

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

**TENTATIVE ORDER NO. R9-2006-0065
NPDES NO. CA0109223**

**WASTE DISCHARGE REQUIREMENTS
FOR THE POSEIDON RESOURCE CORPORATION, CARLSBAD DESALINATION PROJECT,
DISCHARGE TO THE PACIFIC OCEAN VIA THE ENCINA POWER STATION DISCHARGE CHANNEL**

RESPONSES TO SIGNIFICANT COMMENTS RECEIVED FROM INTERESTED PARTIES AS OF JUNE 7, 2006

Comment No.	Summary of Comment	Regional Board Staff Response	Suggested Revision	Permit Section
<p>Comments received from <i>Sierra Club</i> via correspondence dated May 31, 2006</p>	<p>1. <i>It is premature to issue the Tentative Order</i> The Carlsbad Desalination Project (CDP) is to be co-located at the Encina Power Station in order to use the cooling water discharge for its feedwater source and to use the power plant ocean outfall to discharge the brine concentrate into the ocean. The Encina Power Station NPDES permit has expired. We believe that it is premature to issue the permit until the Encina Power Station NPDES discharge permit has been approved by the Regional Board. The information in the renewal permit will contain important information by which to evaluate the CDP waste discharge requirements and the</p>	<p>The two facilities are considered separate dischargers and each have their own specific effluent limitations which are protective of water quality. Tentative Order R9-2006-0065 provides for comprehensive regulation of the proposed discharge from the CDP and does not require the renewal of the Encina Power Station (EPS) NPDES permit to fulfill Regional Board's obligations under the applicable state and federal water quality laws and regulations. The NPDES permit application for CDP was completed with input from EPS. Regional Board staff is currently working on a Tentative NPDES permit for the EPS renewal, and have taken into account proposed requirements for the renewed EPS NPDES permit in developing Tentative Order No. R9-2006-0065. Regional Board staff does not anticipate any significant discrepancies between Order No. R9-2006-0065 and the renewed EPS NPDES permit. Should renewal of the EPS NPDES permit raise additional issues that would require the Regional Board to revisit the CDP permit, the Regional Board will have ample time and authority to address and resolve any such inconsistencies between the CDP and EPS NPDES permits prior</p>	<p>No</p>	<p>N/A</p>

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	<p>influence of the provisions to comply with the Clean Water Act Section 316(b) on the CDP operations.</p>	<p>to any irreversible decisions on CDP implementation.</p> <p>As explained in the Fact Sheet, Clean Water Act Section 316(b) is not applicable to CDP operations. However, California Water Code Section 13142.5(b) requires industrial facilities using seawater for processing to use the best available site, design, technology, and mitigation feasible to minimize impacts to marine life. As discussed in the Fact Sheet, the incremental entrainment effects of the CDP operation in conjunction with the EPS is insignificant to marine life. However, in the event that the EPS were to cease operations, and the discharger were to independently operate the seawater intake and outfall for the benefit of the CDP, such independent operation will require additional review pursuant to Water Code Section 13142.5(b). Tentative Order R9-2006-0065 provides a reopener provision in Section VI.C.1 to modify, revoke and reissue, or terminate the Order for causes include misrepresentation, violation, change of conditions, promulgation of new federal or state regulations. The Tentative Order requires the discharger to submit a Flow Minimization, Entrainment and Impingement Minimization Plan within 180 days of adoption of the Order (see Response to Comment No. 3 below).</p> <p>It is reasonable and appropriate for the Regional Water Board to consider the adoption of Tentative Order No. R9-2006-0065 prior to renewing the EPS NPDES permit.</p>		
2	<p>2. <i>The facility description of the CDP is incomplete</i></p> <p>The Tentative Order, Findings, page 5, states that the design of the pretreatment filter has not been selected. There are two designs proposed. The Tentative Order fails to provide the flow schematic of the CDP in Attachment C. The Tentative</p>	<p>The CDP proposes to divert a portion (approximately 100 million gallons per day (MGD)) of the EPS' returning cooling seawater to produce up to 50 MGD of potable water. Treatment processes at CDP would consist of pretreatment, reverse osmosis (RO) desalination, and disinfection and product water stabilization. The discharger had not constructed the facility or made a final determination of the type of pretreatment technology that will be used for the source water prior to the reverse osmosis process. The Discharger is considering granular media filtration and</p>	No	N/A

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	<p>Order requires the Discharger to submit a flow schematic 90 prior to the discharge of wastewater authorized under this permit. Given that it will take at least five years to get the plant on line, there is no assurance that the discharger would make substantial revisions to whichever of the two pretreatment filter design options is selected during this period. In effect we are asked to evaluate the Tentative Order without key information about the plant operation and how it would impact the quality of the discharged effluent from the CDP.</p>	<p>membrane filtration as the two options for pretreatment technologies. Under the granular media filtration option, ferric chloride or ferric sulfate will be added to the influent to add removal of particulate matter. These added chemicals would be backwashed, collected in a sedimentation basin (clarifier), removed as waste sludge, and disposed of at a landfill. Under the membrane filtration option, chemicals would be used during membrane cleaning. The membrane backwash cleaning solutions would be collected in a separate tank, neutralized for pH value, and discharged to the sanitary sewer system. Under either proposed option, no net chemicals would be introduced into the effluent, but solids originally contained in the seawater intake. The Discharger constructed and operated an on-site pilot plant since the end of 2002, using the above two described pretreatment technologies to characterize effluent quality. Regional Board staff used the pilot plant data from both pretreatment technologies in establishing technology-based and water quality-based effluent limitations of the Tentative Order No. R9-2006-0065.</p> <p>The Discharger has described the two proposed pretreatment technologies in the NPDES Application, including flow schematics for both pretreatment processes. Which of the flow schematics submitted by the Applicant will actually be included in Attachment C of Tentative Order No. R9-2006-0065 is dependent upon the final selection of the pretreatment process. The choice of the specific process schematic is not expected to change significantly the waste generation characteristics of the CDP treatment processes – i.e., the maximum volume and water quality characteristics of the waste discharge streams depicted on the schematic. If the actual process schematic provided by the Discharger does not conform with the relevant CDP flows schematic already submitted with the NPDES Application, and the differences are deemed to have material effect on the CDP's ability to comply with the permit requirements, the RWQCB has the right to reopen the permit for review.</p>		

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		<p>The Tentative Order requires the Discharger to submit a final flow schematic 90 days prior to the actual discharge of wastewater, because by that time the Discharger would have already completed the selection of the specific pretreatment design and would have been able to verify which of the already provided process schematics is actually implemented.</p>		
3	<p>3. <i>The Tentative Order fails to support the claim that the Clean Water Act Section 316(b) does not apply.</i> Attachment F-Fact Sheet, Rationale for Provisions, page F-42, paragraph 4 states that 316(b) applies exclusively for cooling purposes. Therefore, no special conditions related to 316(b) are implemented in this Order. It fails to note that 316(b) was enacted to limit the impingement and entrainment harm to aquatic life caused by the water intake structure used to provide cooling water. It was also enacted when seawater desalination was uncommon in the U.S. We believe that this is a narrow interpretation of 316(b) as it fails to protect the beneficial uses of the receiving waters. It is immaterial in our view whether the end use of the water intake is used for industrial cooling or other purposes such as the water source for a desalination plant. Furthermore, these receiving waters are held in public trust. (Please refer to the California Coastal Commission report on desalination.) As such the</p>	<p>Clean Water Act Section 316(b) implementing regulations are applicable to facilities that meet the definition of a Phase II existing facility at 40 CFR 125.91. Such facilities withdraw cooling water from a water of the United States; have, or are required to have, an NPDES permit; generate and transmit electric power as their primary business activity; have a total design intake capacity of 50 mgd or greater; and use at least 25 percent of the withdraw water exclusively for cooling purposes. Pursuant to CWA 316(b) regulations, the EPS is classified as a Phase II existing facility. However, pursuant to the definitions and applicability of the Phase I rule (40 CFR 125.8), the Phase II rule (40 CFR 125.9), and the proposed Phase III rule (Federal Register Vol. 69, No. 226, Wednesday, Nov. 24, 2004), the 316(b) regulations are not applicable to CDP. Therefore, no special conditions related to the 316(b) implementing regulations are included in the Tentative Order.</p> <p>California Water Code Section 13142.5(b) requires industrial facilities using seawater for processing to use the best available site, design, technology, and mitigation feasible to minimize impacts to marine life. The CDP is planned to operate in conjunction with the EPS by using the EPS cooling water discharge as its source water. When operating in conjunction with the power plant, the desalination plant feedwater intake would not increase the volume or the velocity of the power station cooling water intake nor would it increase the number of organisms impinged by the EPS cooling water intake structure. Studies prepared by the Discharger demonstrated that nearly 97.6 percent of the larvae entrained by the EPS are dead at the</p>	Yes	Vi.C.2. e

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	<p>Regional Board has the responsibility to uphold the doctrine of public trust to protect the beneficial uses of the receiving waters.</p>	<p>point of the desalination plant intake. As a result, a <i>di minimus</i> number of organisms remain viable which potentially would be lost due to the incremental entrainment effect of the CDP operation. Furthermore, the most frequently entrained species are very abundant in the area of the EPS intake, Agua Hedionda Lagoon and the Southern California Bight. Species of direct recreational and commercial value constitute less than 1 percent of all the organisms entrained by the EPS. Therefore, the incremental entrainment effects of the CDP operation in conjunction with the EPS would not trigger the need for additional technology or mitigation to minimize impacts to marine life. However, in the event that the EPS were to cease operations, and the discharger were to independently operate the seawater intake and outfall for the benefit of the CDP, such independent operation will require additional review pursuant to Water Code Section 13142.5(b).</p> <p>The Discharger's Report of Waste Discharge assessed EPS cooling water flows over a 20.5 year period and concluded that historical EPS flows were sufficient to supply CDP intake flows and provide sufficient dilution water to insure that receiving water salinity is not adversely impacted. The Discharger also concluded that during temporary periods when power generation is suspended for maintenance, historical unheated EPS through flows would be adequate to supply CDP and provide sufficient dilution water to protect receiving water salinity. Based on the historical data, the Discharger reports that (1) it is unlikely that CDP flow requirements will exceed EPS flows, and (2) it is unlikely that additional EPS intake pumping (over and above power plant needs) will be required to accommodate CDP needs. While the historical data indicate that it is extremely unlikely that EPS would have to increase intake flows to accommodate CDP needs, the Regional Water Board recognizes that future EPS flows may not follow historical trends. For this reason, it is warranted to require the Discharger to prepare a Flow, Entrainment and Impingement Minimization Plan. Tentative</p>		

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		<p>Order R9-2006-0065 requires prepare a Flow Minimization, Entrainment and Impingement Minimization Plan for submission to the Regional Water Board within 180 days of adoption of the Order. The plan shall assess the feasibility of site-specific plans, procedures, and practices to be implemented and/or mitigation measures to minimize the impacts to marine organisms when the CDP intake requirements exceed the volume of water being discharge by the EPS. The plan shall be subject to the approval of the Regional Water Board and shall be modified as directed by the Regional Water Board.</p>		
4	<p>4. <i>Recommend influent oil and grease monitoring</i> We recommend that Table 3 of Attachment E, Monitoring and Reporting Program include oil and grease. The reason is to avoid damage to CDP and contaminate the potable water product.</p>	<p>The Regional Water Board does not regulate potable water production from facilities such as the CDP. This is the purview of the Department of Health Services (DHS). The Discharger reports that it is currently processing a drinking water permit with DHS and has included in the application an affirmative commitment that the desalination plant will be equipped with continuous monitoring for hydrocarbons that will be designed to detect oil levels of 0.2 mg/L or higher.</p>	No	N/A
5	<p>5. <i>Expected Maximum Parameter Concentrations not adequate</i> Attachment F- page 8 states that the method detection limits used for several of the pollutants in the analytical results reported by CDP were greater than the corresponding minimum level established in the Ocean Plan. Please provide the list of these pollutants and the MDL used.</p>	<p>The Ocean Plan establishes Minimum Levels (MLs) for analyzing and reporting concentrations of pollutants. These MLs are listed in Appendix II of the Ocean Plan. MLs represent the lowest quantifiable concentration in a sample based on the proper application of method-specific analytical procedures and the absence of matrix interference. MLs also represent the lowest standard concentration in the calibration curve for a specific analytical technique after the application of appropriate method-specific factors. Method Detection Limits (MDLs) are the lowest quantifiable concentration based on the proper application of method-specific analytical procedures reported by a specific laboratory. MDLs could vary among certified laboratories, and be different from MLs due partially to, different analytical procedures. The discharger provided effluent data in Tables 3-12 through 3-27 of the Report of Waste Discharge; Table 5 of the Fact Sheet provides a summary of the data. MDLs for</p>	No	N/A

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		<p>parameters which were reported as non-detects are identified in Table 5 of the Fact Sheet with less-than values (e.g., < 0.12 indicates an MDL of 0.12). This information is available to the public.</p> <p>The Monitoring and Reporting Program No. R9-2006-0065 specifies the detection limits mandated by the Ocean Plan.</p>		

Comments received from Poseidon Resources Corporation via correspondence dated May 31, 2006

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6	Salinity is projected to be a key factor influencing toxicity within the discharge.	<p>Agreed. The Discharger submitted toxicity test information, salinity tolerance study results, and technical literature review information that demonstrates that no toxicity effects are likely to occur if receiving water salinities are maintained below 40 ppt. The Ocean Plan establishes acute toxicity objective that shall be applied to ten percent of the distance from the edge of the outfall structure to the edge of the Zone of Initial Dilution (ZID). To prevent acute toxicity from occurring within this mixing zone, Regional Board staff proposes to establish effluent limits that prohibit the CDP discharge from causing the combined EPS/CDP discharge to exceed average daily salinity concentration of 40 ppt or a maximum hourly salinity concentration of 44 ppt. In this way it can be assured that receiving water salinity levels are maintained below 40 ppt at all times.</p> <p>Staff also proposes to include provisions within the NPDES permit that require the Discharger to perform two salinity and acute toxicity studies. The first study would be completed using pilot plant effluent and would be completed prior to startup that would assess toxicity effects associated with short-term exposure to higher salinity. The second study would utilize CDP effluent to assess relations between acute toxicity test results and salinity. Results of the two studies may be used by the Regional Board to reevaluate CDP effluent limits or evaluate the need for revisions in Monitoring and Reporting Program No. R9-2006-0065.</p>	Yes	IV.B.2 (new Table 9) VI.C.2. c
7	Acute toxicity monitoring conducted in accordance with the provisions of the Tentative MRP would result in artificially inflated acute toxicity values that would not be representative of	<p>The Monitoring and Reporting Program (MRP) of Tentative Order R9-2006-0065 requires the discharger to conduct quarterly acute toxicity test on effluent samples collected at monitoring location M001. The discharger raised a concern that the high salinity at M001 (up to 67 parts per thousand or ppt) could cause acute</p>	Yes	IV.B.2 (new Table 9)

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	<p>the actual quality of water discharged to the ocean.</p>	<p>toxicity in test organisms. Based on the initial toxicity studies conducted by the discharger, salinity-related acute toxicity effects can start to occur at a salinity threshold of slightly above 40 ppt. Staff agrees that salinity can represent a significant component of toxicity and that toxicity tests need to be performed so that results are representative of actual effluent quality. Based on historical data from 1980-2000, daily average EPS cooling water flows exceeded 304 MGD more than 99% of the time, and the projected salinity of combined EPS/CDP discharge would be in the range of 40-41 ppt. To insure that toxicity tests are representative and reflect the maximum anticipated effluent discharge salinities, Regional Board staff proposes that (1) a daily average effluent salinity limit of 40 ppt be established, and (2) compliance with the acute toxicity performance goal be assessed on the basis of maximum daily allowed salinity level of 40 ppt.</p> <p>Additionally, staff proposes that the Discharger be required to perform two salinity-toxicity studies. The purposes of these studies are discussed in No. 6 above.</p>		<p>IV.B.3 (footnote 4 to Table 10)</p> <p>VI.C.2.c</p> <p>MRP VI. (footnote to Table 5)</p>
8	<p>The Discharger may need to temporarily return unused pretreated or product water flows to the ocean during initial facilities startup and during special maintenance operations.</p>	<p>The discharger states that during initial start-up operations, immediately before or after certain onsite maintenance operations, or periods when it is not feasible to deliver product water to the regional potable water system, it may be necessary to return all or a portion of the filtered pretreated seawater, or product water from the reverse osmosis process, back into the EPS effluent channel. The discharger requests a maximum flow rate of 120.6 MGD for the granular media filtration option, or 129 MGD for the membrane filtration pretreatment option, during such temporary period.</p> <p>The Discharger did not submit this information with their permit application, and the requested flow rates are much greater than the originally considered 54 MGD and 57 MGD, respectively. To insure that effluent quality is monitored during these increased</p>	<p>Yes</p>	<p>II.B</p> <p>IV.A.4 (footnote 1 to Table 7)</p> <p>MRP IV. (footnote 15 to</p>

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		<p>flow and deferring discharging circumstances, Regional Board staff proposes that the discharger conduct additional monitoring during "initial plant start-up", "during or after plant maintenance", and "periods when it is otherwise not possible to deliver demineralized product water to the regional water system". This additional monitoring would make sure that water quality objectives are complied during all discharging conditions.</p>		Table 4)
9	<p>The Discharger requests that TRE work plan be submitted 180 days prior to CDP startup instead of 180 days after adoption of the Order.</p>	<p>Agreed.</p>	Yes	VI.C.2. b
10	<p>The Discharger requests that BMP plan be submitted 180 days prior to CDP startup instead of 180 days after adoption of the Order.</p>	<p>Agreed.</p>	Yes	VI.3.C
11	<p>If receiving water violations occur, additional studies may be required to determine whether the EPS or CDP discharge is responsible.</p>	<p>So noted.</p>	Yes	VI.C.2. d