April 2, 2008

Dr. Richard Wright, Chair and Members of the Board
California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

SAN DIEGO COASTKEEPER

Surfrider Foundation.

RE: Inadequacy of Poseidon's Revised "Flow, Entrainment and Impingement Minimization Plan"

Dear Dr. Wright and Members of the Board:

We write as representatives of the environmental community and on behalf of our members who are dedicated to the restoration and protection of our coast and ocean. As noted in our March 19, 2008 letter, we believe any action taken by the San Diego Regional Water Quality Control Board on the "Revised Flow, Entrainment and Impingement Minimization Plan" (Revised Plan) at its April 9 meeting would be premature and inconsistent with noticing requirements.

Nonetheless, we find ourselves compelled to comment on the Revised Plan to ensure its inadequacies are corrected before the Regional Board takes the unprecedented step of approving the largest ocean desalination facility ever proposed in the western hemisphere. As the decision will potentially set important precedent for interpretation and enforcement of provisions of the Porter-Cologne Act to the intake of seawater for an ocean desalination facility, it deserves even more heightened scrutiny.

Below you will find our detailed preliminary comments regarding:

- Ripeness of Regional Board Review
- Misinterpretation of Porter Cologne Act, Chapter 7, § 13142.5(b)
- Inappropriate analysis of "feasible alternatives"
- Inconsistent and incomplete conclusions and assumptions

We want to assure the Regional Board that we are not raising these issues for the first time in this letter -- quite the opposite. We have participated in numerous industry conferences (some of which we were co-panelists with representatives from Poseidon Resources), we participated and raised these issues at the California Department of Water Resources "Desalination Task Force," we have informed the State Water Resources Control Board of these issues, and have commented on these issues at every stage of approval of this project, including extensive comments on Poseidon's NPDES permit in July 2006.

I. Timing of Implementation Schedule is Arbitrary and Unnecessarily Aggressive

We are particularly opposed to the adoption of the "Mitigation Implementation Approach and Schedule" (Implementation Schedule) laid out in Table 7-2, Chapter 7, p. 7-4 of the Revised Plan. Specifically, the Implementation Schedule requires "Approval of the Plan" by the Regional Board in April. This approval would then set an arbitrary and extremely restrictive set of dates for multiple agency coordination and separate approvals. Further, the Implementation Schedule appears to require that the Revised Plan be thoroughly reviewed by multiple agencies, in some instances, after the Regional Board has approved the Revised Plan. In short, we believe the decision-making timeline suggested by Poseidon effectively "puts

the cart before the horse." The California Coastal Commission has already weighed in on this issue with a letter to the Regional Board detailing its concerns with the timing of a potential approval.[1]

No prejudicial harm will come to Poseidon by postponing this decision until the document is finalized by the applicant. By its own admission, there is still much to be done before the Revised Plan can be considered "final" and ripe for Regional Board consideration and approval.

We are currently seeking a "peer review" of the technical documents recently provided to the Regional Board and the Coastal Commission – the latest of which we received from the Coastal Commission by special request on March 17, 2008. We note that these communications regarding the Revised Plan have yet to be posted by the Regional Board for public consideration.

The Revised Plan incorrectly states that Poseidon's second submission of this Plan (Original Plan) was posted on the Regional Board website "for public review and comment" shortly after it was submitted in February 2007.[2] Though the Original Plan was posted on the Regional Board website, it was never subject to public comment and review. Further, Poseidon admits that the Original Plan took 12 months of review by the Regional Board, yet its proposed schedule provides less than one month for review of the Revised Plan. Such a limited period is insufficient for the Regional Board and inappropriate for public review. The experts we have retained to conduct this peer review on the issues of entrainment and impingement and mitigation cannot complete a thorough review in the limited time for public comments prior to the April 9, 2008 scheduled hearing of the Revised Plan.

In conclusion, it is not clear that there is any compelling reason for the Regional Board to take any action on Poseidon's request to "approve" the Revised Plan. The latest revisions included in the Revised Plan still lack numerous specifics (e.g., a finalized "mitigation plan") and fully documented assumptions and conclusions. If Poseidon is simply asking for a time extension to finalize its review of the Revised Plan with the Department of Fish and Game or other agencies, no approval vote is necessary at this point. For all the reasons above, we strongly encourage the Regional Board to postpone this decision until the Applicant has fully finalized all the details and offered sufficient time for peer review by independent sources and the public at large.

II. Porter-Cologne Act Governs Plan Elements and Has Been Disregarded by Applicant

California Water Code Section 13142.5 (b) establishes the legal standards for the withdrawal and industrial use of seawater.

> For each new or expanded coastal power plant or other industrial installation using seawater for cooling, heating, or industrial processing, the best available site, design,

[1] Peter M. Douglas, Comments for April 9, 2008 Regional Board Meeting Item, 3/20/08

[2] *Revised Plan, p. 1-3. Poseidon's first Plan submission is not, and has not been, available on the Regional Board website.*

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> technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life.[3]

This fundamental concept was well articulated in the State Water Resources Control Board's recent scoping document for its Water Quality Control Policy on the Use of Coastal and Estuarine Waters For Power Plant Cooling. That document points out that though Section 13142.5 has a more limited focus than section 316(b) of the Clean Water Act (i.e. only covering new and expanded coastal facilities); Porter Cologne is more stringent in one respect:

> Section 13142.5 requires use of the best available technology feasible "to minimize the intake and mortality of all forms of marine life", without regard to whether these impacts are adverse, in contrast to section 316(b) which focuses on "minimizing adverse environmental impact."[4]

Minimizing the "intake and mortality" requires "before the fact" compliance with best available site, design, technology and mitigation measures.

The Revised Plan inaccurately summarizes this explicit language as simply "...requir[ing] industrial facilities using seawater for processing to use the best available site, design, technology *and* mitigation feasible to minimize impacts to marine life." See: *Revised Plan, Executive Summary, p. ES-1* (emphasis in original). This summarization of the actual language omits the most critical objective of the law to "minimize the intake and mortality of all forms of marine life."

It is critical to recognize the interaction between the terms "site," "design," "technology," and "mitigation measures." These terms should be considered in their totality, not as distinct and disconnected parts. The operative term "and" ensures that, for example, the "site" of the industrial installation is taken into consideration when it affects best available "design" and "technology" to minimize the intake and mortality of marine life. Likewise, the "design" of the facility should be reviewed in the context of what "technology" is available to minimize the intake and mortality of all marine life.

It is equally critical to recognize that beside the mandate to employ the best available site, design and technology, "mitigation measures" must also "minimize the intake and mortality of all forms of marine life." In stark contrast to this plain mandate, the Revised Plan relies primarily on an, as yet undefined, "after the fact" restoration project to mitigate the so-called "unavoidable impacts[5]." "Restorative

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[3] Cal. Water Code § 13142.5(b)

[4] Scoping Document: Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling

[5] According to the Revised Plan, Chapter 6, Introduction, p. 6-1: "Pursuant to Water Code section 13142.5(b), this Chapter establishes a state-agency coordinated process for identification of the best available mitigation feasible to minimize Project related impacts to marine life... Section 6.3 provides an assessment of the wetlands restoration needed to compensate for entrainment impacts of the desalination facility stand-alone operations." (emphasis added)

measures" have been found inconsistent with the "technology-forcing" policies and plain reading of Clean Water Act § 316(b) in Riverkeeper II.[6] Instead, the court found that: "Restoration measures *correct* for the adverse environmental impacts of impingement and entrainment...but, they do not *minimize* those impacts in the first place."[7] Porter-Cologne § 13142.5(b) must be read the same way. To do otherwise would be an illogical read of the mandate found in Porter-Cologne to minimize impacts from the use of seawater for cooling – and by extension, any other industrial process listed in Section 13142.5(b).

Further, the so-called "unavoidable impacts" are an unacceptable assumption that the "design" of the installation must provide 50 million gallons a day (MGD) of product water and that there are no alternative discharge designs – which in combination requires a total intake of 304 MGD. These self-imposed design parameters (i.e., the size of the facility and the discharge of brine through the existing cooling water discharge channel) do not adequately assess other available alternatives. In fact, as explained in more detail below, these self-imposed design parameters set up a "strawman proposal" that eliminates the use of what is identified in the Revised Plan as available alternatives for "minimizing the intake and mortality of all marine life."

This approach is clearly offensive to the mandate to avoid the "intake" and subsequent "mortality" of marine life through "before the fact" mitigation measures.

Although Poseidon argues that redesigning the project is infeasible because it has already invested years of effort to get regulatory approval of the site-specific project[8], it must be clear that the profitability of a private entity has no place in the Regional Board's decisionmaking process. In fact, Poseidon has repeatedly claimed that the major benefit of a "public/private" partnership is, among other things, the assumption of risk associated with regulatory approval. Indeed, much of the "risk" and now the potential for late redesign of the project falls on the project proponent for not submitting timely responses to agency requests for information or the public comments about the need to employ technologies available to avoid marine life intake and mortality.

III. Applicant Misconstrues "Feasible Alternatives" Definition

Poseidon has chosen a definition for "feasible" by interpreting that term from the California Environmental Quality Act (CEQA) – a law with a very different purpose than Porter-Cologne. CEQA is a vehicle for informing the public about the environmental impacts of potential projects in order for the pubic and decision-makers to make a fully informed decision. In that respect, the Environmental Impact Report is the heart of CEQA and its purpose is "information-forcing". In contrast, Porter-Cologne is a "technology-forcing" law for industrial uses of seawater for cooling, heating and other industrial processes. Importantly, Section 13142.5(b) expands on the protections found in the federal Clean Water Act § 316(b) by including other industrial processes beyond "cooling water intakes" to the list of regulated activities.

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[6] *Riverkeeper v. U.S. EPA, 475 F.3d 83 (2d Cir. 2007) (Riverkeeper II")*

[7] Id at 39-40.

[8] See Revised Plan, Chapter 2, p. 2-7

Therefore, a more relevant interpretation may be found in the recent Federal Second Circuit Court decision on "cooling water intakes." The federal court found that:

> The Agency accordingly could not make the policy decision, in the face of Congress's determination that facilities use the best technology available, that an economically feasible level of reduction of impingement mortality and entrainment is not desirable in light of its cost.
>
> [W]e nevertheless acknowledge that the comparable technologies considered by the Agency need not be identically effective for the Agency to engage in cost-effectiveness analysis. Were that the case, all that would be required would be the simple determination of which among competing technologies that achieved the same degree of reduction of adverse environmental impacts is the cheapest. Instead, the specified level of benefit is more properly understood as a narrowly bounded range, within which the EPA may permissibly choose between two (or more) technologies that produce essentially the same benefits but have markedly different costs. *Riverkeeper v. U.S. EPA, 475 F.3d 83 (2d Cir. 2007) (Riverkeeper II").* (emphasis added)

In short, the Riverkeeper II decision specifically prohibited a "cost-benefit" analysis to justify an exemption from the technology-forcing policy of CWA § 316(b). The same would hold true for the policies embodied in California's Water Code § 13142.5(b). This type of cost-benefit analysis is what is used as a justification for the continued and exacerbated intake and mortality of marine life recommended in the Revised Plan.

IV. Revised Plan Takes Flawed Approach Toward Site, Design, and Technology Issues

As noted above, the Revised Plan appears to segment the list of mandated considerations for minimizing the intake and mortality. We believe the language in Section 13142.5(b) is intended to be read in its entirety. Further, it is an impermissible interpretation of the language to permit "after the fact" restoration projects to substitute for the mandate to "mitigate" both the intake and mortality of marine life.

a) Site Analysis

The review of potential sites is too narrowly analyzed and excludes a combination of potential sites that could feasibly result in dramatically reducing the intake of marine life. Further, the analysis in this, and other sections of the Revised Plan, rests on the design of the facility producing 50 MGD of product water. If this production output precludes using the best available technology or other "before the fact" mitigation measures to minimize the intake of marine life, then it is arguably a fundamentally flawed "design."

For example, the Revised Plan asserts that the location of the desalination facility at the Encina Water Pollution Control Facility (EWPCF) would require construction of a 72-inch diameter intake pipeline to deliver source water to the facility. This limited review does not examine the use of the EPS site for the production facility and the use of the EWPCF for the discharge. This example of a superior "design"

could potentially eliminate the need to withdraw 200 MGD for dilution of the brine – and the associated intake and mortality of marine life. The Revised Plan also asserts, without documentation, that there is a constraint on the capacity of the outfall from EWPCF. A thorough Revised Plan would necessitate documenting and analyzing means for alleviating the constraint. It is our understanding that the EWPCF has plans to expand their recycled water production and it is not clear whether this would simultaneously eliminate the constraints on the discharge capacity and/or reduce the need for a 50 MGD ocean desalination facility.

In conclusion, like many of the segmented sections of the Revised Plan, this section on alternative "Site" locations is not comprehensively analyzed along with different designs, technologies, and other mitigation measures that would reduce the intake of seawater.

As a final note on this section, the text on page 2-8 (and other parts of the Revised Plan) cite a Coastal Commission "Revised Findings" document. It should be noted that the "Revised Findings" are still a draft document and have not been approved by the Coastal Commission. Nor do the "Revised Findings" have any bearing on Poseidon meeting the conditions of its Coastal Development Permit.

b) Design Analysis

As noted above, the "design" of the facility should be an integral part of meeting the mandate to minimize the intake and mortality of marine life. It is an unacceptable interpretation and implementation of § 13142.5(b) to start with the presumption of a 50 MGD production facility. Especially as the size of the facility appears to preclude the use of technologies that dramatically reduce, if not eliminate, the intake and mortality of marine life.

Nonetheless, this section includes some unsatisfactory conclusions that require further scrutiny. As noted above, we are engaging a respected consulting firm to review the entrainment and impingement studies, as well as a review of the technologies and mitigation measures available to minimize intakes.

i) Use of the EPS discharge for "desalination source water" does not meet the purpose of the Revised Plan to document the minimization of intake and mortality from a "stand alone" facility.[9] The annual estimate of marine life mortality doesn't account for seasonal variations in the survival strategy and spawning periods of the numerous species entrained at the site. In fact, Figure 3-2 on page 3-5 illustrates dramatic seasonal variations in 2007 cooling water intake volumes.

ii) Poseidon's discharge analysis is misleading. Figure 3-2 provides a graphical representation of EPS historical flow for 2007. However, the raw data and calculation method are not provided. Poseidon merely presents a conclusory statement that EPS operations in 2007 would have provided 61 percent of the dilution water needed, thus limiting Poseidon's impingement and entrainment impacts to 39 percent of stand-alone operations.[10] As was the case in Poseidon's

[9] Revised Plan, p. 3-2, bullet 1
[10] Revised Plan, p. 3-4

original flow estimates for EPS, the numbers estimated in the Revised Plan are unjustifiable.[11] EPS' intake flow has historically diminished and will continue to do so. Therefore, the 2007 figures do not provide an accurate assessment of future flow. Further, it is illogical to conclude that EPS providing 61 percent of the needed dilution water reduces Poseidon's impacts by 61 percent. Poseidon, at the lowest estimate, *increases* impingement and entrainment impacts by 39 percent by perpetuating the use of the intakes.[12]

iii) We agree that reducing intake velocity reduces impingement. However, the more intractable problem is entrainment – which is a function of volume, not velocity. Moreover, the Revised Plan states that the inlet screen velocity will be .5 fps or less without providing any documentation to support this assertion.[13] Analysis of Poseidon's Original Plan reveals that the maximum velocity of all of the generating units is at least double .5 fps.[14] In light of the future retirement of units 1, 2, and 3, Poseidon's intake water must come from units 4 and 5.[15] Both units' maximum velocity at high and low tide is significantly higher than .5 fps. In the Original Plan, Poseidon claimed that the "relative contribution to the total impingement potential of the intake pump system" would be "proportional to the pump flow."[16] However, in the Revised Plan, Poseidon has failed to show how it will obtain 304 MGD and reduce intake velocity when only two of the five units are available for use.

iv) Discrepancies between the Original Plan and the Revised Plan also require attention. For example, the Original Plan states that according to 2004-2005 analysis, the maximum pumping capacity of unit 4 is 288 MGD.[17] However, the Revised Plan states that unit 4 maximum pumping capacity is 307 MGD.[18] The data in the Revised Plan is from a 1997 report, which is presumably less reliable than the 2004-2005 data. Without clarification as to the origin of these figures, which of these figures is correct, and how these figures correspond to calculated velocity, an accurate assessment of CDP impingement impacts cannot be made.

v) The Revised Plan states that routing intake through the condensers and reducing velocity and turbulence will reduce entrainment mortality.[19] However, the Revised Plan fails to document any studies conducted to verify these conclusions or quantify the reduction in mortality. Further, Poseidon cannot assert that utilizing only one of two pumps for each generating unit is a design feature that mitigates impingement of marine life. As noted above, perpetuating the use of open-ocean intakes results in increased impingement and entrainment as compared to a scenario in which the intakes are no longer used or a sub-seafloor intake design is used. Moreover, Poseidon claims that it causes only 39 percent impingement and entrainment impacts in the site analysis of the Revised Plan. Conversely, in the design analysis portion of the Revised Plan, Poseidon takes

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[11] EIR, Appendix E, Carlsbad Desalination Facility Intake Effects Assessment, March 3, 2005, p. 2-2

[12] Revised Plan, p.ES-2, Table ES-1; p. 3-4

[13] Revised Plan, p. 3-5

[14] Revised Flow, Entrainment and Impingement Minimization Plan, June 1, 2007, p. 18

[15] Carlsbad Energy Center Project Application for Certification, p. 1-15

[16] Revised Flow, Entrainment and Impingement Minimization Plan, June 1, 2007, p. 18

[17] Revised Flow, Entrainment and Impingement Minimization Plan, June 1, 2007, p. 17-18

[18] Revised Plan, p. 2-4, Table 2-1

[19] Revised Plan, p. 3-2, bullet 3

credit for overseeing 100 percent of intake operations. Poseidon contends that by controlling all intake operations, it can choose which pumps to operate and thereby reduce velocity and impingement. However, elsewhere Poseidon fails to attribute 100 percent of negative operational impacts to CDP. Poseidon cannot hide behind EPS operations in one section of the Revised Plan and take credit for stand-alone operations in another section.

vi) Poseidon has also provided no documentation to support the contention that reduction of pumping bears a 1:1 ratio with reduction of velocity and impingement.

vii) Much like the claims that reducing velocity and turbulence will reduce entrainment and impingement mortality, reducing entrainment mortality by eliminating exposure to heat in the condensers is not backed up with any referenced studies that verify and quantify the reduced mortality rate.[20]

viii) The Revised Plan asserts that replacing "heat treatment" with "scrubbing balls" will eliminate marine life mortality.[21] Again, the Revised Plan does not document any studies to verify and quantify this assertion. In fact, common sense suggests that the "scrubbing balls" would simply kill the marine organisms residing in the intake canals by crushing them or otherwise adversely affecting them. Further, the introduction of this cleaning method comes at a significantly late stage in the review process. This method was not analyzed in the EIR, during NDPES review, CDP review, or in the SLC permit review process. Thus, the proposed "scrubbing ball" method has not been studied for possible negative impacts, nor has it been proven a viable alternative to heat treatments. Additionally, the recapture of the balls after they are introduced into the system is not detailed. Introducing ½ inch plastic balls into the marine environment presents a variety of serious concerns. Without a more detailed and studied explanation of the "scrubbing balls" it is impossible to assess the supposed benefits and inevitable adverse impacts associated with this cleaning method.

c) Technology Analysis

The technology section of the Revised Plan begins with the assertion that the draft State Lands Commission lease precludes technologies that would interfere with the operation of the EPS. First, the future of the EPS is before the California Energy Commission for review of a "re-power" permit that would eliminate the use of the existing "once through cooling" system for much of the EPS capacity.[22] The EPS intake is also the subject of ongoing litigation that may be settled if the Energy Commission approves the EPS re-power plan.

Second, the State Lands Commission has not finalized the lease terms. Consequently, the meaning of this draft language should be coordinated through a cooperative effort by the Regional Board, State Lands Commission, Coastal Commission and the interested public before the Regional Board approves the Revised Plan. This coordinated effort will result in consistent interpretation of the duties of the several

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[20] Revised Plan, p. 3-2, bullet 4. Also see: p. 3-7, Section 3.6

[21] Revised Plan, p.3-2, bullet 5. Also see: p. 3-7, section 3.7.

[22] Notice of Receipt Application for Certification Carlsbad Energy Center Project, available at http://www.energy.ca.gov/sitingcases/carlsbad/documents/index.html

agencies and avoid unnecessary delays in approval from conflicting determinations on the best available site, design, technology and mitigation measures to avoid the intake and mortality of marine life.

The Revised Plan also asserts that the foundation for analyzing best available technology relies on the definition of "feasibility" found in CEQA.[23] We disagree. (See Section II above.) Further, the introduction to this chapter constrains the analysis of "best available technology" to the "site specific and size of this project."[24] As explained below, these pre-determined constraints set up and utilize an illegal cost-benefit analysis of available technologies to reduce the intake and mortality of marine life. Ironically, if the design (e.g., size of the facility and its product output) was considered in combination with the truly best available technology, the alternative sub-seafloor intake technologies outlined in the Revised Plan in Chapter 4 would have been correctly identified as far superior to those chosen for the project in the Revised Plan. Additionally, such technologies would eliminate the need for an illegal "after the fact" mitigation plan. As noted above, Porter-Cologne § 13142.5(b) mandates an inclusive utilization of site, design, technology and mitigation measures to minimize the intake and mortality of marine life. The analysis here segments these factors and results in an inadequate conclusion.

While we agree that a new offshore open ocean intake is probably not the best available technology, the Revised Plan's analysis of the sub-seafloor intake alternatives is flawed in several ways. First, it is assumed that it is necessary for the preferred intakes to allow 304 MGD. Such an assumption is not necessary if alternatives for the desalination plant source water intakes are considered separately from the discharge alternatives, such as mixing the CDP discharge with the freshwater discharge from the EWPCF. Likewise, the alternative sub-seafloor intakes are disposed of because they do not meet the source water intake volume demanded for the size of the facility. As we have noted repeatedly, the analysis of design (size) and technologies for reducing intake and mortality of marine life should not be segmented in this way. At a minimum, the best technology for minimizing intake and mortality should dictate the size of the facility – not the other way around. Failure to do so incentivizes proposals for ever larger projects, thus requiring ever less effective intake options.

The intake alternatives that are reviewed are not realistic, and misrepresent the associated technology. The Revised Plan offers illustrations and discussion of pump stations on the surface of the adjacent beach that would disrupt recreational uses and inter-tidal ecological processes. However, the successful pilot study of sub-seafloor intakes at Doheny Beach demonstrates that the drilling of wells can be done to cause only temporary disruption to both recreational opportunities and beach ecology. The Doheny Beach pilot demonstration uses buried vaults to house the collector wells and pumping stations – allowing recreational beach activities to continue undisturbed. Therefore, the illustrations offered at Figures 4-2, 4-3, 4-4, 4-5, and 4-6 represent the worst possible case scenario.

Finally, the testing location that yielded groundwater of a higher salt concentration than ocean water is undisclosed.[25] The Revised Plan merely states vaguely that an "actual intake well test completed *in the*

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[23] Revised Plan, p 4-1
[24] Revised Plan, p 4-2
[25] Revised Plan, p. 4-10

vicinity of the EPS" was conducted.[26] (emphasis added) However, the tests completed by Poseidon are not consistent with the Doheny Beach pilot study. In fact, in the Doheny study, the water quality for the intake was far superior to ocean water and eliminated the need for much of the otherwise necessary pre-treatment (and associated energy consumption and costs).[27]

The Revised Plan proposes micro-screening ahead of the pre-treatment equipment combined with the discharge of the entrained organisms to the ocean. However, it is not clear from the document that these micro-filters will actually improve the survival of the entrained organisms. Further, as mentioned above, the apparent design includes the micro-filtration of not only the "source water" for the desalination facility, but the additional water necessary for diluting the discharge. Arguably, a more creative design would separate these intakes and avoid the proposed plan to expose the marine organisms in the dilution water to any contact with screening technology that may impact their survival.

In conclusion, the sub-seafloor intakes offer the standard for reducing the intake and mortality of marine life. As the court in Riverkeeper II explained, a cost-effectiveness test can compare different technologies that meet the standards of the identified "best technology available." However, it is clearly impermissible to conduct the type of cost-benefit analysis used in the Revised Plan. Second best technology does not meet the standard – regardless of cost.

d) Mitigation Analysis

"Mitigation measures" as it is used in Section 13142.5(b) must be interpreted to mean "before the fact" mitigation to avoid the intake and mortality of marine life. The Revised Plan offers an "after the fact" mitigation which has clearly been struck down by the federal court for cooling water intakes. There is no distinction in the language of Porter-Cologne § 13142.5(b) that would distinguish other industrial uses of seawater from this holding in Riverkeeper II.

As stated above, the mitigation plan is not fully detailed in any of the documentation. Therefore, even if "after the fact" restorative measures were a legal exemption to the "best available technology" standards as articulated in Riverkeeper II, the Revised Plan only offers steps for identifying a detailed and final mitigation plan. Consequently, the Revised Plan is not sufficiently final for any formal approval by the Regional Board.

V. *Revised Plan Quantification of Unavoidable Impacts to Marine Resources is Unresponsive to* Regional Board Concerns

Of general concern is the method of assessment used to quantify marine impacts in the Revised Plan. The results listed in Table 3.2 of the Original Plan, Table 5-1 of the Revised Plan, Attachment 2 to the Revised Plan, Attachment 4 to the Original Plan, and Attachment 5 to the Original Plan have not been validated as *a true indication of impingement and entrainment impacts from CDP operation.*

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[26] Revised Plan, p, 4-10

[27] Dana Point Desalination Project – Engineering Feasibility Report, p. 3-3, available at http://www.mwdoc.com/documents/FinalDraftReport4-6-07.pdf

The 2004-2005 impingement sampling data was conducted by EPS in accordance with 316(b) Phase II regulations. These weekly sampling events were not considered to be the focus of the assessment because the majority of impingement impacts were associated with heat treatments.[28] Further, the method of determining the daily biomass entrained associated with a flow of 304 MGD is not given in any version of the Revised Plan or accompanying attachments.

In response to concerns raised by Regional Board staff,[29] Poseidon provided a cursory explanation *consisting of a narrative account of its calculations.*[30] *Not only does this narrative description fail to* provide the underlying numbers used, but it fails to give the reasoning for its calculations. It is unclear that weekly sampling events conducted at EPS (thought to be of minimal importance in relation to the much larger mortality rate from EPS heat treatments) can be manipulated in order to give an accurate account of impacts from CDP daily operations. Before Poseidon's calculations and methods can be validated, the raw numeric data must be provided to Regional Board staff and to the public for review.

In addition, Regional Board staff expressed concern about the lack of impingement data for invertebrates and the overall lack of individual sampling event data for all organisms, including lack of "dates, times, and flow rates of sampling events."[31] Poseidon responded, "Attachment 2 of the Plan includes the requested information."[32] Poseidon is correct in asserting that Attachment 2 contains sampling weights of invertebrates and other impinged organisms. However, conspicuously missing from sampling data are times and flow rates. The information provided in Attachment 2 is yet another summary of data.[33]

Regional Board staff also expressed concern that the entrainment assessment was not completed according to a protocol approved by the Regional Board.[34] Poseidon notes that the protocol used was reviewed and approved by the Regional Board.[35] However, Poseidon fails to mention that the protocol was reviewed and approved by the Regional Board as a sampling method for EPS in response to EPA's Phase II 316(b) Rule. The protocol was not reviewed by the Regional Board as an assessment tool for predicting impingement and entrainment caused by CDP as a stand-alone facility.

The Revised Plan entrainment impacts assessment suffers the same flaws as the impingement assessment—lack of specificity. Regional Board staff noted that the Original Plan "does not clearly

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[28] Original Plan, Attachment 5, p. 104 (Cabrillo Power I LLC, Encina Power Station 316(b) Cooling Water Intake *Effects Entrainment and Impingement Sampling Plan*, p. 22)
[29] Regional Board Comments on Revised Flow, Entrainment and Impingement Minimization Plan & Coastal Habitat Restoration and Enhancement Plans (February 19, 2008), p. 3
[30] Poseidon Response to Regional Board Comments, March 7, 2008, p. 6
[31] Regional Board Comments on Revised Flow, Entrainment and Impingement Minimization Plan & Coastal Habitat Restoration and Enhancement Plans (February 19, 2008), p. 2-3
[32] Poseidon Response to Regional Board Comments, March 7, 2008, p. 5
[33] Attachment 2, p. G1-1 to G1-36
[34] Regional Board Comments on Revised Flow, Entrainment and Impingement Minimization Plan & Coastal Habitat Restoration and Enhancement Plans (February 19, 2008), p. 3
[35] Poseidon Response to Regional Board Comments, March 7, 2008, p. 6-7

identify the supporting data or an explanation of underlying assumptions and calculations that were used to estimate proportional mortality values."[36] Once again, in response Poseidon provides a narrative description of calculations conducted and references the underlying data in attachments.[37] Poseidon lists four attachments, none of which provide calculations or raw data. The document that gets closest to a meaningful level of detail is Attachment 5, which provides averages, means, and totals of entrained organisms.[38]

In response to Regional Board staff concerns about excluding salt marsh and brackish freshwater acreage from area of habitat production foregone (APF), Poseidon states that "[i]t is not appropriate to include the other lagoon habitats in the APF calculation...that are not occupied by the impacted species."[39] However, Poseidon provides no studies or data to support the contention that the impacted species do not occupy such areas. Further, Poseidon concedes that the lagoon habitat acreage of the impacted species is based upon a 2000 Coastal Conservancy Inventory of Agua Hedionda Lagoon (Inventory) and that such data requires confirmation by a survey that "will be conducted during the final design of Poseidon's restoration plan."[40] In an attempt to streamline the approval of the Revised Plan, Poseidon promises an accurate survey at some future date. This not only prevents an assessment as to the accuracy of Poseidon's Revised Plan, but also prevents the Regional Board from determining if Poseidon's proposed mitigation measures are adequate.

Of particular concern is Poseidon's contention that the future survey will adjust the restoration plan to the extent that the lagoon habitat acreage is "higher or lower."[41] This implies that Poseidon could possibly reduce the APF calculation and therefore decrease any mitigation efforts in response to a future survey and restoration plan that is not subject to Regional Board approval. Such a scheme serves only to bolster Regional Board staff's concern that Poseidon's reliance on the Inventory is unsubstantiated and the additional concern that the underlying data may not be "accurate or appropriate for the purpose of determining such an important component of the area of habitat production foregone (APF)."[42]

Similarly, Poseidon does not address Regional Board staff's concern that the Revised Plan does not outline "how much more severe impacts may be when populations are small."[43] Poseidon's reply is both obtuse and unresponsive. Poseidon merely states that "fish species occurring in low numbers in the

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[36] Regional Board Comments on Revised Flow, Entrainment and Impingement Minimization Plan & Coastal Habitat Restoration and Enhancement Plans (February 19, 2008), p. 3
[37] Revised Plan, p. 5-12
[38] Attachment 5, Summary of Fish and Target Shellfish Larvae Collected for Entrainment and Source Water Studies in the Vicinity of Agua Hedionda Lagoon from June 2005 through May 2006
[39] Poseidon Response to Regional Board Comments, March 7, 2008, p. 8
[40] Poseidon Response to Regional Board Comments, March 7, 2008, p. 8
[41] Poseidon Response to Regional Board Comments, March 7, 2008, p. 8
[42] Regional Board Comments on Revised Flow, Entrainment and Impingement Minimization Plan & Coastal Habitat Restoration and Enhancement Plans (February 19, 2008), p. 3
[43] Regional Board Comments on Revised Flow, Entrainment and Impingement Minimization Plan & Coastal Habitat Restoration and Enhancement Plans (February 19, 2008), p. 3

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Poseidon study entrainment samples are ocean species, and conversely larval fish entrained in the highest number were lagoon species."[44] The support for such a contention is lacking. Fish species occurring in lower numbers in entrainment samples are not necessarily ocean species. These fish, or some subpopulation of these fish, may very well be lagoon species. In either case, fish with smaller populations are likely to be highly affected by any amount of entrainment. Consideration of such concentrated impacts is lacking in the Revised Plan. Regional Board staff correctly note that impacts are likely to be more severe on populations that are already impacted by other factors. Poseidon completely ignores this point and responds by stating that such species simply do not inhabit the lagoon.

VI. An Independent Baseline Study of the Agua Hedionda Lagoon Marine Environment is Required

As a new industrial coastal facility, CDP is subject to the requirements of Porter Cologne.[45] In addition to the requirement of using the best available site, design, technology, and mitigation measures feasible to *minimize the intake and mortality of marine life, section 13142 also requires adequate analysis of the* marine environment,

> Independent baseline studies of the existing marine system should be conducted in the area that could be affected by a new or expanded industrial facility using seawater in advance of the carrying out of the development.[46]

Although Poseidon has submitted three different versions of the same study, it has yet to submit an independent baseline study of the marine system in Agua Hedionda Lagoon and the surrounding area. As mentioned above, Poseidon's Revised Plan is simply an adaptation of the EPS Phase II PIC Study conducted in 2004-2005. The application of this study to CDP operations does not constitute a baseline study as it was conducted for a different purpose without consideration of CDP. Poseidon plans on conducting a survey of lagoon habitats in the final design of its restoration plan. Such a scheme turns the meaning of Porter Cologne on its head. The lagoon survey, or an independent baseline study, should be conducted before a mitigation or minimization plan is approved. An independent study is necessary in order to accurately assess the existing environment and the effects of CDP operations on this marine environment. Only after such analysis is completed can a plan to minimize those impacts be evaluated.

VII. Conclusion

In closing, we renew our objections to the Regional Board hearing this issue without appropriate public comment and noticing requirements. We remain concerned with the lack of specificity, misleading and incomplete factual basis used to justify this critical element of Poseidon's NPDES permit. Finally, we do not believe that this Plan meets the legal requirements of Porter Cologne or the criteria for the Plan in Poseidon's NPDES permit.

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[44] Poseidon Response to Regional Board Comments, March 7, 2008, p. 7
[45] Cal. Water Code § 13142.5(b)
[46] Cal. Water Code § 13142.5(d)

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Sincerely,

Joe Geever
California Policy Coordinator
Surfrider Foundation

Gabriel Solmer
Legal Director
San Diego Coastkeeper

Enclosures:

- SDCK Comment Letter on Tentative Order No. R9-2006-0065 NPDES No. CA0109223
- Surfrider Foundation, San Diego Coastkeeper Reply Re: Poseidon's November 9, 2007 Letter and Attachments
- Environmental Presentation at California Coastal Commission Hearing, November 15, 2007
- Environmental Presentation at California State Lands Commission Hearing, October 30, 2007
- Surfrider Foundation, San Diego Coastkeeper Comments on State Lands Commission Hearing, October 29, 2007
- Assessment of Impact of Desalination Plant and Feasibility of Closed-Cycle Wet Cooling Retrofit at Huntington Beach Generating Station
- State Water Resources Control Board Scoping Document: Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling

Cc: Mr. Eric Becker, *Water Resources Control Engineer*
Mr. Brian Kelley, *Senior Water Resources Control Engineer*

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October 29, 2007

Mr. Paul Thayer
Executive Officer
California State Lands Commission
100 Howe Ave, Suite 100 South
Sacramento, CA 95825-8202

Via Electronic and U.S. Mail
(thayerp@slc.ca.gov)

Re: Carlsbad/Poseidon Ocean Desalination Project
Water Intake Infrastructure Lease - Necessity of Subsequent EIR
Supplemental Comments from Surfrider and San Diego Coastkeeper

Dear Mr. Thayer:

On behalf of the Surfrider Foundation and San Diego Coastkeeper, please accept the following supplemental comments regarding the Carlsbad/Poseidon Desalination Plant (CPDP).

As discussed in our October 16, 2007 correspondence, CEQA requires government at all levels to consider environmental effects prior to project approvals. (Pub. Res. Code section 21001.) Because it has discretionary authority with respect to the CPDP lease application for seawater intake and discharge infrastructure, the California State Lands Commission ("SLC") is a Responsible Agency under CEQA, and must consider the adequacy of the Final Environmental Impact Report (FEIR) prepared by the City of Carlsbad. (Pub. Res. Code section 21069.) As discussed in the CEQA Guidelines, if a Responsible Agency finds that a FEIR is inadequate, it must prepare a Subsequent EIR. (14 Cal. Code Regs. Section 15096(e)(3)(CEQA Guidelines)) When such circumstance occurs, the Responsible Agency assumes all legal responsibilities of a Lead Agency for the purposes of subsequent CEQA compliance. (CEQA Guidelines sections 15052 & 15094(e)(4))

In this case, the factual, legal, and regulatory landscape have changed dramatically since Carlsbad originally approved the CPDP FEIR. As noted in the SLC Staff Report for the October 30, 2007 hearing (Staff Report), owners of the Encina Power Station (EPS) recently submitted an application to the California Energy Commission for construction of a "closed cycle" power plant that will virtually eliminate the need for seawater intake. Hence, with the impending elimination of destructive "once-through-cooling" infrastructure currently in place, the west basin of the Agua Hedionda Lagoon may finally support traditional coastal lagoon and estuarine beneficial uses critical to the health of our coastline. **And most importantly for purposes of this letter, the environmental impacts of a stand-alone CPDP must be considered and mitigated prior to approval of the lease application by SLC.**

The Staff Report recommends approval of the CPDP lease application without need for a Subsequent EIR. The following comments identify why such a conclusion is not supportable as a matter of law.

A. Changed Conditions and New Information Require SLC to Certify a Subsequent EIR Prior to Approving the CPDP Lease Application.

Subsequent EIRs are required when any of the following three conditions exist:

(a) Substantial changes occur *with respect to the project* that will result in new or increased significant environmental impacts. (CEQA Guidelines 15162(a)(1);

(b) Substantial changes occur *with respect to the circumstances* under which the project is undertaken that involve new or increased significant environmental impacts. (CEQA Guidelines 15162(a)(2); or,

(c) Important *new information* is obtained that shows the project will have one or more significant effect not previously discussed, mitigation measures previously found infeasible would in fact be feasible, or new feasible mitigation measures not previously considered are declined by the applicant. (CEQA Guidelines 15162(a)(3)).

With the recent information disclosing the relatively near-term conversion of the EPS away from OTC, each of these three criteria can be met. The CPDP project description has changed, which the City of Carlsbad has already opined will require additional CEQA review. The circumstances surrounding the CPDP have changed, which will result in new or increased impacts attributable to the stand-alone facility. And finally, because of the new information, mitigation measures previously discarded or ignored are now feasible and must be considered.

1. The Project Has Changed Substantially, and Will Result In New or Increased Significant Impacts Not Previously Attributed to a Stand-Alone CPDP.

The CPDP is unequivocally defined in the FEIR as using the Encina Power Station's intake water for desalination. (FEIR section 3.4.2) As discussed in the City's response to comments, which are incorporated as part of the FEIR:

> There are no plans for the power plant owner, Cabrillo Power, LLC, to significantly reduce or eliminate the cooling water needs of the

> existing power plant or to retool the power plant to use alternative cooling methods. As indicated in Section 3, Project Description, of the Draft EIR, the current project is defined as using the cooling water discharge of the power plant as source water for the desalination plant. Under CEQA, the Lead Agency is required to address existing or reasonably foreseeable future conditions and impacts and cannot speculate about uncertain outcomes or potential effects that cannot be reasonably quantified or predicted at this time or are outside the project definition. In addition, the baseline for measuring potential environmental impacts of a project under CEQA is the current physical environment, including current operating conditions. **Since no plans currently exist or are under consideration to reduce or discontinue the power plant use of seawater for cooling purposes, the assessment of plant operations under this completely different project baseline is speculative at best and is outside of the scope of the CEQA review of this project, as defined in the Draft EIR.**

(Emphasis added; FEIR, Response to Comment 4G, available at http://www.carlsbad-desal.com/media/Response_1_7.pdf)[1] Hence, there can be no

[1] Evidence suggests the City of Carlsbad knew, but neither disclosed nor analyzed, that the EPS would be discontinuing use of its OTC technology. While the City was processing the FEIR, the San Diego County Water Authority (CWA) was similarly processing an EIR for the same use, at the same site. At a conference conducted shortly after the CPDP FEIR was certified, County Water Authority staff commented about the Water Authority's decision not to move forward with its EIR or project:

> The power plant owners hinted at their plans for the immediate future, and this included moving away from OTC and towards air-cooled facilities. The basis of the desalination EIR was utilization and continuation of availability of OTC water. Thus, the operating strategy of the desalination plant would need to change and, as a result, the EIR must change. There was no analysis of permitting issues and environmental impacts of a stand-alone desalination plant option in the original EIR. ... This will change regulations, permitting, and conclusions about environmetnal impacts, so the board chose to pursue other options.

(Comments attributed to Bob Yamada, San Diego County Water Authority, in Alpert,H., Borrowman, C., and B. Haddad, "Evaluating Environmental Impacts of Desalination in California" *Center for Integrated Water Research* 27 July 2007, (October 26, 2007). <http://ciwr.ucsc.edu/desalplanning/workshops.html>; attached as Exhibit H)

Given the high levels of publicity afforded the competing EIR's, it is unreasonable to believe that the CWA knew that the EPS would be converting from OTC, but the City of Carlsbad did not. There is no justification for the City's failure to immediately alter its CEQA process upon acquisition of such knowledge. In fact, in light of comments by the public and Poseidon's convenient last-minute production of the Additional Responses document, it is reasonable to infer that the City intentionally maintained its concocted obliviousness so as not to disrupt the project approval schedule. The State Lands Commission should not now reward Poseidon for subverting the CEQA process. (*See Concerned Citizens of Costa*

question the project considered by the City of Carlsbad was inextricably linked to the continued operation of the EPS.

Nonetheless, concerns regarding the sufficiency of the EIR's consideration of project impacts that would likely occur upon discontinued operation of the EPS were squarely considered during public hearings at the City of Carlsbad. According to the minutes of a Planning Commission meeting held on May 6, 2006, shut down of the EPS would result in an entirely new project, with new CEQA requirements. The minutes reflect:

> Commissioner Segall asked if a new EIR would be required if Section 316(b) causes the Desalination Plant to change any aspect of operation. Mr. Monaco explained how Section 316(b) allows for compliance measures that could be achieved with 304 million gallons per day flow rate. **If, for any reason, compliance with Section 316(b) or other reasons causes the power plant to shut down, the desalination plant would be required to have its own permit for intake of ocean water, additional approvals from the City, and an additional EIR would be required.**

(Emphasis added; Planning Commission Meeting Minutes, dated May 6, 2006; attached as Exhibit B) Comments of the Planning Commission Chairperson appropriately characterize the dilemma arising from failure to consider a stand-alone desalination facility. The minutes reflect:

> Chairperson Montgomery stated that the proposed desalination plant, which would draw water off the warm water outlet of the power plant, **is a different project** than a plant proposed without the power plant and with different intakes and requirements. Mr. Donnell concurred and noted that this scenario was addressed in a condition that is placed on the Redevelopment Permit that deals specifically with the Desalination Plant. **It recognizes that the Desalination Plant operates based on the power plant operating and that any change to this condition would require new project permits and a new EIR.**

(Emphasis added; *Id.*) Thus, when the project was considered and approved locally, the Carlsbad Planning Commissioners, much like the public, were of the opinion that a

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Mesa, Inc. V. 32nd District Agricultural Assoc. (1986) 42 Cal.3d 929 (Court required Subsequent EIR where Lead Agency withheld information or mislead the public))

stand-alone CPDP would constitute a different project requiring an entirely new CEQA process. And as referenced above, **a Subsequent EIR is required as an express condition of Carlsbad's approval**:

> The Desalination Plant is planned to operate in conjunction with the EPS by using the EPS cooling water discharge as its source water and by discharging the brine that is the by-product of the desalination process back into the EPS discharge, which in turn is released from the EPS outfall. **In the event that the EPS were to permanently cease operations, and the Developer were to independently operate the existing EPS seawater intake and outfall for the benefit of the project, such independent operation will require CEQA compliance and permits to operate as required by then-applicable rules and regulations of the City and other relevant agencies. The Developer will not independently operate the EPS intake and/or outfall unless and until CEQA compliance is completed and any required permits have been issued.**

(City of Carlsbad Planning Commission Resolution No. 6091, Condition 6, p. 10:15-22; emphasis added; attached as Exhibit C) Thus, the City itself conditioned project approval on the continued operation of the Encina Power Station, and recognized that additional efforts would be necessary to achieve CEQA compliance.

a. A Stand-Alone CPDP Will Have Significant Impacts Not Addressed in the Carlsbad FEIR.

The project before the City of Carlsbad is not the same project as that currently before the State Lands Commission. While the evidence presented suggests that virtually everyone believed additional CEQA review would be required should elimination of the EPS be considered foreseeable with regulatory certainty, CEQA Guidelines Section 15162(a)(1) also requires that new significant impacts be identified for the new project in order for a Subsequent EIR to be required.

In prior correspondence with SLC, we identified potentially significant impacts that would result from a stand-alone project, yet these were not addressed in the FEIR or Staff Report. These impacts include:

- Energy Consumption from Cooler Feedwater: Energy consumption by the CPDP will increase due to the elimination of a heated stream of desalination feedwater. While the Staff report notes that the CPDP will increase the carbon footprint in the region by 101,270.93 metric tons of CO_2 per year, the fact is stated with no implication or mitigation. Further,

no assessment of the difference between the co-located and stand-alone projects has been conducted; and,

- Construction Impacts: Demolition of the EPS facilities at the same time as construction of the CPDP would result in short term cumulative construction impacts (noise, traffic, air quality, land use, water quality).

Neither of these issues were considered in the FEIR, and thus serve to establish the need for additional CEQA review.

Additional potentially significant impacts have also been identified. For example, the FEIR project description notes, "the project does not include any modifications to existing Encina power plant facilities, other than connection to the seawater discharge channel, and electrical connections and removal of a fuel oil storage tank." (FEIR, p. 3-5) Because the FEIR adamantly denied the likelihood of a stand-alone facility, there was no mention whatsoever of the infrastructure development and/or redevelopment that will be necessary for the CPDP to exist on its own. Upon demolition of the EPS, there will surely need to be changes made to the intake and discharge infrastructure to accommodate the stand-alone desalination facility. Nowhere has the project applicant disclosed nor analyzed: how the existing infrastructure would be impacted by the demolition of all or portions of the EPS; where new intake pipelines may need to be constructed or tied in to the existing infrastructure; nor, how discharge pipelines and alignments could be affected. There is further no assessment regarding how a stand-alone CPDP will function beside the reasonably foreseeable land uses likely at the EPS site once that facility is removed.[2]

Sedimentation

Also of concern are the unique sedimentation impacts that will result from a stand-alone CPDP. Currently, use of the Agua Hedionda west basin by the EPS exacerbates sediment entrainment within the Lagoon. (Northern Inlet Jetty Restoration Project EIR/EA (Cabrillo Jetty EIR), January 2005, p. ES-2; attached as Exhibit E)[3]

[2] The applicant and City purport to address Land Use impacts of the CPDP without the EPS in the "Additional Responses" document, pp. 8-9. This discussion merely finds consistency with underlying land use plans, but says nothing of the compatibility of industrial infrastructure serving the CPDP with whatever ultimately could be built on the EPS site. Indeed, without detail regarding the likely location of pipelines and pump stations once the EPS is removed (in whole or in part), such analysis is impossible. Because neither the FEIR nor the Response to Comments document ever truly expected the EPS to be removed, such level of analysis simply did not occur. It must now.

[3] The Cabrillo Jetty EIR states:

> However at Agua Hedionda Lagoon the effectiveness of the Lagoon's natural

In part as a result of continued sediment deposition, Agua Hedionda is listed on the Clean Water Act section 303(d) "Impaired Waters" list for sedimentation impacts, and the EPS has had to dredge the lagoon more than 25 times since 1954. Sedimentation of the Lagoon to the point where established beneficial uses are compromised, as is the standard that is met in order to place the water body on the 303(d) list, is surely a "significant environmental impact" pursuant to CEQA.

Importantly, the daily and annual average cooling water flows at the EPS have fluctuated widely since establishment of the west basin of the Lagoon. A stand alone CPDP, on the other hand, will have at least 300mgd of seawater flowing into the intake structure, and approximately 250mgd flowing out the discharge channel, 24 hours a day, seven days a week, all year long. **Because the FEIR did not contemplate a stand-alone project, sedimentation impacts were never studied, and thus it is impossible to discern how often the west basin will need to be dredged in the future, or whether the condition is expected to be better or worse than that experienced under operation of the EPS intake infrastructure.**[4]

The Additional Responses is the document relied upon by the applicant and the Staff Report to satisfy CEQA's requirement that the stand-alone CPDP be analyzed. Unfortunately, the Additional Responses only discuss Aesthetics, Air Quality, Marine

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> sedimentation process is increased by the presence of the Station that relies on seawater for cooling purposes. Peak operations of the Station can require more than 800 million gallons per day (gpd) of seawater for cooling purposes. Seawater enters the Lagoon through the inlet channel created by the inlet jetties. Seawater used by the Station for cooling is discharged through a set of jetties known as the outlet jetties. Thus, because most of the seawater that enters the lagoon is discharged through the outlet jetties, the prevailing direction of seawater flow is through the inlet channel. The net result of this is that the Lagoon is flood dominated, which is to say that more water and sand flow into the lagoon than is flushed out each day. Over time, the diminished sediment carrying efficiency of ebbing tides results in the accumulation of sand in the outer basin of the Lagoon.

(Cabrillo Jetty EIR, p.1-2, 1-3; attached as Exhibit G)

[4] The FEIR barely addressed the issue of sedimentation or sediment transport:

> The combined discharge will have less than significant impacts on sediment transport compared to the currently permitted, power-plant-only discharge. Since the combined discharge volume will be lessened, the discharge-stream offshore velocity will also be lessened, thereby lessening the overall impact on natural longshore sand transport.

(CPDP FEIR, 4.7-22) As expected, the FEIR only addressed the incremental impacts of the CPDP operating in conjunction with the EPS. No information was provided regarding the likely schedule of maintenance dredging expected with a stand-alone desalination facility.

Biology Brine, Marine Biology Entrainment, and Land Use. Nowhere in any of these sections does the document assess the impacts of a stand-alone facility on sedimentation. As such, there has never been a discussion of the fact that a stand-alone desalination facility, even if it uses the existing EPS intake infrastructure, will be required to continue the maintenance dredging conducted by the EPS owners. How much dredging will be required? Without a Subsequent EIR, we simply do not know. Yet, the Cabrillo Jetty EIR notes that, "Extensive dredging in the past has had negative effects upon eelgrass populations within the Lagoon," and, "There is also a potential for turbidity from the dredging operations to impact the recruitment of *Macrosystis* and other kelp species in the vicinity of the entrance channel..." (Cabrillo Jetty EIR, p.4.1-39; attached as Exhibit F). Hence, while approval of a stand-alone desalination facility utilizing existing intake infrastructure will likely result in the need for continued dredging operations and attendant negative biological impacts, the extent of such impacts must be determined, disclosed, and mitigated in a Subsequent EIR.[5]

Once the threshold issue of requiring a Subsequent EIR is overcome, the Cabrillo Jetty EIR contains important information regarding the scope of alternatives that would have to be considered regarding the CPDP intake technology. While the Cabrillo Jetty EIR was produced to assess the impacts of extending the Lagoon intake north jetty, it also looked at the viability of alternative intake mechanisms for the EPS. The alternatives, of course, are directly applicable to a stand alone CPDP as well. Importantly, the Cabrillo Jetty EIR selected as the Environmentally Superior Alternative (CEQA Guidelines section 15123.6(d)) one which would entail the construction and operation of an offshore intake for cooling water. (Cabrillo Jetty EIR, pp. ES-4,5, ES-14,15) Consideration of this alternative will be required in a Subsequent EIR for the stand-alone CPDP.

2. The Circumstances Under Which the Project Will Be Undertaken have Changed Significantly, and Will Result In New or Increased Significant Impacts Not Previously Attributed to a Stand-Alone CPDP.

All of the aforementioned significant impacts are attributable to the stand-alone CPDP if such project is considered different from the co-located project considered and approved in the Carlsbad FEIR. In the alternative, should a stand-alone CPDP be

[5] Note, given that this information was not addressed in the FEIR process before the City of Carlsbad, Poseidon cannot simply provide additional information to SLC without conducting a Subsequent EIR. The administrative record for the FEIR is closed, just as the statute of limitations for challenging that document has long since passed. While it is debatable whether a Subsequent EIR, a Supplemental EIR, or an Addendum to the FEIR must now be produced, in any instance additional CEQA compliance is required.

characterized as simply an alteration of the previously studied project, as opposed to an entirely new one, then CEQA Guidelines section 15162(a)(2) would apply. The decision by the EPS to eliminate or substantially reduce its cooling water intake would constitute a substantial change in circumstances under which the project would be undertaken. As such, the significant impacts identified above would trigger the requirement for SLC to conduct a Subsequent EIR under this provision as well.

3. New Feasible Alternatives and Mitigation Measures Require the Production of a Subsequent EIR.

CEQA requires a Subsequent EIR be produced where new information shows that mitigation measures or alternatives considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment. (CEQA Guidelines section 15162(a)(3)(D))

As noted above, the Cabrillo Jetty EIR detailed an environmentally superior alternative – open ocean intake – that has been rendered feasible by the prospect of discontinued use of intake infrastructure by the EPS. This alternative would reduce sedimentation impacts, and if coupled with a sub-surface intake technology, could significantly reduce entrainment impacts as well.

In our October 16, 2007, we also discussed the viability of sub-surface intakes, noting that such technology was recognized by the SLC as a preferred alternative in its April 17, 2006 Resolution regarding "Once-Through Cooling in California Power Plants."

In addition, the Municipal Water District of Orange County earlier this year concluded a five year extensive investigation into the feasibility of an ocean desalination facility in Dana Point, California (Dana Pont Report) without an open ocean intake. The study focused on the viability of using subsurface intake wells, and found them feasible from a technological, economic, and regulatory standpoint. The study notes:

> Accordingly, a subsurface slant well intake system would provide several advantages, including natural pretreatment, shock load protection, water temperature uniformity, and minimal operation and maintenance requirements. In addition, reconnaissance level cost estimates also suggested that this approach would be cost competitive or less costly than a screened open intake system equipped with pretreatment processes.

(Final Draft Engineering Feasibility Report, Dana Point Ocean Desalination Project, March 2007, p.1-1; attached as Exhibit I) The Dana Point Report, while not specific to the CPDP locale, provides a framework for consideration of sub-surface intake alternatives. Whether to reduce significant impacts from entrainment or sedimentation,

sub-surface intake alternatives are available, and must now be considered feasible in light of the new information regarding the fate of the EPS intake infrastructure.[6] To date, Poseidon has refused to consider sub-surface intakes as either a mitigation measure or an alternative. Hence, pursuant to CEQA Guidelines section 15162(a)(3)(D), a Subsequent EIR must be produced prior to SLC lease approval.

B. Because the SLC Must Protect Public Trust Resources Regardless of Technical CEQA Compliance, the Project Should be Denied on Policy and Scientific Grounds.

Independent of the requirements of CEQA compliance, the State Lands Commission has an *obligation* to protect Public Trust Resources, including the marine life and ecological health of the Agua Hedionda Lagoon. SLC further has *the discretion* to require additional investigation if it does not believe the findings of the FEIR appropriately considered the true extent of impacts from the proposed project. Therefore, the following comments point out flaws with the FEIR and Additional Responses conclusions regarding the significance of entrainment impacts from a stand-alone CPDP. Based upon these points, the SLC could order the applicant to undertake additional studies to ensure conclusions in the FEIR and Additional Responses are supportable.

The FEIR section dealing with biological impacts from entrainment was based upon a technical report prepared by consultant Tenera Environmental for Poseidon Resources Corporation. (Carlsbad Desalination Facility Intake Effects Assessment, FEIR Appendix E; attached as Exhibit J). This document purports to assess the baseline conditions in the Lagoon, from which the incremental impacts of the CPDP are assessed relative to the EPS impacts. (*Id.*) While this study does not even claim to consider the CPDP as a stand-alone facility, it is referenced in the Additional Responses as the document upon which the finding that a stand-alone facility will not cause significant entrainment impacts can be made. (*See* Additional Responses, Exhibit A, pp.3,6)

The general methodology employed for the CPDP study closely tracks other studies described in a recently released California Energy Commission consultant report on how to assess power plant entrainment impacts. (Assessing Power Plant Cooling Water Intake System Entrainment Impacts, California Energy Commission, October 2007; attached as Exhibit K) Not surprisingly, the same firm, Tenera Environmental, produced both documents.

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[6] *See also*, An Overview of Seawater Intake Facilities for Seawater Desalination, Tom Pankratz, CH2M Hill, Inc., December, 2004; attached as Exhibit L. Mr. Pankratz describes various subsurface intake options, including horizontal beach wells, vertical beach wells, infiltration galleries, and seabed infiltration galleries. The viability of each of these alternatives should be considered in a Subsequent EIR.

Also not surprising is that the study methodology used for the CPDP has significant, overarching flaws that could skew the findings in favor of continued open ocean intake of source water. The following concerns should be considered by SLC before accepting the FEIR and Additional Responses conclusions.

1. Insufficient Samples Were Taken to Draw Conclusions Regarding Entrainment Impacts at Agua Hedionda.

The Tenera FEIR "Intake Effects Assessment," when discussing the Environmental Setting of the Agua Hedionda Lagoon and Pacific Ocean, admits that numerous important conditions affecting marine life – such as temperature, dissolved oxygen, salinity, predator and prey availability – change depending on the season, the year, or other occasional/cyclical occurrences (such as El Niño events and upwellings). (Exhibit J, pp. 3-1 - 3-4.) Yet, the study performed for the CPDP **only included sampling during the summer season of 2004.** The study did not consider variations likely to occur in different seasons nor under varying climatic conditions. As such, the study found, "...the results cannot be generalized over an entire year, but are indicative of the magnitude of potential effects of water withdrawals." (Exhibit J, p.5-1)

The CEC Entrainment Report, on the other hand, details a standard of more robust sampling frequency performed for assessment of entrainment impacts on the South Bay and Morro Bay, and Diablo Canyon Power Plants. (Exhibit K, p.20-23) For South Bay and Morro Bay, Tenera sampled entrainment and source water for an entire year, either monthly or weekly. (*Id.*) For Diablo Canyon, Tenera sampled from October, 1996, through June, 1999. (*Id.*)

Because the CPDP assessment was designed to assess only the incremental entrainment impacts of a co-located desalination facility, it may be understandable that the study would be conducted with a lower degree of sampling frequency. However, given the changed circumstances now presented, it is both scientifically and legally unacceptable to draw impact conclusions for a stand-alone facility, as was done in the Additional Responses, without a more complete study. The SLC should require an entirely new entrainment impacts assessment before approving the CPDP lease application.

2. The CPDP Entrainment Impact Assessment Was Inappropriately Based Upon Presumptions of "Compensation" and "Surplus Production".

While the application of fisheries management terminology to policy considerations can be complicated, the concepts underlying the fatal flaws in the CPDP entrainment impacts analysis should be easily understandable.

The Additional Responses admit that as much as 34% of the larvae of the three goby populations sampled could be lost to entrainment and dilution with a stand-alone CPDP. (Exhibit A, pp. 6-7) The following represent arguments put forth as to why entrainment losses are not significant ecologically:

- The species most often killed are abundant in adult form near the EPS intake, the Lagoon, and throughout Southern California. (*Id.*)
- Commercially and recreationally valuable species are not often found in the entrainment samples. (*Id.*)
- The species that are killed by entrainment are surplus individuals because 99 percent of larvae die in nature before reaching reproduction age. (*Id.*)

All of these concepts rely on the notion that the death of large numbers of larvae is inconsequential because they are, in essence, "surplus production." The concept of surplus production, and reliance upon the theory to support power plant entrainment losses, was addressed in a widely cited journal article by John Boreman of the National Marine Fisheries Services:

> For over 60 years, fishery scientists have been using the argument that nature creates surplus, and that the surplus can be used as justification to impose anthropogenic sources of mortality (power plants, fishing, pollution, etc.) on fish populations; otherwise, it is wasted. Surplus production is closely tied to the concept of compensation, a form of density-dependent mortality in which the mortality rate of a cohort is directly related to abundance of that cohort. Scientific arguments have been put forth in assessments of power plant impacts that compensation can at least partially offset impacts imposed by power plants. **Although we cannot dismiss the existence of surplus production outright, since in some years environmental conditions are such that a surplus in reproductive effort may occur, we should be assessing the reproductive efforts of fish populations in the context of the ecosystem in which they reside. .... assessments of power plant impacts should include analyses of predation foregone and production foregone.**

(Boreman, J. 2000. Surplus production, compensation, and impact assessment of power plants. Environmental Science & Policy, 3, S445-S449; attached as Exhibit M, (quote from Abstract, emphasis added)) The gist of Boreman's hypothesis appeals to the common senses, namely that there is an extremely complex relationship between predator and prey, parental stock size and recruitment, and other environmental factors. (*Id.*) It does not make sense in a healthy functioning ecosystem to presume that

nature creates waste, or that management decisions based upon averages can be credibly presumed valid or desirable without an astronomical margin of safety.[7] Boreman concludes simply, "Surplus production is an abstract concept that is an incomplete description of reality." (*Id.*, p.S447)

While the notion of "surplus production" may be deeply ingrained in the science of fisheries management, especially as regards 316(b) entrainment impacts assessments, this does not mean the SLC cannot require more. Given that we are, for the first time in decades, on the verge of eliminating significant impacts to marine life from a generation of OTC power plants, it does not make sense practically or legally to allow a new industrial use that will perpetuate the destructiveness of the past practices. On policy grounds alone, the CPDP should be denied. In the alternative, on scientific grounds, a more robust and meaningful marine life mortality assessment should be demanded.

C. Conclusion

For the reasons herein noted, the CPDP lease application should be denied outright until a Subsequent EIR is produced for the stand-alone facility.

Sincerely,

COAST LAW GROUP LLP

Marco A. Gonzalez

CC: Clients
SLC Commissioners

[7] Because it is extremely difficult to estimate the response of fish stocks to power plant entrainment, and because numerous stocks are at risk (including those that rely on the "abundant" populations typically entrained), U.S. EPA "has adopted a 'precautionary approach' in evaluating [cooling water intake system] impacts because of the many uncertainties associated with modeling compensation and stock recruitment relationships." (U.S. Environmental Protection Agency, §316(b) Existing Facilities Benefits Case Studies, Part A, Evaluation Methods, Chapter A6: Fish Population Modeling, p.A6-6; Attached as Exhibit N)

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November 13, 2007

Mr. Tom Luster
California Coastal Commission
25 Fremont Street, Suite 2000
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Via Electronic Mail
tluster@coastal.ca.gov

Re: Carlsbad Desalination Project Coastal Development Permit Application
No. E-06-013, Agenda Item Th 7a
Surfrider Foundation, San Diego Coastkeeper Reply
Re: Poseidon's November 9, 2007 Letter and Attachments

Dear Mr. Luster:

Please accept these comments on behalf of the Surfrider Foundation and San Diego Coastkeeper in response to Poseidon Resource's November 9, 2007 correspondence (including attachments) responding to the Coastal Commission Staff Report for the above-referenced project.

For the record, it should be noted that these documents included significant new information and arguments, yet they were not available to the public until late afternoon on Friday, November 9th. Because the following Monday was a holiday (Veteran's Day), numerous interested parties did not receive the documents until Tuesday morning, November 13th. Given the gravity of the project at hand, and the significant precedential nature of the decision to be rendered by the Commission, every effort should be made to ensure adequate time for public response to new project information. As such, we believe it would be appropriate to continue the public hearing for a minimum of one month to afford such review.

The following points specifically address Poseidon's last minute offer of "Applicant's Proposed Coastal Development Permit Conditions" submitted less than one week prior to the Commission's scheduled hearing.

First, Surfrider and Coastkeeper would like to recognize Poseidon's apparent efforts to address issues raised in the Staff Report, including numerous violations of Coastal Act Chapter 3 policies. Nonetheless, most of these issues were not new to Poseidon, and in fact should have been readily apparent long ago. In other words, there is no justification for Coastal Development Permit special conditions being dropped on Staff and the public at the last minute. Beyond the extensive efforts of the Coastal Commission staff to resolve unanswered factual and legal questions, the environmental community has raised many of the issues cited in the Staff Report numerous times in desalination conferences, in comment letters to several regulatory agencies, and in direct communications with Poseidon.

Of particular concern in Poseidon's rebuttal to the Staff Report is the company's continued reliance on information and conclusions in the Final Environmental Impact Report (FEIR) that was certified by the City of Carlsbad. Poseidon repeatedly implies, and at times outright states, that objections to the analysis in the FEIR were successfully resolved prior to certification and that legal challenges to the FEIR were dismissed. In fact, the legal inadequacies of that document were never resolved on the merits, as the writ petition was dismissed on procedural grounds before the court received any substantive briefings. Further, while Poseidon claimed to have studied the stand-alone desalination plant in the Final EIR, the fact is that such analysis was provided as part of the City's "response to comments" on the EIR, and was done in a very summary format under the argument that such a condition was not reasonably foreseeable. The public never had a real bite at that apple, and Poseidon's continued reliance on that document as the basis for Coastal Act consistency should be considered highly suspect by the Commission.

Notwithstanding our appreciation of Poseidon's efforts to address concerns of Coastal Commission staff and the environmental community, Surfrider and Coastkeeper still have major disagreements regarding the design of the project and its consistency with Coastal Act policies. Please consider the following:

1. Timing

As noted above, Poseidon's recommendations come just one week before the Coastal Commission's final hearing on the CDP. This leaves very little, if any, time for the Coastal Commission staff and public to review the recommended conditions of approval.

And should Poseidon claim these conditions were foreseeable, we would respectfully disagree. The breadth and scope of the conditions simply cannot be considered insignificant amendments to the CDP. In fact, the amendments to the CDP that result from these conditions, insomuch as they purport to resolve substantive Coastal Act compliance issues raised by staff, require significant investigation to determine whether they can meet such a claim. Staff's report was thoroughly researched and impacts well documented, and a similar effort is required in order to deem these impacts resolved by the special conditions.

Further, should these applicant-drafted conditions be considered and adopted at the dais during the hearing, Coastal Commission legal counsel will not have had adequate time to ensure that they comply with Coastal Act policies, that they are sufficiently binding on the applicant, and that they will continue as requirements of any eventual future owner of the desalination facility. At the very least, should the Commission choose to override staff's denial recommendation, appropriate findings of approval,

including conditions, would have to be drafted and brought back for subsequent consideration by the Commission.

In addition, the Commission should take caution not to conditionally approve the CDP until the conditions are fully vetted, the final findings are approved, and all contingencies are resolved. Poseidon has a history of representing finality in agency decision making despite significant reservations. For instance, Poseidon repeatedly claims to have received its NPDES permit, but fails to clearly articulate that the permit is not valid until the Regional Water Quality Control Board concludes review of Poseidon's Revised Flow, Entrainment and Impingement Minimization Plan. Because significant additional project conditions may result from the pending decisions by the Regional Board and State Lands Commission, the Coastal Commission would do well to postpone a decision until those processes are concluded.

Even more appropriately, the Coastal Commission could recommend denial of the project and require Poseidon to resubmit a completed, new application reflecting all the changes that have evolved over the last 18 months. An amended project description is warranted and the public should have a discrete project to review and evaluate.

2. Proposed Conditions May Not Be Sufficient For Coastal Act Compliance

Below is a non-exclusive list of specific concerns regarding Poseidon's proposed conditions of approval. Please note, Surfrider and Coastkeeper intend to comment further at the hearing on substantive and legal adequacy of the proposed conditions

a. Standard Conditions

The so-called "Standard Conditions" provide for entitlement to conduct the project in perpetuity. While the "assignment of the rights" language should be drafted to bind all successors, the way it is written it could be interpreted as authorization to conduct activities at the property beyond the 30 year life of the project. The Standard Conditions should be closely scrutinized by Coastal Commission legal counsel, and the State Lands Commission should be consulted to ensure consistency with the ultimate conditions of the lease of tidelands sought by Poseidon.

b. Special Condition: 2(a). Final Plans

This condition appears accurately reflects that "final plans" have, as yet, not been submitted to the Coastal Commission staff. Yet, the condition expressly limits the discretion of the Executive Director to review approve only those parts of the non-existent final plans in areas "located in the coastal zone." This provision appears to require the Coastal Commission to ignore its "federal consistency" authority, as well as its authority to regulate activities outside the coastal zone that could impact coastal resources. The condition should be clarified to allow review and approval of all project

components with impact to coastal resources.

c. Special Condition: 2(b). Final Plans

This condition of approval seems to suggest that final plans have not been completed for delivery of the product water, and that there is a potential for extending the delivery of the product water to, as yet, unspecified locations. Again, the expressed provisions in this condition limit the discretion of the Executive Director to consideration of only those changes within the coastal zone. This condition further appears to only apply to the expansion of physical distribution lines and does not allow further consideration of "paper transfers" of the water to areas inside or outside the coastal zone. With this ambiguity, it is impossible to discern whether the water would stay in the San Diego region for its stated purposes. Such "paper transfers," sometimes referred to as "wheeling the water", to developing regions such as Las Vegas would be growth inducing in the long-run.

d. Special Conditions: 3,7. Construction/Stormwater Plans

The construction erosion control/water quality/stormwater best management practices are not consistent with the requirements of the state General Construction Stormwater Permit, the San Diego Region Municipal Stormwater Permit, or Coastal Commission precedence on other large projects. Given the project's proximity to such sensitive resources, specific stormwater controls should be called out in a special conditions drafted following Commission approval, should it occur.

e. Special Condition: 4. Habitat Mitigation Plan

Poseidon appears for the first time to finally have committed to a single project as mitigation for impingement and entrainment impacts from continued use of the once-through cooling intake infrastructure. While we support commitment to mitigation, insufficient time has been allotted to assess whether the 37 acres of proposed restoration suffice for the production foregone due to entrainment impacts. Further, because no assessment has been provided regarding viability of performing the mitigation within the $1.8M monetary cap Poseidon set on its mitigation efforts, it is still unclear whether and when the full restoration will occur. And even more importantly, Poseidon has yet to show that any compensatory mitigation mitigation scheme would be consistent with California Water Code section 13142.5(b) and its mandate to "...minimize the intake and mortality..." of marine life. In fact, a plain reading of that section requires best site location and best available technology to reduce the intake in the first place - not an attempt to mitigate for the harm after the fact. Finally, once again this condition of approval removes the authority primarily vested in the Coastal Commission and delegates it to the Executive Director.

f. Special Condition: 5. Climate Action Plan

Surfrider and Coastkeeper agree with Staff's analysis that greenhouse gas emissions and the enumerated consequences of global warming on protected coastal and ocean resources, as well as other Coastal Act policies, gives the Coastal Commission ample discretion to impose conditions to enforce those numerous Coastal Act policies.

Thus, characterization of the Climate Action Plan as "voluntary" and argument that the Commission has no authority under the Global Warming Solutions Act (AB 32) is irrelevant. While admittedly a case of first impression, the Coastal Act gives broad discretionary authority in and of itself to implement this condition. However, while we are encouraged to see the project proponent recommend the Climate Action Plan as a condition of approval, Poseidon has yet to identify more than a list of potential actions to reduce greenhouse gas emissions. In fact, there is significant dispute among the public, the State Lands Commission and Poseidon as to some basic elements necessary to even begin a Climate Action Plan - not the least of which is differences by experts in the field as to what the baseline emissions are today. Therefore, it is premature to accept the offer of this condition of approval because the details of how this would condition the DP to bring it in conformance with the Coastal Act policies are, as yet, speculative and undocumented. Finally, the Commission should require that the Poseidon facility achieve carbon neutrality on a "gross" basis, not as the difference between the energy used at the facility compared to imported water.

g. Special Condition: 8. Flow, Entrainment Minimization Plan

Surfrider and Coastkeeper disagree with Poseidon's assertion that the Coastal Commission has no authority over the NPDES permit and conditions issued by the San Diego Regional Water Quality Control Board. We support staff's analysis that the NPDES permit is incomplete without final approval of the "Flow, Entrainment & Impingement Minimization Plan" (Minimization Plan). Consequently, as staff cites, the Coastal Commission retains shared authority pursuant to the Coastal Act. Also, as noted above, the draft Minimization Plan does not meet the mandates of California Water Code section 13142.5(b) because it illegally relies on "after the fact mitigation" rather than complying with the clear mandate to locate this facility at the best site, using the best design and available technology to avoid the intake of marine life. This condition of approval appears to simply promise to submit evidence that the Minimization Plan has finally been approved by the Regional Water Quality Control Board - but adds an unacceptable condition that the "[Minimization Plan] shall be in substantial conformance with the Plan dated June 1, 2007." This "poison pill" virtually enshrines in the CDP a Minimization Plan that not only has not been reviewed and adopted by the Regional Board, but one that is plainly not in compliance with the clear language of the California Water Code. In effect, the Commission would be deferring their authority to a future decision by the Regional Water Board without any assurances

the Minimization Plan would be approved, or if approved would withstand judicial scrutiny.

h. Special Condition: 12(a) Timing of Dredging & Beach Deposition

Poseidon appears to be committing itself to conditions imposed on dredging the lagoon for the generator's cooling water intake. The implication is that Poseidon is simply stepping in for the Encina Power Station (EPS). Such is not the case. EPS was a facility constructed long before the enactment of the Coastal Act. The discontinuance of the EPS cooling water intake infrastructure renders the proposed desalination facility a new "stand alone" facility with it's own CDP. Different concerns arise from use of the site for this purpose. First, an off-shore "sub-seafloor intake" would dramatically reduce the need or dredging the lagoon (i.e., confine the dredging to the mouth of the lagoon) and could make other mitigation measures more viable in light of applicable Coastal Act policies. For example, the jetties for the intake could be re-configured so as to restore the natural flow of sediment in the local littoral zone and natural beach width, and consequently reduce the need for mechanical "replenishment." In short, time is needed to consider and finalize approval of the lagoon intake and its attendant necessity of dredging in sensitive habitat areas. These important considerations should be incorporated into a revised CDP application, and not left to a speculative future re-opening of the CDP for final approval.

i. Special Conditions: 14. Evidence of Other Agency Approvals

This condition on approval puts the cart squarely before the horse. There is a reason the Coastal Commission does not typically render CDP decisions until all other agency approvals are obtained. Until issues are resolved by agencies with primary consideration authority, the Coastal Commission is obligated to condition the project appropriately with the CDP in the first instance. Without the ability to rely on express conditions of approval arising from the NPDES permit and State Tidelands lease, the Commission must include substantive conditions to ensure all Coastal Act issues are addressed. Further, itis disingenuous for Poseidon to constantly refer to the FEIR, implying there were no significant impacts identified by the list of agencies in this condition of approval, and then turn around and ask for a CDP before the agencies have made their final decisions. Either the decisions have been made and should be provided to the Coastal Commission as part of Poseidon's project consideration, or the decision on the CDP is premature. The FEIR was not adequate for these purposes and was never reviewed as such, much less dismissed on the merits. Consequently, the Coastal Commission has to exercise independent review to ensure consistency with Coastal Act policies.

j. Missing Conditions

Several concerns have not been adequately addressed in the proposed conditions of

approval. For example, there should be a condition mandating that the desalination facility's CDP expire or require amendment should the quantity of water produced from this facility will be shown to be locally unnecessary. The project should not be allowed to continue if the water would be transferred out of the region or be shown to induce growth.

3. Responses to Exhibit B: Poseidon's Corrections to Misstatements

Please consider the following in response to Poseidon's "correction" to the Commission Staff Report.

Stand-Alone Analysis (p. 3 #8)

We agree with the Staff Report that the Carlsbad EIR did not contain sufficient analysis of a stand-alone desalination facility. The public was not involved in the analysis of the stand-alone option as Poseidon added the analysis at the last minute without any public comment or review. Poseidon states that no evidence of adverse impacts from the stand-alone scenario was presented, but the public was not afforded the luxury of responding to the stand-alone studies and conclusions which were added to the record the day of the certification of the EIR.

Further, the Coastal Commission also has authority under Pub. Res. Code Section 21080.5 to analyze information under its own environmental review process. Under either review of the EIR prepared by Carlsbad or by the Commission's environmental review process the analysis is insufficient. Poseidon relies on many documents either outside of the public record or prepared after the EIR was certified. Under Pub. Res. Code Section 21005, it is an abuse of discretion by the public agency if the agency fails to comply with the information disclosure provisions of CEQA. CEQA Guidelines Sections 15200, 15201 and 15203 make clear that public input and sufficient time for review and comment are essential to the environmental review and decision-making process. *See Concerned Citizens of Costa Mesa, Inc. v. 32nd District Agricultural Association*, 42 Cal. 3d. 929, 936 (1986); *Laurel Heights Improvement Association v. Regents of the University of California*, 47 Cal. 3d. 376, 392 (1988)

Existing Intake Structure (p. 3 #9)

As a result of the inadequate analysis of alternatives in the EIR, the conclusion that the current EPS intake is environmentally superior and would not result in any adverse impacts is fatally flawed. Poseidon relies on the assertion that the existing EPS intake does not result in adverse impacts and therefore the subsurface intakes could not be environmentally superior. The underlying assertion is incorrect as well as the preclusion of analysis of the subsurface intakes because of reduced intake volumes. Alternatives should be analyzed as to their impacts to the environment, not the volume of intake water Poseidon requires for economic feasibility.

316(b)/Riverkeeper II Application (p. 5-6 #12)

Poseidon asserts that Clean Water Act 316(b) does not apply to desalination facilities, but fails to consider the applicability of Porter-Cologne. The state courts will look to the federal court decision in Riverkeeper II in analyzing Porter-Cologne and applying the same best technology available standard. In using the same intake structure as power plants use for once-through cooling technology, the desalination plant will be subject to the same technology requirements as OTC power plants.

By definition, the best technology available is the best and most protective of the environment. Poseidon argues that ocean water can be extracted in an environmentally destructive manner irrespective of available environmentally superior technologies for performing the same function (drawing water from the ocean) as OTC so long as the water is used for a more worthy purpose. Thus, any application of the best technology available standard can be sidestepped by merely finding a new function for a destructive technology.

Further, if the assumption Poseidon relies upon is that withdrawing ocean water for desalination serves a higher purpose and therefore should be afforded greater leniency in applying environmental regulations, only 50 MGD of the water being withdrawn fits this definition and the other 200 MGD of dilution water and 50 MGD brine discharge are subject to stricter standards.

Lagoon Sedimentation (p. 7 #17)

Poseidon asserts that it is both innocent in contributing to the sediment problem in Agua Hedionda Lagoon (AHL) and that it would actually help that situation by performing dredging. In making this determination Poseidon relies on the 2006 Clean Water Act 303(d) List of Water Quality Limited Segments Requiring TMDLs, by the San Diego Regional Water Quality Control Board, June 28, 2007. This document states in table format that AHL potential sources for the sedimentation/siltation are non-point and point sources. However, Poseidon fails to mention that the technical report used for the lagoon and watershed models used to estimate existing pollutant loading, develop TMDLs, and conduct a source analysis for the waterbodies determined that data gaps prohibited detailed analysis of sediment in the lagoon and that several data elements would be useful to better understand the lagoon. Missing data specifically included in-lagoon sediment data and the report concluded that without collection of further data, TMDL development would not be possible. (Investigation Report No. R9-2006-0076 Technical Report, p. 14)

Impingement Rate (p. 9-10 #20-21)

The impingement and entrainment effects of a stand-alone facility are analyzed in a study submitted to the San Diego Regional Water Quality Control Board (Regional

Board) that has yet to be reviewed and accepted by the Regional Board. Poseidon provided the study in a letter to Coastal Commission staff dated June 1, 2007. In contrast to Poseidon's characterization in footnote 15 (page 22), the Flow, Entrainment and Impingement Minimization Plan has not been subjected to public comment or review and is not part of the EIR. If the study is to be considered as part of the Coastal Commission review process, it must be made available to the public for comment and review as required by Pub. Res. Code Section 21080.5(d)(3)(A) and (B).

In addition, the marine impacts Poseidon presents are not the only impacts of the stand-alone facility. If Encina no longer operates, or reduces flow, Poseidon will be responsible for most, if not all of the maintenance of the intake. Heat treatments are currently conducted by Encina every five weeks. (Proposal for Information Collection Clean Water Act 316(b), p. 2-9) The heat treatments are required because without these treatments, organic matter would grow along the intakes at the rate of 1000yd^3 in six months. Id. These heat treatments kill a vast amount of marine life by heating the discharge water to 105 degrees Fahrenheit in a process that takes six hours from heating to cooling. Id. Poseidon fails to include the amount of marine life killed in such routine maintenance operations in the EIR. In the Minimization Plan, Poseidon provides such data. The reported loss of fishes, sharks, and rays impinged during normal operations at Encina from June 2004 to June 2005 was 19,408 samples weighing 351,672 grams. (Minimization Plan, p. 19-21). In contrast, the amount of loss attributed to heat treatments is 94,991 samples weighing 2,034,900 grams. The marine life lost during these routine heat treatments is almost five times the number and six times the mass of that lost during normal operations. These significant adverse impacts were not analyzed in the EIR because the heat treatments were not associated with Poseidon since the power plant performed the routine maintenance of the intakes. Once the power plant is shutdown, Poseidon will be responsible for these heat treatments and for the resulting fish-kills. The impacts associated with these treatments have not been presented for public comment and review and have not been analyzed whatsoever, resulting in a complete lack of avoidance or mitigation measures. A subsequent or supplemental EIR should be completed to remedy this omission in light of the certainty of the stand-alone scenario. Public Resources Code Section 15162(a).

Entrainment Study (p. 11 #23)

The survival rates of entrained phytoplankton and zooplankton from studies at Huntington Beach Generating Station and Ormond Beach Generating Station that show the vast majority of entrained organisms return to the discharge channel unaffected are based on studies that: were not incorporated into the Carlsbad EIR; have not been made available to the public for comment and review; and are not based on discharge in concentrated brine from desalination plants. Once cannot be sure if entrainment deaths would be due to brine or intake processing - i.e. whether the animals make it through alive to the discharge point.

Commercial and Recreational Fishing Impact (p. 12 #26)

Poseidon states that less than 1 percent of entrained organisms have recreational and commercial value and thus the ecological impact resulting from entrainment is insignificant. This assertion is unsubstantiated because 1 percent of entrained organisms may constitute a large number, and should be viewed in context. Survival of the populations from which entrained organisms are taken does not ensure that the species' position in the food web will be protected. No assessment is made of the role of entrained larvae as prey for other species at various stage of its life. Again, this figure is pulled from the Minimization Plan that was not included in the EIR and has not been the subject of public comment and review.

Entrainment of large species (p. 14 #32)

Poseidon states that it has documented the velocity during stand-alone operation and that the velocity of the water at the entrance to the bar racks is at or below 0.5 feet per second (fps), and therefore the proposed operation would be consistent with what the U.S. EPA considers to be "best available technology" for cooling water intakes. Therefore, according to Poseidon, the impingement impacts and the potential for an incidental take associated with the stand-alone operation are less than significant.

The velocity documented by Poseidon is simply an assertion added to the Carlsbad EIR at the close of the comment period in response to comments on the day of the certification. Further, the velocity quoted by staff is more accurate than the Poseidon velocity. As stated by Encina Power Station (EPS) in its Proposal for Information Collection dated April 1, 2006, the approach velocity at pump 4 is 1.6 fps and the through-screen velocity is 2.9 fps. (Proposal for Information Collection Clean Water Act 316(b), p. 2-8 Table 2-1) Therefore, not only is the velocity cited by Poseidon inaccurate, any impingement analysis using this figure is inaccurate.

The actual impingement impacts to marine life, including the endangered sea turtles, will be much greater than opined by Poseidon, resulting in significant adverse environmental impacts that have thus far been ignored in the environmental review process.

Alternative Intake Structures (p. 19-20 #34)

Despite Poseidon's assertion that staff's belief of the superiority of the subsurface technologies is not substantiated, evidence in the record suggests otherwise. The open-ocean intake structure for a stand-alone desalination facility that has allegedly been the subject of the "comprehensive" study is not in the EIR and has not been subject to public comment and review. Furthermore, the assertion that subsurface intakes are not Best Technology Available (BTA) is wholly inconsistent with the court decision in *Riverkeeper II*. As of yet, no court decisions have invalidated the use of

subsurface intakes as inconsistent with BTA; the same cannot be said of open-ocean intakes. Though it may be true that subsurface intakes are not recognized as BTA under EPA 316(b) regulations, courts have stated that open-ocean intakes definitely *are not* BTA.

Feasibility of Minimization Procedures (p. 21-22 #36)

The Revised Flow, Entrainment and Impingement Minimization Plan submitted to the Regional Board in June 2007 is not subject to public review as the Regional Board is not currently taking comments on the revised plan and is not currently set to hold a public hearing on the Minimization Plan prior to approval. Poseidon's assertion (footnote 15) is completely unsubstantiated. In fact, the Regional Board website gives no indication that the plan is even being considered as the last correspondence posted from the Regional Board to Poseidon indicates that the Regional Board was delaying evaluation until June 2008. While we believe a subsequent letter was transmitted purporting to withdraw the Regional Board's assertion of deferred consideration, there still is no indication what process is being undertaken by the Board to reach a decision on the plan. At this point, any movement by the Regional Board in reviewing or accepting comments on the review of the Minimization Plan is wholly absent from the public arena.
(http://www.waterboards.ca.gov/sandiego/misc/desalination/desalination.html)

Further, any reliance upon this plan for alternatives analysis is inconsistent with CEQA or Coastal Commission environmental review because the Minimization Plan: has not been made available for public comment; was not included in the Carlsbad EIR; and does not contain adequate analysis of alternative intakes.

Salinity Discharges (p. 32-35 #43, #44)

The 19-day salinity study conducted by Poseidon is inconclusive at best. The purple sea urchin test species contained one mortality at each salinity level, thus the study concludes that the adjusted survival rate was also 100 percent. The elapsed time to the first mortality in the purple sea urchin group increased as salinity increased, which "is counterintuitive and indicates that salinity is not a factor causing sea urchin mortality in the tested salinity range." (Salinity Tolerance Investigations: A Supplemental Report for the Carlsbad, CA. Desalination Project, p. 6) The fact that salinity increased and the sea urchins still died does not mean that salinity is not a factor. This "counterintuitive" result signals at best an inconclusive result and should at least be repeated. The fact that one mortality occurred also gives no indication as to the survival rate as a percentage of the total population and also gives no indicia of reliability.

Furthermore, the study states that "species living within the ZID will show no effect at the proposed normal operating condition and will also tolerate salinities at or below 40 ppt." (Salinity Tolerance Investigation, p. 6) It is clear that the study did not anticipate

"normal operating condition" to mean a stand-alone facility as the 40 ppt was the extreme condition and maximum endpoint of the study. Reliance on a study that considered the stand-alone scenario as an extreme condition in a cursory manner does not satisfy the requirement of thorough investigation and runs counter to scientific method.

In addition, Poseidon's supplemental whole effluent toxicity (WET) test of chronic toxicity and a separate acute toxicity test were completed after the EIR was certified and were not available for public comment and review. Poseidon's response makes mere mention of the studies and provides no supplemental or supporting data or documentation.

Poseidon asserts that "results of the [Salinity Tolerance Investigation] and other studies formed the basis for the 40 ppt maximum salinity discharge limit established by the Regional Board [NPDES permit] (Order R9-2006-0065)." However, the NPDES permit was granted subject to review and acceptance of the Minimization Plan and before the Regional Board or the public knew that Encina was moving to dry-cooling. All of the studies performed by Poseidon before the NPDES permit was granted relied on a fully operational EPS scenario and did not consider a stand-alone option as reality or the norm. Therefore, the Regional Board's reliance on the studies is no longer a valid basis for attributing to them the credibility of studies reflecting the current situation. The studies subsequently undertaken by Poseidon have not been accepted by the Regional Board and should not be accepted as part of the EIR or CEQA review process until they have been made available for public comment and review.

Adverse Near-Shore Impacts (p. 38-39 #49)

Poseidon opines that in "issuing [the NPDES permit], the Regional Board adopted a finding that the permit will be fully protective of all beneficial uses applicable to the Pacific Ocean in the vicinity of the discharge including marine habitat," and this determination was "based on the muti-year, multi-disciplinary studies." Contrary to Poseidon's assertions, the NPDES permit was issued before the stand-alone scenario was considered and relied on studies that are no longer valid. The studies that address the current stand-alone situation have not been peer-review, have not been open to public comment, and are not part of the EIR.

Lagoon Stewardship (p. 41-42 #52)

As we have seen from the beginning of this process, Poseidon consistently changes its position to achieve the most favorable outcome. In preparing the EIR, Poseidon stated that the stand-alone facility was mere speculation, and therefore only addressed in a cursory fashion in response to comments. However, it now asserts that the "seawater cooled power plant is expected to be decommissioned in the coming years, leaving the lagoon without an entity responsible for its long-term maintenance." (p. 42) In its

response to the staff report (p.2), Poseidon asserts that the two operating units that are not moving to dry-cooling will remain in service indefinitely. Poseidon eagerly presents the scenario of Encina moving to dry-cooling and completely shutting down when discussing the need for a lagoon steward. However, when it comes to discussing the project setting, Poseidon views Encina as being in service indefinitely. Similarly, for purposes of the original EIR, Poseidon vigorously denied that Encina was shutting down to ensure that the EIR did not fully address the now more than reasonably foreseeable shutdown of Encina and Poseidon as a stand-alone facility.

Agua Hedionda Lagoon Sedimentation (p. 43 #53)

As mentioned above, the 303(d) listing for Agua Hedionda Lagoon for sediment is not only for urban runoff. The technical report prepared by Tetra Tech for the TMDL process identified the data gaps missing from its analysis. One of these missing data sets was in-lagoon sediment information. The urban runoff from cities in the area is a contributing factor, but this does not disprove that the sediment problem in the lagoon could also be caused by the intake for Encina. The mere fact that dredging is required supports the contention that sedimentation from unnatural inflow to the lagoon contributes to the 303(d) listing.

Lagoon Dredging Conditions (p. 46 #58)

The purpose of CEQA is to review the environmental impacts of a project. A piecemeal approach prohibits adequate analysis of all the impacts associated with the proposed project. *See Laurel Heights Improvement Association v. Regents of the University of California*, 47 Cal. 3d. 376 (1988); *Del Mar Terrace Conservancy, Inc. v. City Council of the City of San Diego*, 10 Cal. App. 4th 712 (1992).

Poseidon suggests that any future dredging conducted will be conditioned upon future approval of a separate CDP. This fragmentation obscures the true environmental impacts of the entire project. Further, Poseidon specifically relies on the ability to undertake the dredging of the lagoon for its lagoon stewardship. Poseidon cannot first claim that Encina is not shutting down for purposes of the EIR, then claim that Encina is shutting down in order to prove the need for a new lagoon steward.

Similarly, Poseidon cannot rely upon the ability to dredge the lagoon in order to execute its stewardship and at the same time condition its project approval upon future issuance of the CDP for dredging. Such an argument is all too familiar. In the Carlsbad EIR, Poseidon argued that it is "reasonably foreseeable" that Encina will continue to operate and that if the desalination plant were [sic] to operate independently, Poseidon "would have to obtain new permits and undergo new CEQA compliance." (Additional Response to Comments on the Final EIR, June 13, 2006, p. 2) However, now that the stand-alone desalination plant is reasonably foreseeable and a supplemental or subsequent EIR should be conducted, Poseidon argues that the Encina shutdown is not new

information.

Carbon Emissions (p. 46-48 #59)

Poseidon claims that its emissions should be based on the SDGE emission factor because it plans to receive electricity from SDGE. No contract or source of reliability for this expectation has been provided by Poseidon; therefore it is completely appropriate for the Commission staff to rely on the California average rate of 804.54 lbs Co2 per MWh.

Offshore Intake Alternative (p. 44-45 #56)

Poseidon asserts that an offshore intake is not a viable alternative. Some of the reasons given for the inadequacy of this alternative are:

> Intake flows of 304 mgd for the stand alone desalination plant would produce flow velocities of only 0.66 ft/sec in the pipeline. These flows are insufficient to prevent the pipeline from developing a sand plug. Also, the DEIR gives no consideration to bio-fouling of the pipeline and the impacts associated with the repeated loss of marine life that would be routinely killed during de-fouling maintenance cycles of the pipeline. A stand-alone desalination plant would not have the option to de-foul the pipeline by heat-treatment, leaving chlorination as the only viable option, with all its associated polluting impacts, none of which are considered in the DEIR. (p. 44-45)

Without addressing the truth of Poseidon's assertions, it is clear that Poseidon's analysis proves the inadequacy of its own operation and intake. If a velocity of .66 ft/sec cannot prevent a sand plug, then Poseidon's asserted intake velocity of .5 ft/sec is insufficient as well. Further, Poseidon admits in this analysis that it plans to continue heat treatments that will result in the above-mentioned devastating fish-kills. While Poseidon purports to have studied alternative intake viability, its disclosures to the public have provided virtually no opportunity to test its study methodology and assumptions. This is particularly notable due to the fact that no post-EIR studies have been made available at all.

Carbon Emission Offsets (p. 52 #71)

Greenhouse gas (GHG) emissions from the production of desalinated product water should not be offset against the emissions from current water supplies. First, the goal of AB 32, the Global Warming Solutions Act is to reduce emissions to 1990 levels by 2020. This project would produce water in a more energy intensive manner than the currently most energy intensive method, water transport. This project would use technology that causes more emissions than our current supply. From a policy standpoint, this runs counter to the goals of AB 32 to reduce emissions. San Diego's

water supply should be less energy intensive, not more.

Poseidon claims that its product water replaces water that would otherwise have to be pumped into the region through either the State Water Project or the Colorado River Aqueduct. (p. 52) Thus, its Climate Action Plan only offsets emissions above and beyond current emissions. If California is to meet the goal of AB 32 in reducing overall emissions, simply offsetting an increase in emissions will not suffice. Moreover, the water provided by Poseidon is not replacement water. Contrary to the assertions of Poseidon and water agency partners, it is clear that this water is a supplement to current water supplies. Testimony from elected officials and community leaders at the State Lands Commission meeting on October 30, 2007 reflected the view that the desalinated water would help San Diego grow. The desalinated water is needed to enable future growth and will not be used as an offset.

In anticipation of the fact that the subscribing cities will use the delivered desalinated water as a supplement to their existing water supply, Poseidon states:

> If the replaced water is pumped into the region for other uses, then the *associated carbon emissions from such pumping should be and is the* responsibility of the proponents of those other uses. Any other result would be an unfair and unwarranted "double counting" of carbon emissions, requiring Poseidon to offset emissions caused by other activities not associated with its own operations. (p. 52)

Poseidon's definition of double counting is, in reality, single counting. Poseidon is making new water. All emissions from making this water should be offset. Once the water is delivered to a region, Poseidon knows that it will be added to the existing water supply and Poseidon, along with the water agencies and cities, will have no further responsibility to offset remaining emissions. If Poseidon wishes to place the burden of offsetting emissions it creates in producing water, it should reflect this burden in its price of water. Otherwise, shifting the burden to the costumer will be completely unregulated and in all likelihood, completely infeasible. Poseidon is taking a "hands-off" approach with respect to the ultimate use of its water. If Poseidon cannot ensure that its water will be used as replacement water, it is unreasonable to allow Poseidon to take emission offsets for that use.

Poseidon's approach to the end-use of its desalinated water is yet another example of the piecemeal approach to environmental impacts Poseidon encourages. All impacts associated with this project should be attributed to this project. Delaying the assessment of reasonably foreseeable environmental impacts and mitigation measures runs counter to the purpose of CEQA. *Laurel Heights Improvement Association v. Regents of the University of California*, 47 Cal. 3d. 376 (1988)(Laurel Heights I)

Significant Adverse Impacts (p. 55 #77)

Poseidon asserts "[n]o evidence was presented to the City that standalone operations would result in any adverse impacts, and the City's consultants did not find any such adverse impacts." (p. 55) No evidence of adverse impacts associated with stand-alone operations was admitted into the record before the City of Carlsbad and no evidence was incorporated into the final EIR. However, the stand-alone scenario was not analyzed in the EIR and was simply addressed on the day of the certification of the EIR in a response to comments document. (Additional Response to Comments on the Final EIR, June 13, 2006) To state that no evidence was provided to Carlsbad does not prove that there are not, in actuality, adverse environmental impacts associated with the project. The hasty inclusion of the Additional Response to Comments documents did not address Commission staff's concerns about the project, and therefore, staff is correct in stating that more information and analysis is needed. (Staff Report, p. 80) As also noted by staff, in preparing the EIR Carlsbad regarded the stand-alone scenario as "speculative" and therefore did no fully analyze the environmental impacts of the desalination plant as a stand-alone facility. (Staff Report, p. 79) Further, the record is replete with California Energy Commission documents identifying the widespread destruction of marine life attributable to once-through cooling, as well as the significance attached to such mortality. Poseidon's site-specific analysis was conducted in the same manner as other 316(b) studies, and is insufficient to overcome the BTA requirements of the California Water Code as interpreted consistent with *Riverkeeper II.*

Poseidon attempts to address the numerous significant environmental impacts of the stand-alone facility through documents introduced to the Coastal Commission staff after the certification of the EIR and not subject to public review and comment. This includes, among other things: salinity and toxicity; sedimentation; marine impacts; GHG emissions and energy impacts; intake alternatives; dredging impacts; and construction impacts.

The public comment and review component of CEQA is of the utmost importance in environmental review. The public holds a "privileged position" in the CEQA process. *Concerned Citizens of Costa Mesa, Inc. v. 32nd District Agricultural Association*, 42 Cal. 3d. 929, 936 (1986). The California Supreme Court has stated that CEQA procedures should be "scrupulously followed" so "the public will know the basis on which its responsible officials either approve or reject environmentally significant action" and will "respond accordingly to action with which it disagrees." *Laurel Heights I*, 47 Cal. 3d. 376, 392. Poseidon's attempt at circumventing both the purpose and the process of CEQA review should be addressed through a supplemental or subsequent EIR. If the environmental impacts of the project are truly not significant, the public should, at the least, be afforded the ability to assess and comment openly on the information.

4. Conclusion

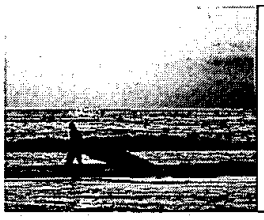
Given the foregoing, Surfrider and Coastkeeper strongly urge the Commission not to approve the CDP and project at its November 15, 2007 hearing. Instead, the Commission should either deny the project as proposed by its staff, or defer approval until such time as the public and staff have sufficient opportunity to review recent documents submitted by Poseidon. These include, but are not limited to:

Sep. 28, 2007:	Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon: Low-Flow vs. No-Flow Alternatives
Oct. 8, 2007:	Additional Analysis of Submerged Intake Gallery
Oct. 8. 2007:	Analysis of Offshore Intakes
Oct. 8, 2007:	Issues Related to the Use of the Agua Hedionda Inlet Jetty Extension EIR to Recommend An Alternative Seawater Intake for the Carlsbad Desalination Project
Oct. 9, 2007:	Coastal Habitat Restoration and Enhancement Plan
Oct. 9, 2007:	Updated Response to Coastal commission's September 28, 2007 Request for Additional Information
Oct. 17, 2007:	Intake Cost Estimates
Oct. 18, 2007:	Climate Action Registry CO2 Conversion Calculation
Oct. 21, 2007:	*Updated Response to Coastal Commission's September 28, 2006 Request for* Additional Information
Oct. 22, 2007:	GHG Emission Baseline Protocol
Nov., 2007:	Carlsbad Desalination Project Briefing Package, CDP Application No. E-06-013
Nov. 7, 2007:	Transmittal of Garibaldi Study and Coastal Development Permit for Southern California Edison and San Dieguito River Valley Joint Powers Authority San Dieguito Wetland Restoration Plan
Nov. 8, 2007:	Letter to State Lands Commission Executive Director re: Desalination Project's Impact on Imported Water Use

Sincerely,

COAST LAW GROUP LLP

Marco A. Gonzalez



Environmental Community Concerns

City of Carlsbad – Poseidon Resources

Desalination Project / Coastal Development Permit (Appeal)

Marco A. Gonzalez
Coast Law Group LLP
Surfrider Foundation

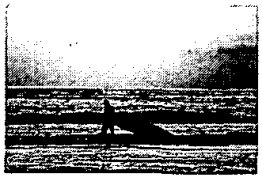
Jonas Minton
Planning and Conservation League

Bruce Reznik
San Diego Coastkeeper

California Coastal Commission
November 15, 2007

Overview

- Procedural Issues
- Entrainment Impacts
- Sedimentation Impacts
- Alternative Intakes
- Conservation/Rec ycling
- Conclusion



Themes

- Poseidon has been less than up-front with Commissioners, staff, and public.
- Project is a giant step backwards with respect to marine life protection.
- Coastal Act empowers and requires CCC to consider project specific and statewide implications of approval.
  - In other words, Staff got it right.

Timing: Documents and Approvals

Procedural Irregularities

- **When is an application complete?**
  - How about when all of the information is submitted?
  - Hundreds of pages of letters, new studies, new mitigation commitments all given to staff in the last 30-60 days, some within last week.
  - Public given access to some on website yesterday afternoon.

- **Why require completion of other agency processes?**
  - Certainty of conditions before consideration by CCC
  - Overlap in agency responsibilities

Water Boards

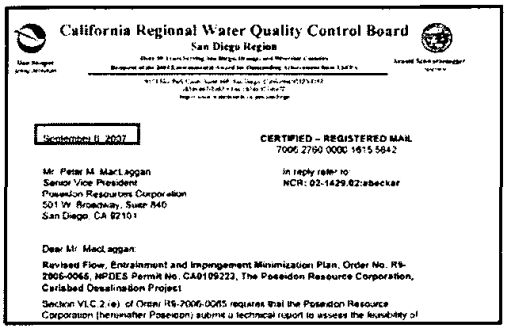
Discharge (NPDES) Permit: **Completed**

- Responsible Agency: Regional Water Quality Control Board
- NPDES: Approved August 16, 2006
- SWRCB Dismissal of Appeal June 2007

Poseidon Briefing Book, November, 2007

"The Regional Board... is currently reviewing the Project's intake-related impacts pursuant to the federal Clean Water Act and California's Porter-Cologne Act. **The Coastal Commission may not take any action in conflict with the Regional Board's ongoing jurisdiction over the project."**

Poseidon Response to Staff Report, Exhibit A, pp. 8-9,



California Regional Water Quality Control Board
San Diego Region

September 6, 2007

CERTIFIED – REGISTERED MAIL
7006 2760 0000 1615 5842

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

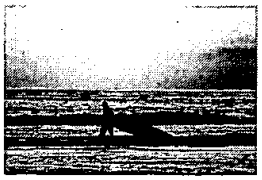
In reply refer to
NCR: 02-1429.02:ebecker

Dear Mr. MacLaggan:

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

Section VI.C.2.(e) of Order R9-2006-0065 requires that the Poseidon Resource Corporation (hereinafter Poseidon) submit a technical report to assess the feasibility of

c. The State Water Resources Control Board is developing guidance to the Regional Boards on the BTA requirements for ocean intake structures to reduce impingement and entrainment of marine life. It is my understanding that the SWRCB intends to develop a once-through cooling water policy, for compliance with the Clean Water Act Section 316(b), by June 2008. The Regional Board anticipates using the SWRCB guidance to evaluate technology based requirements needed for the intake structure that provides ocean water for both EPS and CDP operational requirements.



Letter rescinds 9/06 deferral, but DOES NOT APPROVE Poseidon's plan.

Timeline for consideration not known.

No "determination" made under §30412.

California Regional Water Quality Control Board
San Diego Region

September 20, 2007

CERTIFIED MAIL
7009 3400 0015 9997 1122
In reply refer to:
NCRU: 02-1429.02:ebecker

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

Dear Mr. MacLaggan

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

In a letter dated September 6, 2007, I indicated that I am deferring determination of the Revised Flow, Entrainment and Impingement Minimization Plan (Plan) based on reduction of intake flows at Encina Power Station (EPS), removal of key Federal 316(b) regulation, and pending State Water Resources Control Board guidance on the Best Technology Available (BTA) requirements for ocean intake structures to reduce impingement and entrainment of marine life. In a letter dated September 10, 2007 Poseidon Resource Corporation (Poseidon) requested that I rescind the letter. Upon further consideration of your September 10, 2007 letter, I concur with the information provided to support your request and, therefore, hereby rescind my September 6, 2007 letter.

The heading portion of this letter includes a Regional Board code number noted after "In reply refer to." In order to assist us in the processing of your correspondence please include this code number in the heading or subject line portion of all correspondence and reports to the Regional Board pertaining to this matter.

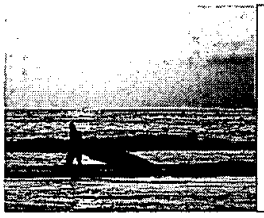
If you have any questions regarding the above, please contact Mr. Eric Becker at (858) 467-2730, or at EBecker@waterboards.ca.gov.

Respectfully,

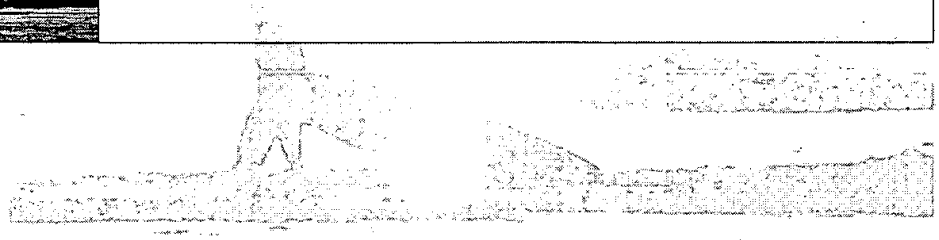
John H. Robertus
Executive Officer

California Environmental Protection Agency

4/14/2008



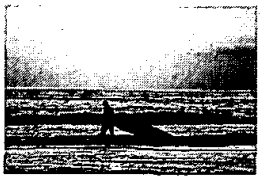
Entrainment Impacts



- The EIR extensively analyzed the project's marine impacts as both a co-located facility with the Encina Power Station and as a stand-alone facility without the operation of the power plant, including potential impingement-, entrainment-, and discharge-related impacts.

Poseidon Briefing Book, November, 2007

If their EIR analysis was so extensive, why wasn't it good enough for the Regional Board to sign off on Poseidon's entrainment impacts?



CALIFORNIA ENERGY COMMISSION

2007 ENVIRONMENTAL PERFORMANCE REPORT OF CALIFORNIA'S ELECTRICAL GENERATION SYSTEM

Prepared in Support of the 2007 *Integrated Energy Policy Report* Proceeding (06-IEP-1)

DRAFT STAFF REPORT

NOVEMBER 2007

CEC-700-2007-010-SD

Arnold Schwarzenegger, Governor

4/14/2008

State Water Resources Control Board indicates that actual water flows through the once-through cooling systems declined from 13.5 BGD in 2001 to 9.4 BGD in 2003.[15]

Impacts are classified as "entrainment," where microscopic level organisms are drawn through cooling water intakes and killed as they are cycled through the plant, "impingement," where larger organisms such as fish and marine mammals are pinned against the intake screens and killed, and "thermal impacts," which describes impacts to ecosystems when the warmed water is discharged back to the cooler source water.

Near-shore marine and estuarine waters are nutrient rich, highly productive ecosystems. These waters provide habitat for innumerable phytoplankton, zooplankton, and invertebrates, as well as the eggs and larval stages for near-shore and off-shore fish, shellfish, crabs and lobsters, and the [illegible] marine food web for the larger fish and marine mammal species. When near-shore waters are cycled through power plants for cooling, essentially all of the marine organisms are killed. This high mortality impact to the base of the food web is now understood to contribute to the significant declines in near-shore and open ocean fish stocks.

Two influential reports on the state of the oceans produced by the Pew Commission on Oceans[16] in 2003 and the U.S. Commission on Ocean Policy[17] in 2004 documented that the other contributing factors to the alarming declines in ocean ecosystem health included over-fishing, non-point source pollution from urban and agricultural areas, sewage contamination, and exotic species infestations of localized ecosystems.

Three primary types of near-shore and estuarine habitats are affected by once-through cooling systems: bays and estuaries, open coast sand and rock, and open coast sand and harbor. In bays such as Santa Monica, Monterey, and San Diego and estuaries like the San Francisco Bay-Delta and Elkhorn Slough, the impacts from entrainment and impingement can be even more pronounced due to the high biological productivity of these ecosystems and the concentration of multiple power plants using once-through cooling. In Santa Monica Bay for example, the three large power plants using once-through cooling – Scattergood, El Segundo, and Redondo – cycle 13 percent of the bay's near shore waters every six weeks.[18] Eleven of the 19 coastal power plants using once-through cooling are located on the shores of bays or estuaries.

The San Francisco Bay-Delta estuary is the largest estuary on the West Coast of the Americas. Two old power plants on the shore of this estuary that continue to use once-through cooling – Pittsburg and Contra Costa – entrain and impinge endangered species such as the Delta smelt and Chinook

---

[15] Adam Laputz, Water Quality Engineer, State Water Resources Control Board. Personal Communication, July 16, 2007. The actual correlations between power production and once-through cooling throughput levels are not well understood because the water use rate (gallons per MWh of production) varies widely within the coastal fleet and because many power plants operate their pumps during periods of non-power production. The forthcoming study by the State Water Board's Ocean Unit should help provide additional data and insight into these correlations.

[16] *America's Living Oceans: Charting a Course for Sea Change, A Report to the Nation*, Pew Oceans Commission, Joost Pantull, Chair, May 2003.

[17] *Preliminary Report of the U.S. Commission on Ocean Policy*, A Report to Congress, April 2003.

[18] *Issues and Environmental Impacts Associated with Once-Through Cooling at California's Coastal Power Plants*

marine food web for the larger fish and marine mammal species. When near-shore waters are cycled through power plants for cooling, essentially all of the marine organisms are killed. This high mortality impact to the base of the food web is now understood to contribute to the significant declines in near-shore and open ocean fish stocks.

Official Position of the California Energy Commission, 11/07

4/14/2008

How then, can Poseidon stand before the Coastal Commission and claim no significant entrainment impact?

Study Methodology

ELSEVIER

Environmental Science & Policy 3 (2000) S445–S449

Environmental
Science & Policy

www.elsevier.com/locate/envsci

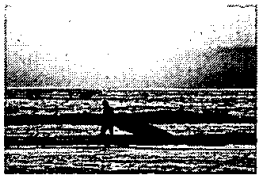
Surplus production, compensation, and impact assessments of power plants

John Boreman*

National Marine Fisheries Service, Northeast Fisheries Science Center, 166 Water Street, Woods Hole, MA 02543, USA

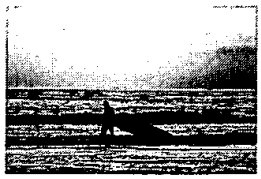
Abstract

For over 60 years, fishery scientists have been using the argument that nature creates surplus, and that the surplus can be used as justification to impose anthropogenic sources of mortality (power plants, fishing, pollution, etc.) on fish populations; otherwise, it is wasted. Surplus production is closely tied to the concept of compensation, a form of density-dependent mortality in which the mortality rate of a cohort is directly related to abundance of that cohort. Scientific arguments have been put forth in assessments of power plant impacts that compensation can at least partially offset impacts imposed by power plants



3.3. Nature does not waste

The term surplus production implies that the production will be wasted if it is not used. Production of a species that is vulnerable to anthropogenic sources of mortality risk (power plants, fisheries, pollution, etc.) should not be taken out of the context of the ecosystem in which the species resides. Within an ecosystem context, the species is important as feeder and as a source of nutrition, either while it is still alive or in a decomposing condition (Fig. 4). Removal of a member of the species from the ecosystem will ultimately result in less resource consumption (predation forgone) and less contribution to overall ecosystem production (production forgone). If a 'surplus' is being removed by power plant operations, then something else in the ecosystem is being out-competed. Use of 'surplus' production is essentially an allocation issue among competitors for that resource. Do we use it for supporting fisheries, for allowing the population to hedge against bad times, for providing extra sustenance for natural predators, or for supporting other uses of the resource?



system in which the species resides. Within an ecosystem context, the species is important as feeder and as a source of nutrition, either while it is still alive or in a decomposing condition (Fig. 4). Removal of a member

As you remove individuals from the food web, you must consider the impacts both on the entrained species, as well as those it eats, and that eat it.

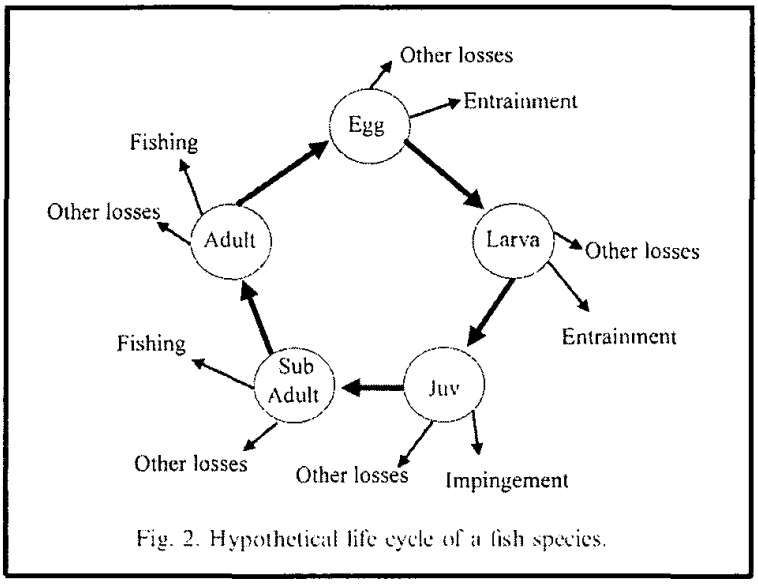


Fig. 2. Hypothetical life cycle of a fish species.

This says it all.

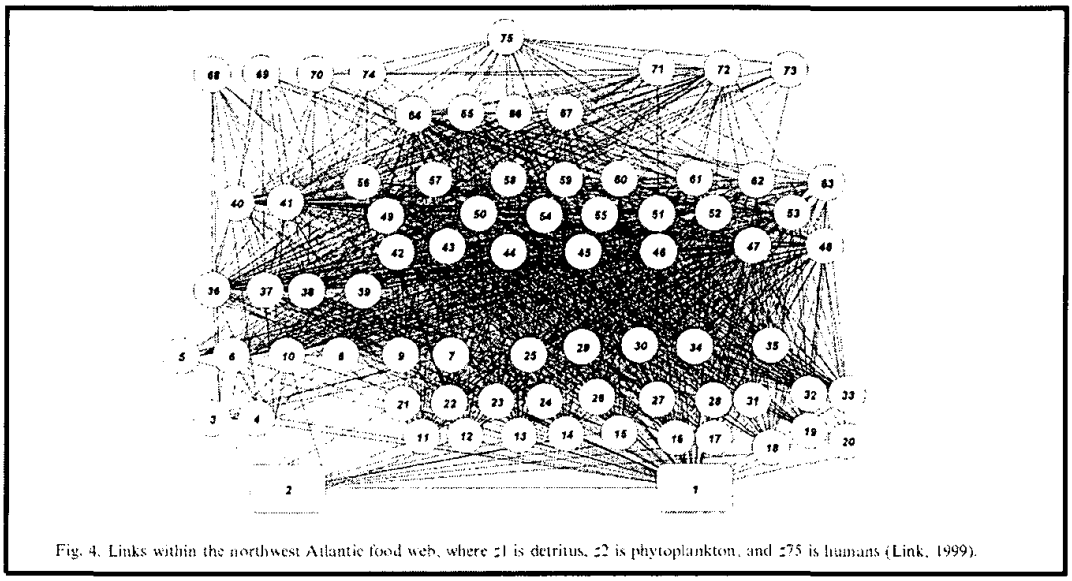
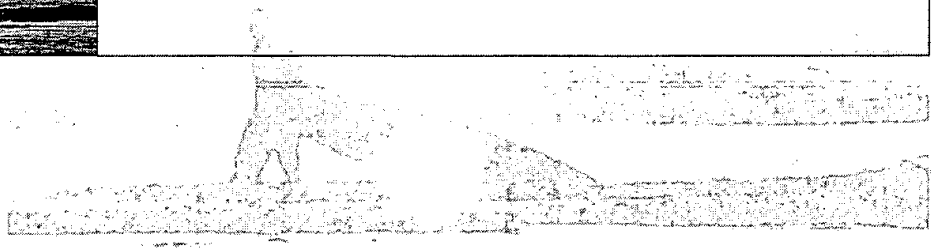
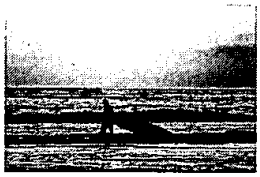


Fig. 4. Links within the northwest Atlantic food web, where 21 is detritus, 22 is phytoplankton, and 275 is humans (Link, 1999).

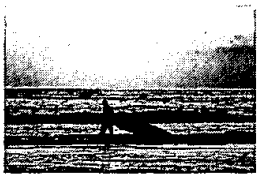
Alternative Intakes





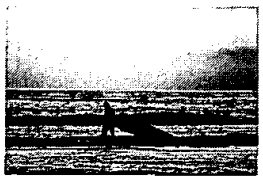
Poseidon's Arguments Re: Alternative Intakes

- EIR sufficiently addressed the issue.
- Regional Board has primary jurisdiction.
- CWA 316(b) regulations don't apply.
- Open ocean intake is "Best Technology Available"



EIR Alternative Intake Failures

- Contemplated stand-alone facility would be studied as an entirely new project
- Cursory review given to alternatives due to speculative nature of power plant shut down of intake
- The "weight of the evidence" test



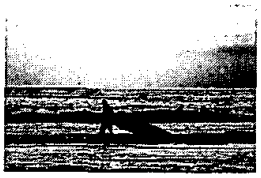
316(b) Regulations Don't Apply
Desalination ≠ Power Plant

- Federal Clean Water Act
  - Section 316(b) regulates cooling water intake.
  - Section 303 empowers states to set standards and assume role of federal EPA, so long as they are as stringent as CWA.
  - SWRCB/RWQCB administer requirements of CWA via California Porter Cologne Water Quality Control Act (Water Code).

Riverkeeper v. U.S. EPA

475 F.3d 83 (2d Cir. 2007) – Riverkeeper II

- CWA § 316(b) requires Best Technology Available (BTA) for minimizing adverse environmental impacts.
- Court Found:
  - Closed-cycle cooling is BTA ("Technology Forcing")
  - No cost-benefit analysis allowed, No "range of impacts" considered by CWA (e.g. x% of mortality allowed if $$)
  - "Restorative Measures" (compensatory mitigation)
  - Once-Through Cooling NO LONGER ALLOWED



***Porter-Cologne* & Riverkeeper**

- Cal. Water Code § 13142.5(b)

  For each ... industrial installation using seawater for ... industrial processing, **the best available site, design, technology, and mitigation measures feasible** shall be used to minimize the intake and mortality of all forms of marine life.

What Does "Minimize" Mean?

- First, Court said "Restoration Measures" not part of "location, design, construction, and capacity"

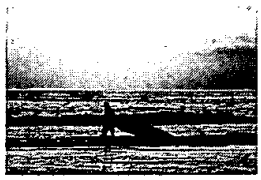
- "Restoration measures *correct* for the adverse impacts of impingement and entrainment ... but they do not *minimize* those impacts in the first place." *Riverkeeper II* at 109, quoting *Riverkeeper I*, 358 F.3d 174, 189 (2d Cir. 2004)

Riverkeeper-Based Conclusions

Once-through cooling technology is not BTA for acquiring water from the ocean.

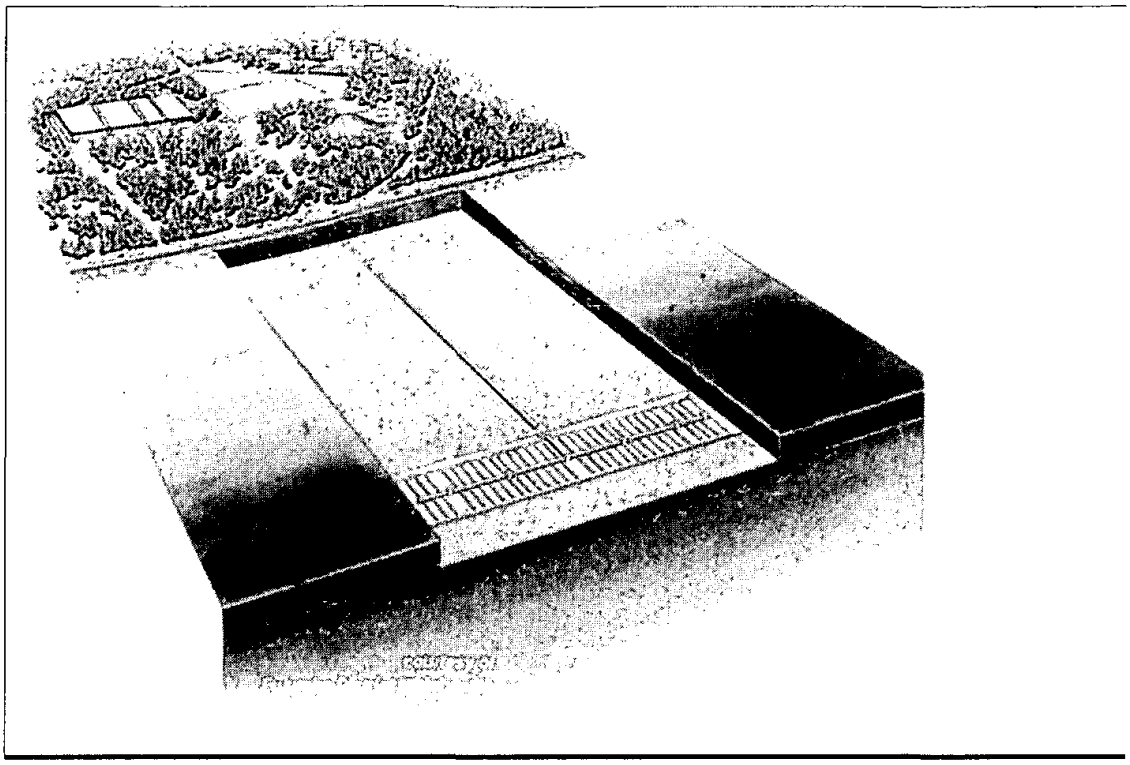
Compensato ry Mitigation is not allowed.

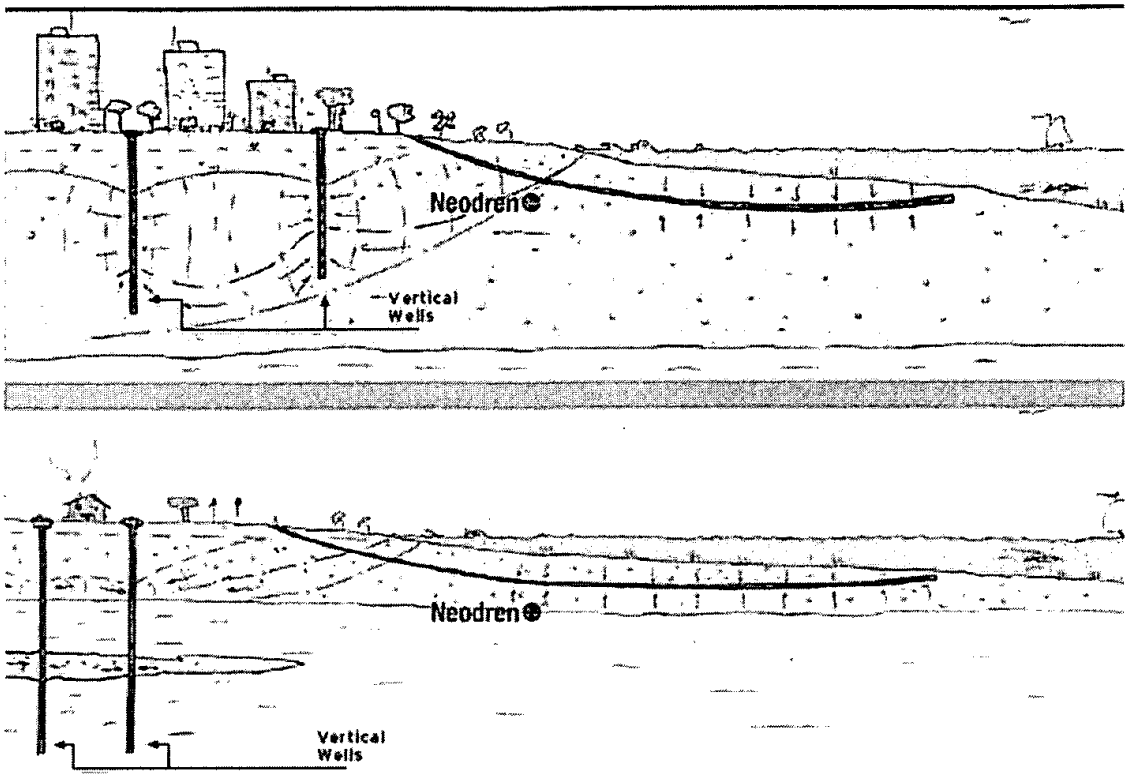
Co-locat ion of desal with Power Plants is illegal.

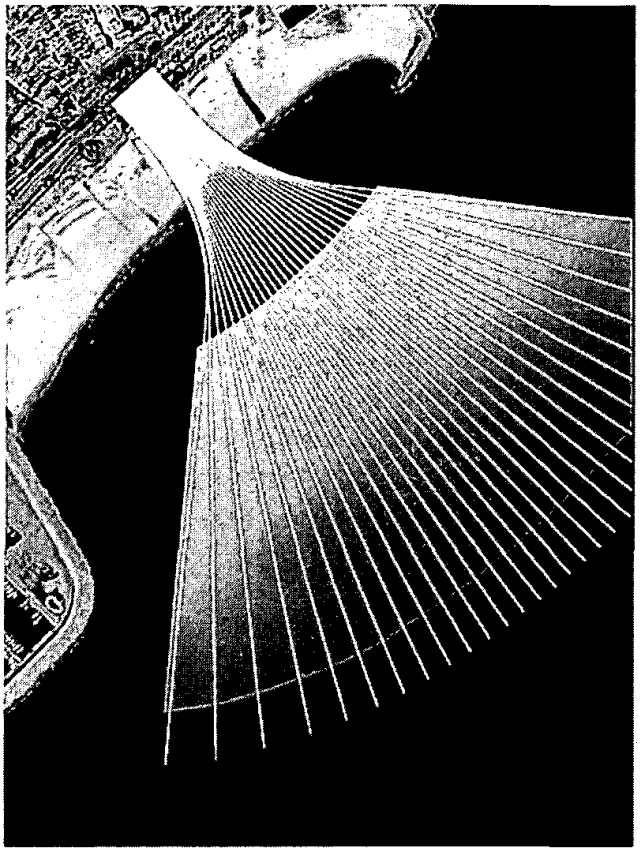


Open Ocean Intake is Not BTA

- **Poseidon's "Alternatives" study**
  - **Does not meet "weight of evidence."**
  - **Cost-benefit analyses not allowed under *Riverkeeper*.**
  - **Compensatory mitigation not allowed under *Riverkeeper* interpretation.**
  - **Alternatives proven viable within desalination industry**

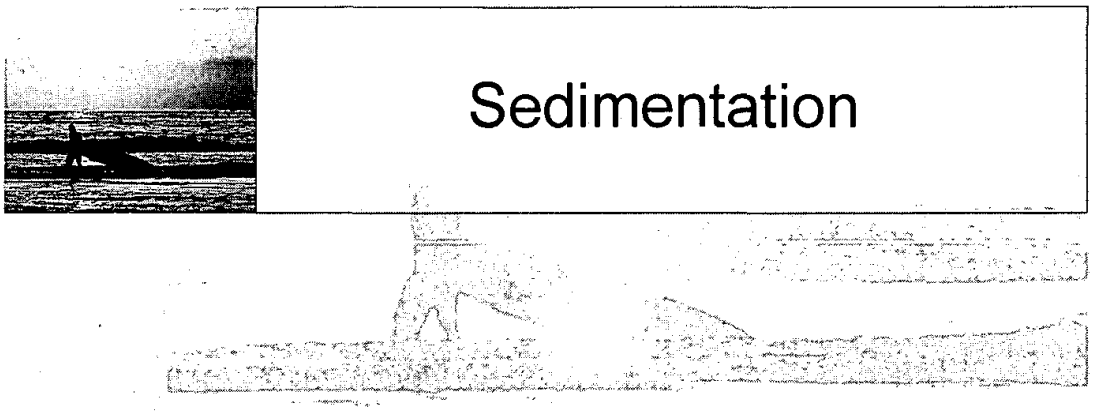






The question is not, "what is BTA for a 50 mgd project", but rather, "what is BTA for a desalination facility in this location?"

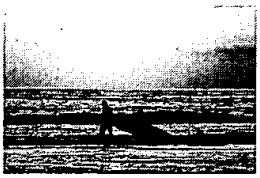
If not, what would preclude Poseidon from sizing the project to 100mgd or greater?


Sedimentation

Poseidon Arguments

- Impairment of beneficial uses is only caused by urban runoff.

- If Poseidon doesn't assume dredging requirements, the lagoon will revert to "stinky water."



303(d)

9	F	Agua Hedionda Lagoon	90431000			
				Indicator bacteria	6.8 Acres	2006
				Nonpoint/Point Source		
				Sedimentation/Siltation	6.8 Acres	2019
				Nonpoint/Point Source		

- Poseidon: entire sedimentation problem is in east basin, due to urban runoff.
- RWQCB technical report determined data gaps prohibit detailed analysis of sediment in lagoon (specifically, in-lagoon sediment data missing, and thus more assessment necessary before TMDL development).
- SLC EIR identified sedimentation from power plant intake flows contributing to impairment of beneficial uses
- Common sense: Why dredge otherwise?

Poseidon's "Return to Stinky Water" allegations are bogus.

-----Original Message-----
From: Lloyd, David [mailto:David.LLoyd@nrgenergy.com]
Sent: Wednesday, November 14, 2007 12:13 PM
To: Tom Luster
Cc: Peter MacLaggan
Subject: RE: Question about Encina and Agua Hedionda Lagoon

Tom

As you are aware, this is a complicated question. As the owner of the property on which the Encina Station is located, as well as most of the Agua Hedionda Lagoon seabed, we anticipate maintaining the Lagoons so as to preserve the size of the existing tidal prism necessary for back-up cooling water in case the intake channel is blocked by a winter storm, so long as any of the five steam boilers are required to stay in service as reliability, must-run units. After the eventual retirement of the steam boilers, we expect to substitute steam cooling medium with air cooled condensers, similar to those described in the pending Application for Certification in 07-AFC-6, filed by Carlsbad Energy Center LLC, an affiliate of Cabrillo Power I LLC (which would replace the three oldest boilers or about 1/3 of the generating capacity of the Station). At that point, the State Lands Commission lease for the intake and discharge jetties would require restoration of the jetties to pre-construction conditions. In order to preserve the value of the uplands real estate, we anticipate a requirement for converting the use of the property from heavy industrial to a higher and better use, consistent with the coastal zone, that we continue the maintenance of the lagoons as they currently exist or at least to a state that remains consistent with preserving the value of the uplands property. In that respect, there are many residents along the edges of the three lagoons who would likely expect the City of Carlsbad to impose entitlement restrictions on us relative to the maintenance of the lagoon system. We would also expect that the Coastal Commission would be interested in continued support of sand transfer from the lagoons to the Carlsbad beaches. Sand replacement and nourishment of the beaches for Californians and the tourism industry continues to be an important public objective. Cabrillo Power has developed an environmentally acceptable process for sand dredging, transport to the beaches, and spreading on the beaches through a number of biennial dredge cycles, using an electric dredge and a delivery piping system, which works well. We would anticipate turning that function over to Poseidon, if its project proceeds, once our use of sea water for cooling terminates upon the retirement of the existing steam boilers. If the Poseidon project is not completed, we would look for continued lagoon maintenance either as a burden to our uplands property uses, or in cooperation with a third party who assumes that responsibility, assuming the State Lands Commission extends the jetties lease beyond that point. Approximately the north half of the intake jetty channel and the north beach of the inner lagoon between Carlsbad Boulevard and the Hubbs Sea World Hatchery is owned by San Diego Gas & Electric Company, and our use is pursuant to an easement for lagoon maintenance purposes.

David Lloyd, Secretary
Cabrillo Power I LLC
1817 Aston Avenue, Suite 104
Carlsbad, CA 92008
Cell 760-535-2958
Office 760-710-2147
Fax 760-918-8950

4/14/2008

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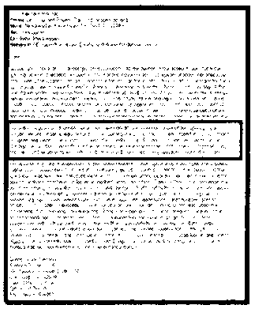

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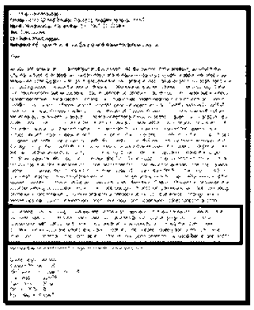
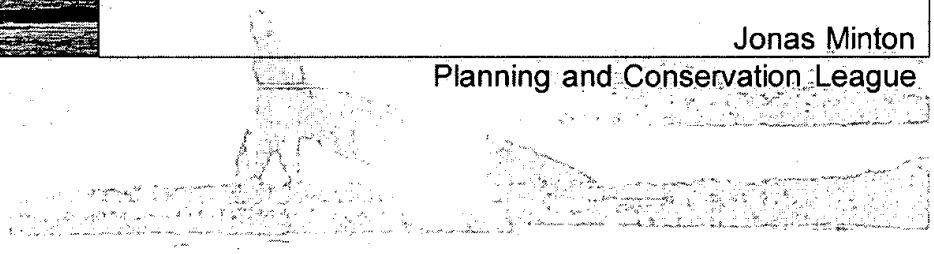


Poseidon's Fatal Flaws

- Entrainment conclusions are not believable and have not been verified by RWQCB
- Alternative intakes exist, and must be implemented pursuant to *Riverkeeper*-based interpretation of Ca. Water Code
- The health of the lagoon does not depend on construction of a desalination facility

What are our options?

Jonas Minton
Planning and Conservation League

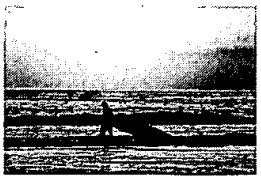


Experience

- Water Policy Advisor
  Planning and Conservation League
- Deputy Director
  California Department of Water Resources (2000-2005)
- Chair, State Desalination Task Force
- Co-chair, State of California Water Recycling Task Force
- Water Agency Manager and Executive Director
  (1994-2000)
  - Developed water projects for over 300,000 acre feet of new supply

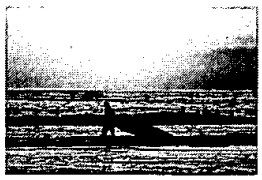
Poseidon says…

- The proposed project is necessary to address immediate and pressing water supply needs in San Diego County.



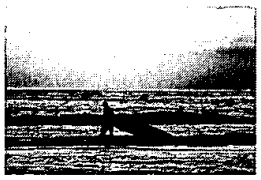
First Question

Are there water supply alternatives for San Diego?



Desal Task Force

"Include desalination, where economically and environmentally appropriate, as an element of a balanced water supply portfolio, which also includes conservation and water recycling to the maximum extent practicable."



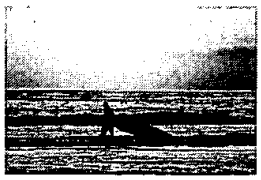
Non compliance with Urban Water Conservation MOU

- Carlsbad and Rainbow Municipal Water Districts amount to over half Poseidon's output.

- Neither has filed required reports showing conservation actions or results.

Gallons Per Capita Per Day

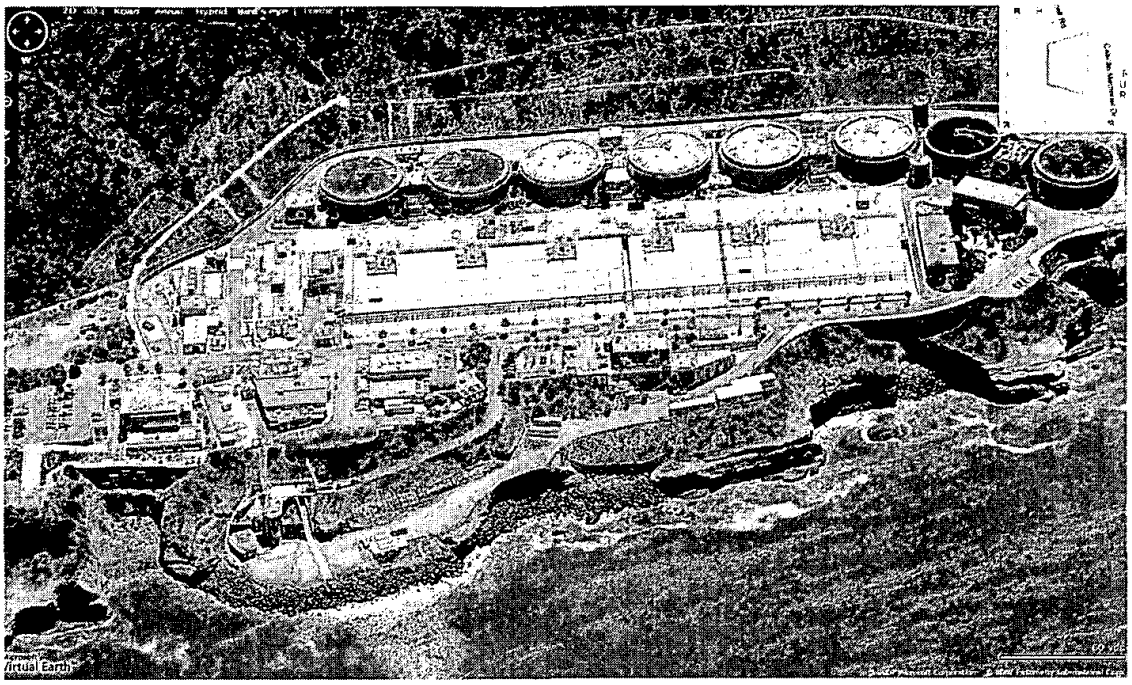
- Santa Barbara - 121
- Santa Maria - 123
- Goleta – 123
- Los Angeles – 138
- **Carlsbad - 217**



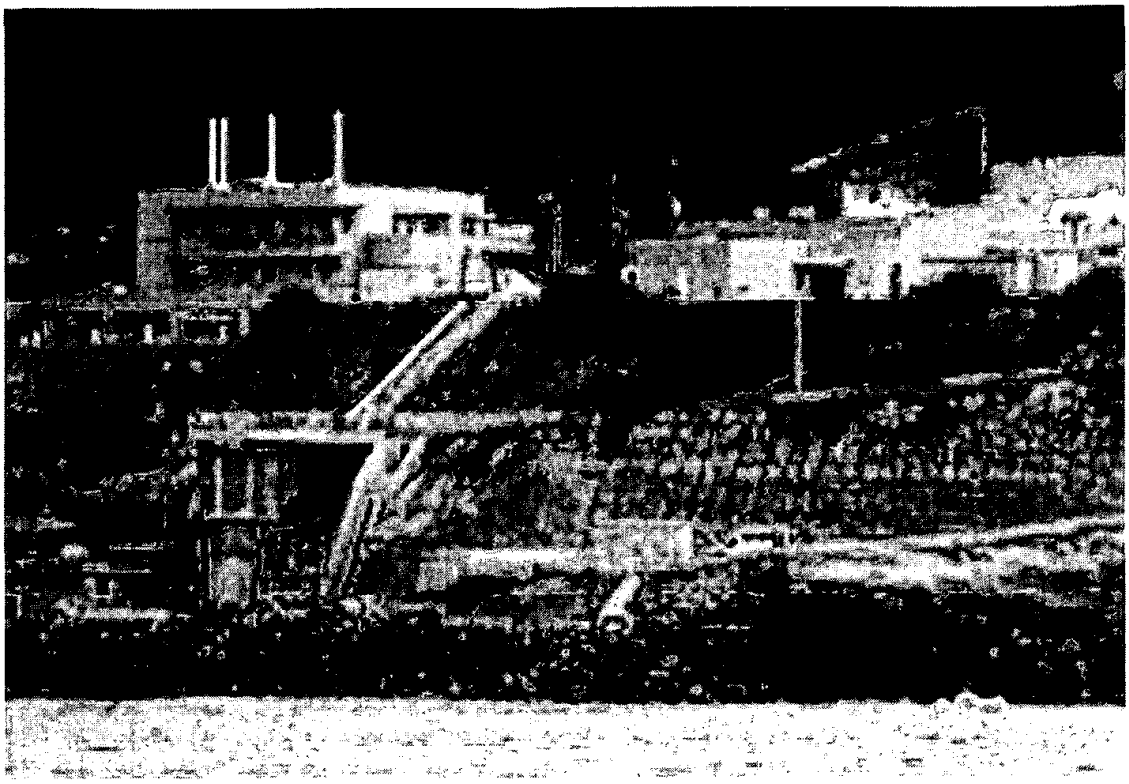
San Diego Region BMP's
1999-2006

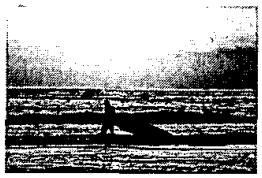
- Interior water audits
  - less than 1/3 of the MOU commitment
- Commercial and industrial water audits
  - less than ¼ of the MOU commitment
- Landscape
  - less than ¼ of the MOU commitment

What about Recycling?



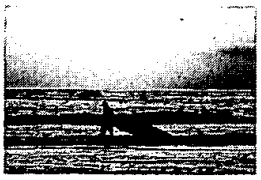
Point Loma Wastewater Treatment Plant: ~ 196,000 Acre Feet Wasted per Year





Wastewater Discharged to Ocean

- Greater San Diego
  - Over 300,000 acre feet wasted annually
  - Only 12,000 recycled in 2005



Southern California Water Recycling Projects Initiative

White Paper on the Southern California Water Recycling Regional Partnership

COOPERATIVE EFFORT FUNDED AND MANAGED BY:

The United States Bureau of Reclamation

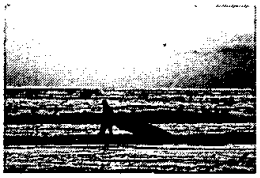
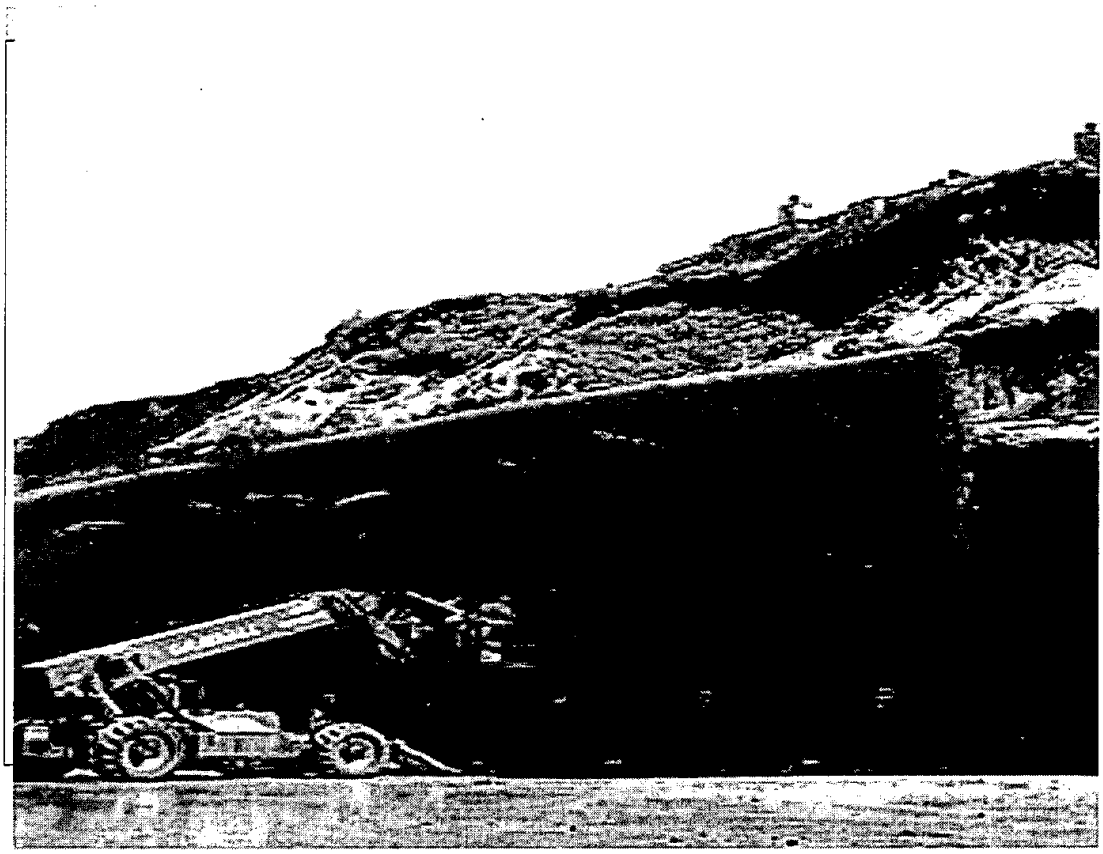


TABLE 5.
IDENTIFIED 16 projects in San Diego County that could yield 54,130 acre feet annually – <u>not</u> including any potable reuse

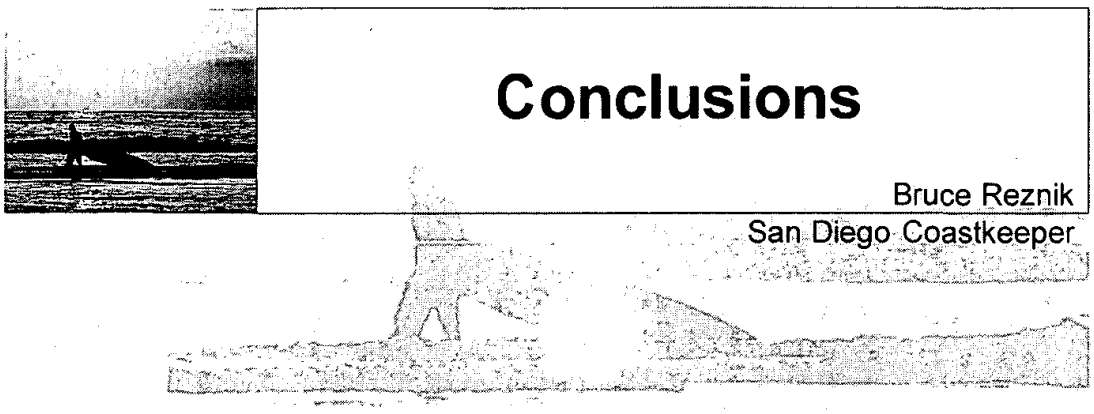
What Difference for CO_2

- Desal would **increase** CO_2 150,000 tons annually
- Water conservation would **decrease** CO_2 80,000 tons annually
- Any real carbon offsets should be used for essential energy generation

The Bigger Question



Actually, it is your job.



Conclusions

Bruce Reznik
San Diego Coastkeeper

Those most impacted by the decision made today are not yet born.

Decisions made TODAY will have long-term impacts on:

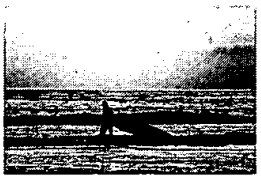
Coastal Ecosystems

Global Warming

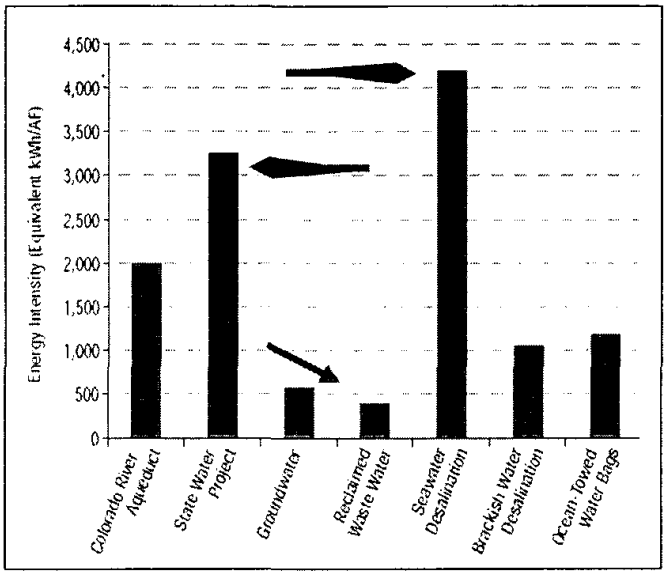
Water Privatization

4/14/2008

The CDP *seems* like a solid project...



The Truth About Carbon Neutrality



"Today's problems are yesterday's solutions"

– Peter Senge
(*scientist and director of Center for Organizational Learning at MIT*)

Don't let <u>today's solutions</u> be <u>tomorrow's problems!</u>

"Whiskey is for drinking..."

Surfrider Foundation

1965-2005 40th PLANNING AND CONSERVATION LEAGUE www.pcl.org

CLG COAST LAW GROUP LLP

SAN DIEGO COASTKEEPER

4/14/2008

Environmental Community Concerns
Surfrider Foundation ¤ San Diego Coastkeeper

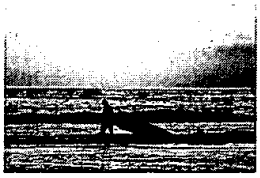
City of Carlsbad – Poseidon Resources

Desalination Project / Proposed Lease Amendment

Marco A. Gonzalez
Coast Law Group LLP

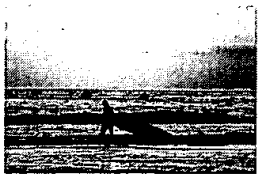
California State Lands Commission
October 30, 2007

4/14/2008

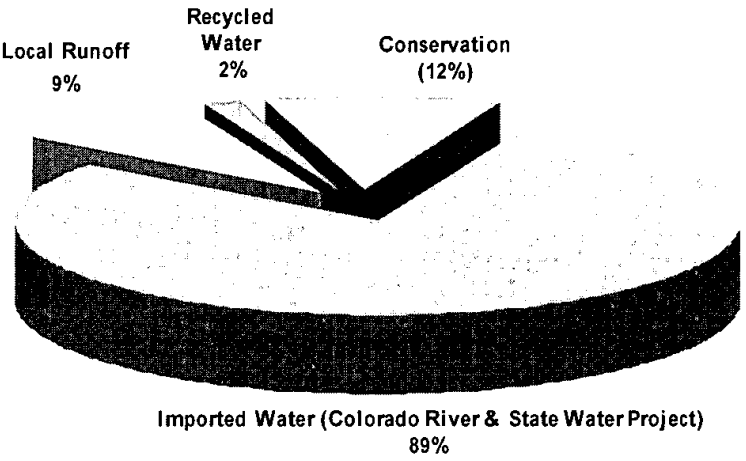


Overview

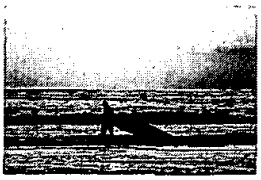
- San Diego/CA (Lack of) Water Situation
- Statewide Desalination Policy Issues
  - Once-Through Cooling (kills marine life)
  - *Riverkeeper, Inc. v. U.S. EPA*
  - *Porter Cologne*
- Problems with Carlsbad Desalination Plant
  - CEQA and SLC Requirements
  - Energy/GHG and the myth of carbon neutrality
  - Entrainment and the Public Trust



San Diego Water Sources

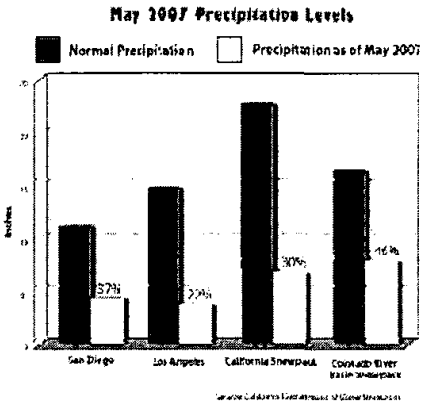


4/14/2008



State Water Supply Crisis

- Colorado River – 8th Year of Historic Drought
  - 662,000 af/yr less per year since 2003
- "Delta Smelt" Ruling
  - Possible reductions 14-30% of NorCal water
- 2007 driest year on record in many regions
- Population increases
- Water storage and delivery system 30 yrs. old



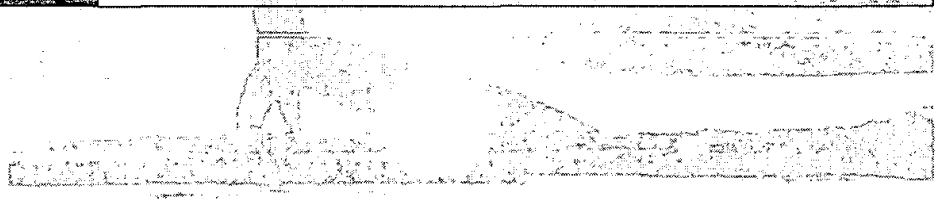
Conclusions

We need new sources of water.

Your decision on this project will shape the future of water policy in the State of California.

Co-Located Desalination

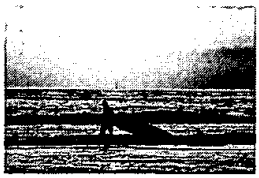
Statewide Policy Considerations



4/14/2008

Once-Through Cooling Kills Fish

- 21 Coastal plants; 17 Billion Gallons Per Day
  - Impingement and Entrainment
  - Impossible to Quantify Impacts
- 60% of CA Fisheries in Decline
  - US Commission on Ocean Policy
  - Pew Ocean Commission
- Global Climate Change
  - 1995 Study – 80% macrozooplankton decrease since 1951, correlating to climate change data



Riverkeeper v. U.S. EPA

475 F.3d 83 (2d Cir. 2007) – Riverkeeper II

- Compliance with CWA § 316(b) requires use of Best Technology Available (BTA) for minimizing adverse environmental impacts.
- Court Found:
  - Closed-cycle cooling is BTA ("Technology Forcing")
  - No cost-benefit analysis, No "range of impacts"
  - "Restorative Measures" (mitigation) unacceptable
  - OTC NO LONGER ALLOWED

***Porter-Cologne* & Riverkeeper**

- Cal. Water Code § 13142.5(b)

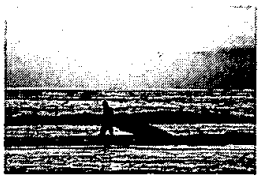
  For each new or expanded coastal power plant or other industrial installation using seawater for cooling, heating, or industrial processing, **the best available site, design, technology, and mitigation measures feasible** shall be used to minimize the intake and mortality of all forms of marine life.

- 316(b) requires "location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impacts."

What Does "Minimize" Mean?

- First, Court said "Restoration Measures" not part of "location, design, construction, and capacity"

- "Restoration measures *correct* for the adverse impacts of impingement and entrainment ... but they do not *minimize* those impacts in the first place." Riverkeeper II at 109, quoting Riverkeeper I, 358 F.3d 174, 189 (2d Cir. 2004)

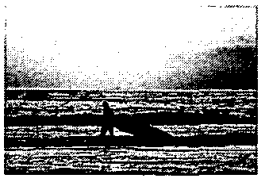


***Porter-Cologne* & Riverkeeper**

- Cal.Water Code § 13142.5(b)

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

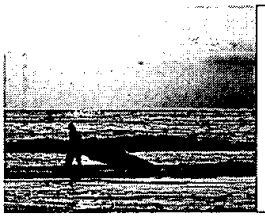
- 316(b) requires "location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impacts."



Conclusions

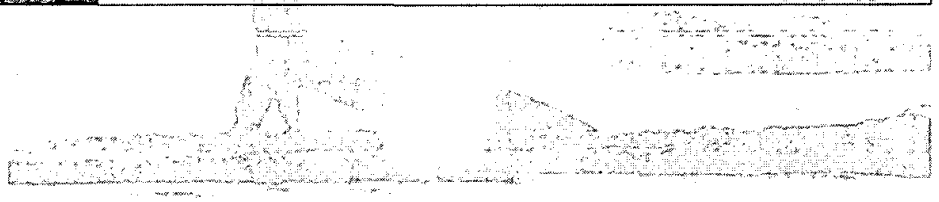
OTC is no more.

Co-located desalination is illegal.



CEQA, SLC, GHG, SEIR

Why this Project Cannot be Approved



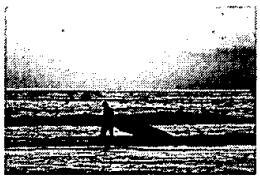
4/14/2008

CEQA

- Requires Subsequent or Supplemental EIR
  - Project Changes
  - Circumstances Change
  - Alternatives/Mitigation Opportunities Arise
- EPS movement away from OTC is either a project change or a changed circumstance
  - FEIR Response to Comments
  - Planning Commission
  - Approval Resolution

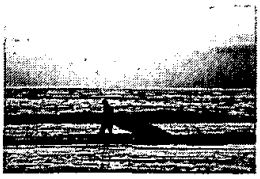
New Info + Significant Impacts

- Energy Consumption: "cooler" feedwater
- Construction Impacts: demolition of EPS
- Infrastructure connectivity without EPS
- Entrainment: 37 acres of mitigation
- Water contracts: growth inducement
- Sedimentation: 300mgd, 24/7/365
  - SLC 2005 EIR for Cabrillo Jetty Extension
  - "flood dominated", 303(d), dredging
  - Environmentally superior intake alternative

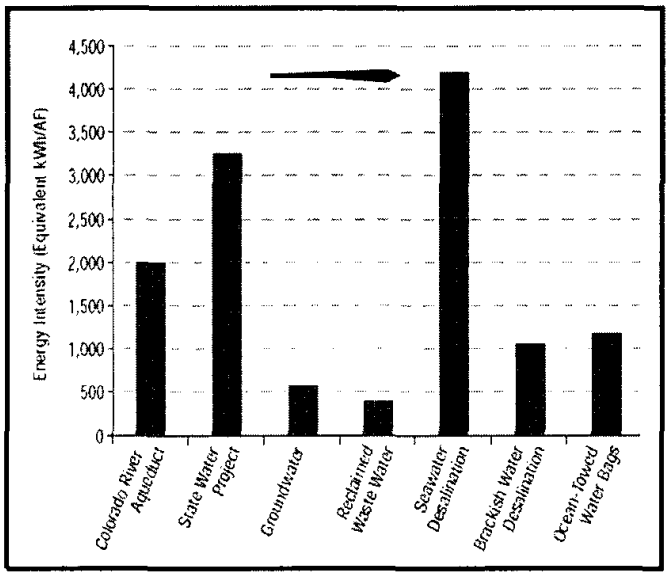


Stand Alone Desalination Facility Alternatives

- Offshore Intake
- Offshore sub-surface intake
- Sub-surface near shore intake (slant well)
- Horizontal beach wells
- Vertical beach wells
- Infiltration galleries
- Seabed infiltration galleries



Energy, GHG, AB32



Energy, GHG, AB32

		Energy Usage kWh/AF	Energy Usage Compared to State Water Project Transfers[1]	Tons CO_2 Emitted Annually to Produce 56,000 Acre Feet of Water[2]
✓	Conservation	0	- 100%	0[3]
✓	Reuse (non-potable)	400	- 88%	10,000
✓	Colorado River Transfers	2,000[4]	- 38%	82,000
✓	Reuse (potable)	≤ 2,200[5]	- 31%	≥ 58,000
✗	State Water Project Transfers	3,200	n/a (baseline)	82,000
✗	Desalination (subsurface intake)	3,800	+ 19%[4]	98,000
✗	Desalination (open ocean intake)	4,700	+ 47%[4]	120,000 - 154,000

✓ = Good ✗ = Bad

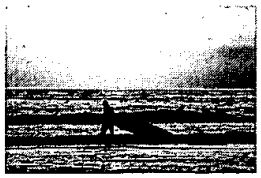
Energy, GHG, AB32

- Staff Report: 101,270.93 metric tons $CO_{2/yr.}$
  - Assumes desalinated water will replace existing supplies
  - If so, net increase is 44,961.53 metric tons $CO_{2/yr.}$
- Coastal Commission: 200,000,000 lbs. $CO_{2/yr.}$
- Surfrider: 120,235 tons $CO_{2/yr.}$
  - Net increase in replacement water is 66,612 tons $CO_{2/yr.}$
  - Assumes CRA and SWP average

Public Trust

- Entrainment Study
  - Sampling Methodology
    - Tenera Poseidon Study: 4 times, one summer
    - Tenera CEC Study: monthly, 1-3 yrs.
  - Entrainment Conclusions re Impacts
    - Surplus Production v. Predation Foregone
    - Pre-Reproduction Food Web Importance Ignored
    - Ecosystem Complexities

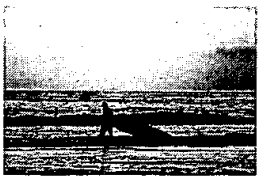
- The Future of Marine Life in our Oceans



All Options are Not Equal

	Cost	Environment	Energy	Reliability	Feasibility
Conse rvation	9	9	9	9	9
Potable Reuse	9	9	9	9	[illegible]
Non-P otable Reuse	8	9	9	9	[illegible]
Desal ination (subsurface intake)	8	9	8	[illegible]	[illegible]
Storage	8	[illegible]	8	9	[illegible]
Transfers	9	8	[illegible]	8	[illegible]
Desalination (open ocean intake)	8	8	8	[illegible]	[illegible]

4/14/2008



"Whiskey is for drinking..."

Questions?

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