



# California Regional Water Quality Control Board

## San Diego Region

RF



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Supporting Document No. 34

February 19, 2008

**CERTIFIED – REGISTERED MAIL**  
7006 2760 0000 1615 6960

Mr. Peter M. MacLaggan  
Senior Vice President  
Poseidon Resources Corporation  
501 W. Broadway, Suite 840  
San Diego, CA 92101

In reply refer to:  
**NCR: 02-1429.02:ebecker**

Dear Mr. MacLaggan:

**Revised Flow, Entrainment and Impingement Minimization Plan & Coastal Habitat Restoration and Enhancement Plan, Order No. R9-2006-0065, NPDES Permit No. CA0109223, The Poseidon Resource Corporation, Carlsbad Desalination Project**

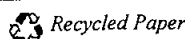
On February 13, 2007, Poseidon submitted a Flow, Entrainment, and Impingement Minimization Plan dated February 12, 2007 (Plan) in compliance with Section VI.C.2.(e) of Order R9-2006-0065. Subsequently, in response to Regional Board and interested parties' comments, Poseidon submitted a revised plan (dated June 29, 2007) on July 2, 2007. To supplement this Plan, Poseidon has also submitted both a Coastal Habitat Restoration and Enhancement Plan (CHREP) dated October 2007 and a revised CHREP dated November 2007.

The Regional Board has the following comments from the review of the Plan and CHREP (referenced above):

**General Comments:**

1. The Plan does not yet integrate all the elements of the statutory requirements of California Water Code (CWC) Section 13142. The proposed project only includes "mitigation", while the statute CWC Section 13142.5(b) also requires that dischargers implement best available technology and mitigation measures. The Plan does not appear to include technology measures for the intake structure to reduce impingement and entrainment (I&E).
2. The Plan provides an evaluation of impacts based upon one year of data, 2004-05 with record rainfall, but does not explicitly evaluate the on-going impacts from Poseidon's operations.

*California Environmental Protection Agency*



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Mr. Peter M. MacLaggan  
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Revised Flow, Entrainment, and Impingement Plan

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3. The Carlsbad desalination project's (CDP) listing of impacts appears to omit specific impacts to target invertebrates.
4. The proposed mitigation project does not appear to account for all pertinent impacts resulting from impingement of invertebrates, entrainment of invertebrates, discharges of brine, etc.
5. The CHREP did not identify and evaluate the possible mitigation projects located within the same watershed, prior to proposing the out of watershed mitigation in San Dieguito Lagoon. The best mitigation for impacting the lagoon would be to replace lost functions by restoring current upland acreage to the historic wetland condition, or by creating new wetlands where there were none historically.
6. The proposed mitigation ratio of 1.1:1.0 isn't fully supported. The Plan should be revised to include an evaluation of other mitigation options that may be available within the watershed. The proposed mitigation ratio appears inadequate in light of several factors generally considered by the Regional Board:
  - a. The proposed mitigation project is located within a different watershed (the San Dieguito Lagoon) instead of the Agua Hedionda Lagoon. A higher ratio may be appropriate for this project because the referenced mitigation project is out-of-kind (i.e., discharger is not actually replacing the lost resources and functions).
  - b. It is not clear that the proposed one-time mitigation is adequate to compensate for the long-term ongoing impacts to beneficial uses, resources, and functions present in Agua Hedionda Lagoon.
  - c. The mitigation project is for restoration of coastal wetland habitat, rather than the lagoon habitat impacted by the operation of the CDP.
7. Poseidon might benefit from convening a joint meeting with the resources agencies (including California Dept Fish and Game, US Fish and Wildlife Service, Army Corps of Engineers, National Marine Fisheries) to discuss the impacts to beneficial uses, resources, and functions by the proposed project, and on the preferred mitigation project so they can discuss agency concerns/comments.

#### **Specific Comments on the Plan**

8. The assessment should address the seasonal and/or daily variations in impingement impacts.
9. The assessment needs to include results of an impingement study for target invertebrates. Table 3.2 includes only results for fish during 2004-05.

10. The assessment states that: "The total amount of impinged organisms for the individual sampling events is presented in Table 3-2" (p.19). The Plan, however, does not clearly identify individual sampling events. The interpretation of the results is hampered by the absence of a presentation of results for impinged organisms (including invertebrates) with dates, times, and flow rates of sampling events.
11. The assessment states that, "The daily biomass of impinged fish during normal operations is 0.96 kgs/day (1.92 lbs/day) for an intake flow of 304 MGD" (p.19). The text discussion should clarify how this figure is determined and how the total impingement results were adjusted to an intake flow of 304 MGD. Also, there is a conversion discrepancy since 0.96kgs converts to 2.12lbs, not 1.92 lbs as indicated in the Plan.
12. The assessment of impacts from entrainment assessment appears to include larval fish but does not clearly include impacts to fish eggs and invertebrates. It is the understanding of the Regional Board that the 2004-05 study was to include monitoring of (at least) entrained Cancer crab megalops and lobster larvae, but the assessment does not appear to include these data. Also, it is unclear that sampling followed a protocol approved by the Regional Board as stated (p.22).
13. The Plan does not clearly identify the supporting data or an explanation of underlying assumptions and calculations that were used to estimate proportional mortality values for larval fish as presented (p.23) in the Plan. Therefore, the Regional Board could not objectively evaluate the validity of the estimated proportional entrainment mortality (12.2%) presented in the Plan.
14. Impacts are based upon the few most commonly entrained (most abundant) species. It is unclear how much more severe impacts may be when populations are small.
15. The Regional Board has the following comments regarding the estimated number of lagoon acres impacted, as presented in the plan since:
  - a. The estimate of the number of lagoon acres used by the three most commonly entrained species is based on a 2000 Coastal Conservancy Inventory (Table 4-2, p.23). It is unclear if this document is accurate or appropriate for the purpose of determining such an important component of the area of habitat production forgone (APF). The reference document (Attachment 4, Table 2), includes the footnote caveat "...This information is not suitable for any regulatory purpose and should not be the basis for any determination relating to impact assessment or mitigation." An accurate delineation of lagoon habitats should be used for this critical component of the APF.

- b. The estimate of the number of lagoon acres used by the three most commonly entrained species appears to exclude salt marsh and brackish/freshwater acreage (p.23). Excluding these intertidal habitats may result in the analysis underestimating this component of the APF.
  - c. The calculation of the APF (p.23) appears to use values for mortality and lagoon acreage that are not fully supported.
  - d. The text should be revised to include a clear explanation of how the estimated lagoon acreage for commonly entrained species was adjusted to include only impacts associated with operations of CDP, rather than impacts from operation of the Encina Power Station.
16. The evaluation concludes that the small fraction of marine organisms lost to entrainment would have "no effect on the species' ability to sustain their population" and goes on to describe the natural rates of high mortality (p. 24). But the argument that that there are "excess" larvae appears to omit an important consideration. Besides contributing to marine food webs, the naturally high production of larvae serves as a buffer against catastrophic and cumulative impacts to populations. These are important 'ecological services' that must not be taken lightly or given away without adequate mitigation.
17. The Regional Board prefers that the evaluation of the impact be presented as a rate (loss of x-amount of organisms per year, or impact/year). The proposed mitigation is a fixed amount (\$3 to \$4 million). It seems unlikely that a fixed amount would adequately compensate for a loss that is a rate over multiple, future years. It appears more likely that a proposed fixed amount really only accounts for mitigation for just one year of operation. The Regional Board may find a fixed amount to be acceptable, provided that:
- a. The average annual impact could be reasonably determined and reasonably translated into a dollar amount, and that amount (or correct share) is paid every year of operation – but that is not what is proposed in the Plan or the CHREP.
  - b. A fixed amount might also be reasonable if the CDP mitigates its share by increasing lagoon acreage via restoration or creation. Such in-kind mitigation would (if functional) replace the productivity lost to the operation of the CDP, and the impact would be fully mitigated.

The heading portion of this letter includes a Regional Board code number noted after "In reply refer to." In order to assist us in the processing of your correspondence please

PP

Mr. Peter M. MacLaggan  
Poseidon Resources Corporation  
Revised Flow, Entrainment, and Impingement Plan

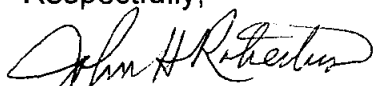
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include this code number in the heading or subject line portion of all correspondence and reports to the Regional Board pertaining to this matter.

If you have any questions regarding the above, please contact Mr. Eric Becker at (858) 492-1785, or at Ebecker@waterboards.ca.gov

Respectfully,



JOHN H. ROBERTUS  
Executive Officer

cc:

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cc: (See Enclosed Interested Parties List)



**Interested Parties**

**Order No. R9-2006-0065**

**NPDES Permit No. CA0109223**

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**Interested Parties**

**Order No. R9-2006-0065**

**NPDES Permit No. CA0109223**

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2/20/2008