of seawater desalination (including 56,000 AFY from the Carlsbad project) to ensure regional water supply reliability. In addition,** the San Diego County Water Authority~~'s~~ updated **its 2005** Urban Water Management Plan ~~and would be a component of the future supply portfolio anticipated by the Metropolitan Water District of Southern California.~~**in April 2007 specifically to reaffirm the need for 56,000 AFY of seawater desalination from the project by 2011. The project is a central component of state, regional and local water supply planning to meet already-identified demand.** ⑥

The only city within the coastal zone that the project will serve with drinking water is Carlsbad. All other entities that have contracted to purchase water from the project will utilize the water outside of the coastal zone. The City of Carlsbad has adopted a Growth Management Plan that aggressively manages and controls growth in Carlsbad. *See* Carlsbad Municipal Code Title 21, Chapter 90, Growth Management; Carlsbad General Plan, Land Use Element. The Plan caps existing and future development and the maximum size of Carlsbad at 54,600 dwelling units. Carlsbad Municipal Code § 21.90.185. The Plan was approved by Carlsbad voters in November 1986 and cannot be revised without a new vote. Thus, the availability of water from the project cannot and will not

induce growth beyond Carlsbad's and the region's limited, already planned growth and the project complies with Coastal Act Sections 30250(a) and 30254.[167]

The proposed project conforms to Sections 30250(a) and 30254 because ~~its~~**any** adverse effects to coastal resources will be mitigated as described in other sections of these Findings. ~~These effects include the project's adverse entrainment and impingement impacts, its "take" of marine life, its discharge-related effects to coastal water quality, and the effects of its greenhouse gas emissions on coastal resources, all of which will be addressed through mitigation plans that further Commission review and approval will ensure conformity to applicable Coastal Act policies~~. Regarding growth implications, the Commission finds that ~~while the project itself does not include information needed to determine the expected rate or location of growth associated with its water production,~~ the project will not induce growth since Poseidon will be selling **almost all of** its produced water to various public water districts. In this instance, ~~it is the~~ use of that water by those districts ~~that will determine growth, which~~ will be subject to the applicable current and future growth plans, allowable levels of build-out, and conservation plans adopted by those districts or by the local jurisdictions they serve. The project would provide ~~an additional source of water in a region that currently depends on~~**a significant percentage of the water supply that the California Department of Water Resources has already identified as needed in the area. The project does nothing to induce growth, but rather, concentrates on providing a secure water supply for a region** importing ~~about~~ 85% of its water supply from sources that **are threatened and** may be diminished in the future. **Accordingly, the project is a needed component of and is consistent with state, regional and local water supply planning to meet an already-identified demand.** As described herein and with the imposition of **the** Special Conditions, the project is therefore not expected to adversely affect coastal resources or induce growth in a manner inconsistent with Coastal Act Sections 30250 and 30254. ⑥

Conclusion

Based on the above, the Commission finds that the project ~~as proposed and conditioned~~ will not ~~induce~~**have** growth ~~within~~ **inducing impacts in** the coastal zone**,** and**, as proposed and conditioned** conforms to Coastal Act Sections 30250 and 30254.

4.5.7 ~~4.5.7~~ Coastal-Dependent "Override" (Coastal Act Section 30260)

Coastal Act Section 30101 states:

> *"Coastal-dependent development or use" means any development or use which requires a site on, or adjacent to, the sea to be able to function at all.*

Coastal Act Section 30260 states:

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[167] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at p. 27. ⑥

> *Coastal-dependent industrial facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with this division. However, where new or expanded coastal-dependent industrial facilities cannot feasibly be accommodated consistent with other policies of this division, they may nonetheless be permitted in accordance with this section and Sections 30261 and 30262 if (1) alternative locations are infeasible or more environmentally damaging; (2) to do otherwise would adversely affect the public welfare; and (3) adverse environmental effects are mitigated to the maximum extent feasible.*

Coastal Act Section 30260 provides for special consideration of coastal-dependent industrial facilities that may otherwise be found inconsistent with the Coastal Act's Chapter 3 policies. Such coastal-dependent proposals must first be evaluated for consistency to all other applicable policies and standards contained in Chapter 3. If a proposal is found to be inconsistent with any Chapter 3 policy, Section 30260 provides that it may be approved, notwithstanding its inconsistencies with those other policies, but only upon application of a three-part test – (1) that alternative locations are infeasible or more environmentally damaging; (2) that adverse environmental effects are mitigated to the maximum extent feasible; and (3) that to do otherwise (i.e., to deny the project) would adversely affect the public welfare.

Poseidon's proposed seawater desalination facility would be a coastal-dependent industrial facility, as it would need to be sited on or adjacent to the sea in order to function at all. ~~Additionally, as~~**As** determined previously in these findings, the Commission has found that the proposed project would ~~not~~ conform to **all applicable policies in** the ~~allowable use criteria of Coastal Act Section 30233(c)~~**Coastal Act. Thus, the Commission may approve the CDP without reaching the Coastal Act "override" section, Section 30260. Nonetheless, even if the project were not consistent with all relevant Coastal Act policies,** because the proposal would be a coastal-dependent industrial facility, the Commission may apply Section 30260 to "override" ~~those~~**any** inconsistencies and nonetheless approve the project if the three tests of Section 30260 can be met. Each of the three tests is applied below.

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Test 1 – Alternative Locations are Infeasible or More Environmentally Damaging

Under Section 30260, the project can be approved if the Commission finds there are no alternative locations that would lessen the project's environmental impacts ~~caused by the project's nonconformity to the use prohibitions of Section 30233(c)~~. Previously in Section 4.5.1 of these Findings, the Commission found that there are no feasible alternative locations that would significantly reduce **any** impacts of the proposed intake and the outfall.

Based on the analysis provided previously in these Findings, the Commission finds that there are no feasible and less environmentally damaging alternative locations available for the project's seawater intake and discharge components and that the proposed project meets the first test of Section 30260.

Test 2 – Adverse environmental effects are minimized to the maximum extent feasible

Section 30260's second test requires that a proposed project include maximum feasible mitigation measures ~~to address its nonconformity to the use limitations of Section 30233(c)~~. Poseidon's proposal meets this test of Section 30260 through imposition of ~~several **Special Conditions** meant to protect marine life and water quality and to minimize the project's effects of coastal resources due to its contributions to global warming, including~~ **Special Conditions 4 (Other Agency Approvals), 8 (Marine Life Mitigation Plan), 9 (Seawater Withdrawal), 10 (Energy Minimization and Greenhouse Gas Reduction Plan)~~,~~; 11 (Public Access), 12 (Dredging), 13 (Visual Resources), 15 (Construction Plan), 16 (~~Stormwater~~Storm Water Pollution Prevention Plan)~~, and 17 (Water Quality). These **Special Conditions**~~ **and 17 (Water Quality), which, among other protections, impose requirements that Poseidon implement mitigation measures that will minimize potential adverse environmental effects to the maximum extent feasible. Those conditions** will, among other things, require Poseidon to ~~implement measures that will mitigate the project's adverse effects on coastal resources to the maximum extent feasible. These include requirements that~~**:** (1) prior to issuance of a coastal development permit, ~~Poseidon~~ submit to and obtain from the Commission approval of a Marine Life Mitigation Plan **in the form of an amendment to the CDP that will not only fully mitigate project-impacts, which were conservatively estimated and did not take into account the persistence of abundant and diverse marine life in Agua Hedionda after 50 years of EPS intake operations, but will also significantly enhance the marine environment by creating habitats for species unaffected in any manner by intake flows**; (2) prior to issuance of a coastal development permit, ~~Poseidon~~ submit to and obtain from the Commission **approval of** a revised Energy Minimization and Greenhouse Gas Reduction Plan ~~that~~**, which** will reduce ~~and offset~~ the project's ~~greenhouse~~**green house** gas emissions to the maximum extent feasible **through Poseidon's voluntary agreement that the project will be net carbon neutral**; and~~,~~ (3) submit **a** separate ~~coastal development permit applications for any~~**CDP to the Commission for** future ~~proposed~~ dredging of ~~Agua Hedionda~~**the Lagoon** to ensure the Commission can determine whether the proposed dredging would be consistent with the Coastal Act. ~~The Special Conditions also require that Poseidon submit for Executive Director review and approval a construction plan, stormwater control plan, and water quality technical report, all of which are to specify measures that will be implemented to avoid or minimize adverse water quality and marine life impacts. These conditions, as well as other mitigation measures identified in the project EIR, will ensure that~~ **Poseidon contends that any maintenance dredging in the Lagoon will prevent the Lagoon from closing due to sedimentation from urban run-off. Thus, future maintenance dredging of the Lagoon will serve to enhance the marine environment and is consistent with Coastal Act Section 30233(c). Together, the Special Conditions mitigate to the maximum extent feasible the project's impacts to marine life, and will mitigate the impacts resulting from** Poseidon's nonconformity to Coastal Act Section 30233(c) ~~and the resulting adverse effects on the estuary, marine life, and water quality, are mitigated to the maximum extent feasible.~~**, which requires that activities "maintain or enhance the functional capacity" of wetlands and estuaries.**

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Based on the above and on the previous Findings herein, the Commission finds that the proposed project as conditioned mitigates its impacts to the maximum extent feasible and that it meets the second test of Section 30260.

Test 3 – To not permit the development would adversely affect public welfare

Section 30260's final test provides that coastal-dependent industrial development may be permitted if to do otherwise would adversely affect the public welfare. This test requires more than a finding that, on balance, a project as proposed is in the interest of the public. It requires that the Commission find that there would be a detriment to the public welfare were the Commission to deny the project. The Commission recognizes that it is clearly in the interest of the San Diego region to develop local and reliable water sources and that seawater desalination is a part of this portfolio.

For **the** reasons below, the Commission finds that denial of the proposed project is not in the public interest.

- **Effects of environmental impacts on public welfare:** As shown previously in Section ~~4.5.2 of these Findings,~~**4.5.2,** use of the intake ~~is not an allowable use of~~**and any maintenance dredging will serve to benefit** Agua Hedionda Lagoon and would ~~not~~ conform to Section 30233(c).

  ~~However, through~~**Through** imposition of **Special Conditions 4, 8, 9, 10, 12, 15, ~~16,~~16 and 17**, the Commission finds that the project as mitigated will address the need to improve marine life productivity and will therefore be consistent with the goals of Section 30233(c) to maintain and enhance productivity. ~~The lagoon~~**In addition, the imposition of Special Condition 12 requires Poseidon to obtain separate coastal development permits for any proposed future dredging activities in the Lagoon. The Lagoon** also provides many beneficial uses to the public that this project will support through continued and increased opportunities for public access, ongoing use for marine life science and research, and others. ~~Additionally, **Special Condition 12** requires Poseidon to obtain separate coastal development permits for any proposed future dredging activities in the lagoon, which will ensure those activities conform to applicable Coastal Act provisions.~~

- **Need for the Project:** The project would provide an important and much-needed source of potable water for Southern California. Poseidon provided the Commission with newspaper reports that recognize an increased need for water in Southern California, and more specifically San Diego County, and an interest within the County to reduce demands for imported water supplies.[~~85~~168]

[~~85~~168] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A, at p. 5.

Concerns about global warming, changing weather patterns, and the resulting potential reductions in California's water supplies have created a strong interest in developing other sources of water, including conservation, recycling, and desalination. Two recent examples of reduced imported water supplies include the May 2007 temporary shutdown of pumps in the Sacramento-San Joaquin Delta that provide a substantial portion of Southern California's water supply,[~~86~~169] and the 2007 announcement by the Metropolitan Water District that it will cut agricultural water deliveries to San Diego County by 30 percent beginning January 1, 2008. With $1.4 billion in annual revenue, San Diego County is the twelfth largest agricultural economy among all counties in the nation, and it could be severely harmed by this reduction in water supply. The Metropolitan Water District also has warned municipal and industrial water users to anticipate water rationing if 2008 – like preceding years – is a dry year. Rationing of municipal and industrial supplies could be highly disruptive to San Diego's $150 billion annual economy.[~~87~~170]

Moreover, a number of State, regional, and local water plans identify seawater desalination, along with conservation and recycling, as part of anticipated future water portfolios. For example, the Metropolitan Water District's Integrated Water Resources Plan identified up to 150,000 AFY of seawater desalination as part of its regional water supply reliability, and the San Diego County Water Authority's April 2007 update of its 2005 Urban Water Management Plan identified the need for 56,000 AFY of seawater desalination by 2011.

Recognizing the importance of the project, eight water agencies – Carlsbad Municipal Water District, Valley Center Municipal Water District, Rincon del Diablo Municipal Water District, Sweetwater Authority, Rainbow Municipal Water District, Santa Fe Irrigation District, Vallecitos Water District, and Olivenhain Municipal Water District – have already contracted to purchase 100% of the project's capacity, and have identified the project's water supply as a component of their water plans.[~~88~~171]

- **Public welfare as applied to public or private water supplies:** As noted in the Commission's 2004 report, Seawater Desalination and the California Coastal Act:

  A fundamental Coastal Act principle is that many coastal resources are imbued with a public interest and value that must be vigorously protected for the benefit of current and future generations. Unlike many coastal resources that are privately owned, ocean water, and the uses and values it embodies, constitute a public trust resource held in common for public use and enjoyment. This principle is codified in numerous federal and state laws and regulations, including the Coastal Act... Notwithstanding the public nature of coastal ocean waters, use of such waters and of living and non-

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[~~86~~169] See *id.*

[~~87~~170] See *id.*

[~~88~~171] See *id.* at p. 6-7.

living resources in and under them have historically been allowed for non-public purposes.

Ocean water serves a number of beneficial uses and vital environmental, social, and economic functions. It is part of the shared public "commons", it serves as habitat for a multitude of species, it is a source of food and livelihood for society, and it is used to support transportation, commerce, recreation, and other important societal uses. For the most part, these uses are non-consumptive and sustainable, in that using ocean water for one of these purposes does not necessarily impair its ability to be used for others.

Privatization of water supplies, in and of itself, may not cause effects on coastal resources different than those caused by a public agency. Most differences would be due to how each type of entity implements its water use. Both public and private projects may include particular characteristics that change how they affect resources and how they meet the public interest. Further, California has recognized there is a role for private water purveyors and for providers of other basic utilities such as gas and electricity. The state has a system to regulate public and private utilities to ensure that public interests are being met.

Private entities can clearly bring benefits to public agencies. One of the benefits stated by the public agencies involved with Poseidon's proposed project is that Poseidon is willing to provide the initial capital investment and obtain the approvals needed to build and operate the facility, which can represent a significant savings to public agencies. However, this benefit comes with risks and costs, as noted by the Commission in previous decisions.

The Commission in the past has both approved and denied proposed private desalination facilities. For example, it approved a privately-owned facility on Catalina Island in part because there were no feasible alternatives for the proposal. In 1994, the Commission denied construction of a private desalination facility (A-3-SNC-94-008-E2, Sterling Center in the City of Sand City) based in part that it would result in fragmentation of public works facilities. In 1995, the Commission's Findings for an adopted LCP amendment to the Santa Barbara Coastal Program stated: "Private desalination facilities also raise the basic policy question of the effect of allowing the proliferation of privately owned and operated water supply facilities on the ability to comprehensively plan for the provision of essential public services". Those Findings go on to express concerns about the abilities of private owners to operate and be accountable for desalination operations, to mitigate associated impacts, to maintain the facility in a manner necessary for public health and environmental safety, and other issues. The Findings also state that proliferation of private desalination facilities could fragment public utility services. [172] They conclude by stating that proliferation of such facilities where consolidation is feasible is

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[172] **However, the San Diego County Water Authority supports the desalination facility and passed a resolution on June 28, 2007 in support of the Project finding that "The Carlsbad Desalination Project is essential to the Water Authority's ability to achieve the supply diversification goals contained in the 2005 UWMP [Urban Water Management Plan]."**

(5)

inconsistent with the Coastal Act. In 1997, the Commission found in its consideration of a LUP update in San Luis Obispo County that a proposed desalination facility would be inconsistent with Coastal Act policies because it would provide for continued urban development that could not be supported by existing water supplies.

The recent history of privatizing water services has identified some of these risks and has resulted in some key questions about such proposals: Will there be adequate public oversight and monitoring, and transparency in decision-making and financial issues?; What measures will ensure that ecosystem values are protected?; How will privatization affect initiatives related to water-use efficiency and conservation?; and, What happens if it doesn't work?[~~89~~173]

Regarding transparency in decision-making and financial issues, both the State Desalination Task Force and the California Resources Agency have recognized that private desalination proponents should disclose the same information as that disclosed by public entities.[~~90~~174] Public water districts are required by law to publish financial statements that disclose the basis of a district's revenues, costs, cash flow, and other basic economic data that describe the financial health of the district. These statements are public documents and serve to inform the public about the basis for a district's rates, the need for additional funding for various projects, etc. Many districts provide this information on their websites, along with meeting agendas, meeting minutes, information about health and safety-related characteristics of their water supplies, and other information useful to the public to find out about its water and about the important decisions to be made about its water supply. Poseidon's water purchase agreements with the eight water districts that have agreed to purchase water **from the project** are public documents ~~and~~**, which** provide the public with ~~some~~ transparency ~~about~~**regarding** the project's financial relationship**s** with the districts.[175]

~~In a recent news article (November 11, 2007, in the North County Times), Poseidon stated that it will operate at a loss until the cost of imported water exceeds that of its desalinated water, which it now believes will cost up to $1050 per acre-foot. Given the cost trends and concerns identified previously in Section 2.2 of these Findings, it is not apparent that the cost of imported water and desalinated water will converge any time soon.~~ However, as noted previously in Section 4.2 of these Findings, Poseidon's contracts with the Carlsbad Municipal Water District provide that the Water District could assume operation or ownership of the facility if necessary~~. Further~~**, and** Poseidon is required to post securities to ensure site remediation or removal of the facility, if warranted. Additionally, Poseidon's water purchase agreements with the various public water districts primarily obligate the purchasers to buy up to a certain amount of water at a specified

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[~~89~~173] See the Pacific Institute's report, *The New Economy of Water: The Risks and Benefits of Globalization and Privatization of Fresh Water*, February 2002.

[~~90~~174] See State Desalination Task Force recommendations and March 15, 2004 letter from Resources Secretary Mike Chrisman to Coastal Commission.

[175] **See Reporter's Transcript of Proceedings, Application No. E-06-013, November 15, 2007, Agenda Item No. 7.a., at p. 275-276.**

price. Decisions about use and distribution of that water will remain the purview of these public water districts. ~~Further, as noted above, because those water purchase agreements are public documents, the interested public may obtain information about the project's financial relationship with those public agencies.~~

(5)

Overall, however, the Commission recognizes the importance and the urgency in providing a reliable water supply in the San Diego region during a time of declining availability of imported water and a time of significant fiscal constraints on public water agencies. Even with regional initiatives to emphasize water conservation and to reuse existing supplies, the population and economy of the San Diego area is heavily reliant on maintaining and creating adequate water supplies such as the supply created by this facility. Further, this facility's initial development and construction costs, which are expected to exceed $300 million, will be borne directly by a willing private entity rather than by the water districts that have agreed to purchase the water produced at the facility. ~~Even with the expected purchase prices at over $1400 per acre-foot,~~ **and** the districts' ratepayers ~~are expected to~~**will** benefit from this water supply at a lower cost than had the districts needed to pay directly for the facility's development and construction**. Further, as noted above, the San Diego County Water Authority withdrew its proposal to construct a desalination facility at this site, leaving Poseidon as the only entity willing to undertake construction and operation**. The Commission therefore finds in this case that it is in the public interest to allow private development of a portion of the region's water supply.

- **The combination of this facility and other alternatives provide for the public welfare:** The Commission also believes that in combination with a well-designed desalination facility that conforms to Coastal Act provisions, other water sources are available to provide a local and reliable water supply. These other sources, including conservation, recycling, and others, are feasible, less environmentally damaging, and are already being done to some degree in the San Diego area and elsewhere.

  Regarding conservation, it is considered the least expensive and often the least environmentally damaging type of local water supply. Water users and providers in the San Diego region have already implemented a number of effective conservation measures to increase the local water supply and have recognized it as a necessary part of the regional water portfolio. For example, the San Diego County Water Authority's May 2007 draft *Blueprint for Water Conservation* states that conservation is the cheapest form of new water supplies and shows that it expects conservation to go from providing about seven percent of the region's supply (about 51,000 acre-feet per year) to about twelve percent (100,000 acre-feet per year) by 2030. As noted previously in these Findings, the Blueprint also shows that seawater desalination is expected to provide about ten percent (89,000 acre-feet per year) of the regional supply by 2030. Similarly, in March 2002, the San Diego County Board of Supervisors adopted Policy No. A-106, which emphasizes the need for water conservation as a significant part of the County's water portfolio.

  The region could develop even more new water through conservation, similar to other coastal areas in California with limited local water supplies but with ongoing growth. For example, in Long Beach, conservation is expected to provide 15 percent of the water supply by 2015,

and in the Monterey County area, conservation accounts for about twenty percent of the supply. Applying those percentages to San Diego's total expected water use in 2030 would result in conservation supplies of about 125,000 to 160,000 acre-feet per year.

Although many of the region's water districts have developed effective conservation programs, there are still a substantial number of conservation measures and initiatives that could provide significant amounts of water. For example, many of the agencies that have agreed to purchase water from Poseidon are members of the California Urban Water Conservation Council, which has developed a menu of cost-effective Best Management Practices (BMPs) to reduce urban water use. These member agencies are implementing some, but not all, of the Council's fourteen adopted BMPs, suggesting that there is an as-of-yet untapped source of conservation water available. Other sources include recycling and even indirect potable reuse. Carlsbad recently reported that it is using less than half the recycled water it has available to it, which suggests it has an underused local and reliable option.[~~91~~**176**] We note, too, for example, that the same treatment system Poseidon proposes for its facility is used in indirect potable reuse applications. The Commission expects that the use of these and other conservation measures will continue and will increase, with or without the proposed project.

Even with these conservation measures in place and with other conservation measures still available, the Commission finds that it is in the public interest for this desalination facility to provide water that augments these other sources. **Poseidon has demonstrated to the Commission that there is a looming water crisis in Southern California and a clear need for San Diego County to lessen its demand on the State Water Project and Colorado River watersheds, which were critically dry in 2007.[177] Eight public water agencies have already entered into long-term agreements with Poseidon to receive 100% of the supply of desalinated water from the project. These agencies have some of the most aggressive water recycling programs in the region, but they have stressed the need for desalinated water to ensure regional water supply reliability and to meet existing demands and planned-for future growth, and they have identified the project's water supply as a component of their water plans.[178]**

The entire plant's output will be put to public use by these public agency partners, ensuring that the water will remain in the public domain. Public agencies will continue to control the allocation and use of the water, so local government oversight will be preserved. Under Poseidon's contracts with each public water agency, the customers' price of water

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[~~91~~**176**] See Carlsbad's 2007 *State of Effectiveness Report.*

[177] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at p. 5.

[178] See Poseidon Resources Corporation, Letter to State Lands Commission Executive Director re: Desalination Project's Impact on Imported Water Use, November 8, 2007 (including attachments from water districts); Poseidon Resources Corporation, Carlsbad Desalination Project Briefing Package, CDP Application No. E-06-013, November 2007.

will not exceed the price that the customer would have paid for the imported water supply from the San Diego County Water Authority. Thus, any rate increases determined by the public agency partners would have occurred in the absence of the project.

The region expects further restrictions in the amount of water being imported to the area. If the restrictions are as severe as expected – i.e., reductions of up to about 30% – it will need to rely on conservation, desalination, and other means to make up the water deficit. This facility is therefore a necessary **and integral** part of the region's water portfolio.

•~~C~~• Public benefits resulting from increased shoreline access opportunities: In addition to the above public welfare benefits, the project will result in increased access to the shoreline of both Agua Hedionda ~~l~~Lagoon and the Pacific Ocean. As part of its project, Poseidon has offered to dedicate for public use four sites totaling about 15 acres on or near the shore of both the ~~l~~Lagoon and the ocean.

The dedicated areas will not only provide greater public access to formerly private ocean and ~~l~~Lagoon-front property, but will provide additional opportunities for recreation, fishing, and marine research.[~~179~~] Uses of the dedicated areas would include a fishing beach, coastal access, a fish hatchery expansion, **aquatic research** and public parking. One of the Coastal Act's primary goals is to maximize public access and recreational opportunities along the coast[~~92~~180], and the ~~p~~Project's public access aspects support that goal. These dedicated areas will provide greater public access and recreation opportunities to the shoreline of both the ~~l~~Lagoon and the ocean. Through the imposition of **Special Condition 11**, which requires that, prior to starting operations of the desalination facility, Poseidon ensure these parcels are dedicated for public access and recreation as described in the City's Precise Development Plan #PDP 00-02, the Commission ensures these access improvements will be implemented. As conditioned, the project would therefore provide adequate conformity to the Coastal Act's public access provisions. (5)

In addition, Poseidon's operations and its assumption of the responsibility for maintenance dredging and stewardship of the Lagoon after the Encina power station is decommissioned will prevent Lagoon sedimentation from urban run-off from closing-off the Lagoon in five to seven years, and the nearly complete loss of existing beneficial uses thereafter.[181] Thus, the project preserves access to the Lagoon, which would be lost in the project's absence.

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[179] See Poseidon Resources Corporation, *Response to Staff Report*, November 9, 2007, Exh. A at p. 4, 26.

[92][180] See, for example, Coastal Act Section 30001.5, which states in relevant part: "The Legislature further finds and declares that the basic goals of the state for the coastal zone are to… (c) Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources conservation principles and constitutionally protected rights of property owners."

[181] *Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon :Low Flow vs. No-Flow Alternatives*, Dr. Scott Jenkins, September 28, 2007.

Based on the above, the Commission finds that the proposed project meets the final test of Section 30260.

Conclusion

The Commission recognizes that the San Diego region is clearly in need of reliable and local water sources. Although ~~this coastal-dependent industrial facility does not conform to the use prohibitions of~~**the Commission has found that the project, as conditioned, conforms with all applicable** Coastal Act ~~Section 30233(c)~~**policies**, the Commission has determined through applying the three tests above that the project **also** conforms to the ~~"override" provisions provided for such projects by~~**requirements of** Coastal Act Section 30260. The Commission therefore finds that by meeting the requirements of these three tests and with imposition of the Special Conditions described previously in these Findings, the project conforms to **all** applicable Coastal Act policies. (5)

5.0 CALIFORNIA ENVIRONMENTAL QUALITY ACT

On June 13, 2006, the City of Carlsbad certified an Environmental Impact Report for the proposed project. In addition, Section 13096 of the Commission's administrative regulations requires Commission approval of CDP applications to be supported by a finding showing the application, as modified by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Public Resources Code Section 21080.5(d)(2)(A) prohibits approval of a proposed development if there are feasible alternatives or feasible mitigation measures available that would substantially lessen any significant impacts that the activity may have on the environment.

As discussed above, the proposed project is consistent with ~~the requirements~~**all applicable policies** of the Coastal Act. Pursuant to these Findings and the review conducted ~~by~~**in** the City of Carlsbad**'s EIR**, the project includes all available and feasible measures to avoid or minimize significant adverse environmental impacts. There are no feasible alternatives or feasible mitigation measures available that would substantially lessen any significant adverse impact that the activity would have on the environment. **Also, there are no new significant adverse effects of the project, and no new information involving new significant adverse effects has been presented.** Therefore, the Commission finds that the proposed project, as conditioned, is consistent with the requirements of CEQA. (6)

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•———Poseidon Resources Corporation. Transmittal of Intake Cost Estimates, October 17, 2007.

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- Valley Center Municipal Water District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 6, 2007.
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- ~~•~~Exhibit A: Response to Staff Report
- ~~•~~Exhibit B: Correction of Staff Report Misstatements, Inaccuracies and Omissions
- ~~•~~Exhibit C: Draft Proposed Conditions of Approval
- ~~•~~Exhibit D: Climate Action Plan, November **,** 2007
- ~~•~~Exhibit E: Requested Additions to Substantive File Documents

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Rick Zbur
Direct Dial: (213) 891-8722
rick.zbur@lw.com

633 West Fifth Street, Suite 4000
Los Angeles, California 90071-2007
Tel: +213.485.1234 Fax: +213.891.8763
www.lw.com

LATHAM & WATKINS LLP

File No. 036182-0006

April 30, 2008

VIA FEDEX

Chairman Kruer and Honorable Commissioners
California Coastal Commission
North Central Coast District
45 Fremont, Suite 2000
San Francisco, CA 94105-2219

Agenda Item Th13a

Re: Carlsbad Desalination Project CDP Application No. E-06-013
Requested Revisions to Commission Staff's Recommended Revised Findings

Dear Chairman Kruer and Honorable Commissioners:

On behalf of the Applicant, Poseidon Resources (Channelside) LLC, we request that the Commission approve the Requested Revisions to Coastal Commission Staff's Recommended Revised Findings jointly submitted by the Applicant, the City of Carlsbad, Carlsbad Municipal Water District and Vallecitos Water District, which are set forth as Exhibit A hereto (the "Jointly Requested Findings"). At its November 15, 2007 meeting, the Commission approved Coastal Development Permit Application No. E-06-013 (the Carlsbad Seawater Desalination Facility) (the "Permit") over Commission Staff's negative recommendation, and directed Staff to prepare proposed revised findings reflecting the Commission's action. Since the staff report recommended that the Commission deny the Permit, significant revisions were required so that the findings would accurately reflect and be consistent with the substantial evidence submitted by the Applicant, the City of Carlsbad, the Applicant's public water district partners and others into the administrative record that provided the basis for the Commission's Permit approval.

Following the November hearing, on January 14, 2008, two project opponents (Surfrider Foundation and Planning and Conservation League) filed a petition for writ of mandamus in California Superior Court that challenged the approval and alleged, among other things, that the Commission's findings, determination and decision were not supported by substantial evidence in the administrative record. Under California law, substantial evidence is "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached."[1] A court will

[1] *Laurel Heights Improvement Assn. v. Regents of the University of California* (1988) 47 Cal.3d 376, 393) (quoting Cal. Code Regs., tit. 14, § 15384).

These materials have been provided to the Coastal Commission Staff

review the Commission's findings to determine if they "bridge the analytic gap between the raw evidence and ultimate decision or order."[2] While the Commission's findings do not need to be as formal as judicial findings, they must show that relevant issues were considered and resolved by the agency, and they may cite to the record to support the agency's conclusions. Accordingly, when adopting the findings for the Permit, the Commission should ensure that the findings contain the basis for and the information supporting the Permit approval.

On February 21, 2008, Commission Staff released its Recommended Revised Findings (the "Original Revised Findings"), which generally reflected the conclusions reached by the Commission regarding the consistency of the Project, as conditioned, with the Coastal Act. Staff's revisions did not, however, incorporate much of the substantial evidence submitted into the record by the Applicant, the City of Carlsbad, the Applicant's public water district partners and others, or the competing theories advanced by the Applicant and others regarding Coastal Act consistency, which we believe formed the basis for the Commission's approval of the Permit. In response, on April 14, 2008, the Applicant, the City of Carlsbad, Carlsbad Municipal Water District and Vallecitos Water District submitted their requested revisions to the Original Revised Findings, which demonstrated the substantial evidence in the record supporting the Permit approval, clarified how the Permit is consistent with the Coastal Act, and provided how the Commission's Special Conditions will ensure that the Project's potential impacts to coastal resources are mitigated to the maximum extent feasible.

Also on April 14, 2008, Surfrider Foundation and San Diego Coastkeeper (the "Opponents") submitted their comments to Staff's Original Revised Findings. The Applicant has submitted a separate response to Opponent's comments, which is set forth as Exhibit B hereto. For the Commission's convenience, the Applicant has summarized this response in Section B, below.

On April 24, 2008, Commission Staff released a second version of its Recommended Revised Findings (the "Recommended Revised Findings"), which addressed some of the issues raised by the Opponents, the Applicant, the City of Carlsbad, Carlsbad Municipal Water District and Vallecitos Water District. However, the Recommended Revised Findings did not incorporate most of the supplemental information from the administrative record submitted by the Applicant, the City of Carlsbad, and the Applicant's public water district partners. Specifically, the Recommended Revised Findings did not include the numerous citations to the administrative record that support the Commission's Permit approval, including references to the Applicant's responses to the staff report and Notices of Incomplete, and citations to expert reports and studies that were provided to the Commission in support of the Permit.

In addition, Staff's Recommended Revised Findings did not incorporate evidence from the administrative record that the Applicant requested be included regarding several substantive areas that supported the Commission's approval of the Permit, including (among other things):

- the significant drought affecting the region and the need for the Project;

[2] *Topanga Assn. for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 515.

- the Project's implementation of technologies that will reduce entrainment and impingement impacts;
- the environmental inferiority and economic infeasibility of Project alternatives, including alternative intake systems;
- the Applicant's proposed mitigation plans that will enhance marine resources and minimize greenhouse gas emissions; and
- the environmental and coastal resource benefits from continued dredging of Agua Hedionda Lagoon.

Since the Commission considered voluminous amounts of evidence regarding these issues, it is important that the Commission's findings for the Permit be complete and accurately reflect the substantial evidence in the administrative record that formed the basis for the Commission's action at the November 15 hearing. Accordingly, the Applicant, the City of Carlsbad, Carlsbad Municipal Water District and Vallecitos Water District prepared the Jointly Requested Findings set forth in Exhibit A, which contain suggested revisions to Commission Staff's April 24 Recommended Revised Findings. The Applicant requests that the Commission consider the Jointly Requested Findings, and vote to adopt those findings if the Commission determines that they more accurately reflect the basis of the Commission's Permit approval than the findings presented by Staff. The substance of and rationale behind the suggestions in the Jointly Requested Findings are discussed in greater detail in Section A, below.

A. Substantive Changes in Jointly Requested Findings

To avoid confusion in making its suggested changes, the Applicant incorporated all of Staff's April 24, 2008 revisions into a base document, and then added Applicant's proposed changes to that document. Therefore, only the Applicant's changes to Staff's proposals are shown in ~~strikeout~~ and underline in the Jointly Requested Findings set forth in Exhibit A. For the Commission's convenience, the Applicant has also identified how each of the Jointly Requested Finding's changes fall into one of five specific categories where the Applicant believes Staff's Recommended Revised Findings required clarification, revision or supplemental information to more accurately reflect the basis for the Commission's approval of the Permit. Those categories are:

- 1: Entrainment, Impingement, Discharge and Marine Life Mitigation
- 2: Dredging and Lagoon Sedimentation
- 3: Energy Minimization and Greenhouse Gas Reduction
- 4: Coastal Act Override (Coastal Act § 30260)
- 5: Other Modifications to Support Commission Approval

Below, the Applicant has described each of the five categories in detail, and how proposed revisions under each category support the Commission's action at the November 15 hearing. In Exhibit A, the Applicant has also placed a number (1 to 5) in the document's right margin next to each revision, which is a cross-reference to the category that provides the rationale behind the revision.[3] The Applicant asks the Commission to review each of the categories below, so that it may clearly understand the basis and rationale supporting each of the proposed changes in the Jointly Requested Findings.

1. Entrainment, Impingement, Discharge and Marine Life Mitigation

While Staff's Recommended Revised Findings provide an analysis of the Project's impacts to marine resources when operating as a co-located facility, they do not provide citations to the numerous evidentiary submissions in the record that show the Project would not have a significant effect on marine life if operating as a stand-alone facility. The Project's EIR, prepared by the City of Carlsbad, analyzed the Project's impacts as both a facility co-located with the existing power plant, and as a stand-alone facility, and determined that the Project would cause considerably less entrainment and impingement losses as a stand-alone facility and would have no significant impacts under either operating scenario. The requested revisions under this category demonstrate the substantial evidence in the record that shows the Project will have an insignificant impact on entrainment and impingement, which supports the Commission's finding that the Project is consistent with the policies of Coastal Act Sections 30230 and 30231.

The requested revisions under Category 1 also seek to incorporate into Staff's Recommended Revised Findings additional information from the record regarding: (1) the Project's design and technology features that are expected to substantially lessen any impacts to marine life; (2) the numerous studies and evidentiary submissions showing that the Project would not have significant entrainment and impingement impacts; (3) how the Project will not have significant discharge-related impacts and that the Project's discharge is under the jurisdiction of the Regional Water Quality Control Board; and (4) how the alternative intake systems considered by the Commission are environmentally inferior to the Project and infeasible.

Although Staff's Recommended Revised Findings do describe some of the Applicant's marine life mitigation plans, they do not explain in detail the mitigation measures that the Applicant has considered, and the habitat restoration plan that the Applicant has proposed, in order to ensure the Project is consistent with Coastal Act Sections 30230 and 30231. Applicant's revisions under Category 1 also demonstrate that substantial evidence in the record shows that with the imposition of Special Condition 8, which requires the Applicant to submit for approval a Marine Life Mitigation Plan that identifies specific mitigation measures, implementation plans and compliance monitoring, the Project's entrainment impacts will be more than fully mitigated

[3] Please note that the version of the Jointly Requested Findings provided to Commission Staff on April 14, 2008 did not contain cross-references to the five categories containing the rationale for the change. Those categories and the addition of the cross-referencing numbers were prepared by the Applicant for the Commission's convenience.

and that biological productivity of coastal waters, wetlands and estuaries will be enhanced and restored in compliance with Coastal Act Sections 30230 and 30231.

2. Dredging and Lagoon Sedimentation

The Jointly Requested Findings under this category clarify that the Permit does not authorize dredging of the Agua Hedionda Lagoon, that the Applicant will need to apply for a new Coastal Development Permit to conduct dredging activities in the Lagoon, that the Permit is not otherwise inconsistent with Coastal Act Section 30233, and that maintenance dredging of the Lagoon is also necessary to remedy sedimentation caused by urban run-off. The revisions in this category clarify Staff's Recommended Revised Findings to support the Commission's finding that, with the imposition of Special Condition 12, which requires a new CDP application for dredging, the Project is consistent with Coastal Act 30233. Proposed revisions under this category also clarify that Commission has authorized maintenance dredging of the Lagoon on 17 prior occasions, most recently in 2006, and has consistently found this dredging to be consistent with Coastal Act 30233. In addition, the requested revisions in this category explain and cite to the substantial evidence in the record demonstrating that sedimentation in the Lagoon is primarily the result of urban run-off, and that any dredging by the Applicant subject to the issuance of a separate CDP would serve to benefit the Lagoon because it would preserve existing marine resources, research, fishing, public access and recreational activities that would cease if regular dredging stopped and the Lagoon returned to its natural state of stagnant "stinky water" due to run-off sedimentation.

3. Energy Minimization and Greenhouse Gas Reduction

Although Staff's Recommended Revised Findings present all of the original staff report's arguments concerning the Project's potential carbon dioxide emissions due to the Project's energy consumption, the findings do not include the competing evidence in the record supporting the Applicant's position that the Project's carbon dioxide emissions will be substantially lower than Staff's estimates. Staff's Recommended Revised Findings also do not incorporate information regarding the Applicant's position that the California Air Resources Board has primary jurisdiction over issues relating to air quality and greenhouse gases, and that the Applicant has voluntarily committed that the Project will be net carbon neutral. In the Jointly Requested Findings, the suggested revisions under this category demonstrate that substantial evidence in the record supports the Applicant's carbon dioxide emissions calculations. Moreover, the revisions in this category also clarify the evidence in the record supporting the Commission's conclusion that with the imposition of Special Condition 10, which requires the Applicant to submit for approval an Energy Minimization and Greenhouse Gas Reduction Plan, the Project will minimize energy consumption in compliance with Coastal Act Section 30253(4), minimize greenhouse gas emissions to the maximum extent feasible, and be net carbon neutral.

4. Coastal Act Override (Coastal Act § 30260)

At the November 15, 2007 hearing, the Commission found the Project, as conditioned, will be consistent with all applicable Coastal Act policies, including Coastal Act Section 30233. While the Commission determined that it did not need to make the "override" findings under

Coastal Act Section 30260, the Commission found that even if the Project had inconsistencies with Coastal Act policies, there is substantial evidence in the record to support the override findings. Although Staff's Recommended Revised Findings do discuss the Project's consistency with Coastal Act Section 30260, they omit information submitted by the Applicant and others into the record that provides important additional support for the Commission's conclusion that the Project satisfies the override requirements. The Jointly Requested Findings under this category demonstrate that substantial evidence in the record confirms that the Project meets Section 30260's three-part test: (1) that there are no feasible and less environmentally damaging locations for the Project; (2) that the Project's adverse environmental effects are mitigated to the maximum extent feasible; and (3) that not permitting the Project would adversely affect the public welfare. While some of the suggested revisions in this category are similar to revisions under other categories, all revisions relating to Category 4 explain and cite to substantial evidence supporting the Commission's conclusion that even though the Project, as conditioned, conforms with all applicable Coastal Act policies, the Project also complies with the requirements of Coastal Act Section 30260.

5. Other Modifications to Support Commission Approval

In certain other instances throughout Staff's Recommended Revised Findings, Staff retained arguments from the original staff report for which Staff did not provide supporting evidence, or Staff omitted the Applicant's countervailing arguments and their support in the record. In these instances, the Applicant, the City of Carlsbad, Carlsbad Municipal Water District and Vallecitos Water District have proposed modifications to Staff's Recommended Revised Findings to more accurately reflect that the Commission considered competing legal theories – those of Commission Staff, as presented in the staff report, and those of the Applicant, as presented at the hearing and in various submittals in the record. The Jointly Requested Findings under Category 5 explain and cite to substantial evidence in the record that provides several clearly articulated, independent bases that support the Commission's action of approving the Permit. For example, Staff's findings did not include the substantial evidence in the record that demonstrates the State Water Project and the Colorado River watersheds were critically dry in 2007, that the Project will provide a needed and reliable source of potable water to the region, and that the municipal water districts who have contracted to purchase water from the Project have identified the Project as a component of their water plans. Changes under this category address such omissions and explain and cite to substantial evidence in the record that is consistent with the Commission's approval of the Permit.

Further, Staff also modified Special Condition 1 so that it inaccurately reflects the Condition as it was approved by the Commission. This change is also categorized under Category 5.

B. Applicant's Response to Opponent's Comments re Recommended Revised Findings

The Applicant has submitted a response to Opponent's Comments to Staff's Recommended Revised Findings, which is attached hereto as Exhibit B. In general, Opponents' comments rehash their arguments from the November 15, 2007 hearing and their prior

submittals, including arguments rejected by the Commission that the Project does not comply with the Coastal Act, that the record does not contain substantial evidence to support the approval, and that the Commission's approval of the Permit was inadequate. The Commission heard all of these arguments and considered them before approving the Permit. The Opponents also misrepresent the Commissioners' testimony at the November meeting, mischaracterize the law and Coastal Commission practice, and argue that the Commission cannot impose conditions of approval that require subsequent Commission approval.

As set forth in the Applicant's response, the Opponents are clearly wrong and their arguments do not cast any credible doubt on the legal sufficiency of the Commissions' Permit approval. Specifically, the Applicant's response explains that the administrative record supports the issuance of the Permit, the Commission's reliance on the record to support its approval was proper, and it is consistent with other Commission approvals to condition a Project on receiving the Commission's prior to issuance approval of a mitigation plan. Accordingly, and as the Applicant demonstrates, Opponent's comments are without merit and are contrary to the law, Commission precedent and the record.

We appreciate the Commission's consideration of these important issues and respectfully request that the Commission adopt the Jointly Requested Findings at its May 8, 2008 meeting.

Very truly yours,

Rick Zbur
of LATHAM & WATKINS LLP

Attachments

cc: Tom Luster
Jan Driscoll, Esq.
Peter MacLaggan

These materials have been provided to the Coastal Commission Staff