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SAN DIEGO REGIONAL  
WATER QUALITY  
CONTROL BOARD

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600 West Broadway, Suite 1800  
San Diego, California 92101-3375

Supporting Document No. 33

January 26, 2009

**BY PERSONAL DELIVERY**

Dr. Richard Wright  
Chairman  
San Diego Regional Water Quality Control Board  
9174 Sky Park Court, Suite 100  
San Diego, CA. 92123-4340

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File No. 036182-0005

Re: February 11, 2009 San Diego Regional Board Meeting, Item 6 - Poseidon Resources Corporation, Proposed Carlsbad Desalination Project (Order No. R9-2006-0065, NPDES No. CA0109223)

Dear Chairman Wright:

On behalf of Poseidon Resources Corporation ("Poseidon"), we will be submitting a public comment letter ("Comment Letter") to the California Regional Water Quality Control Board, San Diego Region ("RWQCB"), in response to the RWQCB's Corrected Notice of Public Hearing re: Review of Marine Life Mitigation Plan: Waste Discharge Requirements for Poseidon Resources Corporation, Proposed Carlsbad Desalination Project, Order No. R9-2006-0065, NPDES No. CA0109223, and request for public comment on these proposed agency actions. The Comment Letter and additional technical reports will arrive under separate cover on January 26, 2009.

Enclosed please find twenty (20) copies each of the following documents:

1. Declaration of Peter M. MacLaggan, Senior Vice President of Poseidon, and accompanying Exhibits A - F.
2. Declaration of Jessica H. Jones, Assistant Project Manager of Poseidon, and accompanying Exhibit A.
3. January 26, 2009 Letter from Peter MacLaggan to Members of the Regional Board.

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We respectfully request that the foregoing documents be given appropriate consideration, placed in the administrative record for the review of the Marine Life Mitigation Plan, and related February 11, 2009 Agenda Item 6, and thereafter maintained in RWQCB's records.

Respectfully submitted,



Christopher W. Garrett  
of LATHAM & WATKINS LLP

Enclosures





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



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

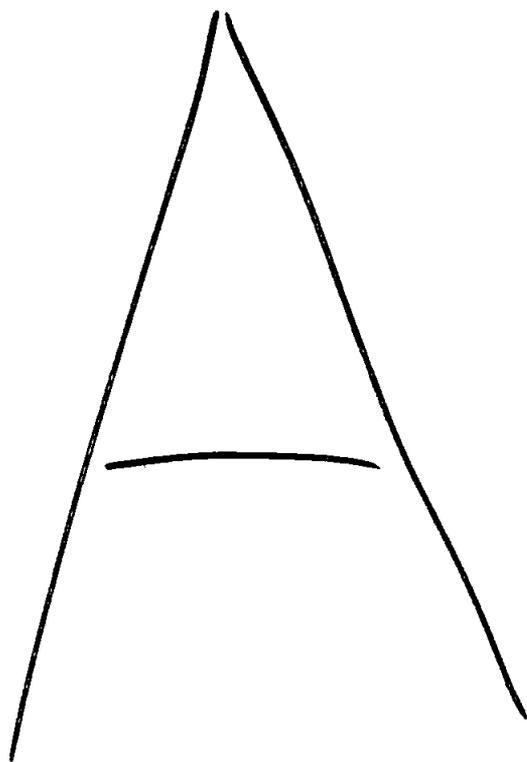














# General Comments

- 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







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

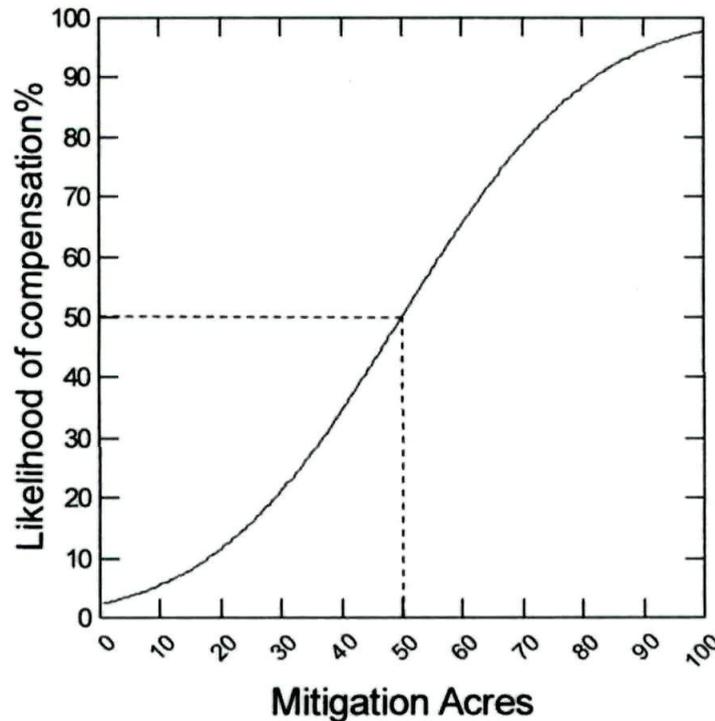
- Goal is to determine area required to provide sufficient habitat to produce larvae lost to entrainment
  - This area is the product of Pm and SWB
  - For example if the source water body (SWB) = 500 acres and Pm is 0.1 then the APF is

$$500 \text{ acres} \times 0.1 = 50 \text{ acres}$$

- 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,  $P_m = 0.1$ , Standard Error /  $P_m = 0.5$



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



# 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:
    - $\text{Prob} = \text{ZCF}((\text{acres} - \text{mean acres})/\text{calculated SE})$
    - 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).

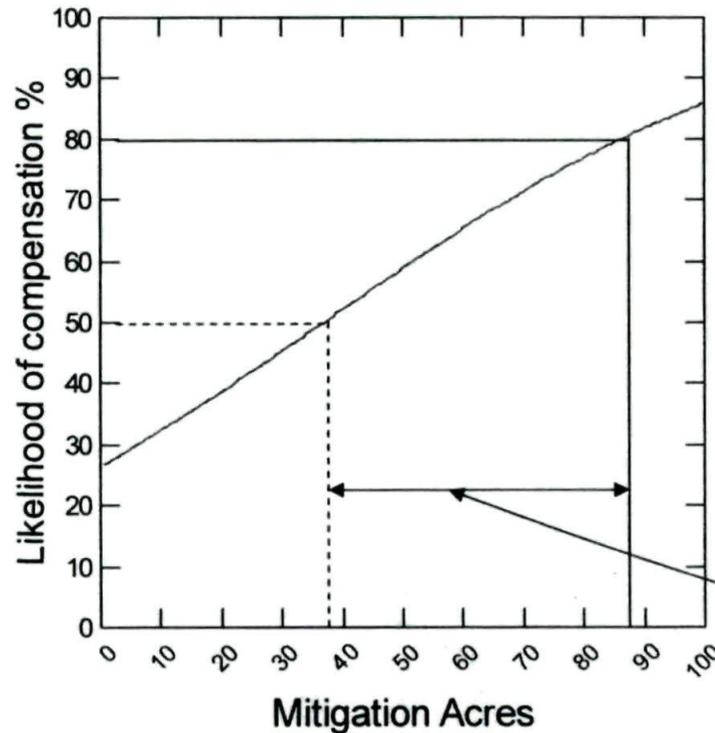
# Calculated Pm, Standard Errors (SE) and Source water body (SWB) estimates

<b>Species</b>	<b>Pm</b>	<b>Calcuated SE</b>	<b>Ratio SE/ Pm</b>	<b>Source water body</b>	<b>Units</b>
<b>Estuarine</b>					
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
<b>Open Water</b>					
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)



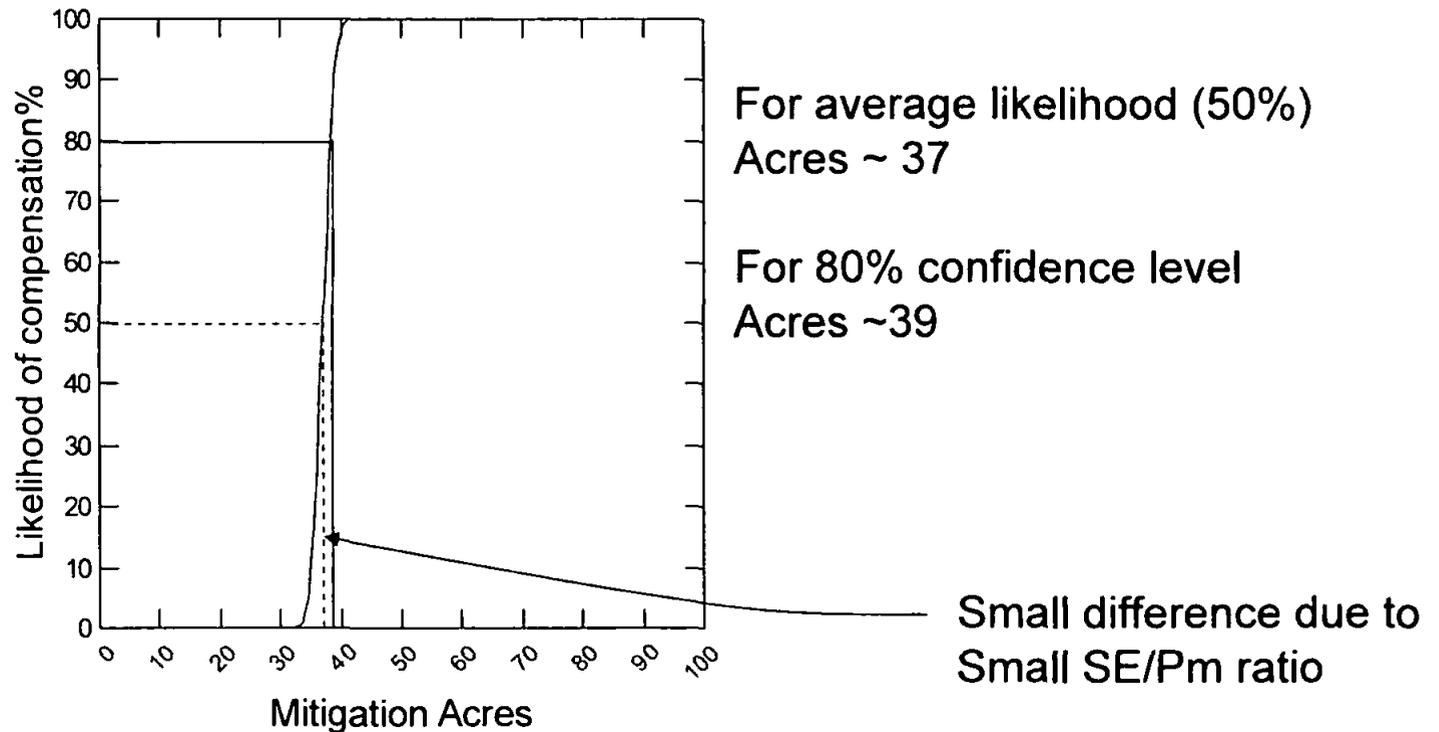
For average likelihood (50%)  
Acres ~ 37

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)



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

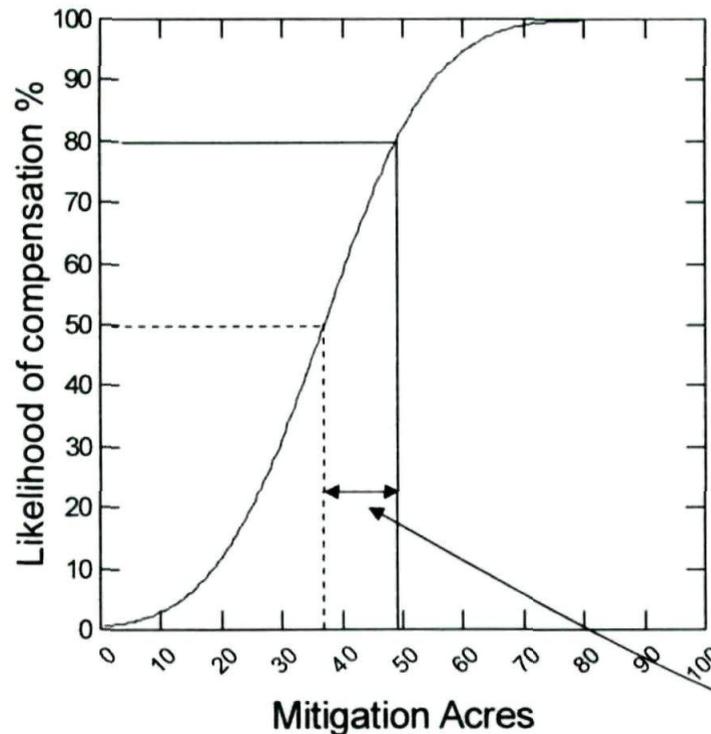
Species	Pm	Calculated SE	Ratio SE/Pm	Source water body	Units	APF	Source water body	Units	APF
<b>Estuarine</b>									
Blennies	0.08635	0.1347	1.56	302	Acres	26.0777			
Gobies	0.21599	0.3084	1.43	302	Acres	65.2290			
Garibaldi	0.06484	0.1397	2.15	302	Acres	19.5817			
<b>Average</b>	<b>0.12239</b>	<b>0.1942</b>				<b>36.9628</b>			
<b>SE</b>						<b>14.2570</b>			
<b>Ratio SE/Pm</b>						<b>0.3857</b>			
<b>Open Water</b>									
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
<b>Average</b>						<b>0.0740</b>			<b>54.8916</b>
<b>SE</b>						<b>0.0151</b>			<b>11.2209</b>
<b>Ratio SE/Pm</b>						<b>0.2044</b>			<b>0.2044</b>

\* 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

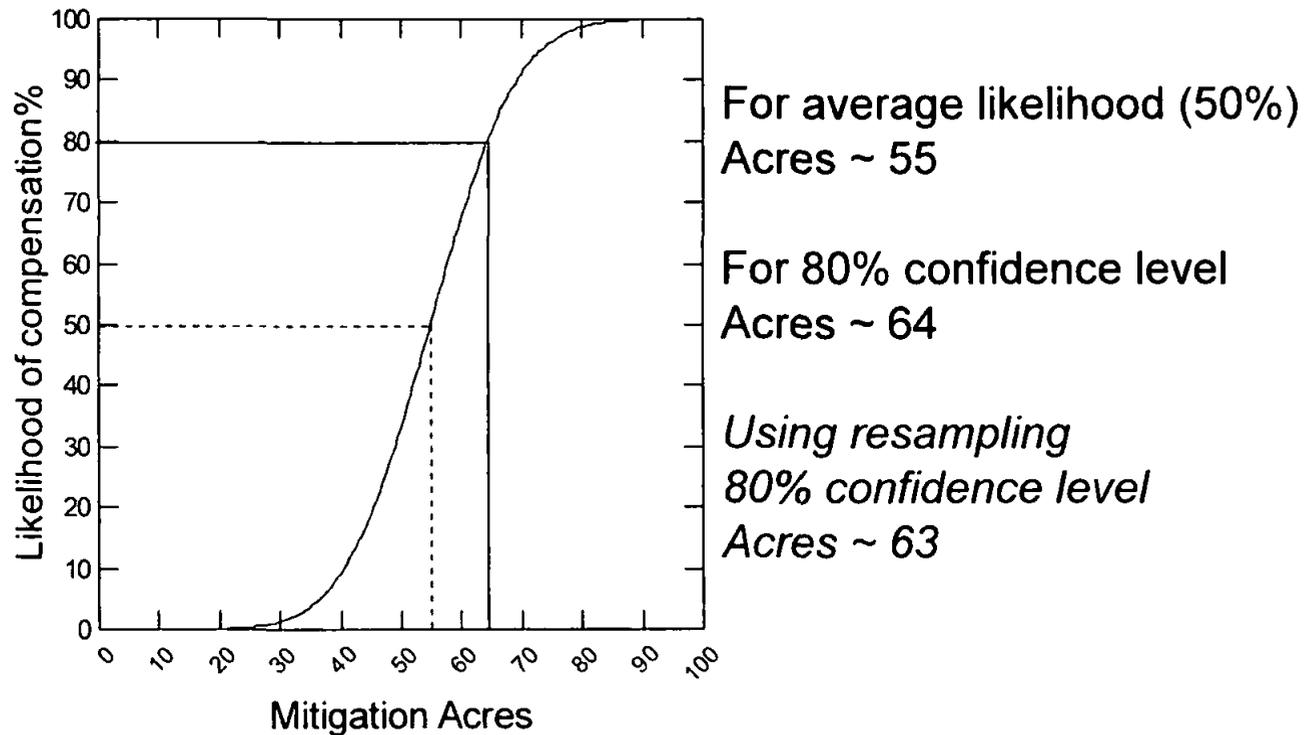
For 80% confidence level  
Acres ~49,

*Using resampling*  
*80% confidence level*  
Acres ~ 50

Relatively small  
difference due to  
appropriate SE/Pm ratio



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



# 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

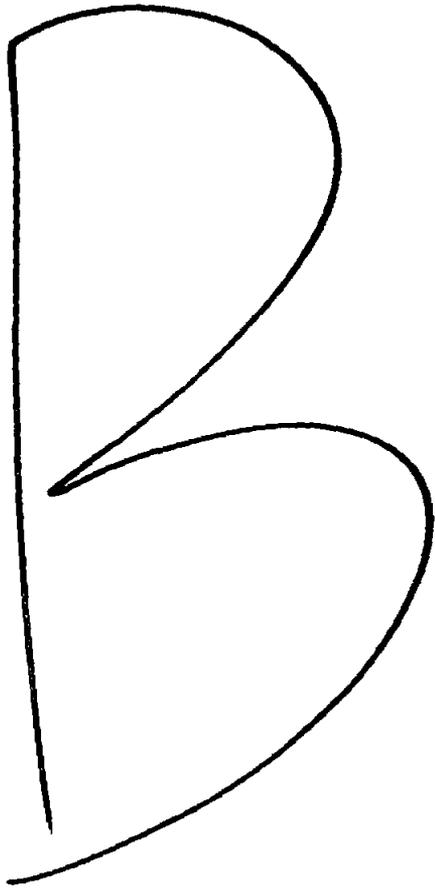
# Proposed Wetland Mitigation

- 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.





# 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<sup>1</sup> 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**

<sup>1</sup> 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.



operations would be 37 acres (to compensate for Lagoon species impacts), and an additional 5.5 acres (to compensate for open ocean species impacts).<sup>2</sup>

- 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.

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<sup>2</sup> Acres of estuarine habitat required to compensate for potential impact to 55 acres of sandy bottom open water habitat.



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.<sup>3</sup> 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.

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<sup>3</sup> 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.<sup>4</sup> 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.

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<sup>4</sup>  $(316 \text{ acres})(0.85 \text{ natural sand influx}) / (3.3 \text{ acres preserved/inlet credit provided}) = 81 \text{ acres credit}$

**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:

<b>Mitigation Phase</b>	<b>Poseidon Obligation</b>
<ul style="list-style-type: none"> <li>• Phase I Mitigation</li> </ul>	<ul style="list-style-type: none"> <li>• 37 acres of restoration, which will over-mitigate potential impacts when the Project and the EPS are both operating</li> </ul>
<ul style="list-style-type: none"> <li>• Phase II Mitigation</li> </ul>	<ul style="list-style-type: none"> <li>• 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.<sup>5</sup> However, Poseidon’s 81 acre restoration credit for keeping the Lagoon</li> </ul>

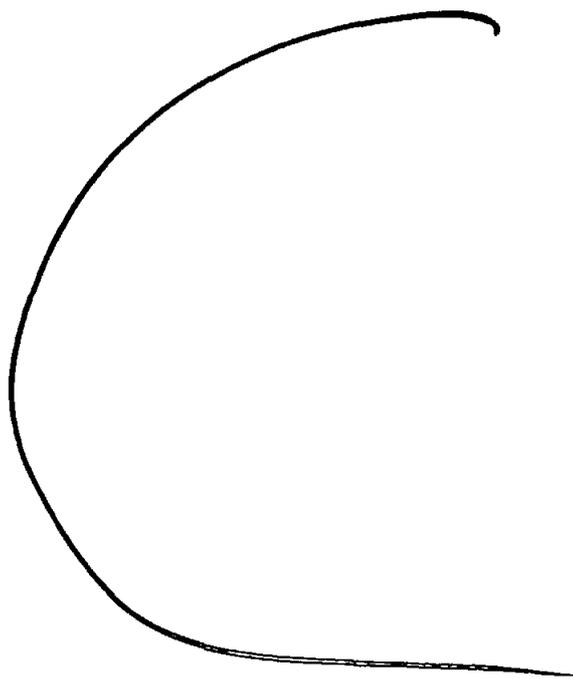
<sup>5</sup> Dr. Raimondi has proposed an additional 18.4 acres of restoration on top of the 37 acres identified in Poseidon’s Phase I Mitigation, however, there is no support for this arbitrary increase and it is therefore not a part of Poseidon’s proposal.



	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.
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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.







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.<sup>1</sup>

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.<sup>2</sup> 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

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<sup>1</sup> 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.

<sup>2</sup> 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 agendaize 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 agendaize 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







### **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(*f*).

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.





**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;



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 Director at the request of the permittee and upon a showing of good cause.

# **EXHIBIT B**









the reduction to impacts resulting from Poseidon's implementation of reasonably feasible technologies.<sup>4</sup>

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.<sup>5</sup> 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,<sup>6</sup> 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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<sup>4</sup> 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.

<sup>5</sup> 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.

<sup>6</sup> 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.



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.<sup>8</sup> 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.

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<sup>8</sup> (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

The YMCA Aquatic Park, better known as Camp H<sub>2</sub>O, 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

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

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

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

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

Historically, tidal patterns affecting Carlsbad State Beach removed most of the beach's sand, leaving only rough cobbles. 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

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

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



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

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



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.



- 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;***



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;





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***

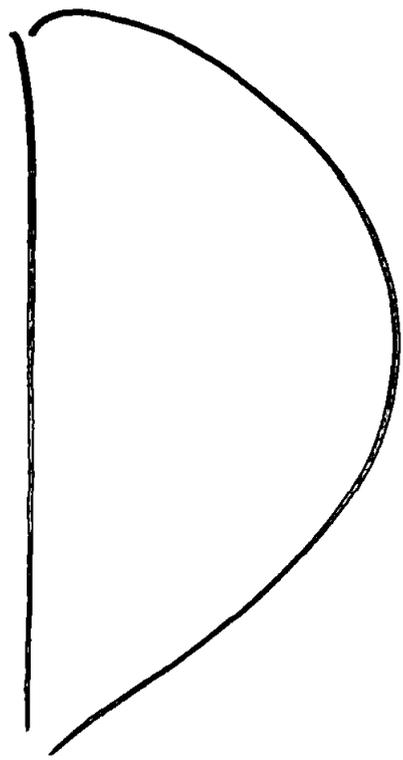
Topographic drawings for final restoration plan at this scale will be provided.

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

Drawings will be directly translatable into final working drawings.







## 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
- e. 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~~Scientific ~~a~~Advisory ~~p~~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 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.



- 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;



### **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.~~



	Spartina	Salicornia	Upper	Lagoon	Eelgrass	Mudflat	Creeks
1) Density/spp:							
- Fish				X	X	X	X
- Macroinvertebrates				X	X	X	X
- Birds	X	X	X	X		X	X
2) % Cover							
Vegetation	X	X	X		X		
algae	X	X				X	
3) <u>Spartina architecture</u>	X						
4) <u>Reproductive success</u>	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.

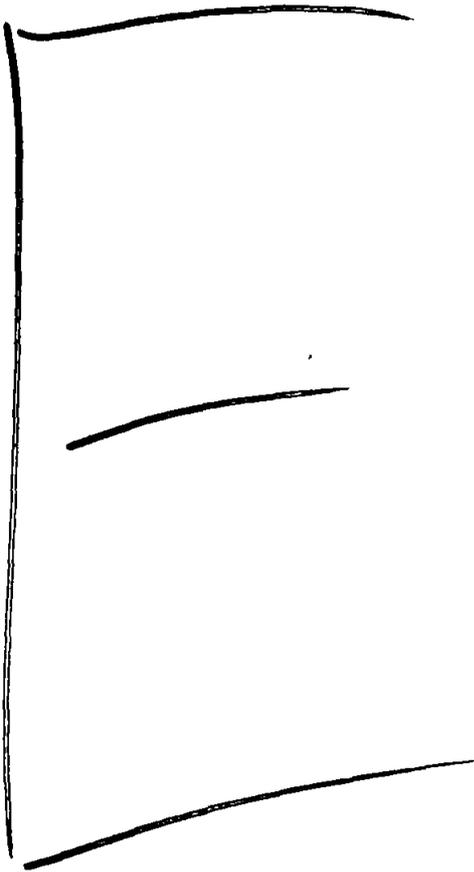
~~Costs for participation on any advisory panel shall be limited to travel, per diem, meeting time and reasonable preparation time and shall only be paid to the extent the participant is not otherwise entitled to reimbursement for such participation and preparation. The amount of funding will be determined 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;









## 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](http://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 m<sup>3</sup>/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/m<sup>3</sup> (\$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 m<sup>3</sup>/d) SWRO facility that can later be expanded to 15 MGD (56,775 m<sup>3</sup>/d) located near the District's Pelican Way yard,
- a 'San Quentin' project that includes a 1 MGD (3,785 m<sup>3</sup>/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 m<sup>3</sup>/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](http://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 Beard Company acquired Maxim in the 1960s, and although it was spun off as a separate entity in early 2005, it remained under Beard's ownership. When Beard 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 m<sup>3</sup>/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 from 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](http://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<sup>3</sup>/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](http://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](mailto: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](mailto:tp@globalwaterintel.com).

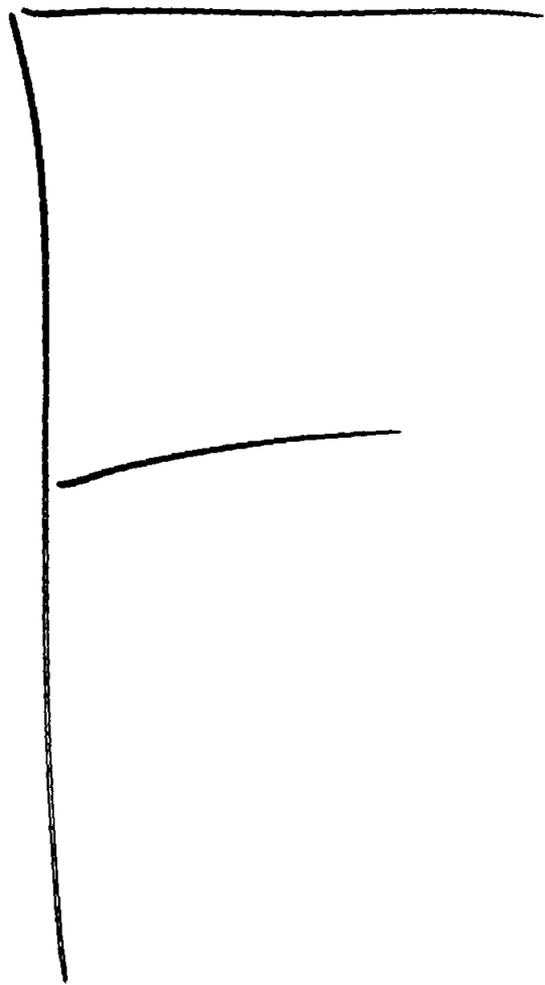
**Global Water Award nominations** can be made before 31 January online at [www.globalwaterawards.com/](http://www.globalwaterawards.com/) or by e-mail to [nominations@globalwaterawards.com](mailto:nominations@globalwaterawards.com).

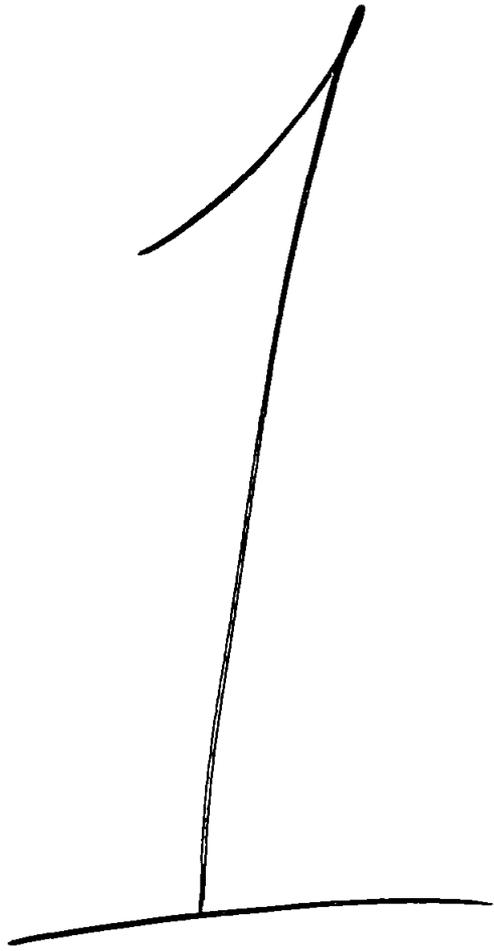
Applications for the **IDA Fellowship Award** are due on 15 February. Details are available at [www.idadesal.org/t-Foundation.aspx](http://www.idadesal.org/t-Foundation.aspx).

## 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](mailto: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](mailto:lee.telin@toraymem.com).







2

-----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](mailto:wpaznokas@dfg.ca.gov); [Sharon\\_Taylor@fws.gov](mailto:Sharon_Taylor@fws.gov); Peter MacLaggan; [bruce@sdcoastkeeper.org](mailto:bruce@sdcoastkeeper.org); [gabe@sdcoastkeeper.org](mailto:gabe@sdcoastkeeper.org); Judy Brown; [rwilson@surfrider.org](mailto: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](mailto:EBecker@waterboards.ca.gov)

3









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).

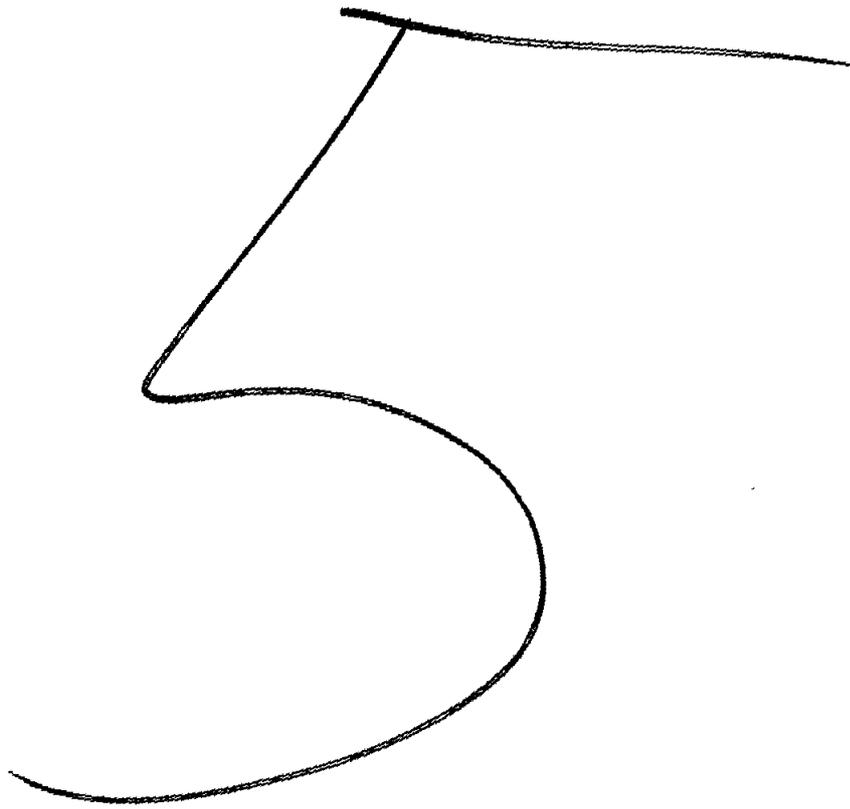
To provide reliability and enhance water supplies, regional plans to satisfy our water projections include increased emphasis on local water supply projects. Specifically, desalination is included in the regional water plan and has always been considered as part of the solution to water supplies for 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







**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

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*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

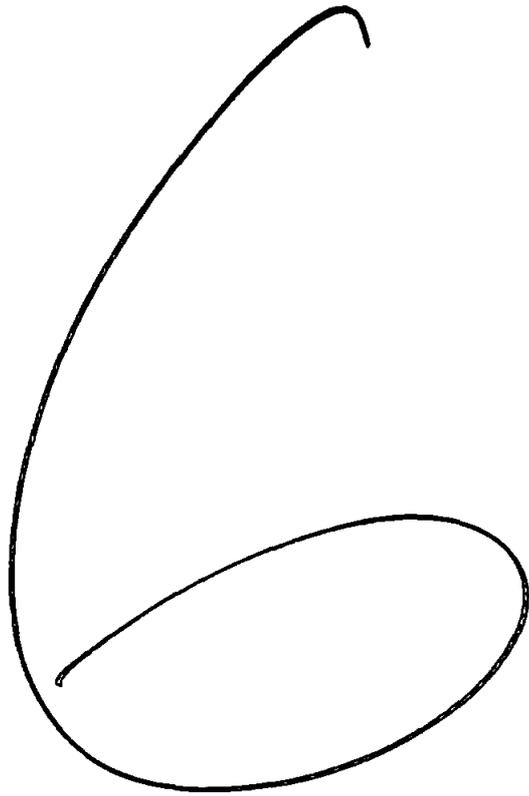


Matt Zafonte	OSPR
Peter McLaggen	Posiedon
Tom Luster	CCC
Sara Townsend	CCC

Confirmed
YES
YES
NO
YES
YES
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YES
YES
NO
MAYBE
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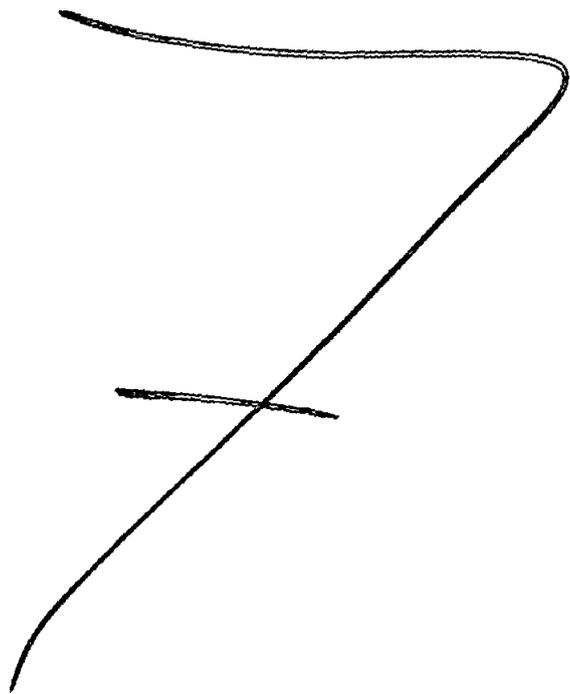
Lani Adams??

NO
YES
YES
YES





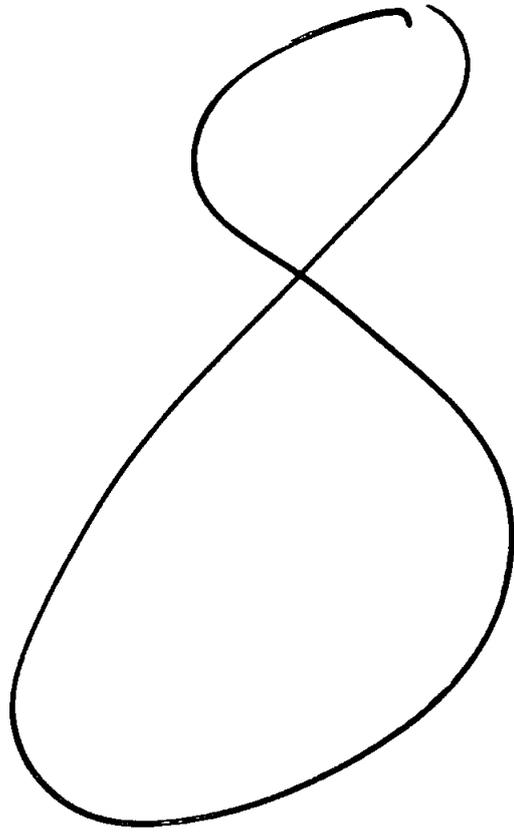












-----Original Message-----

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



<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.4<sup>th</sup> 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.)

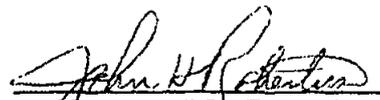
THEREFORE, BE IT RESOLVED THAT:

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**

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**Order No. R9-2006-0065**  
**NPDES Permit No. CA0109223**

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**Order No. R9-2006-0065**  
**NPDES Permit No. CA0109223**

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

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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.



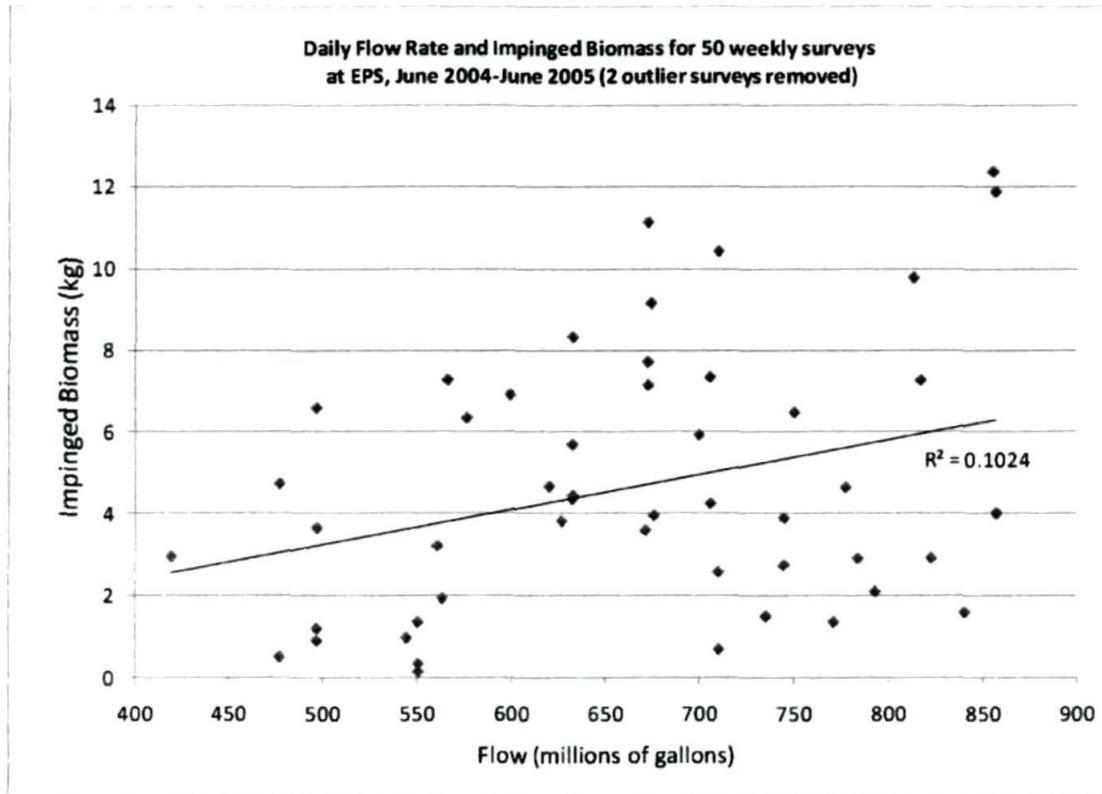


Figure 1.

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Fax 619-595-7892  
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P O S E I D O N R E S O U R C E S

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**

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619-595-7802 Fax 619-595-7892

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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





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





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**





6) Exotics	X	X	X	X	X	X	X
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**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.



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**Declaration of Jessica H. Jones**

**January 26, 2009**

I, Jessica H. Jones, declare as follows:

1. I am an Assistant Project Manager with Poseidon Resources Corporation ("Poseidon"), a position I have held since November 2000. 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. As Assistant Project Manager, I assist Peter MacLaggan with 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").
3. On January 23, 2009, I received from Regional Board staff member Lori Costa, a cassette tape recording of an exchange between Gabriel Solamar, Regional Board Executive Officer John Robertus, Chief Scientist Chiara Clemente and Catherine Hagan which occurred at the Regional Board's November 12, 2008 meeting.
4. On January 24, 2009, I transcribed this cassette tape recording into a Microsoft Word document. A true and correct copy of this transcription is attached as Exhibit A.

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.

  
\_\_\_\_\_  
Jessica H. Jones

SAN DIEGO REGIONAL  
WATER QUALITY  
CONTROL BOARD  
2009 JAN 26 P 5:04

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**State of California  
Regional Water Quality Control Board  
San Diego Region**

**Wednesday, November 12, 2008**

**Agenda Item #2 – Public Forum**

**SOLAMAR:** Good Morning. My name is Gabriel Solamar and I am legal director for SD Coastkeeper, and I just wanted to send our welcome to our new board member and more coming on the way it sounds like. Coastkeeper is an environmental non-profit based in Point Loma, we work on all kinds of water quality issues and I am here quite frequently and I wish that I was here on a newer issue, but unfortunately I am here to address something that is not so new, which is an item in the executive officers report this month, its an update from staff #14 on page 21, update on Poseidon desalination plant marine life mitigation plan, and our current board members may remember this item from April when the conditional approval of the revised flow entrainment & impingement minimization plan was approved. I would just call your attention to one of the clauses in the resolution, I will just read one of them, after the conditional approval of that plan the third clause read, Within 6 months of adoption, that would be October 9<sup>th</sup> of this year, Poseidon shall submit to the Regional Board executive officer a specific proposal for the mitigation, as I read in the executive officers report with the staff update the Regional Board executive officer has not received that plan, we are now about just over a month after that and the concerning language in the update that I wanted to call your attention to is that it says although Poseidon has neither formally requested an extension to the Regional Board deadline nor provided any clear estimate of when they intend to submit a revised plan, they just figured it would be later this year or the beginning of next year. The concern is that when this board issues a resolution, this is not an invitation to appear at a convenience for the discharger, there is a requirement in the resolution with a date certain and when we don't see that happening we are concerned that your orders at not being followed. So if we could get an update on that from the executive officer or from the staff as to how that issue is being resolved we would appreciate it. Thank you very much.

**BOARD CHAIR:** Mr. Robertus would you care to comment at this time?

**ROBERTUS** (*very hard to hear*): I am fully aware of the due date, we have been in communication with Poseidon, and they are not able to give us the plan in a complete form without the approval of the other agencies and we are waiting for the other agencies schedule event to occur, we are aware of what the elements of the plan are but they are reluctant to sign it and commit without knowing that other agencies input, in not approving it would require me to send it back.

**BOARD CHAIR:** What agencies are we waiting for?





# P O S E I D O N R E S O U R C E S

January 26, 2009

Chairman Richard Wright  
Vice Chair David King  
Eric Anderson  
Wayne Rayfield  
Kris Weber  
Grant Destache  
George Loveland  
Gary Thompson  
San Diego Regional Water Quality Control Board  
9174 Sky Park Court, Suite 100  
San Diego, CA 92123-4340

Dear Members of the Regional Board:

Poseidon looks forward to your review and approval of the Marine Life Mitigation Plan for the Carlsbad Desalination Project at your February 11<sup>th</sup> meeting. We believe that the Plan addresses all the conditions that the Board established in its Resolution adopted last April.

As those of you who were on the Board in April of 2008 may recall, Poseidon had hoped that the Board would grant final approval to the Revised Flow, Entrainment, and Impingement Minimization Plan at that time. The Board did not do so, however, granting a conditional approval instead. The Board's decision to defer final action, and require the submittal of the Final Plan was based on a desire to:

- (1) have certain staff questions in their February 19, 2008 letter addressed,
- (2) have the plan expanded to include "alternative: mitigation sites (see Comments of Chairman Wright, April 2008 Transcript, Page 41)
- (3) develop a plan for Regional Board approval through an "interagency" "coordination" or even "consensus" process with other state agencies (see Comments of Chairman Wright, April 2008 Transcript, Page 120)

We believe that Poseidon has demonstrated that it has met all three of the Board's objectives. We have made a diligent effort to address all of the staff questions and concerns from their February 19, 2008 letter, we have expanded the plan to include additional alternative mitigation sites, and we have developed the Plan through an intense and public process of interagency consultation.

We are submitting this letter in advance of the release of the staff report for our item, but we hope your staff supports approval of the Plan and acknowledges that the staff has had significant opportunities to review, comment upon, as part of the interagency process that the Board indicated should occur in the review of this Plan. For example, your staff provided valuable input at the May 1<sup>st</sup> meeting, and the Plan reflects those specific comments.

**Poseidon Resources**

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SAN DIEGO REGIONAL  
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CONTROL BOARD

Our first and only indication that the staff had concerns about the Plan (that was developed through the interagency consultation process and approved by the Coastal Commission and the State Lands Commission) was the staff letter dated December 2, 2008. We provided a complete response to this letter in our December 9, 2008. Since that date, we have been unable to meet with the Board staff, and have received no further comment or communication from them, so we do not know what their staff recommendation may be. For example, we do not know if your staff has had the opportunity to further meet with the independent experts who were retained by and advised the Coastal Commission on the Plan. If there are additional comments or questions from your staff, we will do our best to address them at the hearing on February 11<sup>th</sup>.

However, it may be possible that your staff may have remaining concerns or issues that cannot be addressed in a manner that would allow them to recommend final approval of the Plan by the Board on February 11<sup>th</sup>. Even if your staff is not in a position to recommend approval on February 11<sup>th</sup>, we request that you move forward that date and grant final approval to our Plan.

We base our request for final action on February 11<sup>th</sup> on the following points:

(1) The record reflects a good faith effort by Poseidon and its technical experts to answer every question or concern raised by your staff. Poseidon has been working with your staff since 2007 to develop a Plan which addresses all their questions and concerns. Every concern which your staff has put in writing has been fully addressed.

(2) The record reflects that the Regional Board, at the staff's recommendation, required Poseidon to follow an interagency consultation process in developing the Final Plan. Your staff has had substantial opportunities to comment upon and suggest revisions during that process.

(3) The Plan has been fully examined by independent expert, agency staff, project opponents and members of the public in the Coastal Commission and State Lands Commission hearing process. The Board can be comfortable that any adverse impacts have been fully mitigated by an enforceable plan.

(4) After two years of work with your staff on the Plan for minimization and mitigation for entrainment and impingement, it is time to make a final decision so that the desalination facility can be in operation by 2012 as required to meet the Region's water supply needs.

Thank you for your consideration of our Plan.

Sincerely,



Peter M. MacLaggan  
Senior Vice President