Declaration of Peter M. MacLaggan

January 26, 2009

I, Peter M. MacLaggan, declare as follows:

1. I am a Senior Vice President with Poseidon Resources Corporation ("Poseidon") where I have been employed since April 2001. I have personal and first-hand knowledge of the facts set forth herein and could and would testify competently thereto if called upon to do so.

2. I have over 25 years of public agency and private sector experience in water resources engineering, planning and management. I hold a B.S. in Civil Engineering from San Diego State University and a Juris Doctorate from the University of San Diego School of Law. I am a registered civil engineer and a member of the California State Bar.

3. As Senior Vice President, I am responsible for all aspects of the permitting and entitlement of Poseidon's Carlsbad Desalination Project, including the San Diego Regional Water Quality Control Board's ("Regional Board") review of Poseidon's Marine Life Mitigation Plan ("MLMP") which has been placed on the agenda for the Regional Board's February 11, 2009 meeting. The purpose of this declaration is to describe my interaction with the Regional Board staff regarding the preparation and review of Poseidon's MLMP.

4. The Regional Board approved Poseidon's NDPES permit on August 16, 2006 through the adoption of Order No. R9-2006-0065. Order No. R9-2006-0065 required Poseidon to submit a Flow, Entrainment, and Impingement Minimization Plan ("Minimization Plan") to the Regional Board within 180 days.

5. On or about September 15, 2006, I became aware that Surfrider Foundation and Orange County CoastKeeper filed a petition ("Petition") with the State Water Resources Control Board ("State Board") challenging the Regional Board's approval of Order No. R9-2006-0065 on several grounds.

6. On or about September 25, 2006, I became aware that the State Board issued an acknowledgement letter identifying the Petition as complete.

7. On or about November 20, 2006, I became aware that the State Board issued a letter stating that it would begin its review of the Petition and inviting interested person to file a written response ("Response") to the Petition.

8. On or about December 20, 2006, Poseidon filed its Response to the Petition.

9. On February 12, 2007, on behalf of Poseidon, I timely submitted the draft Minimization Plan to the Regional Board.

10. On or about February 21, 2007, I became aware that the Regional Board posted the draft Minimization Plan on its website, notifying interested persons that a copy of the draft Plan was available for public review and comment.

11. On or about June 5, 2007, I received a letter from the State Board dismissing the Petition on the ground that it fails to raise substantial issues that are appropriate for review by the State Board.

12. On or about June 29, 2007, on behalf of Poseidon, I submitted a second draft of the Minimization Plan that was updated and revised to reflect Poseidon's response to interested parties' comments, including comments from San Diego County CoastKeeper, San Diego Chapter of the Sierra Club and the California Coastal Commission staff ("Coastal Commission").

13. On or about July 31, 2007, I became aware that the Regional Board posted the revised Minimization Plan on its website for public review and comment.

14. On August 14, 2007, I briefed with Regional Board staff on the content of the revised Minimization Plan and requested that Regional Board staff provide Poseidon with their comments on the revised Minimization Plan and schedule a meeting for the Regional Board to consider approval.

15. On or about September 6, 2007, the Executive Officer of the Regional Board John Robertus sent me a letter stating that he was deferring a determination on the Minimization Plan. The bases provided for his position were: recent discharges from the Encina Power Station ("EPS") that would not meet the requirements of the Poseidon plant 99 percent of the time; the recent suspension by the U.S. Environmental Protection Agency ("USEPA") of federal regulations implementing Clean Water Act Section 316(b); and the State Board's forthcoming policy on Section 316(b).

16. On or about September 10, 2007, I sent the Executive Officer a letter urging him to reconsider the September 6 deferral as there was no basis for taking such action. In this letter, I responded to each of the Executive Officer's stated bases for the proposed deferral. I explained to the Executive Officer that, at the time of approval of Order No. R9-2006-0065, the Regional Board understood that the future discharges from the EPS may not always be insufficient to satisfy the demands of the Poseidon plant and therefore the Regional Board incorporated into the Order requirements to address such a scenario, including the preparation, review, and approval of the Minimization Plan that the staff was now proposing to defer. Additionally, I explained that the suspension by USEPA of the Section 316(b) regulations had no bearing on the Regional Board's review and approval of the Minimization Plan for the simple reason that Section 316(b) does not apply to plants like the Carlsbad Desalination Project which does not exert a cooling water demand. Similarly, I explained that the State Board's policy on Section 316(b) is not relevant to plants like the Carlsbad Desalination Project – as the State Board expressly has stated.

17. On or about September 20, 2007, the Executive Officer sent me a letter rescinding his September 6, 2007 letter.

18. On October 17, 2007, I along with Poseidon Technical Director Nikolay Voutchkov and consultant Michael Welch briefed the Regional Board staff on the content of Poseidon's revised Minimization Plan.

19. On or about November 28, 2007, on behalf of Poseidon, I submitted to the Regional Board Poseidon's proposed marine wetlands restoration project located in San Dieguito Lagoon for consideration by the Regional Board as an example of the type of restoration project Poseidon was contemplating undertaking pursuant to the mitigation element of the Minimization Plan. This submittal was intended to bring the Minimization Plan into accordance with the mitigation discussion Poseidon was having with the Coastal Commission.

20. On November 15, 2007, I attended the Coastal Commission hearing at which the Coastal Commission conditionally approved the coastal development permit for the Carlsbad Desalination Project. As part of this approval, the Coastal Commission imposed Special Condition 8, which required the preparation of a Marine Life Mitigation Plan to address the mitigation of impacts to marine life from the Carlsbad Desalination Project.

21. On or about January 28, 2008, I along with Poseidon Technical Director Nikolay Voutchkov and consultant Michael Welch met with Regional Board staff members Michael Porter, Eric Becker, Chiara Clemente, Debbie Woodward, and Michael McCann to review the technical elements of Poseidon's Minimization Plan and to discuss the status of staff's review of the revised Minimization Plan.

22. On or about February 19, 2008, the Regional Board provided Poseidon with written comments from its review of the revised Minimization Plan.

23. On or about March 4, 2008, I along with Poseidon consultant Michael Welch met with Regional Board staff to receive input on Poseidon's proposed revisions to the Minimization Plan that Poseidon prepared in response to staff's February 19, 2008 letter and to request that the Minimization Plan placed on the April 2008 Regional Board agenda for consideration for approval. At this meeting, staff requested that Poseidon expand the mitigation element of the Plan to include a process that would allow Regional Board, through a coordinated inter-agency process, to consider additional alternative mitigation sites.

24. On or about March 7, 2008, I submitted a third and final draft of the Minimization Plan along with a request that the Regional Board review and approve the revised Plan pursuant to Order R9-2006-0065. The final draft Minimization Plan reflected a good faith effort on the part of Poseidon and its technical experts to address all the comments received from the Regional Board staff in its February 19, 2008 letter, as well as the additional input received at the March 4, 2008 meeting. Among other things, Poseidon revised the mitigation element of the Plan to include a process that would allow Regional Board, through a coordinated inter-agency process, to consider additional alternative mitigation sites. The final Minimization Plan included over three hundred pages of scientific support for the proposal. Submitted concurrently with the final Minimization Plan was a detailed response to the February 19, 2008 letter, which addressed how the Minimization Plan and supporting scientific material responded to the Regional Board's concerns as articulated in the letter and refined in the March 4, 2008 meeting with staff. In an email in which I was copied, Regional Board staff member Eric Becker then sent Poseidon's March 7, 2008 response to the Coastal Commission, the U.S. Department of Fish & Wildlife, National Marine Fisheries Service, the

State Lands Commission, and representatives from Surfrider Foundation and San Diego CoastKeeper.

25. The Minimization Plan was approved conditionally by the Regional Board at its April 9, 2008 meeting through the adoption Resolution No. R9-2008-0039. Under the terms of Resolution No. R9-2008-0039, Poseidon must submit a specific proposal for mitigation within six months of the adoption of the Resolution; resolve the concerns identified in the staff's February 19, 2007 letter; identify the impacts from impingement and entrainment; provide adequate monitoring data to determine the impacts from entrainment and impingement; provide for coordination among participating agencies for the amendment of the Plan; provide adequate mitigation; and commit to implement fully the amendment to the Plan.

26. Following the Regional Board's adoption of Resolution No. R9-2008-0039, I requested a meeting with Regional Board staff to clarify precisely what additional information Regional Board staff needed to complete its assessment of Poseidon's impingement and entrainment study. Senior staff scientist Chiara Clemente responded in an email dated April 17, 2008 that staff felt a meeting would not be necessary. In lieu of a meeting, Ms. Clemente requested Poseidon confirm/clarify two aspects of the impingement and entrainment assessment that were described in staff's email. I responded the same day confirming Poseidon would provide the requested information, and I once again offered to make available our impingement and entrainment expert to meet with the Regional Board staff and respond to any questions it may have. On April 30, 2007, I forwarded the requested information to staff.

27. On April 25, 2008, I, along with Poseidon's Technical Director, Nikolay Voutchkov; entrainment expert, Mr. David Mayer; physical oceanographer, Dr. Scott Jenkins; and Biologist Mr. Steve Le Page; met with Coastal Commission staff Mr. Tom Luster and the Coastal Commission's independent entrainment expert, Dr. Pete Raimondi, at the Coastal Commission's office in San Francisco to discuss Dr. Raimondi's review and recommendations regarding Poseidon's entrainment study.

28. At this meeting, Dr. Raimondi explained that that he was not asked to review Poseidon's impingement study because, at the November 15, 2007 hearing on Poseidon's Coastal Development Permit, the Coastal Commission had determined that the impingement impacts associated with Poseidon's project were "*de minimis* and insignificant." Dr. Raimondi informed us that he was able to determine that Poseidon's entrainment sampling and data collection methods were consistent with those used in other recent studies conducted in California pursuant to the protocols and guidelines used by the USEPA, Regional Water Quality Control Boards, California Energy Commission and Coastal Commission. Dr. Raimondi also determined that the study provided adequate data to determine the types and numbers of organisms that would be subject to entrainment and to determine the mitigation requirements for the Project.

29. Dr. Raimondi provided us with a copy of a PowerPoint presentation which included the results of his review and recommendations. A true and correct copy of Dr. Raimondi's PowerPoint presentation is attached hereto as Exhibit A.

30. On May 1, 2008, the Coastal Commission staff convened a day-long coordination meeting on the preparation of the MLMP attended by myself, Mr. Voutchkov and Mr. Walt Winrow on behalf of Poseidon, along with Regional Board Executive Officer John Robertus and Senior Scientist Chiara Clemente, Coastal Commission staff Mr. Tom Luster and Ms. Sara Townsend, State Lands Commission staff Ms. Judy Brown, Ms. Gail Newton, Mr. Steven Mindt and Mr. Mark Meier, Department of Fish & Game staff Mr. Bill Paznokas, Department of Transportation, U.S. Fish and Wildlife Service, City of Carlsbad Deputy City Manager Jim Elliott and City of Vista Watershed Coordinator Ms. Meleah Ashford. The purpose of this meeting was to disseminate and discuss the results of Dr. Raimondi's assessment of Poseidon's entrainment study and determine what mitigation options might be available and feasible for Poseidon to include as part of its MLMP.

31. Also at this meeting, Regional Board Executive Officer John Robertus stated that he was not interested in Poseidon pursuing the mitigation opportunities that the interagency group had identified for Agua Hedionda Lagoon because the problems the participants from the cities of Carlsbad and Vista had identified for Poseidon to address as part of the MLMP were not attributable to Poseidon, but instead caused by upstream sedimentation. Mr. Robertus stated that there were other tools, such as enforcement, that can be used to address sedimentation sources and, therefore, it was not appropriate to require Poseidon to pay for environmental issues caused by other parties.

32. At the conclusion of the May 1, 2008 meeting, I asked Regional Board Executive Officer John Robertus whether Poseidon's April 30, 2008 submittal, coupled with the Coastal Commission's independent expert Dr. Raimondi's review of Poseidon's entrainment study, adequately had addressed Poseidon's obligations under Resolution No. R9-2008-0039 to identify potential impacts from impingement and entrainment and establish the adequacy of the monitoring data to support such a determination. Mr. Robertus responded that the Regional Board had no further questions regarding the identification of impacts from impingement and entrainment or the adequacy of the monitoring data to determine such impacts.

33. Also at the conclusion of the May 1, 2008 meeting, Coastal Commission staff asked Poseidon to prepare a written summary of the MLMP for the interested state and federal agencies. A true and correct copy of this summary is attached hereto as Exhibit B.

34. On or about May 7, 2008, I became aware that Surfrider Foundation had filed a petition with the State Board challenging the Regional Board's conditional approval of the Minimization Plan on several grounds.

35. On July 3, 2008, I submitted a draft of the MLMP to Coastal Commission staff pursuant to Special Condition 8 of the November 15, 2007 Coastal Commission conditional approval of the coastal development permit. A true and correct copy of the transmittal letter and attached draft of the MLMP is attached hereto as Exhibit C.

36. On or about July 8, 2008, Coastal Commission staff member Sara Townsend distributed to me, Regional Board staff, and others attending the May 1, 2008 interagency coordination

meeting a copy of Poseidon's proposed MLMP along with a request for comments prior to the Coastal Commission's August 6, 2008 hearing to consider adoption of the MLMP.

37. The MLMP was approved by the Coastal Commission (11-1) on August 6, 2008, following a ten-hour hearing. To my knowledge, Regional Board staff did not provide any comments to the Coastal Commission prior to the Commission's approval of the MLMP on August 6.

38. On or about August 19, 2008, I became aware that the State Board had dismissed Surfrider Foundation's May 7, 2008 petition on the ground that the petition failed to raise substantial issues that are appropriate for review by the State Board.

39. The State Lands Commission ("SLC") approved Lease Amendment PRC 8727.1 ("Lease Amendment") for the Project on August 22, 2008 (3-0) following a four-hour hearing. The Lease Amendment requires, among other things, that at all times during the term of the lease, Poseidon shall comply with the MLMP as adopted by the Coastal Commission on August 6, 2008; comply with the post restoration monitoring and remediation requirements set forth in MLMP Section 5.4 for ensuring the success of the wetlands restoration site(s), provided that the standards include success criteria from four existing relatively undisturbed sites, and that Poseidon achieve a 95% confidence level of success for the restoration required. In addition, the Lease Amendment requires that, should the Coastal Commission amend MLMP Section 5.4 at any time, Poseidon shall request an amendment to the lease. Within ten years from the effective date of the lease, or upon such earlier time as agreed to by the State Lands Commission, or upon notice by Cabrillo Power I that it will no longer require the use of the intake and outfall that are the subject of the lease for the purposes of generating electrical power, the State Lands Commission will undertake an environmental review of the ongoing impacts of operation of the desalination facility to determine if additional requirements are required. The Lease Amendment also requires Poseidon to post a $3,700,000 bond prior to commencement of operation of the Carlsbad Desalination Facility to ensure the implementation of mitigation, monitoring and maintenance described in the MLMP.

40. On or about September 17, 2008, I met with Regional Board Executive Officer John Robertus at the Regional Board's office to update him on the status of the MLMP. At this meeting, I shared with him a version of the MLMP that reflected the Coastal Commission's August 6, 2008 approval, but which had not yet been accepted by the Coastal Commission staff as such. A true and correct copy of this version of the MLMP is attached hereto as Exhibit D. I told Mr. Robertus that the Coastal Commission left some of the administrative details of the MLMP to be worked out between the Commission staff and Poseidon and it was therefore unlikely that the MLMP would be available in final form prior to October 8, 2008, the deadline set by Resolution No. R9-2008-0039. Mr. Robertus indicated that he was aware of the status of the MLMP because his staff had attended the hearing. I asked Mr. Robertus if he would prefer that I submit the current version of the MLMP prior to the October 8 deadline or wait and submit the version of the MLMP that would be finalized by Coastal Commission staff. He said he preferred to receive the version of the MLMP reflecting the final wording from the Coastal Commission.

41. On or about September 18, 2009, I became aware that Surfrider Foundation and San Diego CoastKeeper filed a Petition for Writ of Mandamus with the San Diego County Superior

Court challenging the Regional Board's conditional approval of the Minimization Plan on several grounds.

42. On October 15, 2008, I emailed Ms. Chiara Clemente of the Regional Board staff advising her that I was meeting with Coastal Commission staff on October 28, 2008 to resolve the final text of the MLMP, and that I would forward her the final language when received. Ms. Clemente responded, "Thank you for the 'head's up.' We will plan accordingly." Ms. Clemente made no mention or suggestion that the MLMP was overdue or untimely.

43. On or about November 12, 2008, I became aware that, during the November 12, 2008 Regional Board meeting, a member of the public expressed concern about enforcing the time schedule in Resolution No. R9-2008-0039. In response, Executive Director John Robertus and Senior Scientist Chiara Clemente noted that the Regional Board staff had not taken any action in regards to the timing of the submission of the MLMP because the Coastal Commission and other agencies were still in the approval process.

44. On November 13, 2008, I received an email from Regional Board staff member Michael Porter inquiring as to the status of the final wording for the MLMP. I indicated that Coastal Commission staff had just completed the final language, and that I would be forwarding the final language the next day. On November 14, 2008, I submitted the version of the MLMP to the Regional Board that reflected the wording conforming to the August 6, 2008 Coastal Commission approval.

45. On November 17, 2008, Regional Board Executive Officer John Robertus sent an email to me, acknowledging receipt of the MLMP and making no mention or suggestion that the MLMP was untimely.

46. On December 2, 2008, Regional Board Executive Director John Robertus sent me a letter criticizing the MLMP, marking the first time Regional Board staff indicated to Poseidon or, to my knowledge, anyone else, concerns regarding the MLMP. The December 2, 2008 letter asserted that Poseidon had failed to address staff's February 19, 2008 letter regarding the Minimization Plan, which letter was submitted, responded to, and discussed, all prior to the April 9, 2008 meeting at which the Regional Board approved the Minimization Plan conditionally.

47. On December 7, 2008, I contacted the Regional Board Executive Officer John Robertus on the phone in an effort to discuss his December 2, 2008 letter. He advised me that he was not inclined to discuss the matter with me until after he discussed it with the Regional Board in a closed session scheduled for December 10, 2008.

48. On or about December 9, 2008, I responded to the Executive Director's December 2, 2008 letter with a written submittal to the Regional Board reiterating that staff's concerns had been previously addressed and inviting staff to meet with Poseidon to discuss any outstanding, specific questions the Regional Board may feel were unresolved.

49. On or about December 30, 2008, I became aware that Regional Board staff posted a notice of public hearing for the Regional Board's February 11, 2009 meeting indicating that the

Regional Board would be considering rescission of its April 9, 2008 conditional approval of the Minimization Plan.

50. On or about January 2, 2009, I became aware that the Regional Board issued a corrected notice of public hearing stating that it would instead be considering whether the MLMP satisfies the April Resolution. On behalf of Poseidon, I was not given any indication as to why the Regional Board was considering rescission of the April Resolution.

51. On January 5, 2009, I telephoned the Executive Officer and inquired as to whether the December 9, 2008 letter was responsive for the purposes of the February 11, 2009 public hearing. The Executive Officer responded that his counsel had advised him not to speak with me about the February 11, 2009 hearing and referred me to staff.

52. On or about January 7, 2009, I telephoned staffer Michael Porter and left a voicemail inquiring as to whether the Regional Board needed anything from Poseidon. Mr. Porter responded to me via email stating that he did not know whether anything was needed, but that staff would be done with their evaluation shortly and would let me know either way.

53. On or about January 12, 2009, I read an article published in Water Desalination Report, Vol. 45, No. 2 in which the Regional Board's Senior Engineer Brian Kelley is quoted as saying that, because Poseidon allegedly submitted the draft MLMP one month late, the April 9, 2008 conditional approval of the Minimization Plan may be rendered null and void. A true and correct copy of this article is attached hereto as Exhibit E.

54. Since May 2008, the Regional Board has made no requests for additional information or specific indications from me of how Poseidon's voluminous submittals, including the materials before the Coastal Commission, fall short of staff's needs.

55. In support of the foregoing facts, true and correct copies of the following emails between myself and Regional Board staff members are attached hereto as Exhibit F:

Exhibit F Index

Tab	Email description
1.	Email dated February 25, 2008 from Mike McCann to Peter MacLaggan, copied to Eric Becker. Subject: Re: Desal Mini Plan Meeting
2.	Email dated March 7, 2008 from Eric Becker to Tom Luster; wpaznokas@dfg.ca.gov; Sharon_Taylor@fws.gov; Peter MacLaggan; bruce@sdcoastkeeper.org; gabe@sdcoastkeeper.org; Judy Brown; rwilson@surfrider.org, copied to John Odermatt; Mike McCann. Subject: Poseidon Revised Flow, Entrainment, & Impingement Plan & Response to Regional Board Comments

3. Email dated March 12, 20098 from Eric Becker to Peter MacLaggan, copied to Chiara Clemente; John Odermatt; Mike McCann. Subject: Poseidon Revised Flow, Entrainment, & Impingement Plan & Response to Regional Board Comments

4. Email dated March 14, 2008 from Peter MacLaggan to John Robertus, copied to Eric Becker; Mike McCann; jodematt@waterboards.ca.gov. Subject: Letter to Chairman Wright

5. Email dated April 10, 2008 from John Robertus to Peter MacLaggan. Subject: Re: Update on Attendees for May 1-2 Meetings

6. Email dated April 10, 2008 from Peter MacLaggan to John Robertus. Subject: May 1 Desal Mitigation Meeting

7. Email dated April 18, 2008 from Eric Becker to Sara Townsend; Tom Luster; wpaznokas@dfg.ca.gov; Marci_Koski@fws.gov; Sharon_Taylor@fws.gov; Bryant.chesney@noaa.gov; Peter MacLaggan; gabe@sdcoastkeeper.org; Judy Brown; Jgeever@surfrider.org; rwilson@surfrider.org, copied to Brian Kelley; David Barker; Mike McCann. Subject: Resolution Conditionally Approving Poseidon's Flow Minimization Plan

8. Email dated April 30 2008 from Peter MacLaggan to Chiara Clemente, copied to Brian Kelley; David Barker; Deborah Woodward; Mike McCann. Subject: Re: Poseidon's CDP Plan – questions regarding IM & E assessments

9. Email dated October 16, 2008 from Chiara Clemente to Peter MacLaggan, copied to John Robertus; Michael Porter. Subject: Poseidon Mitigation Plan

10. Email dated October 29, 2008 from Michael Porter to Peter MacLaggan. Subject: Poseidon Mitigation Plan

11. Email dated October 30, 2008 from Peter MacLaggan to Michael Porter. Subject: RE: Poseidon Mitigation Plan

12. Email dated November 13, 2008 from Peter MacLaggan to Mike Porter. Subject: RE; Mitigation Plan Update

13. Email dated November 14, 2008 from Peter MacLaggan to Mike Porter. Subject: FW: Poseidon's Marine Life Mitigation Plan (CRU: 02-1429.02 bkelley)

14. Email dated November 17, 2009 from John Robertus to Peter MacLaggan. Subject: Re: Poseidon's Marine Life Mitigation Plan (CRU: 02-1429.02 bkelley)

15. Email dated December 9, 2008 from John Robertus to Peter MacLaggan. Subject: Re: Poseidon's Response to RWQCB's December 2 Letter

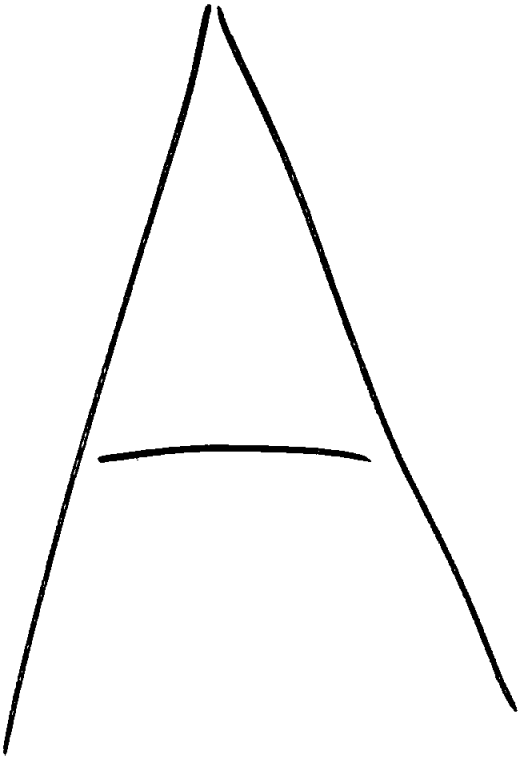
16. Email dated January 7, 2009 from Mike Porter to Peter MacLaggan. Subject:

Dec 9, 2008 Poseidon Letter

I declare under penalty of perjury of the laws of the State of California that the foregoing is true and correct.

Executed this 26th day of January, 2009, at San Diego, California.

Peter M. MacLaggan



Review of Carlsbad Seawater Desalinization Project (CDP)

- General comments on report
- Assessment of calculations of Pm
  - Estuarine species
  - Open water species
- Assessment of mitigation alternative using APF calculations
  - Math
  - Habitats

General Comments

1) As written, the report could not be evaluated for the technical merits of the entrainment study or estimation of APF
   a) Tenera provided both a meeting to discuss the report and also provided the material needed to assess the entrainment study and APF calculations.
2) My assessment is based in part on calculations I did using material from the CDP report, the 316B report from Encina Power plant and from direct communication with Tenera
   a) Such calculations include: uncertainty analysis and APF for open coast species
3) The study design for entrainment sampling including source water sampling is consistent with recent entrainment studies conducted under 316B rules

General Comments

4) Calculations of Pm, SWB and APF are generally consistent with recent studies
   a) Note additional calculations shown in this presentation for uncertainty and open water species
5) Proposed mitigation at San Dieguito is the most likely alternative to lead to compensation for losses of estuarine larvae due to entrainment – if habitat created more closely mimics source water body
6) No mitigation was proposed for losses of larvae from open water habitats
   a) APF is small but non-zero
   b) Mitigation options with direct nexus to impact are difficult

Review of Carlsbad Seawater Desalinization Project (CDP)

- Assessment of calculations of Pm
  - Estuarine species
  - Open water species

Assessment of calculations of Pm

- Proportional mortality (Pm) estimates are calculated using standard methodology
- Source water estimation is complicated for estuarine species (but in my opinion – correct)
- Source water estimation is standard for open water species
- Estimation of error rates is mathematically correct but, in my opinion, not appropriate for use in APF calculations
  - More about this later
- Uncertainty of estimates, particularly as they affect APF calculations is not adequately discussed
  - More about this later

Understanding Proportional Mortality (Pm)

- Pm is the proportion of larvae at risk that are estimated to die as a result of entrainment
- Larvae at risk is determined by source water body (SWB) which differs for estuarine vs open water species
  - For estuarine species, it is generally the area of Agua Hediondo Lagoon that could produce larvae entrained
  - For open water species, it is the area from which larvae could have traveled from and then be entrained
    - Based on age of larvae entrained

Calculated Pm, Standard Errors (SE) and Source water body (SWB) estimates

Species	Pm	Calcuated SE	Ratio SE/ Pm	Source water body *	Units
Estuarine					
Blennies	0.08635	0.1347	1.56	302	Acres
Gobies	0.21599	0.3084	1.43	302	Acres
Garibaldi	0.06484	0.1397	2.15	302	Acres
Open Water					
White Croaker	0.00138	0.0028	2.04	45	Km along shore
Northern Anchovy	0.00165	0.0026	1.56	21	Km along shore
California Halibut	0.00151	0.0024	1.58	37	Km along shore
Queenfish	0.00365	0.0049	1.33	27	Km along shore
Spotfin Croaker	0.00634	0.0153	2.41	19	Km along shore

*The source water body for estuarine species is actually different from this value, however it is assumed that larval production is primarily from 302 acres in Agua Hediondo Lagoon

Review of Carlsbad Seawater Desalinization Project (CDP)

- Assessment of mitigation alternative using APF calculations
  - Math
  - Habitats

Use of Area of Production Foregone (APF) to estimate mitigation required to mitigate entrainment losses

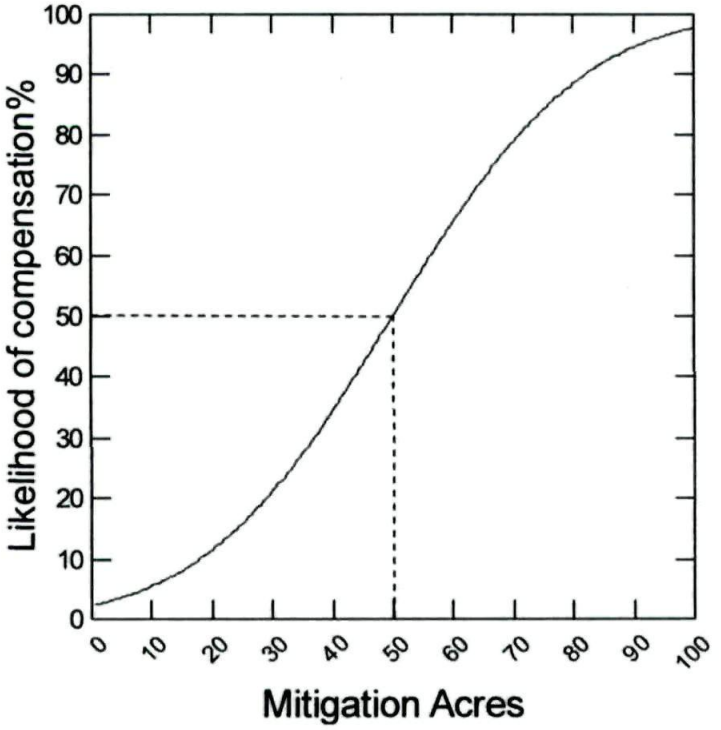
- Goal is to determine area required to provide sufficient habitat to produce larvae lost to entrainment
  - This area is the product of Pm and SWB
  - For example if the source water body (SWB) = 500 acres and Pm is 0.1 then the APF is

    500 acres x 0.1 = 50 acres

  - This means that 50 new acres ***having a similar habitat mix as that in the SWB*** would produce larvae sufficient to make up for those lost to entrainment
  - This assumes no uncertainty in the estimation of Pm and SWB
    - The major issue is the error rate associated with estimation of Pm

Understanding uncertainty of compensation through mitigation using APF (direct impacts only)

For example: assume 500 acre SWB, Pm = 0.1, Standard Error / Pm = 0.5



For average likelihood (50%) , Acres ~ 50. This means that with the uncertainty associated with sampling, there is a 50% or greater likelihood that 50 new acres will provide full compensation for lost larval resources.

This assumes:

1. Mitigation acres are similar to those in SWB
2. Restoration is successful

Understanding uncertainty of compensation through mitigation using APF (direct impacts only)

Uncertainty in estimating compensation value of proposed mitigation is primarily related to error in estimation of Pm:

1)What is correct estimate of error?

a) Sampling error associated with estimation of Pm – *as shown in report*
   i. Source water concentrations of larvae – calculated error rates are very high and **probably not realistic** for use with respect to Pm
   ii. Entrainment concentrations of larvae – error rates are low and **probably not realistic** for use with respect to Pm

b) Error assuming each species' Pm is an independent replicate
   i. The most appropriate calculation of error, given the standard logic behind the use of APF

Now – consider the ratio of SE/Pm – which expresses uncertainty in terms of units of impact

Use of error in calculations

- Use of error to calculate cumulative confidence curves relies on decision as to which estimate of error is appropriate.
- I used a normal cumulative function to generate confidence curves.
  - This relies on mean value and estimate of the standard deviation of the population of means.
  - I concluded that sample standard deviation was inappropriate for use using this function and instead used the sample standard error as an estimate of the standard deviation of the population of means. Hence the calculation was:
    - Prob = ZCF((acres – mean acres)/calculated SE)
    - Where ZCF is the normal cumulative function
  - The use of SE led to more conservative (lower) estimate of (eg) 80% confidence limit than would have been the case if standard deviation was used.
  - This was evaluated using resampling approaches where possible (which make no assumptions about normality).

Calculated Pm, Standard Errors (SE) and Source water body (SWB) estimates

Species	Pm	Calcuated SE	Ratio SE/ Pm	Source water body	Units
Estuarine					
Blennies	0.08635	0.1347	1.56	302	Acres
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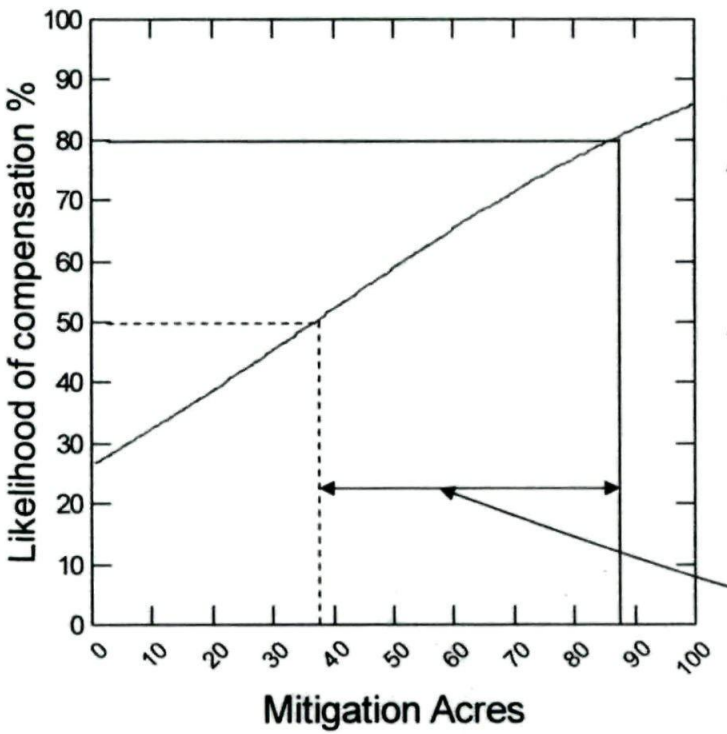
Garibaldi	0.06484	0.1397	2.15	302	Acres
Open Water					
White Croaker	0.00138	0.0028	2.04	45	Km along shore
Northern Anchovy	0.00165	0.0026	1.56	21	Km along shore
California Halibut	0.00151	0.0024	1.58	37	Km along shore
Queenfish	0.00365	0.0049	1.33	27	Km along shore
Spotfin Croaker	0.00634	0.0153	2.41	19	Km along shore

These are huge

Uncertainty of compensation through mitigation using APF

Estuarine Species (direct impacts only)

Case 1: using error rate calculated in report (SE dominated by source water concentration of larvae)

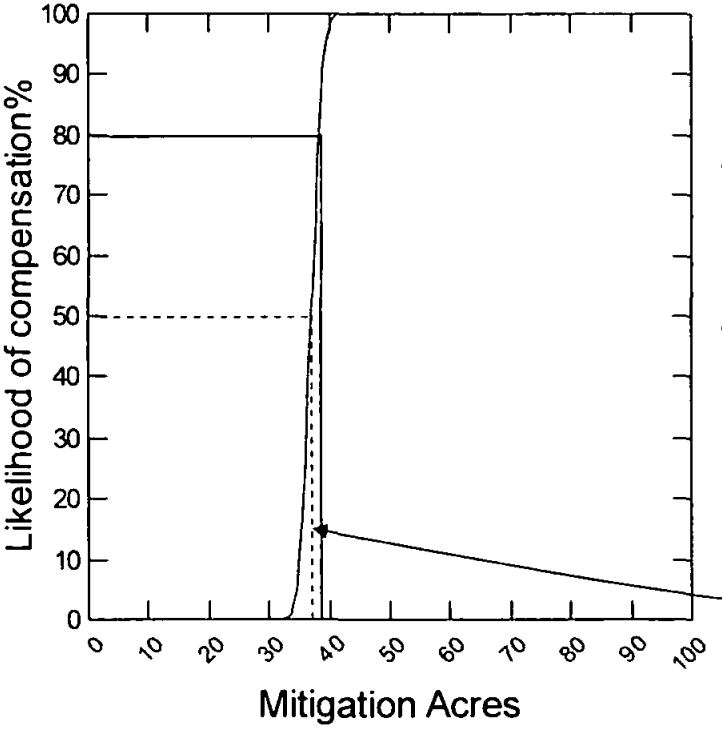


For average likelihood (50%)
Acres ~ 37

For 80% confidence level
Acres ~ 87

Big difference due to
Large SE/Pm ratio

Uncertainty of compensation through mitigation using APF
Estuarine Species (direct impacts only)
Case 2: using error rate calculated from entrainment estimates only (SE very low)



For average likelihood (50%)
Acres ~ 37

For 80% confidence level
Acres ~39

Small difference due to
Small SE/Pm ratio

Calculated Pm, Standard Errors (SE) and Source water body (SWB) estimates

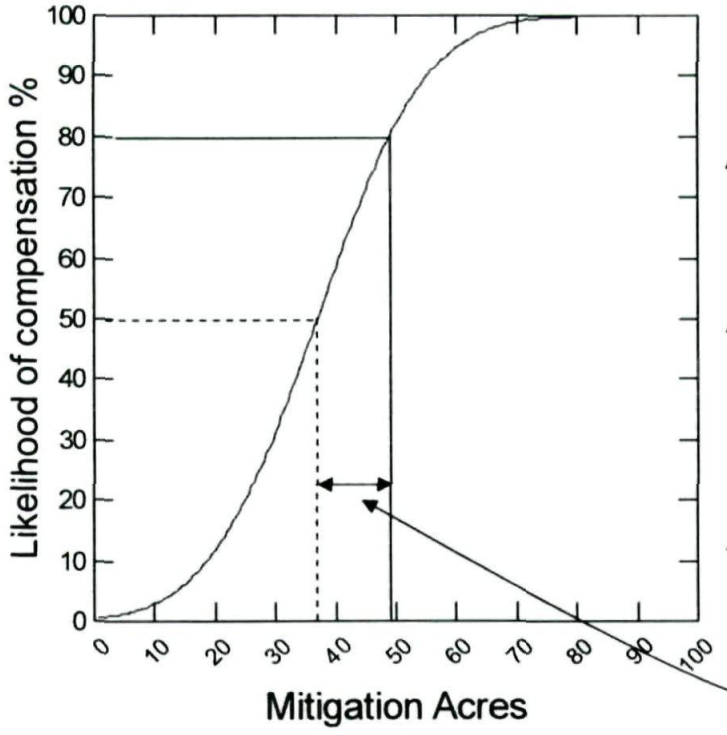
Species	Pm	Calcuated SE	Ratio SE/ Pm	Source water body	Units	APF	Source water body	Units	APF
Estuarine									
Blennies	0.08635	0.1347	1.56	302	Acres	26.0777			
Gobies	0.21599	0.3084	1.43	302	Acres	65.2290			
Garibaldi	0.06484	0.1397	2.15	302	Acres	19.5817			
Average	**0.12239**	0.1942				**36.9628**			
SE						**14.2570**			
Ratio SE/Pm						**0.3857**			
Open Water									
White Croaker	0.00138	0.0028	2.04	45	Km along shore*	0.0621	33365	Acres	46.0440
Northern Anchovy	0.00165	0.0026	1.56	21	Km along shore*	0.0347	15570	Acres	25.6912
California Halibut	0.00151	0.0024	1.58	37	Km along shore*	0.0560	27477	Acres	41.4907
Queenfish	0.00365	0.0049	1.33	27	Km along shore*	0.1000	20309	Acres	74.1289
Spotfin Croaker	0.00634	0.0153	2.41	19	Km along shore*	0.1175	13739	Acres	87.1029
Average						**0.0740**			**54.8916**
SE						**0.0151**			**11.2209**
Ratio SE/Pm						**0.2044**			**0.2044**

*** to a depth of 75 meters - average about 3 Km offshore**

Uncertainty of compensation through mitigation using APF

Estuarine Species (direct impacts only)

Case 3: using error rate calculated from species Pm estimates (*probably most accurate*)



For average likelihood (50%)
Acres ~ 37

For 80% confidence level
Acres ~49,

Using resampling
80% confidence level
Acres ~ 50

Relatively small difference due to appropriate SE/Pm ratio

Calculated Pm, Standard Errors (SE) and Source water body (SWB) estimates

Species	Pm	Calcuated SE	Ratio SE/ Pm	Source water body	Units	APF	Source water body	Units	APF
Estuarine									
Blennies	0.08635	0.1347	1.56	302	Acres	26.0777			
Gobies	0.21599	0.3084	1.43	302	Acres	65.2290			
Garibaldi	0.06484	0.1397	2.15	302	Acres	19.5817			
Average	**0.12239**	0.1942				**36.9628**			
SE						**14.2570**			
Ratio SE/Pm						**0.3857**			
Open Water									
White Croaker	0.00138	0.0028	2.04	45	Km along shore*	0.0621	33365	Acres	46.0440
Northern Anchovy	0.00165	0.0026	1.56	21	Km along shore*	0.0347	15570	Acres	25.6912
California Halibut	0.00151	0.0024	1.58	37	Km along shore*	0.0560	27477	Acres	41.4907
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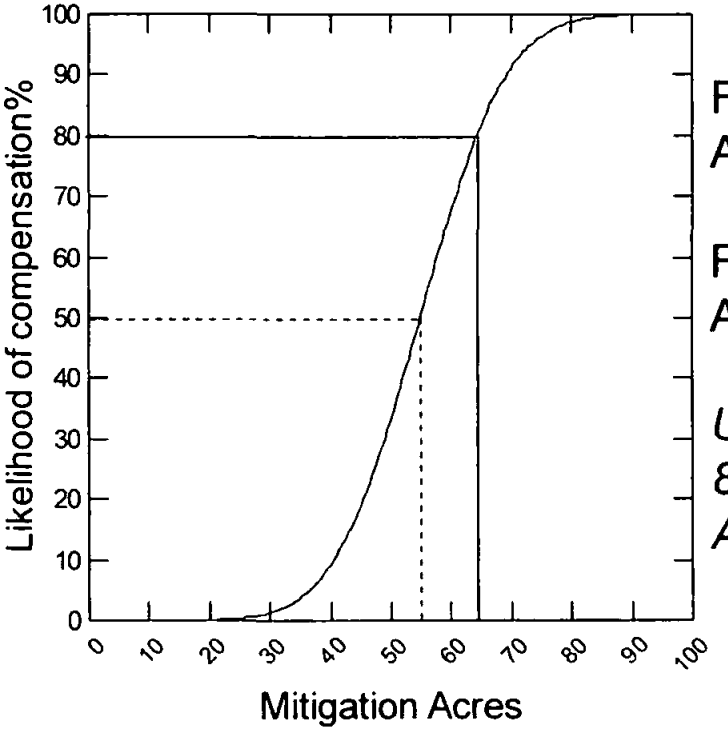
Average						**0.0740**			**54.8916**
SE						**0.0151**			**11.2209**
Ratio SE/Pm						**0.2044**			**0.2044**

*** to a depth of 75 meters - average about 3 Km offshore**

Uncertainty of compensation through mitigation using APF
Open Coast Species (direct impacts only)
Using error rate calculated from species Pm estimates
(*probably most accurate*)



For average likelihood (50%)
Acres ~ 55

For 80% confidence level
Acres ~ 64

Using resampling
80% confidence level
Acres ~ 63

APF summary

1) APF for estuarine species
    1) Mean APF = 37 acres
    2) 80% confidence limit = 49 acres
    3) Habitat mix for mitigation should include mudflat / tidal channel and open water habitat
2) APF for open coast species
    1) Mean APF = 55 acres
    2) 80% confidence limit = 64 acres
    3) Habitat is primarily open water, sandy bottom
    4) Relatively small area
    5) No mitigation options discussed
        a) Options that could lead to direct compensation are difficult

Proposed Wetland Mitigation

1) Logic of APF as applied to wetland mitigation is appropriate for estuarine species losses
2) In my opinion the most appropriate mitigation discussed is offsite wetland creation at San Dieguito
   a) The mix of habitats should mirror those used in calculating APF at Agua Hediondo – currently they do not (use of salt marsh at San Dieguito)
   b) The ongoing restoration at San Dieguito, along with inlet maintenance and required monitoring make this the area most likely to be successfully used for compensatory mitigation
   c) Mitigation at Agua Hediondo as described, is unlikely to provide direct compensation for lost larval resources

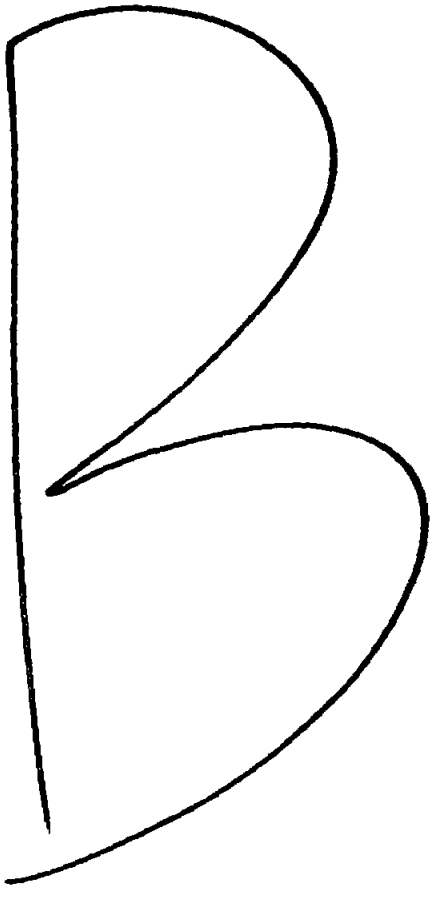
Comments on discussion of "conservative assumptions" for APF

1) "Assumes 100% mortality of all marine organisms entering the intake"
   a) This is true but it is the same assumption that is made in all recent entrainment determinations. Moreover there is no study of post-entrainment larval survival that has been conducted in field conditions
2) "Assumes 100 % survival of all fish larvae in their natural environment"
   a) No such assumption is made. The only assumption concerning survival is that there is no compensatory mortality that affects Pm calculations.

Comments on discussion of "conservative assumptions" for APF

3) "Assumes species are evenly distributed throughout the entire depth and volume of the water body"
   a) No such assumption is made. The major assumption is that creation of a similar mix of habitats to that found in the source water body will lead to compensation for all species lost due to entrainment.

4) "Assumes the entire habitat from which the entrained fish larvae may have originated is destroyed"
   a) No such assumption is made concerning the source water body. APF calculations are based on the idea of estimating the area that would need to be added in order to lead to the compensatory production of larvae lost to entrainment. Other features of the source water body are assumed not to have been damaged.



CARLSBAD SEAWATER DESALINATION PROJECT

MARINE LIFE MITIGATION PLAN SUMMARY

MAY 27, 2008

PURPOSE

On May 1, 2008, Coastal Commission staff convened a meeting of the interested state and federal regulatory and resource agencies[1] to review the results of the entrainment study for the Carlsbad Desalination Project (Project) and discuss potential mitigation opportunities. At the conclusion of that meeting, Commission staff asked Poseidon to prepare the following written summary of its Marine Life Mitigation Plan for the agencies.

THE PROJECT

As shown in Figure 1, the Project will be located adjacent to the Encina Power Station (EPS) and will use the power plant cooling water system as source water for the production of 50 million

Figure 1 – Carlsbad Seawater Desalination Project

[1] Meeting participants included staff from the following agencies: Coastal Commission, California State Lands Commission, San Diego Regional Water Quality Control Board, California Department of Fish and Game, California Department of Transportation, U.S. Fish and Wildlife Service, City of Vista, San Diego County Water Authority and the City of Carlsbad.

gallons per day (MGD) of fresh drinking water. When the EPS and the Project are operating together, the EPS cooling water flow rate is expected to provide a sufficient volume of seawater for Project operations. Under this mode of operation, the Project's permitting and regulatory agencies determined that the incremental impacts of the Project were insignificant.

When the EPS is not operating, or the EPS intake flow is lower than the minimum flow of 304 MGD needed for operation of the Project, the Project's use of the EPS's existing intake will result in incremental impingement and entrainment of marine organisms.

REGIONAL BOARD REQUIREMENTS

Water Code Section 13142.5(b) provides that industrial facilities using seawater for processing shall use the "best available site, design, technology, and mitigation feasible ... to minimize the intake and mortality of all forms of marine life."

In August 2006, the San Diego Regional Water Quality Control Board (Regional Board) issued a discharge permit for the Project that included a requirement that Poseidon prepare a Flow, Entrainment and Impingement Minimization Plan (FEIMP) to assess the feasibility of site-specific plans, procedures, and practices to be implemented and/or mitigation measures to minimize the impacts to marine organisms when the Project intake requirements exceed the volume of water being used through the EPS once-through cooling process. In April 2008, the Regional Board approved Poseidon's FEIMP as being in compliance with the site, design and technology requirements of Water Code Section 13142.5(b), and required Poseidon to return at a future date no later than six months to the Regional Board with a specific mitigation plan for review and approval.

COASTAL COMMISSION REQUIREMENTS

In November 2007, the Coastal Commission approved the Coastal Development Permit for the Project subject to Special Condition 8, which requires Poseidon to develop a Marine Life Mitigation Plan for further Commission review and approval. Poseidon has prepared a preliminary Marine Life Mitigation Plan that documents the desalination facility's anticipated entrainment and impingement impacts, and proposes a mitigation package that not only fully mitigates those impacts, but also provides additional mitigation that creates, enhances, and restores aquatic and wetland habitat, and ensures long-term performance, monitoring, and protection of the mitigation measures consistent with the Coastal Act Sections 30230 and 30231.

The Coastal Commission retained an independent expert, Dr. Pete Raimondi of UC Santa Cruz, to review the adequacy of Poseidon's entrainment study and mitigation plan. Dr. Raimondi recently completed that review and confirmed that:

- Poseidon's study design is consistent with recent entrainment studies;
- Using California Energy Commission (CEC) methodology and Coastal Commission precedent, habitat restoration required in order to mitigate the Project's "stand-alone"

operations would be 37 acres (to compensate for Lagoon species impacts), and an additional 5.5 acres (to compensate for open ocean species impacts).[2]

- Habitat mix for mitigation should include mudflat/tidal channel and open water habitat; and

- Proposed wetland creation at San Dieguito Lagoon has the greatest likelihood of success.

Dr. Raimondi concurred that, using CEC methodology and Coastal Commission precedent, Poseidon would be required to restore 42.5 acres to fully mitigate the Project's "stand-alone" impacts. This is the same methodology the Commission applied to the only other entrainment study - the San Onofre Nuclear Generating Station - it has reviewed and approved.

In addition, Dr. Raimondi made another recommendation that calculated mitigation acreage beyond what either CEC methodology requires or the Coastal Commission has imposed in the past. Specifically, Dr. Raimondi suggested that in order to provide an even *greater* level of assurance to compensate for potentially impacted lagoon and ocean species, that Poseidon restore 12.9 acres above the 42.5 acres required under CEC and Coastal Commission methodology - for a total of 55.4 acres - to fully mitigate the Project's "stand-alone" impacts. Dr. Raimondi has provided no basis to deviate from CEC methodology or Coastal Commission precedent in order to provide this "enhanced" mitigation.

Any deviation from CEC methodology and Coastal Commission precedent that results in an increase in Poseidon's mitigation requirement is ultimately a policy question to be decided by the Coastal Commission.

MARINE LIFE MITIGATION PLAN

Phased approach to mitigation plan implementation. Poseidon is proposing a phased implementation of its Marine Life Mitigation Plan. The initial phase of the mitigation plan would fully compensate for Project related impacts during the period when both the power plant and the Project are operating.

The second phase of the mitigation plan would address any additional unmitigated impacts arising out of the stand-alone Project operation following the retirement of the power plant.

Compelling reasons support this phased approach. First, the ongoing need for the EPS to provide grid stability in the San Diego region reasonably ensures that it will be many years before the Project is operating on a truly "stand-alone" basis. In the interim, a significant portion of the seawater required for Project would be provided by the power plant; and the near-term need for immediate mitigation would be proportionally reduced.

[2] Acres of estuarine habitat required to compensate for potential impact to 55 acres of sandy bottom open water habitat.

Second, while the power plant continues to operate, new technologies or processes that are not available today could be developed that Poseidon could employ once the power plant is retired to further reduce the entrainment impacts. Phased implementation of the Marine Life Mitigation Plan would provide an economic incentive for Poseidon to investigate and invest in such technologies and opportunities to reduce Project impacts and avoid additional mitigation costs. If Poseidon is required to provide all of the mitigation for the "stand-alone" operations upfront, little incentive exists to invest in additional avoidance measures.

Third, the regulatory agencies will have ongoing involvement in the implementation of the phased Marine Life Mitigation Plan. The Regional Board and the State Lands Commission have indicated that upon decommissioning of the power plant, they will undertake an environmental review of the Project to determine what, if any, additional design, technology, or mitigation measures should be required. Further, and to the extent that there are modifications to the Project as a result of power plant decommissioning or to comply with State Lands Commission or Regional Board requirements, such modifications would also be subject to review by the Coastal Commission for Coastal Act Compliance.

Phase I Restoration Project. Poseidon conducted an extensive investigation of the restoration opportunities in and around Agua Hedionda Lagoon that resulted in the identification of a near-term habitat restoration project in San Dieguito Lagoon (Phase I Restoration Project). Poseidon's proposed San Dieguito Wetland Restoration Plan has been prepared and is scheduled for review by the SONGS Science Advisory Group on June 10, 2008. The Phase I Restoration Project is expected to more than fully mitigate the impacts resulting from Project operations during the period when both the power plant and the Project are operating together.

Using CEC and prior Coastal Commission methodology, the Phase I Restoration Project would mitigate 88% of the total mitigation requirements for the Project's "stand alone" operations. By providing this mitigation while the Project and the power plant are both operating, Poseidon will perform more mitigation than what should actually be required for this stage of the Project's operations. Last year, the flow through the EPS would have supplied 61% of the seawater required for the Project. The Phase I Restoration Project would fully mitigate the Project's impacts as long as at least 12% of the Project's seawater requirements are provided by the EPS. The EPS is expected to continue operating for many years.

The proposed Phase I Restoration Project would result in the conversion of at least 37 acres of disturbed land in the San Dieguito Lagoon to salt marsh, mudflat, tidal channel and open water habitat, which will provide a productive in-kind replacement for species similar to those impacted by Project operations. All of the acreage that will be converted to tidal wetland habitat is currently disturbed upland that supports weedy, generally non-native (ruderal) vegetation.

The restoration site will be graded to match sub-tidal and the low tidal salt marshes of Southern California Edison's (SCE) San Dieguito Lagoon Restoration Project. Since the new wetlands will be connected to the existing tidal basin through the existing San Dieguito River channel, the tidal exchange will maintain the physical and chemical conditions in the these wetlands such that marine and tidal salt marsh species will be able to inhabit the wetlands created by the Poseidon's restoration project.

The San Dieguito River Park Joint Powers Authority (JPA) is the sponsor of the Phase I Restoration Project and owner of the restoration site. The JPA would be responsible for ensuring the legal mechanisms are in place to ensure the permanent protection of the site.

The Phase I Restoration Project is part of a larger restoration project that has already been approved by the Coastal Commission and was the subject of a Final Environmental Impact Report certified by the JPA and U.S. Fish and Wildlife Service. SCE is currently restoring 115 acres of tidal wetlands in the area and will keep the river mouth open in perpetuity.[3] The design, monitoring and performance criteria for the Phase I Restoration Project would be similar to those established for the SCE project.

Phase II Restoration Project. Poseidon would initiate planning and implementation of the Phase II Restoration Project immediately upon notice from the owner of the Encina Power Station that it will no longer require use of the intake and outfall for the purposes of generating electrical power. Restoration under the Phase II Restoration Project would be in addition to the 37 acres of restoration already provided under the Phase I Restoration Project.

Dr. Raimondi estimated that 5.5 acres (using CEC and prior Coastal Commission methodology) or 18.4 acres (based on his proposal for "enhanced" mitigation) of additional mitigation may be needed to fully mitigate the "stand-alone" Project operation once the Phase I Restoration Project is in place.

Agua Hedionda Lagoon Restoration. Agua Hedionda Lagoon supports a wide range of beneficial uses, including 316 acres of marine wetlands and a variety of recreational activities, such as fishing, and water contact recreation. Nearly all of these uses are directly or indirectly supported by seawater flow and exchange created by circulation of seawater in the Lagoon. The tidal exchange renews the Lagoon's water quality and flushes nutrients, sediment and other watershed pollution, particularly from the Lagoon's upper reaches. In addition, the inflow of fresh supplies of ocean water carry planktonic organisms that nourish the many organisms and food chains of the Lagoon, including the White Sea Bass restoration program of the Hubbs Sea World Research Institute and the aquaculture operations in the outer Lagoon.

The Lagoon is connected to the Pacific Ocean by means of a manmade inlet. Seawater circulation throughout the outer, middle and inner lagoons is sustained both by routine dredging of the entrance by the owner of the EPS. Absent regular maintenance dredging, the lagoon inlet would permanently close within a few years. The name, Agua Hedionda, which means "stinking water" in Spanish, reflects a former stagnant condition that existed prior to the dredging of the mouth of the Lagoon.

To avoid this significant loss of highly productive marine habitat, Poseidon has committed to be responsible for routine dredging of the entrance to the lagoon when the EPS is decommissioned. The sand dredged from the lagoon would be placed on adjacent beaches so as to maintain, restore and enhance habitat for grunion spawning and to maintain, restore and enhance opportunities for public access and recreation along the shoreline and within the coastal zone.

[3] The Coastal Commission granted SCE a 35-acre wetlands restoration credit in exchange for its commitment to keep the inlet to San Dieguito Lagoon dredged to support the 115 acres of tidally exchanged wetlands upstream.

Continued preservation of the Agua Hedionda Lagoon inlet and related beneficial uses would ensure the ongoing maintenance, restoration and enhancement of a number of high-priority Coastal Act goals described in the attached figure.

In recognition of the value of preserving these uses, the Coastal Commission has previously granted wetlands restoration credit for inlet maintenance. Specifically, the Coastal Commission granted Southern California Edison (SCE) a 35-acre wetlands restoration credit in exchange for its commitment to keep the inlet to San Dieguito Lagoon dredged to support the 115 acres of tidally exchanged wetlands upstream. Consequently, there is precedent for the Coastal Commission allowing one acre of restoration credit for every 3.3 acres of tidally exchanged wetlands supported by dredging. As applied to Agua Hedionda Lagoon, such dredging would support 316 acres of tidally exchanged wetlands and a number of Coastal Act priority uses. However, with the stand-alone desalination Project operation in place, only 85% of the sand dredged from the lagoon would be naturally occurring. The remaining 15% of the sand influx would be attributable to Project operations.

Following the Coastal Commission's precedent, Poseidon should receive 81 acres of restoration credit for keeping the lagoon inlet open after the EPS is decommissioned.[4] The 81 acres represent fifteen times the required mitigation using CEC methodology and Commission precedent, and over four times the required mitigation using Dr. Raimondi's enhanced mitigation proposal.

Determine Phase II Mitigation Requirement. As it stands today, the Phase II mitigation requirements would be 5.5 acres (using CEC and prior Coastal Commission methodology) or 18.4 acres (using Dr. Raimondi's enhanced mitigation calculation). The final Phase II acreage requirement would be determined after the State Lands Commission and Regional Board complete the review of ongoing Project operations.

This leads to another key benefit of staged implementation of the mitigation plan: with phased mitigation, Poseidon and the regulatory agencies would have an opportunity to measure the actual impacts of the Project, and to evaluate opportunities to further reduce the impacts and refine the scope of the Phase II Restoration Project as necessary to ensure the "stand-alone" Project impacts are fully mitigated.

The planning and implementation of the Phase II Restoration Plan will include the following steps:

1. Analyze the environmental effects of ongoing Project operations; evaluate new and developing technologies that are unavailable today, which may reduce any impacts, and implement those technologies determined to be feasible.
2. Determine the restoration credit available to Poseidon for inlet dredging and maintenance and protection of beneficial uses in Agua Hedionda Lagoon.
3. Determine the additional mitigation, if any, required after implementation of available technologies to reduce impacts and assignment of Agua Hedionda Lagoon restoration credit.

[4] (316 acres)(0.85 natural sand influx)/(3.3 acres preserved/inlet credit provided) = 81 acres credit

Analysis of Actual Effects of Project Operations. Each of the regulatory agencies having jurisdiction over the Project has reserved the right to review the environmental effects of Project operations, evaluate opportunities to further reduce impacts, and refine the scope of the Phase II Restoration Project as necessary to ensure the "stand-alone" Project impacts are fully mitigated.

The State Lands Commission staff is proposing to condition the Project so that ten years from the effective date of the lease authorizing Poseidon's use of the intake and outfall, or upon notice that the EPS will no longer require use of the intake and outfall, the Commission would undertake an environmental review of the ongoing impacts of the operation of the Project. The proposed lease condition would authorize the Commission to place additional requirements on the Project that it determines are appropriate in light of the environmental review. Similarly, the Regional Board's Project discharge permit requires additional review of the Project upon retirement of the power plant. The Regional Board has the authority to place additional requirements on the Project as it determines are appropriate in light of its review. Any proposed modifications to the Project due to changes in the power plant or such additional requirements would also be subject to Coastal Commission review and approval.

CONCLUSION AND SUMMARY OF PROPOSAL

In summary, Poseidon's Marine Wetlands Mitigation Plan is the culmination of several years of research and study by respected scientists – including evaluation from independent Coastal Commission experts and collaboration and input from a myriad of local, state and federal agencies including the California Coastal Commission, California State Lands Commission, San Diego Regional Water Quality Control Board, California Department of Fish and Game, California Department of Transportation, U.S. Fish and Wildlife Service, City of Vista, San Diego County Water Authority and the City of Carlsbad.

The marine life mitigation analysis and strategy contained in this document relies on existing CEC methodology and Coastal Commission precedent to conclude that Poseidon's Marine Life Mitigation Plan is consistent with all applicable Coastal Act requirements, and guarantees that the Carlsbad Desalination Plant's entrainment and impingement impacts are properly measured and fully mitigated throughout the life of the Project.

Poseidon proposes the following phased marine life mitigation strategy based on CEC methodology and Coastal Commission precedent:

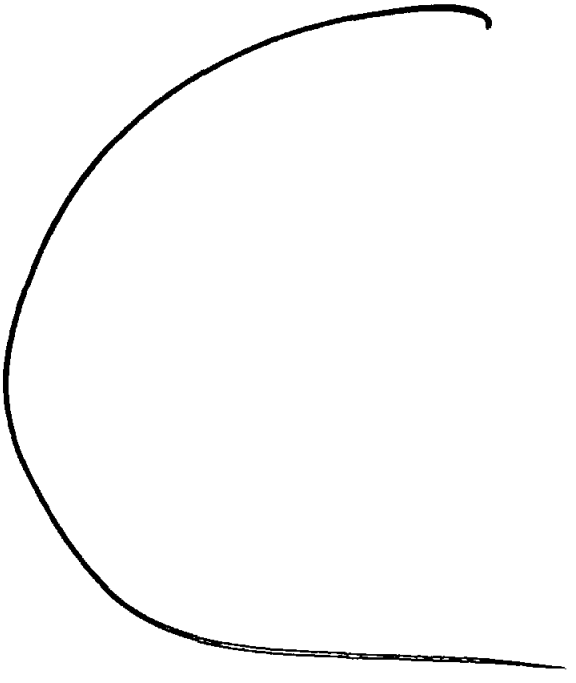
Mitigation Phase	Poseidon Obligation
• Phase I Mitigation	• 37 acres of restoration, which will over-mitigate potential impacts when the Project and the EPS are both operating
• Phase II Mitigation	• To fully mitigate the Project's "stand-alone" operations, an additional 5.5 acres of mitigation should be provided on top of the 37 acres of restoration from Phase I Mitigation.[5] However, Poseidon's 81 acre restoration credit for keeping the Lagoon

[5] Dr. Raimondi has proposed an additional 18.4 acres of restoration on top of the 37 acres identified in Poseidon's Phase I Mitigation, however, there is no support for this arbitrary increase and it is therefore not a part of Poseidon's proposal.

	inlet open should be applied to any mitigation required above the 37 acres in the Phase I Mitigation, because Poseidon will assume this responsibility once the EPS is decommissioned.

As discussed above, phased implementation has numerous benefits, including that it will allow Poseidon to investigate new, and currently unavailable, technologies and processes to reduce impacts, which could be implemented in lieu of restorative mitigation. Further, phasing will allow the Commission to conduct the same "interim" review of Project mitigation that the State Lands Commission and Regional Board already will be conducting.

Finally, Poseidon's commitment to dredge and maintain the Lagoon's inlet once the EPS is decommissioned will result in the preservation of existing, man-made coastal wetlands that have significant and quantifiable value. Historically, such dredging commitments have garnered mitigation credit from the Coastal Commission, establishing a policy that rightfully should be applied to the Project.



POSEIDON RESOURCES

July 3, 2008

THIS DOCUMENT HAS BEEN PROVIDED TO COASTAL COMMISSION STAFF

VIA FEDEX

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

Re: Carlsbad Desalination Project, CDP Application No. E-06-013
Proposed Marine Life Mitigation Plan Per Special Condition 8

Dear Chairman Kruer and Honorable Commissioners:

Poseidon Resources (Channelside) LLC (the "Applicant") requests that the Commission approve at its August 2008 meeting the proposed Marine Life Mitigation Plan (the "MLMP"), attached hereto as Exhibit A, which the Applicant has prepared pursuant to Special Condition 8 of the above-referenced Coastal Development Permit (the "Permit") for the Carlsbad Desalination Facility (the "Project"). The Commission approved the Permit at its November 15, 2007 hearing, including Special Condition 8, which requires the Applicant to submit a Marine Life Mitigation Plan for Commission review and approval before the Permit will issue.

This letter addresses several key issues regarding the MLMP that will be presented to the Commission at its August hearing. Specifically, the letter explains that the Applicant's proposed restoration acreage levels are accurate and conservative; that a phased approach to mitigation is appropriate for this Project and would ensure that any impacts to marine life are fully mitigated; and that the Applicant is entitled to receive restoration credit from the Commission if it assumes dredging obligations for the Agua Hedionda Lagoon and obtains a Coastal Development Permit for such dredging. For those reasons and others presented below, the Applicant believes that the MLMP fully addresses the Commission's concerns from the November 2007 meeting and the requirements of Special Condition 8, and that the Commission should therefore approve the proposed MLMP.

In addition to the MLMP, the Applicant is also submitting several related documents to assist the Commission in its evaluation of the MLMP. The contents of each of the submittals attached to this letter are explained in greater detail below, followed by a brief discussion of the Commission's authority to adopt the Plan and a discussion of outstanding administrative issues.

A. Marine Life Mitigation Plan

The Applicant's proposed MLMP (Exhibit A) is the culmination of several years of research and study by respected scientists – including evaluation from independent Coastal

Poseidon Resources Corporation
501 West Broadway, Suite 840, San Diego, CA 92101, USA
619-595-7802 Fax: 619-595-7892

Project Office: 4600 Carlsbad Boulevard, Carlsbad, CA 92008

Commission experts – and collaboration and input from a myriad of local, state and federal agencies including the California Coastal Commission, California State Lands Commission, San Diego Regional Water Quality Control Board, California Department of Fish and Game, California Department of Transportation, U.S. Fish and Wildlife Service, the City of Vista, San Diego County Water Authority and the City of Carlsbad. The MLMP sets forth the performance standards with which the Applicant will comply to develop and implement a wetland restoration project of up to 42.5 acres of wetland habitat that not only fully mitigates the Carlsbad Desalination Facility's "stand-alone" marine life impacts, but also provides mitigation beyond what is required to create, enhance and restore aquatic and wetland habitat and ensure long-term protection of the mitigation consistent with the Coastal Act. Specifically, the MLMP contains each of the following elements, as required by Special Condition 8:

- Requires the creation, enhancement, or restoration of aquatic and wetland habitat;
- Requires a Coastal Development Permit be submitted for a mitigation site or sites prior to commencement of project operations that exceeds any marine impacts caused by the project;
- Contains goals, objectives and performance criteria for proposed mitigation sites, ensures that the Applicant will provide specific creation, restoration, or enhancement measures that will be used at the selected mitigation site(s), and identifies certain contingency measures that may be implemented should there be issues in meeting the performance criteria;
- Requires submittals of plans and monitoring reports until the restoration site(s) meet the performance criteria; and
- Defines legal mechanism(s) to ensure permanent protection of each site.

Also pursuant to Special Condition 8, the Applicant has previously provided Commission Staff with a full copy of its Entrainment Study conducted in 2004-2005 to document 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.

B. <u>Marine Life Mitigation Plan Rationale</u>

Attached hereto as Exhibit B is a detailed explanation of the rationale that underlies several of the key elements contained in the MLMP (the "MLMP Rationale").

First, the MLMP Rationale provides support for the determination that up to 42.5 acres of habitat restoration, including 37 acres to compensate for Lagoon species impacts and an additional 5.5 acres to compensate for open species impacts, would more than fully mitigate the Project's "stand-alone" impacts to marine life. As set forth in the MLMP Rationale, the Applicant's proposed acreage for wetlands restoration is based on California Energy Commission ("CEC") methodology, is consistent with methodology used by the Commission to determine mitigation for the San Onofre Nuclear Generating Station ("SONGS") and the Moss

Landing Power Plant, and is consistent with the Regional Water Quality Control Board's methodology for analyzing marine impacts for the Diablo Canyon Power project. The MLMP Rationale also demonstrates that Dr. Pete Raimondi, the Commission's own independent expert, concluded that the Applicant's calculations are consistent with CEC methodology and Commission precedent, are consistent with Commission-accepted standards and procedures, and that the Applicant's entrainment study design is consistent with recent entrainment studies. In addition, the MLMP Rationale shows that the proposed restoration acreage is a very conservative overestimate of the number of acres needed to mitigate the facility's impacts to marine life because it is based on a multi-species approach to mitigation that: (1) assumes a greater amount of entrainable fish larvae in the Lagoon than are likely present; and (2) does not lower the restoration acreage based on the facts that the facility only partially impacts some of the Lagoon acreage.[1]

Second, the MLMP Rationale presents the MLMP's phased mitigation approach, which addresses the fact that the Carlsbad Desalination Facility will function under different operating scenarios (first, as a co-located facility operating concurrently with the Encina Power Station, and later as a stand-alone facility once the Power Station is decommissioned) that will have different impact levels on marine life.

1. Mitigation During Co-Located Operations

As Poseidon's previous submissions have demonstrated, the Project would cause marine impacts from impingement and entrainment only when the Power Station is not utilizing its intakes for Power Station operations. Under the initial mitigation phase ("Phase I"), the Applicant would provide 37 acres of wetland restoration, which would substantially over-mitigate the Project's minor impacts to marine life by 2.5 times while the Power Station continues to operate.[2] This approach to project mitigation is extremely conservative for the following reasons that are explained in detail in Exhibit B:

- 37 acres of restoration would more than fully mitigate the Project's impacts as long as the Power Station provides at least 13% of the seawater for the Project. For example, from January 2007 to June 2008, the Power Station would have provided 65% of the water needed for the Project. Accordingly, only 14.9 acres of mitigation would have been required to completely mitigate the Project's marine impacts during that time period using CEC methodology;

- The Power Station is expected to operate for many years to provide grid stability to the San Diego Region, and last year it would have supplied 61% of the

[1] We understand that Commission Staff is advocating for a larger amount of restoration acreage, based on a standard that departs from past practice and has not been subject to peer review. Poseidon disagrees with Staff's approach, as set forth in more detail in Exhibit B.

[2] Based on Power Station operations from January 2007 to June 2008, during which the Power Station would have provided 65% of the water needed for the project.

seawater required for the Project, while through June of this year it would have provided 73% of the seawater required;

- While the Power Station continues to operate, new technologies or processes that are not available or feasible to implement today could be developed to reduce the Project's impacts to marine life. The Applicant would be incentivized to investigate and invest in those technologies so that it could implement reasonably feasible technologies once the Power Station is decommissioned to avoid additional mitigation costs; and

- The phased approach would enable the Applicant to evaluate its actual operations, whether its actual impacts to marine life are less than currently expected, and whether the 37-acres of restoration already provided would fully mitigate the Project's impacts when the Power Station is decommissioned.

2. Mitigation During "Stand-Alone" Operations

The MLMP Rationale also describes the second phase of mitigation ("Phase II"), which would be triggered if either the Power Station stops altogether using its existing seawater intakes for cooling purposes, or if the intakes provide less than 15% of the Applicant's needed water based on the Power Station's average water use over any three-year period. As set forth in the MLMP Rationale, under Phase II the Applicant would:

- Evaluate reasonably feasible technologies that are currently unavailable that could reduce marine life impacts, apply for a coastal development permit to implement any such technologies (if required), and proportionally reduce any remaining mitigation obligations based on the reduction to impacts resulting from implementation of the technologies;

- Assume dredging obligations for the Agua Hedionda Lagoon from the Power Station (if feasible) and obtain mitigation credit based on Commission precedent for similar dredging activities (such as those undertaken by SONGS);

- Perform additional wetland restoration if the Applicant cannot assume dredging obligations. Such restoration would be for up to 5.5 acres of wetland habitat, subject to possible reductions by the Commission based on: (1) the implementation of new technologies that reduce marine impacts; and/or (2) an evaluation from the Applicant regarding the marine life impacts from the Project's actual operations that demonstrates the 37-acres of restoration provided under Phase I has mitigated more of the Project's stand-alone impacts than originally projected.

Third, the MLMP rationale demonstrates how the Applicant's assumption of dredging obligations for the Agua Hedionda Lagoon would provide benefits to the marine environment. Based on Commission precedent for Lagoon dredging (including SONGS), such dredging activities should entitle the Applicant to substantial restoration credit to offset any outstanding

mitigation obligations. As explained in the MLMP Rationale, the Commission would determine the exact amount of credit that should be conferred on the Applicant after a hearing once the Applicant has assumed dredging obligations.

In sum, the MLMP Rationale demonstrates that the MLMP was prepared based on sound reasoning, that it is consistent with Commission practice and precedent, and that the MLMP is appropriate for approval.

C. Potential Mitigation Site in the San Dieguito Lagoon

In addition to preparing the MLMP, the Applicant has also prepared a detailed example of how the restoration of a specific wetlands site would comply with the requirements and obligations set forth in the MLMP, which is attached as Exhibit C. In its review of potential mitigation sites, the Applicant has spent considerable time, effort and resources evaluating the San Dieguito Lagoon as a site where a wetlands restoration project consistent with the MLMP could be feasibly implemented. Accordingly, and as set forth in Exhibit C, the Applicant has demonstrated how a restoration project in the San Dieguito Lagoon would conform to each of the MLMP's performance criteria in a manner consistent with the Coastal Act's requirements. This example confirms that the MLMP is a feasible mitigation plan, and that it is would be appropriate for the Commission to approve if specific restoration project local approvals are obtained. The MLMP contains several other mitigation sites that will be evaluated, and Poseidon will submit a Coastal Development Permit application for review by the Commission for one of those sites prior to the commencement of operations.

D. Commission Authority to Approve Marine Life Mitigation Plan

For the Commission's convenience, we would also like to clarify the Commission's authority to approve the MLMP. Pursuant to the Coastal Act regulations, mitigation measures "may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way." (Cal Code Regs, tit. 14, §15126.4(a)(1)(B).) It also is consistent with Commission practice and precedent to approve mitigation plans such as the MLMP, which contain performance standards that may require later discretionary approvals from the Commission or a local agency. (See, e.g., CDP Application No. E-6-81-330-A (formerly 183-73), Southern California Edison, May 1997 (approving wetlands mitigation and reef mitigation plans for adverse impacts to the marine environment, which would later require CEQA and/or NEPA environmental impact analyses in connection with local, State or other agency approvals); CDP Application No. E-08-001, Southern California Edison, May 2008 (habitat mitigation and restoration plan providing for 1:1 mitigation for all impacts to native vegetation affected during project activities, requiring approval from the U.S. Fish and Wildlife Service after Commission's approval of project); CDP Application No. E-08-003, PG&E, May 2008 (wetlands mitigation plan that includes specific performance standards for target vegetation coverage, and monitoring plan to allow Executive Director to compensate for portions of mitigation that potentially fail to meet standards). Accordingly, and consistent with the Commission's prior approval of similar mitigation plans, it is appropriate for the Commission to approve the MLMP.

E. **Outstanding Administrative Issues**

At the Commission's June 12, 2008 meeting, the Commission requested Staff to agendize the MLMP for the Commission's August 2008 meeting. We understand from our communications with Commission Staff that Staff has agreed to place the MLMP on the August 2008 agenda. Poseidon believes that it has provided the Commission with a detailed plan and supporting documentation that demonstrates full compliance with Special Condition 8. In the event the Staff does not agendize the MLMP for hearing in August, Poseidon requests that any issues preventing such consideration be brought to the Commission for hearing at the Commission's August 2008 meeting pursuant to the dispute resolution provisions in California Code of Regulations, title 14, sections 13166 and/or 13056(d).

Based on the discussion above, as well as the attachments provided with this letter, we respectfully request that the Commission approve the Applicant's Marine Life Mitigation Plan at its August 2008 meeting.

Sincerely,

Peter MacLaggan
Poseidon Resources

cc: Tom Luster
Rick Zbur, Esq.

EXHIBIT A

EXHIBIT A

MARINE LIFE MITIGATION PLAN

CONDITION A: WETLAND RESTORATION MITIGATION

The permittee shall develop, implement and fund a wetland restoration project that compensates for marine life impacts from Poseidon's Carlsbad desalination facility.

1.0 PHASED IMPLEMENTATION

Poseidon's Carlsbad desalination facility will function under two operating scenarios: (1) using the Encina Power Station's seawater intake while the Power Station continues to operate ("Phase I "); and (2) as a stand-alone facility ("Phase II"). The permittee's restoration project shall be phased to address marine life impacts from each of the applicable operating scenarios.

To mitigate marine life impacts for Phase I operations, the permittee shall develop, implement and fund a 37-acre wetland restoration project consistent with the terms and conditions set forth in this Plan. The permittee's additional obligations to mitigate marine life impacts for Phase II operations, which may include up to 5.5 acres of additional wetland restoration, are set forth in section 6.0. Combined, mitigation for Phase I and Phase II would require up to 42.5 acres of wetland restoration.

1.1 Technology Review During Phase I Operations

On or before April 30 of each year following the commencement of the Carlsbad desalination facility's commercial operations, the permittee shall provide the Executive Director with data demonstrating the Encina Power Station's cooling water intake for the prior calendar year. On or before April 30 following the first three years of the Carlsbad desalination facility's commercial operations, the permittee shall also provide the Executive Director with the calculation demonstrating the Power Station's average water use during the prior three-year period. The permittee shall thereafter provide the Executive Director with that calculation annually, on or before April 30, until either of the occurrence of either of the "Phase II Pre-Conditions," as defined in subsection 1.2 below.

Consistent with the permittee's approvals from the State Lands Commission, the permittee shall perform the following ten years after the commencement of commercial operations, unless either of the "Phase II Pre-Conditions" occur before that time (as defined in subsection 1.2 below):

a. Conduct a new analysis of the environmental effects of ongoing desalination facility operations ten years after the commencement of commercial operations. The analysis

shall provide information about the project's actual impacts from operations, taking into account all project features and mitigation measures;

b. Using that analysis, the permittee shall investigate and evaluate new and developing technologies that are reasonably feasible and unavailable today, which may further reduce any marine life impacts; and

c. Within 24 months of the date that the permittee commenced its analysis of the environmental effects of ongoing desalination facility operations, the permittee shall provide that analysis and its evaluation of potential and reasonably feasible technologies to the Commission for review. The determination of feasibility shall consider costs, potential impacts, and acceptability to the Encina Power Station, among other things.

Upon receiving the analysis of environmental effects of ongoing desalination facility operations and the evaluation of new and available technologies from the permittee, the Commission may request a hearing to determine whether those technologies are reasonably feasible and whether the permittee can implement any of the technologies to reduce marine life impacts. If the Commission determines that any such technologies are reasonably feasible and may further reduce marine impacts, this Marine Life Mitigation Plan may, after a public hearing before the Commission, be amended to require implementation of reasonably feasible technologies.

1.2 Implementation of Phase II Mitigation

The permittee's Phase I mitigation obligations will not be affected by whether or not the permittee is ultimately required to undertake mitigation for Phase II. If either the Encina Power Station stops using its existing seawater intake for cooling water, or the Encina Power Station's use of its seawater intake provides less than 15% of Poseidon's needed water based on the Power Station's average water use over any three-year period ("Phase II Pre-Conditions"), then the permittee shall also undertake the Phase II mitigation obligations set forth in section 6.0.

2.0 PHASE I SITE SELECTION

In consultation with Commission staff, the permittee shall select a wetland restoration site for Phase I mitigation in accordance with the following process and terms.

The location of the wetland restoration project shall be within the Southern California Bight. The permittee shall select from sites including, but not limited to, the following eleven sites: Tijuana Estuary in San Diego County; San Dieguito River Valley in San Diego County; Agua Hedionda Lagoon in San Diego County; San Elijo Lagoon in San Diego County; Buena Vista Lagoon in San Diego County; Huntington Beach Wetland in Orange County, Anaheim Bay in Orange County, Santa Ana River in Orange County, Los Cerritos Wetland in Los Angeles

County, Ballona Wetland in Los Angeles County, and Ormond Beach in Ventura County. The permittee may also consider any sites that may be recommended by the California Department of Fish & Game as high priority wetlands restoration projects.

The basis for the selected site shall be an evaluation of the site against the minimum standards and objectives set forth in subsections 3.1 and 3.2 below. The permittee shall take into account and give consideration to the advice and recommendations of the scientific advisory panel established and convened by the Executive Director pursuant to Condition B.1.0. The permittee shall select the site that meets the minimum standards and best meets the objectives.

3.0 PHASE I PLAN REQUIREMENTS

In consultation with Commission staff, the permittee shall develop a wetland restoration plan for the wetland site identified through the site selection process for Phase I. The wetland restoration plan shall meet the minimum standards and incorporate as many as feasible of the objectives in subsections 3.1 and 3.2, respectively.

3.1 Minimum Standards

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

a. Location within Southern California Bight;

b. Potential for restoration as tidal wetland, with extensive intertidal and subtidal areas;

c. Creates or substantially restores a minimum of 37 acres of habitat similar to the affected habitats in Agua Hedionda Lagoon, excluding buffer zone and upland transition area;

d. Provides a buffer zone of a size adequate to ensure protection of wetland values, and substantially at least 100 feet wide, as measured from the upland edge of the transition area. The Executive Director or the Commission may make exceptions to the 100-foot buffer requirement in certain locations if they determine that the exceptions are de minimis, or that a lesser buffer is sited and/or designed to prevent impacts that would significantly degrade wetland areas and that they are compatible with the continuance of those areas;

e. Any existing site contamination problems would be controlled or remediated and would not hinder restoration;

f. Site preservation is guaranteed in perpetuity (through appropriate public agency or nonprofit ownership, or other means approved by the Executive Director), to protect against future degradation or incompatible land use;

g. Feasible methods are available to protect the long-term wetland values on the site, in perpetuity;

h. Does not result in a net loss of existing wetlands; and

i. Does not result in an adverse, un-mitigated impact on endangered species.

3.2 Objectives

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

a. Provides substantial overall ecosystem benefits, e.g. substantial upland buffer, enhancement of downstream fish values, provides regionally scarce habitat, potential for local ecosystem diversity;

b. Provides substantial fish habitat compatible with other wetland values at the site;

c. Provides a buffer zone of at least 100 feet wide, as measured from the upland edge of the transition area, subject to the exemptions set forth in subsection 3.1(d);

d. Provides substantial upland transition areas (in addition to buffer zones);

e. Restoration involves minimum adverse impacts on existing functioning wetlands and other sensitive habitats;

f. Site selection and restoration plan reflect a consideration of site specific and regional wetland restoration goals;

g. Restoration design is that most likely to produce and support wetland-dependent resources;

h. Provides potential habitat for rare or endangered species;

i. Provides for restoration of reproductively isolated populations of native California species;

j. Results in an increase in the aggregate acreage of wetland in the Southern California Bight;

k. Requires minimum maintenance;

l. Restoration project can be accomplished in a reasonably timely fashion; and

m. Site is in proximity to the Carlsbad desalination facility.

3.3 Restrictions

(a) The permittee may propose a wetland restoration project larger than the minimum necessary size specified in subsection 3.1(c) above, if biologically appropriate for the site, but the additional acreage must (1) be clearly identified, and (2) must not be the portion of the project best satisfying the standards and objectives listed above.

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

(c) The permittee may propose to divide the mitigation requirement between a maximum of four wetland restoration sites, unless the Executive Director determines that the standards and objectives of subsections 3.1 and 3.2 will be better met at more than four sites.

4.0 PHASE I PLAN IMPLEMENTATION

4.1 Coastal Development Permit Application

The permittee shall submit a complete Coastal Development Permit application for the Phase I restoration plan along with CEQA documentation and local or other state agency approvals by either 24 months following the issuance of the Coastal Development Permit for the Carlsbad desalination facility, or the commencement of commercial operations at the facility, whichever is later. The Executive Director may grant an extension to this time period at the request of and upon a demonstration of good cause by the permittee. The restoration plan shall substantially conform to Section 3.0 above and shall include, but not be limited to the following elements:

a. Detailed review of existing physical, biological, and hydrological conditions; ownership, land use and regulation;

b. Evaluation of site-specific and regional restoration goals and compatibility with the goal of mitigating for Poseidon's marine life impacts;

c. Identification of site opportunities and constraints;

d. Schematic restoration design, including:

    1. Proposed cut and fill, water control structures, control measures for stormwater, buffers and transition areas, management and maintenance requirements;

    2. Planting Program, including removal of exotic species, sources of plants and or seeds (local, if possible), protection of existing salt marsh plants, methods for preserving

top soil and augmenting soils with nitrogen and other necessary soil amendments before planting, timing of planting, plans for irrigation until established, and location of planting and elevations on the topographic drawings;

3. Proposed habitat types (including approximate size and location);
4. Assessment of significant impacts of design (especially on existing habitat values) and net habitat benefits;
5. Location, alignment and specifications for public access facilities, if feasible;
6. Evaluation of steps for implementation e.g. permits and approvals, development agreements, acquisition of property rights;
7. Cost estimates;
8. Topographic drawings for final restoration plan at 1" = 100 foot scale, one foot contour interval; and
9. Drawings shall be directly translatable into final working drawings.

g. Detailed information about how monitoring and maintenance will be implemented;

h. Detailed information about construction methods to be used;

i. Defined final success criteria for each habitat type and methods to be used to determine success;

j. Detailed information about how Poseidon will coordinate with any other agency or panel that will have a role in implementing and monitoring the restoration plan, including the respective roles of the parties in independent monitoring, contingency planning review, cost recovery, etc.;

k. Detailed information about contingency measures that will be implemented if mitigation does not meet the approved goals, objectives, performance standards, or other criteria; and

l. Submittal of "as-built" plans showing final grading, planting, hydrological features, etc. within 60 days of completing mitigation site construction.

4.2 Wetland Construction Phase

Within 12 months of approval of the Phase I restoration plan, subject to the permittee's obtaining the necessary permits, the permittee shall commence the construction phase of the wetland restoration project. The permittee shall be responsible for ensuring that construction is carried out in accordance with the specifications and within the timeframes specified in the approved

restoration plan and shall be responsible for any remedial work or other intervention necessary to comply with plan requirements.

4.3 Timeframe for Resubmittal of Project Elements

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

5.0 PHASE I WETLAND MONITORING, MANAGEMENT AND REMEDIATION

Monitoring, management (including maintenance), and remediation shall be conducted over the "full operating life" of Poseidon's desalination facility, which shall be 30 years from the date "as-built" plans are submitted pursuant to subsection 4.1(*l*).

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

5.1 Monitoring and Management Plan

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

5.2 Pre-restoration site monitoring

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

5.3 Construction Monitoring

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

5.4 Post-Restoration Monitoring and Remediation

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

Successful achievement of the performance standards shall (in some cases) be measured relative to approximately four reference sites, which shall be relatively undisturbed, natural tidal wetlands within the Southern California Bight. The reference sites and the standard of comparison, i.e. the measure of similarity to be used, shall be specified in the work program.

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

a. Longterm Physical Standards. The following long-term standards shall be maintained over the full operative life of the desalination facility:

   1) Topography. The wetland shall not undergo major topographic degradation (such as excessive erosion or sedimentation);

   2) Water Quality. Water quality variables [to be specified] shall be similar to reference wetlands; and

   3) Habitat Areas. The area of different habitats shall not vary by more than 10% from the areas indicated in the restoration plan.

b. Biological Performance Standards. The following biological performance standards shall be used to determine whether the restoration project is successful. Table 1, below, indicates suggested sampling locations for each of the following biological attributes; actual locations will be specified in the work program:

   1) Biological Communities. Within 4 years of construction, the total densities and number of species of fish, macroinvertebrates and birds (see Table 1) shall be similar to the densities and number of species in similar habitats in the reference wetlands;

   2) Vegetation. The proportion of total vegetation cover and open space in the marsh shall be similar to those proportions found in the reference sites. The percent cover of algae shall be similar to the percent cover found in the reference sites;

3) Spartina Canopy Architecture. The restored wetland shall have a canopy architecture that is similar in distribution to the reference sites, with an equivalent proportion of stems over 3 feet tall;

4) Reproductive Success. Certain plant species, as specified by in the work program, shall have demonstrated reproduction (i.e. seed set) at least once in three years;

5) Food Chain Support. The food chain support provided to birds shall be similar to that provided by the reference sites, as determined by feeding activity of the birds; and

6) Exotics. The important functions of the wetland shall not be impaired by exotic species.

Table 1: Suggested Sampling Locations

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

6.0 MITIGATION REQUIRED AFTER PHASE II PRECONDITION

6.1 Reasonably Feasible Technologies

Following the occurrence of either of the Phase II Pre-Conditions, as defined in subsection 1.1, the permittee shall:

a. Conduct a new analysis of the environmental effects of ongoing desalination facility operations. The analysis shall provide information about the project's actual impacts from operations, taking into account all project features and mitigation measures;

b. Using that analysis, the permittee shall investigate and evaluate new and developing technologies that are reasonably feasible and unavailable today, which may further reduce any marine life impacts;

c. Within 24 months of the occurrence of the applicable Phase II pre-condition, the permittee shall provide that analysis and its evaluation of potential and reasonably feasible technologies to the Commission for review. The determination of feasibility shall consider costs, potential impacts, and acceptability to the Encina Power Station, among other things; and

d. The analysis and evaluation provided to the Commission shall also include an evaluation of whether the 37 acres of wetland restoration implemented by the permittee has fully or only partially mitigated marine life impacts for stand-alone operations, taking into account actual operating conditions from facility operations for Phase I and potential reductions to impacts that would occur as a result of any new and reasonably feasible technologies that the permittee may implement pursuant to this subsection 6.1.

Upon receiving the evaluation of new and available technologies from the permittee, the Commission may request a hearing to determine whether those technologies are reasonably feasible and whether the permittee can implement any of the technologies to reduce marine life impacts. If the Commission determines that any such technologies are reasonably feasible and may further reduce marine impacts, this Marine Life Mitigation Plan may be amended after a public hearing before the Commission to require implementation of reasonably feasible technologies. The Commission also may determine the additional mitigation, if any, required after implementation of available technologies to reduce marine life impacts from Phase II operations.

6.2 Additional Mitigation

The permittee also shall comply with the following mitigation measures after the occurrence of either Phase II Pre-Condition:

a. If within 24 months of the occurrence of the applicable Phase II Pre-Condition, the permittee assumes dredging obligations of the Agua Hedionda Lagoon from the Encina Power Station or other applicable entity, the permittee shall provide evidence to the Executive Director in the form of a contract or other agreement that demonstrates the permittee's assumption of dredging obligations, along with an evaluation of the permittee's dredging activities and supporting documentation for the proposed mitigation credit the permittee is seeking for this activity. Pursuant to Special Condition 12 of this Permit, the permittee shall not dredge the Agua Hedionda Lagoon without obtaining a new Coastal Development Permit approval from the Commission for dredging activities. If such dredging obligations are assumed, the Commission shall evaluate and determine the mitigation credit the permittee is entitled to receive for Lagoon dredging using substantially the same methodology the Commission used for the San Onofre Nuclear Generating Station's dredging approvals. If the Commission's evaluation set forth in subsection 6.1 determines that there is any remaining mitigation obligation following the implementation of reasonably feasible technologies to reduce marine impacts, the credit for Lagoon dredging shall be applied to satisfy any remaining mitigation obligation of the permittee; or

b. If the permittee does not assume the dredging obligations for the Agua Hedionda Lagoon (for any reason other than delays by the Commission in issuing the Coastal Development Permit for dredging) and the analysis and evaluation set forth in subsection 6.1 identifies that additional wetland restoration is necessary to mitigate Phase II impacts not fully mitigated by the 37-acre restoration project, then within 24 months of the occurrence of the applicable Phase II Pre-Condition, the permittee shall apply for a new Coastal Development Permit to perform additional wetland mitigation to mitigate marine life impacts for Phase II operations that meets the following criteria:

   (i) the Phase II wetland mitigation shall credit the 37-acres of restoration required under this Plan for Phase I, and may require additional mitigation of up to an additional 5.5 acres. The Commission shall proportionally reduce the potential 5.5 acre restoration requirement based on: (1) any reduction to marine life impacts caused by the permittee's implementation of reasonably feasible technologies, as set forth in subsection 6.1; and (2) any demonstration that actual plant operations have caused less marine life impacts than originally anticipated during the project's initial evaluation;

   (ii) the permittee shall apply for a new Coastal Development Permit to perform the wetland restoration, and the restoration shall be of habitat similar to the affected habitats in Agua Hedionda Lagoon, excluding buffer zone and upland transition area, and consistent with the objectives and restrictions in subsections 3.1 (excluding subsection 3.1(c)), 3.2 and 3.3 above;

(iii) the permittee shall select a wetland restoration site for Phase II mitigation in a manner generally in accordance with section 2.0 above;

(iv) the restoration plan for Phase II mitigation shall be generally in accordance with the requirements in section 4.0 above, and shall be monitored in a manner generally in accordance with that set forth in section 5.0 above; and

(v) Phase II wetland restoration shall be included in and administered as part of the same administrative structure created for Phase I mitigation and set forth in Condition B of this Plan.

CONDITION B: ADMINISTRATIVE STRUCTURE

1.0 ADMINISTRATION

Personnel with appropriate scientific or technical training and skills will, under the direction of the Executive Director, oversee the mitigation and monitoring functions identified and required by Condition A. The Executive Director will retain scientific and administrative support staff to perform this function, as specified in the work program.

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

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

2.0 BUDGET AND WORK PROGRAM

The funding necessary for the Commission and the Executive Director to perform their responsibilities pursuant to these conditions will be provided by the permittee in a form and manner reasonably determined by the Executive Director to be consistent with requirements of State law, and which will ensure efficiency and minimize total costs to the permittee. The amount of funding will be determined by the Commission on a biennial basis and will be based on a proposed budget and work program, which will be prepared by the Executive Director in consultation with the permittee, and reviewed and approved by the Commission in conjunction with its review of the restoration plan. Permit application fees paid by the permittee for Coastal

Development Permits (or amendments thereto) for the restoration program shall be credited against the budget to be funded by the permittee. If the permittee and the Executive Director cannot agree on the budget or work program, the disagreement will be submitted to the Commission for resolution.

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

Costs for participation on any advisory panel shall be limited to travel, per diem, meeting time and reasonable preparation time and shall only be paid to the extent the participant is not otherwise entitled to reimbursement for such participation and preparation. The amount of funding will be determined by the Commission on a biennial basis and will be based on a proposed budget and work program, which will be prepared by the Executive Director in consultation with the permittee, and reviewed and approved by the Commission in conjunction with its review of the restoration plan. If the permittee and the Executive Director cannot agree on the budget or work program, the disagreement will be submitted to the Commission for resolution.

The work program will include:

a. A description of the studies to be conducted over the subsequent two year period, including the number and distribution of sampling stations and samples per station, methodology and statistical analysis (including the standard of comparison to be used in comparing the mitigation project to the reference sites);

b. A description of the status of the mitigation projects, and a summary of the results of the monitoring studies to that point;

c. A description of up to four reference sites;

d. A description of the performance standards that have been met, and those that have yet to be achieved;

e. A description of remedial measures or other necessary site interventions;

f. A description of staffing and contracting requirements; and

g. A description of the scientific advisory panel's role and time requirements in the two year period.

Any amendment to the work program requested by the permittee shall require an amendment to the Coastal Development Permit for the restoration plan, unless the Executive Director determines that no Coastal Development Permit amendment is necessary or required. Any amendment to the work program proposed by the Executive Director shall be made in consultation with the permittee. If the permittee and the Executive Director cannot agree on an amendment to the work program, the disagreement will be submitted to the Commission for resolution.

3.0 ANNUAL REVIEW AND PUBLIC WORKSHOP REVIEW

The permittee shall submit a written review of the status of the mitigation project to the Executive Director each year on April 30 for the prior calendar year. The written review will discuss the previous year's activities and overall status of the mitigation project, identify problems and make recommendations for solving them, and review the next year's program.

Every fifth year, the Executive Director or the Commission shall also convene and conduct a duly noticed public workshop to review the status of the mitigation project. The meeting will be attended by the contractors who are conducting the monitoring, appropriate members of the Scientific Advisory Panel, the permittee, Commission staff, representatives of the resource agencies (CDFG, NMFS, USFWS), and the public. Commission staff and the contractors will give presentations on the previous five years' activities and the overall status of the mitigation project, identify problems and make recommendations for solving them, and review the next period's program.

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

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

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

4.0 ADDITIONAL PROCEDURES

4.1 Dispute Resolution

In the event that the permittee and the Executive Director cannot reach agreement regarding the terms contained in or the implementation of any part of this Plan, the matter may be set for hearing and disposition by the Commission.

4.2 Extensions

Any of the time limits established under this Plan may be extended by the Executive Driector at the request of the permittee and upon a showing of good cause.

EXHIBIT B

EXHIBIT B

MARINE LIFE MITIGATION PLAN RATIONALE

Special Condition 8 of the Project's Coastal Development Permit requires Poseidon to develop a Marine Life Mitigation Plan ("MLMP") for further Commission review and approval. Poseidon has prepared an MLMP (Exhibit A), which sets forth specific performance standards that ensure Poseidon will implement and fund a wetland restoration project or projects that not only fully mitigate any Project impacts to marine life, but also provides additional mitigation that creates, enhances, and restores aquatic and wetland habitat, and ensures long-term performance, monitoring, and protection of the mitigation measures consistent with the Coastal Act Sections 30230 and 30231.

Based on Poseidon's entrainment study and using Coastal Commission precedent and California Energy Commission ("CEC") methodology, the MLMP contains specific wetland restoration acreage amounts that will fully mitigate the projects impacts to marine life. Due to the fact that the Project will most likely function under two operating scenarios (using the Encina Power Station's ("EPS") seawater intake while the EPS continues to operate, and using the intake system as a stand-alone facility if the EPS is decommissioned), Poseidon's MLMP also contains phased mitigation implementation to address the potential impacts that may result from each of these distinct operating "phases." Finally, the MLMP appropriately enables Poseidon to receive mitigation credit for the assumption of dredging obligations for the Agua Hedionda Lagoon, and for implementing technologies that are unavailable or infeasible to implement today, but which may be developed in the future to reduce the Project's impacts to marine life. Below we have described in greater detail the rationale underlying each of these MLMP elements.

I. DETERMINATION OF AMOUNT OF HABITAT RESTORATION

Poseidon conducted an entrainment study of the Project's potential impacts to marine life, and the Coastal Commission retained an independent expert, Dr. Pete Raimondi of UC Santa Cruz, to review the adequacy of Poseidon's study and its mitigation plan. Dr. Raimondi's analysis confirmed, among other things, that:

- Poseidon's study design is consistent with recent entrainment studies;
- Using CEC methodology and Coastal Commission precedent, the habitat restoration required to mitigate the Project's "stand-alone" operations would be 37 acres (to compensate for Lagoon species impacts), and an additional 5.5 acres[1] (to compensate for open ocean species impacts); and
- Habitat mix for mitigation should include mudflat/tidal channel and open water habitat.

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[1] Acres of estuarine habitat required to compensate for potential impact to 55 acres of sandy bottom open water habitat.

Dr. Raimondi concurred that, using CEC methodology and Coastal Commission precedent, Poseidon would be required to restore up to 42.5 acres to fully mitigate the Project's "stand-alone" impacts. This is consistent with the peer-reviewed and approved methodology the Commission applied to the San Onofre Nuclear Generating Station and the Moss Landing Power Plant.

It appears, however, that Commission Staff is recommending an increase in this mitigation requirement from past practice, by applying a new standard that has not been peer-reviewed and by adjusting variables in the modeling estimates. We understand that Staff is basing this recommendation on a supplemental mitigation calculation made by Dr. Raimondi, which calculated mitigation acreage beyond what either CEC methodology requires or the Coastal Commission has imposed in the past. Specifically, Dr. Raimondi suggested that in order to provide an even *greater* level of assurance to compensate for potentially impacted lagoon and ocean species, that Poseidon restore 12.9 acres above the 42.5 acres required under CEC and Coastal Commission methodology – for a total of 55.4 acres – to provide an extraordinary and unprecedented degree of certainty that the Project's "stand-alone" impacts are fully mitigated. Dr. Raimondi's proposed "adjustment" is wholly inconsistent with Coastal Commission precedent, CEC methodology and the very methodology Dr. Raimondi used to determine restoration requirements for the Diablo Canyon Power project. Additionally, the "adjustment" is not an established, peer-reviewed standard for determining mitigation requirements.

In contrast, the MLMP's methodology is conservative and conforms entirely to Commission-accepted precedent. In fact, in December 2006, Commission Staff directed Poseidon to use CEC methodology to determine the Project's marine life impacts and proposed mitigation. The CEC methodology is Commission-approved, is considered to be conservative, and has been subjected to peer-review. It is also conservative in that it results in an overestimate of the number of restoration acres required to mitigate project impacts because: (1) it overestimates the larval fish population in the lagoon and assumes a greater amount of entrainable larvae than what are likely present; (2) assumes that the project will render all impacted acreage non-functional, even though that acreage would only be partially impacted and would continue to allow for numerous species to function and thrive; and (3) assumes a 100% mortality for entrained organisms, when the mortality rate will likely be significantly lower.

As discussed in additional detail below, the MLMP is fully consistent with CEC methodology and Coastal Commission precedent, and is appropriate for the Commission to approve.[2]

II. PHASED APPROACH TO MLMP IMPLEMENTATION.

Under Poseidon's phased approach to Project mitigation, the initial phase of the mitigation plan would fully compensate for Project related impacts during the period when both

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[2] Poseidon notes that it does not waive its arguments that the Coastal Commission's authority is limited with respect to the coordination and control of water quality, and compliance with the Porter-Cologne Act, as set forth in Poseidon's submittals to the Coastal Commission dated April 30 and June 9, 2008.

the EPS and the Project are operating ("Phase I"). The second phase of the mitigation plan would address any additional unmitigated impacts arising out of the stand-alone Project operation following either the retirement of the power plant, or when the EPS's operations are so minimal that water used by the EPS will account for less than 15% of the water needed for the Project based on the EPS's average water use over any three-year period[3] ("Phase II").

There are compelling arguments in support of this phased approach. First, the ongoing need for the EPS to provide grid stability in the San Diego region ensures that it may be many years before the Project is operating on a truly "stand-alone" basis. In fact, 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, an EPS 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. In the interim, a significant portion of the seawater required for Project would be provided by the EPS, and the near-term need for mitigation would be proportionally reduced.

Second, while the EPS continues to operate, new technologies or processes that are not available today could be developed that Poseidon could employ once the EPS is retired (or reduced to minimal operations) to further reduce the entrainment impacts. Phased implementation of the MLMP would provide a tremendous incentive for Poseidon to investigate and invest in such technologies and opportunities to further reduce Project impacts and avoid additional mitigation costs. If Poseidon is required to provide all of the mitigation for the "stand-alone" operations upfront, there is substantially less incentive to invest in additional avoidance measures.

Third, the phased approach provides the Commission with the authority to have ongoing involvement in the implementation of the MLMP alongside other regulatory agencies. The Regional Board and the State Lands Commission have indicated that upon decommissioning of the EPS, they will undertake an environmental review of the Project to determine what, if any, additional design, technology, or mitigation measures should be required. To the extent that there are modifications to the Project as a result of power plant decommissioning or to comply with State Lands Commission or Regional Board requirements, any development associated with such modifications would also be subject to review by the Coastal Commission for Coastal Act compliance.

Fourth, Poseidon's Phase I wetlands restoration of 37 acres actually overmitigates the desalination facility's impacts by several multiples while the EPS is still operating. In the last 18 months, the EPS would have provided 65% of the water needed for the Project. Based on that number, Poseidon would have been required to provide only 14.9 acres of mitigation using CEC methodology and Commission precedent. Posiedon's Phase I restoration of 37 acres would be 2.5 times the mitigation actually required. Therefore, through the phased approach to mitigation,

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[3] Note that this threshold is very conservative. The Phase I restoration project would fully mitigate the Project's impacts as long as at least 13% of the Project's seawater requirements are provided by the EPS. Poseidon's MLMP is conservative in that it requires Poseidon to implement Phase II mitigation if the EPS is providing an average of less than 15% of the Project's seawater requirements over a three-year period.

Poseidon is actually providing most, if not all, of the mitigation required for the project's stand-alone operations up front.

A. Phase I Mitigation

The Phase I element of Poseidon's MLMP would restore 37 acres of wetland habitat similar to the affected habitats in Agua Hedionda Lagoon. Using CEC and prior Coastal Commission methodology, the Phase I mitigation would mitigate 87% of the total mitigation requirements for the Project's "stand alone" operations when the EPS has ceased operating. By providing this mitigation while the Project and the power plant are both operating, Poseidon will perform more mitigation than what should actually be required for this stage of the Project's operations. For example, and as discussed above, based on the EPS's intake flow over the past 18 months, Poseidon would only be required to restore 14.9 acres of wetland habitat in order to *fully* mitigate the Project's marine life impacts. By restoring 37 acres of wetland while the EPS is operating at a similar level, Poseidon will provide mitigation well above what would be needed to mitigate the Project's actual impacts to marine life. The Phase I mitigation would fully mitigate the Project's impacts as long as at least 13% of the Project's seawater requirements are provided by the EPS.

B. Phase II Mitigation

The MLMP requires Poseidon to implement mitigation measures for Phase II if the EPS stops using its existing seawater intakes for cooling purposes, or if the intakes provide less than 15% of Poseidon's needed water based on the EPS' average water use over any three-year period ("Phase II Pre-Conditions"). Wetland habitat restoration under Phase II would credit the 37 acres of restoration already provided for under Phase I, and provide assurances that stand-alone operations are fully mitigated in Phase II.

Dr. Raimondi estimated that 5.5 acres (using CEC and prior Coastal Commission methodology) of additional mitigation may be needed to fully mitigate the "stand-alone" Project operation once the Phase I mitigation is in place. Poseidon's MLMP proposes restoration of 5.5 acres of wetland habitat similar to the affected habitat in Agua Hedionda Lagoon to mitigate Phase II impacts, but subject to reduction based on restoration credits for activities that Poseidon may undertake to enhance the marine environment and to minimize impacts to marine life, as discussed below.

Specifically, once either of the Phase II Pre-Conductions occur, the MLMP requires Poseidon to: (1) analyze the environmental effects of ongoing Project operations; (2) use that analysis to investigate and evaluate reasonably feasible technologies that are unavailable today, which may reduce any marine life impacts; and (3) provide its analysis of environmental effects and its evaluation of any reasonably feasible technologies to reduce marine life impacts to the Commission within 24 months. Accordingly, the Coastal Commission will be able to proportionally reduce Poseidon's habitat restoration obligation for Phase II mitigation based on

the reduction to impacts resulting from Poseidon's implementation of reasonably feasible technologies.[4]

In addition to addressing newly developed technologies to reduce marine impacts, Poseidon is also obligated to assume dredging obligations of the Agua Hedionda Lagoon from the EPS within 24 months of the occurrence of either Phase II Pre-Condition, if feasible.[5] When Poseidon assumes dredging obligations, it will provide evidence of its obligations to the Commission, along with an analysis of how Lagoon dredging is beneficial to the Lagoon and how dredging activities entitle Poseidon to some amount of restoration credit. As discussed more specifically in Section III below, based on prior Coastal Commission methodology for similar dredging activities (including dredging obligations undertaken by the San Onofre Nuclear Generating Station), Poseidon should be entitled to restoration credit for keeping the Lagoon inlet open through dredging. Using this credit, it is unlikely that Poseidon would need to restore any additional wetlands beyond its 37-acre obligation for Phase I mitigation if it assumes Lagoon dredging obligations.

In the event that Poseidon does not assume Lagoon dredging obligations for some reason (for example, if the EPS never fully ceases use of its intakes but operates the intakes at very low levels and continues to dredge the Lagoon), Poseidon's MLMP requires it to develop a plan within 24 months to restore up to an additional 5.5 acres of wetland habitat,[6] subject to two possible reductions in acreage: (1) the Commission shall evaluate whether Poseidon's 37 acres of wetland restoration under Phase I has fully mitigated the Project's stand-alone operations and whether any portion of the additional 5.5 acres of restoration for Phase II is still required given the actual results of the impacts to marine life based on an evaluation of the desalination facility's actual operations; and (2) the Commission may reduce Poseidon's Phase II restoration obligation based on the reduction to marine impacts caused by Poseidon's implementation of new, reasonably feasible technologies (as discussed above). The opportunity for the Commission to consider these issues is another valuable benefit of phased implementation of the MLMP: with phased mitigation, Poseidon, the Commission and other regulatory agencies would have an opportunity to measure the actual impacts of the Project, and to evaluate opportunities to further reduce the impacts and refine the scope of the Phase II mitigation as necessary to ensure the "stand-alone" Project impacts are fully mitigated.

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[4] Note that in the event the Phase II Pre-Conditions do not occur, Poseidon's approval from the State Lands Commission requires Poseidon to undertake a substantially similar evaluation of environmental effects of ongoing Project operations and to investigate and evaluate new and developing technologies that are unavailable today to reduce any marine life impacts ten years after Project operations commence. Accordingly, if the State Lands Commission requires Poseidon to implement any such technologies, development undertaken to implement these technologies would be subject to Coastal Commission review and approval.

[5] Since Special Condition 12 of the Project's Coastal Development Permit requires Poseidon to obtain a new Permit approval from the Coastal Commission for any dredging activities, the Commission shall have oversight over any Lagoon dredging.

[6] Under CEC methodology and Coastal Commission precedent, as confirmed by Dr. Raimondi, this restoration would fully mitigate any marine life impacts caused by the Project's stand-alone operations along with the initial 37 acres of restored wetlands provided as mitigation for Phase I.

III. RESTORATION CREDIT FOR LAGOON DREDGING

As referenced above, based on Commission precedent, Poseidon should be entitled to restoration credit for assuming dredging obligations of the Agua Hedionda Lagoon. The Lagoon supports a wide range of beneficial uses, including 316 acres of marine wetlands and a variety of recreational activities, such as fishing, and water contact recreation. Nearly all of these uses are directly or indirectly supported by seawater flow and exchange created by circulation of seawater in the Lagoon. The tidal exchange renews the Lagoon's water quality and flushes nutrients, sediment and other watershed pollution, particularly from the Lagoon's upper reaches. In addition, the inflow of fresh supplies of ocean water carry planktonic organisms that nourish the many organisms and food chains of the Lagoon, including the White Sea Bass restoration program of the Hubbs Sea World Research Institute and the aquaculture operations in the outer Lagoon.

The Lagoon is connected to the Pacific Ocean by means of a manmade inlet. Seawater circulation throughout the outer, middle and inner lagoons is sustained both by routine dredging of the entrance by the owner of the EPS. Absent regular maintenance dredging, the Lagoon inlet would permanently close within a few years. The name, Agua Hedionda, which means "stinking water" in Spanish, reflects a former stagnant condition that existed prior to the dredging of the mouth of the Lagoon.

To avoid this significant loss of highly productive marine habitat, Poseidon has committed to assume responsibility for routine dredging of the entrance to the Agua Hedionda Lagoon when the EPS is decommissioned.[7] The sand dredged from the Lagoon would be placed on adjacent beaches so as to maintain, restore and enhance habitat for grunion spawning and to maintain, restore and enhance opportunities for public access and recreation along the shoreline and within the coastal zone. Continued preservation of the Agua Hedionda Lagoon inlet and related beneficial uses would ensure the ongoing maintenance, restoration and enhancement of a number of high-priority Coastal Act goals described in the attached figure.

In recognition of the value of preserving these uses, the Coastal Commission has previously granted wetlands restoration credit for inlet maintenance. Specifically, the Coastal Commission granted Southern California Edison a 35-acre wetlands restoration credit in exchange for its commitment to keep the inlet to San Dieguito Lagoon dredged to support the 115 acres of tidally exchanged wetlands upstream. Consequently, there is precedent for the Coastal Commission allowing one acre of restoration credit for every 3.3 acres of tidally exchanged wetlands supported by dredging. As applied to Agua Hedionda Lagoon, such dredging would support 316 acres of tidally exchanged wetlands and a number of Coastal Act priority uses. However, with the stand-alone desalination Project operation in place, only 85% of the sand dredged from the Lagoon would be naturally occurring. The remaining 15% of the sand influx would be attributable to Project operations.

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[7] In the event that the EPS continues to operate, but provides less than an average of 15% of the desalination facility's water needs over a three year period, Poseidon will endeavor to assume dredging obligations early, if it is agreeable to the EPS and feasible.

Following the Coastal Commission's precedent, Poseidon would be entitled to receive 81 acres of restoration credit for keeping the lagoon inlet open after the EPS is decommissioned.[8] The 81 acres represent fifteen times the required mitigation using CEC methodology and Commission precedent, and over four times the required mitigation using Dr. Raimondi's enhanced mitigation proposal. The MLMP does not specify the amount of restoration credit Poseidon should receive for dredging, and ultimately the Commission would need to determine the amount of credit to which Poseidon is entitled based on an evaluation of Poseidon's dredging activities and the benefits of maintaining the Agua Hedionda Lagoon.

[8] (316 acres)(0.85 natural sand influx)/(3.3 acres preserved/inlet credit provided) = 81 acres credit

Preserving the Agua Hedionda Lagoon

YMCA Aquatic Park 1

The YMCA Aquatic Park, better known as Camp H_20, is a summer camp geared towards seven to twelve-year olds that offers affordable day camp activities including swimming, kayaking, paddleboats, rowboats and fishing.

The camp plays an important role in educating our youth about the precious marine environment and the need to preserve the Lagoon for future generations.

Hubbs-SeaWorld Fish Hatchery 2

Hubbs-SeaWorld Resources Enhancement and Hatchery Program includes a 20,000 square foot fish hatchery on the Lagoon. To date, Hubbs-SeaWorld has released over 1.5 million endangered white sea bass into the wild. Hubbs-SeaWorld will be able to expand its marine restoration activities as a result of additional acreage dedicated by the owners of the power plant, Cabrillo Power.

Public Access to the Lagoon and Coast 3

The desalination plant will enhance public access and recreation, and maintain, restore and enhance marine life through the provision of four parcels of Lagoon and oceanfront land – over 15 acres – currently in private ownership.

Cabrillo Power will dedicate three parcels of land for use as hiking trails, beach access and beach parking.

The fourth parcel will be dedicated for the expansion of the Hubbs-SeaWorld fish hatchery.

New Recreation Areas 4

Providing enhanced public access to the coast and new recreational opportunities is just one of the public benefits of the Carlsbad desalination plant. Public access will be enhanced through the dedication of land for recreational activities including fishing.

Desalination Plant 5

The Carlsbad desalination plant will provide the citizens of Carlsbad with a high quality, locally-controlled, drought-proof supply of drinking water. Nearly 10% of the region's potable water needs will be served by the desalination plant, which is scheduled to be completed as early as 2010.

The operators of the desalination plant will assume the role as the Agua Hedionda Lagoon's steward, which includes a financial commitment to restore 37 acres of wetland habitat.

Beach Sand Replenishment 6

Historically, tidal patterns affecting Carlsbad State Beach removed most of the beach's sand, leaving only rough cobblestones. The periodic dredging of the Lagoon by the power plant provided the beach with a permanent sand supply.

The operators of the desalination plant will take over responsibility for dredging the Lagoon, providing much-needed sand replenishment.

Warm Water Jetties Surf Break 7

The power plant's discharge channel acts as a manmade river mouth that delivers sand to the end of the jetties, creating a natural sand bar. The result is one of the most popular surfing spots in North County San Diego.

The jetties would be removed when the power plant is decommissioned, resulting in a loss of this surf break. The existence of the desalination plant will ensure that the jetties remain and this popular surf spot exists for many years to come.

Enhancing Fish Habitat 8

Agua Hedionda Lagoon encompasses over 400 acres of marine, estuarine, and wetlands habitat that is home to hundreds of fish, invertebrate and bird species, including the vibrant California state fish, the Garibaldi. The Garibaldi live in the rocks adjacent to the power plant intake structure. At this location, Garibaldi are found in greater numbers than comparable habitat in the pristine environments of Coronado, San Clemente and Santa Catalina islands.

Carlsbad Aquafarm 9

The Lagoon is home to the thriving Carlsbad Aquafarm where 1 million pounds of mussels and oysters are harvested and sold to seafood vendors and restaurants each year.

The Aquafarm has 20 employees and is a growing contributor to the $1 billion US aquafarming industry, which helps reduce the toll that over-fishing takes on the ocean by providing high-quality farmed seafood.

Recreational Boating 10

Boating remains one of the most popular lagoon activities for residents and visitors. California Water Sports offers expert lessons and rents a variety of boats, including kayaks, canoes and paddleboats, to the general public.

Agua Hedionda Lagoon Foundation Discovery Center 11

Opened in 2006, the Discovery Center offers visitors an opportunity to learn about the Lagoon's native plants and marine life through exhibits and educational programs.

EXHIBIT C

EXHIBIT C

SAMPLE WETLAND RESTORATION PROJECT

SAN DIEGUITO LAGOON

INTRODUCTION

The Applicant has prepared a detailed example of how the restoration of a specific wetlands site would comply with the requirements and obligations set forth in the Marine Life Mitigation Plan ("MLMP"), which is set forth in this document. In its review of potential mitigation sites, the Applicant has spent considerable time, effort and resources evaluating the San Dieguito Lagoon as a site where a wetlands restoration project consistent with the MLMP could be feasibly implemented. Accordingly, and as set forth herein, the Applicant has demonstrated how a restoration project in the San Dieguito Lagoon would conform to each of the MLMP's performance criteria in a manner consistent with the Coastal Act's requirements. This example confirms that the MLMP is a feasible mitigation plan, and that it is therefore appropriate for the Commission to approve this restoration project if specific restoration project local approvals are obtained.

SAN DIEGUITO LAGOON SITE IS AN EXAMPLE OF A SITE SATISFYING MLMP CONDITIONS

Poseidon conducted a preliminary investigation of some of the restoration sites listed in Section 2.0 of the MLMP. That investigation resulted in the identification of a plausible wetlands restoration project in the San Dieguito River Valley that has the potential to meet the minimum standards, objectives, and requirements set forth in the MLMP and described below for "Phase I" of operations when the desalination plant will be using Encina Power Station's seawater intake while the Power Station continues to operate. In May 2008, Poseidon prepared and submitted to the Commission the San Dieguito Lagoon Wetland Restoration Plan Element of the MLMP ("San Dieguito Lagoon Restoration Proposal"). The San Dieguito Lagoon Restoration Proposal is currently being reviewed by the San Onofre Nuclear Generating Station ("SONGS") Science Advisory Panel. An updated version of that San Dieguito Lagoon Restoration Proposal, dated July 3, 2008 will be provided to Commission Staff under a separate cover (Appendix 1).

Recognizing that final site selection is subject to landowner approvals and completion of environmental review and permitting, Poseidon will continue to develop the San Dieguito Lagoon Restoration Proposal while continuing to evaluate other restoration projects that are capable of meeting some or all of the minimum standards and objectives set forth in the MLMP.

In order to demonstrate the San Dieguito Lagoon Restoration Proposal's compliance with the MLMP, the specific sections from the MLMP containing the MLMP's minimum standards and objectives are provided below in bold (numbered as they are in the MLMP), followed by a brief explanation of how the Proposal satisfies the applicable standard or objective.

3.0 PHASE I PLAN REQUIREMENTS

3.1 Minimum Standards

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

a. ***Location within Southern California Bight;***

The proposed restoration project is located at the western end of the San Dieguito River Valley within the southern California Bight.

b. ***Potential for restoration as tidal wetland, with extensive intertidal and subtidal areas;***

The proposed restoration has been designed to be primarily intertidal, including intertidal channel, intertidal mudflat, and intertidal salt marsh. A preliminary break-down of habitats is presented in Appendix 1 (Table 1, page 10).

c. ***Creates or substantially restores a minimum of 37 acres of habitat similar to the affected habitats in Agua Hedionda Lagoon, excluding buffer zone and upland transition area;***

The proposed restoration proposes to restore at least 37 acres of tidal wetland in San Dieguito Lagoon as Phase I mitigation for impacts to Aqua Hedionda Lagoon. The proposed project would result in an increase of 42 acres of intertidal coastal wetland, 39 of which would be credited towards the requirements of the MLMP, thereby actually exceeding the requirement of the MLMP by about 2 acres. This mitigation is presented here as the "Phase I" of mitigation.

d. ***Provides a buffer zone of a size adequate to ensure protection of wetland values, and substantially at least 100 feet wide, as measured from the upland edge of the transition area. The Executive Director or the Commission may make exceptions to the 100-foot buffer requirement in certain locations if they determine that the exceptions are de minimis, or that a lesser buffer is sited and/or designed to prevent impacts that would significantly degrade wetland areas and that they are compatible with the continuance of those areas;***

The restoration plan currently provides wetland buffers exceeding 100 feet to the north, west and south of the mitigation site as presented in Figure 1 of the San Dieguito Lagoon Wetland Restoration Proposal (see Appendix 1, Figure 1, page 6). Refinement of the draft restoration plan would accommodate a minimum 100-foot buffer along El Camino Real to the southeast of the proposed restoration site.

e. ***Any existing site contamination problems would be controlled or remediated and would not hinder restoration;***

It is not anticipated that the location of the proposed project within San Dieguito River Valley contains contaminated soils or other contamination. This area has historically been used for agriculture. Thus, residual DDT and its derivatives may occur in surface soils. Analysis of sediment characteristics would be required for discretionary permits; thus, Poseidon is committed to proper remediation or disposal of any contaminated sediments that might be encountered.

f. ***Site preservation is guaranteed in perpetuity (through appropriate public agency or nonprofit ownership, or other means approved by the Executive Director), to protect against future degradation or incompatible land use;***

The San Dieguito River Park Joint Powers Authority ("JPA") has agreed to partner with Poseidon in the restoration effort. The JPA is the land owner for all lands proposed for restoration. This non-profit organization would guarantee preservation of the restored lands in perpetuity.

g. ***Feasible methods are available to protect the long-term wetland values on the site, in perpetuity;***

Poseidon has committed to the same restoration success criteria set forth in the MLMP, thus ensuring attainment and protection of the restored wetland values on site in perpetuity.

h. ***Does not result in a net loss of existing wetlands; and***

See opportunities and constraints Biology Issue #2, below (section 4.1(c)).

i. ***Does not result in an adverse, un-mitigated impact on endangered species.***

See opportunities and constraints Biology Issue #1, below (section 4.1(c)).

3.2 Objectives

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

a. ***Provides substantial overall ecosystem benefits, e.g. substantial upland buffer, enhancement of downstream fish values, provides regionally scarce habitat, potential for local ecosystem diversity;***

The proposed restoration project would provide valuable, regionally rare intertidal wetland habitat that benefits southern California coastal wetlands in general and San Dieguito Lagoon in particular. The project would require a berm and weir system to protect the created wetland and convey river flows and sediment transport to the beach (see Appendix 1, Figure 1, page 6). Upland areas in excess of 100-feet in width that serve as buffers exist to the north, west and south. The southeast portion of the proposed project encroaches upon El Camino Real. A minimum 100-foot buffer along El Camino Real would be incorporated into the final plan

b. Provides substantial fish habitat compatible with other wetland values at the site;

The proposed project is compatible with and complimentary to the SCE restoration plan currently being constructed at San Dieguito Lagoon. The proposed project is primarily intertidal, including intertidal mudflats, intertidal channels, and intertidal salt marsh. These habitats support fisheries functions similar to existing habitat at San Dieguito Lagoon, the habitat restored by SCE, and other southern California lagoons and estuaries.

c. Provides a buffer zone of at least 100 feet wide, as measured from the upland edge of the transition area, subject to the exemptions set forth in subsection 3.1(d);

The restoration plan currently provides wetland buffers exceeding 100 feet to the north, west and south of the mitigation site as presented in the San Dieguito Lagoon Wetland Restoration Plan Element of the Marine Life Mitigation (see Appendix 1, Figure 1, page 6). Refinement of the draft restoration plan would accommodate a minimum 100-foot buffer along El Camino Real to the southeast of the proposed restoration site.

d. Provides substantial upland transition areas (in addition to buffer zones);

The proposed restoration plan abuts the SCE restoration plan to the north and west; existing wetlands to the south and by El Camino real to the east (see Appendix 1, Figure 1, page 6). The proposed project abuts a California least tern nesting island to the northwest and incorporates a berm and weir system to protect the created wetlands and ensure flood flows and sediment transport to the beach. Within the berm, the proposed project includes primarily intertidal wetland. An area of approximately 22 acres of degraded upland habitat located north of the project would be graded to facilitate flood flows. This area would serve as both buffer and transitional/upland habitat.

e. Restoration involves minimum adverse impacts on existing functioning wetlands and other sensitive habitats;

The majority of the site proposed for restoration is disturbed (see Appendix 1, Figure 3, page 8). Preliminary results indicate that only minor impacts to wetland habitats would occur from project construction. These include approximately 0.06 acre of wetland habitat at the proposed connection with the San Dieguito River and approximately 0.12

acre of man-made drainage channel that was part of the agricultural operations on the western boundary of the former Boudreau parcel.

f. Site selection and restoration plan reflect a consideration of site specific and regional wetland restoration goals;

The proposed restoration is expected to provide the following site specific and regional restoration goals:

- Improve, preserve, and create a variety of habitats to increase and maintain wildlife and ensure protection of endangered species;
- Ensure adequate tidal and fluvial flushing and circulation with an optimal tidal regime to support a diversity of biological resources while maintaining the appearance of a natural wetland ecosystem; and
- The project should not contribute to the net loss of sand reaching the beach at the river mouth.

g. Restoration design is that most likely to produce and support wetland-dependent resources;

The proposed project has been designed to compliment the SCE restoration currently under construction. The project would create functional intertidal wetland habitat that would support wetland structure and functions comparable to natural, undisturbed systems.

h. Provides potential habitat for rare or endangered species;

The proposed project would provide functional intertidal wetland habitat that may provide breeding and foraging habitat for state- and federally-listed rare and endangered species, such as the light-footed clapper rail and Belding's savannah sparrow, and provide foraging habitat for the state- and federally-listed endangered California least tern.

i. Provides for restoration of reproductively isolated populations of native California species;

The proposed project would provide restoration of reproductively isolated plant and animal populations currently associated with San Dieguito Lagoon.

j. Results in an increase in the aggregate acreage of wetland in the Southern California Bight;

The proposed project would result in an increase of 42 acres of intertidal coastal wetland, approximately 39 of which would be credited towards the requirements of the MLMP,

and 22 acres of restored upland, thereby adding to the overall acreage of wetland habitat in the southern California Bight. Although the MLMP only requires restoration of 37 acres of wetlands, this proposal goes beyond that requirement by an additional 2 acres. The proposed project also would create approximately 2.73 acres of habitat to serve as mitigation for the JPA for impacts to salt marsh and fresh/brackish marsh associated with the JPA's construction and operation of a trail and a series of wetland treatment ponds in the project area. The trail and treatment ponds were permitted in conjunction with the SCE restoration plan.

k. Requires minimum maintenance;

The intertidal wetlands restored by the proposed project would be self-sustaining and require little maintenance. The berm that protects the wetland and facilitates flood flows and sediment transport may require maintenance following a large storm event.

l. Restoration project can be accomplished in a reasonably timely fashion; and

It is anticipated that the proposed project can be constructed in approximately 9-12 months and support fully functional intertidal habitat within 2-3 years of construction.

m. Site is in proximity to the Carlsbad desalination facility.

The proposed project is located in northern San Diego County, approximately 12 miles south of Aqua Hedionda Lagoon.

4.0 PHASE I PLAN IMPLEMENTATION

4.1 Coastal Development Permit Application

The permittee shall submit a complete Coastal Development Permit application for the Phase I restoration plan...The restoration plan shall substantially conform to Section 3.0 above and shall include, but not be limited to the following elements:

a. Detailed review of existing physical, biological, and hydrological conditions; ownership, land use and regulation;

To comply with the MLMP, the San Dieguito Lagoon Wetland Restoration Plan Proposal includes a review of the existing physical, biological and hydrological conditions of the proposed restoration site, as well as land ownership and land use. The existing and proposed topography of the site was analyzed and presented by KTU+A, Landscape Architects (see Appendix 1, cover page). The existing and proposed biological conditions were analyzed and presented by Nordby Biological Consulting (see Appendix 1, page 19). The existing and proposed riverine hydrological conditions were analyzed and presented by Chang Consultants. The existing and proposed coastal and estuarine

processes were analyzed and presented by Dr. Scott A. Jenkins Consulting (see Appendix 1, pages 20-21).

The San Dieguito River Park JPA owns all of the lands proposed for restoration. The City of San Diego owns lands proposed for sediment disposal. The JPA and the City of San Diego regulate the lands under their ownership. The proposed restoration would require coordination between Poseidon, the JPA, the City of San Diego and Southern California Edison, as well as numerous state and federal regulatory agencies.

b. Evaluation of site-specific and regional restoration goals and compatibility with the goal of mitigating for Poseidon's marine life impacts;

The San Dieguito Lagoon Wetland Restoration Plan Proposal presents the design, implementation, and performance standards of a 42-acre coastal wetlands restoration plan located east of Interstate 5 in the western end of the San Dieguito River Valley, San Diego County, California. The proposed project includes the restoration/creation of approximately 42 acres of tidal wetlands; grading of approximately 22 acres of disturbed uplands adjacent to the proposed tidal wetlands to convey flood flows; and restoration of the graded area to native upland habitat. The proposed restoration would connect to and compliment an on-going restoration project at San Dieguito Lagoon: The San Dieguito Lagoon Wetland Restoration Project, funded by Southern California Edison (SCE), is essential to both the proposed project, and the SCE project is obligated to the restoration and maintenance of the lagoon's tidal prism. SCE is obligated to maintain the lagoon inlet in an open configuration in perpetuity. The proposed restoration plan would increase the tidal prism of the lagoon and reduce the frequency of dredging by SCE needed to maintain the inlet.

Of the 42 acres of tidal wetlands, the proposed project will provide approximately 39 acres of habitat as partial mitigation for the entrainment of oceanic and estuarine fish larvae resulting from the stand-alone-operations of the Project, and providing excess mitigation during the Projects co-location with the Encina Power Station. The Wetlands Restoration Project also would create approximately 2.73 acres of habitat to serve as mitigation for the JPA for impacts to salt marsh and fresh/brackish marsh associated with the JPA's construction and operation of a trail and a series of wetland treatment ponds in the project area. The trail and treatment ponds were permitted in conjunction with the SCE restoration plan.

The proposed restoration is expected to provide the following regional restoration goals, as modeled after the goals set forth in the SCE Final Restoration Plan:

- Improve, preserve, and create a variety of habitats to increase and maintain wildlife and ensure protection of endangered species;

- Ensure adequate tidal and fluvial flushing and circulation with an optimal tidal regime to support a diversity of biological resources while maintaining the appearance of a natural wetland ecosystem; and

- The project should not contribute to the net loss of sand reaching the beach at the river mouth.

The proposed restoration is expected to provide ecosystem support for a variety of vascular and non-vascular plants, invertebrates, fishes and birds, including fish spawning and nursery functions. The productivity of coastal salt marsh habitat and the food chain support of higher order consumers are documented in the San Dieguito Lagoon Wetland Restoration Proposal. (See Appendix 1, pages 10, 15-17.)

c. ***Identification of site opportunities and constraints;***

The following presentation of project opportunities and constraints is modeled after a similar discussion presented in the SCE Final Restoration Plan December 18, 2000.

Hydrology

Issue #1: River flows must not affect SCE's project; specifically, the ability of the river to accommodate the 100-year flood event without raising the water level of that flood event; the ability of the river to accommodate flood flows without increasing scour at existing infrastructure, including berms constructed by SCE; and the ability of the river to transport sediment to the beach.

Design Consideration. Modeling of the riverine hydrodynamics has been conducted by Chang Consultants to ensure that the project will not affect SCE's restoration plan or infrastructure other than that associated with SCE's restoration plan, i.e., the I-5 bridge.

Issue #2. Flooding may induce additional sedimentation within the restoration site.

Design Consideration. A berm and weir, similar to that designed for the SCE restoration, have been incorporated into the design of the proposed restoration. The elevation of the berm and weir will prevent sedimentation associated with the 100-year flood from entering the restored site.

Biology

Issue #1. The project should not impact endangered species during or after construction.

Design consideration. The project will protect, to the extent possible and required by the agencies, all listed species within the project area. Poseidon will develop appropriate mitigation measures to assure long-term habitat for endangered species. Preliminary results indicate that there is no habitat for endangered species in the project footprint.

The use of the least tern island(s) currently under construction will be evaluated once construction is completed.

Issue # 2. The project should not impact jurisdictional wetlands.

Design Consideration. Poseidon will complete a jurisdictional delineation and assure compliance with state and federal regulations during construction. The final design will be developed so that there is no net loss of jurisdictional wetlands. Preliminary results indicate that only minor impacts to jurisdictional habitats will occur from project construction. These include approximately 0.06 acre of jurisdictional habitat at the proposed connection with the San Dieguito River and approximately 0.12 acre of man-made drainage channel that was part of the agricultural operations on the western boundary of the former Boudreau parcel. The creation of approximately 42 acres of tidal wetlands will offset these losses resulting in no net loss of jurisdictional habitat.

Issue #3. The project should not restrict wildlife corridors or buffer areas around wetlands.

Design Consideration. The project will not affect the width of wildlife corridors but will convert degraded upland within the greater San Dieguito River wildlife corridor to wetlands. Appropriate buffers have been included, as discussed above in 3.1(d).

Engineering

Issue #1. Access to construction and disposal sites.

Design Consideration. Poseidon will use the existing haul roads and disposal sites used by SCE to minimize environmental impacts.

d. Schematic restoration design, including:

1. Proposed cut and fill, water control structures, control measures for stormwater, buffers and transition areas, management and maintenance requirements;

The San Dieguito Lagoon Wetland Restoration Proposal includes proposed grading and excavation, water control structures, buffers and transition areas, and management and maintenance requirements. (See generally, Appendix 1.)

2. Planting Program, including removal of exotic species, sources of plants and or seeds (local, if possible), protection of existing salt marsh plants, methods for preserving top soil and augmenting soils with nitrogen and other necessary soil amendments before planting, timing of planting, plans for irrigation until established, and location of planting and elevations on the topographic drawings;

The San Dieguito Lagoon Wetland Restoration Proposal includes a proposed Planting Plan, discussing exotic species, sources of plants, marshes, upland habitats, irrigation, as-built conditions, monitoring methods, and performance standards. (See Appendix 1, pages 12-18.)

3. ***Proposed habitat types (including approximate size and location);***

   The San Dieguito Lagoon Wetland Restoration Proposal includes size and location of all proposed habitat types. (See Appendix 1, Table 1 page 10; Appendix 1, figure 2, page 7.)

4. ***Assessment of significant impacts of design (especially on existing habitat values) and net habitat benefits;***

   The San Dieguito Lagoon Wetland Restoration Proposal includes a detailed discussion of significant impacts of design and net habitat benefits. (see Appendix 1, pages 5-12.)

5. ***Location, alignment and specifications for public access facilities, if feasible;***

   Public access, if any, will be addressed in the final plan.

6. ***Evaluation of steps for implementation e.g. permits and approvals, development agreements, acquisition of property rights;***

   It is estimated that it would take approximately 2-3 years to obtain CEQA clearance, local approvals, and Coastal Commission approvals. Construction would be completed approximately 9-12 months after all clearances and approvals have been obtained.

7. ***Cost estimates;***

   A detailed project cost estimate for the mitigation project would be provided with Poseidon's Coastal Development Permit (CDP) application, should this restoration site be selected.

8. ***Topographic drawings for final restoration plan at 1" = 100 foot scale, one foot contour interval; and***

   Topographic drawings for final restoration plan at this scale will be provided.

9. ***Drawings shall be directly translatable into final working drawings;***

   Drawings will be directly translatable into final working drawings.

g. Detailed information about how monitoring and maintenance will be implemented;

Monitoring methods and performance standards will be in substantial conformance with the methods and standards set forth in the MLMP. The performance standards fall into two categories. The first category includes long-term physical standards relating to topography (erosion, sedimentation), water quality (e.g., oxygen concentration), tidal prism, and habitat areas. The second category includes biological performance standards relating to biological communities (e.g., fish, invertebrates, and birds), marsh vegetation, *Spartina* canopy architecture, reproductive success of marsh plants, food chain support functions, and exotic species. Monitoring and maintenance implementation is discussed in detail in the San Dieguito Lagoon Wetland Restoration Proposal. (See Appendix 1, pages 15-18.)

h. Detailed information about construction methods to be used;

Detailed information about the construction methods to be used would be included with the CDP application for the mitigation project.

i. Defined final success criteria for each habitat type and methods to be used to determine success;

The wetland restoration project will be considered successful when all of the performance standards have been met for each of three consecutive years. The methods to be used to determine success are discussed in the San Dieguito Lagoon Wetland Restoration Proposal. (See Appendix 1, pages 15-18.)

j. Detailed information about how Poseidon will coordinate with any other agency or panel that will have a role in implementing and monitoring the restoration plan, including the respective roles of the parties in independent monitoring, contingency planning review, cost recovery, etc.;

All monitoring, whether it be during Phase 1 or Phase 2, must be sufficient for assessing project compliance with the performance standards. If the restored wetland is not considered successful within 12 years post-construction or has not met the biological community standard by 4 years, then Poseidon shall be required to fund an independent study to collect the information necessary to determine what remediation is needed. Poseidon shall also be required to implement any remedial measures determined necessary by the CCC in consultation with state and federal resource agencies and will provide funds for independent monitoring that evaluates the success of the required remediation. Remediation monitoring may be different from the compliance monitoring required by the permit. (See Appendix 1, pages 15-18.)

k. Detailed information about contingency measures that will be implemented if mitigation does not meet the approved goals, objectives, performance standards, or other criteria; and

Remediation may be required if the performance standards are not met within ten years and if three successive years of compliance have not occurred within 12 years. Upon determination that all of the performance standards have been met for three consecutive years, a scaled-back level of monitoring (Phase 2) will ensue. All monitoring, whether it be during Phase 1 or Phase 2, must be sufficient for assessing project compliance with the performance standards. If the restored wetland is not considered successful within 12 years post-construction or has not met the biological community standard by 4 years, then Poseidon shall be required to fund an independent study to collect the information necessary to determine what remediation is needed. Poseidon shall also be required to implement any remedial measures determined necessary by the CCC in consultation with state and federal resource agencies and will provide funds for independent monitoring that evaluates the success of the required remediation. Remediation monitoring may be different from the compliance monitoring required by the permit. Contingency measures that will be implemented if mitigation does not meet the approved goals, objectives, performance standards or other criteria is discussed in detail in the San Dieguito Lagoon Wetland Restoration Proposal. (See Appendix 1, pages 15-18.)

l. Submittal of "as-built" plans showing final grading, planting, hydrological features, etc. within 60 days of completing mitigation site construction.

Within 60 days of completion of site preparation and planting, a report will be submitted describing the as-built status of the restoration project. Separate reports will be submitted for grading, plant installation, and erosion control measures. In addition, topographic maps showing as-built contours of the restoration site, as well as locations of plantings, will be provided. Changes from original plans will be indicated in indelible red ink. (See Appendix 1, page 14.)

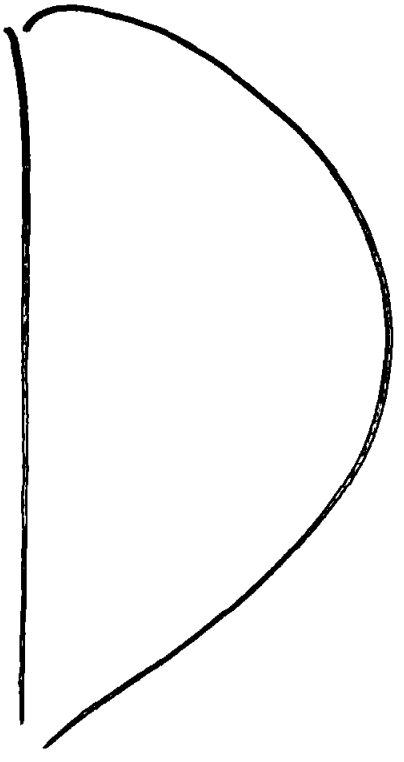


EXHIBIT A – POSEIDON RESOURCES MARINE LIFE MITIGATION PLAN

INTRODUCTION

Poseidon's Carlsbad desalination facility will be co-located with the Encina Power Station and will use the power plant's once-through cooling intake and outfall structures. The desalination facility is expected to use about 304 million gallons per day (mgd) of estuarine water drawn through the structure. The facility will operate both when the power plant is using its once-through cooling system and when it is not. The power plant is expected to stop operating its once-through cooling system sometime in the next few years.

This Marine Life Mitigation Plan (the Plan) will result in mitigation necessary to address the entrainment impacts caused by the facility's use of estuarine water. The Plan includes two phases of mitigation – Poseidon is required during Phase I to provide at least 37 acres of estuarine wetland restoration, as described below. In Phase II, Poseidon is required to provide an additional 18.4 acres of estuarine wetland restoration. However, as described below, Poseidon may choose to provide all 55.4 acres of restoration during Phase I. Poseidon may also choose during Phase II to apply for a CDP to reduce or eliminate the required 18.4 acres of mitigation and instead conduct alternative mitigation by implementing new entrainment reduction technology or obtaining mitigation credit for conducting dredging.

CONDITION A: WETLAND RESTORATION MITIGATION

The permittee shall develop, implement and fund a wetland restoration project that compensates for marine life impacts from Poseidon's Carlsbad desalination facility.

1.0 PHASED IMPLEMENTATION

~~Poseidon's Carlsbad desalination facility will function under two operating scenarios: (1) using the Encina Power Station's seawater intake while the Power Station continues to operate ("Phase I"); and (2) as a stand-alone facility ("Phase II"). The permittee's restoration project shall be phased to address marine life impacts from each of the applicable operating scenarios. To mitigate marine life impacts for Phase I operations, the permittee shall develop, implement and fund a 37-acre wetland restoration project consistent with the terms and conditions set forth in this Plan. The permittee's additional obligations to mitigate marine life impacts for Phase II operations, which may include up to 5.5 acres of additional wetland restoration, are set forth in section 6.0. Combined, mitigation for Phase I and Phase II would require up to 42.5 acres of wetland restoration.~~

Phase I: Poseidon is to provide at least 37 acres of estuarine wetland restoration. Within two years of issuance of the desalination facility's coastal development permit (CDP), Poseidon is to submit a complete CDP application for a proposed restoration project, as described below.

Phase II: Poseidon is to provide an additional 18.4 acres of estuarine wetland restoration. Within five years of issuance of the Phase I CDP, Poseidon is to submit a complete CDP application proposing at least 18.4 acres of additional restoration, as described below.

~~**1.1 Technology Review During Phase I Operations**~~

~~On or before April 30 of each year following the commencement of the Carlsbad desalination facility's commercial operations, the permittee shall provide the Executive Director with data demonstrating the Encina Power Station's cooling water intake for the prior calendar year. On or before April 30 following the first three years of the Carlsbad desalination facility's commercial operations, the permittee shall also provide the Executive Director with the calculation demonstrating the Power Station's average water use during the prior three-year period. The permittee shall thereafter provide the Executive Director with that calculation annually, on or before April 30, until either of the occurrence of either of the "Phase II Pre-Conditions," as defined in subsection 1.2 below.~~

~~Consistent with the permittee's approvals from the State Lands Commission, the permittee shall perform the following ten years after the commencement of commercial operations, unless either of the "Phase II Pre-Conditions" occur before that time (as defined in subsection 1.2 below):~~

~~a. Conduct a new analysis of the environmental effects of ongoing desalination facility operations ten years after the commencement of commercial operations. The analysis shall provide information about the project's actual impacts from operations, taking into account all project features and mitigation measures;~~

~~b. Using that analysis, the permittee shall investigate and evaluate new and developing technologies that are reasonably feasible and unavailable today, which may further reduce any marine life impacts; and~~

~~c. Within 24 months of the date that the permittee commenced its analysis of the environmental effects of ongoing desalination facility operations, the permittee shall provide that analysis and its evaluation of potential and reasonably feasible technologies to the Commission for review. The determination of feasibility shall consider costs, potential impacts, and acceptability to the Encina Power Station, among other things. Upon receiving the analysis of environmental effects of ongoing desalination facility operations and the evaluation of new and available technologies from the permittee, the Commission may request a hearing to determine whether those technologies are reasonably feasible and whether the permittee can implement any of the technologies to reduce marine life impacts. If the Commission determines that any such technologies are reasonably feasible and may further reduce marine impacts, this Marine Life Mitigation Plan may, after a public hearing before the Commission, be amended to require implementation of reasonably feasible technologies.~~

~~**1.2 Implementation of Phase II Mitigation**~~

~~The permittee's Phase I mitigation obligations will not be affected by whether or not the permittee is ultimately required to undertake mitigation for Phase II. If either the Encina Power Station stops using its existing seawater intake for cooling water, or the Encina Power Station's use of its seawater intake provides less than 15% of Poseidon's needed water based on the Power~~

~~Station's average water use over any three-year period ("Phase II Pre-Conditions"), then the permittee shall also undertake the Phase II mitigation obligations set forth in section 6.0.~~

2.0 ~~PHASE I~~ SITE SELECTION

In consultation with Commission staff, the permittee shall select a wetland restoration site **or sites** for mitigation in accordance with the following process and terms.

The location of the wetland restoration project**(s)** shall be within the Southern California Bight. The permittee shall select from sites including, but not limited to, the following eleven sites: Tijuana Estuary in San Diego County; San Dieguito River Valley in San Diego County; Agua Hedionda Lagoon in San Diego County; San Elijo Lagoon in San Diego County; Buena Vista Lagoon in San Diego County; Huntington Beach Wetland in Orange County, Anaheim Bay in Orange County, Santa Ana River in Orange County, Los Cerritos Wetland in Los Angeles County, Ballona Wetland in Los Angeles County, and Ormond Beach in Ventura County. The permittee may also consider any sites that may be recommended by the California Department of Fish & Game as high priority wetlands restoration projects. **Other sites proposed by the permittee may be added to this list with the Executive Director's approval.**

The basis for the ~~selected site~~ **selection** shall be an evaluation of the site**(s)** against the minimum standards and objectives set forth in subsections 3.1 and 3.2 below. The permittee shall take into account and give **serious** consideration to the advice and recommendations of the ~~s~~**S**cientific ~~a~~**A**dvisory ~~p~~**P**anel **(SAP)** established and convened by the Executive Director pursuant to Condition B.1.0. The permittee shall select the site**(s)** that meets the minimum standards and best meets the objectives.

3.0 ~~PHASE I~~ PLAN REQUIREMENTS

In consultation with Commission staff, the permittee shall develop a wetland restoration plan for the wetland site**(s)** identified through the site selection process ~~for Phase I~~. The wetland restoration plan shall meet the minimum standards and incorporate as many as feasible of the objectives in subsections 3.1 and 3.2, respectively.

3.1 Minimum Standards

The ~~Phase I~~ wetland restoration project site**(s)** and preliminary plan**(s)** must meet the following minimum standards:

a. Location within Southern California Bight;

b. Potential for restoration as tidal wetland, with extensive intertidal and subtidal areas;

c. Creates or substantially restores a minimum of 37 acres **and up to at least 55.4 acres** of habitat similar to the affected habitats in Agua Hedionda Lagoon, excluding buffer zone and upland transition area;

d. Provides a buffer zone of a size adequate to ensure protection of wetland values, and substantially at least 100 feet wide, as measured from the upland edge of the transition area.

~~The Executive Director or the Commission may make exceptions to the 100-foot buffer requirement in certain locations if they determine that the exceptions are *de minimis*, or that a lesser buffer is sited and/or designed to prevent impacts that would significantly degrade wetland areas and that they are compatible with the continuance of those areas~~;

e. Any existing site contamination problems would be controlled or remediated and would not hinder restoration;

f. Site preservation is guaranteed in perpetuity (through appropriate public agency or nonprofit ownership, or other means approved by the Executive Director), to protect against future degradation or incompatible land use;

g. Feasible methods are available to protect the long-term wetland values on the site**(s)**, in perpetuity;

h. Does not result in a net loss of existing wetlands; and

i. Does not result in an adverse~~, un-mitigated~~ impact on endangered **animal** species **or an adverse unmitigated impact on endangered plant species**.

3.2 Objectives

The following objectives represent the factors that will contribute to the overall value of the wetland. The selected site**(s)** shall be determined to achieve these objectives. These objectives shall also guide preparation of the restoration plan.

a. Provides ~~substantial~~ **maximum** overall ecosystem benefits, e.g. ~~substantial~~ **maximum** upland buffer, enhancement of downstream fish values, provides regionally scarce habitat, potential for local ecosystem diversity;

b. Provides substantial fish habitat compatible with other wetland values at the site**(s)**;

c. Provides a buffer zone of ~~at least 100 feet wide~~ **an average of at least 300 feet wide, and not less than 100 feet wide**, as measured from the upland edge of the transition area~~, subject to the exemptions set forth in subsection 3.1(d)~~;

d. Provides ~~substantial~~ **maximum** upland transition areas (in addition to buffer zones);

e. Restoration involves minimum adverse impacts on existing functioning wetlands and other sensitive habitats;

f. Site selection and restoration plan reflect a consideration of site specific and regional wetland restoration goals;

g. Restoration design is that most likely to produce and support wetland-dependent resources;

h. Provides ~~potential habitat for~~ rare or endangered species **habitat**;

i. Provides for restoration of reproductively isolated populations of native California species;

j. Results in an increase in the aggregate acreage of wetland in the Southern California Bight;

k. Requires minimum maintenance;

l. Restoration project can be accomplished in a reasonably timely fashion; and,

m. Site**(s)** ~~is~~ in proximity to the Carlsbad desalination facility.

3.3 Restrictions

a. The permittee may propose a wetland restoration project larger than the minimum necessary size specified in subsection 3.1(c) above, if biologically appropriate for the site**(s)**, but the additional acreage must (1) be clearly identified, and (2) must not be the portion of the project best satisfying the standards and objectives listed above.

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

c. The permittee may propose to divide the mitigation requirement between a maximum of ~~four~~ **two** wetland restoration sites, **unless there is a compelling argument, approved by** the Executive Director**,** ~~determines~~ that the standards and objectives of subsections 3.1 and 3.2 will be better met at more than ~~four~~ **two** sites.

4.0 ~~PHASE I~~ PLAN IMPLEMENTATION

4.1 Coastal Development Permit Applications

The permittee shall submit ~~a~~ complete Coastal Development Permit applications for the Phase I and **Phase II** restoration plan**(s)** along with CEQA documentation and local or other state agency approvals. **The CDP application for Phase I shall be submitted within** ~~by either~~ 24 months following the issuance of the Coastal Development Permit for the Carlsbad desalination facility~~, or the commencement of commercial operations at the facility, whichever is later~~. **The CDP application for Phase II shall be submitted within 5 years of issuance of the CDP for Phase I.** The Executive Director may grant an extension to ~~this~~ **these** time periods at the request of and upon a demonstration of good cause by the permittee. The restoration plans shall substantially conform to Section 3.0 above and shall include, but not be limited to the following elements:

a. Detailed review of existing physical, biological, and hydrological conditions; ownership, land use and regulation;

b. Evaluation of site-specific and regional restoration goals and compatibility with the goal of mitigating for Poseidon's marine life impacts;

c. Identification of site opportunities and constraints;

d. Schematic restoration design, including:

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

g. Detailed information about how monitoring and maintenance will be implemented;

h. Detailed information about construction methods to be used;

i. Defined final success criteria for each habitat type and methods to be used to determine success;

j. Detailed information about how Poseidon will coordinate with ~~any other agency or panel that will have a role in implementing and monitoring the restoration plan, including the respective roles of the parties~~ **the Scientific Advisory Panel including its role** in independent monitoring, contingency planning review, cost recovery, etc.;

k. Detailed information about contingency measures that will be implemented if mitigation does not meet the approved goals, objectives, performance standards, or other criteria; and,

l. Submittal of "as-built" plans showing final grading, planting, hydrological features, etc. within 60 days of completing **initial** mitigation site construction.

4.2 Wetland Construction Phase

Within ~~12~~ **6** months of approval of the Phase I restoration plan, subject to the permittee's obtaining the necessary permits, the permittee shall commence the construction phase of the wetland restoration project. The permittee shall be responsible for ensuring that construction is carried out in accordance with the specifications and within the timeframes specified in the approved **final** restoration plan and shall be responsible for any remedial work or other intervention necessary to comply with **final** plan requirements.

4.3 Timeframe for Resubmittal of Project Elements

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

5.0 ~~PHASE I~~ WETLAND MONITORING, MANAGEMENT AND REMEDIATION

Monitoring, management (including maintenance), and remediation shall be conducted over the "full operating life" of Poseidon's desalination facility~~, which shall be 30 years from the date "as-built" plans are submitted pursuant to subsection 4.1(l)~~.

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

5.1 Monitoring and Management Plan

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

5.2 Pre-restoration site monitoring

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

5.3 Construction Monitoring

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

5.4 Post-Restoration Monitoring and Remediation

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

Successful achievement of the performance standards shall (in some cases) be measured relative to approximately four reference sites, which shall be relatively undisturbed, natural tidal wetlands within the Southern California Bight. The **Executive Director shall select the reference sites.** ~~The reference sites and the standard of comparison, i.e. the measure of similarity to be used, shall be specified in the work program.~~ **The standard of comparison, i.e., the measure of similarity to be used (e.g., within the range, or within the 95% confidence interval) shall be specified in the work program.**

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

a. **Longterm Physical Standards.** The following long-term standards shall be maintained over the full operative life of the desalination facility:

   1. ***Topography.*** The wetland**(s)** shall not undergo major topographic degradation (such as excessive erosion or sedimentation);
   2. ***Water Quality.*** Water quality variables [to be specified] shall be similar to reference wetlands;
   3. ***Tidal prism.*** If the mitigation site(s) require dredging, the tidal prism shall be maintained and tidal flushing shall not be interrupted; and,
   4. ***Habitat Areas.*** The area of different habitats shall not vary by more than 10% from the areas indicated in the restoration plan**(s)**.

b. **Biological Performance Standards.** The following biological performance standards shall be used to determine whether the restoration project is successful. Table 1, below, indicates suggested sampling locations for each of the following biological attributes; actual locations will be specified in the work program:

   1. ***Biological Communities.*** Within 4 years of construction, the total densities and number of species of fish, macroinvertebrates and birds (see Table 1) shall be similar to the densities and number of species in similar habitats in the reference wetlands;
   2. ***Vegetation.*** The proportion of total vegetation cover and open space in the marsh shall be similar to those proportions found in the reference sites. The percent cover of algae shall be similar to the percent cover found in the reference sites;
   3. ***Spartina Canopy Architecture.*** The restored wetland shall have a canopy architecture that is similar in distribution to the reference sites, with an equivalent proportion of stems over 3 feet tall;
   4. ***Reproductive Success.*** Certain plant species, as specified by in the work program, shall have demonstrated reproduction (i.e. seed set) at least once in three years;
   5. ***Food Chain Support.*** The food chain support provided to birds shall be similar to that provided by the reference sites, as determined by feeding activity of the birds; and
   6. ***Exotics.*** The important functions of the wetland shall not be impaired by exotic species.

Table 1: Suggested Sampling Locations

	Salt Marsh	Open Water		Tidal

	Spartina	Salicornia	Upper	Lagoon	Eelgrass	Mudflat	Creeks
1) Density/spp:							
– Fish				X	X	X	X
– Macroinvert-e**brate**s				X	X	X	X
– Birds	X	X	X	X		X	X
2) % Cover							
Vegetation	X	X	X		X		
algae	X	X				X	
3) Spart**ina** archi**tecture**	X						
4) Repro**ductive** suc**cess**	X	X	X				
5) Bird feeding				X		X	X
6) Exotics	X	X	X	X	X	X	X

6.0 ALTERNATIVE MITIGATION ~~REQUIRED AFTER PHASE II PRECONDITION~~

As part of Phase II, Poseidon may propose in its CDP application alternatives to all or part of the 18.4 acres of required mitigation. The alternative mitigation proposed may be in the form of new technologies that would avoid or reduce entrainment impacts or may be mitigation credits for dredging, either of which could reduce or eliminate the 18.4 acres of mitigation.

~~6.1 Reasonably Feasible Technologies~~

~~Following the occurrence of either of the Phase II Pre-Conditions, as defined in subsection 1.1, the permittee shall:~~

~~a. Conduct a new analysis of the environmental effects of ongoing desalination facility operations. The analysis shall provide information about the project's actual impacts from operations, taking into account all project features and mitigation measures;~~

~~b. Using that analysis, the permittee shall investigate and evaluate new and developing technologies that are reasonably feasible and unavailable today, which may further reduce any marine life impacts;~~

~~c. Within 24 months of the occurrence of the applicable Phase II pre-condition, the permittee shall provide that analysis and its evaluation of potential and reasonably feasible technologies~~

to the Commission for review. The determination of feasibility shall consider costs, potential impacts, and acceptability to the Encina Power Station, among other things; and

d. The analysis and evaluation provided to the Commission shall also include an evaluation of whether the 37 acres of wetland restoration implemented by the permittee has fully or only partially mitigated marine life impacts for stand-alone operations, taking into account actual operating conditions from facility operations for Phase I and potential reductions to impacts that would occur as a result of any new and reasonably feasible technologies that the permittee may implement pursuant to this subsection 6.1.

Upon receiving the evaluation of new and available technologies from the permittee, the Commission may request a hearing to determine whether those technologies are reasonably feasible and whether the permittee can implement any of the technologies to reduce marine life impacts. If the Commission determines that any such technologies are reasonably feasible and may further reduce marine impacts, this Marine Life Mitigation Plan may be amended after a public hearing before the Commission to require implementation of reasonably feasible technologies. The Commission also may determine the additional mitigation, if any, required after implementation of available technologies to reduce marine life impacts from Phase II operations.

6.2 Additional Mitigation

The permittee also shall comply with the following mitigation measures after the occurrence of either Phase II Pre-Condition:

a. If within 24 months of the occurrence of the applicable Phase II Pre-Condition, the permittee assumes dredging obligations of the Agua Hedionda Lagoon from the Encina Power Station or other applicable entity, the permittee shall provide evidence to the Executive Director in the form of a contract or other agreement that demonstrates the permittee's assumption of dredging obligations, along with an evaluation of the permittee's dredging activities and supporting documentation for the proposed mitigation credit the permittee is seeking for this activity. Pursuant to Special Condition 12 of this Permit, the permittee shall not dredge the Agua Hedionda Lagoon without obtaining a new Coastal Development Permit approval from the Commission for dredging activities. If such dredging obligations are assumed, the Commission shall evaluate and determine the mitigation credit the permittee is entitled to receive for Lagoon dredging using substantially the same methodology the Commission used for the San Onofre Nuclear Generating Station's dredging approvals. If the Commission's evaluation set forth in subsection 6.1 determines that there is any remaining mitigation obligation following the implementation of reasonably feasible technologies to reduce marine impacts, the credit for Lagoon dredging shall be applied to satisfy any remaining mitigation obligation of the permittee; or

b. If the permittee does not assume the dredging obligations for the Agua Hedionda Lagoon (for any reason other than delays by the Commission in issuing the Coastal Development Permit for dredging) and the analysis and evaluation set forth in subsection 6.1 identifies that additional wetland restoration is necessary to mitigate Phase II impacts not fully mitigated by the 37-acre restoration project, then within 24 months of the occurrence of the applicable Phase II Pre-Condition, the permittee shall apply for a new Coastal Development Permit to

~~perform additional wetland mitigation to mitigate marine life impacts for Phase II operations that meets the following criteria:~~

~~(i) the Phase II wetland mitigation shall credit the 37-acres of restoration required under this Plan for Phase I, and may require additional mitigation of up to an additional 5.5 acres. The Commission shall proportionally reduce the potential 5.5 acre restoration requirement based on: (1) any reduction to marine life impacts caused by the permittee's implementation of reasonably feasible technologies, as set forth in subsection 6.1; and (2) any demonstration that actual plant operations have caused less marine life impacts than originally anticipated during the project's initial evaluation;~~
~~(ii) the permittee shall apply for a new Coastal Development Permit to perform the wetland restoration, and the restoration shall be of habitat similar to the affected habitats in Agua Hedionda Lagoon, excluding buffer zone and upland transition area, and consistent with the objectives and restrictions in subsections 3.1 (excluding subsection 3.1(c)), 3.2 and 3.3 above;~~
~~(iii) the permittee shall select a wetland restoration site for Phase II mitigation in a manner generally in accordance with section 2.0 above;~~
~~(iv) the restoration plan for Phase II mitigation shall be generally in accordance with the requirements in section 4.0 above, and shall be monitored in a manner generally in accordance with that set forth in section 5.0 above; and~~
~~(v) Phase II wetland restoration shall be included in and administered as part of the same administrative structure created for Phase I mitigation and set forth in Condition B of this Plan.~~

CONDITION B: ADMINISTRATIVE STRUCTURE

1.0 ADMINISTRATION

Personnel with appropriate scientific or technical training and skills will, under the direction of the Executive Director, oversee the mitigation and monitoring functions identified and required by Condition A. The Executive Director will retain ~~scientific and administrative support staff to perform this function, as specified in the work program~~ **approximately two scientists and one administrative support staff to perform this function**.

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

The Executive Director shall convene a ~~s~~**S**cientific ~~a~~**A**dvisory ~~p~~**P**anel to provide the Executive Director with scientific advice on the design, implementation and monitoring of the wetland restoration. The panel shall consist of recognized scientists, including a marine biologist, an ecologist, a statistician and a physical scientist.

2.0 BUDGET AND WORK PROGRAM

The funding necessary for the Commission and the Executive Director to perform their responsibilities pursuant to these conditions will be provided by the permittee in a form and manner reasonably determined by the Executive Director to be consistent with requirements of State law, and which will ensure efficiency and minimize total costs to the permittee. The amount of funding will be determined by the Commission on a biennial basis and will be based on a proposed budget and work program, which will be prepared by the Executive Director in consultation with the permittee, and reviewed and approved by the Commission in conjunction with its review of the restoration plan. ~~Permit application fees paid by the permittee for Coastal Development Permits (or amendments thereto) for the restoration program shall be credited against the budget to be funded by the permittee.~~ If the permittee and the Executive Director cannot agree on the budget or work program, the disagreement will be submitted to the Commission for resolution.

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

Costs for participation on any advisory panel shall be limited to travel, per diem, meeting time and reasonable preparation time and shall only be paid to the extent the participant is not otherwise entitled to reimbursement for such participation and preparation. ~~The amount of funding will be determined by the Commission on a biennial basis and will be based on a proposed budget and work program, which will be prepared by the Executive Director in consultation with the permittee, and reviewed and approved by the Commission in conjunction with its review of the restoration plan. If the permittee and the Executive Director cannot agree on the budget or work program, the disagreement will be submitted to the Commission for resolution.~~ **Total costs for such advisory panel shall not exceed $100,000 per year adjusted annually by any increase in the consumer price index applicable to California.**

The work program will include:

a. A description of the studies to be conducted over the subsequent two year period, including the number and distribution of sampling stations and samples per station, methodology and statistical analysis (including the standard of comparison to be used in comparing the mitigation project to the reference sites);

b. A description of the status of the mitigation projects, and a summary of the results of the monitoring studies to that point;

c. A description of ~~up to~~ four reference sites;

d. A description of the performance standards that have been met, and those that have yet to be achieved;

e. A description of remedial measures or other necessary site interventions;

f. A description of staffing and contracting requirements; and,

g. A description of the Scientific Advisory Panel's role and time requirements in the two year period.

~~Any amendment to the work program requested by the permittee shall require an amendment to the Coastal Development Permit for the restoration plan, unless the Executive Director determines that no Coastal Development Permit amendment is necessary or required. Any amendment to the work program proposed by the Executive Director shall be made in consultation with the permittee. If the permittee and the Executive Director cannot agree on an amendment to the work program, the disagreement will be submitted to the Commission for resolution.~~ **The Executive Director may amend the work program at any time, subject to appeal to the Commission.**

3.0 ANNUAL REVIEW AND PUBLIC WORKSHOP REVIEW

~~The permittee shall submit a written review of the status of the mitigation project to the Executive Director each year on April 30 for the prior calendar year. The written review will discuss the previous year's activities and overall status of the mitigation project, identify problems and make recommendations for solving them, and review the next year's program. Every fifth year, the Executive Director or the Commission shall also convene and conduct a duly noticed public workshop~~ **A duly noticed public workshop will be convened and conducted by the Executive Director or the Commission each year** to review the status of the mitigation project. The meeting will be attended by the contractors who are conducting the monitoring, appropriate members of the Scientific Advisory Panel, the permittee, Commission staff, representatives of the resource agencies (CDFG, NMFS, USFWS), and the public. Commission staff and the contractors will give presentations on the previous ~~five~~ years' activities, ~~and the~~ overall status of the mitigation project, identify problems and make recommendations for solving them, and review the next ~~period's~~ **year's** program.

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

The mitigation project will be successful when all performance standards have been met each year for a three-year period. The Executive Director shall report to the Commission upon determining that all of the performance standards have been met for three years and that the project is deemed successful. If the Commission determines that the performance standards have been met and the project is successful, the monitoring program will be scaled down, as recommended by the Executive Director and approved by the Commission. **A public review shall thereafter occur every five years, or sooner if called for by the Executive Director.** The work program shall reflect the lower level of monitoring required. If subsequent monitoring

shows that a standard is no longer being met, monitoring may be increased to previous levels, as determined necessary by the Executive Director.

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

4.0 ADDITIONAL PROCEDURES

4.1 Dispute Resolution

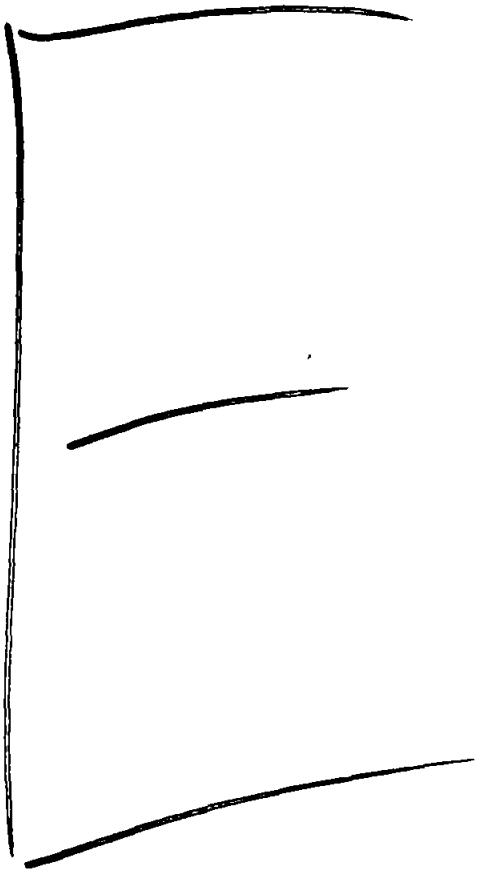
In the event that the permittee and the Executive Director cannot reach agreement regarding the terms contained in or the implementation of any part of this Plan, the matter may be set for hearing and disposition by the Commission.

4.2 Extensions

Any of the time limits established under this Plan may be extended by the Executive Director at the request of the permittee and upon a showing of good cause.

CONDITION C: SAP DATA MAINTENANCE

The scientific data collected by the SAP will be stored in the Commission library in San Francisco, and at the Los Angeles County Museum of Natural Science, or at an alternative location in Southern California, as determined by the Executive Director; and will be made available for public use. The permittee shall purchase the necessary computer equipment for the Commission and the Southern California location to store and retrieve the data, and shall fund appropriate staff training on data storage and retrieval at both locations.



WATER DESALINATION REPORT

The international weekly for desalination and advanced water treatment since 1965

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Technology

A DIRECT QUESTION

Almost everyone agrees that effluent from a municipal wastewater treatment plant should be treated as a resource that can be beneficially reused in a variety of applications based on its level of treatment. And, when coupling today's MF/UF and RO membrane technology with advanced oxidation techniques, secondary or tertiary effluent can easily be treated to quality levels that far exceed drinking water requirements.

There are many instances where this high quality reclaimed water is used for industrial purposes, and a growing number of cities practice *indirect potable reuse* (IPR), using reclaimed water to augment drinking water supplies.

In the case of IPR, highly treated, reclaimed water is discharged into a receiving body such as a river, stream, reservoir or aquifer before its re–treatment and subsequent use. The receiving body acts as an environmental buffer, providing both dilution and detention time before treatment in a water treatment plant and distribution as drinking water.

But if effluent has already been treated to quality levels that exceed drinking water standards, is it really necessary to pump it through an intermediary receiving waterbody before extracting it and treating it all over again?

Unlike IPR, water that undergoes *direct potable reuse* (DPR) enters the distribution system without passing through an environmental buffer. Australian water reuse expert Ian Law, of IBL Solutions, told *WDR*, "Given the qualities of reclaimed water being achieved around the world, the necessity of an environmental buffer and subsequent additional treatment is questioned."

With DPR, there is less concern that additional nutrient loads could impact surface water reservoirs, and the elimination of a pumping step means the water is less energy intensive with a lower environmental footprint. And, as shown in the table, the cost of water produced by DPR is generally less than either IPR or seawater desalination.

Law thinks that excluding a buffer will send a strong message to the community that today's advanced treatment techniques produce high quality water, and there is no reason for it to be blended with a raw water that is invariably of inferior quality before being treated again. And in many cases, the conventional water treatment plant that 're-treats' the water has little propensity to remove the emerging compounds that are of growing concern.

Supply Option	Conveyance km (mi)	Water Cost $/m³ ($/kgal)	Energy Usage kWh/m³ (kWh/kgal)
IPR	100 (62)	0.91 (3.44)	1.9 (7.2)
SWRO	20 (12)	0.99 (3.75)	4.3 (16.3)
DPR	20 (12)	0.56 (2.12)	1.5 (5.7)

Desal vs Reuse Water Cost Comparison

The world's only direct reuse scheme currently in operation is located in Windhoek, Namibia. The plant began operations in 1968, has been upgraded several times, and was outfitted with UF membranes in 2002.

Law acknowledges that implementation of new DPR projects presents substantial challenges, magnifying the need for process reliability, monitoring vigilance and highly skilled operators. But the adoption of a 'multiple barrier' approach—coupled with an appropriate level of equipment redundancy, on–line instrumentation, institutional capability and verification monitoring—means direct reuse is a viable option.

"We know we have the technology to reliably produce the water and we know that we can produce it in an environmentally and cost–effective manner. But we do not have wide community buy-in because, I believe, we have gone about it in the wrong way. We should learn from the Orange County and Singapore outreach programs where emphasis has been placed on information–sharing and where all interactions are transparent. We don't need more surveys to tell us that people are looking for information they can trust; we already know that!"

Community interaction and education must be an integral part of any potable reuse scheme, and Law reminds us that anthropologist Margaret Mead summed it up best when she said, "Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it's the only thing that ever has."

Note: The enclosed table was prepared in 2007 using Australian dollars and NWC data. It was converted to US dollars using today's exchange rate of 0.7028.

Global Water Intelligence

Tom Pankratz, Editor, P.O. Box 75064, Houston, Texas 77234-5064 USA
Telephone: +1-281-857-6571, www.waterdesalreport.com, email: tp@globalwaterintel.com

Australia
REPORT SAYS SWRO WILL BENEFIT STATE

While releasing the independent inquiry's report into the 411 ML/d (108 MGD) Victorian Desalination Project last week, State Planning Minister Justin Madden said he supported the report, and as a result, "the project can proceed subject to environmental management measures and other approvals being obtained."

The plant will be constructed southeast of Melbourne, near Wonthaggi, and will include an 85km (53-mile) pipeline to connect it to Melbourne's distribution system and power supply infrastructure. The project's total cost is estimated at $A3.1 billion ($2.2 billion).

The 104–page Environmental Effects Statement (EES) found that the project would result in significant benefits to the state, acknowledging that the potential for some environmental impacts did exist. However, it concluded that any impacts could be effectively managed through a range of mitigation measures and performance requirements. The EES is the final step required under law to advise decision-makers on the likely environmental effects of the proposal, their acceptability and how they should be addressed through statutory decisions.

The EES attracted over 400 submissions, and public hearings were held to give the community a chance to comment on the project. The full EES report is available for downloading at www.dpcd.vic.gov.au/planning/ees.

Two shortlisted teams led by Degrémont and Veolia are currently preparing final bids which are due in March, and the government expects to make an award by mid–year. Construction is expected to begin later this year, and first water from the plant is to be supplied by the end of 2011.

California
LEAVE IT TO GEEVER

In last week's year–end review issue, *WDR* said the final permit for the Carlsbad SWRO had been issued in August. Shortly after the issue went out, the Surfrider Foundation's Joe Geever reminded us that all of the permits were *conditional*, and the *final* permits have not yet been granted. He also noted that lawsuits filed by Surfrider against the Coastal Commission, the San Diego Regional Water Quality Control Board (WQCB) and the State Lands Commission have not yet been settled.

The WQCB conditionally granted approval in April of a Revised Flow, Entrainment, and Impingement Minimization Plan submitted to comply with Poseidon's NPDES discharge permit, requiring additional data to be resubmitted in early October 2008. Brian Kelley, the Board's senior engineer, told *WDR* that Poseidon's November response was submitted one month late and may render the conditional approval null and void. He said the issue would be addressed at the Board's 11 February meeting.

Coastal Commission staff expert Tom Luster also confirmed to *WDR* that the Commission cannot yet issue its final permit because Poseidon has not yet met some of its "prior–to–permit issuance" conditions. He said the next required permit deadline is in June, when Poseidon will need to provide its selected wetland mitigation site and preliminary restoration plan for Commission review and approval.

Geever added, "All of the permits were granted conditionally based on requirements that have yet to be fulfilled. We're particularly concerned about the marine life mitigation plan because the final restoration site has not yet been identified. The final plan is site dependent, and if you don't have a site, you cannot place a value on the restoration plan or the acreage required to offset an impact. Poseidon may be able to break ground and start construction, but it still does not have final approval to operate a plant."

Poseidon vice president Scott Maloni considers the issue a matter of semantics. "The permits have been granted, but like all permits issued by the State, they require certain conditions to be met. We're addressing those conditions and the project is moving forward on schedule," he said.

United Arab Emirates
FINANCING SECURED FOR MEGA PROJECT

In late October, financing for Abu Dhabi's Shuweihat 2 project was in doubt. It was reported that lenders were considering invoking a "material adverse circumstances" clause—which refers to a seismic and negative shift in a company's condition—to escape financing commitments.

However, last week GdF Suez reported that it had secured $900 million in 9-month bridge financing for the 454,610 m3/d (120 MGD) desalination plant and 1,500 MW power plant. The lenders include BayernLB, Calyon, KfW, NBAD, Natixis and Standard Chartered, and the cost is understood to be around 150 basis points over Libor, plus a fee.

GdF Suez will own 40 percent of the project, with Abu Dhabi Water and Electricity Authority owning the balance. The IWPP will employ Doosan MSF evaporators, and water from the facility will have a tariff of $1.13/m³ ($4.29/kgal).

The plant is scheduled to be on line in late 2011.

California
DECISION TIME IN MARIN COUNTY

Marin Municipal Water District (MMWD) general manager Paul Helliker said the District is closing in on a decision on how to resolve the local water supply/demand imbalance. Now that the final desalination Environmental Impact Report (EIR) has been released, several desalination options will be considered alongside a smorgasbord of water supply and demand management options.

The Board can select from a variety of options that include increased conservation, importation, reuse and storage, each of which have widely varying costs, timing, reliability and risks. Although the option that includes desalination of Bay water is predicted to have the highest debt load and rate impact, it also has the highest reliability and flexibility.

Desalination options under consideration include:

- a 'system wide' project that includes an initial 5 MGD (18,925 m³/d) SWRO facility that can later be expanded to 15 MGD (56,775 m³/d) located near the District's Pelican Way yard,
- a 'San Quentin' project that includes a 1 MGD (3,785 m³/d) SWRO facility to serve the prison, which is the District's largest customer, and
- a 'regional project' that would involve the District's participation in a 70 MGD (265,000 m³/d) currently which is being considered by several large water agencies in the area.

Bob Castle, the District's water quality control manager, told *WDR* that the San Quentin option would be a baseload facility, while the operation of the system–wide project would depend on whether it was a normal, dry or drought year. "A 1 MGD facility serving San Quentin would only address a portion of the District's current deficit. Although it would not require an expensive distribution system, it could be a big permitting hassle for very little water," he noted.

If the Board is able to reach a consensus, it could select a project—or projects—in early February. If not, a decision will be delayed until there is a consensus.

The final Marin desalination EIR can be downloaded in full at: www.marinwater.org/controller?action=menuclick&id=446.

Company News
EVAPORATOR COMPANY REBORN

Launched over 50 years ago, Maxim's evaporator product line has undergone a change of ownership and has been reorganized under a new name: Maxim Evaporators of America, LLC. According to company president and co–owner, Brian Hebert, the company will focus on the commercial marine and offshore oil and gas markets.

The Beaird Company acquired Maxim in the 1960s, and although it was spun off as a separate entity in early 2005, it remained under Beaird's ownership. When Beaird failed in May 2008, Hebert—a Maxim employee—and another investor acquired Maxim's assets. They continued the company's business activities, delivering five new units, but did not formally announce the purchase until the deal was completed in December.

Hebert told *WDR* that the cornerstone of the company's activities will continue to be its line of heat recovery evaporators that use engine jacket water as an energy source. "Our vacuum vapor compression units incorporate a unique, thermal circulation flash shroud in which seawater surrounds the heater tubes. The arrangement provides thermal stability in rough seas, suppresses boiling to reduce scaling, and provides a constant cleaning action," he explained.

In addition to supplying new units with capacities of 192 to 22,500 GPD (0.73 to 85 m³/d), Maxim will continue to provide aftermarket support for the 5,400 evaporators it has installed around the world. Hebert said the Shreveport, Louisiana–based company has not ruled out expanding the product line and markets in the future.

IN BRIEF

This past November, *WDR* (issue 43) described the water reuse system launched into space to be used on the **International Space Station**. The heart of the urine recycling system was a rotary vacuum distillation unit designed for use in a microgravity environment. Last week, NASA's Bob Bagdigian told *WDR* that the motor driving the unit's centrifugal distiller keeps shutting down because of high motor current. It has been difficult to pinpoint the problem and it is not yet certain whether the unit can be fixed in place or will have to be returned to earth for repairs.

Last week, India's Cabinet on Economic Affairs has approved construction of a 100 MLD (26.4 MGD) SWRO plant at Nemmeli, south of Chennai. The project is to be implemented by **Chennai Metro Water**. The total project cost, including the conveyance system and storage tanks, is estimated at $184 million with the central government funding a major portion. Switzerland's Adeco Technology has prepared a detailed project report and an international tender is expected for early this year. This is the second large–scale desalination project for Chennai and will raise the City's per capita supply form 100 to 144 L/pc/d (26 to 38 g/pc/d). The plant is scheduled for completion in 2010-2011.

Los Angeles Department of Water and Power (LADWP) heard oral presentations from three shortlisted teams last week as part of the process to select a consultant to assist in preparation of a recycle water master plan. The teams that presented are understood to be MWH with HDR and SPI, RMC with CDM and Trussell Technologies, and AECOM with Brown and Caldwell, Carollo and Malcolm Pirnie.

The final pilot study report for the **Texas Seawater Desalination Demonstration Project** is now available for downloading at www.nrsengineers.com/downloads/FullReport.pdf. The report was prepared by NRS Engineers for the Texas Water Development Board and Brownsville Public Utilities Board, and submitted in October 2008.

Cyprus' Ministry of Agriculture announced plans to build a second floating desalination plant with a capacity of 20,000 to 50,000 m^3/d (5.3 to 13.2 MGD). The plant was reported to be located near Yermasoya on existing infrastructure to shorten permitting and delivery schedules. It is expected to operate for five years until a permanent plant can be constructed at Episkopi.

The 3–9 January issue of the ***Economist*** contains a 16–page special report on the sea entitled "Troubled Waters". Ten stories cover the various problems facing the world's oceans, and the introduction to the report notes that more than one–half of the world's 6.7 billion people live within 100 km (62 mil) of the sea and 90 percent of marine life is found in its surface and coastal waters.

Qatar's Global Water Sustainability Center (WSC), a ConocoPhillips–GE venture, will soon move into the Qatar Science & Technology Park. In addition to its R&D work developing water solutions for the petroleum and petrochemical sectors, WSC will also look at municipal and agricultural water reuse solutions and help create a better community awareness of the judicious use of water resources. Center director Samer Adham told *WDR*, "The WSC will include a Visitor Center focusing on community outreach, education and training. We have asked CH2M Hill's Linda Macpherson to assist us with the development of a concept plan for the visitor center."

Pump manufacturer **KSB** has opened a new training center in Frankenthal, Germany and has developed a series of hands–on training programs and technical seminars. For more information visit: www.ksb.com/ksb/web/COM/en/segmente/training/ueberblick_en_index.html.

REMINDERS

A seawater desalination **intake systems workshop** will be held in Las Vegas this Friday afternoon, 16 January, at the conclusion of the Multi-State Salinity Summit. Information is available at jronsse@carollo.com.

Photo submissions for *WDR*'s **photo of the year** contest are due on 31 January. Photos submissions should be e–mailed to tp@globalwaterintel.com.

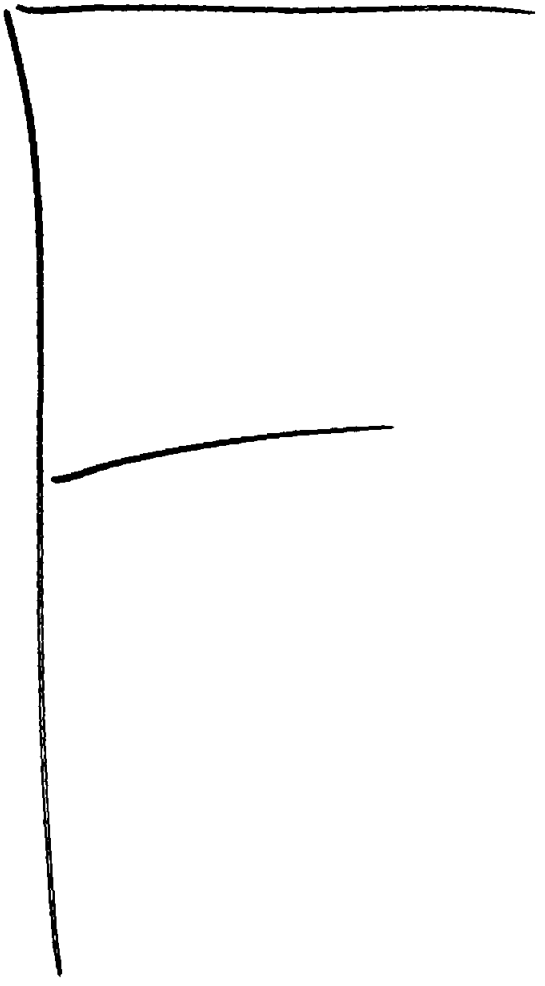
Global Water Award nominations can be made before 31 January online at www.globalwaterawards.com/ or by e–mail to nominations@globalwaterawards.com.

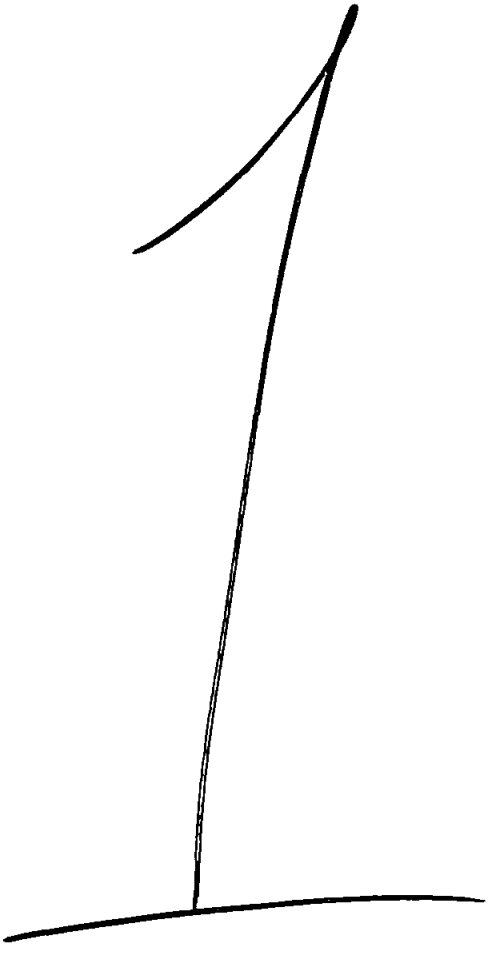
Applications for the **IDA Fellowship Award** are due on 15 February. Details are available at www.idadesal.org/t-Foundation.aspx.

PEOPLE

Mike Moston, formerly of Septech, has been appointed manager of aqualia's Middle East regional operations. He will be based at the company's new Dubai, UAE office and he can be contacted at Mmoston@fcc.es.

Toray Membrane USA has announced the appointment of **Lee Telin** as regional manager of special separations. He was formerly GEA Process Engineering and will be based in Marshfield, Wisconsin. He can be contacted at lee.telin@toraymem.com.





-----Original Message-----
From: Mike McCann [mailto:MMcCann@waterboards.ca.gov]
Sent: Monday, February 25, 2008 5:40 PM
To: Peter MacLaggan
Cc: Eric Becker
Subject: Re: Desal Mini Plan Meeting

Peter,

We have a date and time tentatively set--March 4 at 0900. Eric Becker will get back to you to confirm.

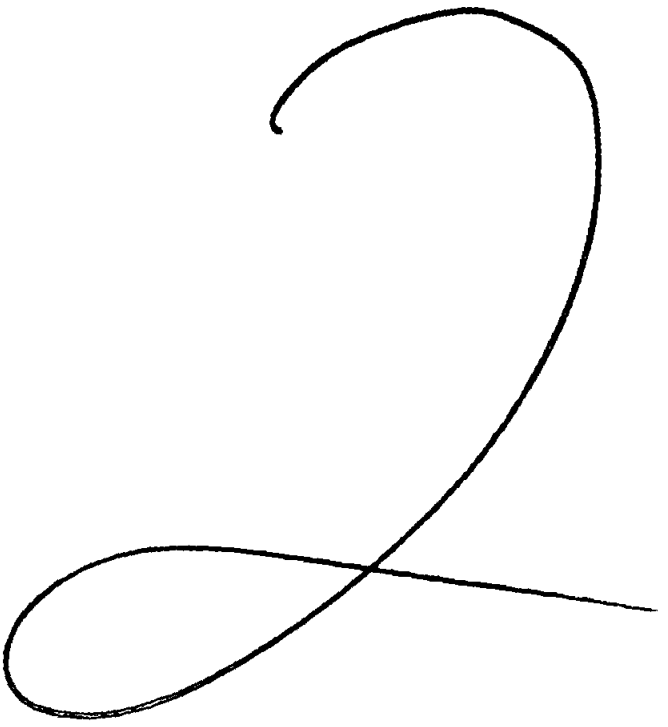
MM

>>> "Peter MacLaggan" <pmaclaggan@poseidon1.com> 2/25/2008 1:59 PM >>>
Mike,

I was able to make a lot of progress on our response to the RWQCB comments this weekend and we are on schedule to resubmit the plan on Thursday. Have you been able to confirm a time for a meeting to walk through our response on Thursday or Friday this week?

Peter

Peter M. MacLaggan
Senior Vice President
Poseidon Resources
501 W. Broadway # 1260
San Diego, CA 92101
Ph. 619-595-7802
Fax 619-595-7892
pmaclaggan@poseidon1.com



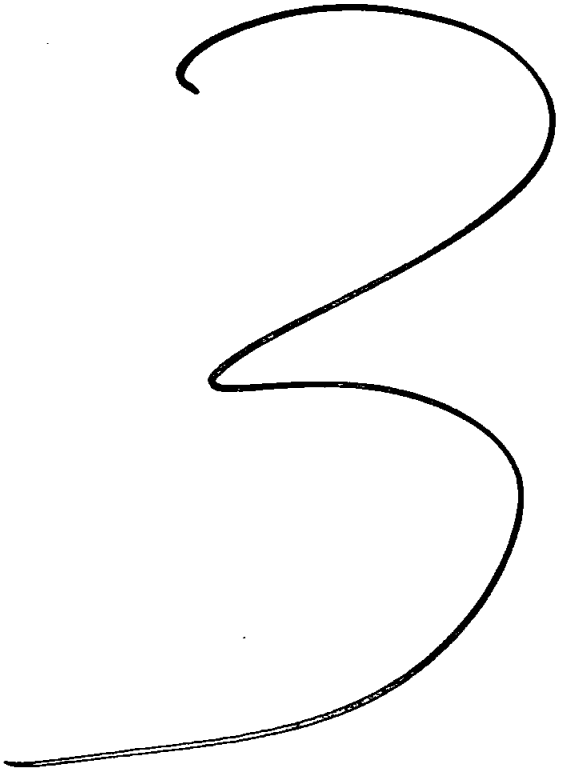
-----Original Message-----
From: Eric Becker [mailto:EBecker@waterboards.ca.gov]
Sent: Friday, March 07, 2008 1:58 PM
To: Tom Luster; wpaznokas@dfg.ca.gov; Sharon_Taylor@fws.gov; Peter MacLaggan; bruce@sdcoastkeeper.org; gabe@sdcoastkeeper.org; Judy Brown; rwilson@surfrider.org
Cc: John Odermatt; Mike McCann
Subject: Poseidon Revised Flow, Entrainment, & Impingement Plan &Response to Regional Board Comments

All-

We have just received a revised plan and a response to our February 19, 2008 comments. The new documents can be found at:

http://www.waterboards.ca.gov/sandiego/misc/desalination/desalination.html

Eric Becker, P.E.
Water Resources Control Engineer
SDRWQCB
9174 Sky Park Court, Suite 100
San Diego, CA 92123
(858) 492-1785
(858) 571-6972
EBecker@waterboards.ca.gov

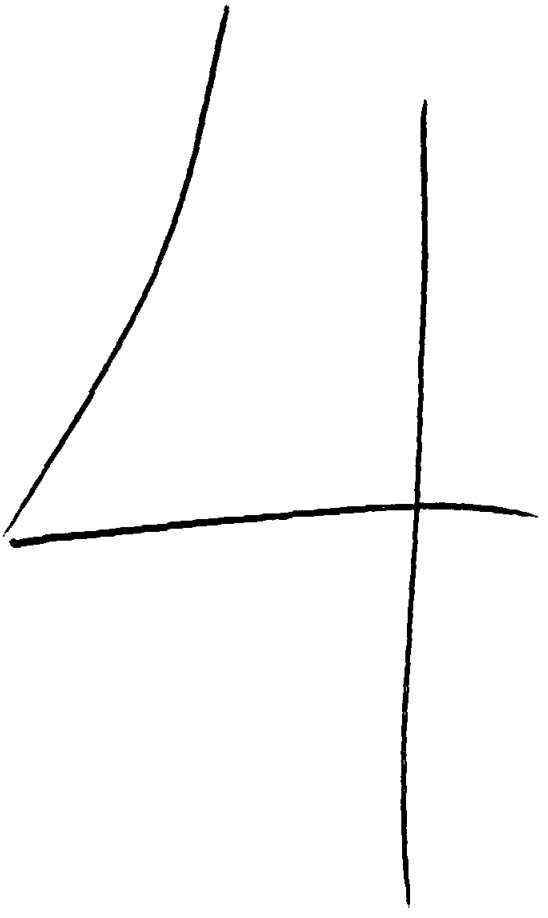


-----Original Message-----
From: Eric Becker [mailto:EBecker@waterboards.ca.gov]
Sent: Wednesday, March 12, 2008 3:19 PM
To: Peter MacLaggan
Cc: Chiara Clemente; John Odermatt; Mike McCann
Subject: Poseidon Revised Flow, Entrainment, & Impingement Plan &Response to Regional Board Comments

Peter-

We have been working on an enforcement item and have not yet begun our review of the revised plan. We will begin the review shortly, but will not have enough time to put it on the April meeting. We will therefore plan on getting it on the May 14, 2008 Regional Board agenda.

Eric Becker, P.E.
Water Resources Control Engineer
SDRWQCB
9174 Sky Park Court, Suite 100
San Diego, CA 92123
(858) 492-1785
(858) 571-6972
EBecker@waterboards.ca.gov



From: Peter MacLaggan [mailto:pmaclaggan@poseidon1.com]
Sent: Friday, March 14, 2008 11:38 AM
To: John Robertus
Cc: Eric Becker; Mike McCann; jodematt@waterboards.ca.gov
Subject: Letter to Chairman Wright
Importance: High

John,

Attached is a letter to Chairman Wright from the nine public water agencies purchasing water from the Desal Project urging the Regional Board to calendar the Flow, Entrainment and Impingement Minimization Plan for final approval at the earliest possible hearing date, ideally the Board's April 9th hearing.

Peter

RWQCB Letter -
Desal Partners - 0314

Peter M. MacLaggan
Senior Vice President
Poseidon Resources
501 W. Broadway # 1260
San Diego, CA 92101
Ph. 619-595-7802
Fax 619-595-7892
pmaclaggan@poseidon1.com

March 14, 2008

Chairman Richard Wright
San Diego Regional Water Quality Control Board
100 Howe Ave, Suite 100 South
Sacramento, CA 95825

RE: Carlsbad Desalination Project

Dear Chairman Wright:

The San Diego Desal Partners is an organization comprised of nine San Diego County public water agencies formed last year to advance the Carlsbad Desalination Project (CDP).

To provide reliability and enhance water supplies, regional plans to satisfy our water projections include increased emphasis on local water supply projects. Specifically, desalination is included in the regional water plan and has always been considered as part of the solution to water supplies for Southern California residents. Our nine water agencies have individually signed 30-year contracts to purchase water from the Carlsbad Desalination Plant. These contracts represent 100% of the plant's 56,000 AF/Y capacity.

Regardless of weather conditions, the conditions which influence imported water are increasingly complicated. Despite a wetter than anticipated winter season, the San Diego region is still bracing for significant cutbacks in our imported water supplies that will take effect this year and continue well into the future. The Metropolitan Water District voted last month on a drought allocation program that will significantly impact Southern California's municipal and industrial users.

In anticipation that the Encina Power Station (EPS) might not always satisfy the CDP's source water demands, the Regional Board required Poseidon to submit a Flow, Entrainment and Impingement Minimization Plan (Plan) to assess the feasibility of site-specific plans, procedures, and practices to be implemented and/or mitigation measures to minimize the impacts to marine organisms when the CDP intake requirements exceed the

volume of water being discharged by the EPS. The Regional Board review and approval of the Plan will address any additional review of the proposed desalination facility required pursuant to Water Code. The Plan has been available for public comment for the past 12 months and extensively revised on two occasions in response to Regional Board and public comments. As elected and appointed public officials, we urge your approval of the revised Flow, Entrainment & Impingement Minimization Plan before you.

We urge you to calendar the Carlsbad Desalination Project's Flow, Entrainment & Impingement Minimization Plan for final approval by the Regional Board as soon as possible. It's been 17 months since the Regional Board first heard this project, and we want to remind you that time is not on our side. The slowing of the state's economy and the rise in water rates could have a crippling affect on our ratepayers. The longer it takes to bring the Carlsbad Desalination Project online the more at risk our region's economic stability and public health.

Respectfully,

The Honorable Claude A. "Bud" Lewis
Mayor, City of Carlsbad

Mr. Gary Broomell
President, Valley Center Municipal Water District

Mr. R. Mitchel Beauchamp
Board Chairman, Sweetwater Authority

Mr. Robert M. "Bud" Irvin
President, Santa Fe Irrigation District

The Honorable Jim Wood
Mayor, City of Oceanside

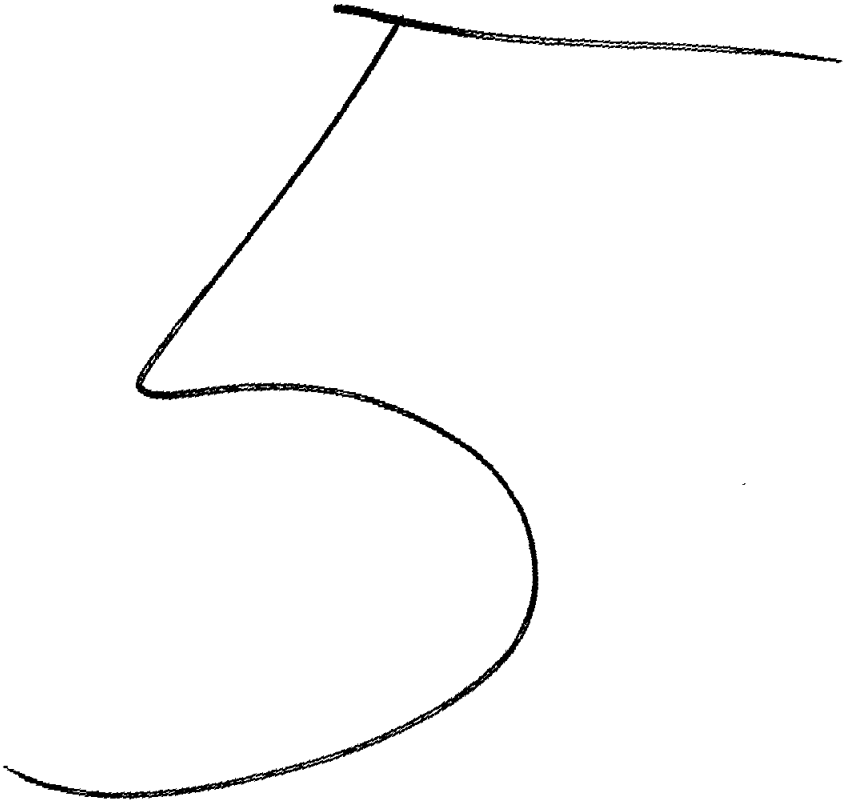
Ms. Diana L. Towne
President, Rincon del Diablo Municipal Water District

Ms. Susan J. Varty
President, Olivenhain Municipal Water District

Mr. Rua M. Petty
President, Rainbow Municipal Water District

Mr. Timothy M. Shell
President, Vallecitos Water District

cc:
David King, Vice Chairman
Susan Ritschel, Board Member
Eric Anderson, Board Member
Wayne Rayfield, Board Member
Elizabeth Pearson-Schneider, Board Member
Kris Weber, Board Member
John Robertus, Executive Director
Eric Becker
Michael McCann
John Odermatt



From: Peter MacLaggan [mailto:pmaclaggan@poseidon1.com]
Sent: Thursday, April 10, 2008 12:25 PM
To: John Robertus
Subject: FW: Update on Attendees for May 1-2 Meetings

John,

Attached is the list of confirmed attendees for the May 1 coordination meeting on the desal project wetlands mitigation plan. In addition to those on the list Poseidon will be sending a delegation of staff, scientists and some of the water agency reps. Sara Townsend from CCC is coordinating the meeting. Her contact info is included below. The location of the meeting is the Agua Hedionda Lagoon Foundation Discovery Center 1580 Cannon Road. I will forward you via a separate email her original meeting invitation. Let me know if you need any additional information.

Peter

Peter M. MacLaggan
Senior Vice President
Poseidon Resources
501 W. Broadway # 1260
San Diego, CA 92101
Ph. 619-595-7802
Fax 619-595-7892
pmaclaggan@poseidon1.com

From: Sara Townsend [mailto:stownsend@coastal.ca.gov]
Sent: Wednesday, April 09, 2008 5:26 PM
To: Peter MacLaggan
Cc: Alison Dettmer
Subject: Update on Attendees for May 1-2 Meetings

Here is a current list of responses I have received so far. Looking pretty good!

Thanks,
Sara

San Diego Meetings

May 1 & 2

Person	Affiliation
Day 1- Marine Life Mitigation Plan	
Judy Brown	State Lands Commission
Gail Newton	State Lands Commission
Steven Mindt	State Lands Commission
Mark Meier	State Lands Commission
Eric Becker	Regional Board
	Regional Board
Bill Paznokas	Fish & Game
Amber Pairis	Fish & Game
Bryant Chesney	NMFS
Monica DeAngeles	NMFS
Dr. Marci Koski	USFWS
Meleah Ashford	City of Vista
Jim Elliot	City of Carlsbad
Mike Grim	City of Carlsbad
Keith Greer	SANDAG
Bob Leiter	SANDAG
Steve Hampton	OSPR
Matt Zafonte	OSPR
Pierre duVair	CEC
Peter McLaggen	Poseidon
Tom Luster	CCC
Sara Townsend	CCC
Day 2- Greenhouse Gas Emission Reduction Plan	
Judy Brown	State Lands Commission
Gail Newton	State Lands Commission
Steven Mindt	State Lands Commission
Mark Meier	State Lands Commission
Andy Hamilton	SDAPCD
Pierre duVair	CEC
Patrick Gaffney	CARB
Brian Holland	SANDAG
Bob Leiter	SANDAG
Doug Wickizer	CA Dept Forestry
Jim Elliot	City of Carlsbad
Joe Garuba	City of Carlsbad
Bryant Chesney	NMFS
Monica DeAngeles	NMFS
Dr. Marci Koski	USFWS
Meleah Ashford	City of Vista
Bill Paznokas	Fish & Game
Amber Pairis	Fish & Game
Steve Hampton	OSPR

Matt Zafonte	OSPR
Peter McLaggen	Posiedon
Tom Luster	CCC
Sara Townsend	CCC

Confirmed	
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	Lani Adams??
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MAYBE	
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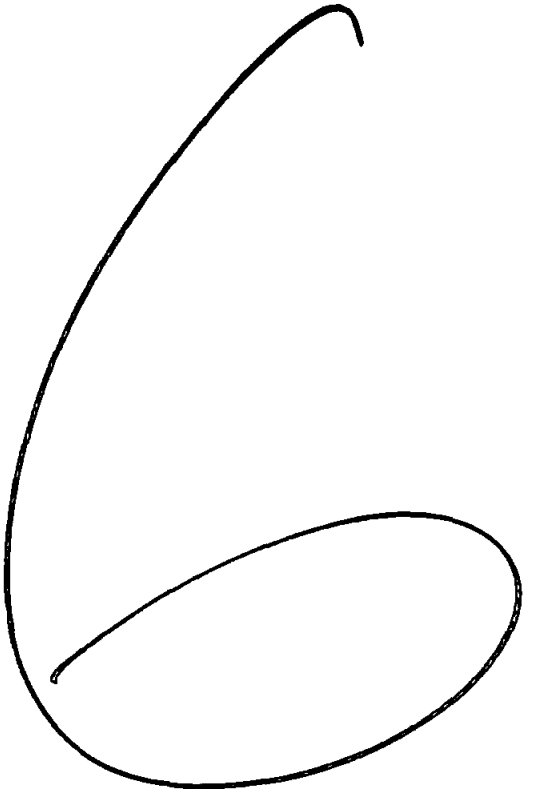


From: Peter MacLaggan [mailto:pmaclaggan@poseidon1.com]
Sent: Thursday, April 10, 2008 12:30 PM
To: John Robertus
Subject: May 1 Desal Mitigation Meeting

John,

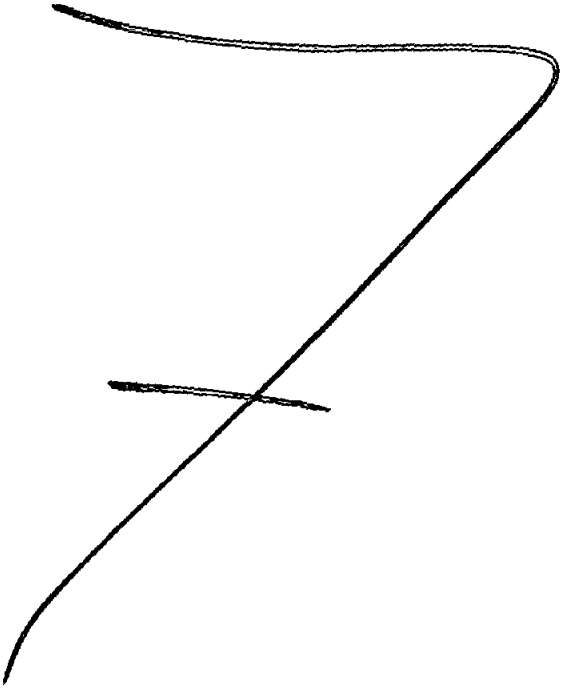
Here is the May 1 meeting invitation from CCC staff. You can disregard the comment about having to pay for your own lunch, Poseidon is going to provide lunch for the group.

Peter

> _____
> From: Sara Townsend
> Sent: Wednesday, April 02, 2008 2:33 PM
> To: Sara Townsend; Judy Brown; ebecker@waterboards.ca.gov; WPaznokas@dfg.ca.gov; Amber Pairis; bryant.chesney; Monica.Deangelis@noaa.gov; Marci_Koski@fws.gov; Meleah Ashford; jelli@ci.carlsbad.ca.us; jgaru@ci.carlsbad.ca.us; kgr@sandag.org; ble@sandag.org; Matt Zafonte; Steve Hampton; Pierre duVair; pmaclaggan@poseidon1.com; Alison Dettmer; Tom Luster
> Subject: Marine Life Mitigation Plan Meeting for Poseidon Desal Plant
> When: Thursday, May 01, 2008 10:00 AM-1:30 PM (GMT-08:00) Pacific Time (US & Canada).
> Where: Agua Hedionda Lagoon Foundation offices in Carlsbad
>
>
> Greetings!
>
> I have spoken directly with most of you, but would like to cordially invite you to participate in an interagency working group meeting on Thursday May 1 to address potential mitigation options for impacts to marine life from impingement and entrainment by Poseidon's desal plant.
>
> Last November the Coastal Commission approved a coastal development permit for Poseidon Resources, contingent upon the completion of a Marine Life Mitigation Plan (Special Condition 8). We would like to inform you where we are in this process and seek your input in an effort to promote more efficient and effective communciation among the many agencies either directly or indirectly involved. We anticipate at least a half-day meeting, beginning at 10 am and breaking for lunch by 1 or 2 pm. After lunch, we will resume the meeting if necessary or go on site visits if possible.
>
> This meeting is not open to the general public and we would like to limit the number of participants to 2 for each agency. If there are others you think should be included, please let me know. Although we would like to, we do not currently have the funds to provide lunch. I will most likely arrange for lunch to be delivered and each person would be responsible for covering their portion of the cost (I'm open to other ideas as well).
>
> Details, such as the agenda, directions, and a more concrete plan for lunch, will follow. We look forward to meeting each of you and thank you in advance for taking the time to participate and lend your expertise. We are hopeful that this meeting will yield good contacts among agencies and a reduction in the amount of time it takes to complete our respective tasks. If you have any questions or concerns, please give me a call.

>
> Cheers,
> Sara
>
>
>
> SARA TOWNSEND
> Coastal Program Analyst
>
>
>
> CALIFORNIA COASTAL COMMISSION
> 45 FREMONT STREET
> SUITE 2000
> SAN FRANCISCO CA 94105
> T: 415.904.5295
> F: 415.904.5400
>
>
>

Peter M. MacLaggan
Senior Vice President
Poseidon Resources
501 W. Broadway # 1260
San Diego, CA 92101
Ph. 619-595-7802
Fax 619-595-7892
pmaclaggan@poseidon1.com



-----Original Message-----
From: Eric Becker [mailto:EBecker@waterboards.ca.gov]
Sent: Friday, April 18, 2008 9:45 AM
To: Sara Townsend; Tom Luster; wpaznokas@dfg.ca.gov; Marci_Koski@fws.gov; Sharon_Taylor@fws.gov; bryant.chesney@noaa.gov; Peter MacLaggan; gabe@sdcoastkeeper.org; Judy Brown; Jgeever@surfrider.org; rwilson@surfrider.org
Cc: Brian Kelley; David Barker; Mike McCann
Subject: Resolution Conditionally Approving Poseidon's FlowMinimization Plan

All-

Please see attached copy of Resolution R9-2008-0039 adopted at the April 9, 2008 Regional Board meeting. Brain Kelley at (858) 467-4254, or at bkelley@waterboards.ca.gov will be the point of contact for the project from now on.

Thank you.

Eric Becker, P.E.
Water Resources Control Engineer
SDRWQCB
9174 Sky Park Court, Suite 100
San Diego, CA 92123
(858) 492-1785
(858) 571-6972
EBecker@waterboards.ca.gov

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http:// www.waterboards.ca.gov/sandiego

April 17, 2008

CERTIFIED – REGISTERED MAIL
7007 3020 0001 0040 7096

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

In reply refer to:
CRU: 02-1429.02:bkelley

Dear Mr. MacLaggan:

ADOPTED ORDER NO. R9-2008-0039, AN ORDER CONDITIONALY APPROVING REVISED FLOW, ENTRAINMENT, AND IMPINGEMENT MINIMIZATION PLAN, POSEIDON RESOURCES CORPORATION, CARLSBAD DESALINATION PROJECT

Enclosed is Order No. R9-2008-0039, which was adopted by the Regional Board at their April 9, 2008 meeting and provides conditional approval of Poseidon's Flow, Entrainment, and Impingement Minimization Plan (Plan) dated March 6, 2008. Within six months of adoption of Order No. R9-2008-0039, Poseidon is required to submit an amendment to the Plan that includes a specific proposal for mitigation of the impacts, by impingement and entrainment upon marine organisms resulting from the intake of seawater from Agua Hedionda Lagoon.

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 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. Brian Kelley at (858) 467-4254, or at bkelley@waterboards.ca.gov.

Respectfully,

John H. Robertus
Executive Officer

cc:

State Water Resources Control Board
Division of Water Quality
P.O. Box 944213
Sacramento, CA 94244-2130
Attn: James Maughan

U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105
Attn: Douglas Eberhardt

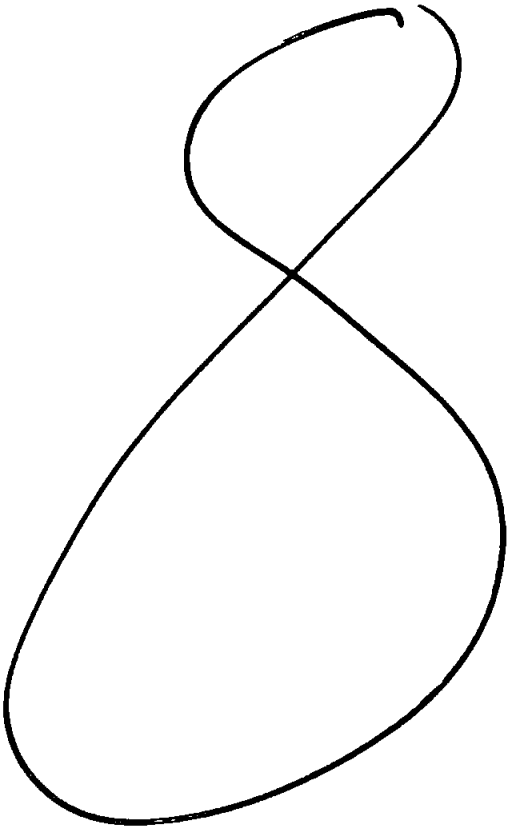
Bill Paznokas
California Department of Fish & Game
4949 Viewridge Road
San Diego, CA 92123

Mr. Tom Luster
California Coastal Commission
Energy and Ocean Resources Unit
45 Fremont, Suite 2000
San Francisco, CA 94105-2219

Judy Brown
Public Land Management Specialist
CA State Lands Commission
100 Howe Ave., Suite 100-South
Sacramento, CA 95825-8202

Sharon Taylor
Division Chief
United States Fish & Wildlife Services
6010 Hidden Valley Road
Carlsbad, CA 92011

cc : (See Enclosed Interested Parties List)



-----Original Message-----
From: Peter MacLaggan [mailto:pmaclaggan@poseidon1.com]
Sent: Wednesday, April 30, 2008 4:13 PM
To: Chiara Clemente
Cc: Brian Kelley; David Barker; Deborah Woodward; Mike McCann
Subject: RE: Poseidon's CDP Plan - questions regarding IM & E assessments

Chiara,

I see that some of the staff on your original email were not included in my earlier response so I'm resending it to everyone.

Attached is Poseidon's response to staff's questions on the Flow, Entrainment and Impingement Plan for the Carlsbad Desalination Project. Please feel free to contact me if you have any additional questions.

Peter

Peter M. MacLaggan
Senior Vice President
Poseidon Resources
501 W. Broadway #840
San Diego, CA 92101
Ph. 619-595-7802
Fax 619-595-7892
pmaclaggan@poseidon1.com

-----Original Message-----
From: Chiara Clemente [mailto:CClemente@waterboards.ca.gov]
Sent: Thursday, April 17, 2008 9:48 AM
To: pmaclaggan@poseidon1.com
Cc: Brian Kelley; David Barker; Deborah Woodward; Mike McCann
Subject: Poseidon's CDP Plan - questions regarding IM & E assessments

Dear Mr. MacLaggan,

After discussing the issue with Debbie Woodward, we thought that perhaps a meeting isn't necessary to obtain the clarifications we need to proceed with our analysis. Rather, it would be most helpful if you, or your consultant(s), could confirm/clarify a couple aspects of the entrainment and impingement assessments in the Flow, Entrainment and Impingement Minimization Plan (March 6, 2008) via e-mail, in the next couple of days. Please see below.

1. ENTRAINMENT

Based on our review of the entrainment assessment in the Plan, it appears that the assessment...

(a) characterizes larval concentration in entrained water using in-plant samples, i.e., two, 24-hour samples collected near the CDP intake in the EPS discharge stream on June 10, 2004 and May 19, 2005;

(b) characterizes larval concentration in source water using source water samples, i.e., thirteen, 24-hour sample events per station

collected at four lagoon (L1-4) and five nearshore (N1-5) stations, monthly from June 10, 2004 through May 19, 2005;

(c) does not draw upon the monthly samples taken in the lagoon near the entrance to the EPS intake structure (station E1); and,

(c) therefore, is for CDP/EPS co-operation rather than CDP stand-alone operation.

Is this understanding correct? Do you concur that the entrainment assessment provided in the Plan is for co-operation rather than stand-alone operation?

2. IMPINGEMENT

Based on our review of the impingement assessment in the Plan, it appears that the daily biomass of impinged fish (0.96 kgs/day) may have been incorrectly calculated.

(a) Attachment 2 appears to present counts and weights of impinged organisms found during each of the 24-hour sample events conducted weekly from June 24, 2004 through June 15, 2005, i.e., 52 sample events, each representing 24-hour impingement;

(b) Table 5-1 appears to present - not annual count and weight totals prorated to 304 MGD as indicated by the caption - but rather line totals (by taxa) of the counts and weights from Attachment 2, i.e., Table 5-1 appears to present 52-day totals with no adjustment for flow on the day of sampling, no interpolation for the days between sample events, and no prorating to 304 MD; and,

(c) therefore, calculation of the daily biomass of impinged fish by dividing the un-interpolated, un-prorated Table 5-1 total weight (351,672 grams) by 365 days appears to be in error.

Is the above staff interpretation correct? If not, then could you please let me know which of the above statements regarding Attachment 2 and/or Table 5-1 is wrong, and why?

Thank you for your time and attention on this matter,

Chiara

Chiara Clemente
Senior Environmental Scientist
Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123
(858) 467-2359

cclemente@waterboards.ca.gov

http://www.waterboards.ca.gov/sandiego

Please take the time to fill out our electronic customer service survey located at http://www.calepa.ca.gov/Customer/CSForm.asp.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

RESOLUTION NO. R9-2008-0039

CONDITIONAL APPROVAL OF
REVISED FLOW, ENTRAINMENT, AND IMPINGEMENT MINIMIZATION PLAN
FOR
POSEIDON RESOURCES CORPORATION
CARLSBAD DESALINATION PROJECT

WHEREAS, the California Regional Water Quality Control Board, San Diego Region (hereinafter San Diego Water Board), finds that:

1. On August 11, 2006, the Regional Board adopted Order R9-2006-0065 NPDES No. CA0109223 (Order No. R9-2006-0065) establishing waste discharge requirements for Poseidon Resources Corporation (Poseidon) to discharge up to 57 million gallons per day (MGD) of a combined waste stream comprised of concentrated saline waste seawater and filter backwash wastewater from the Carlsbad Desalination Project (CDP) into the Pacific Ocean via the Encina Power Station's (EPS) cooling water discharge channel.

2. As proposed in Poseidon's Report of Waste Discharge for Order No. R9-2006-0065, the CDP will operate in conjunction with the EPS and will draw upon cooling water discharges by EPS for its intake requirements in the production of fresh potable water. As recognized in Section VI.C.2(e) of Order No. R9-2006-0065, CDP's intake requirements may, at times, exceed the volume of seawater being discharged by the EPS during times when EPS temporarily ceases operating to generate electricity. During these periods, EPS will operate its intake structures to produce intake water sufficient to meet CDP's intake needs.

3. The operations at the CDP are not subject to the statutory requirements of section 316(b) of the Clean Water Act as that section pertains only to impacts from intake of seawater for the purpose of power generation.

4. CDP is, however, a new industrial installation that is subject to California Water Code Section 13142.5 which requires use of best available site design, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life.

5. Section VI.C.2(e) of Order No. R9-2006-0065 requires Poseidon to submit (within 180 days of adoption), a Flow, Entrainment and Impingement Minimization Plan ("Plan") that "shall assess the feasibility of site-specific plans, procedures, and practices to be implemented and/or mitigation measures to minimize the impacts to marine organisms when the CDP intake requirements exceed the volume of water

being discharged by the EPS." Thus, Poseidon is required to submit a plan to minimize these impacts to marine organisms under conditions of operation in conjunction with the Encina Power Station (EPS), as described in Finding II.B of Order No. R9-2006-0065. Approval of the Plan is currently not a condition for commencement of the discharge from the CDP.

6. On March 7, 2008, Poseidon submitted an updated Revised Flow, Entrainment, and Impingement Minimization Plan (Plan) to address best available site design, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life and Order No. R9-2006-0065 Section VI.C.2(e) requirements.

7. As submitted, the Plan does not include a specific mitigation alternative but instead sets forth a process to be used for evaluating and selecting a specific mitigation alternative that will compensate for impacts, to beneficial uses of Agua Hedionda Lagoon, from entrainment and impingement of marine organisms by operations at the CDP. An amendment to the Plan containing a specific mitigation alternative must be submitted to the Regional Board for approval.

8. The Plan, including any amendments subsequently approved by the Regional Board, is of limited duration and is applicable only to Poseidon's current cooperative operation with EPS. Upon Poseidon's proposal to operate CDP independent of EPS or when EPS permanently ceases power generation operations, it may be necessary to further evaluate appropriate mitigation and/or minimization of impacts to marine organisms of CDP's operations.

9. This action is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000 et seq.) in accordance with Water Code section 13389 (see *County of Los Angeles v. California State Water Resources Control Board,* (2006) 143 Cal.App.4th 985, 50 Cal.Rptr. 3d 619), and this action of the Regional Board does not have the potential to cause a significant effect on the environment. (See Title 14, California Code of Regulations, section 15061.)

THEREFORE, BE IT RESOLVED THAT:

1. The Plan, dated March 6, 2008, does not include specific implementation provisions as required in Section VI.C.2.(e) of Order No. R9-2006-0065 and does not as yet resolve the concerns noted in the Regional Board's February 19, 2008 letter to Poseidon Resources.

2. The San Diego Water Board hereby conditionally approves the Plan.

3. Within six months of adoption of this resolution, Poseidon shall submit to the Regional Board Executive Officer, for approval by the Regional Board, an amendment to the Plan that includes a specific proposal for mitigation of the impacts, by impingement and entrainment upon marine organisms resulting from the

intake of seawater from Agua Hedionda Lagoon, as required by Section VI.C.2(e) of Order No. R9-2006-0065; and shall resolve the concerns identified in the Regional Board's February 19, 2008 letter to Poseidon Resources, and the following additional concerns:

a) Identification of impacts from impingement and entrainment;
b) Adequate monitoring data to determine the impacts from impingement and entrainment;
c) Coordination among participating agencies for the amendment of the Plan as required by Section 13225 of the California Water Code;
d) Adequacy of mitigation; and
e) Commitment to fully implement the amendment to the Plan.

4. Poseidon's Plan, including any amendments that are subsequently approved by the Regional Board, are of limited duration and are applicable only to CDP's current cooperative operation with EPS. When Poseidon proposes to operate independent of EPS or EPS permanently ceases power generation operations, EPS's cessation of power generation operations, would be necessary to further evaluate appropriate mitigation and/or minimization of impacts to marine organisms of CDP's operations.

I, John H. Robertus, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of a resolution adopted by the California Regional Water Quality Control Board, San Diego Region, on April 9, 2008.

JOHN H. ROBERTUS
Executive Officer

Interested Parties
Order No. R9-2006-0065
NPDES Permit No. CA0109223

Ms. Mary Salas
Assemblymember, 79th District
Assembly California Legislature
678 Third Avenue, Suite 105
Chula Vista, CA 91910

Mr. Bill Horn
Supervisor, Fifth District
San Diego County Board of Supervisors
1600 Pacific Highway, Room 335
San Diego, CA 92101

Ms. Denise Moreno Ducheny
Senator, 40th District
California State Senate
637 3rd Avenue, Suite A-1
Chula Vista, Ca 91910

Mr. Mark Wyland
Senator, 38th District
California State Senate
1910 Palomar Point Way, Suite 105
Carlsbad, CA 92008

Mr. Martin Garrick
Assemblymember, 74th District
Assembly California Legislature
P.O. Box 942849
Sacramento, CA 94249-074

Ms. Shirley Horton
Assemblymember, 78th District
Assembly California Legislature
7144 Broadway Avenue
Lemon Grove, CA 91945

Christine Kehoe
Senator, 39th District
California State Senate
2445 5th Avenue, Suite 200
San Diego, CA 92101

Honorable Claude A. "Bud" Lewis, Mayor
City of Carlsbad
1200 Carlsbad Village Drive
Carlsbad,CA 92008

Gary Broomell, President
Valley Center Municipal Water District
29300 Valley Center Road
Valley Center, CA 92082

R. Mitchel Beauchamp, Board Chairman
Sweetwater Authority
P.O. Box 2328
Chula Vista, CA 91912-2328

Robert M. "Bud" Irvin, President
Santa Fe Irrigation District
5920 Linea del Cielo
Rancho Santa Fe, CA 92067

Honorable Jim Wood, Mayor
City of Oceanside
300 North Coast Hwy
Oceanside, CA 92054

Diana L. Towne, President
Rincon del Diablo Municipal Water District
1920 North Iris Lane
Escondido, CA 92026-1399

Susan J. Varty, President
Olivenhain Municipal Water District
1966 Olivenhain Road
Encinitas, CA. 92024

Rua M. Petty, President
Rainbow Municipal Water District
3707 Old Highway 395
Fallbrook, CA 92028

Interested Parties
Order No. R9-2006-0065
NPDES Permit No. CA0109223

Timothy M. Shell
President, Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069

Stephen N. Arakawa
Manager, Water Resources Management
MWD
700 N. Alameda Street
Los Angeles, CA 90012

Maureen Stapleton
General Manager
San Diego County Water Authority
4677 Overland Avenue
San Diego, CA 92123

Ted Owen
President & CEO
Carlsbad Chamber of Commerce
5934 Priestly Dr
Carlsbad, CA 92008

Scott D. Alevy
Vice President
San Diego Chamber of Commerce
402 West Broadway, Suite 1000
San Diego, CA 92101

Eric Munoz, President
Agua Hedionda Lagoon Foundation
1580 Cannon Road
Carlsbad, CA 92008

Rick Polischuk
Shapery Enterprises
402 West Braodway, Suite 1220
San Diego, CA 92101

Dick Bobertz
Executive Director
San Dieguito River Valley Regional Open Space Park
18372 Sycamore Creek Road
Escondido, CA 92025

Steve Aceti
California Coastal Coalition
1133 Second Street, Suite G
Encinitas, CA 92024

Julie Meier Wright
President & CEO
San Diego Regional Economic Development Corporation
530 B Street, Seventh Floor
San Diego, CA 92101

Tom Lemmon
San Diego County Building & Construction Trades Council, AFL-CIO
3737 Camino del Rio South, Suite 202
San Diego, CA 92108

Robert Simmons, Esq.
P.O. Box 19932
San Diego, CA 92519

Gary Knight
President & CEO
San Diego North Economic Development Council
100 N. Rancho Santa Fe Road, Suite 124
San Marcos, CA 92069

Patti Krebs
Executive Director
Industrial Environmental Association
701 B Street, Suite 1040
San Diego, CA 92101

Andrew Davis
Carlsbad Aquafarm
4600 Carlsbad Blvd.
Carlsbad, CA 9208

Interested Parties
Order No. R9-2006-0065
NPDES Permit No. CA0109223

Gabriel Solmer
SD Coast Keeper
2924 Emerson Street, Suite 220
San Diego, CA 92106

Ms. Valerie L. Chambers
Assistant Regional Administrator
for Habitat Conservation
United State Department of
Commerce
National Marine Fisheries
Service
Southwest Region
501 West Ocean Boulevard,
Suite 4200
Long Beach, CA 90802-4213

Mr. Benjamin Frater
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, CA 92009

Mr. Stephen L. Jenkins
Assistant Chief
Division of Environmental Planning and
Management
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

Mr. David Lloyd
Secretary
Cabrillo Power I LLC
4600 Carlsbad Blvd.
Carlsbad, CA 92008

Mr. Steven Aceti, J.D.
Executive Director
California Coastal Coalition
1133 Second Street, Suite G
Encinitas, CA 92024

Mr. Mark McCabe
Environmental Health Specialist III
Department of Environmental
Health
Hazardous Material Division
P.O. Box 129261
San Diego, CA 92112-9261

Mr. Joseph D. Panetta
President and CEO
BIOCOM
4510 Executive Drive, Plaza One
San Diego, CA 92121

Sarah Abramson
Heal the Bay
1444 9th Street
Santa Monica, CA 90401

Mr. Donald B. Kent
President
Hubbs-Sea World Research
Institute
2595 Ingraham Street
San Diego, CA 92109

Mr. Robert Hawkins
Law Offices of Robert C.
Hawkins
110 Newport Center Drive, Suite
200
Newport Beach, CA 92660

Leslie Mintz
Legislative Director
Heal the Bay
3220 Nebraska Avenue
Santa Monica, CA 90404

Carey L. Cooper, Esq.
Klinedinst Attorneys at Law
501 W. Broadway, Suite 600
San Diego, CA 92101

Mr. Mark Chomyn, AICP
Land Planning Supervisor
San Diego Gas and Electric
8315 Century Park Court
San Diego, CA 92123-1548

Marco A. Gonzalez
Coast Law Group
169 Saxony Road
Suite 204
Encinitas, CA 92024

Interested Parties
Order No. R9-2006-0065
NPDES Permit No. CA0109223

Southern California Watershed Alliance
C/O Mr. Conner Everts
Environment Now
2515 Wilshire Blvd
Santa Monica, CA 90403

Mr. James Peugh
Conservation Chair
San Diego Audubon Society
4891 Pacific Highway, Suite #112
San Diego, CA 92110

Ms. Heather Allen
Policy Director
Friends of the Sea Otter
125 Ocean View Blvd. #204
Pacific Grove, CA 93950

California Coastal Protection Network
906 Garden Street
Santa Barbara, CA 93101

Mr. David Hogan
Desert Rivers Coordinator
Center for Biological Diversity
P.O. Box 7745
San Diego, CA 92167

Mr. Bruce Reznik
Executive Director
San Diego Baykeeper
2924 Emerson Street, Suite 220
San Diego, CA 92106

Ms. Jane DeLay
Executive Director
Save Our Shores
345 Lake Ave Suite A
Santa Cruz, CA 95062

Mr. Christopher Garrett
Latham & Watkins
600 W. Broadway
San Diego, CA 92101

Mr. Ed Kimura
Sierra Club, San Diego Chapter
6995 Camino Amero
San Diego, CA 92111-7667

Kevin Thomas, CEP
Environmental Services Manager
RBF CONSULTING
40810 County Center Drive, Suite 100
Temecula, CA 92591-6022

Deborah Sivas
Stanford Legal Clinics
559 Nathan Abbott Way
Stanford, CA 94305-8610

Josh Basofin
Environment Now
2515 Wilshire Blvd.
Santa Monica, CA 90403

National Marine Fisheries Service
501 W. Ocean Blvd.
Long Beach, CA 90802-4213

Joe Geever
Surfrider Foundation
8117 W. Manchester Ave #297
Playa del Rey, CA 90293

1. ENTRAINMENT

RRWQCB Comment: Based on our review of the entrainment assessment in the Plan, it appears that the assessment...

(a) characterizes larval concentration in entrained water using in-plant samples, i.e., two, 24-hour samples collected near the CDP intake in the EPS discharge stream on June 10, 2004 and May 19, 2005;
(b) characterizes larval concentration in source water using source water samples, i.e., thirteen, 24-hour sample events per station collected at four lagoon (L1-4) and five nearshore (N1-5) stations, monthly from June 10, 2004 through May 19, 2005;
(c) does not draw upon the monthly samples taken in the lagoon near the entrance to the EPS intake structure (station E1); and,
(c) therefore, is for CDP/EPS co-operation rather than CDP stand-alone operation.
Is this understanding correct? Do you concur that the entrainment assessment provided in the Plan is for co-operation rather than stand-alone
operation?

Response: The entrainment assessment included in the *Flow, Entrainment and Impingement Minimization Plan* (Plan) for the Carlsbad Desalination Project relies on the monthly samples taken in the lagoon near the entrance to the EPS intake structure (station E1); and therefore it is representative of stand-alone operation.

The entrainment assessment in the Plan is based entirely on a 12-month study from June 2004 to June 2005. Entrainment and source water sampling was conducted monthly from June 2004 through May 2005 except that two surveys were done in June 2004 separated by a two-week interval. The thirteen surveys provided a complete year of seasonal data for 2004–2005. The details of both the study methods and findings are presented in their entirety in the report titled, "CLEANWATER ACT SECTION 316(b) IMPINGEMENTMORTALITY AND ENTRAINMENT CHARACTERIZATION STUDY Effects on the Biological Resources of Agua Hedionda Lagoon and the Nearshore Ocean Environment January 2008 Prepared by: Tenera Environmental, and submitted to the San Diego Regional Water Quality Control Board January 2008.

Entrainment samples were collected from a single station located in front of the EPS intakes (E1). They were collected using a bongo frame with paired 0.71 m (2.33 ft) diameter openings each equipped with 335 µm (0.013 in) mesh plankton nets and codends. The start of each tow began approximately 30 m (98 ft) in front of the intake structure and proceeded in a northwesterly direction against the prevailing intake current, ending approximately 150 m (492 ft) from the intake structure.

Source water Plankton samples were also collected monthly at four source water stations in Agua Hedionda Lagoon and five nearshore stations adjacent to the EPS. The source water stations ranged in depth from approximately –1.8 m (–5.9 ft) MLLW and to-34.1 m (–111.9 ft) MLLW. The stations were stratified to include stations in the Inner, Middle and Outer Lagoon, and at varying distances upcoast, downcoast, and offshore from the lagoon mouth lagoon.

A total of 20,601 larval fishes representing 41 taxa were collected from the EPS entrainment station E1 during 13 monthly surveys in the 2004 to 2005 sampling period. Gobies (CIQ goby complex) and blennies comprised over 90% of all specimens collected.

The results from a separate in-plant entrainment mortality study referred to in Staff's review were not used in the entrainment assessment for stand-alone operation of the desalination facility. This information was used to calculate the incremental mortality associated with the desalination facility operations when operating jointly with the power plant.

2. IMPINGEMENT

RWQCB Comment: Based on our review of the impingement assessment in the Plan, it appears that the daily biomass of impinged fish (0.96 kgs/day) may have been incorrectly calculated.

(a) Attachment 2 appears to present counts and weights of impinged organisms found during each of the 24-hour sample events conducted weekly from June 24, 2004 through June 15, 2005, i.e., 52 sample events, each representing 24-hour impingement;

(b) Table 5-1 appears to present - not annual count and weight totals prorated to 304 MGD as indicated by the caption - but rather line totals (by taxa) of the counts and weights from Attachment 2, i.e., Table 5-1 appears to present 52-day totals with no adjustment for flow on the day of sampling, no interpolation for the days between sample events, and no prorating to 304 MD; and,

(c) therefore, calculation of the daily biomass of impinged fish by dividing the un-interpolated, un-prorated Table 5-1 total weight (351,672 grams) by 365 days appears to be in error.

Is the above staff interpretation correct? If not, then could you please let me know which of the above statements regarding Attachment 2 and/or Table 5-1 is wrong, and why?

Response: The weights and taxa collected during the 52 week samples shown in Table 5.1 are correct. Therefore, the total amount of impinged species collected over the 13-month sample period of 3,651,179 grams (3,651.179 kg) is accurate. However, staff is correct that there is an error in the calculation used to convert this information to a daily amount.

In response to staff's request, we have revised the estimate of the daily impingement effect of the intake operations. Figure 1 (below) shows the average daily flow rate and impinged biomass for 50 of the 52) weekly surveys collected during the impingement survey period. The two remaining samples were outliers and therefore were not included in the analysis in order to get more accurate statistical correlation of the impingement results.

As shown in Figure 1, the sampling period flow rate consistently exceeded the stand-alone desalination plant flow of 304 MGD. However, from this information we are able to extrapolate an average daily impingement effect of 1.56 kg the desalination plant stand-alone operations at 304 MGD using the statistically significant relationship between the impingement effects and flows measured under normal power plant operations that occurred during the June 2004 to June 2005 impingement survey.

It is important to note that 6 of the 13 samples collected for plant intake flows at or below 550 MGD had impingement effect approximately equal to or less than the initially estimated daily impingement effect 0.96 kg/day. Another trend that can be noted in Figure 1 is that the opposite is true for flows above 550 MGD -- the majority of the impingement results are above the average of the curve.

This observation is consistent with other nationwide findings on the relationship of intake volume, velocity, and impingement that indicate an impingement effects threshold at or above a velocity of approximately 2 fps. Below this velocity, impingement effects decline rapidly. The impingement effects continue to dramatically decline as the intake approach velocity nears 0.5 fps and below. The desalination plant stand-alone operations at 304 MGD will mirror these conditions -- intake approach velocities at bar racks will be approximately of 0.5 fps. Consequently, we expect to observe a velocity driven impingement reduction effect that will result in actual impingement rates that are below the statistical projection of 1.56 kg/d and possibly below 1.0 kg/d.

Although the estimated daily impingement rate of 1.56 kg/d is slightly higher than previously indicated, the total amount of impinged species collected over the 13-month sample period of 3,651,179 grams is unchanged. This level of impingement, along with the adjusted daily estimate continues to represent a *de minimis* impingement effect.

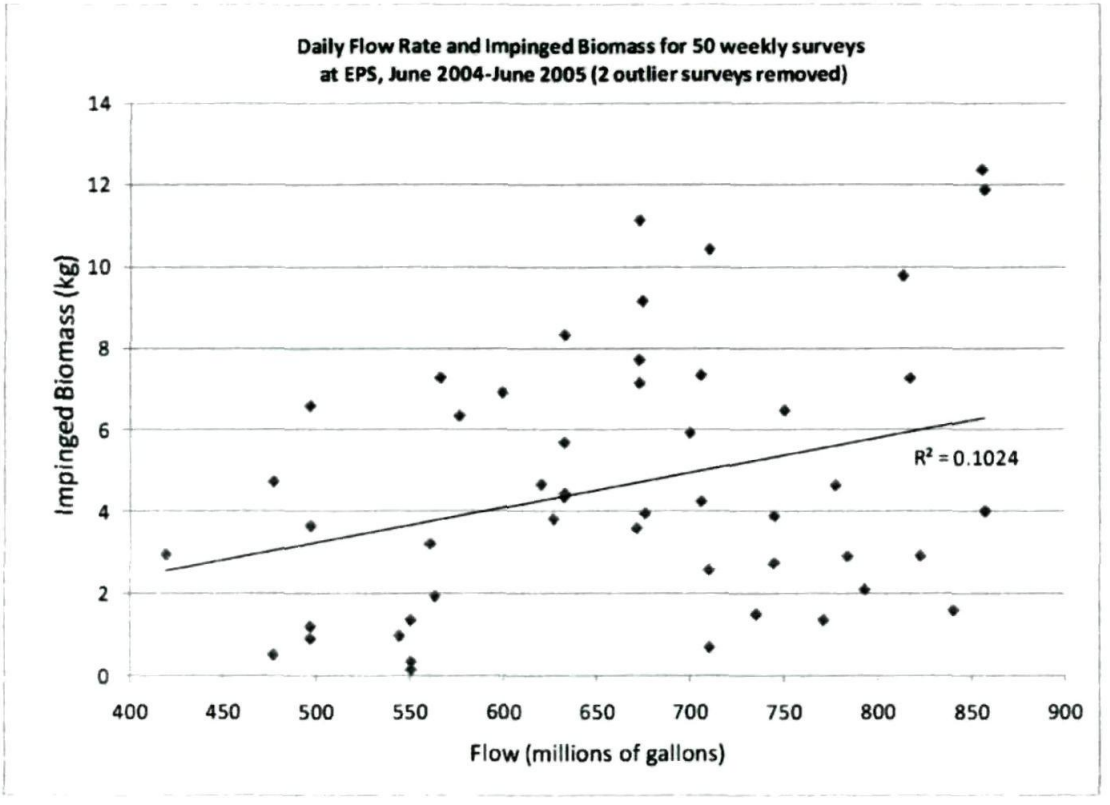

Daily Flow Rate and Impinged Biomass for 50 weekly surveys
at EPS, June 2004-June 2005 (2 outlier surveys removed)
Impinged Biomass (kg)
Flow (millions of gallons)
R² = 0.1024
0
2
4
6
8
10
12
14
400
450
500
550
600
650
700
750
800
850
900

Figure 1.

-----Original Message-----
From: Chiara Clemente [mailto:CClemente@waterboards.ca.gov]
Sent: Thursday, October 16, 2008 1:40 PM
To: Peter MacLaggan
Cc: John Robertus; Michael Porter
Subject: Re: Poseidon Mitigation Plan

Thank you for the "head's up." We will plan accordingly.

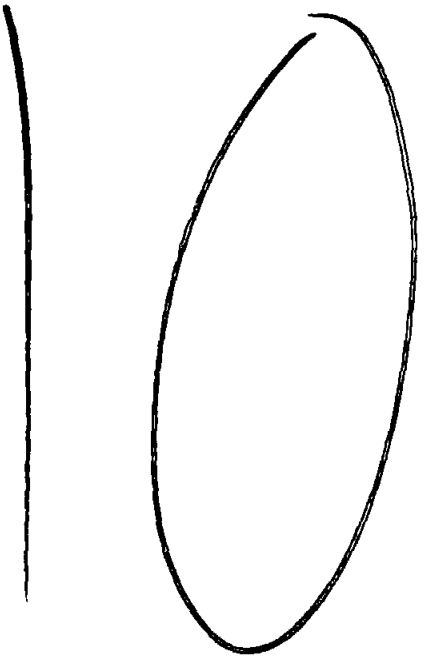
Chiara Clemente
Senior Environmental Scientist
Central Wathershed Unit
Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123
(858) 467-2359
(858) 571-6972 (fax)
http://www.waterboards.ca.gov/sandiego

>>> "Peter MacLaggan" <pmaclaggan@poseidon1.com> 10/15/2008 6:36 PM >>>
Chiara,

I have a meeting with the Coastal Commission staff on October 28 to finalize the text of Poseidon's Marine Life Mitigation Plan. I will forward you a copy of the final Plan on the 29th. Please let me know if you need any thing from me in the interim. Thanks

Peter

Peter M. MacLaggan
Senior Vice President
Poseidon Resources
501 W. Broadway # 1260
San Diego, CA 92101
Ph. 619-595-7802
Fax 619-595-7892
pmaclaggan@poseidon1.com



-----Original Message-----
From: Michael Porter [mailto:MPorter@waterboards.ca.gov]
Sent: Wednesday, October 29, 2008 3:56 PM
To: Peter MacLaggan
Subject: Re: Poseidon Mitigation Plan

Hi, Peter.

I will be reviewing the plan when it comes in. Considering the meeting w/ the CCC, is the plan still coming in today or tomorrow? If not, when do you think it will be submitted? We need to plan our time accordingly.

Thank you,

Mike Porter
Engineering Geologist
Central Watershed Protection Unit
Regional Water Quality Control Board - San Diego
858-467-2726

>>> Chiara Clemente 10/16/08 >>>
Thank you for the "head's up." We will plan accordingly.

Chiara Clemente
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Central Wathershed Unit
Regional Water Quality Control Board
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Peter M. MacLaggan

Senior Vice President
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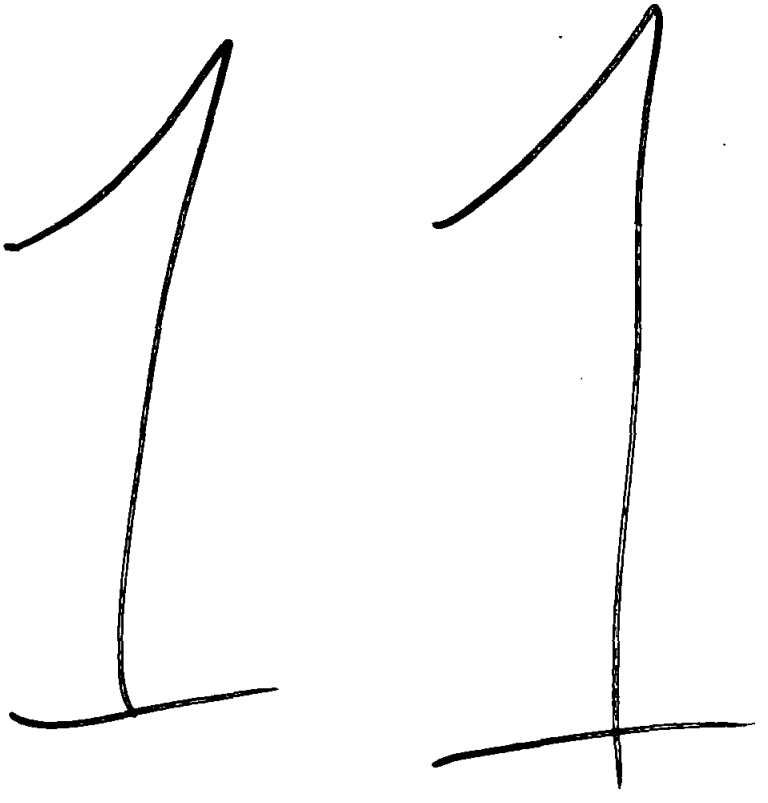
501 W. Broadway # 1260
San Diego, CA 92101
Ph. 619-595-7802
Fax 619-595-7892
pmaclaggan@poseidon1.com



-----Original Message-----
From: Peter MacLaggan
Sent: Thursday, October 30, 2008 8:38 AM
To: 'Michael Porter'
Subject: RE: Poseidon Mitigation Plan

Michael,

I have a call with CCC staff later today to close out remaining open drafting points. I get back to you on status and timing of our submittal after the call.

Peter

-----Original Message-----
From: Michael Porter [mailto:MPorter@waterboards.ca.gov]
Sent: Wednesday, October 29, 2008 3:56 PM
To: Peter MacLaggan
Subject: Re: Poseidon Mitigation Plan

Hi, Peter.

I will be reviewing the plan when it comes in. Considering the meeting w/ the CCC, is the plan still coming in today or tomorrow? If not, when do you think it will be submitted? We need to plan our time accordingly.

Thank you,

Mike Porter
Engineering Geologist
Central Watershed Protection Unit
Regional Water Quality Control Board - San Diego
858-467-2726

>>> Chiara Clemente 10/16/08 >>>
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Central Wathershed Unit
Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123
(858) 467-2359
(858) 571-6972 (fax)
http://www.waterboards.ca.gov/sandiego

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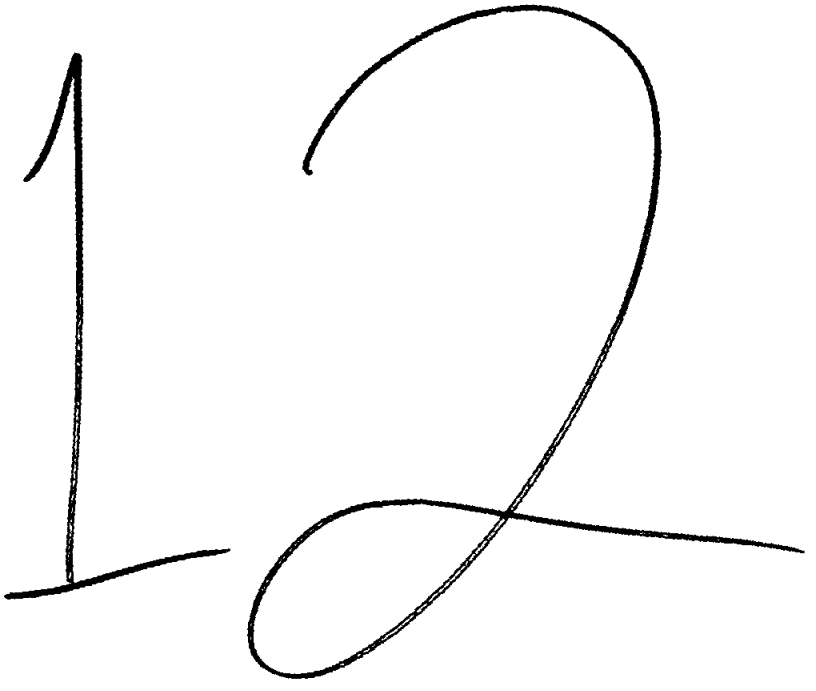
Peter

Peter M. MacLaggan
Senior Vice President
Poseidon Resources
501 W. Broadway # 1260
San Diego, CA 92101
Ph. 619-595-7802
Fax 619-595-7892
pmaclaggan@poseidon1.com



-----Original Message-----
From: Peter MacLaggan
Sent: Thursday, November 13, 2008 10:38 AM
To: Mike Porter
Subject: RE: Mitigation Plan Update

Yes. We reached agreement with the Coastal Commission staff on the content of the Plan last Friday (11/7). I will be sending you a copy of the final Plan tomorrow.

-----Original Message-----
From: Mike Porter [mailto:MPorter@waterboards.ca.gov]
Sent: Thursday, November 13, 2008 9:48 AM
To: Peter MacLaggan
Subject: Mitigation Plan Update

Hi, Peter.

Do you have an update on the plan and when it will be submitted?

Thanks, Mike

Mike Porter
Engineering Geologist
Central Watershed Protection Unit
Regional Water Quality Control Board - San Diego
858-467-2726

13

From: Peter MacLaggan
Sent: Friday, November 14, 2008 5:05 PM
To: Mike Porter
Subject: FW: Poseidon's Marine Life Mitigation Plan (CRU: 02-1429.02 bkelley)

Attached is the *Marine Life Mitigation Plan* (MLMP) for Poseidon's proposed Carlsbad Desalination Project. The MLMP represents a proposed amendment to the Carlsbad Desalination Project *Flow, Entrainment and Impingement Minimization Plan* (Minimization Plan), which was conditionally approved by Regional Board Resolution No. R9-2008-0039.

Transmittal of MLMP
to RWQCB 111408.pdf

POSEIDON RESOURCES

November 14, 2008

Mr. John Robertus
Executive Officer
California Regional Water Quality Control Board, San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

Dear Mr. Robertus:

Subject: Adopted Order No. R9-2008-0039 conditionally approving *Revised Flow, Entrainment, and Impingement Minimization* Plan, Poseidon Resources Corporation, Carlsbad Desalination Project (CRU: 02-1429.02 bkelley).

Attached is the *Marine Life Mitigation Plan* (MLMP) for Poseidon's proposed Carlsbad Desalination Project. The MLMP represents a proposed amendment to the Carlsbad Desalination Project *Flow, Entrainment and Impingement Minimization Plan* (Minimization Plan), which was conditionally approved by Regional Board Resolution No. R9-2008-0039.

This MLMP was developed in consultation with several participating agencies, and through proceedings before the California Coastal Commission. The Coastal Commission approved the substance of the MLMP at its August 6, 2008 meeting, and directed Poseidon and Coastal Commission staff to reach agreement on minor administrative issues such as budget and reimbursements that would not require further Commission approval. Poseidon and Coastal Commission staff have now reached agreement on those issues, and will report the final MLMP to the Commission at the Commission's December 2008 meeting. Accordingly, the MLMP attached hereto is addressed to the Coastal Commission and its Executive Director. Once approved by the Regional Board, we understand the MLMP would be equally enforceable by the Regional Board and its Executive Officer.

As approved by the Coastal Commission, the requirements of the MLMP are consistent with, and in many respects more stringent than, the requirements under California Water Code section 13142.5, pursuant to which authority the Regional Board directed the preparation of the Minimization Plan.

Background. Regional Board Order No. R9-2006-0065 (NPDES CA0109223) regulates the proposed discharge of saline wastewater from the Carlsbad Desalination Project. Cooling water from the Encina Power Station (EPS) will provide the main source of desalination intake water. During times when EPS power generation is temporarily shut down, EPS will operate its intake structure to provide Poseidon with sufficient intake water to operate.

Minimization Plan Submittal and Conditional Approval. Order No. R9-2006-0065 required Poseidon to submit a Minimization Plan to address implementation or mitigation measures for minimizing impacts to marine organisms during periods when EPS power generation is shut down. An initial version of the Minimization Plan was submitted to the Regional Board in 2007, and an updated version was submitted to the Regional Board on February 13, 2008. Regional

Poseidon Resources Corporation
501 West Broadway, Suite 840, San Diego, CA 92101 USA
619-595-7802 Fax 619-595-7892

Executive Office: 1055 Washington Boulevard, Stamford, CT 06901

Board staff commented on the updated version in a February 19, 2008 letter. In response, Poseidon submitted an updated version of the Minimization Plan to the Regional Board on March 7, 2008, along with correspondence that addressed how the Minimization Plan had been revised to incorporate Regional Board staff comments.

After reviewing Poseidon's extensive submittal, the Regional Board adopted Resolution No. R9-2008-0039 on April 9, 2008, which conditionally approved the Minimization Plan. The Resolution required Poseidon to submit an amendment to the Minimization Plan addressing the Regional Board's February 19 letter, as well as the following items:

- Identification of impacts from impingement and entrainment;
- Adequate monitoring data to determine the impacts from impingement and entrainment;
- Coordination among participating agencies for the amendment of the Plan as required by Section 13225 of the California Water Code;
- Adequacy of mitigation; and
- Commitment to fully implement the amendment of the Plan.

As discussed below, the above requirements of Resolution No. R9-2008-0039 have been addressed by Poseidon, the Regional Board, the California Coastal Commission, and participating agencies through an independent review of Poseidon's entrainment study and related monitoring data, interagency coordination, and development of the final MLMP.

MLMP Development and Approval. In March 2008, Poseidon provided a copy of its entrainment study for Regional Board and Coastal Commission staff for their review. The Coastal Commission staff retained Dr. Pete Raimondi, an independent scientist with expertise in evaluating entrainment studies, to review Poseidon's study and provide recommendations regarding the adequacy of the information contained therein.

In May 2008, the Coastal Commission staff convened an interagency meeting, which included Regional Board staff, to determine what mitigation options might be available and feasible for Poseidon to include as part of its MLMP.

Attendees included representatives from:

- California Department of Fish and Game
- California Department of Transportation
- California State Lands Commission
- San Diego Regional Water Quality Control Board
- City of Carlsbad
- City of Vista
- U.S. Fish and Wildlife Service
- California Coastal Commission

In June 2008, the Coastal Commission staff asked the Commission's Marine Review Committee (MRC) to review Dr. Raimondi's conclusions and make further recommendations for Poseidon to include in its proposed MLMP.

Also in June 2008, Coastal Commission staff provided Poseidon a copy of the conditions the Commission had required of Southern California Edison for its wetland restoration project at San Dieguito Lagoon (Edison Conditions). Based on input received from the MRC, Coastal Commission staff recommended to Poseidon that it incorporate modified versions of the Edison Conditions into its proposed MLMP to ensure that the mitigation site ultimately selected would be subject to compatible and consistent mitigation requirements.

On July 7, 2008, Poseidon submitted to Coastal Commission staff a revised MLMP, which incorporated the results of the reviews by Coastal Commission staff, Dr. Raimondi, MRC and the several state and local agencies listed above. The Coastal Commission reviewed and approved the substance of that Plan, subject to certain modifications, at its August 6, 2008 hearing.

Highlights of MLMP. The MLMP approved by the Coastal Commission consists of two parts: Conditions A and B. In accordance with the requirements of Resolution No. R9-2008-0039, Condition A of the MLMP attached hereto addresses:

- Required acreages of estuarine wetlands mitigation (Section 1);
- Mitigation site selection procedures (Section 2);
- Minimum standards, objectives, and restrictions (Section 3);
- Wetlands construction, permitting, and implementation schedules (Section 4); and
- Pre-restoration monitoring, construction monitoring, post-restoration monitoring, management, and remediation (Section 5).

As shown within Condition A of the attached MLMP, a two-phase wetlands restoration program is proposed. Phase I provides 37 acres of estuarine wetlands mitigation. Phase II provides for up to an additional 18.4 acres of estuarine wetlands mitigation unless Poseidon proposes and the Commission approves alternatives to reduce or eliminate the 18.4 acres of mitigation, including implementing new entrainment reduction technology or mitigation credits for conducting dredging. Under the MLMP, Poseidon is obligated to submit a CDP application for Phase I mitigation to the Coastal Commission within two years of the issuance of the CDP for the Carlsbad Desalination Project, and for Phase II mitigation, Poseidon is obligated to submit a CDP application within five years of the issuance of the CDP for Phase I mitigation.

Condition A (Section 2) of the MLMP also:

- Establishes standards for final mitigation site selection;
- Sets forth a "short list" of potential sites to be considered; and

- Provides that any additional future priority sites that may be recommended by the California Department of Fish and Game also may be considered.

Per the requirements of Resolution No. R9-2008-0039, Condition B of the MLMP sets forth the MLMP's administrative structure and budget, and the work plan for implementing the mitigation. As part of this administrative structure, Condition B also establishes means to remediate any deficiencies and resolve disputes associated with MLMP implementation. Poseidon's commitment to implement the MLMP as an amendment to the Mitigation Plan will be enforced by the Regional Board through the requirements of Order R9-2006-0065 and by the Coastal Commission through Condition 8 of Poseidon's CDP.

In order to facilitate the Regional Board's review of the MLMP, we would appreciate an opportunity to meet with you in the near future to discuss how the proposed MLMP accomplishes the Regional Board's resource protection objectives and Poseidon's duties under the Water Code. I look forward to speaking with you soon, and will be calling you to set up a meeting. Thank you for your assistance.

Sincerely,

Peter M. MacLaggan
Senior Vice President

Enclosure

Cc: Mike Porter
Chiara Clemente

POSEIDON RESOURCES MARINE LIFE MITIGATION PLAN

INTRODUCTION

Poseidon's Carlsbad desalination facility will be co-located with the Encina Power Station and will use the power plant's once-through cooling intake and outfall structures. The desalination facility is expected to use about 304 million gallons per day (mgd) of estuarine water drawn through the structure. The facility will operate both when the power plant is using its once-through cooling system and when it is not.

This Marine Life Mitigation Plan (the Plan) will result in mitigation necessary to address the entrainment impacts caused by the facility's use of estuarine water. The Plan includes two phases of mitigation – Poseidon is required during Phase I to provide at least 37 acres of estuarine wetland restoration, as described below. In Phase II, Poseidon is required to provide an additional 18.4 acres of estuarine wetland restoration. However, as described below, Poseidon may choose to provide all 55.4 acres of restoration during Phase I. Poseidon may also choose during Phase II to apply for a CDP to reduce or eliminate the required 18.4 acres of mitigation and instead conduct alternative mitigation by implementing new entrainment reduction technology or obtaining mitigation credit for conducting dredging.

CONDITION A: WETLAND RESTORATION MITIGATION

The permittee shall develop, implement and fund a wetland restoration project that compensates for marine life impacts from Poseidon's Carlsbad desalination facility.

1.0 PHASED IMPLEMENTATION

Phase I: Poseidon is to provide at least 37 acres of estuarine wetland restoration. Within two years of issuance of the desalination facility's coastal development permit (CDP), Poseidon is to submit a complete CDP application for a proposed restoration project, as described below.

Phase II: Poseidon is to provide an additional 18.4 acres of estuarine wetland restoration. Within five years of issuance of the Phase I CDP, Poseidon is to submit a complete CDP application proposing up to 18.4 acres of additional restoration, subject to reduction as described below.

2.0 SITE SELECTION

In consultation with Commission staff, the permittee shall select a wetland restoration site or sites for mitigation in accordance with the following process and terms.

Within 9 months of the effective date of this permit, the permittee shall submit the proposed site(s) and preliminary wetland restoration plan to the Commission for its review and approval or disapproval.

The location of the wetland restoration project(s) shall be within the Southern California Bight. The permittee shall select from sites including, but not limited to, the following eleven sites: Tijuana Estuary in San Diego County; San Dieguito River Valley in San Diego County; Agua Hedionda Lagoon in San Diego County; San Elijo Lagoon in San Diego County; Buena Vista Lagoon in San Diego County; Huntington Beach Wetland in Orange County, Anaheim Bay in

Orange County, Santa Ana River in Orange County, Los Cerritos Wetland in Los Angeles County, Ballona Wetland in Los Angeles County, and Ormond Beach in Ventura County. The permittee may also consider any sites that may be recommended by the California Department of Fish & Game as high priority wetlands restoration projects. Other sites proposed by the permittee may be added to this list with the Executive Director's approval.

The basis for the selection shall be an evaluation of the site(s) against the minimum standards and objectives set forth in subsections 3.1 and 3.2 below. The permittee shall take into account and give serious consideration to the advice and recommendations of the Scientific Advisory Panel (SAP) established and convened by the Executive Director pursuant to Condition B.1.0. The permittee shall select the site(s) that meets the minimum standards and best meets the objectives.

3.0 PLAN REQUIREMENTS

In consultation with Commission staff, the permittee shall develop a wetland restoration plan for the wetland site(s) identified through the site selection process. The wetland restoration plan shall meet the minimum standards and incorporate as many as feasible of the objectives in subsections 3.1 and 3.2, respectively.

3.1 Minimum Standards

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

a. Location within Southern California Bight;

b. Potential for restoration as tidal wetland, with extensive intertidal and subtidal areas;

c. Creates or substantially restores a minimum of 37 acres and up to at least 55.4 acres of habitat similar to the affected habitats in Agua Hedionda Lagoon, excluding buffer zone and upland transition area;

d. Provides a buffer zone of a size adequate to ensure protection of wetland values, and at least 100 feet wide, as measured from the upland edge of the transition area.

e. Any existing site contamination problems would be controlled or remediated and would not hinder restoration;

f. Site preservation is guaranteed in perpetuity (through appropriate public agency or nonprofit ownership, or other means approved by the Executive Director), to protect against future degradation or incompatible land use;

g. Feasible methods are available to protect the long-term wetland values on the site(s), in perpetuity;

h. Does not result in a net loss of existing wetlands; and

i. Does not result in an adverse impact on endangered animal species or an adverse unmitigated impact on endangered plant species.

3.2 Objectives

The following objectives represent the factors that will contribute to the overall value of the wetland. The selected site(s) shall be determined to achieve these objectives. These objectives shall also guide preparation of the restoration plan.

a. Provides maximum overall ecosystem benefits, e.g. maximum upland buffer, enhancement of downstream fish values, provides regionally scarce habitat, potential for local ecosystem diversity;

b. Provides substantial fish habitat compatible with other wetland values at the site(s);

c. Provides a buffer zone of an average of at least 300 feet wide, and not less than 100 feet wide, as measured from the upland edge of the transition area.

d. Provides maximum upland transition areas (in addition to buffer zones);

e. Restoration involves minimum adverse impacts on existing functioning wetlands and other sensitive habitats;

f. Site selection and restoration plan reflect a consideration of site specific and regional wetland restoration goals;

g. Restoration design is that most likely to produce and support wetland-dependent resources;

h. Provides rare or endangered species habitat;

i. Provides for restoration of reproductively isolated populations of native California species;

j. Results in an increase in the aggregate acreage of wetland in the Southern California Bight;

k. Requires minimum maintenance;

l. Restoration project can be accomplished in a reasonably timely fashion; and,

m. Site(s) in proximity to the Carlsbad desalination facility.

3.3 Restrictions

a. The permittee may propose a wetland restoration project larger than the minimum necessary size specified in subsection 3.1(c) above, if biologically appropriate for the site(s), but the additional acreage must (1) be clearly identified, and (2) must not be the portion of the project best satisfying the standards and objectives listed above.

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

c. The permittee may propose to divide the mitigation requirement between a maximum of two wetland restoration sites, unless there is a compelling argument, approved by the Executive Director, that the standards and objectives of subsections 3.1 and 3.2 will be better met at more than two sites.

4.0 PLAN IMPLEMENTATION

4.1 Coastal Development Permit Applications

The permittee shall submit complete Coastal Development Permit applications for the Phase I and Phase II restoration plan(s) that shall include CEQA documentation and local or other state agency approvals. The CDP application for Phase I shall be submitted within 24 months following the issuance of the Coastal Development Permit for the Carlsbad desalination facility. The CDP application for Phase II shall be submitted within 5 years of issuance of the CDP for Phase I. The Executive Director may grant an extension to these time periods at the request of and upon a demonstration of good cause by the permittee. The restoration plans shall substantially conform to Section 3.0 above and shall include, but not be limited to the following elements:

a. Detailed review of existing physical, biological, and hydrological conditions; ownership, land use and regulation;

b. Evaluation of site-specific and regional restoration goals and compatibility with the goal of mitigating for Poseidon's marine life impacts;

c. Identification of site opportunities and constraints;

d. Schematic restoration design, including:

1. Proposed cut and fill, water control structures, control measures for stormwater, buffers and transition areas, management and maintenance requirements;
2. Planting program, including removal of exotic species, sources of plants and or seeds (local, if possible), protection of existing salt marsh plants, methods for preserving top soil and augmenting soils with nitrogen and other necessary soil amendments before planting, timing of planting, plans for irrigation until established, and location of planting and elevations on the topographic drawings;
3. Proposed habitat types (including approximate size and location);
4. Assessment of significant impacts of design (especially on existing habitat values) and net habitat benefits;
5. Location, alignment and specifications for public access facilities, if feasible;
6. Evaluation of steps for implementation e.g. permits and approvals, development agreements, acquisition of property rights;
7. Cost estimates;

8. Topographic drawings for final restoration plan at 1" = 100 foot scale, one foot contour interval; and
9. Drawings shall be directly translatable into final working drawings.

g. Detailed information about how monitoring and maintenance will be implemented;

h. Detailed information about construction methods to be used;

i. Defined final success criteria for each habitat type and methods to be used to determine success;

j. Detailed information about how Poseidon will coordinate with the Scientific Advisory Panel including its role in independent monitoring, contingency planning review, cost recovery, etc.;

k. Detailed information about contingency measures that will be implemented if mitigation does not meet the approved goals, objectives, performance standards, or other criteria; and,

l. Submittal of "as-built" plans showing final grading, planting, hydrological features, etc. within 60 days of completing initial mitigation site construction.

4.2 Wetland Construction Phase

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

4.3 Timeframe for Resubmittal of Project Elements

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

5.0 WETLAND MONITORING, MANAGEMENT AND REMEDIATION

Monitoring, management (including maintenance), and remediation shall be conducted over the "full operating life" of Poseidon's desalination facility, which shall be 30 years from the date "as-built" plans are submitted pursuant to subsection 4.1(1).

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

5.1 Monitoring and Management Plan

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

5.2 Pre-restoration site monitoring

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

5.3 Construction Monitoring

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

5.4 Post-Restoration Monitoring and Remediation

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

Successful achievement of the performance standards shall (in some cases) be measured relative to approximately four reference sites, which shall be relatively undisturbed, natural tidal wetlands within the Southern California Bight. The Executive Director shall select the reference sites. The standard of comparison, i.e., the measure of similarity to be used (e.g., within the range, or within the 95% confidence interval) shall be specified in the work program.

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

a. **Longterm Physical Standards.** The following long-term standards shall be maintained over the full operative life of the desalination facility:

   1. ***Topography.*** The wetland(s) shall not undergo major topographic degradation (such as excessive erosion or sedimentation);
   2. ***Water Quality.*** Water quality variables to be specified shall be similar to reference wetlands;
   3. ***Tidal prism.*** If the mitigation site(s) require dredging, the tidal prism shall be maintained and tidal flushing shall not be interrupted; and,

4. ***Habitat Areas.*** The area of different habitats shall not vary by more than 10% from the areas indicated in the restoration plan(s).

b. **Biological Performance Standards.** The following biological performance standards shall be used to determine whether the restoration project is successful. Table 1, below, indicates suggested sampling locations for each of the following biological attributes; actual locations will be specified in the work program:

1. ***Biological Communities.*** Within 4 years of construction, the total densities and number of species of fish, macroinvertebrates and birds (see Table 1) shall be similar to the densities and number of species in similar habitats in the reference wetlands;
2. ***Vegetation.*** The proportion of total vegetation cover and open space in the marsh shall be similar to those proportions found in the reference sites. The percent cover of algae shall be similar to the percent cover found in the reference sites;
3. ***Spartina Canopy Architecture.*** The restored wetland shall have a canopy architecture that is similar in distribution to the reference sites, with an equivalent proportion of stems over 3 feet tall;
4. ***Reproductive Success.*** Certain plant species, as specified by in the work program, shall have demonstrated reproduction (i.e. seed set) at least once in three years;
5. ***Food Chain Support.*** The food chain support provided to birds shall be similar to that provided by the reference sites, as determined by feeding activity of the birds; and
6. ***Exotics.*** The important functions of the wetland shall not be impaired by exotic species.

Table 1: Suggested Sampling Locations

	Salt Marsh			Open Water			Tidal
	Spartina	Salicornia	Upper	Lagoon	Eelgrass	Mudflat	Creeks
1) Density/spp:							
– Fish				X	X	X	X
– Macroinvert-ebrates				X	X	X	X
– Birds	X	X	X	X		X	X
2) % Cover							
Vegetation	X	X	X		X		
algae	X	X				X	
3) Spartina architecture	X						
4) Reproductive success	X	X	X				
5) Bird feeding				X		X	X

6) Exotics	X	X	X	X	X	X	X

6.0 ALTERNATIVE MITIGATION

As part of Phase II, Poseidon may propose in its CDP application alternatives to reduce or eliminate the required 18.4 acres of mitigation. The alternative mitigation proposed may be in the form of implementing new entrainment reduction technology or may be mitigation credits for conducting dredging, either of which could reduce or eliminate the 18.4 acres of mitigation.

CONDITION B: ADMINISTRATIVE STRUCTURE

1.0 ADMINISTRATION

Personnel with appropriate scientific or technical training and skills will, under the direction of the Executive Director, oversee the mitigation and monitoring functions identified and required by Condition A. The Executive Director will retain scientific and administrative support staff needed to perform this function, as specified in the work program.

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

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

2.0 BUDGET AND WORK PROGRAM

The funding necessary for the Commission and the Executive Director to perform their responsibilities pursuant to these conditions will be provided by the permittee in a form and manner reasonably determined by the Executive Director to be consistent with requirements of State law, and which will ensure efficiency and minimize total costs to the permittee. The amount of funding will be determined by the Commission on a biennial basis and will be based on a proposed budget and work program, which will be prepared by the Executive Director in consultation with the permittee, and reviewed and approved by the Commission in conjunction with its review of the restoration plan. If the permittee and the Executive Director cannot agree on the budget or work program, the disagreement will be submitted to the Commission for resolution.

The budget to be funded by the permittee will be for the purpose of reasonable and necessary costs to retain personnel with appropriate scientific or technical training and skills needed to assist the Commission and the Executive Director in carrying out the mitigation and lost resource compensation conditions. In addition, reasonable funding will be included in this budget for necessary support personnel, equipment, overhead, consultants, the retention of contractors

needed to conduct identified studies, and to defray the costs of members of any scientific advisory panel(s) convened by the Executive Director for the purpose of implementing these conditions.

Costs for participation on any advisory panel shall be limited to travel, per diem, meeting time and reasonable preparation time and shall only be paid to the extent the participant is not otherwise entitled to reimbursement for such participation and preparation. The amount of funding will be determined by the Commission on a biennial basis and will be based on a proposed budget and work program, which will be prepared by the Executive Director in consultation with the permittee, and reviewed and approved by the Commission in conjunction with its review of the restoration plan. If the permittee and the Executive Director cannot agree on the budget or work program, the disagreement will be submitted to the Commission for resolution. Total costs for such advisory panel shall not exceed $100,000 per year adjusted annually by any increase in the consumer price index applicable to California.

The work program will include:

a. A description of the studies to be conducted over the subsequent two year period, including the number and distribution of sampling stations and samples per station, methodology and statistical analysis (including the standard of comparison to be used in comparing the mitigation project to the reference sites);

b. A description of the status of the mitigation projects, and a summary of the results of the monitoring studies to that point;

c. A description of four reference sites;

d. A description of the performance standards that have been met, and those that have yet to be achieved;

e. A description of remedial measures or other necessary site interventions;

f. A description of staffing and contracting requirements; and,

g. A description of the Scientific Advisory Panel's role and time requirements in the two year period.

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

3.0 ANNUAL REVIEW AND PUBLIC WORKSHOP REVIEW

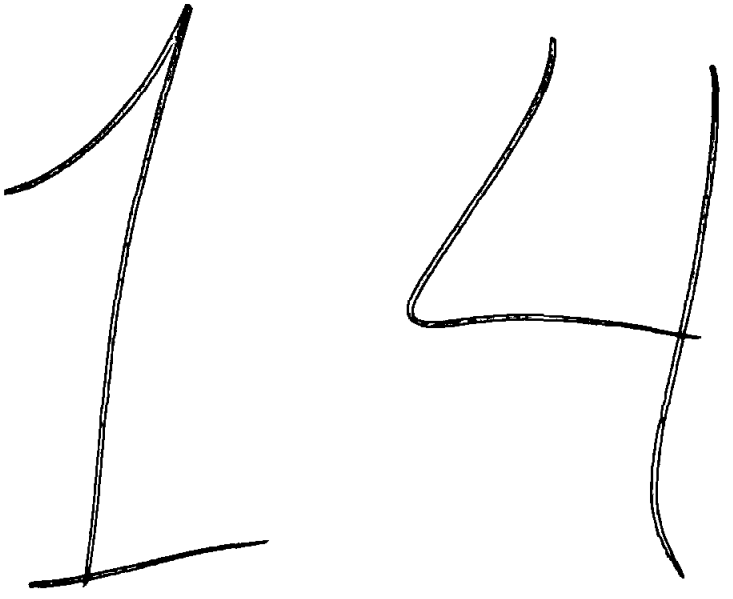
The permittee shall submit a written review of the status of the mitigation project to the Executive Director no later than April 30 each year for the prior calendar year. The written review will discuss the previous year's activities and overall status of the mitigation project, identify problems and make recommendations for solving them, and review the next year's program.

To review the status of the mitigation project, the Executive Director will convene and conduct a duly noticed public workshop during the first year of the project and every other year thereafter unless the Executive Director deems it unnecessary. The meeting will be attended by the contractors who are conducting the monitoring, appropriate members of the Scientific Advisory Panel, the permittee, Commission staff, representatives of the resource agencies (CDFG, NMFS, USFWS), and the public. Commission staff and the contractors will give presentations on the previous biennial work program's activities, overall status of the mitigation project, identify problems and make recommendations for solving them, and review the next upcoming period's biennial work program.

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

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

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



-----Original Message-----
From: John Robertus [mailto:JRobertus@waterboards.ca.gov]
Sent: Monday, November 17, 2008 9:12 AM
To: Peter MacLaggan
Cc: Carol.Squire@doj.ca.gov; Chiara Clemente; Catherine Hagan (George); David Barker; jporter@waterboards.ca.gov; Mike McCann
Subject: Re: Poseidon's Marine Life Mitigation Plan (CRU: 02-1429.02 bkelley)

Peter, thank you for providing this Plan. The Regional Board will review it as soon as possible and let you know of our findings. JHR

"For information about the California Regional Water Quality Control Board, San Diego Region, see our Web-site at http://www.waterboards.ca.gov/sandiego/."

>>> Peter MacLaggan <PMacLaggan@poseidon1.com> 11/14/2008 4:59 PM >>>
Attached is the Marine Life Mitigation Plan (MLMP) for Poseidon's proposed Carlsbad Desalination Project. The MLMP represents a proposed amendment to the Carlsbad Desalination Project Flow, Entrainment and Impingement Minimization Plan (Minimization Plan), which was conditionally approved by Regional Board Resolution No. R9-2008-0039.

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-----Original Message-----
From: John Robertus [mailto:JRobertus@waterboards.ca.gov]
Sent: Tuesday, December 09, 2008 5:24 PM
To: Peter MacLaggan
Cc: Catherine Hagan (George)
Subject: Re: Poseidon's Response to RWQCB's December 2 Letter

Peter, Thank you for the letter response, however I do not intend at this time to provide this amount of information to the Board members on the eve of a meeting for which there is not a public agenda action item concerning this matter. I will have the staff review the materials you have provided and when appropriate, provide it to the Board Members. JHR

"For information about the California Regional Water Quality Control Board, San Diego Region, see our Web-site at http://www.waterboards.ca.gov/sandiego/."

>>> Peter MacLaggan <PMacLaggan@poseidon1.com> 12/9/2008 1:53 PM >>>
John,

Per our discussion, Poseidon will be delivering 12 copies (3 copies for staff and 9 copies for the board members) of our response to your December 2 letter to the Regional Board office prior to the close of business today.

Peter

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-----Original Message-----
From: Mike Porter [mailto:MPorter@waterboards.ca.gov]
Sent: Wednesday, January 07, 2009 2:06 PM
To: Peter MacLaggan <PMacLaggan@poseidon1.com
Cc: Brian Kelley; Chiara Clemente
Subject: Dec. 9, 2008 Poseidon letter

Hi, Peter.

I got your voicemail. Yes, we did receive your Dec. 9th letter in response to our letter to you dated Dec. 2nd. To answer your question "is anything else needed by the Regional Board from Poseidon?" I don't know, we're still evaluating your Dec. 9th letter. However, we should be done with the evaluation shortly and will let you know either way.

Thank you for the offer. Mike

Mike Porter
Engineering Geologist
Central Watershed Protection Unit
Regional Water Quality Control Board - San Diego
858-467-2726