



November 9, 2007

**Agenda Item
Th 7a**

VIA E-MAIL AND FEDEX

Chairman Kruer and Honorable Commissioners
California Coastal Commission
45 Fremont, Suite 2000
San Francisco, CA 94105-2219

Re: Carlsbad Desalination Project Coastal Development Permit Application
No. E-06-013, Agenda Item Th 7a

Dear Chairman Kruer and Honorable Commissioners:

We are writing in response to the Staff Report regarding the application by Poseidon Resources Corporation ("Poseidon") for the above-referenced Coastal Development Permit ("CDP") for the Carlsbad Desalination Project ("Project"), which is scheduled to be considered by the Coastal Commission (the "Commission") at its meeting on November 15, 2007.

While Poseidon appreciates Staff's hard work in analyzing the issues involved in the CDP, we strongly disagree with Staff's conclusions regarding the Project's consistency with the Coastal Act and Carlsbad Local Coastal Program ("LCP") and its recommendation that the Commission deny the CDP. We are also concerned and surprised that the Staff Report: (i) fails to consider and/or summarily dismisses, without any basis, significant information that Poseidon has submitted to Staff over the last fourteen months, which other agencies who have considered and approved the Project have determined to be credible and relied upon; (ii) misstates facts and misleads the Commission on several important issues; and (iii) recommends denial, in large part, based on an unauthorized and unprecedented application of the Coastal Act to greenhouse gas emissions.

The Staff Report essentially ignores the comprehensive Environmental Impact Report certified by the City of Carlsbad (and with regard to which litigation has been dismissed), over eight years of scientific research and environmental study by leaders in the field, including the Scripps Institute of Oceanography, which found that the Project will not have a significant, negative impact on the marine environment. This conclusion is true for all operating conditions studied, including the foreseen "stand-alone" scenario when the Encina Power Station ("EPS") is decommissioned and no longer using the seawater in-take and out-fall infrastructure. This conclusion is also universally held by permitting agencies and the regulatory community, including the City of Carlsbad, San Diego Regional Water Quality Control Board ("Regional Board"), California Department of Health Services and the State Lands Commission staff.

These materials have been provided to the Coastal Commission Staff

Poseidon Resources Corporation

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

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Despite the parade of horrors included in the Staff Report, the simple and uncontroverted facts make clear that the Project will be protective of and will enhance coastal resources:

- A range of alternative sites were studied and the proposed site is the **environmentally superior alternative**.
- All alternative intake scenarios requested by Commission Staff were studied, and the proposed intake is the **environmentally superior alternative**.
- The Project will impinge less fish per day (1.92 pounds) than consumed by a single pelican.
- None of the fish impinged or entrained are threatened or endangered.
- Experts, such as Scripps Institute of Oceanography, have concluded that the Agua Hedionda Lagoon is thriving, and will only improve when the Project's stand-alone operations substantially reduce entrainment levels from existing conditions.
- The minimal marine impacts will be fully mitigated and marine resources will be enhanced through implementation of a **Coastal Habitat Restoration and Enhancement Plan** that will restore 37 acres of marine wetland habitat.
- The Regional Water Quality Control Board determined that the Project's discharge will not harm the marine environment and has required adherence to a **Flow, Entrainment and Impingement Minimization Plan**.
- The Project proposes an unprecedented voluntary **Climate Act Plan** that will render the Project "**net carbon neutral**," even though not required under the Coastal Act.
- **Dedication of more than 15 acres of coastal lands for public access** to the City of Carlsbad.

We therefore respectfully request that the Commission reject the Staff's recommendation, find that the Project is consistent with applicable policies of the Coastal Act and LCP, and approve the Project, for the reasons summarized below and set forth in detail in the Response to the Staff Report attached hereto at Exhibit A and the Correction of Staff Report Misstatements and Omissions attached hereto at Exhibit B. To allow the Commission to approve the Project at its November meeting, Poseidon has prepared a robust set of proposed Special Conditions, attached hereto as Exhibit C. These proposed conditions are based on previous conditions imposed by the Commission on similar industrial projects and we believe that they assure that the Project's commitments are enforceable by the Commission and ensure that Coastal Act and LCP policies and requirements are met and exceeded. In addition to being consistent with and

furthering Coastal Act and LCP policies, the Project is urgently needed and includes significant public benefits:

- **The Need for the Project is Clear.** As has been widely reported, California's water supply situation is rapidly deteriorating. Due to a recent shut-down of the State Water Project pumps, record lows in precipitation, a significantly diminished snowpack, serial below-normal runoff, and global warming, 2007 has been designated as a critically dry year in both the State Water Project and Colorado River watersheds. With this backdrop, State, regional and local water plans all have confirmed that San Diego County's immediate and pressing water needs cannot be met without a substantial investment in seawater desalination and that water conservation and water reuse alone are insufficient to address these needs. The need for the Project is clear: eight water agencies – Carlsbad Municipal Water District, Valley Center Municipal Water District, Rincon del Diablo Municipal Water District, Sweetwater Authority, Rainbow Municipal Water District, Santa Fe Irrigation District, Vallecitos Water District, and Olivenhain Municipal Water District – have already contracted to purchase 100% of the Project's capacity.
- **The Project Fully Mitigates and Enhances Marine Resources and Water Quality.** The Regional Board issued a NPDES Permit to Poseidon under which there will be no discharge impacts, whether the Project operates as a co-located or stand-alone facility. The Project will have insignificant impingement and entrainment impacts as a facility co-located with the EPS or as a stand-alone facility. Staff's finding to the contrary is based on a 900% inflation of the Project's contribution to entrainment of recreational sport fish and complete disregard for the fact that the lagoon is thriving under the existing pumping regime and will only improve under stand-alone desalination operations with its associated 50% reduction in required pumping.

To minimize and mitigate any impacts and enhance the marine environment should the Project operate stand-alone, Poseidon proposes a host of coastal resource enhancements. Poseidon will implement a **Flow, Entrainment and Impingement Minimization Plan** under the direction of the Regional Board. Poseidon also will fund the restoration of 36.8 acres of marine wetland habitat to enhance the near-shore coastal environment, pursuant to its **Coastal Habitat Restoration and Enhancement Plan** ("CHREP"). The CHREP would also result in the addition of valuable acreage for wetland species completely unaffected by the desalination plant's operations. These benefits, along with Poseidon's voluntary stewardship of Agua Hedionda Lagoon described below, more than mitigate the de minimis marine impacts of the Project and serve to restore and enhance coastal habitat.

- **The Project is the Most Environmentally Sensitive Desalination Facility Design.** The Project's use of EPS's existing intake system, whether or not EPS is operating, will not result in any significant unmitigated impacts to marine or other coastal

resources. The Project's use of the EPS system has been carefully reviewed and approved by the City of Carlsbad in its certified Project EIR, and the Regional Board, the entity with primary authority of water quality and related marine resources impacts. The Project will not result in any significant construction- or public access-related impacts. Without scientific support, the Staff Report argues that Poseidon's use of an alternative intakes system (subsurface slant wells, a seabed infiltration system, or an offshore intake) would result in fewer environmental impacts than the proposed Project's use of EPS's existing intake system. Poseidon has conducted site-specific analyses of the viability and impacts of each of these alternative intake systems, and strongly disagrees with Staff's unsupported assertions. Site-specific conditions render subsurface slant wells infeasible, due to the poor quality of water available, and construction of such an intake would require numerous above-ground structures on public beaches. Construction of a seabed infiltration system would require construction and ongoing maintenance in over 3 miles of seabed that would cause the loss of 150 acres of offshore habitat. An offshore intake would shift any Project-related impacts to a more environmentally sensitive area and construction and ongoing maintenance of such an intake would cause significant impacts to marine resources. In all, alternative intake systems would have far greater environmental impacts than the proposed Project, and add significant costs to the Project that would render it infeasible.

The Project Protects and Enhances the Agua Hedionda Lagoon. Poseidon has voluntarily committed to continue the periodic maintenance of the Agua Hedionda Lagoon necessary to keep the Lagoon in its current state in the event that EPS's dredging obligations cease, thereby maintaining a vibrant and thriving ecosystem and benefiting the public, which uses the Lagoon for recreation and fishing, as well as the aquaculture industry. Poseidon's commitment will ensure that the Lagoon remains healthy and can support the numerous current recreational and marine resource uses of the Lagoon, including public access to the YMCA Aquatic Park, Fishing Beach and the Lagoon's popular surfing break, and Hubbs-SeaWorld Fish Hatchery and Carlsbad Aquafarm. Without Poseidon's voluntary stewardship of the Lagoon, in the event of potential future EPS shut down, the Lagoon would return to its prior state of "stinky water" and its environmental and public recreational benefits would vastly diminish.

- **The Project Fully Mitigates Net Carbon Emissions through a Voluntary, Precedent-Setting Climate Action Plan.** Poseidon has committed to implement a precedent-setting **Climate Action Plan** which would result in the Project being the first industrial Project in the State to be "net carbon neutral." This plan is voluntary. California has placed primary authority over air quality impacts, including greenhouse gas emissions and climate change, with the California Air Resources Board ("CARB"). Although the Commission has no authority to impose emissions-related requirements or mitigation pursuant to Coastal Act Sections 30253(4) and 30414(a) (which only allow the Commission to enforce consistency with CARB rules

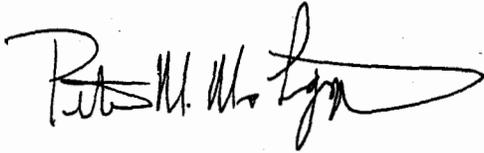
and no CARB rules have been imposed), Poseidon has voluntarily taken early action as part of its commitment to environmental stewardship. As fully described in the attached, the Plan will implement a combination of techniques that may include the installation and use of solar power; purchase of carbon offset projects; installation of energy efficiency technologies; acquisition of Renewable Energy Credits; and/or other measures. Poseidon's commitment to a Climate Action Plan that fully mitigates any Project-related greenhouse gas emissions ensures that the Project will not result in an increase in greenhouse gas emissions or resultant climate change-type impacts. See Exhibit D - Poseidon Resources Draft Climate Action Plan for the Carlsbad Desalination Project, November 9, 2007.

- **The Project Will Not Induce Growth.** The Project will replace an existing and future supply of imported water and serve only growth that is already planned for the region, rather than provide a new water supply that could induce new growth. Moreover, the only area in the coastal zone that will receive water from the Project is the city of Carlsbad, which adopted a Growth Management Plan which is part of the City's LCP. The Plan caps existing and future development and the maximum size of Carlsbad at 54,600 dwelling units, and the Project will do nothing to change Carlsbad's growth limitation.
- **The Project Provides Abundant Public Benefits and Coastal Resource Enhancements.** The Project includes additional public benefits beyond the Coastal Habitat Restoration and Enhancement Plan and Lagoon maintenance including:
 - Dedication of more than 15 acres of Lagoon- and ocean-front land for public purposes;
 - Funding of \$2 million per year for public infrastructure;
- **The Project Has Broad Support.** Recognition of the Project as a critical component in meeting the region's water supply and reliability needs has galvanized broad public and bi-partisan government support, including the entire San Diego County State Senate and Assembly delegation, San Diego County Congressional delegation, all members of San Diego County's U.S. Congressional delegation, the Metropolitan Water District of Southern California, the San Diego County Water Authority, the City of Carlsbad and numerous other local governments, the Agua Hedionda Lagoon Foundation and Hubbs Seaworld Research Institute. Eighty-two of the letters received by the Commission were supportive of the proposed project. Public officials testifying in support of the project at the State Lands Commission Hearing included Senator Chris Kehoe, San Diego Mayor Jerry Sanders, Carlsbad Mayor Bud Lewis, and many local city council members and water agency officials.
- **The CEQA Review for the Project is Comprehensive and Sufficient.** The Staff Report's finding that the City of Carlsbad's review and approval of the Project fails to comply with the California Environmental Quality Act ("CEQA") is inaccurate and

not relevant to this Commission's deliberations. The City of Carlsbad conducted an extensive review of the Project pursuant to CEQA, and analyzed the Project both as a facility co-located with EPS and stand-alone. Under either operating scenario, the City found no significant impacts. There is no "new" information today that would require any supplemental CEQA review of the Project. Moreover, as a certified regulatory program pursuant to Public Resources Code Section 21080.5, the Commission is authorized to analyze such information through its environmental review process and indeed has done so through numerous information requests, and as a result, the Commission Staff Report satisfies the Commission's CEQA obligations.

In all, the Project is an urgently needed and environmentally responsible solution to the San Diego region's water supply and reality needs, which is consistent with and will further Coastal Act and LCP policies and will provide significant public and environmental benefits. We therefore urge the Commission to approve this important Project at its November 15 meeting.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter MacLaggan", with a long horizontal flourish extending to the right.

Peter MacLaggan
Poseidon Resources Corporation

cc: Tom Luster, California Coastal Commission
Rick Zbur, Latham & Watkins LLP

Carlsbad Desalination Project

* Applicant's Response to Staff Report *

* Applicant's Proposed Conditions *

* Applicant's Climate Action Plan *

Information Package

CDP Application No. E-06-013



POSEIDON
R E S O U R C E S

November 2007

**** Coastal Commission Staff Has Been Copied on This Submittal****

Exhibit A

Response to Staff Report

EXHIBIT A

RESPONSE TO STAFF REPORT

I. PROJECT BACKGROUND

The Project proposes a seawater desalination facility, to be located adjacent to the Encina Power Station ("EPS"), with a capacity to produce approximately 50 million gallons per day ("MGD") or 56,000 acre-feet per year ("AFY") of desalinated water. The Project would be advanced through a public-private partnership among Poseidon and multiple municipal and regional water agencies, which would ensure protection of the public trust, maintain traditional governmental oversight and insulate the public from financial risk. Australia, Africa, the Middle East, Europe, India, and China already have turned to desalination as a significant component of their water supplies, and the California Department of Water Resources has identified the need for ten desalination projects of the Project's scale by 2030.

A. The Project

Since 1998, Poseidon has partnered with the City of Carlsbad to bring to fruition the Project; a seawater desalination facility with a capacity to produce approximately 50 MGD or 56,000 AFY of desalinated water - an amount that would serve the needs of over 300,000 residents in San Diego County. The desalination facility would be located adjacent to the existing EPS, immediately south of the Agua Hedionda Lagoon on the Pacific Ocean, within the City of Carlsbad, in northern San Diego County. As depicted below, the Project would occupy a parcel of approximately four acres on the site of the EPS pursuant to a 60-year lease with Cabrillo Power I LLC ("Cabrillo Power"), the owner and operator of the EPS.

The EPS, a power plant with capacity to generate up to 965 megawatts of power, uses one gas turbine generator and five steam generators, the latter of which are cooled by a once-through seawater flow system. The EPS discharges cooling water effluent to the Pacific Ocean pursuant to a National Pollutant Discharge Elimination System ("NPDES") permit. Poseidon proposes to use a portion, approximately 104 MGD, of the EPS cooling water effluent as source water for desalination at the Project, producing an average daily flow of 50 MGD of potable water. Because Poseidon would use water from the EPS's cooling water discharge system, after the water has been processed within the EPS, the Project would not have its own intake and would not require the EPS to take in more water than it already does, thus causing no additional impingement or entrainment losses beyond that of the existing operations at the EPS and insignificant discharge impacts. *See Desalination Project Flow Schematic, below.* Because the Project need not construct its own intake and outfall, it will avoid construction related impacts to Agua Hedionda Lagoon, Carlsbad State Beach or in the Pacific Ocean.

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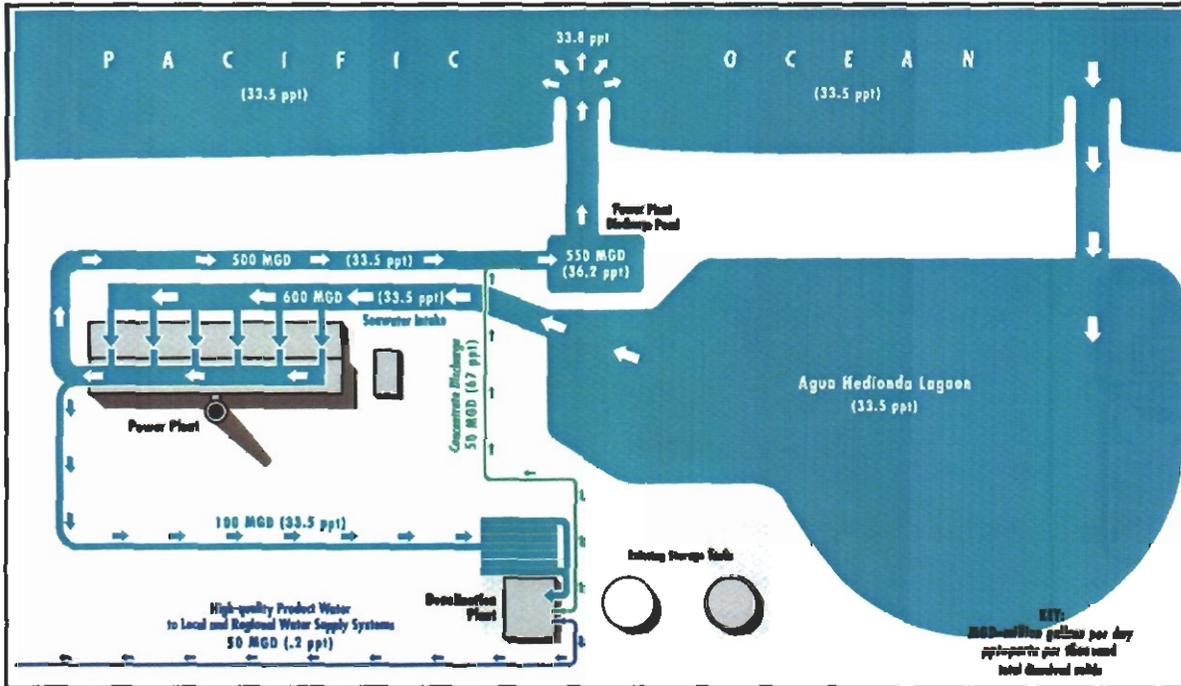


Since the EPS operates intermittently and may cease operation entirely at some time in the future, the City of Carlsbad and Poseidon also analyzed impacts of independent operation of the desalination facility. As a stand-alone facility, the Project's impacts also would also be insignificant. A stand-alone facility would comply with a salinity effluent limitation, 40 ppt, below which no impacts to the marine environment have been shown to occur, and would cause considerably less entrainment and impingement losses than the existing EPS operation. These less than significant impacts would not only be fully mitigated, but the Project also will enhance marine resources over and above its minimal impingement and entrainment impacts through Poseidon's proposed Coastal Habitat Restoration and Enhancement Plan ("CHREP"). Pursuant to the CHREP, Poseidon will fund the restoration and enhancement of up to 36.8 acres of coastal habitat. This amount of habitat restoration will more than fully mitigate the de minimis entrainment and impingement impacts of the Project should it operate stand-alone and serve to enhance marine resources. Over and above this, the Project includes a voluntary offer to maintain the Agua Hedionda Lagoon should EPS's dredging obligations cease in the future due to discontinued use of the seawater cooling system. Ensuring stewardship of the 388-acre Hedionda Lagoon, a highly productive marine wetland and aquatic recreation area, will significantly enhance the coastal and marine environment.

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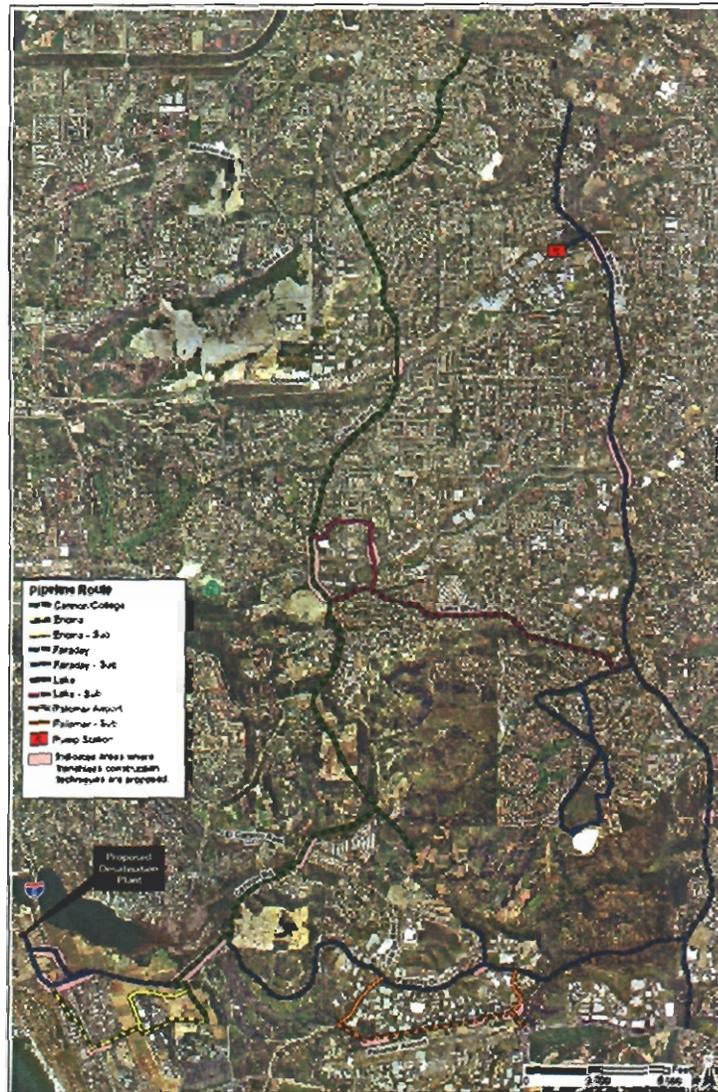

POSEIDON RESOURCES
DESALINATION PROJECT FLOW SCHEMATIC



The desalination process includes pretreatment, reverse osmosis desalination, and disinfection and product water stabilization. The process would generate about 54 MGD of combined filter backwash water and concentrated saline wastewater, which Poseidon would discharge into the EPS cooling water discharge channel for release to the Pacific Ocean. Although this discharge would have a slightly higher salinity than the receiving seawater, it would not adversely impact marine species. The desalinated water would be distributed through pipelines, which are primarily located outside of the coastal zone, to the City of Carlsbad and various local water districts as wholesale water purchasers for ultimate use and consumption by homes and businesses in Northern San Diego County.

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Process Development Plan and Desalination Plant - EIR
Offsite Water Delivery Facility Pipelines & Pump Station **FIGURE 3-5**

In addition to providing a significant source of potable water, the Project would provide significantly greater environmental and public benefits to coastal resources compared to its de minimis impacts. On top of the CHREP and stewardship of the Agua Hedionda Lagoon, described above, Poseidon proposes additional public benefits including (i) continuing sand replenishment and maintenance of grunion spawning habitat on Carlsbad State Beach; (ii) dedication to the public of 15 acres of private ocean and lagoon front property for public access, recreation and marine research and restoration; and (iii) providing \$2.0 million per year to the Carlsbad Housing and Redevelopment Commission for investment in public infrastructure. The Project is also the first major industrial project in the state that we are aware of that has

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committed to be “net carbon neutral” through a voluntary and precedent-setting Climate Action Plan, that the Commission does not currently have authority to impose.

B. The Project is Urgently Needed

The Project would provide an important and much-needed source of desalinated water to Southern California. In the fourteen months since Poseidon filed its CDP application with Staff, the water supply situation in the State of California – already bad – has substantially deteriorated. Poseidon has previously provided Staff with recent newspaper reports that recognize a looming water crisis and clearly identify the need for California, and more specifically San Diego County, to lessen its demand on the State Water Project and Colorado River watersheds, which are critically dry this year. As of April 13, 2007, the Sierra Snowpack survey was 31 percent of normal, resulting in the lowest runoff since the critically dry year of 1977. In the Colorado River basin, the projected runoff is 69 percent of normal, extending the drought in the basin to eight years. The entire state is suffering from below normal precipitation. San Diego had the driest two consecutive years ever recorded. Los Angeles had the lowest recorded rainfall in 120 years. Snowpack in the Owens River basin, which is the predominant feed to the Los Angeles aqueduct system, was 21 percent of normal. Consequently, Los Angeles will turn to the Metropolitan Water District to make up the deficit, which further strains State Water Project and Colorado River supplies available to the rest of the Southern California region.

There is a convergence of warnings that California’s water supply will continue to shrink. Climate change brought on by global warming could disrupt weather patterns, leaving the state vulnerable to punishing drought. There is a possibility that 2007 will not be a single dry year, but the beginning of a multi-year drought. If 2008 offers hydrologic conditions similar to those this year, some significant sources of water for Southern California may not be available.

The most recent example of the deteriorating supply situation occurred this May, when state water officials temporarily turned off the pumps that send water to Southern California from the Sacramento-San Joaquin Delta to protect the endangered smelt and salmon. Although limited pumping has since resumed, the shutdown is the latest development in an escalating crisis over the Delta, a long-troubled ecosystem that is the major water crossroads for 41 percent of San Diego County’s water supply. On August 31st, a federal judge ruled that the State Water Project operations were illegally endangering delta smelt and ordered the long-term reduction in Delta water exports that includes a prohibition on pumping January through June of each year.

This summer, the Metropolitan Water District put San Diego County Agriculture on notice that it will cut agricultural water deliveries by 30 percent beginning January 1, 2008. With \$1.4 billion in annual revenue, San Diego County is the twelfth largest agricultural economy among all counties in the nation, and it could be severely harmed by this reduction in water supply. The Metropolitan Water District also has warned municipal and industrial water users to anticipate water rationing if 2008 – like preceding years – is a dry year. Rationing of municipal and industrial supplies would be highly disruptive to San Diego’s \$150 billion annual economy.

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In light of these concerns, the need for the Project is critical and continues to grow. Due to recognition that the desalination facility is a critical component in meeting the region's water needs and in ensuring water supply reliability, the Project enjoys broad bi-partisan support from the San Diego County State legislative delegation; San Diego congressional delegation; Senate Natural Resources Chairman; the Association of California Water Agencies; the Metropolitan Water District of Southern California; the San Diego County Water Authority; numerous local governments; the Agua Hedionda Lagoon Foundation; BIOCUM; California Coastal Coalition; several Chambers of Commerce; San Diego County Farm Bureau; Hubbs Seaworld Research Institute; San Diego County Taxpayer Association; San Diego County Building and Construction Trades Council; Southwestern Regional Council of Carpenters; San Diego Regional Economic Development Council; and many others. The eight water agencies that already have contracted to receive 100% of the supply of desalinated water from the Project recognize the importance of the Project and are relying on it to meet their water supply needs.

Moreover, State, regional, and local water plans all have confirmed that the immediate and pressing water needs are so great, that they cannot be met by conservation and reuse alone and that a substantial investment in seawater desalination, including the Project, is required. The Project's capacity of 56,000 AFY of new water supply for the San Diego region is about ten percent of 500,000 AFY of desalinated water identified by the California Department of Water Resources as needed by 2030, as stated in its 2006 Water Plan Update. This Update lists the Project as a potential source of desalinated water. The Metropolitan Water District of Southern California's Integrated Water Resources Plan identified a need for 150,000 AFY of seawater desalination (including 56,000 AFY from the Carlsbad project) to ensure regional water supply reliability. In addition, the San Diego County Water Authority updated its 2005 Urban Water Management Plan in April 2007 specifically to reaffirm the need for 56,000 AFY of seawater desalination from the Project by 2011. The Project is a central component of state, regional and local water supply planning to meet already-identified demand.

An important feature of the desalinated water that would be produced by the Project is its reliability, especially in times of drought, as may be occurring now in Southern California. A paramount project objective is to improve water supply reliability for the City of Carlsbad and the San Diego region by increasing the diversity of sources. In contrast to imported water, with which concerns are growing due to the effects of climate change, limited surface and groundwater supplies, desalinated water provides water reliability.

Recognizing the importance of the Project, eight water agencies – Carlsbad Municipal Water District, Valley Center Municipal Water District, Rincon del Diablo Municipal Water District, Sweetwater Authority, Rainbow Municipal Water District, Santa Fe Irrigation District, Vallecitos Water District, and Olivenhain Municipal Water District – have already contracted to purchase 100% of the Project's capacity.

These agencies have some of the most aggressive water recycling programs in the region. Rincon del Diablo Municipal Water District meets 33% and Carlsbad Municipal Water District meets 20% of its water demand, respectively, through the use of recycled water. Collectively,

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local and regional water conservation programs are expected to reduce the San Diego region's reliance on imported water by more than 100,000 AFY by 2025. Nevertheless, these agencies, as well as the Department of Water Resources and the Metropolitan Water District, have stressed the need for desalinated water to ensure regional water supply reliability and to meet existing demands and planned-for future growth, which is why they have identified the Project's water supply as a component of their water plans.

C. Staff is Not Engaged in an Impartial, Neutral Analysis of the Project

Poseidon is concerned and surprised that the Staff Report fails to consider and summarily dismisses, without any basis, significant information that Poseidon has submitted to Staff over the last fourteen months, which other agencies who have considered and approved and the Project have relied upon; and misstates facts and misleads the Commission on several important issues.

For example, citing "overall trends" of increased energy costs and noting that it "could not verify" Poseidon's cost estimates, the Staff Report devotes four pages to a dissection of Poseidon's cost estimates for the Project, questioning all of Poseidon's figures and incorrectly indicating that Poseidon has failed to consider numerous cost sources including mitigation costs, electricity costs, dredging costs, and water pumping costs. *See* Staff Report at 17-20. In reality, Poseidon submitted numerous pages of cost data based on actual costs of the Project that take into account all relevant information and are the basis for water purchase contracts that Poseidon has entered into. *See, e.g.,* Poseidon Resources Corporation, Response to California Coastal Commission's September 28 Request for Additional Information, November 30, 2006. There is substantial evidence in the record to allow the Commission to find these estimates credible, and Staff provides mere hypotheses rather than evidence to refute Poseidon's estimates.

In particular, Staff's comment that Poseidon is relying on a "not-yet-available subsidy" from the Metropolitan Water District of Southern California ("MWD") is contrary to information provided directly to Staff. In its June 22, 2007 letter to Peter Douglas, MWD confirmed that it intends to provide Poseidon's water agency partners \$250 per acre-foot of water produced by the Project: "Metropolitan's Board authorized financial assistance to help make this important project viable. Metropolitan would provide up to \$14 million annually for seawater desalination from the project for potable supply that reduces demand for imported water supplies."

The Staff Report contains myriad additional misstatements and omissions of facts that are integral to the Commission's review of the Project. While it is impossible to address each and every such fact, Poseidon has attempted to set the record straight to the extent possible in the short time it has had to respond in the attached Exhibit B, Correction of Staff Report Misstatements, Inaccuracies and Omissions.

These materials have been provided to the Coastal Commission Staff

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II. THE PROJECT IS CONSISTENT WITH ALL APPLICABLE COASTAL ACT POLICIES

A. The Project Will Maintain, Enhance and Restore Marine Biology and Water Quality

The Staff Report extensively discusses potential entrainment, impingement and discharge-related impacts that it provides will be caused by Poseidon's use of EPS's seawater intake system. The Staff Report concludes that the Project's use of EPS's intake system will cause significant adverse impacts on marine resources and water quality and that therefore the Project does not comply with Coastal Act Sections 30230 and 30231. Poseidon respectfully disagrees.

As documented in the certified EIR prepared for the Project and numerous submissions to Commission Staff, operating co-located with EPS, the Project will not have significant entrainment or impingement impacts. Operating stand-alone, while the Project may have de minimis entrainment and impingement impacts, any such impacts will not significantly adversely impact marine species. Under either operating scenario, the Regional Board-issued NPDES Permit ensures that the Project will have no discharge-related impacts. Moreover, Poseidon's proposed mitigation package will more than fully mitigate for any marine biology or water quality impacts related to the Project, thus enhancing and restoring marine biology. Enforcement of this mitigation package is assured through special conditions proposed for adoption by the Commission, described herein and attached hereto as Exhibit C.

In all, whether or not the EPS is operating, the Project has no significant unmitigated entrainment, impingement or discharge-related impacts and it will maintain, enhance and restore marine biology and water quality in conformance with Coastal Act Sections 30230 and 30231 and all relevant Carlsbad Local Coastal Plan ("LCP") policies.

1. The State Water Resources Control Board and the Regional Board have Primary Authority over Intake-Related Impacts

The Staff Report misrepresents that the Coastal Commission has authority to require the use of "best available technology" to protect marine resources pursuant to Section 13142.5 of the California Water Code by selectively quoting both the Coastal Act and the Water Code. Section 30412 makes clear that the State Water Resources Control Board ("State Board") and the Regional Water Quality Control Boards have "primary responsibility for the coordination and control of water quality," including ensuring compliance with the California Ocean Plan, and prohibits the Coastal Commission from "modify[ing], adopt[ing] conditions, or tak[ing] any action in conflict with any determination by the [State Board] or any California regional water quality control board in matters relating to water quality" See Coastal Act § 30412(b); see also California Water Code §§ 13001; 13142.5; California Ocean Plan Section II.E.1 (providing that "[m]arine communities, including vertebrate, invertebrate, and plant species, shall not be degraded"). The Regional Board has already reviewed the Project's discharge-related impacts and is currently reviewing the Project's intake-related impacts pursuant to the federal Clean

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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.

2. The Staff Report Overstates Potential Entrainment and Impingement Impacts

Even if the Commission had authority to review and impose mitigation for any entrainment and impingement-related impacts, which it does not, Commission Staff has overstated any potential impacts.

Co-Located Facility:

Operating co-located with the EPS, the Project would not cause any additional impingement losses to marine organisms that have been impinged by the EPS, and would cause only de minimis entrainment impacts beyond that of the existing EPS operations. The Project would use water that has passed through the EPS's existing intake structure, rather than its own intake structure, and it would not require the EPS to increase the quantity or velocity of intake. Because no significant additional impingement or entrainment impacts would occur when the Project operates in conjunction with the EPS, no mitigation is necessary. The City's EIR and the Regional Board already determined that a co-located facility would not impact marine resources and complies with Water Code Section 13142.5(b). *See* NPDES Permit at F-49.

Stand-Alone Facility:

As a stand-alone facility, the City's EIR determined that the Project would cause considerably less entrainment and impingement losses than the existing EPS operation and would have no significant impacts. Poseidon also evaluated potential impingement and entrainment impacts of the Project, should it operate on a stand-alone basis and take in 304 MGD, as part of its Flow, Entrainment and Impingement Minimization Plan ("Minimization Plan") prepared in compliance with its NPDES Permit. *See* Revised Flow, Entrainment and Impingement Minimization Plan. To prepare the Minimization Plan, Poseidon collected impingement and entrainment data in accordance with a published study plan, which was reviewed and approved by the Regional Board, representatives of the California Department of Fish and Game, the National Marine Fisheries Service, and by an EPA-appointed independent consultant. The Regional Board is currently reviewing the Plan to determine the Project's compliance with Water Code Section 13142.5(b). *See* NPDES Permit at F-49-50.

Operating stand-alone, impingement impacts would be insignificant, as the Project would impinge a mass of organisms of 1.92 pounds per day, which is significantly less than the average daily consumption of a single pelican, and represents 0.0000001 percent of the total volume of material flowing through the intake. Minimization Plan at 2, 17-21. The Staff Report overstates the impingement impact as 2.5 pounds per day, but agrees that even this amount of impingement is insignificant. However, Staff claims that the Project will impinge endangered sea turtles, and that this would be a significant impact. Two green sea turtles have been impinged at the EPS over the last 53 years. Poseidon plans to operate the intake system at a minimum velocity to

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decrease the likelihood of any impingement of sea turtles in the future. In all, any impingement impacts of the Project would be insignificant. Poseidon has documented that the velocity of the water at the entrance to the bar racks is below 0.5 feet per second. Therefore the proposed operation would be consistent with what the U.S. EPA considers to be "best available technology" for cooling water intakes. As such the impingement impacts associated with the stand-alone operation are less than significant.

Entrainment impacts would also be de minimis and would have no ecological effects on entrained species. Moreover, even if entrainment would have an impact on marine species, which it will not, any entrainment impacts will be more than fully mitigated through the restoration of 37 acres of coastal habitat, as described fully below. Thus, the Project will maintain biological resources and no additional mitigation is required for potential impingement and entrainment impacts.

The Staff Report admits that Staff did not "fully evaluate the accuracy of the results [of the entrainment study] or determine how those results were derived," but nevertheless maintains without support that "the full range of impacts caused by entrainment are likely much broader than expressed in these study results." Staff Report at 30. Entrainment samples collected during the study were consistently dominated by larvae of three lagoon-dwelling species and contained relatively few numbers of ocean-dwelling species. The three dominant species were gobies, a mud dwelling group of fish ubiquitous to all California lagoons and bays; blennies, fish that are crevice dwellers in fouling communities on pilings and bottles and cans on the seafloor; and garibaldi, a typical rocky reef dweller in open ocean habitat, but in this case occupying the rocky reef of rock rip-rap armoring the lagoon side of the Carlsbad Boulevard jetty. None of the species entrained is listed as threatened or endangered. However, Staff misleadingly infers garibaldi is listed as threatened or endangered, stating that there is a "total prohibition on taking" garibaldi. Rather, Fish & Game regulations cited by Staff prohibit fishing of garibaldi; the regulations do not prohibit incidental entrainment of garibaldi larvae. Biological surveys clearly demonstrate that garibaldi in the Lagoon have been and are thriving, notwithstanding the fact that EPS's historical pumping rate is twice what the rate would be under stand-alone desalination facility operations.

Poseidon estimated the proportional entrainment losses of larval fish using the Empirical Transport Model ("ETM") (as recommended by Commission staff) as 12.2% of Agua Hedionda Lagoon habitat, which corresponds to a maximum, conservative estimate of 36.8 acres of habitat area production forgone ("APF"). This fraction of marine organisms lost to entrainment would have no effect on the species' ability to sustain their populations, and thus would maintain these biological resources, for the following reasons:

First, "the number of larvae produced by most fishes during their reproductive years as adults can be enormous, but only two of those larvae need to survive to adult to maintain a stable population level." See Electric Power Research Institute Comment Letter regarding the Proposed Statewide Policy for Once-Through Cooling dated September 14, 2006, submitted to the SWRCB. Specifically for gobies, which are the species with the highest potential percentage

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of entrainment (ETM level of 21.599%) for the Carlsbad project, “the total lifetime survival required to maintain the population is less than 0.1%.” Thus, this means that the ETM level for this species has to increase to 99.9% in order for the species population to be affected adversely. The potential impact of the desalination plant, should it operate stand-alone, is less than 25% of the threshold for causing adverse effects for these species.

Second, from a population stability perspective, the California Department of Fish & Game (“CDFG”) stated in its 2002 Nearshore Fisheries Management Plan that an overfished stock is one that has been reduced to 30% of its unfished biomass and that controls would need to be enacted whenever a stock is reduced to 60% of its unfished biomass. As indicated in the ETM analysis, the species entrained by the power plant intake average 12.2% of the total amount of species at risk to entrainment. The Staff Report incorrectly states that 1.5% of the entrained fish would be California halibut; the study shows that halibut may comprise 0.15% of the entrained fish. Thus, even if the proportional loss of larvae was the same as losses of adults of the species, the CDFG fishery management practice recognizes that losses (harvest) to the population of up to 40 percent are safely sustainable, requiring no regulatory action. Therefore, entrainment levels of 21% would have no adverse impacts to the goby population, and no mitigation would be required.

Third, the vast majority of the species that may be entrained as a result of stand-alone desalination plant operations are not commercially or recreationally fished. Since they are not harvested, the low levels of mortality imposed by entrainment are being imposed on populations that are at a level close to the natural carrying capacity of the coastal environment. Therefore, mortality due to entrainment would not affect such populations.

In all, any potential impingement or entrainment impacts of the Project, if it should operate stand-alone in the future, would have no significant adverse effects on marine biology. The Staff Report presents no evidence in dispute, but merely states that the “range of impacts caused by entrainment are likely much broader” than Poseidon’s study presents.

Notwithstanding the lack of significant impacts, Poseidon has committed to several impingement and entrainment minimization techniques that will ensure marine resources are best protected, and Poseidon proposes a significant mitigation package that we discuss below. During periods of EPS shutdown or slowdown, Poseidon will operate EPS’s intake pumps so as to intake the minimum flow necessary for desalination, thus reducing incremental impingement and entrainment effects. Minimization Plan at 3, 25-26. Poseidon will also install variable frequency drives on the desalination plant intake pumps to minimize the amount of intake flow entrained into the desalination plant. *Id.* at 3, 39. With these operational and technological entrainment and impingement reduction measures, which will be memorialized in Poseidon’s Flow, Entrainment and Impingement Minimization Plan that is incorporated into the CDP with **Special Condition 8**, along with the mitigation program described below, the Project will maintain, enhance and restore marine resources consistent with Coastal Act and LCP policies.

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3. The Staff Report Overstates Potential Discharge-Related Impacts and Understates the Regional Board's Discharge-Related Findings

The Staff Report contends that the Project's saline discharge will adversely impact the marine environment, contrary to Coastal Act Sections 30230 and 30231. However, the Regional Board, the agency with primary authority over water quality-related impacts, already determined that the Project will not cause salinity or other discharge-related impacts to marine organisms. The Coastal Commission is bound by Section 30412 of the Coastal Act, which provides that the State Board and the Regional Board have "primary responsibility for the coordination and control of water quality" and prohibits the Coastal Commission from "modify[ing], adopt[ing] conditions, or tak[ing] any action in conflict with any determination by the [State Board] or any California regional water quality control board in matters relating to water quality" In approving the NPDES Permit for the proposed project, the Regional Board determined that water quality, including all forms of marine life, would not be degraded, as required by the California Ocean Plan. See California Ocean Plan Section II.E.1 (providing that "[m]arine communities, including vertebrate, invertebrate, and plant species, shall not be degraded").

Staff purports to argue that the Regional Board had not yet made a determination whether the Project's saline discharge would adversely impact marine resources and require mitigation. Staff is again hiding the ball. The fact that the Regional Board has not yet approved Poseidon's Flow, Entrainment and Impingement Minimization Plan does nothing to negate that fact that the Board determined the Project's saline discharge would not adversely effect marine resources. Before issuing the Project's NPDES Permit, the Regional Board extensively considered the discharge impacts of the Project and conditioned all potential discharge-related impacts to ensure compliance with Clean Water Act and Ocean Plan requirements, as described below. *See, e.g.*, NPDES Permit, Regional Board Order R9-2006-0065 at 12, F-18, F-37 (Attachment 1 to Poseidon Resources Corporation, Response to California Coastal Commission's September 28, 2006 Request for Additional Information, November 30, 2006). Therefore, the Coastal Commission may not impose a lower daily effluent limitation for salinity or require mitigation for salinity levels that the Regional Board has determined not to be harmful to receiving waters. *See also* California Water Code §§ 13001; 13142.5.

The Ocean Plan contains water quality objectives and beneficial uses for ocean waters of California. The beneficial uses of ocean waters include industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated areas of special biological significance; rare and endangered species; marine habitat; fish migration; and fish spawning and shellfish harvesting. The Regional Board determined that an average daily effluent limitation of 40 parts per thousand for salinity would protect beneficial uses of the Ocean (including protection of fish habitat) and ensure that no salinity-related toxicity effects would occur in receiving waters. NPDES Permit, Regional Board Order R9-2006-0065 at 12, F-18, F-37 (Attachment 1 to Poseidon Resources Corporation, Response to California Coastal Commission's September 28, 2006 Request for Additional Information, November 30, 2006). The NDPEs Permit establishes extensive monitoring and reporting requirements to ensure

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compliance with this effluent limitation. In all, the Permit ensures that the Project's discharge would maintain, enhance, and where feasible, restore the marine biological productivity, and Coastal Act Section 30412 dictates that the Commission may not find otherwise or require mitigation for a non-existent impact.

4. Poseidon's Proposed Mitigation Package Will Not Only Fully Mitigate the Potential Impacts from Stand-Alone Operation But Also Significantly Enhance the Marine Environment

Carlsbad's EIR determined that the Project would have no significant impacts on marine resources. See EIR Section 4.3. However, to mitigate for any de minimis impingement and entrainment impacts that may occur should the Project operate as a stand-alone facility, Poseidon has proposed a Coastal Habitat Restoration and Enhancement Plan ("CHREP") that would fund up to 37 acres of restoration projects to enhance the near-shore coastal environment near the Project. Poseidon's planned sponsorship of 37 acres of wetlands restoration projects would provide full mitigation for the estimated maximum of 36.8 acres APF associated with the Project's stand-alone operation of EPS's intake. In fact, 37 acres of restoration projects will not only more than fully mitigate any Project-related impacts but also will significantly enhance the marine environment. The APF represents an overly conservative measure of the potential impacts of loss of marine organisms that relies on a number of assumptions not known to occur in practice. Indeed, the continuous persistence of abundant diverse marine life in Agua Hedionda Lagoon after over 50 years of EPS intake operations demonstrates that APF is an overly conservative estimate of entrainment effects and that the actual impact is well within the capacity of the impacted species to naturally compensate for the losses even without the development of any additional habitat for such species. Therefore, Poseidon's funding of 37 acres of habitat restoration would not only compensate for the physical loss of individuals of the impacted species but also enhance the coastal environment.

Poseidon's restoration of 37 acres of coastal lands would create habitat for populations of numerous species unaffected in any manner by the intake flows, and these restored acres of habitat will not only offset any theoretical entrainment losses, but will also greatly enhance ecological production. Poseidon's CHREP provides that the key goal of the projects is to create or restore coastal habitat similar to that of Agua Hedionda Lagoon, which will provide measurable long-term environmental benefits to mitigate potential impingement and entrainment impacts associated with the Project's operations.

The Staff Report criticizes that the CHREP does not provide enough information or certainty to determine whether the restoration project(s) would be implemented, would provide adequate mitigation, or would conform to Coastal Act provisions. First, Staff does not rely on any Coastal Act policies or Commission regulations in outlining what it believes "adequate mitigation" would be. As far as we are aware, there are no published Commission guidelines that set out requirements or review standards for the quantity ("1:1") or quality ("on site") of mitigation. To the extent that Staff attempts to rely on any such requirements here, such attempt would amount to reliance on an unlawful underground regulation, and is improper.

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Poseidon has committed to implementing the plan and funding at least 37 acres of coastal restoration that would provide more than sufficient mitigation to comply with the Coastal Act, to alleviate Staff's concerns Poseidon has proposed **Special Condition 4**. **Special Condition 4** would serve to render implementation of the CHREP a component of the Project enforceable by the Commission under the CDP and ensures that Poseidon will restore marine wetlands habitat. Moreover, contingent on the Regional Board's concurrence, **Special Condition 4** provides that Poseidon will implement a restoration proposal proposed by the San Dieguito River Park Joint Powers Authority ("River Park") that was presented in the CHREP. The Coastal Commission approved the River Park proposal and issued a CDP for the restoration that Poseidon would fund pursuant to the proposal. See Staff Report and Recommendation and Coastal Development Permit for Southern California Edison and San Dieguito River Valley Joint Powers Authority's San Dieguito Wetland Restoration Plan, CDP No. 6-04-88, Item No. Wed-8.f, October 12, 2005. Thus, **Special Condition 4** also provides clear assurance that the restoration project conforms to Coastal Act provisions.

With the implementation of 37 acres in coastal restoration projects, the Project will maintain, restore and enhance marine biology and water quality in conformance with Coastal Act policies 30230 and 30231 and all relevant LCP policies. Nonetheless, Poseidon voluntarily proposes additional marine resources restoration and enhancement above and beyond the CHREP: stewardship of Agua Hedionda Lagoon should EPS cease utilizing the intake system. Marine species in Agua Hedionda Lagoon would be directly benefited by Poseidon's proposed dredging because the dredging would prevent the loss of tidal circulation throughout the 388-acre lagoon and preserve and protect the existing highly productive Lagoon ecosystem, and existing Lagoon-based marine research, aquaculture, fish hatchery, sand replenishment and visual and aesthetic enjoyment. Thus, Poseidon's proposed stewardship of the Lagoon will further the policies of Coastal Act Sections 30230 and 30231, and, as explained in more detail in Section II.D below, the proposed dredging would also have significant public access and recreational benefits.

Poseidon's proposed combination of the CHREP and stewardship of the Lagoon will more than fully mitigate any marine resources impacts of the Project, and will serve to maintain, enhance and restore the marine environment.

5. Once-through cooling regulations will not affect the Project

Staff argues that the recent Second Circuit *Riverkeeper* decision, *Riverkeeper, Inc. v. EPA*, 475 F.3d 83 (2d Cir. 2007), which relates to regulation of once-through cooling water intake structures, should have a significant effect on the Commission's analysis of the Project. Staff argues that *Riverkeeper* makes it likely that either the EPS or the Project, or both, would be prohibited from using the intake structures. Poseidon disagrees.

The EPS's cooling water intake system is regulated under Clean Water Act Section 316(b). In 2004, pursuant to Section 316(b), the U.S. Environmental Protection Agency ("EPA")

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promulgated regulations that apply to Phase II facilities, such as the EPS. These Phase II regulations established performance standards for impingement and entrainment and listed multiple possible compliance alternatives to achieve “best technology available” (BTA), as required by Section 316(b). EPA’s Phase II regulations were challenged, and the Second Circuit recently remanded to the EPA for reconsideration portions of those regulations regarding BTA for certain existing power plants.

While certain parts of the 316(b) regulations, then, have been remanded, it is still speculative at this point whether regulations to be developed would impact the EPS’s once-through cooling system. *Riverkeeper* merely delays a final resolution as to what constitutes BTA for the purposes of section 316(b) of the Clean Water Act and to what extent a permitting authority may make site-specific determinations. In the meantime, the use and operation of existing cooling water intake structures for once-through cooling by power plants such as the EPS is not prohibited by Section 316(b), *Riverkeeper*, or the Phase II regulations at issue in *Riverkeeper*.

Even though it is speculative how or whether future Phase II regulations might impact the EPS’s use of the intake structures, Poseidon already has analyzed the impacts of the Project as a stand-alone facility. These studies and analyses show that entrainment caused by a stand-alone Project would be significantly less than that already caused by the EPS, which is a small amount that does not affect sustainability of the species. Similarly, the Project, as a stand-alone facility, would impinge only a small mass of organisms. A stand-alone facility would comply with a discharge limitation of 40 ppt, below which no salinity-related impacts would occur.

Even if future Phase II regulations do impact the EPS’s use of the intake structures – which is speculative – they would not prohibit Poseidon’s use of them. As indicated in Section 316(b) and the Phase II regulations, as well as the State Board’s scoping document regarding its Section 316(b) policy, Section 316(b) does not apply to desalination facilities, such as the Project. Section 316(b) applies only to “cooling water intake structures,” which intake “water used for contact or non-contact cooling, including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content,” intended “to absorb waste heat rejected from the process or processes used, or from auxiliary operations on the facility’s premises.” 40 § C.F.R. 125.93. The Phase II regulations apply only if the facility: (1) is a point source; (2) uses cooling water intake structures with a capacity to intake at least 50 MGD of cooling water; (3) generates electric power either to transmit or to sell for eventual transmission; and (4) uses at least 25 percent of water withdrawn exclusively for cooling purposes. *See id.* § 125.91. Clearly, the regulations are not applicable to the Project, as it is not an electrical generating facility and would not use water for cooling purposes. Not surprisingly, the State Board’s Section 316(b) scoping document states clearly and simply that desalination plants are “outside the scope of the Clean Water Act [Section] 316(b)” and “would be more appropriately addressed through the other water quality control plans.” *See* State Board, Scoping Document: Proposed Statewide Policy on Clean Water Act Section 316(b) Regulations, at 28 (June 13, 2006). Thus, Poseidon would not be prohibited by any future Section 316(b) regulations from using the EPS’s existing intake structures.

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Furthermore, when the NPDES Permit for the Project was appealed to the State Water Resources Control Board, the State Board determined that the appeal was without merit, and dismissed this appeal. Regardless of whether EPS will, in the future, be prohibited from using its cooling water intake structures, causing the Project to operate as a stand-alone facility, Poseidon would not be prohibited by Section 316(b) or future Phase II regulations from using the intake structures.

B. The Project is the Most Environmentally Friendly, and Only Feasible, Design Alternative

As we explain in detail above, the Project's use of EPS's existing intake system, whether or not EPS is operating, will result in no significant impacts to marine resources. The Project's use of the EPS system has been carefully reviewed by the City of Carlsbad in preparing the Project EIR, and the Regional Board, the entity with primary authority over water quality and related marine resources impacts. See Coastal Act Section 30412. Nonetheless, the Staff Report incorrectly argues that there are at least three intake alternatives (slant wells, a seabed infiltration gallery, and an offshore intake), each of which is environmentally superior to the current Project (which the EIR determined has no significant impacts on marine resources). Staff is incorrect, as discussed more fully below. Staff also intimates that it has authority pursuant to Water Code Section 13142.5 to require Poseidon to utilize what it deems the "best available technology" to minimize marine resources impacts. However, as explained above, pursuant to Water Code Section 13142.5 and Coastal Act Section 30412, the State and Regional Boards have primary authority to address marine resources impacts and require any necessary technological measures to reduce impacts. Water Code Section 13142.5 does not prohibit Poseidon's use of EPS's intake system. In any event, use of subsurface slant wells, an infiltration gallery and/or an offshore intake would not represent the best availability technology because all would result in significant environmental impacts and a huge increase in Project costs that would render the Project infeasible.

1. Subsurface intakes are environmentally inferior and infeasible.
 - a. Slant wells cannot provide sufficient high-quality water in the Project-area and would render the Project infeasible.

Poseidon reviewed and conducted site-specific analyses of the use of subsurface slant wells and found that such intakes are infeasible and inferior to the proposed Project. See Poseidon Resources Corporation. Transmittal of *Analysis of Alternative Subsurface Seawater Intake Structures, Proposed Desalination Plant, Carlsbad, CA, Wiedlin & Associates (January 30, 2007)*, sent February 2, 2007; Poseidon Resources Corporation, Response to California Coastal Commission's September 28, 2006 Request for Additional Information, November 30, 2006, at pages 31-41. The use of slant wells is infeasible because pilot testing indicates that the quality of the water available from subsurface intakes would be so low as to be difficult, if not impossible, to treat due to salinity concentrations twice that of seawater, excessive iron, and high suspended solids. Whether such an intake is feasible near Dana Point, as Staff notes, is irrelevant. Staff has presented no evidence that the subsurface water supply in the Project-area is

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satisfactory for desalination purposes. Poseidon's studies indicate that, at best, one slant well could provide only 5% of the water required by the Project. Thus many multiple slant wells would be needed to meet Project objectives and address the well-documented water needs in Southern California.

Moreover, the construction and use of subsurface intakes for the Project would cause adverse environmental impacts to coastal resources at Carlsbad beach, including but not limited to the creation of negative traffic, noise, and air pollution impacts for a period of two years during construction, and disturbance of and, loss of public access to, the area occupied by the wells. Because multiple smaller facilities would result in far greater environmental impacts and costs than the Project, they would be neither feasible to address water needs nor consistent with Coastal Act policies.

Finally, slant wells would be economically infeasible. It would cost approximately \$256 million to construct a slant well system, as well as over \$162 million in indirect costs. *See* Poseidon Resources Corporation, Transmittal of Intake Cost Estimates, October 17, 2007. This represents a significant 139% increase in construction costs for the Project, which not only would defeat the Project objective of providing affordable water supply but also would render the Project infeasible. Poseidon acknowledges that Staff does not agree with our estimate of the cost of alternative intake systems. However, even if Staff's concerns about the cost estimates of alternative intake systems were valid, which they are not, subsurface intake systems would still cost hundreds of millions of dollars. The purpose of this expense would be to avoid an impact that over six years of scientific research and environmental study by leaders in the field have shown does not have a significant, negative impact on the marine environment.

- b. An infiltration gallery would cause significant environmental impacts and increase Project costs to render the Project infeasible.

Staff contends that a subsurface seawater infiltration gallery, similar to the one used at a facility in Fukuoka, Japan, could be used here and provide for lesser environmental impacts. Poseidon disagrees. The environmental impacts of an infiltration gallery are far greater than those associated with the proposed Project. *See* Poseidon Resources Corporation, Additional Analysis of Submerged Seabed Intake Gallery, October 8, 2007.

Construction and operation of a submerged seabed infiltration gallery, like the one used in Fukuoka, with the requisite intake capacity of 304 MGD, would require temporary and permanent destruction of approximately 150 acres of coastal habitat. *Id.* The system would consist of two components; (i) an intake filtration bed; and (ii) 78 connector pipelines spaced at 200 foot intervals, connected to 78 collection wells. Construction impacts would destroy this 150-acre area, approximately 70 percent of which would contain basement and high relief reefs, and would have a permanent and significant effect on the marine biota along with permanent destruction of lobster fishery grounds. This 150-acre habitat-loss estimate is based on the assumption that the Carlsbad site has close to ideal conditions (aggressive filtration rate, no loss of filtration media due to coastal erosion and tidal movement, and high quality seawater) for a subsurface seawater intake; the actual area required for the system could be greater. Even under

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this best-case scenario, the 150-acre coastal habitat loss associated with a Fukuoka-type subsurface intake is 407 percent higher than the worst-case estimate for the area of habitat production forgone of 36.8 acres for the proposed Project use of EPS's intake system. *Id.*

Staff's contention that construction of such an intake system "would not be expected to cause any significant impacts" is quite shocking. *See* Staff Report at 35. The environmental impact of the loss of 150 acres of offshore habitat is far greater than the impacts from the proposed existing intake for the following reasons:

First, construction of an infiltration gallery would result in an actual physical removal and destruction of 150 acres of coastal habitat, such that a 15-foot thick layer of ocean bottom shelf with all living organisms in it would be removed. On the other hand, the estimated 36.8 acres of APF associated with the proposed project is acknowledged by the experts to represent a worst-case impact, extremely conservative measure of potential impact of loss of marine organisms that relies on a number of conservative assumptions, which would not occur in practice. *See* Poseidon Resources Corporation, Additional Analysis of Submerged Seabed Intake Gallery, October 8, 2007.

Second, it would be necessary to excavate and construct 76 intake water collection wells and trenches for collector piping along a three-mile beach strip of the City of Carlsbad shore, which would limit public access to the beach for a period of 2 to 4 years, result in significant loss of recreational activities for the City of Carlsbad, and result in a permanent loss in public access and visual resources impacts where the collection wells are located. *Id.*

Third, excavation of three-mile long by 400 feet wide strip of seafloor will make this area of the ocean unavailable for recreational activities such as fishing and diving and will result in additional NO_x and carbon dioxide gas emissions associated with operation of barges and platforms and equipment needed to excavate and remove the ocean shelf material over this vast area. *Id.*

Fourth, in order to secure consistent operation of the filter bed, this bed would need to be dredged every one to three years to remove the sediment and entrained marine life that would accumulate in the intake filter bed and over time will plug the bed. The dredged material would need to be disposed away from the one-mile strip of the intake filter bed in order prevent the removed solids to return to the area of the bed. This will not only result in frequent adverse impacts of the marine flora and fauna in the area but will also render the area unavailable for recreational activities during maintenance activities. *Id.*

Finally, Poseidon estimates the cost to construct such an intake system would be more than \$646 million, 215% higher than the cost of the entire proposed Project. Such an increase in costs would render the Project infeasible. *See* Poseidon Resources Corporation, Transmittal of Intake Cost Estimates, October 17, 2007.

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2. An offshore intake is also environmentally inferior and infeasible.

Staff next contends that use of an offshore intake, while not completely eliminating entrainment and impingement impacts, would minimize such impacts. Staff is again wrong. After considerable analysis, Poseidon also concluded that use of an offshore intake system would result in greater environmental impacts than Poseidon's use of the existing EPS intake under the stand-alone desalination facility operation and that construction of such an offshore intake system would render the Project infeasible due to a significant increase in project costs. See Poseidon Resources Corporation, Analysis of Offshore Intakes, October 8, 2007 (including attachments).

The Staff Report relies on a draft EIR commissioned by the SLC related to an Agua Hedionda Lagoon jetty extension project. However, this draft EIR was withdrawn by the applicant prior to public review and comment. The analysis of the offshore intake in the DEIR is minimal and would probably not pass peer review. While the executive summary gives 5 paragraphs of discussion about the environmentally preferred alternative, only two paragraphs are found in the main body and technical sections of the DEIR: one paragraph on page 3-6 that describes it as 30 foot diameter, 3000-foot-long pipeline with an offshore intake structure placed at an ocean depth of 30 feet; and a second paragraph in the Hydrology and Water Quality Section on page 4.2-20 that acknowledges its construction would disturb the ocean bottom and increase turbidity. There are no references anywhere in the text of the DEIR to more detailed studies about the environmentally preferred alternative, and inspection of the reference list in Section 8.0 reveals no reports having anything about offshore intakes in the titles. As discussed in Exhibit B, there are clearly inadequacies with the DEIR documentation of this alternative that preclude it from being applied to a stand alone desalination facility at Agua Hedionda. Poseidon evaluated the Jetty EIR and concluded that it does not analyze the full extent of the biological impacts of installing a large diameter pipe 1000 feet offshore, which depending on placement, would potentially destroy existing rocky reef outcroppings occurring offshore. See *Issues Related to the Use of the Agua Hedionda Inlet Jetty Extension EIR to Recommend An Alternative Seawater Intake for the Carlsbad Desalination Project*, Graham, Le Page and Mayer, October 8, 2007. In addition, the Jetty EIR did not evaluate the down coast effects of an intake structure on habitat, sand flow, or sedimentation. See *id.*

Further, the Jetty EIR did not adequately evaluate entrainment and impingement impacts of an offshore intake. Graham, Le Page and Mayer argue that an offshore intake has the potential to affect a greater diversity of adult and juvenile organisms as well as both phyto and zooplankton species than the species currently impacted by EPS's existing intake. *Id.* The biofouling community of organisms that will take up residence in the intake pipe will consume virtually all of the entrained plankton. This has implications for the survival potential of organisms that can survive passage through the EPS. *Id.*

The impact of an offshore intake takes on even greater significance when considered in the context of stand-alone operation of the Project. Operating stand-alone, the Project will draw far less water than EPS and because two-thirds of the drawn volume would function for dilution

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of the concentrated desalinated stream and would not be otherwise affected during its circulation through the plant, an offshore intake and conduit, and the cropping mortality associated with this could have significantly greater entrainment and impingement effects than the present intake located in the Lagoon. *Id.*

Finally, construction of an offshore intake would add approximately \$150 million in project costs and therefore would render the Project infeasible. *See* Poseidon Resources Corporation, Transmittal of Intake Cost Estimates, October 17, 2007.

In summary, the environmental impacts associated with the construction and operation of subsurface and offshore intakes, including a Fukuoka-type submerged seabed infiltration gallery, would be significantly higher than any impacts related to the Project's use of the EPS's existing intake. The proposed Project represents the best, least environmentally-damaging design for the Carlsbad Desalination Facility.

C. The Project Will Implement a Voluntary, Precedent-Setting Climate Action Plan That Results in a Net Carbon Neutral Project

Staff contends that the Project's energy use will have a significant negative impact on coastal resources (protected by Coastal Act Sections 30230; 30231; 30240; and 30253) by increasing greenhouse gas emissions that cause climate change, and that new development must minimize energy consumption pursuant to Coastal Act Section 30253(4). The Staff Report states that Poseidon has failed to mitigate the total greenhouse gas emissions attributable to the Project and that Poseidon must mitigate any impacts to comply with the Coastal Act.

Poseidon shares the Governor's commitment to address climate change, but disagrees with the Staff that the Project will be a contributing factor to climate change because the Project is part of a plan that will actually result in a *reduction* in regional greenhouse gas emissions, and because the Project includes numerous components to ensure that it will utilize only the minimum energy necessary. Moreover, as explained below, Poseidon disagrees that the Commission has authority to impose greenhouse gas emission standards or emissions-related mitigation. Due to the importance of the Project and Poseidon's stewardship of the environment, Poseidon has voluntarily proposed a precedent-setting Climate Action Plan pursuant to which Poseidon commits to measures to offset the Project's minimal net carbon emissions so that the Project is net carbon neutral. The Coastal Commission has no authority to impose this program; Poseidon's Climate Action Plan is a voluntary project component that goes beyond what the Commission has authority to impose. Staff's attempt to turn Poseidon's voluntary offer against it by criticizing its assumptions and Poseidon's commitment to the plan is not well taken and may serve as a disincentive for future Project proponents to implement similar voluntary measures.

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1. The Commission has no authority to impose greenhouse gas emissions standards or emissions-related mitigation.

Commission Staff significantly overstates the law and advances a entirely new CDP review standard in stating that it “believes that without Poseidon demonstrating how the project will be ‘carbon-neutral,’ the Commission cannot find the project consistent with Coastal Act Section 30253(4).” Staff Report at 3. Quite simply, Section 30253(4) requires that development permit applicants “minimize energy consumption and vehicle miles traveled.” The Section does nothing to require that projects mitigate emissions-related impacts or be carbon-neutral.

In fact, Staff’s position is contrary to law and exceeds the Commission’s authority set forth in the Coastal Act. While the Commission has authority to protect coastal resources from development related impacts, the California Air Resources Board (“CARB”) is the entity California has authorized to protect coastal resources from emissions-related impacts. Indeed, the Coastal Act acknowledges that CARB has primary authority over air quality, emissions, and air pollution control and limits the Commission’s authority. The Commission may do nothing more than assure compliance with CARB and air pollution control district requirements:

The State Air Resources Board and air pollution control districts established pursuant to state law and consistent with requirements of federal law are the principal public agencies responsible for the establishment of ambient air quality and emission standards and air pollution control programs. The provisions of this division do not authorize the commission or any local government to establish any ambient air quality standard or emission standard, air pollution control program or facility, or to modify any ambient air quality standard, emission standard, or air pollution control program or facility which has been established by the state board or by an air pollution control district.

Coastal Act § 30414(a).

With regard to greenhouse gas emissions specifically, Assembly Bill 32, the California Global Warming Solutions Act of 2006, establishes a new air pollution control program that clearly places the authority to regulate and control greenhouse gas emissions, and to protect coastal resources from greenhouse gas emissions-related impacts, with CARB:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include . . . a rise in sea levels resulting in displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment . . .

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The State Air Resources Board is the state agency charged with monitoring and regulating sources of emissions of greenhouse gases that cause global warming in order to reduce emissions of greenhouse gases

Cal. Health & Safety Code §§ 38501(a), 38510 (emphasis added). While CARB has the option to “recommend ways in which actions of the commission or any local government can complement or assist in the implementation of established air quality programs,” CARB has not requested that the Commission assist it in implementing greenhouse gas emissions-based standards or mitigation. Neither has CARB yet promulgated greenhouse gas emissions standards with which the Project must comply. Thus, the Commission has no authority to impose such standards or mitigation because its authority is limited to assuring compliance with CARB requirements, and Staff’s argument that the Project cannot be approved until Staff is satisfied that the Project is carbon neutral is therefore unsupported by law and outside of the Commission’s authority.

2. The Project minimizes energy consumption in compliance with the Coastal Act.

While the Coastal Act does not require that all development projects be “carbon-neutral,” the Act does require that new development take measures to “minimize energy consumption and vehicle miles traveled.” See Coastal Act § 30253(4). The Project easily complies with this requirement. In order to increase the overall energy efficiency of the Project, Poseidon’s Climate Action Plan describes several measures that the desalination facility will utilize to minimize energy consumption. See Exhibit D, Climate Action Plan. These measures include:

- Installation of an energy recovery turbine that will decrease the amount of energy required by the facility by 10% or about 1,103 kWh/AF;
- Installation of high efficiency motors and variable frequency drives on the intake water pumps of the desalination plant to improve the energy efficiency of these pumps;
- Use of low-friction piping materials (FRP and HDPE) whenever possible to reduce head losses and related energy consumption through the piping; and
- Implementation of as many of the LEED (Leadership in Energy and Environmental Design) checklist items as are reasonably possible.

With these measures, the Project minimizes energy consumption in compliance with the Coastal Act.

In addition to utilizing energy minimization technology, the Project is an element of a much broader regional strategy to improve the diversity and reliability of the region’s water supply by reducing the dependence on imported water. The San Diego region is implementing the Regional Water Supply Master Plan, which includes steps to diversify its water supply portfolio by undertaking significant water conservation efforts, maximizing the availability and

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use of recycled water, and pursuing new potable water supplies in the form of the proposed Project. The Plan, which includes operation of the Project, will result in an overall *reduction* in the average energy needed to acquire and treat water for the San Diego region. Based on regional supply projections, this trend is expected to continue through the year 2030. See Exhibit D, Climate Action Plan; Poseidon Resources Corporation, Updated Response to Coastal Commission's September 28, 2006 Request for Additional Information, Section 13, CDP Energy Use, GHG Production & Mitigation, October 21, 2007.

Average energy consumption by water acquisition and treatment is predicted to be reduced by between five and 8.4 percent between 2005 and 2030, even though the Project will be added to the mix during this period. While the precise effect of the change in supply mix on greenhouse gas emissions is difficult to predict with certainty, it is clear that the net effect will be beneficial, notwithstanding the inclusion of the proposed Project as an element in the portfolio. *Id.*

3. Poseidon's voluntary Climate Action Plan will render the Project net carbon neutral.

Notwithstanding the facts that the Project is part of a regional strategy that will reduce greenhouse gas emissions and that Poseidon has committed to reduce the carbon footprint of the Project with energy efficiency measures, Poseidon plans to go further, offsetting the Project's carbon emissions in order to achieve net carbon neutrality. As memorialized in **Special Condition 5**, Poseidon will implement a precedent-setting Climate Action Plan employing a mix of different greenhouse gas mitigation measures. In addition to the energy reduction measures described above, the Plan will include the implementation of elements of a portfolio of activities and investment that will include:

- Building an on-site rooftop solar green energy generation system;
- Purchasing carbon offset projects;
- Acquiring Renewable Energy Credits (RECs); and/or
- Restoring and preserving coastal wetlands and other investments for carbon sequestration to offset Project carbon footprint

In order to quantify carbon offsets to include in the Climate Action Plan, Poseidon calculated the Project's expected "carbon footprint" pursuant to the California Climate Action Registry's ("CCAR") protocols. See Exhibit D, Climate Action Plan. CCAR is the only state agency that is authorized by the California State Legislature to establish protocols for establishing carbon emission baselines. The Staff Report challenges Poseidon's carbon footprint calculation for a variety of reasons, all of which are invalid.

First, the Staff Report takes issue with the emission factor utilized. Since Poseidon intends to buy all of its energy from San Diego Gas & Electric ("SDG&E") system power, the appropriate emission factor to use for the Project's indirect carbon emissions from its electricity purchases is SDG&E's annual emission factor for delivered electricity as stated in their CCAR

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Annual Emissions Report, which CCAR certified. SDG&E last filed an Annual Emissions Report with the CCAR on March 7, 2007 and its relevant emissions factor is 546.46 lbs of CO₂/MWH. *See* Poseidon Resources Corporation, Transmittal of SDG&E GHG CCAR Report 2005, October 22, 2007. *The Staff Report* cites a variety of general information to support its belief that the certified rate is simply too low to serve Staff's purposes and contends that a different and significantly higher emissions factor of 804.54 lbs of CO₂/MWH should be used. Outside their area of expertise or regulatory authority, Staff has no basis to deviate from CCAR's protocol, which unambiguously provides that 546.46 lbs of CO₂/MWH is the correct emissions factor to utilize.

Next, Staff erroneously contends that Poseidon's most recent estimates show that it expects the project would use 4,833 kilowatt-hours to produce each acre-foot of water and that its expected continual electrical demand would be between 28.1 and 33.8 megawatts, with an average demand of about 30 megawatts. Rather, after accounting for efficiency measures that will reduce electricity demand by 10%, the Project is expected to require 4,400 kilowatt-hours to produce each acre-foot of water and the Project's expected demand is 28.1 average megawatts of power per year, with a peak of 33 megawatts. As a result, the correct figure for the expected annual electricity demand is 246,156 megawatt hours per year, not 262,800 megawatt hours per year as Staff provides. *See* Climate Action Plan; Poseidon Resources Corporation, Updated Response to Coastal Commission's September 28, 2006 Request for Additional Information, Section 13, CDP Energy Use, GHG Production & Mitigation, October 21, 2007.

Staff also complains that Poseidon fails to include certain energy requirements in its calculation, related to delivery of water. Staff is wrong; all Project-related energy requirements are included in the estimate. Thus, based on CCAR certified data, emissions resulting from the Carlsbad Desalination plant's electricity use are expected to be 61,004 metric tons of CO₂ per year. *Id.*

Staff disagrees that Poseidon should factor in a carbon credit for the decrease in Aqueduct water deliveries the Project will cause. However, the Project will supply 56,000 AFY to the San Diego region, water that would otherwise have to be pumped into the region through either the State Water Project or the Colorado River Aqueduct. As stated by all Carlsbad facility's customers, water from the desalination plant will provide direct, one-to-one replacement of imported water to meet the requirements of their Water Management Plans, thus eliminating the need to pump 56,000 acre feet of water into the region. 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 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 their operations. *Id.*

In all, Poseidon has carefully calculated its carbon footprint in accordance with CCAR protocols resulting in a net carbon footprint of 13,764 metric tons of CO₂ from the proposed Project. *Id.* With the implementation of the Climate Action Plan pursuant to **Special Condition 5**, Poseidon's Project will be carbon neutral. By installing and employing energy efficient

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equipment and offsetting all of its carbon emissions, the Project minimizes energy consumption in conformance with Coastal Act Section 30253(4). Moreover, implementation of the Climate Action Plan will result in an overall decrease in regional greenhouse gas emissions and have a net positive impact on coastal resources. Thus, the Project cannot be characterized as a cause of climate change and Project emissions cannot be said to have an adverse impact on the coastal resources protected by Coastal Act Sections 30230, 30231, and 30240.

D. The Project Will Have A Beneficial Impact on Agua Hedionda Lagoon

The Staff Report provides that because the Project, as a stand-alone facility, will require dredging of the Agua Hedionda Lagoon that the Project fails to comply with Coastal Act Section 30233. However, dredging of the Lagoon is a permitted use under Coastal Act Section 30233 that will serve to *benefit* the Lagoon and the marine resources, scientific research, fishing, public access and recreational activities that rely on the Lagoon. In order to protect the Lagoon in its current state, there is no feasible alternative to dredging. Moreover, the Coastal Commission has approved such dredging on at least 17 separate occasions since 1977; Poseidon has proposed Project **Special Condition 12** that imposes mitigation and monitoring requirements which were derived from, and are substantively the same as, those imposed by the Commission for past dredging activities to ensure that any adverse impacts related to dredging are minimized. On each of these prior occasions, the Commission appropriately found consistency with the Coastal Act when it issued permits with the same conditions. In all, dredging is a Project benefit that is fully consistent with the Coastal Act.

Cabrillo Power, the owner of the EPS, currently dredges the Lagoon on a routine basis and has done so for the past fifty years. The Commission last approved dredging in November, 2006. *See* CDP 6-06-061. Thus, the existing environmental baseline from which the Commission must review the Project is an environment in which dredging occurs routinely. *See, e.g., Fat v. County of Sacramento*, 97 Cal. App. 4th 1270 (2002) (environmental baseline consists of environmental conditions as they exist prior to the commencement of environmental review of the project). Poseidon would voluntarily take over this responsibility if, at some point in the future, the EPS were to shut down and Poseidon would do nothing to change this existing dredging activity.

The Lagoon is an important location for recreation, fishing, and aquaculture. The City of Carlsbad issues about 400 recreational permits for the Lagoon, and data from CDFG indicate that the Lagoon attracts 79% of the local recreational fishing. The Lagoon also supports an extensive aquaculture operation, the Hubbs Seaworld White Sea Bass Fish Hatchery, and youth camps operated by California Water Sports and the YMCA. Routine dredging is required to maintain the Lagoon in its current state and prevent it from reverting to its original state: a slough comprised of shallow marsh channels filled with anaerobic hyper-saline water. The recreational, fishing, and aquaculture activities would halt if the EPS shut down and Poseidon did not volunteer to continue maintenance dredging of the Lagoon.

In addition to maintaining the Lagoon itself, dredging provides the additional public benefit of providing sand to maintain Carlsbad State Beach, grunion spawning habitat, and a

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popular surfing break. Without the necessary quantities of sand, the beach would revert to its historic cobblestone condition, grunion spawning would cease, the surfing break would be substantially reduced, and the quality of the waves would diminish.

Contrary to Staff's assertion, dredging in this case offers myriad public and environmental benefits and is thus an allowable use under Coastal Act Section 30233(a)(1) [new coastal-dependent facilities], 30233(a)(2) [maintaining existing, or restoring previously dredged depths], 30233(a)(7) [restoration purposes], and/or 30233(a)(8) [nature study, aquaculture, or other similar resource dependent activities] and Section 30233(c) [very minor incidental public facilities (which the Commission deemed operation of EPS in approving CDP 6-06-061); restorative measures, and nature study].

Additionally, one of Poseidon's Project objectives is "to increase opportunities for public access to the coastal area through public enhancements and dedications of coastal property." Final EIR at 3-31. Poseidon has proposed Lagoon-front property dedications for coastal access, fishing and recreation in furtherance of this objective; without dredging the Lagoon will revert back to its natural state of "stinky water" and Poseidon would not be able to meet this objective.

While dredging may have minimal short-term environmental impacts, the long-term environmental benefits that dredging provides, including protecting the valuable Lagoon in its current state, far outweigh the minimal short term impacts. See *Sierra Club v. California Coastal Commission*, 19 Cal. App. 4th 547, 562 (4th Dist. 1994) (finding that "the Commission has the power in particular cases to permit significant short-term disruption [from dredging] in order to provide long-term benefits [to coastal resources]" under Coastal Act Section 30233).

There is no alternative to dredging to protect the Lagoon from returning to "stinky water." Neither use of alternative intakes nor abandoning the Project altogether would change the need to dredge the Lagoon. See *Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon: Low-Flow vs No-Flow Alternatives*, Jenkins and Wasyl, September 28, 2007. For the period from 1981 to the present, the average dredging frequency of the Lagoon was approximately every two years. *Id.* For the stand-alone desalination facility the dredging frequency would be reduced to approximately every three years and the sediment capture rates would be reduced by 42 percent. *Id.* Under a no EPS and no desalination plant scenario, the influx rates of sand are about 15 percent less than for the stand-alone desalination facility; but this reduction is not sufficient to allow the dredge frequency to be extended beyond once every three years due to schedule limitations that prohibit dredging during the least nesting season. *Id.* Therefore dredging complies with Section 30233(a)'s requirement that there be no feasible less environmentally damaging alternative.

Finally, the imposition of proposed **Special Condition 12** will ensure that all feasible mitigation measures (including eelgrass monitoring and mitigation, monitoring and removal of *Caulerpa*, and deposition of sand at specific locations to provide beach nourishment) are provided to minimize adverse environmental effects, avoid significant disruption to marine habitat, and maintain and enhance the functional capacity of the Lagoon in compliance with Coastal Act Sections 30233(a), 30233(b) and 30233(c). Thus, in all, the proposed dredging

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would benefit the Lagoon, beach access, recreation, spawning grounds and the surfing break and would conform to Coastal Act Section 30233.

E. The Project Will Not Induce Growth

The Staff Report provides that Staff has insufficient information and thus is unable to determine whether the Project will induce growth in contravention to Coastal Act Sections 30250(a) and 30254. However, Carlsbad's EIR examined potential growth inducement and concluded that the Project would not cause any growth not already planned for. In addition, Poseidon provided Staff evidence why the Project will not induce growth. It is clear that the Project will replace diminishing supply, not induce new unplanned growth beyond growth already planned for the area.

As discussed above, the San Diego County region imports 85% of its water and sources of imported water are threatened. Local, Regional and State Water Plans all depend on desalination to meet existing demand and already planned-for future growth. The water plans all have confirmed that the immediate and pressing water needs are so great, that they cannot be met by conservation and reuse alone and that a substantial investment in seawater desalination, including the Project, is required.

The Project's capacity of 56,000 AFY of new water supply for the San Diego region is about ten percent of 500,000 AFY of desalinated water identified by the California Department of Water Resources as needed by 2030, as stated in its 2006 Water Plan Update. This Update lists the Project as a potential source of desalinated water. The Metropolitan Water District of Southern California's Integrated Water Resources Plan identified a need for 250,000 AFY of seawater desalination (including 56,000 AFY from the Carlsbad project) to ensure regional water supply reliability. In addition, the San Diego County Water Authority updated its 2005 Urban Water Management Plan in April 2007 specifically to reaffirm the need for 56,000 AFY of seawater desalination from the Project by 2011. The Project is a central component of state, regional and local water supply planning to meet already-identified demand.

The only city within the coastal zone that the Project will serve with drinking water is Carlsbad. All other entities that have contracted to purchase water from the Project will utilize the water outside of the coastal zone. The city of Carlsbad has adopted a Growth Management Plan that aggressively manages and controls growth in Carlsbad. *See* Carlsbad Municipal Code Title 21, Chapter 90, Growth Management; Carlsbad General Plan, Land Use Element. The Plan caps existing and future development and the maximum size of Carlsbad at 54,600 dwelling units. Carlsbad Municipal Code § 21.90.185. The Plan was approved by Carlsbad voters in November 1986 and cannot be revised without a new vote.

Thus, the availability of water from the Project cannot and will not induce growth beyond Carlsbad's and the region's limited, already planned growth and the Project complies with Coastal Act Sections 30250(a) and 30254.

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III. IF THE COMMISSION FINDS THAT THE PROJECT DOES NOT COMPLY WITH ALL APPLICABLE COASTAL ACT POLICIES, THEN THE COMMISSION SHOULD APPROVE THE CDP PURSUANT TO COASTAL ACT SECTION 30260'S COASTAL-DEPENDENT INDUSTRIAL "OVERRIDE" POLICY

As explained in detail above, the proposed Project complies with all applicable Coastal Act policies, provides significant public benefits, and is urgently needed. However, for the sake of argument, if the Project failed to comply with one or more Coastal Act policies, the Commission can and should still approve the Project because (1) it is a coastal-dependent use for which alternative locations are infeasible and/or more environmentally damaging; (2) any adverse environmental effects of the Project are mitigated to the maximum extent feasible; and (3) to do otherwise would adversely affect the public welfare. *See* Coastal Act § 30260. Commission Staff agrees that the Project is a coastal-dependent use.

A. All Alternative Project Locations / Designs Are Infeasible and/or Inferior

Under the first prong of Section 30260, the Staff Report contends that there are alternative project designs, such as utilizing subsurface or offshore intakes instead of using the EPS's cooling water effluent as source water, that are feasible and more protective of the environment than the proposed Project. As we explained in detail in Section II.B above, Poseidon disagrees. Poseidon's detailed site-specific analyses confirm that subsurface and offshore intakes are inferior to the proposed Project as they are technologically, environmentally, and economically infeasible in the Project area. In addition, each intake alternative is environmentally more damaged for the reasons discussed above. Thus, the proposed Project satisfies the first prong of Section 30260.

B. Poseidon Will Mitigate Any Adverse Environmental Impacts of the Project to the Maximum Extent Feasible

As we explained in detail in Sections II.A, II.C and II.D above, the Project as proposed fully mitigates any marine resources, water quality, and greenhouse gas emissions impacts. By fully mitigating these impacts, the Project goes further than mitigating impacts to the maximum extent feasible, and easily complies with the standard of Coastal Act Section 30260.

Staff claims that Poseidon's proposed compensatory mitigation plan "falls short" and misstates that Poseidon provides "no mitigation" for greenhouse gas emissions. Staff also intimates that it is concerned that Poseidon will not abide by its proposed mitigation and environmental benefit plans and/or that such plans do not bind Poseidon to precise commitments. Poseidon has fully committed to implementing its comprehensive CHREP and Climate Action Plan. With the implementation of proposed **Special Conditions 3 (Construction Plan), 4 (Habitat Mitigation Plan), 5 (Climate Action Plan), 6 (Storm Water Pollution Prevention Plan), 7 (Storm Water Management Plan), 8 (Flow Entrainment and Impingement Minimization Plan), 9 (Public Access Enhancements), 10 (Visual Resources), 11 (Water Quality) and 12 (Dredging and Beach Deposition)**, which, among other protections, impose

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requirements that Poseidon implement its CHREP, Flow, Entrainment and Impingement Minimization Plan and Climate Action Plan, provide that lagoon dredging will be subject to a separate CDP that includes the mitigation measures the Commission has imposed in past approvals for dredging, and provide the Commission the opportunity to review and approve Project plans and/or related monitoring and enforcement, Staff and the Commission can be reassured that Poseidon will mitigate any adverse environmental impacts of the Project to the maximum extent feasible, in compliance with the second prong of Coastal Act Section 30260.

C. The Project is Urgently Needed; Denying the CDP Would Significantly Harm the Public Welfare

Under the third prong of Section 30260, Staff contends that rejecting the Project would not be adverse to the public welfare. Poseidon and the Project's myriad proponents strongly disagree. As explained in detail in Section I.B above, the Project is urgently needed.

Staff first argues that because it believes the Project will result in significant environmental impacts, approving the Project would be contrary to the public welfare. This circular reasoning is improper under Section 30260, whose premise is that certain aspects of a project do not conform to the environmental review sections of the Coastal Act. Staff's views on the Project's environmental impacts are properly considered under the marine resources, recreation and public access sections of Chapter 3 of the Coastal Act, but not Section 30260.

Staff next argues that approval of the Project would result in loss of the EPS site for future power plant purposes. Staff ignores the fact that the EIR addressed this issue and determined that the Project site, compared to four others studied at EPS and two others in Carlsbad, is best and will create no significant impacts to potential relocation of the power plant. *See* EIR at 4.8-15-19.

Staff also contends that because the Project is inferior because it is privately as opposed to publicly owned. Staff's concerns are unsupported and unfounded. The Project *is* designed as a public-private partnership that will ensure protection of the public trust. Eight public water agencies have entered into long-term agreements with Poseidon to receive desalinated water from the project. The entire plant output has been appropriated for public use by the public agency partners, ensuring that the water will remain in the public domain. Since the public agency partners control the allocation and use of the water, local decision-making and governmental oversight will be preserved. Indeed, under the contracts, the customers' price of water paid to Poseidon will not exceed that which would have been paid for the imported water supply from the San Diego County Water Authority. Since the cost of the desalinated water cannot exceed that of the imported water, any rate increases that Poseidon's public agency partners decide to enact would have occurred with or without the project. Poseidon will be responsible for all costs and risks associated with the financing, development, construction, and operation of the plant; the public welfare is not at risk.

Finally, Staff argues that the San Diego region can and should rely more heavily on water conservation and recycling to meet its water needs. As previously explained, the Project is a

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central component of state, regional and local water supply planning to meet already-identified demand. Eight water agencies have already contracted to purchase 100% of the supply of desalinated water from the Project. These entities recognize the importance of the Project and are relying on it to meet their water supply needs. While these agencies have some of the most aggressive water recycling programs in the region, they, as well as the Department of Water Resources and the Metropolitan Water District, have stressed the need for desalinated water to ensure regional water supply reliability and to meet already-identified existing demands and planned-for future growth, which is why they have identified the Project's water supply as a component of their water plans. *See Poseidon Resources Corporation, Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use, November 8, 2007 (including attachments from Carlsbad Municipal Water District, Valley Center Municipal Water District, Rincon del Diablo Municipal Water District, Rainbow Municipal Water District, Sweetwater Authority, Vallecitos Water District, Santa Fe Irrigation District, and Olivenhain Municipal Water District); Poseidon Resources Corporation, Carlsbad Desalination Project Briefing Package, CDP Application No. E-06-013, November 2007.*

In all, the urgently needed Project complies with the third prong of Section 30260.

IV. CARLSBAD'S PROJECT EIR COMPLIES WITH CEQA; NO SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT IS REQUIRED

As a certified regulatory program pursuant to Public Resources Code Section 21080.5, the Commission has the authority under CEQA to analyze the Project through its own process, and the Commission Staff Report satisfies the Commission's CEQA obligations. Commission Staff asked Poseidon for additional information on the Project numerous times to supplement the analysis in the EIR and Poseidon responded to all of Staff's requests with volumes and volumes of information. Nonetheless, we discuss the merits of Staff's argument below.

The Staff Report finds that the City of Carlsbad's EIR fails to comply with CEQA because Staff believes there are Project alternatives and mitigation measures that have not been imposed and because a supplemental EIR is needed to address "new" information. Poseidon disagrees. As explained in detail above, the proposed Project is the most environmentally sensitive alternative and any adverse environmental impacts of the Project have been mitigated such that any impacts are insignificant. Moreover, as explained below, no supplemental EIR is needed. *See also Latham & Watkins LLP, Letter to State Lands Commission Re: CEQA Issues Raised for Poseidon Project By Coastal Commission Staff, October 31, 2007.*

Notably, Public Resources Code Section 21166 and CEQA Guidelines Section 15162 require more than the alleged presence of "new significant environmental effects" or "new information" before a supplemental EIR is required. Under these sections, the inquiry is whether there is substantial evidence that the project will have new significant adverse effects, or whether there is new information which was not known, and "could not have been known" at the time the Final EIR was certified, involving new significant adverse effects. None of the information described in the Staff Report involves new significant adverse effects of the project, and no new information involving new significant adverse effects has been presented.

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The Staff Report does not accurately describe the contents of the City of Carlsbad's Final EIR. At the Coastal Commission Staff's specific request, the Carlsbad City Council added a section to the Final EIR to address "stand-alone" operation of the Project. In several locations in the Final EIR, in the City staff report, and in the proceedings before the City Planning Commission and the City Council, the possibility of the desalination facility's stand-alone operations due to the potential cessation of once-through cooling by EPS was discussed and analyzed. The City concluded that stand-alone operation would not result in any new significant adverse environmental effects resulting from the Project. No evidence was presented to the City that stand-alone operations would result in any adverse impacts, and the City's consultants did not find any such adverse impacts. The Final EIR also looked at a number of potential alternative seawater intake structures. Furthermore, the Final EIR examined whether there were adverse impacts from the existing seawater intake system. The Coastal Commission staff simply dislikes the conclusions reached by the Final EIR in the analysis that was done by the City at their specific request.

Poseidon has agreed to include in its approval from the Regional Board the additional environmental benefit of the proposed CHREP. This additional benefit was not the result of any finding of significant adverse impact under CEQA, but rather was the result of the regulatory process before the Regional Board. Remarkably, the Coastal Commission staff has presented no evidence to support its claim that an offshore intake would reduce any identified significant adverse environmental impact of the current intake structure. In addition, the Commission's argument rests on the incorrect premise that there is any evidence that Poseidon's use of the existing intake system would result in any adverse environmental impacts. The experts hired by the City of Carlsbad determined that Poseidon's project, including use of the existing intake system, would not result in any adverse environmental impacts.

Regarding greenhouse gas emissions, the Staff Report does not describe how this is "new information" which was not known, and could not have been known, at the time the City certified the Final EIR in June of 2006. If the Coastal Commission staff had wanted this topic addressed in detail in the Final EIR, the issue could have been raised prior to the City's certification. Certainly, the possibility of climate change, and the nature and extent of all of the emissions associated with the electrical power used by the Poseidon facility, including emissions of carbon dioxide, were known in 2006. An analogy can be made to the Sacramento Superior Court's April 30, 2007 decision in *NRDC v. Reclamation Board*, Case No. 06 CS 01228. In this case, the California Attorney General, representing the Reclamation Board, successfully argued that the possibility of global warming was not "new information" which should have triggered a supplemental EIR under CEQA because the possibility of global warming was known at the time the original EIR was prepared. Again, Poseidon's voluntary Climate Action Plan is not the result of any significant air quality impact of the Project, but rather is proposed in furtherance of Poseidon's stewardship of the environment.

Regarding growth inducement, the Staff Report incorrectly states that the City of Carlsbad EIR did not look at potential growth inducement. In fact, the Final EIR examined growth inducement on the basis that all of the water would be used in the service area of the San

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Diego County Water Authority. Each of the water districts planning to purchase water from the project is located within the San Diego County Water Authority.

Finally, the Staff Report incorrectly states that the City of Carlsbad EIR did not look at the potential impacts of facilities to deliver Poseidon's water from the desalination facility to users in the region through the regional water distribution system. The Final EIR examined facilities to interconnect with several local water delivery systems and there are no plans at this time to connect the desalination facility to the regional water delivery system.

In all, there is no "new" information for which a supplemental EIR is required.

V. THE STAFF REPORT'S LIST OF SUBSTANTIVE FILE DOCUMENTS IS INCOMPLETE

Appendix A to the Staff Report, the list of substantive file documents for the matter, is not complete. It does not contain any of the volumes of documents Poseidon submitted with its CDP application and in response to Staff's request for additional information about the Project. We request that the list be amended, pursuant to the inclusive list of documents submitted that we attached hereto as Exhibit E.

VI. CONCLUSION

As we have described in detail above, the Project is an urgently needed and environmentally responsible solution to the San Diego region's water supply and reality needs, which is consistent with and will further Coastal Act and LCP policies and will provide significant public and environmental benefits. We therefore urge the Commission to approve this important Project at its November 16 meeting.

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Exhibit B

Correction of Staff Report Misstatements, Inaccuracies and Omissions

EXHIBIT B
Corrections to Misstatements, Inaccuracies and Omissions in Staff Report

Section 2.0

- 1. Page 6, paragraph 1: The Commission believes it is reasonable for Poseidon to demonstrate landowner approval in the form of a lease from the State Lands Commission as part of its CDP Application review.**

In its July 25, 2007 letter to the applicant, Coastal Commission staff wrote:

We have now received all the information and documentation needed except for the required leases from the State Lands Commission; however, the Executive Director has waived this filing requirement pursuant to Section 13053 of the Commission's regulations. With this information you have provided, with the Executive Director's waiver of the required State Lands Commission leases, Commission staff has determined your application complete.

- 2. The Commission's findings must address several significant issues and potential impacts that could vary greatly based on conditions that may be imposed on Poseidon through a State Lands Lease.**

As Staff is aware, the State Lands Commission staff recommended lease conditions have been public for two weeks now and these recommendations were the subject of a public hearing in San Diego on October 30th. It is inaccurate to state that the Commission continued the hearing "pending resolution of several issues that may change the project," since the Commission decided prior to the hearing that, in light of the San Diego fires, it would open the public hearing on October 30 and continue the matter to a later date to allow the public adequate opportunity to participate. Because the hearing was being continued, the Commission requested that Poseidon address certain questions that arose during the hearing, such as those related to the Climate Action Plan, at the continued hearing. The Commission noted, however, that the expectation is that it would consider approval of a lease substantially in the form recommended by staff on December 3, 2007.

- 3. The State Lands Commission declined to issue the lease and continued the hearing pending resolution of several issues that may change the project as currently proposed.**

In a letter dated October 25, 2007 the Coast Law Group, on behalf of the Surfrider Foundation and San Diego Coastkeeper, requested a hearing continuance due to the San Diego wildfires. In response, the Commission declined to postpone the hearing, but decided that a vote would be deferred until its next scheduled hearing on December 3,

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2007 to accommodate additional public testimony.. The Commission noted that the expectation is that any open items are would be addressed prior to the next meeting so that it could consider approval of the lease at that time.

- 4. Further, as described later in these Findings, Commission staff has determined that information in the project Environmental Impact Report is not adequate for review purposes.***

The Coastal Commission Staff's determination that the EIR is not adequate is inconsistent with the determination of every other regulatory authority in the state that has review the project. The City of Carlsbad, t San Diego Regional Water Quality Control Board, California Department of Health Services, and, most recently, the staff of the State Lands Commission have all determined that the preparation of a supplemental or subsequent EIR would not be permitted under Section 15162 of the CEQA Guidelines. Following extensive testimony as to the adequacy of the EIR at the October 30 hearing, State Lands Commission staff reaffirmed its view that no further CEQA review was warranted.

Section 2.1

- 5. Project Setting. Last sentence. Cabrillo proposes to provide additional grid reliability if needed, and Cabrillo anticipates that only two generating units would operate only a few weeks per year.***

The two units in question represent two-thirds of the generation capacity in the existing plant. At the State Lands Commission, a representative from Cabrillo testified that these units are "must-run" generators and will remain in service indefinitely and that the California Independent System Operator ("Cal-ISO") would ultimately determine when they are no longer needed for grid stability. During the 12 month period from September 1, 2006 to August 31, 2007, the cooling water pumps at the Encina Power Station were operational 296 days – over 80% of the time.

- 6. Footnote 2 page 7 Poseidon would pump an additional 250 MGD to reduce salinity concentrations of its discharge.***

The Staff Report incorrectly states that an additional 200 MGD would need to be pumped into the intake and discharge system to reduce the salinity concentration of its discharge. The correct number is 200 MGD.

Section 2.2

- 7. Bottom of page 12, Cabrillo's proposal includes removing three of the existing plant's five generating units and operating the remaining two units only part time (expected to be up to a few weeks per year) for several more years...***

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All the Encina Power Station generating units are subject to Reliability Must Run facility status, as contracted by Cal-ISO). The two units in question represent two-thirds of the generation capacity in the existing plant. At the State Lands Commission a representative from Cabrillo testified that these units will remain in service indefinitely and that Cal-ISO would ultimately determine when they are no longer needed for grid stability. During the 12 month period from September 1 2006 to August 31 2007, the cooling water pumps at the Encina Power Station were operational 296 days.

- 8. *Top of page 13, with the changes to the power plant operations Poseidon's facility would no longer be able to use water from an already operating intake system and the resulting adverse environmental impacts would be solely due to Poseidon's use of the system.***

The comment does not accurately describe the contents of the City of Carlsbad's Final EIR. At the Coastal Commission staff's specific request, the City of Carlsbad added a section to the Final EIR to address potential "standalone" operation of the desalination facility. In several locations in the Final EIR, in the City staff report and in the proceedings before the City Planning Commission and the City Council, the possibility of the desalination facility's standalone operations due to the potential cessation of once-through cooling by the Encina Power Plant was discussed and analyzed. The City concluded that stand-alone desalination plant operation would not result in any new significant adverse environmental effects. No 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.

- 9. *Top of page 13, Poseidon's main remaining advantage – using an existing intake and discharge structure rather than having to build one – becomes a disadvantage because of all the adverse environmental damages and costs associated with the use of that structure.***

The Final EIR looked at a number of potential alternative seawater intake structures. The staff claims that moving the power plant intake offshore would be "an environmentally superior alternative" to reduce the same types of impacts Poseidon's project would cause. There are several problems with the Coastal Commission staff's claim. First, as detailed in the project EIR and November 30, 2006, January 19, 2007, June 1, 2007, July 16, 2007 and October 8, 2007 letters from Peter MacLaggan to Tom Luster of the Coastal Commission staff, the available scientific research indicates that various beach well configurations, seafloor intake filtration galleries or a new offshore intake would not have less impact than the existing intake structure and do not represent environmentally superior alternatives to the existing intake. Remarkably, the Coastal Commission staff has presented no evidence to support its claim that an offshore intake would reduce any identified significant adverse environmental impact of the current intake structure. Finally, the Commission's argument rests on the incorrect premise that there is any

evidence that Poseidon's use of the existing intake system would result in any adverse environmental impacts. The EIR, as well as experts hired by the City of Carlsbad, determined that Poseidon's project, including use of the existing intake system, would not result in any adverse environmental impacts.

10. 2nd full paragraph on 13, Poseidon's proposal would require substantially more electricity than it might otherwise use, since it would pull in far more water than is needed for the desalination process (304 MGD instead of 104 MGD).

Less than 4 percent of the energy used by the project is associated with pumping the 200 MGD of seawater that is required to dilute the saline byproduct from the desalination process to an acceptable level prior to returning that water to the Pacific Ocean. In addition, the implementation of the San Diego County Water Authority's Regional Water Supply Master Plan will result in a 16% overall reduction in the average energy needed to acquire and treat water for the San Diego region, and the Plan includes operation of the proposed desalination project. In this regard, the proposed desalination project is consistent with AB 32, and is part of the County's long-term water supply portfolio that will reduce water-related energy to below 1990 levels.

11. 2nd full paragraph on 13, Poseidon is proposing to use the older and relatively inefficient existing power plant pumps rather than install newer and more efficient pumps.

Coastal Commission staff has provided no evidence to support its position that the existing power plant pumps are inefficient. Furthermore, assuming Poseidon could achieve a 10 percent increase in pumping efficiency by replacing the pumps, the higher efficiency pumps would result in slightly more than one-half of one percent decrease in the overall energy use by the desalination facility.

12. Bottom of Page 14 and top of 15, staff is arguing that 316b and Riverkeeper II should apply to the desalination facility.

Staff implies that the Coastal Commission should defer action on the project because a court remanded multiple provisions of regulations implementing Section 316(b), including provisions defining "best technology available" (BTA). USEPA later suspended these regulations. In addition, staff states that the Commission should wait to act on the Plan until issuance of the State Board's guidance on compliance with Section 316(b). These developments by other agencies do not provide a basis to defer action on the Project, as indicated in Section 316(b) and its implementing regulations, as well as in the State Board's recent scoping document regarding the State's Section 316(b) Policy, Section 316(b) does not apply to seawater desalination plants such as the Carlsbad desalination plant.

Section 316(b) of the Clean Water Act regulates cooling water intake structures, stating:

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Any standard ... applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

33 U.S.C. § 1326(b) (emphasis added). As defined in the remanded and suspended regulations, a “cooling water intake structure” is “the total physical structure and any associated constructed waterways used to withdraw cooling water from waters of the U.S.,” including intake pumps. 40 § C.F.R. 125.93. “Cooling water” is “water used for contact or non-contact cooling, including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content,” intended “to absorb waste heat rejected from the process or processes used, or from auxiliary operations on the facility's premises.”). Id.

The regulations implementing Section 316(b) apply only to “the location, design, construction, and capacity of cooling water intake structures.” Id. § 125.90(a). These regulations apply only if the facility: (1) is a point source that uses or proposes to use a cooling water intake structure with a design intake flow of 50 MGD or more; (2) uses at least 25 percent of the water it withdraws for cooling purposes; and (3) as its primary activity, either generates and transmits electric power or generates electric power and sells it to another entity for transmission. See id. § 125.91.

The Carlsbad desalination project, and its operation in conjunction with or independent of the EPS clearly does not meet the applicability requirements of the regulations implementing Section 316(b). While the EPS intake will be the source of the water to Poseidon, none of the water would be used by the Carlsbad desalination project for “contact or non-contact cooling.” Instead, Poseidon would use the water only for desalination purposes. Accordingly, the Carlsbad desalination project does not have a cooling water intake structure. In addition, electric power would not be generated at or transmitted from the Carlsbad desalination project. Because the Carlsbad desalination project would not generate or transmit electric power, would not have a cooling water intake structure, and would not use the EPS’s cooling water effluent for cooling purposes, Section 316(b) is not applicable to Poseidon.

The State Board’s recent Section 316(b) scoping document states that desalination plants are “outside the scope of the Clean Water Act [Section] 316(b)” and “would be more appropriately addressed through the other water quality control plans.” State Board, Scoping Document: Proposed Statewide Policy on Clean Water Act Section 316(b) Regulations, at 28 (June 13, 2006).

Because the Carlsbad desalination project does not have a cooling water intake structure and will not use the EPS’s cooling water effluent for cooling purposes, Section 316(b) is not applicable to desalination plants such as the Carlsbad desalination project. Not only is this generally recognized in the State Board’s Section 316(b) scoping document, but also the Regional Board clearly acknowledges in the Order that “the [Section] 316(b)

regulations are not applicable to Carlsbad desalination project.” Order R9 2006-0065 at F-49. Because the regulations are inapplicable, “no special conditions related to the 316(b) implementing regulations are included in this Order.” Id.

In the petition recently dismissed by the State Board, the petitioners alleged that Order R9 2006-0065 should have contained a re-opener requiring the Regional Board to reopen the permit when the State Board’s Section 316(b) policy is finalized. Poseidon’s response to the petition explained that neither the Section 316(b) regulations nor the State Board’s policy were applicable to the Carlsbad desalination project, for the reasons discussed above, and a re-opener related to Section 316(b) thus was not necessary. The State Board considered the petition after the suspension by the USEPA of the federal regulation implementing Clean Water Act Section 316(b), found that the petition did not raise a substantial issue, and dismissed the petition. The State Board has, therefore, decided that the Regional Board’s actions with respect to Section 316(b) were not appropriate for review. There is no basis for the Coastal Commission staff to conclude that Section 316 (b) is applicable to the Carlsbad desalination project.

13. 2nd paragraph page 16 Coastal Commission staff suggests that Poseidon requires a connection to the regional distribution system to deliver water that would be used by customers that are not in close proximity to the plant.

The City of Carlsbad EIR examined facilities to interconnect with several local water delivery systems and there are no plans at this time to connect the desalination facility to the regional water delivery system. Because all of the water districts in San Diego County are connected to the same imported water delivery system, it is not necessary for the desalination facility to be connected to the regional system to exchange water among the agencies located in close proximity to the plant and those that are located outside the reach of the desalinated water delivery system.

14. Bottom of page 16, The 10-day emergency water supply designation for Carlsbad’s Maerkle Reservoir would have to change if Poseidon were to store water there.

This assertion is incorrect. The ten day storage requirement is to provide the City of Carlsbad with enough water during an aqueduct shutdown. Since the City will be receiving all of its potable water supply from the desalination facility rather than the aqueduct, it no longer needs to set aside capacity in Maerkle Reservoir for an aqueduct shutdown.

15. Bottom of page 18, Poseidon’s relying on a yet to be approved \$250/AF subsidy being available from MWD.

In its June 22, 2007 letter to Mr. Douglas, the Metropolitan Water District of Southern California reaffirms its intent to provide the \$250 per acre-foot financial incentive to the project participants:

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Metropolitan's Board authorized financial assistance to help make this important project viable. Metropolitan would provide up to \$14 million annually for seawater desalination from the project for potable supply that reduces demand for imported water supplies.

Furthermore, the subsidy would go to the public agencies and not to Poseidon as incorrectly stated in the Commission staff report.

16. Pages 18- 20 Commission questions the feasibility of the proposed project on the assumption that Poseidon has not factored into its costs additional mitigation costs, electricity costs, dredging or product water pumping costs into the cost of water.

Poseidon has taken each of these costs into consideration in assessing the feasibility of the proposed project.

Section 2.4

17. Page 21, last paragraph – Poseidon's operations would cause additional sedimentation in Agua Hedionda Lagoon which is listed by the State and Regional Boards as an impaired water body due in part to high rates of sedimentation.

The San Diego Regional Control Board has identified 6.8 acres of Agua Hedionda Lagoon as being impacted by sedimentation.¹ This impacted area (2 percent of the lagoon area) is primarily in the eastern lagoon.² The source of the sedimentation problem is not the water that is drawn in through the intake of the lagoon. The source of the problem has been identified by the Regional Board as nonpoint and point source runoff.³

As noted in the San Diego Coastal Lagoons TMDL Monitoring Workplan⁴, Poseidon's operations would actually have a beneficial impact on the sedimentation problem in Agua Hedionda Lagoon:

The coastal lagoons of San Diego County ... are heavily influenced by urbanized watersheds. Watershed runoff, coupled with reduced tidal influence from restricted inlets, has resulted in beneficial use impairments in many systems, including ... sedimentation.

In the absence of Poseidon assuming responsibility for maintenance dredging and stewardship of the lagoon after the Encina Power Station is decommissioned, the lagoon

¹ 2006 Clean Water Act 303(d) List of Water Quality Limited Segments Requiring TMDLs, San Diego Regional Water Quality Control Board, June 28, 2007.

² Id.

³ Id.

⁴ Final San Diego Coastal Lagoons TMDL Monitoring Workplan, June 18, 2007, McLaughlin et al.

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would be without an entity responsible for its long-term survival. Continued use of the existing intake by the desalination facility solves this problem. Once built, the desalination plant will ensure the continued stewardship of Agua Hedionda Lagoon and the surrounding watershed, and will guarantee for many years that that residents and visitors will be able to enjoy the benefits of this clean lagoon and its surrounding beaches.

Historically, tidal patterns affecting Carlsbad State Beach removed most of the beach's sand, leaving only rough cobblestones. The periodic dredging of the Lagoon by the power plant provided the beach with a permanent sand supply. Poseidon will take over the responsibility for dredging the lagoon, providing much-needed sand replenishment.

In a letter to Coastal Commission staff dated October 8, 2007, Poseidon provided a comparative analysis of intake flow rate and sand influx rates at Agua Hedionda Lagoon under historic power plant operations, stand-alone operation, and the no project scenario.⁵ For the period from 1981 to the present, the average dredging frequency for the Encina Power Station was approximately every two years. For the stand-alone desalination facility the dredging frequency would be reduced to approximately every three years and the sediment capture rates would be reduced by 42 percent. Under the no power plant and no desalination plant scenario, the influx rates of sand are about 15 percent less than for the stand-alone desalination facility; but this reduction is not sufficient to allow the dredge frequency to be extended beyond once every three years due to schedule limitations that prohibit dredging during the least tern nesting season. Given the variability in the actual sand transport from year to year and the accuracy of the modeling, there isn't any discernable difference between the estimated dredging frequency and related environmental impacts associated with the stand-alone desalination facility versus the no project scenario.

18. Page 22 first full paragraph – Poseidon's proposed project would be expected to result in the "take" of species protected under the Marine Mammal Protection Act or Endangered Species Act. Poseidon has yet to indicate how the proposed project would conform to those requirements.

The proposed Carlsbad desalination project will not impact any protected or endangered species. In a letter to Coastal Commission staff dated June 1, 2007, Poseidon indicated that it intends to apply to the NMFS for an independent Incidental Harassment Authorization (IHA) under the Marine Mammal Protection Act (MMPA) for any impacts to sea lions, seals, or any other protected marine mammals resulting from construction and operation of the Poseidon project. In the course of issuing the IHA, NMFS will engage in a consultation under Section 7 of the federal Endangered Species Act (ESA) to ensure that the Poseidon project will not jeopardize the continued existence of any species listed as threatened or endangered under the ESA. Measures to be undertaken to avoid impacts to protected species are described in Poseidon's Flow, Entrainment and

⁵ Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon: Low-Flow vs No-Flow Alternatives, Dr. Scott Jenkins, September 28, 2007.

Impingement Minimization Plan (Attachment 25 to the letter reference above) and Regional Board Order No. R9-2006-0065.

19. Page 22 second paragraph, Agua Hedionda has historically provided habitat for the tidewater goby...this designation could affect whether Poseidon is able to operate its proposed intake system in conformity with the ESA.

The Staff Report does not accurately state the current knowledge regarding the presence of tidewater goby in Agua Hedionda Lagoon. Although the U.S. Fish & Wildlife Service (FWS) published a final rule in 2000 designating critical habitat for tidewater goby and including Agua Hedionda Lagoon in that designation, FWS subsequently entered into a consent decree, as Staff recognizes, that vacated the designation of Agua Hedionda as critical habitat. Significantly, the November 2006 proposed revised critical habitat designation, available to the public, confirms that FWS is not designating Agua Hedionda as critical habitat for tidewater goby, stating: "We are proposing to remove Aliso Creek in Orange County. In addition, we are not including in this proposed designation one area vacated by the court, Agua Hedionda Lagoon in San Diego County. Both of these units were included in the 2000 designation. These two areas have not been occupied for many years and were not occupied at the time of listing (the last tidewater goby specimen from Aliso Creek was collected in 1976 and the last tidewater goby specimen from Agua Hedionda Lagoon was collected in 1940 (Swift *et al.* 1989, p. 19))." See USFWS Proposed Revised Rule, available at:

<http://www.fws.gov/arcata/es/fish/Goby/documents/2006Nov28%20Tidewater%20Goby%20Revised%20Critical%20Habitat%20Proposed%20Rule%2071%20FR%2068914.pdf>

.Agua Hedionda Lagoon is not suitable habitat for tidewater goby, will not be designated as critical habitat for tidewater goby and Poseidon therefore will be able to operate the intake in full conformity with the Endangered Species Act.

20. Page 28, 3d paragraph - Poseidon's impingement rate would be much less, averaging less than 2.5 pounds per day. This is a relatively insignificant impact...

We are pleased that Coastal Commission staff opines that this level of impingement is insignificant; however, staff has overstated the impingement impacts by 30 percent. In a letter to Coastal Commission staff dated June 1, 2007, Poseidon provided the Coastal Commission staff a copy of Poseidon's Flow, Entrainment and Impingement Minimization Plan (Attachment 25 to the referenced letter). Page 19 of the Minimization plan provides:

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The daily biomass of impinged fish during normal operations over the period of June 2004 to June 2005 was estimated at 0.96 kg/day (1.92 lbs/day) for an intake flow of 304 MGD.

21. Page 30, first paragraph - The Commission is unaware whether Poseidon's entrainment protocol followed accepted methodologies.

The entrainment study protocol followed by Poseidon's entrainment and impingement data collection consultant was provided to the Commission staff with a letter dated June 1, 2007.⁶ This protocol was approved by the San Diego Regional Water Quality Control Board.

22. Page 30, first paragraph - The study results did not distinguish between the different types and rates of productivity in these habitat types.

Pages 9-5 and 9-10 of the entrainment study protocol followed by Poseidon's entrainment data collection consultant effectively demonstrate that the study results did distinguish between the different types and rates of productivity in these habitat types.⁷ We collected

⁶ See Attachment 5 to the Flow, Entrainment and Impingement Minimization Plan – Proposal for Information Collection Clean Water Act Section 316(b), Encina Power Station Cabrillo Power I LLC, Tenera Environmental.

⁷ Id. Sampling to determine the composition and abundance of larval fishes, *Cancer* spp. magalopae, and spiny lobster larvae at the EPS intake and the local vicinity began in June 2004. The sampling was completed monthly thereafter, with the final sampling being completed in May 2005. Samples during each of these monthly surveys were collected over a 24-hour period, with sampling being divided into four 6-hour periods. Sampling was conducted near the intake structure to estimate larval entrainment, and at eight nearby stations in two sub-areas [four stations in Agua Hedionda Lagoon and five stations in the nearshore] to estimate larvae in the sources water (figure 7-1).

The samples at the entrainment location (E1), at all the nearshore stations (N#), and at the Outer Lagoon station (L1) were collected using a bongo net frame equipped with two 0.71 m (2.33 feet) diameter opening with attached 335 um (0.013 in) mesh plankton nets and codends. Each net had a calibrate flowmeter that was used to determine the volume of water filtered during sample collection. Samples were collected by first lowering the fram and nets from the surface to as close to the bottom as practical without contacting it, and then moving the boat forward and retrieving the nets at an oblique angle. The target volume of the combined volume filter through both nets was at least 2,120 feet³ (60 m³). After retrieving the nets from the water, all collected material was rinsed into the codend. The collected material form both nets was placed into a labeled jar and preserved.

Due to the shallow depths in the vicinity of the Middle (L2) and Inner Lagoon (L3 and L4) stations, especially during low tides, samples at these stations were collected using a different sampling protocol. These stations are sampled using a single plankton net and frame attached to the bow of a small boat that pushes the net through the water and collects a sample from approximately the upper 1 meter of water. By placing the net on the bow of the boat, the net collects a sample from undisturbed water. The collected material was rinsed into the codend and then placed into a labled jar and preserved.

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a complete series of 24-hour samples from the upper, middle and lower lagoon during every monthly survey. The sample collections in the three lagoons were also synchronized with sampling at the intake for entrained organisms and ocean sampling of nearshore and offshore habitats in close proximity to the lagoon's outlets.

23. Page 30, first paragraph - The results of the entrainment study provide only a surrogate for the full range of impacts, since they do not identify smaller but numerous and important planktonic species that serve as the basis for much of the estuary's productivity.

The study rationale, as reviewed by National Marine Fisheries Service, the California Department of Fish and Game and approved by the EPA independent consultant and the Regional Water Quality Control Board, focused on the entrainment of the meroplankton of larvae fish and selected invertebrate species. The vast majority of entrained organisms are holoplankton species that spend their entire lives, some as short as 20 days, as plankton, and the vast majority of these organisms are heavily armored with either silicon or chitinous skeletons (shells) that have been proven to enable their entrainment and passage through a power plant cooling water system, such as the Encina Power Station's cooling water system, completely unaffected by heat or mechanical stresses. These survival rates of entrained phytoplankton and zooplankton were demonstrated through extensive studies at Huntington Beach Generating Station and Ormond Beach Generating Station as well as many other studies throughout the United States and overseas. Not only are the vast majority of entrained organisms returned unaffected (excepting losses to the desalination filtration processes), but some equivalent number of these organisms will be produced by the restoration habitat used to mitigate the larval fish entrainment losses; this production is truly a coastal enhancement, since it is not offsetting any entrainment loss.

24. Page 30, first paragraph – Poseidon's study does not appear to incorporate the hydrologic dynamics of Agua Hedionda Lagoon that result in some parts of the lagoon habitat likely contributing more organisms to entrainment than other. Based on the assumption that Poseidon's 304 MGD flows would represent about 30% of the daily tidal flux from Agua Hedionda Lagoon – the projects entrainment impacts could be substantially higher or different than described by Poseidon.

Dr. Hany Elwany of Scripps Institute of Oceanography served as a consultant to the project retained through NRG. Dr. Elwany conducted an extensive series of hydrodynamic tests and analyses of the entire Agua Hedionda Lagoon system. His published findings were employed in their entirety to evaluate both the static and dynamic tidal volumes of each lagoon and the results explicitly incorporated into the ETM model of the project's entrainment effects.

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25. Page 30, second paragraph – staff generally disagrees with the City of Carlsbad’s finding that the expected entrainment impact does not constitute a significant adverse impact.

Staff may “generally disagree”, but has provided no scientific basis or site-specific marine research to substantiate their conclusion..

26. Page 30, last paragraph carrying on to top of page 31 - Poseidon’s estuarine water use would cause significant adverse effects to species that are important for commercial or recreational fishing.

As indicated on page 25 of the Minimization Plan, species of direct recreational and commercial value constitute a very small fraction (less than 1 percent) of the entrained organisms and therefore, the operation of the Carlsbad Desalination Facility does not create a significant ecological impact.

In addition, Poseidon’s commitment to maintain and dredge the lagoon after the Encina Power Station is decommissioned will allow for the Hubbs-Seaworld Fish hatchery to continue replenishing the White Seabass population. In addition to the lagoon maintenance, approval of the Carlsbad desalination project will result in the dedication of land currently in private ownership that will allow for the expansion of the fish hatchery. In this regard, the Carlsbad desalination project will have a significantly positive impact on species that are important for commercial and recreational fishing.

27. Page 31 – The study showed that 6.5 percent of the entrained fish would be Garibaldi. Coastal Commission staff suggest that this level of entrainment would have an adverse impact on Garibaldi populations in Agua Hedionda Lagoon.

Garibaldi (*Hypsypops rubicundus*) currently live in the rocks immediately adjacent to the power plant intake structure. Biological surveys clearly demonstrate that the Garibaldi at this location have thrived during the operation of the power plant, not withstanding the fact that historically the pumping rate of the power plant is twice that under the stand-alone desalination facility operations.

28. The study showed that 1.5 percent of the entrained fish would be halibut that are important for recreational fishing.

This is incorrect. Staff has misread the study and overstated the halibut entrainment impact by 900 percent. Since halibut is the only sport fish identified in the entrainment study, Staff has also overstated the entrainment impact to recreational fishing by 900

These materials have been provided to the Coastal Commission Staff

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percent. The study results show that 0.15 percent of the entrained fish would be halibut. It would be difficult to conclude that this level of entrainment is anything but insignificant.

29. Page 31 - The Northern anchovy serves as an important forage fish for a number of species.

The study results show that 0.16 percent of the entrained fish would be Northern anchovy. It would be difficult to conclude otherwise that this level of entrainment is anything but insignificant.

30. Page 31 – Overall, Poseidon’s entrainment study results show that its proposed use of an estuarine intake would cause a substantial loss of important individual species and substantial loss of production within Agua Hedionda Lagoon.

At the Coastal Commission staff’s specific request, the Carlsbad City Council added a section to the Final EIR to address potential “standalone” operation of the desalination facility. In several locations in the Final EIR, in the City staff report and in the proceedings before the City Council, the possibility of the desalination facility’s standalone operations due to the potential cessation of once-through cooling by the Encina Power Plant was discussed and analyzed. The Final EIR also examined whether there were adverse impacts from the stand-alone desalination facility relying on the existing seawater intake system. No evidence was presented to the City that standalone operations would result in any adverse entrainment impacts, and the City’s consultants did not find any such adverse impacts. The City concluded that standalone operation would not result in any new significant adverse entrainment effects resulting from desalination facility operations.

It is incorrect to state that Poseidon’s project would cause a substantial loss of important individual species and substantial loss of production within Agua Hedionda Lagoon. The loss of larval fish entrained by the Carlsbad Desalination Plant, whether the EPS is operating or not, represents a small fraction of marine organisms from the abundant and ubiquitous nearshore source water populations. Using standard fisheries models for adult fishes, the loss of larvae (99 percent of which are lost to natural mortality) due to the desalination facility entrainment would have no effect on the species’ ability to sustain their populations. Species with the highest mortality (i.e. the CIQ Gobies) are not substantially impacted because of their widespread distribution and high reproductive potential due to spawning several times a year, and are able to sustain conditional larval stage mortality rates of up to 60 percent without a decline in adult population level. This absence of potential population level effects is especially true for the species’ early larval stages. The sheer numbers of larvae that are produced overwhelm population effects of both natural mortality and high levels of conditional mortality.

Poseidon has agreed to include in its approval from the Regional Water Quality Control Board the additional environmental benefit of additional wetlands restoration and preservation. This additional benefit was not the result of any finding of significant adverse impact under CEQA, but rather was the result of the regulatory process before the Regional Water Quality Control Board.

31. Page 31 - The project may also cause losses in nearby nearshore water due to the intake entraining organisms that would otherwise enter nearshore areas due to tidal discharges; however, the study results did not identify whether that hydrodynamic-related effect was included.

Samples during each of these monthly entrainment surveys were collected over a 24-hour period, with sampling being divided into four 6-hour periods. Therefore, the hydrodynamic related effects of four tidal cycles were captured during each sampling period. Less than 10 percent of the entrained fish are species that entered the lagoon from nearshore areas. At least ninety percent of the entrained larvae collected in this extensive study were species confined by their habitat requirements to shallow enclosed bays and lagoons.

32. Page 31 - The proposed project is also likely to result in the "take" of protected marine mammals and sea turtles due to those animals being drawn into the intake.

With respect to entrainment of endangered species, sea turtles are rarely seen in the lagoon. During the last 53 years, one green sea turtle has been entrained and released unharmed and one was found dead at the intake structure. Since turtles do not breed in this area, only the adult species would be susceptible to impingement. Adult turtles are too large to fit through the bar racks at the entrance to the intake. Poseidon has documented that during standalone operation the velocity of the water at the entrance to the bar racks is at or below 0.5 feet per second. Therefore the proposed operation would be consistent with what the U.S. EPA considers to be "best available technology" for cooling water intakes. As such the impingement impacts and the potential for an incidental take associated with the stand-alone operation are less than significant.

Measures to be undertaken to avoid impacts to protected species are described in Poseidon's Flow, Entrainment and Impingement Minimization Plan (Attachment 25 to the letter reference above) and Regional Board Order No. R9-2006-0065.

33. Page 32, second paragraph - Poseidon's study showed that its use of the power plant intake would impinge about 2.5 pounds of fish per day. While this is a relatively minor impact, past power plant operations have also included

These materials have been provided to the Coastal Commission Staff

impingement of an endangered species, which constitutes a significant adverse impact. Staff cites stand-alone desalination facility intake velocities of 1.8 to 2.8 feet per second at the unit 4 pump screen to support this conclusion and notes that the primary method of avoiding and minimizing impingement is to maintain intake water velocities below 0.5 feet per second (fps), a rate that the U.S. EPA considers to be “best available technology” for cooling water intakes. Staff suggests that Poseidon has not proposed the use of any of these measures to further reduce its impacts and has not shown that their use would be infeasible.

As previously noted, staff has overstated the impingement impact by 30 percent. The maximum impingement under worst case conditions is 1.92 pounds of fish per day. We are pleased that staff agrees that this is a minor impact.

With respect to entrainment of endangered species, sea turtles are rarely seen in the lagoon. During the last 53 years, one green sea turtle has been entrained and released unharmed and one was found dead at the intake structure. Since turtles do not breed in this area, only the adult species would be susceptible to impingement. Adult turtles are too large to fit through the bar racks at the entrance to the intake. Therefore, the turtles never reach the Unit 4 pump screens. Poseidon has documented that during stand alone operation the velocity of the water at the entrance to the bar racks is at or below 0.5 feet per second. Therefore the proposed operation would be consistent with what the U.S. EPA considers to be “best available technology” for cooling water intakes. As such the impingement impacts associated with the stand-alone operation are less than significant, and as staff notes, relatively minor.

Moreover, Poseidon has proposed measures to reduce the project’s de minimis impingement impacts. Poseidon’s Flow, Entrainment and Impingement Minimization Plan outlines several planned operational, technical and mitigation measures, including minimization of intake flows and installation of variable frequency drives.

34. Pages 32-36 staff makes the argument that subsurface intakes appear to be a feasible and less environmentally damaging alternative.

Poseidon analyzed various configurations of beach wells and offshore intake systems.⁸ In all cases it was concluded that the alternative intakes were infeasible and far more environmentally damaging than the proposed use of the existing intake system. Poseidon acknowledges that staff does not agree with its estimate of the cost of the alternative intake systems. However, even if staff’s concerns about the cost estimates were found to be valid, which they are not, the subsurface intake systems would still cost hundreds of millions of dollars. The purpose of this expense would be to avoid a circumstance that

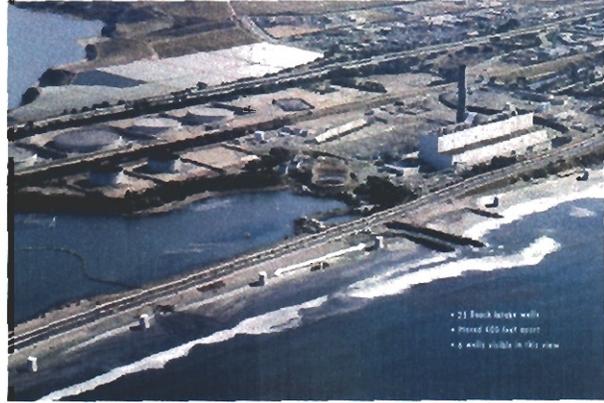
⁸ See EIR pp. 6-5 to 6-7 and Poseidon’s response to CCC dated November 30, 2006, pp. 31-41 Poseidon’s response to CCC dated June 1, 2007, p. 10, and Poseidon’s letter to Tom Luster dated October 8, 2007.

over eight years of scientific research and environmental study by leaders in the field, including the Scripps Institute of Oceanography, have proven will not have a significant, negative impact on the marine environment. This conclusion is true for all operating conditions studied, including the scenario when the Encina Power Station is decommissioned and no longer using the seawater intake and outfall infrastructure. This conclusion is also universally held by permitting agencies and the regulatory community including the City of Carlsbad, Regional Water Quality Control Board, California Department of Health Services and the State Lands Commission.

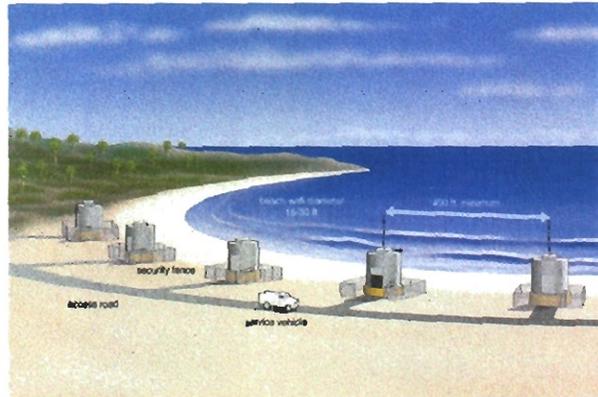
Beach Wells. Site-specific conditions and thorough evaluation of alternative subsurface intake technologies completed during the project EIR preparation phase of the project have led the City of Carlsbad and Poseidon to conclude that use of a subsurface beach well intake system is infeasible due to an inability to pump an adequate quantity or quality of water in the area, and that such an intake system would result in far greater adverse environmental impacts than the proposed project. In our previous responses, we have provided detailed and site-specific factual evidence developed by expert geologists who are knowledgeable about the hydrogeological conditions in the area after completing borings and construction and operation of a test-well in Agua Hedionda Lagoon. The experts' conclusion that subsurface intakes are infeasible supports the conclusion of the independently developed, publicly reviewed and certified EIR for the Carlsbad seawater desalination plant that subsurface intakes are not a viable seawater intake alternative for the proposed project. The presented facts are not just "issues of concern," they indicate that use of subsurface intakes is not feasible due to an inability to pump an adequate quantity or quality of water and therefore, fatally flawed based on the site specific subsurface conditions of this project. The results of this site-specific study indicate that:

- The maximum intake flow that can be delivered by a single vertical well is 1.3 MGD or less than 5% of the project flow requirements.
- Depending on the configuration of the wells (vertical, slant, Ranney collector) 20 to 200 intake structures would need to be located along two miles of coastline west of the desalination along with associated access roads, parking, interconnecting pipelines and electrical supply.
- Contrary to staff's suggestion, these facilities cannot be located underground due to the high-voltage electrical motors and switchgear required and the need to perform periodic and preventative maintenance.
- As shown below, location of 20 to 200 beach wells along a two mile stretch of the coast would result in a permanent loss in public access and visual resources.
- Detailed source water quality analysis of the water samples collected during the well test indicated that the quality of the water available from the wells would be difficult, if not impossible, to treat (salinity twice that of ambient seawater, excessive iron and high suspended solids).
- The estimated cost of various configurations of beach wells range from \$438 million to \$650 million.

These materials have been provided to the Coastal Commission Staff



Vertical Wells



Horizontal Raney Collector Well

Subsurface Seabed Filtration Intake System. As discussed in Poseidon’s October 8 letter to Coastal Commission staff, a submerged seabed intake system sized to provide 304 million gallons per day (MGD) of seawater would impact approximately 150 acres of seafloor. The system consists of two components; (i) the intake filtration bed; and (ii) 78 connector pipelines spaced at 200 foot intervals. The intake filtration bed would be three miles long and 400 ft wide and 15 feet deep and would disturb about 75 acres of seafloor. An additional 75 acres of seafloor would also need to be excavated to a depth of 12 feet to lay the 26 connector pipes from the shore through the surf zone to the filter bed.

The 104 collector pipelines will be connected to 78 wells located on the beach. The wells will pump the seawater to the desalination facility via a newly constructed pipeline (four miles long, ranging from 24 to 72 inches in diameter). Each of the 78 wells will require

approximately 2,800 square feet of beachfront property, for a combined loss of seven acres of beachfront property.

The submerged seabed intake structure would need to be placed outside the maximum wave impact zone and far enough north of the EGS discharge channel to ensure no mixing of intake and discharge water. Staff has suggested that offshore of Agua Hedionda is “an area of over 200 acres of featureless bottom with fine-grained sand that may be suitable for such a system.”⁹ Recent survey of the area indicated that 70 percent of the impacted area would contain sensitive basement and high relief reefs.¹⁰ This rocky habitat makes it physically and environmentally infeasible to place this type of structure in the area. Construction impacts would destroy this area and would have a permanent and significant effect on the marine biota along with permanent destruction of kelp beds and lobster fishery grounds. Many of the reef areas contain extensive Surfgrass meadows, which are important nursery grounds for many of the nearshore fish.

The habitat-loss analysis presented above is based on the assumption that the Carlsbad site has close to ideal conditions (aggressive filtration rate, no loss of filtration media due to coastal erosion and tidal movement, and high quality seawater) for subsurface intake. Therefore, 150 acres is the minimum area of coastal habitat that will be impacted if subsurface intake is built. Even under this best-case scenario, the 150-acre coastal habitat loss associated with subsurface intake is 400 percent higher than the worst-case estimate for the area of habitat production forgone (APF) of 36.8 acres indicated in the entrainment study prepared for the desalination facility using the existing intake.

The environmental impact as a result of the loss of 150 acres of offshore habitat is far greater than the estimated 36.8 acres of area of habitat production forgone for the following reasons:

- The construction of subsurface intake will result in an actual physical removal and destruction of 150 acres of coastal habitat.
- The area of habitat production forgone (APF) on the other hand is acknowledged by the experts to represent a worst-case, extremely conservative measure of potential impact of loss of marine organisms that relies on a number of conservative assumptions, which never occur in practice. While at least 150 acres of actual marine habitat will be destroyed irreversibly when the subsurface intake filter bed is constructed because the habitat will be removed from the ocean; the 36.8 acres of APF is the theoretical area required to produce the fraction of the

⁹ Page 35 of the staff report for item Th7a.

¹⁰ The marine habitat offshore of the EGS was evaluated in 2000 (Le Page and Ware, 2001) with Side Scan Sonar, verification dives, and fish and invertebrate transect dives. This information was the primary biological analysis for the Jetty Extension EIR was used to verify Poseidon’s response regarding biological impacts of the Fukuoka-type subsurface intake structure for the EGS, which was submitted to the Coastal Commission on July 16, 2007.

lagoon's larval goby and blenny population that would be entrained; simply stated there is no actual or implied habitat destruction. Many of the marine organisms that would be produced by the restoration, in addition to larval gobies and blennies, are completely unaffected by intake effects of entrainment or impingement. An obvious fact that the APF is crude and overly conservative measure is the abundant marine habitat in Aqua Hedionda Lagoon after over 50 years of power plant operations at this location. As indicated in the EIR for the Carlsbad project, over the last 20 years the plant was taking an average of 600 MGD of seawater from the lagoon. Yet, there is abundant sea life in immediate proximity of the intake including, highly populated Garibaldi nesting areas within 25 feet of the intake. The fact that the power plant has operated at this mode for over 50 years and while supporting one of the most productive lagoons along the California coast clearly underscores that the APF is conservative measure of intake impact.

The construction of the subsurface intake will have many other significant environmental impacts besides the irreversible destruction of marine and coastal habitat. Some of the key impacts are as follows:

- Excavation and construction of 78 intake water collection wells and trenches for collector piping along a four-mile beach strip of the City of Carlsbad shore will limit public access to the beach for a period of over 2 to 4 years and result in a permanent loss in public access and visual resources.
- In order to secure consistent operation of the intake filter bed, this bed would need to be dredged every one to three years to remove the sediment and entrained marine life that will accumulate in the intake filter bed and over time will plug the bed. If this material is not removed, than the intake flow will decrease over time and the desalination plant will cease to function. The dredged material will need to be disposed away from the one-mile strip of the intake filter bed in order prevent the removed solids to return to the area of the bed. This will not only result in frequent destruction of the marine flora and fauna in the area but will also render the area unavailable for recreational activities during intake bed dredging/maintenance activities.

In conclusion, the physical and benthic habitat of the offshore area near the proposed desalination plant is not suitable for a submerged seabed intake gallery. The overall environmental impact associated with the construction and operation of submerged seabed intake gallery will be significantly higher than that associated with the use of the existing intake for the Carlsbad Desalination Project. The estimated cost of various configurations of beach wells range from \$438 million to \$650 million. *See Poseidon's Intake Cost Estimates*, submitted to the Commission on October 17, 2007. It also should be noted that the subsurface intake systems referenced in staff comments are not recognized by the USEPA 316 (b) Regulations as a Best Technology Available (BTA)

These materials have been provided to the Coastal Commission Staff

for reduction of impingement or entrainment of aquatic organisms and staff's belief of the superiority of the subsurface technologies is not substantiated and supported by results from impingement and entrainment studies of the referenced subsurface technologies in contrast with the comprehensive impingement and entrainment studies completed by Poseidon for the Carlsbad project.

35. Pages 36-38 staff argues that a new offshore intake in open coastal waters would move those effects from the highly sensitive estuarine environment of Agua Hedionda to the somewhat less sensitive open ocean waters in which the adverse effects would be more diffuse.

Staff has opined that the construction and operation of a new offshore intake to serve the seawater supply needs of the desalination project may be an environmentally preferred alternative to Poseidon's proposed use of the existing intake at the Encina Power Station. Specifically, it is staff's view that an offshore intake would reduce the frequency of dredging of Agua Hedionda Lagoon under the stand-alone desalination facility operation; and would result in fewer environmental impacts than the use of the existing Encina Power Station intake under the stand-alone desalination facility operation.

The basis for staff's opinion was the State Lands Commission (SLC) environmental impact report (EIR) for the Agua Hedionda Inlet Jetty Extension Project. That EIR identified an offshore intake as an environmentally preferred alternative to the proposed extension of the inlet jetty. Poseidon prepared two studies that effectively demonstrate that neither of staff's objectives would be met through the construction of a new offshore intake.

The first study addresses whether an offshore intake would reduce the frequency of dredging of Agua Hedionda Lagoon under the stand-alone desalination facility operation.¹¹ This study concluded that the dredging frequency for the stand alone desalination facility would be approximately every three years when adhering to present dredging practices. Under the no power plant and no desalination project scenario, the minimum dredging required to keep Agua Hedionda open to the Pacific Ocean would be about 15 percent less than for the stand-alone desalination facility; but this reduction is not sufficient to allow the dredge frequency to be extended beyond once every three years due to schedule limitations that prohibit dredging during least tern nesting season. Given the variability in the actual sand transport from year to year and the accuracy of the modeling, there isn't any discernable difference between the estimated dredging frequency and related environmental impacts associated with the stand-alone desalination facility versus the no project scenario.

¹¹ *Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon: Low-Flow vs. No-Flow Alternatives*, Jenkins and Waysl, September 28, 2007

The second study addresses whether an offshore intake would result in fewer environmental impacts than the use of the existing Encina Power Station intake under the stand-alone desalination facility operation.¹² Here the authors evaluate the Jetty EIR and conclude that the SLC did not adequately evaluate the environmental impacts associated with constructing an offshore intake. The Jetty EIR underestimates the biological impacts of installing a large diameter pipe 1000 feet offshore, which depending on placement, would potentially destroy existing rocky reef outcroppings occurring offshore. The Jetty EIR did not evaluate the down coast effects of an intake structure on habitat, sand flow, or sedimentation.

Further, the Jetty EIR did not adequately evaluate entrainment and impingement effects. The authors believe that an offshore intake has the potential to affect a greater diversity of adult and juvenile organisms as well as both phyto- and zooplankton species than is currently impacted by the existing intake at the Encina Power Station. The community of organisms that will take up residence in the intake pipe will consume virtually all of the entrained plankton.¹³ This has implications for the survival potential of organisms that can survive passage through the power station.

The impact of an offshore intake takes on even greater significance when considered in the context of a possible stand-alone operation of a desalination plant. Such a facility will draw far less water than the power plant and two-thirds of the drawn volume would be used for dilution of the concentrated desalinated stream. Some of the plankton in the dilution water would not be affected during circulation through the plant. A long offshore intake, on the other hand, would have significantly greater entrainment effects because virtually all of the entrained plankton would be consumed by organisms living in the intake itself.

The estimated cost of the new offshore intake is approximately \$150 million. See Poseidon's Intake Cost Estimates, submitted to the Commission on October 17, 2007.

In conclusion, there is no evidence to support Staff's position that "the impacts of a properly designed and sited open water intake would be substantially less than those caused by the existing estuarine intake" and considerable evidence to suggest the impacts would be substantially greater.

36. Page 38, 3d paragraph - Poseidon has not yet shown that additional avoidance and minimization measures are infeasible.

¹² *Issues Related to the Use of the Agua Hedionda Inlet Jetty Extension EIR to Recommend An Alternative Seawater Intake for the Carlsbad Desalination Project*, Graham, Le Page and Mayer, October 8, 2007

¹³ *Issues Related to the Use of the Agua Hedionda Inlet Jetty Extension EIR to Recommend An Alternative Seawater Intake for the Carlsbad Desalination Project*, Graham, Le Page and Mayer, October 8, 2007

Pursuant to Regional Board Order R9-2006-0065, Poseidon is required to assess the feasibility of site-specific plans, procedures, and practices to be implemented and/or mitigation measures to minimize the impacts of marine organisms when the desalination facility intake requirements exceed the volume of water being discharged by the Encina Power Station.¹⁴ Poseidon's Flow, Entrainment and Impingement Minimization Plan (Plan) is subject to the approval of the Regional Board.¹⁵

Based on the comprehensive analysis of a number of flow minimization, impingement and entrainment reduction alternatives, the Plan identified a combination of best available and feasible operational, technological and mitigation measures to accomplish this purpose.

Nineteen operational and technology based alternatives for reduction of impingement and entrainment of aquatic organisms in the source seawater were evaluated for both the desalination plant intake and the existing Encina Power Station intake. Many of these alternatives were determined to be infeasible due to site-specific constraints. All of the operational and technology based measures that were determined to be feasible are proposed for implementation; these measures include minimization of intake flows through optimal operation of the power plant intake pumps when the power plant is shutdown or flows are reduced, and the installation of variable frequency drives to minimize flows. See Revised Flow, Entrainment and Impingement Minimization Plan.

Poseidon is required to consider additional technology based avoidance measures as they become available.¹⁶ In the meantime, any potential entrainment and impingement

¹⁴ Regional Water Quality Control Board Order R-9-2006-0065, Section C.I.2.e.

¹⁵ Poseidon submitted the initial draft Flow, Entrainment and Impingement Minimization Plan (Plan) to the Regional Board in February 2007. The Regional Board circulated the draft Plan for public comment. Poseidon revised the Plan in response to comments received from the Regional Board and members of the public and resubmitted it to the Regional Board June 2007. The Regional Board is currently taking comments on the revised Plan and will hold a public hearing on the Plan prior to approval.

¹⁶ City of Carlsbad Planning Commission Resolution 6091: "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; Regional Board Order R9-2006-0065, Section VI.C.1.: "Reopener Provisions" for changed conditions; State Lands Commission proposed Lease Paragraph 12: "Without interference with, or interruption of, power plant scheduled operations and at its sole cost and expense, Poseidon Resources, as a separate obligation, shall use the best available design, technology, and mitigation measures at all times during which this Lease is in effect to minimize the intake (impingement and entrainment) and mortality of all forms of marine life associated with the operation of the desalination facility as determined by the San Diego Regional Water Quality Control Board or any other federal, state or local entity;" State Lands Commission proposed Lease Paragraph 14: "Ten years from October 30, 2007, Lessor will undertake an environmental review of the ongoing impacts of the operation of the desalination facility to determine if additional requirements pursuant to Paragraph 12 are required. Lessor will hire a qualified independent environmental consultant at the sole expense of Poseidon Resources with the intent to analyze all environmental effects of facility operations and alternative technologies that may reduce any impacts found. Lessor may require, and Poseidon Resources shall comply with such additional requirements as are

impacts associated with the desalination facility operation under stand-alone conditions will be fully mitigated through the restoration and enhancement of 36.8 acres of coastal wetlands.

37. On October 10, 2007, Poseidon provided to Commission staff its proposed “Coastal Habitat Restoration and Enhancement Plan”. The Plan does not include the level of information or certainty to determine that any of the possible measures would be implemented, would provide adequate mitigation, or would conform to Coastal Act provisions.

To address Staff’s concerns, Poseidon has proposed that the Commission adopt Special Condition 4 as part of the Commission’s approval of the Project. Special Condition 4 provides:

Habitat Mitigation Plan. PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Applicant shall submit to the Coastal Commission evidence of the Regional Water Quality Control Board’s approval of a Habitat Mitigation Plan. The Habitat Mitigation Plan shall provide for the restoration of no less than 37 acres of marine wetlands. The Plan shall detail the specific site of the mitigation. The site shall be contained within the San Dieguito Wetland Restoration Plan that was approved by the Coastal Commission on October 12, 2005 (Coastal Development Permit No. 6-04-88) and was the subject of a Final Environmental Impact Report that was prepared and certified by the San Dieguito River Park Joint Powers Authority and U.S. Fish and Wildlife Service, or such substitute site or sites approved by the Regional Water Quality Control Board. The Habitat Mitigation Plan shall include an implementation protocol that includes 5 years of monitoring and annual performance review. No later than the commencement of commercial operation of the desalination facility, applicant shall commence implementation of the Plan. The Executive Director may extend the deadline for implementation of the Plan upon Poseidon’s request and showing of good cause.

With the approval of the Carlsbad desalination project conditioned on Special 4, the Commission can be reassured that Poseidon will, indeed must, implement its proposed Coastal Habitat Restoration and Enhancement Plan (“CHREP”).

With regard to whether the CHREP would provide for adequate mitigation, Poseidon does not believe any mitigation is required to comply with Coastal Act policies, because, as the EIR determined, the Project will have no significant impact on coastal resources even should it operate stand-alone. However, Poseidon has agreed to provide restoration

reasonable and as are consistent with applicable state and federal laws and regulations and as Lessor determines are appropriate in light of the environmental review.

with the project and has agreed to make this restoration enforceable as a condition of approval of the Carlsbad desalination project. Neither the Coastal Act nor Commission regulations impose mitigation standards by which what constitutes "adequate mitigation" is determined. Although mitigation is not required by CEQA, the CHREP meets the CEQA standard for mitigation measure adequacy in that it will be enforceable through conditions of approval of the project and the program's success will be monitored through performance standards, monitoring and reporting.

When the Encina Power Station flow rate is lower than the minimum flow of 304 MGD needed for operation of the desalination facility, the desalination facility's use of the EPS's existing intake may result in potential de minimis incremental impingement and entrainment of marine organisms. The purpose of the CHREP is to provide mitigation for any unavoidable impingement and entrainment effects of the Carlsbad desalination project operations through restoration and enhancement of coastal wetlands.

The proposed CHREP is based on a model (Empirical Transport Model) that estimated the portion of the larvae of each target fish species at risk of entrainment with the intake source water. Multiplying the average percent of populations at risk by the physical area from which the fish larvae might be entrained, yields an estimate of the amount of habitat that must be restored to replace the lost fish larvae. This estimate is referred to as the area (acreage) of habitat production foregone (APF).

The entrainment effect of the stand-alone operation of the desalination plant extends over 12.2 percent of the total area that could be potentially impacted by the intake operations. Specifically, 12.2 percent of the area of Aqua Hedionda Lagoon's habitat that supports the entrained species is 36.8 acres. Thus, maximum restoration area needed to fully mitigate the Carlsbad desalination project entrainment losses is 36.8 acres. The restoration requirement is estimated under worst-case conditions when the power plant is not operating and the existing pumps are operated solely to deliver 304 MGD of seawater for the operation of the desalination plant.

The CHREP will provide significant environmental benefits beyond fully mitigating the desalination facility's potential intake impacts, which, as documented in the EIR, are not significant. These benefits include the enormous ecological value of the restored acreage that will accrue to valuable wetland species completely unaffected by desalination facility operations, such as the numerous riparian birds, reptiles and mammals that will utilize the wetland for foraging, cover and nesting. Additionally, phytoplankton, zooplankton and invertebrate species, that are largely unaffected by desalination facility operations, benefit directly from the expanded carrying capacity of the restored habitat.

In order to identify suitable coastal habitat enhancement alternatives, on August 31, 2007, Poseidon issued a request for expression of interest (REI) for Development and Implementation of Coastal Habitat Enhancement Project associated with the Carlsbad Desalination Plant. Poseidon has received eight Statements of Interest for coastal

restoration and enhancement projects in response to the REI. One proposal was received that meets or exceeds the CHREP objectives, the proposal of the San Dieguito Wetland Restoration Plan.

Contingent on the Regional Board's approval, Poseidon intends to move forward with the restoration proposal submitted by the San Dieguito Wetland Restoration Plan, which is one of the proposals listed in Poseidon's CHREP. The San Dieguito proposal is one part of a larger restoration project that has already been approved by the Coastal Commission, on October 12, 2005 (W8f 11/15/05), CDP # 6-04-88.¹⁷ Additionally the San Dieguito Wetland Restoration Plan was the subject of a Final Environmental Impact Report that was prepared and certified by the San Dieguito River Park Joint Powers Authority and U.S. Fish and Wildlife Service. As such, the Plan includes more than a sufficient level of certainty to determine that the proposal conforms to Coastal Act provisions.

Even if the San Dieguito proposal is not chosen by the Regional Board (the entity with primary authority to consider marine impacts pursuant to Coastal Act Section 30412), the Habitat Mitigation Plan will include an implementation protocol that includes 5 years of monitoring and annual performance review such that the Commission will be able to determine that the restoration meets performance standards and complies with the Coastal Act.

The San Dieguito Wetland Restoration Plan proposal is described in the discussion that follows.

San Dieguito Coastal Habitat Restoration

Project Proponent. The proponent for this project is San Dieguito River Park Joint Powers Authority (local government agency in partnership with the San Dieguito River Valley Conservancy (501 (c) (3) organization).

Project Background. Pursuant to the requirements of the Coastal Commission (W8f 10-2005), Southern California Edison is creating 115 acres of tidal wetlands at San Dieguito and will keep the river mouth open in perpetuity. Their San Dieguito Wetlands Restoration Project includes a new deep water lagoon on the west side of I-5, extensive finger channels on the east side of I-5 north of the river, California least tern nesting sites and berms along the river to keep the water in the riverine channel flowing to the sea without dropping sediment or flooding the newly created wetlands under normal conditions.

Project Scope. As shown in Figures 1-3, the proposed CHREP involves the development of a total of 37.26 acres of coastal habitat in the San Dieguito Lagoon Area that is above and beyond what is included in the ongoing Southern California Edison

¹⁷ A copy of the staff report and recommendations has been forwarded to Coastal Commission staff under a separate cover.

Wetlands Restoration (SCE) Project. The majority of the coastal habitat will be wetlands (28.7 acres) and associated native grassland supporting wetland species (8.52 acres). The new coastal habitat will be created from what is now entirely disturbed land located within two miles of the coast and immediately adjacent to the San Dieguito Wetlands Restoration Project boundary.

The San Dieguito Lagoon is located approximately 12.5 miles south of Agua Hedionda Lagoon, and was historically one of the largest lagoons in San Diego County. A more detailed scope of this project was provided to the Coastal Commission staff October 8, 2007.



Figure 1 – Overview



Figure 2 – Detailed 23.75-acre Area

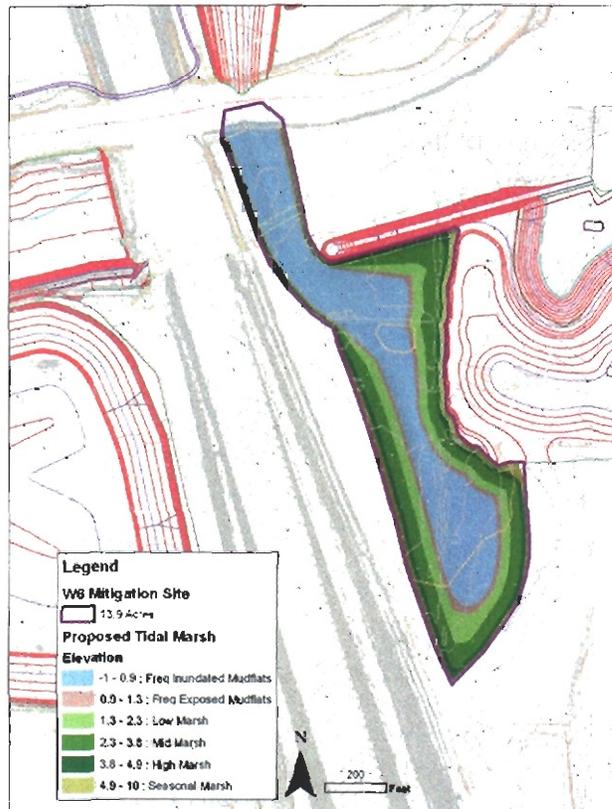


Figure 3 – Detailed 14-acre Area

These materials have been provided to the Coastal Commission Staff

Project Benefits and Merits

The project location was chosen to expand the number of acres of functional wetlands and associated habitat in the San Dieguito Lagoon area, by supplementing the 115-acre Wetlands Restoration Project, which is currently underway.

The proposed restoration projects will create 28.74 acres of wetlands and 8.52 acres of associated native grassland habitat from what is now entirely disturbed land. The current state of the land chosen for this project, results from decades of fill, grading and/or agricultural use, rendering it unsuitable for supporting native species that rely on freshwater/intertidal marsh or upland habitat. The project includes maintenance and monitoring to ensure the successful re-establishment of planted species. A second component of this project is funding for enhanced water quality sampling, testing and monitoring of the proposed Water Quality Treatment Ponds.

The proposal targets 37.26 acres of coastal wetlands and associated native grassland are within two miles of the coast. The treatment ponds are located within 1.5 miles of the coast. Both project locations are immediately adjacent to the San Dieguito Wetlands Restoration Project boundary. The Wetlands Restoration Project, largely funded by Southern California Edison, is designed to create 115 acres of coastal wetlands, maintain the inlet mouth in an open condition in perpetuity (valued at the equivalent of 35 acres of wetland creation) and create 92 acres of coastal sage scrub by 2010.

The projects described in this proposal will create additional habitat that will increase the acreage of wetlands populated by plant species with known ability to filter out contaminants, thereby improving water quality; increase the area of native habitat capable of capturing sediment, reducing stream flow and increasing infiltration into groundwater stores; and, increase the acreage of native vegetation communities able to support wildlife, including migratory waterfowl and special status species such as the Light-Footed Clapper Rail.

The proposed San Dieguito Coastal Habitat Restoration Project:

- will generate coastal habitat comparable to that found in and around Agua Hedionda Lagoon;
- is consistent with the requirements of, and is supported by, a broad array of local, state and federal agencies, including the California Coastal Commission, Regional Water Quality Control Board, National Marine Fisheries Service, US Fish & Wildlife Service and the California Dept. of Fish & Game;
- will create 37 acres of coastal habitat;
- is located in San Diego County, on the coast, approximately 12 miles south of the Agua Hedionda Lagoon;

These materials have been provided to the Coastal Commission Staff

- will provide sustainable, comprehensive environmental benefits for water quality, habitat diversity for species abundance and for sensitive and endangered species in perpetuity; and
- leverages a specific grant of \$550,000 from the State Water Resources Control Board; however, in reality it leverages a great deal more due to the association with the restoration of the tidal wetlands in the San Dieguito Lagoon; the previous work by public agencies in purchasing land in the lagoon; public support and involvement in creation and approval of the Park Master Plan and the Environmental documents for the San Dieguito Coastal Area restoration.

38. Bottom of page 40 - The Plan does not recognize that Agua Hedionda is already the subject of extensive mitigation work. There are a number of initiatives already occurring or planned that involve enhancing or restoring water quality or habitat in Agua Hedionda, many being implemented with substantial amounts of public funding. Poseidon's planned use of the estuarine intake and its proposed compensatory mitigation approach away from Agua Hedionda would diminish many of the water quality benefits and habitat values that these other mitigation efforts are expected to provide. Top of page 41 - The Carlsbad Watershed Network requested that any mitigation the Commission may require of Poseidon be integrated with the existing state funded effort for the Agua Hedionda Watershed Management Plan. Thus far, however, Poseidon's possible mitigation projects do not show the necessary level of coordination with these other ongoing efforts.

Poseidon would be very interested in collaborating on a habitat restoration project for Agua Hedionda Lagoon. In an effort to coordinate our restoration plans with Agua Hedionda watershed interests, we sent our August 2007 Request for Expressions of Interest to a number of the organizations and individuals that are involved with the Carlsbad Watershed Network (CWN), as well as Carlsbad Aqua Farm, Hubbs Research Institute and the Agua Hedionda Lagoon Foundation.

We received four proposals from Agua Hedionda Lagoon interests. A representative of the CWN offered consulting services, but no specific restoration plan was identified. Carlsbad Aqua Farm expressed an interest in working with Poseidon on an abalone stock enhancement plan. The Agua Hedionda Lagoon Foundation submitted two proposals, one related to lagoon upland property acquisition and the other related to removal of invasive plants from upland areas. We included copies of the Carlsbad Aqua Farm and Agua Hedionda Lagoon Foundation's proposals in the Coastal Habitat Restoration and Enhancement Plan we submitted to the Coastal Commission staff on October 9.

Poseidon has yet to receive any proposals for Agua Hedionda Lagoon addressing the stated objective of Poseidon's Coastal Habitat Restoration and Enhancement Plan -- marine wetlands restoration -- but we remain open to suggestions.

On October 26th Poseidon contacted the representative from the CWN that contacted the Commission staff and Poseidon regarding possible integration of Poseidon's mitigation plans with the state funded effort for the Agua Hedionda Watershed Management Plan. We expressed an interest in working with the Watershed Network to identify a specific marine wetland habitat restoration project in Agua Hedionda Lagoon. On October 31 the CWN representative replied "I'm sorry ... but we are not yet working on the acquisition and restoration part of the Watershed Management Plan. We are still in the data collection phase."

Based on this response, we concluded that the CWN is not in a position at this time to provide what the Commission staff has requested of Poseidon -- "a substantially more detailed proposal to determine whether any of the proposals would meet Coastal Act mitigation standards." (Recommended Findings 40 of 88). In their communication to Commission and Poseidon staff, CWN is very clear that they are early in the planning process and that their interests lie outside the tidal zone:¹⁸

I understand the desire to mitigate marine habitat in the lagoon, however, there are many opportunities within the Agua Hedionda watershed that would have a direct impact on lagoon habitat by mitigating sediment or other pollutants from entering the lagoon. A watershed management plan is currently being developed for the Agua Hedionda Watershed and the results will include recommendations for a series of projects (including property acquisitions) to improve the watershed health.

39. Poseidon states that the Plan is based on providing 1:1 mitigation for the loss of about 37 acres of habitat within Agua Hedionda. However, none of the potential projects offered would provide "in-kind", on-site mitigation -- that is, none would replace the habitat or organisms lost in Agua Hedionda due to entrainment -- and so the individual projects or any combination of projects would have to provide mitigation at more than a 1:1 ratio.

Neither the Coastal Act nor Commission regulations impose precise qualitative or quantitative standards for mitigation. Consistent with similar mitigation plans approved by Commission, Poseidon is proposing to provide a comprehensive habitat restoration plan that includes no less than 37 acres of marine wetlands habitat. In accordance with Poseidon's proposed Special Condition 4, the restoration site shall be contained within the San Dieguito Wetland Restoration Plan that was approved by the Coastal

¹⁸ Email from Agua Hedionda Watershed Coordinator Meleah Ashford to Tom Luster, October 26, 2007.

Commission on October 12, 2005 (Coastal Development Permit No. 6-04-88) and was the subject of a Final Environmental Impact Report that was prepared and certified by the San Dieguito River Park Joint Powers Authority and U.S. Fish and Wildlife Service, or such substitute site or sites approved by the Regional Water Quality Control Board. The APF estimate of 36.8 acres is a conservative estimate of area potentially impacted by the operation of the desalination plant intake in which only a small portion of organisms of high abundance and no commercial significance will be impacted. As previously indicated, the APF calculation provides an overestimate of the effect of the intake on the productivity of the impacted area. The fact that this lagoon has retained and enhanced its biological and marine productivity over the last 50 years of power plant operations proves that the APF estimate of 36.8 acres is overly conservative and the actual impact is well within the capacity of the impacted species to naturally compensate for the losses even without the development of any additional habitat for such species. The habitat restoration will not only compensate for the physical loss of individuals of the impacted species but also enhance the coastal environment.

The proposed restoration plan will generate benthic habitat, salt marsh and uplands habitat, thereby extending the benefits from the proposed mitigation measure far beyond the area of actual impact of the desalination plant operations.

40. Top of 42 – The restoration project Poseidon has proposed is not the best available mitigation measure feasible.

The Coastal Commission found this location to be acceptable for mitigation of the entrainment and impingement impacts of the San Onofre Nuclear Generating Station which is 45 miles away from San Dieguito Lagoon and is impacting open water fish species that don't necessarily reside in a lagoon environment. The proposed desalination facility is much closer to the proposed mitigation site (12 miles) and Poseidon is proposing to replace tidally exchanged coastal lagoon habitat with like habitat.

41. Top of page 42 - Poseidon's proposed new use is not likely to occur until the Regional Board develops the required TMDL for Agua Hedionda Lagoon.

As previously discussed, the TMDL for Agua Hedionda Lagoon is to address sedimentation in 6.8 acres primarily located in the eastern lagoon. According to the Regional Board, the source of the sedimentation problem is nonpoint and point source runoff from the upstream watershed, not water flowing into the lagoon through the intake. The Regional Board has acknowledged that keeping the lagoon open and dredged, as proposed by Poseidon, will lessen the impacts of nonpoint and point source sedimentation by providing a means of removing some of the upstream sediment through

optimal tidal exchange. Lastly, the Regional Board already issued an NPDES permit for the proposed project.

42. Poseidon's desalination process would also include adding a number of chemicals to the water such as ferric sulfate, sulfuric acid and various cleaning chemicals. The discharge to the ocean is expected to include some relatively low concentrations of some of those chemicals.

Poseidon has incorporated state-of-the art ultrafiltration (UF) membrane pretreatment system supplied for the project by GE Water Technologies. This pretreatment system does not require the use of ferric sulfate and sulfuric acid for seawater pretreatment. The cleaning chemicals planned to be used for periodic maintenance of the desalination plant membranes will be collected in a separate tank, pretreated in this tank, and subsequently discharged to the sanitary sewer for further processing at the nearby wastewater treatment plant. As a result, the desalination plant discharge will be free from ferric sulfate, sulfuric acid and cleaning chemicals.

43. Page 43, paragraph 1 - Poseidon is proposing a discharge of 40 ppt salinity when EPA recommends a maximum allowable discharge of 38.4 ppt in areas permanently occupied by food and habitat forming plants.

The Regional Board approved a 40 ppt salinity discharge when it issued an NPDES permit for the project. The EPA standard is not applicable here. EPA (1986) policy on discharge effects related to salinity acknowledges that fishes and other aquatic organisms are naturally tolerant of a range of dissolved solids concentrations (in this case salinity) and must be able to do this in order to survive under natural conditions. Also, marine species do exhibit variation in their ability to tolerate salinity changes. EPA (1986) recommendations state that, in order to protect wildlife habitats, salinity variation from natural levels should not exceed 4 parts per thousand (ppt) from natural variation in areas permanently occupied by food and habitat forming plants when natural salinity is between 13.5 and 35 ppt. The food and habitat forming plants located in the vicinity of the proposed project are found in the subtidal hard bottom habitat located 2,000 feet offshore to the north and to the south of the discharge channel. The EPA standard is not applicable to the area immediately offshore of the discharge channel which does not support food and habitat forming plants.

As applied to the proposed project, operational conditions that do not elevate salinities above 38.4 ppt (34.4 ppt upper limit of the natural variation in salinity plus EPA recommended variation of 4 ppt) in the subtidal hard bottom habitat are fully protective of the food and habitat forming plants living offshore. The 40 ppt discharge limit established by the Regional Board ensures that this standard will be met, because, under the worst case operational conditions (minimal natural mixing conditions), the discharge salinity would be reduced to 36 ppt within 1,000 feet of the discharge channel. The salinity range of the mixed discharge from the Carlsbad seawater desalination plant and

the power plant would never exceed 40 ppt at the point of discharge. Also, the discharge will be rapidly diluted to near 36.5 ppt (i.e., within 10 percent of the ambient salinity of 33.5 ppt) within the zone of initial dilution (ZID), which is within 1000 feet of the discharge channel. It should be noted that these thresholds do not represent the absolute tolerance level of local species that could be affected, and that the actual maximum exposure thresholds may be higher. The selected maximum salinity level of 40 ppt is a conservatively estimated threshold for extended exposure established for the site-specific conditions of the proposed project.

To specifically address effects on local marine organisms, Poseidon conducted studies to determine the threshold salinity levels at which adverse effects to local marine species would occur. The purpose of the studies was also to determine whether the historic EPS flow would provide an acceptable dilution rate in consideration of the proposed operational characteristics of the desalination plant. The Salinity Tolerance Investigations study (Le Page, 2005) examined the effects of the predicted salinity levels for the desalination operating parameters. This study examined the effects of long-term exposure on organism behavior and vitality to predicted salinity levels ranging from 36 ppt to 40 ppt.

The results of those and other studies formed the basis for the 40 ppt maximum salinity discharge limit established by the Regional Board (Order R9-2006-0065). Important to the Regional Board's determination of appropriate threshold were the conclusions of the studies that no significant effects were identified on local marine organisms with salinity levels ranging from 36 ppt to 40 ppt. Similar, Carlsbad's EIR determined that the project's discharge would have no salinity-related impacts. See EIR at 4.3-48.

44. Page 43, paragraph 3 - Poseidon provided test results showing that a 40 ppt salinity level would cause minimal acute effects to several test organisms; however, these organisms are not representative of the full suit of marine life living in these nearshore waters and benthic habitat..

The Comprehensive Salinity Tolerance Study and site-specific analysis completed for the Carlsbad project by Dr. Steven Le Page and Dr. Jeffrey Graham and peer reviewed by a number of environmental experts indicates that the discharge of the desalination plant will be environmentally safe and will not exhibit acute or chronic toxicity. The salinity range of the mixed discharge from the Carlsbad seawater desalination plant and the power plant would never exceed 40 ppt at the point of discharge. Also, the discharge will be rapidly diluted to near 36.5 ppt (i.e., within 10 percent of the ambient salinity of 33.5 ppt) within the zone of initial dilution (ZID), which is within 1000 feet of the discharge channel.

The results of the salinity tolerance evaluation completed for the Carlsbad desalination project were well accepted by the state and local regulatory agencies responsible for

environmental protection in California. These results were also used for the environmental review and permitting of the 50 MGD Carlsbad project. In August 2006 this project received an NPDES Permit. In addition, the Salinity Tolerance Investigation described herein was recognized by the American Academy of Environmental Engineers, which recently awarded Poseidon Resources the 2006 Grand Prize for Applied Research for work completed at the Carlsbad desalination demonstration plant, including this study. In September 2006 this work also received the 2006 Global Grand Prize in the "Applied Research" category by the International Water Association – the highest recognition for innovation in the water and wastewater research field worldwide.

The Salinity Tolerance Study included long term (5.5 months) exposure of 18 marine species inhabiting the discharge area to a typical discharge salinity of 36 ppt. A list of test marine species is presented in Table 1. The test species were chosen due to their known existence in the subject area.

Table 1 - Marine Species Used for the Carlsbad Biometrics Test

	Scientific Name	Common Name
1	<i>Paralichthys californicus</i>	California halibut
2	<i>Paralabrax clathratus</i>	Kelp bass
3	<i>Paralabrax nebulifer</i>	Barred sand bass
4	<i>Hypsoblennius gentilis</i>	Bay blenny
5	<i>Strongylocentrotus franciscanus</i>	Red sea urchin
6	<i>Strongylocentrotus purpuratus</i>	Purple sea urchin
7	<i>Pisaster ochraceus</i>	Ochre sea star
8	<i>Asterina miniata</i>	Bat star
9	<i>Parastichopus californicus</i>	Sea cucumber
10	<i>Cancer productus</i>	Red rock crab
11	<i>Crassadoma gigantea</i>	Giant rock scallop
12	<i>Haliotis fulgens</i>	Green abalone
13	<i>Megathura crenulata</i>	Giant keyhole limpet
14	<i>Lithopoma undosum</i>	Wavy turban snail
15	<i>Cypraea spadicea</i>	Chestnut cowrie
16	<i>Phragmatopoma californica</i>	Sand castle worm
17	<i>Anthropleura elegantissima</i>	Aggregating anemone
18	<i>Muricea fruticosa</i>	Brown gorgonian

The results of the 5.5 month test of exposure of the 18 species to typical discharge salinity of 36 ppt indicate that all organisms remained healthy throughout the test period. No mortality was encountered and all species showed normal activity and feeding behavior. The appearance of the individuals remained good with no changes in coloration or development of marks or lesions.

These materials have been provided to the Coastal Commission Staff

In addition, a 19-day salinity tolerance test was completed on species which are known to be highly susceptible to environmental stress: (1) the Purple sea urchin (*Stronglyocentrotus purpuratus*), Figure 1; (2) the Sand dollar (*Dendraster excentricus*), Figure 2; and (3) the Red Abalone (*Haliotis rufescens*), Figure 3.

During these tests all individuals of the three tested species behaved normally and exhibited their usual movement patterns, and fed regularly. Also, the three test species active had survival rate of 100 %, which confirms that they have adequate salinity tolerance to the desalination plant discharge in the entire range of operations of the desalination plant (i.e., up ≤ 40 ppt at the end of pipe and averaging ≤ 36 ppt within the ZID).

In summary, the Salinity Tolerance Study completed for the Carlsbad seawater desalination project confirms that the elevated salinity in the vicinity of the plant discharge would not have a measurable impact on the marine organisms in this location and these organisms can tolerate the entire range of elevated salinity of 35 to 40 ppt to which they may be exposed as a result of the operation of the desalination plant.

Additional acute and chronic toxicity studies completed subsequently for this project using the United States Environmental Protection Agency's standard whole effluent toxicity (WET) test have confirmed the validity and results of the Salinity Tolerance Study. WET testing using Abalone (*Haliotis rufescens*) showed that the chronic toxicity threshold for this species occurs at greater than 40 ppt salinity. An acute toxicity test completed using another standard WET species, the Topsmelt (*Atherinops affinis*), indicates that it tolerates exposure to a salinity above 50 ppt and will therefore be unaffected by the 40 ppt discharge.

45. Page 43, paragraph 3 - Species used in Poseidon's tests are generally considered more salinity tolerant than others, so the test results likely do not reflect actual effects that would occur to species exposed to these high salinity levels in the natural environment. For example, a State Board proposal to establish a salinity limit in the state's Ocean Plan includes a proposed limit of 36.5 ppt based on study results show that level caused adverse effects to sea urchin embryos.

See Response Above. The statement that species used in the Poseidon test are generally considered more salinity tolerant than others is inaccurate. Abalone, Sand Dollar and Red Sea Urchin used for the test are standard EPA-approved species selected as test marine organisms exactly for their sensitivity to changes in marine water quality. See EIR at 4.3-48 ("These species were chosen due to their known susceptibility to environmental stress."). In addition, these and the other 18 test species used for the Salinity Tolerance Study are collected from their natural habitat in the area of the desalination plant discharge and the Agua Hedionda Lagoon and are therefore reflective of the site-specific marine fauna of the area of the discharge. Sea urchins, referenced in

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the Coastal Commission staff comment, were also tested and no negative effects on these species were observed.

The statement that the California State Water Quality Control Board (State Board) has proposed a limit of 36.5 ppt, insinuated by Coastal Commission staff report is inaccurate and misleading. In their Scoping Document of June 2007, the State Board has indicated that they are considering three possible actions regarding the incorporation of salinity limit in the next Ocean Plan : (1) No Action; (2) Narrative Water Quality Objective; (3) Numeric Water Quality Objective. The State Board referenced a 1992 SCCWRP Study associated with a salinity level of 36.5 mg/L which reported potential impact on sea urchin embryos at this salinity. However, in the same Scoping Document the State Board acknowledged that *“this option (i.e., numeric water quality objective) may be too prescriptive for Regional Water Boards in addressing the natural background (different in different portions of the State’s ocean waters).”*

In addition, the results of the 1992 SCCWRP Study referenced by the CCC staff as a proof of a problem with sea urchin embryos at 36.5 ppt, clearly indicate that the tests are inconclusive because *“All reference toxicant samples for the urchin embryo development test, including controls, had poor development.”* This means that the test results are inconclusive at best. Otherwise, the urchin embryos in the controls which contained no desalination plant concentrate would have developed normally and they did not. In addition, the same report concluded that *“The desalination waste brine was not toxic to amphipods, kelp spores, or sea urchin embryo at concentrations expected to occur in the field.”*, which conclusion does not contradict the findings of the Salinity Tolerance Study completed for the site-specific conditions of the Carlsbad desalination project. Poseidon’s site-specific studies have been well accepted by all of the other agencies that have considered them.

46. Page 43, paragraph 3 - Other studies show that slight differences in salinity levels can affect the population density of various species, their ability to tolerate various environmental stressors, reproductive rates, and other effects.¹⁹

The referenced reports (i.e., Technical Report 39: San Francisco Estuary Regional Monitoring Program for Trace Substances, Result of the Benthic Pilot Study and article by Glen Modica “Influence of salinity and temperature on acute toxicity of cadmium on *Mysidopsis bahia*, Environmental Contamination and Toxicology, January 1990) are completely irrelevant for the site-specific conditions of the Carlsbad seawater desalination project because of the drastically different flora and fauna, salinity range, and cadmium content of the bottom sediments of the San Francisco Estuary as compared

¹⁹ See, for example, Technical Report 39: San Francisco Estuary Regional Monitoring Program for Trace Substances, Result of the Benthic Pilot Study, August 2000; and Voyer, R.A., and Glen Modica, Influence of salinity and temperature on acute toxicity of cadmium on *Mysidopsis bahia*, in Environmental Contamination and Toxicology, Vol. 19:1, January 1990.

to the open area surrounding the desalination plant discharge in Carlsbad. In addition, the San Francisco Estuary is well known for the extremely high levels of cadmium contained in the bottom sediments and toxicity associated with it. Such conditions do not exist in the vicinity of the Carlsbad seawater desalination plant discharge.

The Carlsbad Salinity Tolerance Study used concentrate produced by a seawater desalination demonstration plant to complete all toxicity and salinity tolerance tests. Using concentrate of the same chemical makeup as that of the full-scale desalination plant accounts for the interaction and cumulative effects of all chemical constituents in the seawater desalination plant discharge.

47. Top of page 44 - Poseidon's discharge would include some as-of-yet unknown amounts of other constituents that would enter the discharge from various materials or methods used in the proposed facility. As noted above, these include various chemicals and the dead organic matter from organisms entrained in the intake.

This statement is speculation; not based on actual facts or data. As a part of the project environmental review and NPDES Permitting process, Poseidon has collected and reported the water quality and the fate of all waste streams that will be generated by the desalination facility. These water quality data are included as attachments to the project EIR and the NPDES permit application for the Carlsbad Project.

The desalination plant intake and discharge was analyzed for "dead organic matter" by measuring the concentration of the desalination plant intake and discharge biochemical oxygen demand (BOD). The BOD concentration of these streams was found to be below 5 mg/L. If a given water contains large amount of "dead organic matter", the water will exhibit a higher biological oxygen demand.

48. Top of page 44 - Additionally, Poseidon has not conducted tests to determine the chronic effects of its proposed discharge. Its NPDES permit requires Poseidon conduct those test before beginning operations, but they have not yet been conducted.

This statement is inaccurate. Poseidon submitted the results of comprehensive chronic toxicity testing study to the San Diego Regional Water Quality Control Board and the CCC staff earlier this year. The San Diego Regional Water Quality Control Board (Regional Board) NPDES Permit Order R9-2006-0065 for the Carlsbad desalination project establishes salinity limits of the blended desalination plant/cooling water discharge of 40/44 ppt (daily/hourly average). These permit salinity limits were established based on a conservative analysis of the desalination plant discharge completed during the environmental impact report preparation phase of the project. In order to more accurately determine the salinity threshold at which the desalination plant

concentrate can be discharged safely, Section VI.2.c.1 of the adopted NPDES Permit order requires the discharger to conduct a study using Carlsbad desalination project pilot plant effluent to assess short-term exposure of test species to salinity concentrations that range from 36 to 60 parts per thousand (ppt).

The purpose of this study is to determine the threshold of concentration of total dissolved solids (TDS or salinity) of the discharge from the Carlsbad desalination project below which short-term exposure (30 minutes to 24 hrs) of standard test organisms to this discharge does not cause acute toxicity. The study was completed to fulfill Poseidon Resources obligations under the requirements of Order No. R9-2006-0065 of August 16, 2006, of the San Diego Regional Water Quality Control Board, Section VI.C.2.c.1: "Salinity-Related Toxicity Threshold for Short-Term Exposure". The toxicity testing was completed in accordance of Study Plan reviewed and approved by the Regional Board staff. The test results indicate the following:

- The NPDES permit daily average and maximum hourly salinity limitations of 40 ppt and 44 ppt are conservative.
- The NPDES permit acute toxicity unit ("TUa") Performance Goal of 0.765 is not exceeded until salinity reaches 48 ppt and is safely met at salinity of 46 ppt or less.
- Current NPDES permit average hourly salinity limitation of 44 ppt is also very conservative. The test data indicates that no mortality effect was observed for a period of 2 hours at discharge salinity of 60 ppt.

Concentrate of salinity of 46 ppt and acute toxicity level TUa of 0.65 complies with a reasonable margin of safety with the NPDES acute toxicity TUa performance goal of 0.765. Therefore, 46 ppt of concentrate salinity level could be considered as an acceptable and conservative salinity-related toxicity threshold for short-term exposure.

49. Page 44, first full paragraph - Based on the above, Poseidon's proposed discharge would likely cause adverse effects to organisms in from about eight to 44 acres of nearshore benthic habitat.

In accordance with the State Board's Ocean Plan, the Regional Board issued to Poseidon a Permit with an average daily effluent limitation of 40 ppt for salinity after determining that no impacts to the marine environment occur at this level. In issuing Order R9-2006-0065, 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.

The Regional Board adopted the Order, in part, based on the multi-year, multi-disciplinary studies, results of which have been briefly discussed above and have been presented to the CCC staff on numerous occasions during the coastal development permit process for the proposed project. The comprehensive, peer-reviewed scientific evidence clearly indicates that the desalination plant discharge will be environmentally safe and the impact on the aquatic environment in the area of discharge will be insignificant.

50. Routing the discharge to the sewer or evaporating the water would eliminate the discharge.

As described in the project EIR in Section 6.2, the Encina Wastewater Treatment Plant does not have sufficient capacity, is not designed to handle highly corrosive concentrated seawater, and introduction of desalination facility discharge into the waste water collection system would render the City of Carlsbad's recycled water supply unusable. Carlsbad currently meets 20 percent of its water demand through the use of recycled water. Evaporating the concentrated seawater is an extremely expensive energy and land intensive process.

51. Poseidon would need to provide compensatory mitigation for the adverse effects its discharge would cause to some area of the seafloor.

As explained in Poseidon's previous responses to Commission staff dated January 19, 2007 and June 1, 2007, the Regional Board has appropriately conditioned all potential discharge-related impacts of the proposed project to ensure compliance with Clean Water Act and Ocean Plan requirements.

Section 30412 of the Coastal Act acknowledges that the State Board and the Regional Board have "primary responsibility for the coordination and control of water quality" and prohibits the Commission from "modify[ing], adopt[ing] conditions, or tak[ing] any action in conflict with any determination by the [State Board] or any California regional water quality control board in matters relating to water quality" In accordance with the State Board's Ocean Plan, the Regional Board issued to Poseidon a Permit with an average daily effluent limitation of 40 ppt for salinity after determining that no impacts to the marine environment occur at this level. The Staff therefore is prohibited from seeking to impose salinity levels, such as 10% above 33.5 ppt, or 36.9 ppt, which would conflict with the Regional Board's determination.

The Regional Board established the salinity effluent limitation "[o]n the basis of available salinity effects information," as it found this limit necessary "to prevent salinity-related acute toxicity effects ... and to prevent degradation of marine species." Permit at 12. Available information, including studies and analyses submitted by Poseidon, as well as the results of a technical literature review, "indicate[d] that no salinity-related [toxicity] effects would occur in receiving waters if salinity levels ... are maintained below 40 ppt." Id. at F-18. In addition, "information submitted by [Poseidon] indicates that salinity concentrations up to 44 ppt will not likely cause violations of Ocean Plan's acute toxicity

standards.” Id. at F-37. Furthermore, salinity impacts were analyzed in the EIR for the desalination plant, which concluded that such “impacts to ocean water quality resulting from desalination plant operations would be less than significant.” EIR at 4.7-21.

Thus, the Commission’s actions would conflict with the Regional Board’s determination that 40 ppt is the level at which no impacts would occur if it were to require mitigation for salinity levels that the Regional Board has determined not to be harmful to receiving waters. In addition, the Commission Staff’s proposed threshold of 36.9 ppt does not account for any dilution in the mixing zone in the immediate vicinity of the discharge. The Staff’s failure to take such mixing and dilution into account conflicts with State Board policy followed by the Regional Board. The State Board requires that “[w]aste effluents shall be discharged in a manner which provides sufficient initial dilution to minimize the concentrations of substances not removed in the treatment.” Ocean Plan at 11. The Ocean Plan specifically requires that this initial dilution be considered in determining compliance with water quality objectives and in setting effluent limitations. The Ocean Plan defines “initial dilution” as “the process which results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.” Id. at 26.

Dischargers into ocean water must comply with water quality objectives, which are set forth in the Ocean Plan. Id. at 6, 7-9. In evaluating whether a discharger complies with water quality objectives, initial dilution must be accounted for: “Compliance with the water quality objectives ... shall be determined from samples collected ... where initial dilution is completed.” Id. at 4 (emphasis added). The Ocean Plan also sets forth procedures to calculate effluent limitations, which may be imposed on a discharge to ascertain that it will comply with water quality objectives. Effluent limitations must be imposed “such that the ... water quality objectives shall not be exceeded in the receiving water upon completion of initial dilution” Id. at 13 (emphasis added). The Ocean Plan provides a formula for calculating effluent limitations; the formula requires consideration of the minimum probable initial dilution Id. at 15. Thus, when effluent limitations are established for a discharge, they account for initial dilution, as required by the Ocean Plan.

The Regional Board implemented these Ocean Plan requirements for accounting for initial dilution, both in determining compliance with water quality objectives and in calculating effluent limitations. The Permit requires compliance with all water quality objectives, including that for salinity. Permit at 17. The Permit states that “water quality objectives ... shall not be exceeded outside of the zone of initial dilution as a result of discharges from the Facility,” id., conforming to Ocean Plan requirements. In addition, the Regional Board established effluent limitations for multiple pollutants, including salinity, in conformance with procedures provided in the Ocean Plan. Id. at F-32 (“From the ... water quality objectives of the Ocean Plan, effluent limitations are calculated according to the... equation [set forth in the Ocean Plan]”). Thus, as required by the Ocean Plan, the Regional Board accounted for initial dilution in setting effluent limitations. If the Commission were to require mitigation for salinity levels in discharge

without accounting for initial dilution, the Commission's actions would conflict with the State Board's determination that initial dilution should be considered, as discussed in the Ocean Plan, and the Regional Board's consideration of initial dilution, as required by the Ocean Plan and set forth in the Permit.

Finally, we are unaware of the Coastal Commission previously requiring consideration of discharges resulting in salinity levels outside the natural range of variability, notwithstanding that hundreds of discharges subject to Commission review – including virtually every wastewater treatment plant discharging to the Pacific Ocean – result in such salinity changes. In the past, the Commission has determined that applicable water quality and marine resource policies of the Coastal Act are satisfied when: (i) adequate monitoring is in place; and (ii) the Regional Board has determined that the discharger's effluent complies with applicable Clean Water Act and Ocean Plan requirements. See, e.g., California Coastal Commission Staff Report and Recommendation on Consistency Certification No. CC-028-02. In its issuance of an NPDES Permit to Poseidon, the Regional Board addressed both of these requirements.

As discussed in our previous responses to staff, the Permit establishes extensive monitoring and reporting requirements. Permit at 22, E-1 to E-15. Salinity must be monitored weekly at two locations. Id. at E-5, E-8. The Permit “may be modified [or] revoked and reissued ... [t]o include an effluent limitation if monitoring establishes that the discharge causes, has the reasonable potential to cause, or contributes to an excursion above [a] ... water quality objective.” Id. at 19. In addition to imposing monitoring requirements, the Regional Board determined that Poseidon's effluent, discharged pursuant to the provisions of the Permit, would comply with the requirements of the Clean Water Act and the Ocean Plan. Id. at 6 (“This [Permit] is issued pursuant to section 402 of the Federal Clean Water Act ... and [Porter-Cologne].”), 8 (“Requirements of this [Permit] implement the Ocean Plan.”). Because the Regional Board has established adequate monitoring and compliance with Clean Water Act and Ocean Plan requirements, the applicable water quality and marine resource policies of the Coastal Act are satisfied, and no additional mitigation is warranted.

52. Pages 47-48 - Agua Hedionda Lagoon is one of 19 coastal wetlands identified in the California Department of Fish and Game identifies high priority wetlands for acquisition, based primarily on their values for fish and wildlife habitat and threats to their continued existence as a natural resource. Areas of the lagoon where the plant and animal life is especially valuable due to its special nature in the ecosystem include the Agua Hedionda Lagoon State Marine Reserve and Ecological Reserve, which cover about 180 acres extending along about a half-mile of the lagoon's Inner Basin. The lagoon includes extensive areas of open water habitat, eelgrass beds, and various types of wetlands, and provides significant habitat benefits to a number of species, as described in previous section of these Findings. Those Findings also show that Poseidon's proposed use of estuary water would create adverse entrainment

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effects equal to the loss of no less than about 37 acres of Agua Hedionda's wetland and open water areas.

The pristine ecological state of the Agua Hedionda Lagoon, as described above, is the direct result in large part of the Encina Power Plant's maintenance of the lagoon.

In Spanish, Agua Hedionda literally means "stinking water". This was an accurate description of the stagnant wetlands before the Encina Power Station was commissioned in 1952. For over 50 years, the operators of the power plant have regularly maintained the lagoon and dredged an opening to the ocean to sustain a source of seawater to cool the power plant's generators.

As a result, today the 388-acre Agua Hedionda Lagoon is a man-made, shallow coastal embayment teeming with marine life and an array of recreational and educational activities, including environmental research. The lagoon supports a thriving marine ecosystem and is home to the Hubbs-SeaWorld fish hatchery, the Carlsbad Aquafarm, YMCA Camp, a commercial boating operation, private residences including a small-craft marina, an ecological preserve run by the California Department of Fish and Game, and the Lagoon Foundation's Discovery Center.

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. Locating the new seawater desalination plant next to the Encina Power Station solves this problem by introducing a new lagoon steward.

Over the last 50 years, the flow of water through the power plant averages 600 million gallons per day. The Carlsbad Desalination Project will require 304 million gallons per day, half of the power plant's water use. Since the Agua Hedionda Lagoon provided a vibrant and productive marine environment while the power plant circulated and average of 600 million gallons per day, then Poseidon's reduced usage will achieve a net environmental benefit.

Over eight years of scientific research and environmental study by leaders in the field, including the Scripps Institute of Oceanography, have proven that the project will not have a significant, unmitigable impact on the marine environment. This conclusion is true for all operating conditions studied, including the foreseen scenario when the Encina Power Station is decommissioned and no longer using the seawater in-take and out-fall infrastructure. This conclusion is also universally held by permitting agencies and the regulatory community including the City of Carlsbad, Regional Water Quality Control Board, California Department of Health Services and the State Lands Commission.

The Coastal Commission staff acknowledged that under the current circumstance where the power plant is extracting considerably more water out of the lagoon than the desalination facility will after the power plant is retired "Agua Hedionda Lagoon continues to provide significant habitat values."

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Poseidon Resources wholeheartedly agrees, which is why we have committed to step into the power plant's responsibilities when the generating plant is decommissioned and serve as the lagoon's steward. Poseidon's commitment to expand the lagoon's public boundaries, sustain a clean and healthy watershed and dredge a permanent opening to the Pacific Ocean will guarantee that these vital coastal wetlands are preserved. Specifically, approval of the project will result in the dedication of over 15 acres of lagoon and oceanfront land for public access and recreation, and for the expansion of the Hubbs-SeaWorld fish hatchery. These private land contributions aid the California Department of Fish and Game's goal of acquiring "high priority wetlands, based primarily on their values for fish and wildlife."

The value of this commitment is evident by the project's endorsement by the Agua Hedionda Lagoon Foundation, Hubbs Seaworld Fish Hatchery, Carlsbad Aquafarm and every lagoon user, which all have concluded the desalination project is essential to the long-term health of the lagoon's ecosystem.

Augmenting the commitment to the Agua Hedionda Lagoon, Poseidon has prepared a Coastal Habitat Restoration and Enhancement Plan, which includes a commitment to restore 36.8 acres of wetland habitat.

This level of mitigation is not only consistent with the applicable policies of the federal, state, regional and local regulatory agencies, it exceeds the Coastal Commission's own mitigation formulas and will result in the addition of valuable acreage for wetland species completely unaffected by the desalination plant's operations.

53. Page 48, first full paragraph - Agua Hedionda Lagoon is on the state's list of impaired water bodies due to high rates of sedimentation, which are caused in part by the power plant's intake and would continue due to Poseidon's proposed use of the intake.

Inspection of CWA documents on file at the San Diego Regional Water Quality Control Board reveals that the 303(d) listing of Agua Hedionda Lagoon as an impaired water body is based on fine-grained sedimentation discharged by urban run-off into the lagoon from the neighboring watersheds (predominately by Agua Hedionda Creek), impacting 6.8 acres primarily located in the east basin of the lagoon. There is no physical mechanism by which the Carlsbad Desalination Project can affect this urban run-off into the lagoon.

54. Bottom of page 48 - The State Lands Commission conducted environmental review of the proposal and published in January 2005 a Draft EIR that provided a comprehensive and independent assessment of the effects caused by dredging in Agua Hedionda.

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This is not an accurate characterization of the DEIR. There is no “comprehensive and independent assessment of the effects caused by dredging in Agua Hedionda” presented in the DEIR. Only a few historic dredge numbers can be found in the technical portions of the DEIR along side various qualitative statements about greater or lesser amounts of dredging in relation to the alternatives considered. The only analysis in the DEIR that would qualify as a comprehensive assessment was done in regards to beach erosion and how the jetty restoration vs other alternatives might impact that erosion (ref., Section 4.2 Hydrology and Water Quality).²⁰

55. Page 49, paragraph following bullet list - In regards to the “environmentally superior alternative” (the offshore intake) staff writes, “It also found that maintenance dredging of about 20,000 cubic yards per year from near the lagoon’s mouth would be adequate to maintain tidal flows in the lagoon, which would help continue the lagoon’s other existing beneficial uses.

This number appears only in the Executive Summary of the DEIR. No where in the supporting text (Section 3.3 Alternatives Evaluated in EIR/ER) or in the technical sections (Section 4.2 Hydrology and Water Quality) is this number ever substantiated or even mentioned.

56. Page 50, first full paragraph - Additionally, the EIR’s identification of those significant impacts led to its selection of an environmentally preferred alternative that would require dredging only about 20,000 cubic yards per year from the lagoon mouth rather than Poseidon’s identified dredging of over 100,000 cubic yards per year average within the lagoon’s West Basin.

The analysis of the environmentally preferred alternative (the offshore intake) in the DEIR is minimal and would probably not pass peer review. While the executive summary gives 5 paragraphs of discussion about the environmentally preferred alternative, only two paragraphs are found in the main body and technical sections of the DEIR: one paragraph on page 3-6 that describes it as 30 foot diameter, 3000-foot-long pipeline with an offshore intake structure placed at an ocean depth of 30 feet; and a second paragraph in the Hydrology and Water Quality Section on page 4.2-20 that acknowledges its construction would disturb the ocean bottom and increase turbidity. There are no references anywhere in the text of the DEIR to more detailed studies about the environmentally preferred alternative, and inspection of the reference list in Section 8.0 reveals no reports having anything about offshore intakes in the titles. There are clearly inadequacies with the DEIR documentation of this alternative that preclude it from being applied to a stand alone desalination facility at Agua Hedionda. 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

²⁰ DEIR, 2005, “Agua Hedionda Lagoon Northern Jetty Restoration Project Environmental Impact Report/Environmental Assessment”, California State Lands Commission & MWH, January 2005, 9 Sections and 3 Append.

plug.²¹ 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. As noted above, the 20,000 cubic yards per year dredging estimate for what it might take to maintain tidal circulation in the lagoon with the offshore intake alternative is completely unsubstantiated in the DEIR. This is actually a very difficult number to estimate, (because the lagoon has never operated under such conditions), and demands some kind of explanation for how it was obtained. The Poseidon study²² estimates that the dredging burden would be 89,000 cubic yards per year if no lagoon water were consumed, and this number is consistent with a study that appeared in the reference list of the DEIR²³ but was never considered in the text of the DEIR. Regarding which estimate is probably more accurate, consider the fact that the nearest neighbor, Batiquitos Lagoon, has been dredged an average of 26,000 cubic yards per year since 1999, and that level of effort has not kept pace with the tidally driven sediment infilling of the lagoon.²⁴ The overriding reality at Agua Hedionda is that it is not a natural system and was originally constructed from a grading plan that places the majority fraction of tidal prism above mean sea level.²⁵ Such a distribution in the lagoon's storage volume causes the tidal transport through the ocean inlet to be flood tide dominated, even without the consumption of lagoon water. Because of flood tide dominance, maintenance dredging of the west basin would still be required every 3 years to sustain existing beneficial uses of the lagoon, even if no lagoon water is taken for power generation or desalination.²⁶

57. Page 50, first full paragraph - The EIR's independent and more comprehensive analysis provides a credible assessment of the type and degree of impacts that

²¹ Jenkins, S. A., D. L. Inman & J. A. Bailard, 1980, "Opening and maintaining tidal lagoons and estuaries," *Proc. 17th Int. Coastal Eng. Conf.*, Amer. Soc. Civil Eng., v. 2, p. 1528-1547. Jenkins, S. A., Inman, D.L., Michael D. Richardson, M.D., Thomas F. Wever, T.F. and J. Wasyl, 2007, "Scour and burial mechanics of objects in the nearshore", *IEEE Jour.Oc.Eng.*, vol. 32, no. 1, pp 78-90.

²² Jenkins, S. A. and J. Wasyl, 2007, "Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon: Low-Flow vs No-Flow Alternatives," submitted to Poseidon Resources , Inc, 28 September 2007, 8pp

²³ Jenkins, S. A. and J. Wasyl, 1998, Coastal Processes Analysis of Maintenance Dredging Requirements for Agua Hedionda Lagoon, submitted to San Diego Gas and Electric Co., 176 pp. + appens.

²⁴ Jantz, Steve, Associate Engineer, City of Carlsbad Engineering Department. Phone communication 7 November 2007.

²⁵ Jenkins, S. A. and D. L. Inman, 1999, Sand transport mechanics for equilibrium in tidal inlets, *Shore and Beach*, vol. 67, no. 1, pp. 53-58. Jenkins, S. A. and J. Wasyl, 2005, "Coastal evolution model," Scripps Institution of Oceanography Tech. Rpt. No. 58, 179 pp + appendices.

<http://repositories.cdlib.org/sio/techreport/58/>

²⁶ Jenkins, S. A. and J. Wasyl, 2007, "Comparative Analysis of Intake Flow Rate on Sand Influx Rates at Agua Hedionda Lagoon: Low-Flow vs No-Flow Alternatives," submitted to Poseidon Resources , Inc, 28 September 2007, 8pp

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would be associated with Poseidon’s proposed dredging. Additionally, the EIR’s feasible least damaging environmental alternative – that is, ending the use of the intake in the lagoon and instead using an offshore intake – would result in substantially reduced impacts, would restore a more natural longshore sand transport system, and would substantially decrease the amount of sand influx into the lagoon.

Given the fact that this DEIR was never certified, and was never subjected to the rigorous review process that is required for certification, this is not a credible statement. As cited above, the claims made for the offshore intake are un-substantiated in the two paragraphs about this alternative found in the main body of the DEIR. The central focus of the DEIR was to build an assessment that disqualified the jetty restoration as a viable alternative. Very little rigor was given in the assessment of the alternatives that were substituted for the jetty alternative. In the case of the offshore intake alternative, we find no references to detailed analysis of this alternative and claims in the executive summary were not supported by the text.

58. Page 52. There are a number of additional measures available that would minimize adverse environmental effects of dredging.

Poseidon’s proposed condition of approval, Special Condition 12, provides that Poseidon will apply for a separate CDP for any future dredging activities that will include the measures the Commission has imposed on Cabrillo Power in the past for dredging activities. Special Condition 12 ensures that any adverse environmental effects of dredging are minimized in conformity with the Coastal Act.

Section 2.5.4 – Energy Use and Greenhouse Gas Emissions

59. Page 56. “According to methods developed by the California Climate Action Registry (CCAR), Poseidon’s proposed electrical use would result in no less than 200,000,000 pounds of carbon dioxide emissions per year.”

The California Legislature established the California Climate Action Registry (“CCAR”) in 2001 by passing SB 1771 to be the state agency to establish protocols to help companies establish their carbon emission baselines, and to establish a reporting mechanism to annually update their emissions factor. This is the **only** state agency that is authorized by the California State Legislature to perform this function. The Coastal Commission has no authority to substitute its judgment for CCAR’s. CCAR has carefully established a specific Power Utility Protocol, based on internationally recognized protocols, to guide electric utilities like SDG&E in the calculation of the emissions factor for their delivered electricity or system power. Their reporting tool (CARROT) is a complex, comprehensive and detailed analysis that leads to an accurate and reliable emissions factor for each utility.

As set forth more fully below, the Staff Report’s purported reliance on the CCAR protocols to calculate the Carlsbad’s Project’s carbon footprint is incomplete. While use of the CCAR’s methods are appropriate, what the Staff Report fails to point out is that SDG&E – the expected source of system power for the Carlsbad Plant – has registered its “emission factor” for each megawatt-hour of energy produced, and that CCAR has certified those calculations in accordance with the CCAR protocol upon which the staff cites. The CCAR certified, registered emissions factor is 546.46 lbs of CO2/MWH for delivered SDG&E system power electricity, the source of power for the Carlsbad facility. (See Exhibit D , the certified SDG&E emissions factor registered with the CCAR.) Based on that emissions factor, the gross carbon footprint of the project is 61,004 metric tons of CO2 per year.

In footnote 59, the staff report erroneously sets forth a different and significantly higher emissions factor of 804.54 lbs of CO2/MWH for SDG&E power. However, the use of this figure ignores the unambiguous direction of the very protocol the Staff Report claims to follow. According to the protocol, “if your electricity provider reports an electricity delivery metric under the Registry’s Power/Utility Protocol, you may use this factor to determine your emissions, *as it is more accurate than the default regional factor.*” (CCAR General Reporting Protocol, Page 31. Emphasis supplied.)

What’s especially troubling about the Staff Report’s selective use of CCAR protocol and disregard of SDG&E’s certified emissions factor is the misleading implication that the emission rate used by Poseidon is somehow the product of Poseidon’s own “calculations.” (Staff Report, Page 64.) It is not. In fact, while Poseidon relies on SDG&E’s certified emission factor registered with the CCAR, it is CCC staff that favors its own analyses over the state’s legislatively mandated experts and calculates its own emissions rate based on more generalized and less accurate data. In addition, to justify its approach Staff simply compares various data and concludes – without clarifying that what is at issue is CCAR certified data – that the certified emissions rate relied on by Poseidon is just not high enough.

The Staff Report not only ignores the fact that Poseidon’s calculations rely on data certified by the CCAR, it also ignores that the SDG&E emissions factor certified by the CCAR is in line with other utilities that have also registered and certified their emission rates with the CCAR. As illustrated below, the emissions factor registered by SDG&E is well within the range of what other utilities have reported.

Utility	Report Year	CCAR Report Date	Emission Factor
SDG&E	2005	7-Mar-07	546
SDG&E	2004	16-Mar-06	614
PG&E	2005	1-Dec-06	489

PG&E	2004	12-Oct-06	566
SCE	2005	30-Jan-06	666
SCE	2004	6-Feb-06	679

As a result of Staff's erroneous use of an emission rate well above the certified rate for SDG&E system power, Staff's claim that "Poseidon's proposed electrical use would result in no less than 200,000,000 pounds of carbon dioxide emissions per year" is also erroneous. (200,000,000 pounds equals 90,700 metric tons, the units normally used when calculating carbon footprints.) Based on CCAR certified data, emissions resulting from the Carlsbad Desalination plant's electricity use is expected to be 61,004 metric tons of CO2 per year.

60. Page 56. "These analyses evaluate only those carbon emissions that would be generated by Poseidon's electrical use for pumping and desalinating water and transporting it to Maerle Reservoir. . . . It also does not include emissions from the pumping needed to move part of Poseidon's produced water to the regional distribution system."

This is not correct. Poseidon's energy usage and greenhouse gas calculations accounts for all phases of the facility's operations, from the electricity required to pump raw seawater into the plant, to treating and purifying the water, to delivery to all points of use.

61. Page 57. "Because water is relatively heavy, it requires significant amounts of electricity to transport – for example, the State Water Project uses up to about 5 billion kilowatt-hours each year to move millions of acre-feet of water from Northern to Southern California. Its average demand per acre-foot is about 3,200 kilowatt-hours."

This is not correct. The average electricity demand per acre-foot of water delivered through the State Water Project – including treatment, delivery and evaporative losses – is 3,400 kilowatt-hours (or 3.4 megawatt hours) (See Poseidon Resources October 21, 2007 Energy Use and Greenhouse Gas Production).

62. Page 57. "Poseidon's proposal is expected to require no less than about 4,400 kilowatt-hours per acre-foot, about 40% more than the State Water Project. Further, in addition to the electricity needed to operate a seawater desalination facility, Poseidon's proposal would require additional electricity to move the desalinated water from sea level to higher elevations where it can be distributed to end users."

This is not correct. Poseidon's expected energy requirement of 4,400 kilowatt-hours (4.4 megawatt-hours) per acre-foot accounts for the electricity required to transport water

from the plant to the point of delivery (See Poseidon Resources October 21, 2007 Energy Use and Greenhouse Gas Production).

63. Page 63. "Poseidon's most recent estimates show that it expects the project would use 4,833 kilowatt-hours to produce each acre-foot of potable water."

This is not correct. As set forth in Poseidon's submittals and as recognized by staff on page 57 of its report, after accounting for efficiency measures that will reduce electricity demand by 10%, the Carlsbad operation is expected to require 4,400 kilowatt-hours to produce each acre-foot of potable water.

64. Page 63. "Poseidon's estimates also show that its expected continual electrical demand would be between 28.1 and 33.8 megawatts, with an average demand of about 30 megawatts. Using these figures, Poseidon's electrical use would range from 246,156 to 296,088 megawatt-hours per year, with an average annual use of 262,800 megawatt-hours."

This is not correct. The Carlsbad project's expected demand is 28.1 average megawatts of power per year, with a peak of 33 megawatts. As a result, the correct figure for the expected annual electricity demand is 246,156 megawatt hours per year. (See Poseidon Resources October 21, 2007 Energy Use and Greenhouse Gas Production).

65. Page 63. "Along with this energy demand, Poseidon's project would require a pump station in Oceanside that would use about 0.5 megawatt, or approximately 4,380 megawatt-hours per year."

This is not correct. Poseidon has configured the Carlsbad plant so it does not require a pump station at Oceanside, and the energy required to make the equivalent lift has been accounted for in Poseidon's energy demand calculations for the facility.

66. Page 64. "Along with the energy demand of the Oceanside pump station, Poseidon's electrical use would be no less than about 250,000 megawatt-hours per year, which is used as the basis for the analyses in these findings. This would result in carbon dioxide emissions of about 200,000,000 pounds per year."

For reasons stated above, this is not correct. The Carlsbad project's electrical use is expected to be 246,156 megawatt hours per year, and its expected annual emissions of carbon dioxide is 61,004 metric tons.

67. Page 64. "As noted above, the analyses in these Findings do not include . . . electricity needed to move water from Maerkle Reservoir 350 feet higher into the regional water distribution system, even though they could add substantially

to the project's greenhouse gas contributions.”

As stated above, Poseidon's calculations include all electricity required to move water from the plant, into the regional water system (including from Maerkle Reservoir) and to the point of delivery.

68. Page 64. “Poseidon contends that its emission rate should be based on 546 pounds of carbon dioxide emissions per megawatt-hour, based on emissions expected from the energy sources in SDG&E's energy supply portfolio. This would result in about 84,000,000 pounds of carbon dioxide per year instead of 200,000,000 pounds.”

This statement is both misleading and incorrect. It is misleading because, as stated above, it fails to state that the emission rate of 546 pounds of carbon dioxide per megawatt-hour is the rate calculated by SDG&E and certified in accordance with CCAR protocol. Using the correct rate the Carlsbad's facility's carbon footprint is expected to be 61,004 metric tons per year, which equals approximately 134,400,000 pounds per year.

69. Page 64. “In comparing the SDG&E portfolio with the CCAR's average California portfolio, the SDG&E portfolio appears to result in an even higher emission figure than the California average. For example, coal and natural gas, which have average emission rates much higher than 804.54 pounds per megawatt-hour, make up a larger proportion of San Diego's portfolio than the state portfolio. Additionally, SDG&E testimony before the California Public Utilities Commission suggests its carbon dioxide emissions are in the range of 1100 pounds per megawatt-hour, based on an average of a range of natural gas technologies and heat rates. It appears, therefore, that Poseidon's calculations are in error.”

As stated above, this statement is both confusing and misleading. Rather than simply stating that it does not agree with the CCAR's certified emission rate for SDG&E system power, the staff report instead cites a variety of general information to support its belief that the certified rate is simply too low to serve staff's purposes.

Since Poseidon intends to buy all of its energy from SDG&E system power, the appropriate emission factor to use for the Project's indirect carbon emissions from its electricity purchases is SDG&E's annual emission factor for delivered electricity as stated in their California Climate Action Registry (CCAR) Annual Emissions Report. SDG&E last filed an Annual Emissions Report with the CCAR on March 7, 2007.

The California Legislature established CCAR in 2001 by passing SB 1771 to be the state agency to establish protocols to help companies establish their carbon emission baselines, and to establish a reporting mechanism to annually update their emissions factor. This is

the **only** state agency that is authorized by the California State Legislature to perform this function. The Coastal Commission has no authority to substitute its judgment for CCAR's. CCAR has carefully established a specific Power Utility Protocol, based on internationally recognized protocols, to guide electric utilities like SDG&E in the calculation of the emissions factor for their delivered electricity or system power. Their reporting tool (CARROT) is a complex, comprehensive and detailed analysis that leads to an accurate and reliable emissions factor for each utility.

In that report, which will be updated annually, the certified emissions factor for SDG&E for reporting year 2005 was 546.46 lbs of CO₂ per delivered MWH of electricity. In their 2004 CCAR Annual Emissions Report their emissions factor was 614, and it will likely be different in their upcoming 2006 Report and beyond. The table below shows that the emissions factor for the three major IOUs in California has changed for each utility over the past two years, and that each utility has a unique calculation based on their unique resource mix.

When the Project purchases system power from SDG&E, SDG&E will in turn purchase additional spot market power to meet the needs of the proposed Project. This power will be added to the overall mix of resources. When SDG&E adds 28 aMW to its nearly 1,900 aMW system, the system power emissions factor will change. However, given that the Project's load is but a small fraction of the overall SDG&E system (about 1.5%), the emissions factor will only increase slightly (about 2.2% to 558.43 using the 2005 Report and an emissions factor for spot market power of 804 as prescribed by the Power Utility Protocol). This change will be reflected in SDG&E's system power emissions factor in the following years' CCAR Annual Emissions Report.

Every new customer of SDG&E will slightly increase the emission factor of SDG&E because they will cause SDG&E to buy additional spot market power to serve this new load. This process is called "melding". It is the exact same process regulators use for establishing the utility electricity rate for all new customers. It would be inappropriate, and against common practice, to assign a marginal emission factor to each and every new SDG&E customers as they come on to the system. This would create a circumstance that has us grant all existing customers the old embedded emission factor for system power, and would assign a unique new emissions factor for each residential, commercial and industrial customer based on the marginal resource at that time. This would create a system that would be nearly impossible to administer and implement. It would also create turmoil in the new emerging carbon trading markets by requiring the tracking of each and every new and old customer and when they came onto their system so that would could calculate their unique emissions factor. SDG&E would eventually have hundreds of thousands of emission factors to report and monitor. Therefore, when a new customer adds new load to SDG&E by purchasing system power, its new load is melded into the price structure as well as the emissions factor of SDG&E. It is appropriate to use

a melded, and not a marginal, emissions factor for all new customers, including the Carlsbad facility.

The **only** known, certified, reliable, easily accessible over time emissions factor based on internationally accepted protocols for SDG&E system power is the one published annually by CCAR – 546 pounds of carbon dioxide per megawatt hour.

70. Page 65. “In selecting an appropriate rate to use for these analyses, Commission staff used the standard figure from the Climate Action Registry.”

This is not correct. As stated above, Commission staff – for reasons not clearly explained in its report – did not follow the standard CCAR protocol to use certified emission factors when they are available.

71. Page 66. Poseidon’s proposed project does not ensure a decrease in imported water supplies to the San Diego Region.

This is not correct. The Carlsbad facility will supply 56,000 acre-feet of water per year to the San Diego region, water that would otherwise have to be pumped into the region through either the State Water Project or the Colorado River Aqueduct. As stated by all Carlsbad desalination project water agency partners in letters to the State Lands Commission dated November 6 and November 7, 2007, that were provided to the Coastal Commission, water from the desalination plant will provide direct, one-for-one replacement of imported water to meet the requirements of their Urban Water Management Plans, thus eliminating the need to pump 56,000 acre feet of water into the region. See Poseidon Resources Corporation. Letter to Paul Thayer Re: Desalination Project's Impact on Imported Water Use, November 8, 2007. including attachments from eight water agencies. Conversely, if the project is not approved the demand for imported water by the eight public water agencies will increase by 56,000 AF/Y starting in 2010.

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.

In addition, only one of Poseidon's customers, the City of Carlsbad, will utilize water to serve customers in the coastal zone. The Coastal Commission has no authority outside of the coastal zone.

72. Page 74 – Use of the proposed project site could reduce the site’s value as a designated location for a Coastal Power Plant expansion.

These materials have been provided to the Coastal Commission Staff

The following excerpt from the City of Carlsbad Final EIR for the project confirms that the staff's concern about preserving the site's value for power generation has been addressed:

The site of the desalination plant was specifically selected so as not to conflict with two City of Carlsbad Redevelopment Plan goals. The first goal relates to facilitating the conversion and possible relocation of the existing power plant to a smaller more efficient facility. The second goal relates to the enhancement of commercial and recreational opportunities in the Plan area. After a careful consideration of the five options, it was determined that the proposed location, where Tank 3 is currently located, would create the least amount of constraints on any future conversion of the Encina Power Station. The five potential sites considered do not represent alternatives to the proposed project; instead, they are the results of the analysis conducted to determine in part the location of the desalination plant at the EPS that would best comply with the Redevelopment Plan goals.

73. Page 76, 4th paragraph - Public agencies wishing to buy Poseidon's water will need to pay more than anticipated and may likely need to raise their rates significantly.

Given the substantial documentation of the public water agency desalinated water purchase agreements provided to the Coastal Commission staff, the above suggestion is baseless. Eight public water agencies have entered into long-term agreements with Poseidon to receive desalinated water from the project. Under the contracts, the customers' price of water to be paid to Poseidon will not exceed that which would have otherwise been paid for the imported water supply from the San Diego County Water Authority. Poseidon will be responsible for all costs and risks associated with the permitting, development, construction and maintenance of the project.

74. Page 77, 1st paragraph - If the ratepayers were unwilling to pay the necessary rate increase, the water may go to the higher bidder, perhaps some distance from the area.

This suggestion is incorrect. 100% of the plant's 56,000 AF/Y of capacity is already subscribed to eight San Diego County public water agencies under long-term, 30-year contracts. The customers have committed to receive the agreed-upon amount of drinking water over a 30-year period, with the unilateral option to extend the agreement for two additional 30-year terms. Since the cost of the desalinated water cannot exceed that of the San Diego County Water Authority's charges for imported water that the agencies no longer would have to purchase,

any rate increases that Poseidon's public agency partners decide to enact would have occurred irrespective of the project.

75. Page 77, 1st paragraph - The project could lead to a loss of local decision-making ability about how to use the water and other losses that are not in the public interest.

This is incorrect. The entire plant output has been appropriated for public use by the public agency partners, ensuring that the water will remain in the public domain. The public water agencies, not Poseidon, will determine when, where and how the desalinated water is to be used. Since the public agency partners control the allocation and use of the water, local decision-making and governmental oversight is preserved.

76. Page 78, 2nd full paragraph - The project participants are not doing enough water conservation and water recycling.

This suggestion irresponsibly ignores the statutory responsibility of the San Diego County Water Authority (Authority) to manage the County's water resources. Contrary to Staff's suggestion that additional water conservation and recycling would render the proposed project unnecessary, The Authority has determined desalination is a vital and integral part of the region's future water supply mix. The Authority's water supply planning includes 56,000 acre-feet per year of local, desalinated seawater from the Carlsbad Desalination Project by 2011. It is important to point out that before adopting the 2005 Urban Water Management Plan, the Water Authority thoroughly studied, over the course of several years, increasing conservation and reclamation efforts beyond projected levels in lieu of seawater desalination. The Water Authority's Regional Water Facilities Master Plan and accompanying Programmatic EIR determined that such a strategy would jeopardize regional water reliability by relying on unproven and non-cost-effective conservation measures and recycled water use levels that were unrealistic given the current regulatory environment, the market shift that would need to occur, and the level of local investment required.

Since the early 1990's, the Water Authority and its member agencies have invested hundreds of millions of dollars in conservation efforts and recycling projects. The Water Authority will continue to aggressively pursue conservation and water recycling programs. Today, 9 percent of the region's water supply portfolio is the result of conservation and recycling efforts, and this number will jump to 17 percent by 2020.

Through rebate programs the Water Authority has installed 518,000 ultra-low-flush toilets, 600,000 water-saving showerheads, and 60,000 high-efficiency clothes washers. An additional 15,000 acre-feet of water has been saved through commercial-industrial-institutional hardware replacements. This past May, the Water Authority Board adopted a 5-year blueprint for water conservation that aggressively pursues savings in landscape.

The Water Authority's blueprint places a special emphasis on outdoor water conservation that we expect will increase our total water savings to 94,000 acre feet of water annually by 2020.

As a result of these efforts, per capita demand for water today is 178 gallons per day compared to 190 gallons per day in 1990. By 2020, this figure is expected to be reduced to 158 gallons per day.

Still, the region cannot recycle or conserve water it does not have, which is why the Water Authority and its member agencies are pursuing a water diversification strategy that not only puts an emphasis on conservation and water recycling, but on developing new local supplies like ocean desalination.

77. Additional information is needed regarding the change in power plant operations to fully identify the project's impacts and whether its significant adverse impacts are mitigated as required by CEQA.

This information has been provided to Coastal Commission staff numerous times over the past year. At the Coastal Commission staff's specific request, the Carlsbad City Council added a section to the Final EIR to address potential "standalone" operation of the desalination facility. In several locations in the Final EIR, in the City staff report and in the proceedings before the City Planning Commission and the City Council, the possibility of the desalination facility's standalone operations due to the potential cessation of once-through cooling by the Encina Power Plant was discussed and analyzed. The City concluded that standalone operation would not result in any new significant adverse environmental effects resulting from desalination facility operations. No 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. The Final EIR looked at a number of potential alternative seawater intake structures. The Final EIR also examined whether there were adverse impacts from the existing seawater intake system. The Coastal Commission staff simply dislikes the conclusions reached by the Final EIR in the analysis that was done by the City at their specific request.

78. Poseidon proposes to mitigate for its entrainment effects, but the current proposal is conceptual only and lacks the information needed for the Commission to determine that the project's entrainment effects will be fully mitigated.

See response 37, above.

79. Poseidon proposes to mitigate for its entrainment effects, but the current proposal is conceptual only and lacks the information needed for the

Commission to determine that the project's entrainment effects will be fully mitigated.

See responses 37 and 38.

80. The Commission does not yet have information needed to evaluate the growth that would result from the now-known service areas that Poseidon would supply.

The staff incorrectly states that the City of Carlsbad EIR did not look at potential growth inducement. In fact, the Final EIR examined growth inducement on the basis that all of the water would be used in the service area of the San Diego County Water Authority and concluded that the project would not have any effect on planned growth in the region. See EIR at Section 9. Each of the water districts planning to purchase water from the project is located within the San Diego County Water Authority. In addition, only one of Poseidon's customers, the City of Carlsbad, will provide water in the coastal zone, and the Coastal Commission lacks authority to regulate outside of the coastal zone. The EIR determined the project would not induce growth in Carlsbad. See EIR at 9-7.

81. Poseidon has yet to analyze the impacts of construction of a pipeline and pump station to deliver water to the regional aqueduct.

Staff correctly states that the City of Carlsbad EIR did not look at the potential impacts of facilities to deliver Poseidon's water from the desalination facility to all users in the region through the regional water distribution system. The Final EIR examined facilities to interconnect with several local water delivery systems and there are no plans at this time to connect the desalination facility to the regional water delivery system. Because all of the water districts in San Diego County are connected to the same imported water delivery system, it is not necessary for the desalination facility to be connected to the regional system to exchange water among the agencies located in close proximity to the plant and those that are located outside the reach of the desalinated water delivery system.

Exhibit C

Draft Proposed Conditions of Approval

POSEIDON CARLSBAD DESALINATION PROJECT**APPLICANT'S PROPOSED
COASTAL DEVELOPMENT PERMIT CONDITIONS****I. STANDARD CONDITIONS**

1. **Notice of Receipt and Acknowledgment.** This permit is not valid until a copy of the permit is signed by the Permittee or authorized agent, acknowledging receipt of the permit and the acceptance of the terms and conditions, and is returned to the Commission office.

2. **Expiration.** Construction activities for the proposed project must be initiated within two years of issuance of this permit. This permit will expire two years from the date on which the Commission approved the proposed project if development has not begun. Construction of the development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made at least six months prior to the expiration date.

3. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director of the Commission (hereinafter, "Executive Director") or the Commission.

4. **Assignment.** The permit may be assigned to any qualified person, provided the assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the Permittee to bind all future owners and possessors of the subject property to the terms and conditions.

II. SPECIAL CONDITIONS

1. **Limits of Development.** This permit authorizes the construction and operation of the Poseidon Carlsbad Desalination Project and associated infrastructure as described in the project description of this staff report, as clarified and modified by these conditions.

2. **Final Plans.**

a. **PRIOR TO COMMENCEMENT OF CONSTRUCTION,** the Applicant shall submit final plans for the project components for Executive Director review and approval of those components located in the coastal zone.

b. The Permittee shall undertake development in accordance with the approved plans and any changes shall be reported to the Executive Director. No material changes within the coastal zone shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is necessary.

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Changes to the project requiring review for amendment would include but not be limited to changes in the physical, operational, or delivery capacity increases, or extension of water supply distribution pipelines (not individual connections from existing or approved lines) in the coastal zone beyond those shown on the final plans.

3. **Construction Plan.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Applicant shall submit the Spill Prevention and Response Plan and a Construction Plan to the Executive Director for review and approval. The Construction Plan shall identify the specific location of all construction areas, all staging areas, and all construction access corridors in site plan view in the coastal zone. Public access shall be disrupted as little as possible, and corridors or detours to allow beach and bicycle access during construction shall be identified by the construction plan and maintained by the permittee throughout the construction period. The Construction Plan shall also identify the type and location of erosion control/water quality best management practices that will be implemented during construction to protect coastal water quality, including the following:

- a. Silt fences, or equivalent apparatus, shall be installed at the perimeter of the construction areas to prevent construction-related runoff and/or sediment from entering the dunes and/or the Pacific Ocean.
- b. Grading and alteration outside of the approved construction zone is prohibited.
- c. Equipment washing, refueling, and/or servicing shall not take place on the beach or sandy dune area. All construction equipment shall be inspected and maintained at an off-site location to prevent leaks and spills of hazardous materials at the project site.
- d. The construction site shall maintain good construction housekeeping controls and procedures (e.g., clean up all leaks, drips, and other spills immediately; keep materials covered and out of the rain (including covering exposed piles of soil and wastes); dispose of all wastes properly, place trash receptacles on site for that purpose, and cover open trash receptacles during wet weather; remove all construction debris from the beach).
- e. All erosion and sediment controls shall be in place prior to the commencement of construction as well as at the end of each workday. A copy of the approved Construction Plan shall be kept at the construction job site at all times and all persons involved with the construction shall be briefed on its content and meaning prior to commencement of construction. The Permittee shall notify Coastal Commission planning staff at least 3 working days in advance of commencement of construction, and immediately upon completion of construction. The Permittee shall undertake construction in accordance with the approved Construction Plan. Any proposed changes to the approved Construction Plan shall be reported to the Executive Director. No material changes to the approved Construction Plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is necessary.

4. **Habitat Mitigation Plan.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Applicant shall submit to the Coastal Commission evidence of the

Regional Water Quality Control Board's approval of a Habitat Mitigation Plan. The Habitat Mitigation Plan shall provide for the restoration of no less than 37 acres of marine wetlands. The Plan shall detail the specific site of the mitigation. The site shall be contained within the San Dieguito Wetland Restoration Plan that was approved by the Coastal Commission on October 12, 2005 (Coastal Development Permit No. 6-04-88) and was the subject of a Final Environmental Impact Report that was prepared and certified by the San Dieguito River Park Joint Powers Authority and U.S. Fish and Wildlife Service, or such substitute site or sites approved by the Regional Water Quality Control Board. The Habitat Mitigation Plan shall include an implementation protocol that includes 5 years of monitoring and annual performance review. No later than the commencement of commercial operation of the desalination facility, applicant shall commence implementation of the Plan. The Executive Director may extend the deadline for implementation of the Plan upon Poseidon's request and showing of good cause.

5. **Climate Action Plan.** PRIOR TO ISSUANCE OF THE PERMIT, the Applicant shall submit to the Executive Director a Climate Action Plan in substantial conformance with the Plan dated November [], 2007. Within one year of the commencement of commercial operations of the desalination facility, applicant shall implement the Plan for the life of the project. The Executive Director may extend the deadline for implementation of the Plan upon Poseidon's request and showing of good cause.

6. **Storm Water Pollution Prevention Plan.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Applicant shall submit for Executive Director review and approval a Storm Water Pollution Prevention Plan (SWPPP), which is intended to prevent degradation of surface and ground waters during the grading and construction process. Significant impacts would be avoided through implementation of Best Management Practices (BMPs) that would address erosion/sedimentation, spill prevention, waste management, dust suppression, cleaning and maintenance measures that will be part of the General Construction Activity Stormwater Permit. The following best management practices shall be adhered to during construction:

- a. Gravel bags, silt fences, etc. shall be placed along the edge of all work areas as determined appropriate by the City's construction inspector in order to contain particulates prior to contact with receiving waters.
- b. All concrete washing and spoils dumping will occur in a designated location.
- c. Construction stockpiles will be covered in order to prevent blow-off or runoff during weather events.
- d. A pollution control education plan shall be developed by the General Contractor and implemented throughout all phases of development and construction.
- e. Severe weather event erosion control materials and devices shall be stored onsite for use as needed.

7. **Storm Water Management Plan.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Applicant shall submit for Executive Director review and approval a Storm Water Management Plan for the post construction project site, prepared by a licensed water quality professional, which shall include plans, descriptions and supporting calculations. The Storm Water Management Plan shall incorporate all feasible Best Management Practices (BMPs) designed to reduce, to the maximum extent practicable, the volume, velocity and pollutant load of stormwater leaving the developed areas of the site. The plan shall include, but not be limited to, the following criteria:

a. Post-Development peak runoff rates and average volumes shall not exceed pre-development conditions, to the extent feasible.

b. Runoff from all parking areas, turnouts, and driveways shall be collected and directed through a system of structural BMPs including vegetated and/or gravel filter strips or other media filter devices. The filter elements shall be designed to 1) trap sediment, particulates and other solids and 2) remove or mitigate contaminants through infiltration and/or biological uptake. The drainage system shall also be designed to convey and runoff in excess of this standard from the developed site in a non-erosive manner.

c. The Plan shall include provisions for maintaining the drainage and filtration systems so that they are functional throughout the life of the approved development. Such maintenance shall include the following: 1) the drainage and filtration system shall be inspected, cleaned and repaired prior to the onset of the storm season, no later than September 30th each year and 2) should any of the project's surface or subsurface drainage/filtration structures fail or result in increased erosion, the applicant/landowner or successor-in-interest shall be responsible for any necessary repairs to the drainage/filtration system and restoration of the eroded area.

d. The entire drainage system shall be designed, and then submitted to, and approved by the City Engineer, to ensure that runoff resulting from 10-year frequency storms of 6 hours and 24 hours duration under developed conditions, are equal to or less than the runoff from a storm of the same frequency and duration under existing developed conditions. Both 6-hour and 24-hour storm durations shall be analyzed to determine the detention basin capacities necessary to accomplish the desired results.

Prior to the commencement of commercial operations of the desalination facility, applicant shall implement the Plan for the life of the project. The Executive Director may extend the deadline for implementation of the Plan upon Poseidon's request and showing of good cause.

8. **Flow, Entrainment and Impingement Minimization Plan.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Applicant shall submit to the Coastal Commission evidence of the Regional Water Quality Control Board's approval of a Flow, Entrainment and Impingement Minimization Plan. The Flow, Entrainment and Impingement Minimization Plan shall be in substantial conformance with the Plan dated June 1, 2007. Prior to the commencement of commercial operations of the desalination facility, applicant shall implement the Plan for the life of the project. The Executive Director may extend the deadline for implementation of the Plan upon Poseidon's request and showing of good cause.

9. **Public Access Enhancements.** PRIOR TO COMMENCEMENT OF OPERATIONS, Poseidon shall cause to be dedicated, in accordance with the City of Carlsbad's Precise Development Plan PDP 00-02 and in association with Cabrillo Power I LLC, the below-described parcels of land. The dedications shall be in the form of easements, title transfers, and/or deed restrictions, whose purpose is to further Coastal Act goals of maximizing public access and recreational opportunities along the coast in the South Carlsbad Coastal Redevelopment Area and maintaining, restoring and enhancing marine resources. The dedications are described below:

a. **Fishing Beach:** An easement for this site, along the shore of Agua Hedionda Lagoon and next to Carlsbad Boulevard, shall be dedicated to the City of Carlsbad for public recreational and coastal access use, including public parking.

b. **Bluff Area:** The Bluff Area, located on the west side of Carlsbad Boulevard and opposite the Power Station, shall be dedicated in fee title to the City of Carlsbad for recreational and coastal access uses.

c. **Hubbs Site:** The Hubbs Site, along the lagoon north shore, which consists of the land between the existing Hubbs Seaworld Research Institute and the railroad tracks. The site shall be deed restricted to uses such as a fish hatchery, aquatic research, and trails.

d. **South Power Plant Public Parking Area:** An easement for this site, along the east side of Carlsbad Boulevard and near the south entrance to the power plant, shall be dedicated to the City of Carlsbad for public parking.

10. **Visual Resources.**

a. Desalination plant exterior mechanical equipment and facilities, including tanks, heating, air conditioning, refrigeration equipment, plumbing lines, duct work and transformers, shall be screened from view on all sides visible to the public. The design and material used for screening shall be architecturally compatible with the building.

b. Exterior lighting for the desalination facilities shall serve the purpose of operations, security and safety only. The applicant shall submit for approval a lighting plan for the proposed facilities prior to building permit issuance. The lighting plan shall demonstrate that project lighting is shielded from surrounding areas, and that only the minimum amount of lighting required for safety purposes is provided to avoid adverse effects on surrounding areas. In general, lighting fixtures shall be shielded downward and away from the ocean and adjacent properties. Construction of the desalination plant and related facilities and improvements shall be in conformance with the approved plan.

11. **Water Quality.**

a. The operator of the desalination plant shall continuously monitor the desalination plant and EPS discharge flow rates and salinity levels. The operator of the desalination plant shall on at least a semi-annual frequency monitor and conduct testing to measure and evaluate the combined EPS/desalination plant discharge for compliance with the

California Ocean Plan acute and chronic toxicity requirements. The operator of the desalination plant shall maintain records of the monitoring results to ensure compliance with the Ocean Plan criteria and EPA guidelines. All semi-annual monitoring and testing required by this mitigation measure shall be summarized in a report and submitted to the Regional Water Quality Control Board and Coastal Commission within 45 days of completion, and any noncompliance with Ocean Plan acute and chronic toxicity requirements shall be reported to the Regional Water Quality Control Board and Coastal Commission. Such monitoring results shall be available for inspection by the City of Carlsbad, the Regional Water Quality Control Board and the Coastal Commission.

b. By acceptance of this permit, the permittee agrees that the proposed project shall be conducted in a manner that protects marine resources and water quality pursuant to the implementation of the following Best Management Practices (BMPs):

- (1) All semi-solid and solid wastes generated by the project shall be contained and disposed of off-site at an appropriate location outside the coastal zone.
- (2) No construction materials, equipment, debris, or waste will be placed or stored where it may be subject to wave, wind, or rain erosion and dispersion.
- (3) Machinery and construction materials not essential for the project are prohibited on the beach.
- (4) Machinery and construction materials are prohibited at all times in the subtidal and intertidal zones.

12. **Dredging and Beach Deposition.**

a. Timing of Dredging and Beach Deposition. PRIOR TO THE ISSUANCE OF A COASTAL DEVELOPMENT PERMIT FOR A POSEIDON-INITIATED MAINTENANCE DREDGING OF AGUA HEDIONDA LAGOON, Poseidon shall submit to the Executive Director for review and written approval, final plans that are substantially in accordance with previous plans submitted by Cabrillo Power I LLC, to process dredging of the Agua Hedionda Lagoon, and that include the following:

- (1) Placement of sand on area beaches shall occur outside of the summer season (Memorial Day weekend through Labor Day of any year).
- (2) To avoid potential impacts to the California least tern breeding period and the grunion spawning period, dredging can occur between September 15 and April 15 with the option of extending the dredge period to April 30 if approved in writing by the Executive Director in consultation with the Army Corps of Engineers (COE) and California Department of Fish and Game (DFG).

The permittee shall undertake the development in accordance with the approved plans. Any proposed changes to the approved plans shall be reported to the Executive Director. No material changes to the plans shall occur without a Coastal Commission approved amendment to this

coastal development permit unless the Executive Director determines that no amendment is legally required.

b. Pre-and-Post Dredge Requirements. At least two weeks prior to dredging and within 60 days of completion of the proposed dredge cycle, the applicant shall submit to the Executive Director for review and written approval the following:

(1) A map of pre-dredge conditions of the outer lagoon and pre- and post-deposition profiles at the approved beach deposition locations; proposed dredge quantities; deposition plan and methodology; and signage plan; and

(2) Evidence the Corps of Engineers has approved the proposed dredge spoils as suitable for deposition at the approved beach locations, pursuant to ACOE Permit 200100328-SKB.

c. Eelgrass Mitigation and Monitoring. PRIOR TO THE ISSUANCE OF A COASTAL DEVELOPMENT PERMIT FOR A POSEIDON-INITIATED MAINTENANCE DREDGING OF AGUA HEDIONDA LAGOON, the applicant shall submit, for review and written approval of the Executive Director, an eelgrass mitigation and monitoring plan that includes at a minimum the following:

(1) Performance of a pre-construction eelgrass survey of the project area by qualified biologist immediately prior to the proposed maintenance dredging in order to establish the location of all eelgrass habitat.

(2) Marking the location of all eelgrass habitat found in the pre-construction survey in order that the contractor can avoid impacting these areas during the proposed maintenance dredging. No anchorage of dredging equipment is permitted outside the limits of the dredging operation.

(3) Performance of a post-construction eelgrass survey of the project area by qualified personnel no more than 30 days after the completion of the work to determine if any eelgrass habitat was impacted by dredging activities.

(4) Performance of mitigation if it is determined by the post-construction eelgrass survey that there has been a loss of eelgrass habitat. This mitigation must be performed in accordance with and subject to the requirements of the Southern California Eelgrass Mitigation Policy (1:1.2 ratio). The applicant shall consult with the Executive Director prior to construction to determine if an additional coastal development permit or amendment is required for any necessary mitigation.

The permittee shall undertake the development in accordance with the approved plans. Any proposed changes to the approved plans shall be reported to the Executive Director. No material changes to the plans shall occur without a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

d. Monitoring/Beach Profiles. Prior to the placement of any material at the Middle Beach, South Beach or North Beach, the applicant shall prepare two profiles of the beach and off shore area (to closure or wading depth, consistent with the survey requirements of the ACOE permit) showing the pre-disposal conditions. Profiles shall be taken at the same locations after completion of the disposal, one month after disposal, and annually thereafter until the area either returns to its pre-disposal condition or is further modified by additional nourishment. Reports shall be provided to the Executive Director following the one-month after disposal profiles and after each annual survey, which provide information on site conditions and an analysis of the long-term changes in sediment supply between the jetties.

e. Grunion Protection Plan. During any beach deposition, the permittee shall comply with the provisions of the grunion protection plan as required by ACOE Permit #200100328-SKB.

f. Invasive Species. PRIOR TO THE COMMENCEMENT OF DREGDING, the applicant shall provide evidence that dredging of the outer lagoon can occur without the risk of spreading the invasive green alga *Caulerpa taxifolia* as follows:

(1) Not earlier than 90 days nor later than 30 days prior to commencement or re-commencement of any dredging, the applicant shall undertake a survey of the project area (includes the dredging area, anchoring areas and any other areas where the bottom could be disturbed by project activities) and a buffer area at least 10 meters beyond the project area to determine the presence of the invasive alga *Caulerpa taxifolia*. The survey shall include a visual examination of the substrate.

(2) The survey protocol shall be prepared in consultation with the Regional Water Quality Control Board, the California Department of Fish and Game, and the National Marine Fisheries Service.

(3) Within five (5) business days of completion of the survey, the applicant shall submit the survey:

(a) For the review and written approval of the Executive Director; and

(b) To the Surveillance Subcommittee of the Southern California Caulerpa Action Team (SCCAT). The SCCAT Surveillance Subcommittee may be contacted through William Paznokas, California Department of Fish & Game (DFG) (858/467-4218) or Robert Hoffman, National Marine Fisheries Service (NMFS) (562/980-4043).

(c) If *Caulerpa* is found, then the NMFS and DFG contacts shall be notified within 24 hours of the discovery.

(4) If *Caulerpa* is found, the applicant shall, prior to the commencement of dredging, provide evidence to the Executive Director for review and written approval either that the *Caulerpa* discovered within the project and/or buffer area has been eradicated or that the dredging project has been revised to avoid any contact with *Caulerpa*. No material changes to the dredging project shall occur without a Coastal Commission approved

amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

13. **Regional Cooperation.** The Applicant shall cooperate with regional water supply planning and water conservation programs.

14. **Evidence of Other Agency Approvals.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Applicant shall submit to the Executive Director for review and approval, evidence that approvals have been obtained from the City of Carlsbad, State Lands Commission, Regional Water Quality Control Board, California Department of Health Services, National Marine Sanctuary, and U.S. Fish & Wildlife Service or that these approvals are not necessary.

15. **Conformance with the Requirements of the Resource Agencies.** The permittee shall comply with all requirements, requests and mitigation measures from the California Department of Fish and Game, State Lands Commission, Regional Water Quality Control Board, U.S. Army Corps of Engineers, and the U.S. Fish and Wildlife Service with respect to preservation and protection of water quality and marine environment.

16. **Assumption of Risk and Waiver of Liability.** The Permittee acknowledges and agrees, on behalf of itself and all successors and assigns: (i) that the may be subject to hazards from seismic events, liquefaction, storms, waves, floods and erosion; (ii) to assume the risks to the Permittee and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) that any adverse effects to property caused by the permitted project shall be fully the responsibility of the landowner.

17. **Deed Restriction.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall provide to the Executive Director satisfactory evidence of an agreement from the owner of that portion of the property subject to the applicant's leasehold interest (the "Property") that, prior to any conveyance of the Property that is the subject of this coastal development permit, the landowner shall execute and record a deed restriction, in a form and content acceptable to the Executive Director (a) indicating that, pursuant to this permit, the California Coastal Commission has authorized development on the Property, subject to terms and conditions that restrict the use and enjoyment of the Property; and (b) imposing all of the Special Conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the Property. The restriction shall include a legal description of the Property. It shall also indicate that, in the event of an extinguishment or termination of the deed restriction for any reason, the Standard and Special Conditions of this permit shall continue to restrict the use and enjoyment of the Property so long as either this permit or the development it authorizes – or any part, modification, or amendment thereof – remains in existence on or with respect to the Property.

Exhibit D

Climate Action Plan

Poseidon Resources
Carlsbad Desalination Plant

Climate Action Plan

November, 2007



POSEIDON
R E S O U R C E S

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Poseidon Resources

Carlsbad Desalination Plant

Climate Action Plan

Poseidon Resources is committed to rendering the Carlsbad Desalination Plant carbon neutral. This is the first major infrastructure project in the state to voluntarily commit to carbon neutrality. Poseidon's Climate Action Plan identifies a menu of seven potential measures to erase the Carlsbad facility's carbon footprint at an estimated cost of nearly \$70 million. Poseidon plans to pursue a mix of measures from the following portfolio: install premium energy efficient equipment, perform a LEED-type process for the facility, secure rooftop and/or locally produced solar energy, develop a 37 acre wetlands mitigation project, and buy carbon offset projects and/or renewable energy credits.

Introduction

Poseidon Resources is developing a desalination plant in Carlsbad, CA (the Project) with the capacity to deliver on average approximately 50 million gallons per day (mgd) of drinking water, or 56,000 acre-feet per year. From the desalination plant, the desalinated water will be distributed along several pipeline routes to the City of Carlsbad and various local water districts as wholesale water purchasers for ultimate use and consumption by homes and businesses in Northern San Diego County.

To operate the proposed desalination plant, Poseidon would use system power from San Diego Gas & Electric (SDG&E). The total power usage is expected to be 246,156 MWH per year. Based on the estimated power usage, this Climate Action Plan (the Plan) describes the carbon emission baseline for the Project, the options available to Poseidon to reduce the Project's carbon emissions, and the process and timeline to mitigate the Project's net carbon emissions.

As a part of the permitting process, Poseidon must receive approvals from, among others, the California Coastal Commission (CCC) and the California State Lands Commission (CSLC). Poseidon anticipates hearings before the CCC on November 15, 2007 and the CSLC on December 3, 2007, respectively, at which time approval decisions are expected by the agencies.

Carlsbad Desalination Plant: Energy Profile and Carbon Footprint

All modern desalination plants are built with energy recovery devices (ERD) that reduce the energy consumption of a plant of the Project's capacity by about 16%, from 37.1 average mega-watts (aMW) down to a baseline of 31.3 aMW. Poseidon is also committing to install a new high efficiency energy recovery device (ERD), premium

The **California Climate Action Registry (CCAR)** was established in 2001 by the California Legislature (SB 1771) as a non-profit voluntary registry for greenhouse gas (GHG) emissions. The purpose of the Registry is to help companies and organizations to establish GHG emissions baselines, and to establish a reporting mechanism to annually update their emissions factor.

efficiency motors, and variable frequency drives in the Project, all of which will further reduce their energy consumption by more than 10 percent, or 3.2 aMW. Thus the Project Baseline energy consumption for the purposes of calculating its carbon footprint is 28.1 aMW, or 246,156 MWh per year.

The 2007 General Reporting Protocol (the Protocol) of the California Climate Action Registry (CCAR) sets forth the accepted rules for a company such as Poseidon to create its GHG inventory. The Protocol is based on internationally accepted principles and was developed in collaboration with numerous state and federal agencies, including the California's Energy Commission (CEC) and California EPA. The California Air Resources Board, the agency that has primary regulatory authority over greenhouse gas emissions in California, has embraced the Protocol as part of its effort to encourage early action to reduce greenhouse gas emission pending the development of mandatory requirements which have not yet been developed for industrial facilities such as the Carlsbad Desalination Plant.

Chapter 6 of the General Reporting Protocol describes a key element in the calculation of an operation's carbon footprint based on electricity usage: the "emission factor" of the source of the electricity. The Protocol also explains how to calculate the emission factor for purchased electricity. The basic principle underlying the protocol is that one should use the most accurate and specific data that is available:

"An electric grid emission factor represents the amount of GHGs emitted per unit of electricity consumed from the electricity transmission and distribution system, and is reported in pounds per kilowatt-hour (lbs/kWh or /MWh).

As a practical matter it is often very difficult to determine the exact fuel source for your electricity. Thus, regional/power pool emission factors for electricity consumption can be used to determine emissions based on electricity consumed. If you can obtain certifiable emission factors specific to the supplier of your electricity, you are encouraged to use those factors in calculating your indirect emissions from electricity generation. *If your electricity provider reports an electricity delivery*

metric under the Registry's Power/Utility Protocol, you may use this factor to determine your emissions, as it is more accurate than the default regional factor.” (CCAR General Reporting Protocol, Page 31. Emphasis supplied.)

SDG&E's Certified Emission Factor for System Power

The Project intends to purchase all of its power needs from SDG&E system power. Accordingly, the appropriate emission factor to use for the Project's indirect carbon emissions from its electricity purchases is SDG&E's most recently certified annual emission factor. The certified emission factor for delivered electricity is set forth in the utility's Annual Emissions Report, registered with the CCAR in March 2007. In the Emission's Report, which is updated annually and available on CCAR's website, the current certified emission factor for SDG&E system power is 546.46 lbs of CO₂ per delivered MWH of electricity.

SDG&E's emissions factor is comparable to other utility emissions factors. Table 1 compares the CCAR certified emissions factors for major California utilities.

Table 1: Comparison of Emission Factors among California Utilities

CCAR Annual Emission Reports			
<u>Utility</u>	<u>Report Year</u>	<u>Report Date</u>	<u>Emission Factor</u>
SDG&E	2005	March 2007	546
SDG&E	2004	March 2006	614
PG&E	2005	December 2006	489
PG&E	2004	October 2006	566
SCE	2005	January 2006	666
SCE	2004	February 2006	679

The Carlsbad Desalination Plant's Carbon Footprint

Based on the CCAR's most recent certified emission factor for SDG&E system power, the carbon footprint for a standard modern desalination plant at 31.3 a MW would be nearly 68,000 metric tons of CO₂. Since Poseidon is committed to installing the high efficiency ERD and other efficiency measures, the Project's energy profile is reduced to 28.1 aMW or 246,156 MWh per year, and the plant's gross carbon footprint¹ is then 61,004 metric tons of CO₂ per year.

¹ By carbon footprint Poseidon means the indirect CO₂ emissions from the electricity used by the proposed Project supplied from SDG&E system power.

To determine the Carlsbad Operation's ultimate carbon footprint, other reductions in carbon emissions resulting from the Project must also be considered. One major source of carbon reductions results from the fact that the Project is introducing a new, local source of water into the San Diego area; water that will displace imported water from the State Water Project (SWP) – a system with its own significant energy load and related carbon emissions. For every acre-foot of SWP water that is replaced by water from the proposed Project, 3.4 MWh of energy use is avoided, along with associated carbon emissions. And since the Project requires 4.4 MWh of energy to produce one acre-foot of water, the net energy required to deliver water from the Project is 1.0 MWh/AF. Given that 1.0 MWh/AF equals 6.4 aMW per year of energy to deliver the water, the total energy use that is avoided as a result of the Project is 21.7 aMW.

Water from the desalination plant will provide direct, one-to-one replacement of water to meet the requirements of local water agencies' Urban Water Management Plans, thus eliminating the need to import 56,000 acre feet of water into the region.

Since the SWP does not have a published Annual Emissions Report with the CCAR, Poseidon used the certified emission factor for SDG&E system. Assuming the same emission factor, or grid intensity factor, of 546 lbs of CO₂ per MWh for the SWP's energy sources, the Project will result in a reduction of 47,240 metric tons of CO₂ emissions from SWP-related sources, resulting in a net carbon footprint of 13,764 metric tons of CO₂ from the Project.²

It is important to understand that circumstances will change over the life of the Project. SDG&E's emission factors are updated annually and the amount of energy consumed by the Project may change. As a result, it will be necessary to recalculate the carbon footprint of the Project on an annual basis. Poseidon has committed to address its net carbon emissions based upon annual calculations of its carbon footprint. That is one reason why it is critical to use a known, certified, reliable emission factor– as well as one that is easily accessible over the life of the project – that is based on internationally accepted protocols. The only known emissions factor for SDG&E is the one registered with the CCAR.

Poseidon will continuously explore new technologies and processes to reduce and offset the carbon footprint of the desalination facility, such as the use of carbon dioxide from the ambient air for water treatment.

² If the SWP elects to pump water for other uses, then the responsibility for those associated carbon emissions lies with those other users. Any other result would be an unfair and unwarranted "double counting" of carbon emissions, requiring Poseidon to offset emissions caused by other parties' activities not associated with Poseidon's operations.

AB 32, Carlsbad Desalination, and San Diego Regional Water Supply Master Plan

The Project is one element of a broad regional strategy to improve the diversity and reliability of the region's water supply by reducing the dependence on imported water. As shown in table below, the San Diego region is taking steps to diversify its water supply portfolio through significant water conservation efforts, maximizing the availability and use of recycled water, and the development of new potable water supply infrastructure such as this desalination project.

The implementation of the Regional Water Supply Master Plan will result in an overall reduction in the average energy needed to acquire and treat water for the San Diego region – including this proposed desalination project – and this trend is expected to continue through the year 2020.

Table 2 illustrates that between 1990 and 2010 – benchmark years under AB32, California's Global Warming Solution's Act of 2006 (AB32) – the average energy consumption will be reduced by 16 percent, assuming the Project will be added to the mix during this period. Between 1990 and 2020, the year by which AB32 requires a reduction of GHG to 1990 levels, the average energy consumption for acquisition and treatment of water is reduced by 19 percent. This change in supply mix will significantly reduce greenhouse gas emissions from the region's water supply system. And given its central role in reducing reliance on imported water and Poseidon Resource's commitment to carbon mitigation measures, the Project will play a substantial role in ensuring the region is able to meet the objectives of AB32.

Table 2: 1990 to 2020 Average Energy Consumption Acquisition and Treatment of Water for the San Diego Region

	1990		2000		2010		2020	
	Supply AFY	Average Energy Use MWh/AF	Supply AFY	Average Energy Use MWh/AF	Supply (AFY)	Average Energy Use MWh/AF	Supply AFY	Average Energy Use MWh/AF
Conservation	0		25,518	0	79,960	0	94,170	0
Imported Water (MWD - 60% SWP, 40% CRA)	672,844	3.0	596,443	3.0	389,858	3.0	311,438	3.0
Water Transfers	0		0		70,000	2.6	190,000	2.6
Canal Lining Projects	0		0		77,700	2.6	77,700	2.6
Surface Water	44,173	0.3	9,535	0.3	59,649	0.3	59,649	0.3
Groundwater	0		0		17,175	0.5	19,775	0.5
Groundwater Recovery	0		2,014	1.6	11,400	1.6	11,400	1.6
Water Recycling	0		1,423	1.2	33,668	1.2	45,548	1.2
Seawater Desalination	0		0		56,000	4.4	56,000	4.4
Flow-Weighted Average		2.83		2.83		2.37		2.28

Energy Use							
Percent Change in Average Energy Use		NA		0%		(16%)	(19%)

Carlsbad Desalination Plant's Climate Action Plan

Since maintaining carbon neutrality is an ongoing process dependant on dynamic information, Poseidon's Climate Action Plan is largely a roadmap for identifying, securing, monitoring and updating measures to eliminate the Project's carbon footprint. This roadmap involves the following steps, completed each year:

1. Determine the MWHs used by the Project for the previous year using utility billing data from SDG&E.
2. Determine SDG&E's emission factor for system power from its most recent CCAR Annual Emissions Report. Reports are done annually and are accessible on the CCAR's website.
3. Calculate the Project's gross carbon footprint by multiplying its MWH by the emissions factor.
4. Calculate the Project's net carbon footprint by subtracting carbon benefits and any existing offset projects and/or RECs.
5. Purchase carbon offsets or RECs to zero-out the Project's net carbon footprint.

When implementing Poseidon's plan, energy efficiency measures as well as on-site renewable resources will be given the highest priority. With that in mind, the following are elements of the Climate Action Plan – along with their estimated costs – to reduce the Carlsbad Desalination Project from a gross carbon footprint of about 68,000 tons of CO₂ to zero. Each element and the process for achieving it is set forth in more detail in Appendix A.

1. **High Efficiency ERD.** Poseidon will include the high efficiency ERD in the Project reducing electricity consumption by 10 percent or 3.2 aMW, reducing the carbon footprint of the Project to 61,004 tons of CO₂. The high efficiency ERD will cost about \$5 million more than a standard ERD (for a total of \$11 million), will need to be replaced every 10 years, and will increase initial O&M costs about \$40,000 per year. Over the 30 year life of project the high efficiency ERD will cost Poseidon nearly \$42 million (including inflation at 3%).

2. **Replacement of Imported Water.** Poseidon's carbon footprint is reduced by the reduction in emissions resulting from replacing imported water. The associated emissions savings is 47,240 metric tons of CO₂, resulting in a net carbon footprint for the Project of 13,764 metric tons of CO₂.
3. **Energy Efficiency.** Poseidon will install premium, highly efficient motors and variable frequency drives to optimize the flow of water through the desalination facility. Like other efficiency measures, these devices will need replacement about every 10 years. The energy savings from these energy conservation measures is already included in the baseline 28.1 aMW energy use calculation. Over the 30 year life of project these energy conservation measures will cost Poseidon nearly \$11 million (including inflation at 3%).

Poseidon will also perform an exhaustive energy audit of the engineering specifications and will evaluate the energy efficiency of each component in the Project to determine if it can be replaced with premium energy efficient equipment. As well, the audit will evaluate all the processes in the Project, with the objective of making them more energy efficient. The energy audit process will take 4-6 months after final regulatory approvals are complete. The result will be a specific list of premium energy efficient equipment, with their costs and estimated energy savings. Energy savings measures will be monitored and verified once the Project becomes operational. The energy savings will be converted to metric tons of CO₂, which will be deducted from the 13,764 net carbon footprint.

4. **LEED-type Process.** Poseidon will do a LEED-type process and implement as many of the LEED Checklist items as are reasonably possible. The LEED-type process will take 4-6 months after final regulatory approvals are complete. The result will be a specific list of recommended LEED actions, with their costs and estimated energy and CO₂ savings. At this point Poseidon estimates that LEED could represent an investment of up to \$5 million in capital cost. Energy and CO₂ savings will be monitored and verified once the Project becomes operational. The energy savings will be converted to metric tons of CO₂, which will be deducted from the 13,764 net carbon footprint.
5. **Solar Photo-voltaic (PV) Project.** Poseidon is exploring the development of a rooftop solar PV project that will cost approximately \$4.1 million, generating about 777 MWH of energy and saving 193 metric tons of CO₂ per year. Actual generation will be monitored on an on-going basis, and the metric tons of CO₂ will be calculated and deducted from the 13,764 net carbon footprint. Poseidon is also exploring participation in a nearby offsite, larger scale solar project to further reduce the Project's carbon footprint.

6. **Wetlands Mitigation.** Poseidon will restore and enhance 37 acres of wetlands as a part of this project, at a cost of approximately \$3 million. The restoration project will be in the proximity of the Project and will be implemented soon after regulatory approval for the Project is granted, and restoration will be complete before the Project becomes operational. These wetlands will be set-aside and preserved for the life of the Project. Once the wetlands are restored they will act as a carbon “sink” or carbon sequestration project trapping CO₂. The amount of carbon sequestered from the project will be calculated and that amount will be deducted from the 13,764 net carbon footprint.
7. **Offsets and RECs.** For the remainder of the Project’s carbon emissions, Poseidon will purchase a combination of carbon offset projects and Renewable Energy Credits (RECs). Contracts for offset projects provide more price stability and are typically established for longer terms (10-20 years) than RECs (1-3 years). About one-and-half-to-two years before operations begin, Poseidon will develop and issue an RFP for carbon offset projects and renewable energy credits. The RFP will require compliance with the Green-e certification standards. Poseidon will then select the best mix from the responses and contract for their acquisition or development. The exact nature and cost of the offset projects and RECs will be known once the RFP process is complete. If Poseidon were to purchase local offset projects, each with 10 year contract terms, the initial solicitation would cost an estimated \$1.2 million in offset projects for the first decade, and over \$5 million over the Project’s 30 year life. Offsets or RECs will be used as the swing mitigation option to “true-up” annual changes to the Project’s net carbon footprint.

As summarized in Table 3, the seven elements of Poseidon’s Climate Action Plan will reduce the Project’s net carbon emissions to zero over the life of the Project. Over the 30 year life of the Project, the gross capital cost of this Climate Action Plan is expected to be approximately \$76 million.

Table 3: Climate Action Plan Measures and Costs

Climate Action Plan Measure	aMW	Tons of CO ₂	Cost (Millions)
New Desalination Plant with ERD (Baseline)	31.3	67,951	
High Efficiency ERD Premium Energy Efficient Pump Motors & VFDs	(3.2)	(6,947)	\$52.4
Net Energy Use	28.1	61,004	
Replacement of Imported Water	21.8	(47,240)	
Other Energy Efficiency Measures	TBD	TBD	TBD
LEED-type Process	TBD	TBD	\$5.0
Solar PV Project	TBD	TBD	TBD
Wetlands Mitigation Project Capital Cost	n/a	TBD	\$3.0
Offsets/RECs	n/a	(13,764)	\$5.1
TOTALS	6.3	0	\$66.4

Table 4 summarizes the process and timing to implement the initial phases of Poseidon's Climate Action Plan. Appendix A sets forth this information in greater detail. The initial phase will be followed by annual validation and adjustments as set forth above.

Table 4: Process and Timing to Initiate the Climate Action Plan

Measure	Process	Timing
High Efficiency ERD	Engineering/design & include in construction	Complete 4-6 months after final regulatory approval
Premium Efficiency Motors & VFDs	Engineering/design & include in construction	Complete 4-6 months after final regulatory approval
Other Energy Efficiency Measures	Audit & engineering/design & include in construction	Complete 4-6 months after final regulatory approval
LEED-type Process	LEED-type process & engineering/design & include in construction	Complete 4-6 months after final regulatory approval
Solar PV Rooftop Project	Design, procure & construct	Start after regulatory approval, completed as part of Project construction by October 1, 2010
Wetlands Mitigation	Identify & develop mitigation plan & implement	Start 12 months after commercial operation and would be completed within 12 months
Offsets/RECs	RFP, evaluation & selection, contracting, acquisition or development, monitoring & verification	Write RFP Fall 2008, RFP released in Oct 2008 - Mar 2009, Selection & Contracting Nov 2008 - Oct 2009, Project development Oct 2009 - Oct 2010

Appendix A

Carbon Mitigation Options and Processes

There are several options available to Poseidon to mitigate its production of carbon, including:

1. Improving the energy efficiency of the Project
2. Building on-site or nearby renewable resource project(s)
3. Purchasing a mix of carbon offset projects
4. Purchasing green power

The implementation of Poseidon's plan will favor conservation and efficiency measures as well as on-site or near-by renewable energy generation. Each of these options and how Poseidon would procure them are more fully described in the following sections:

1. Improving The Initial Energy Efficiency Of The Project

All new desalination plants are built with a standard energy recovery device (ERD), and it reduces the energy consumption of a standard plant from 37.1 aMW down to 31.3 aMW. Therefore, the baseline energy consumption for a standard desalination plant is 31.3 aMW.

High Efficiency ERD - The Project could install a high efficiency ERD (similar to a DWEER system) that reduces the energy consumed by about an additional 10%, which takes the plant from 31.3 aMW to 28.1 aMW – a reduction in energy requirements of 3.2 aMW. A high efficiency ERD has successfully been installed at the Ashkelon desalination plant with similar energy savings. For a full explanation of the ERD and the high efficiency ERD, see Appendix B.

Energy Efficient Equipment - In addition to the high efficiency ERD, likely the most cost-effective option to reduce the energy use of the Project would be to install other high efficiency equipment. Poseidon has committed to install premium efficient motors and variable frequency drives (VFD) on the intake water pumps. An experienced industrial process energy auditor/engineer would suggest additional premium energy efficient equipment or design changes to replace other specified pieces of equipment. Premium energy efficient equipment could include: low-energy high-output lighting, additional skylights, and low-friction piping materials (FRP and HDPE). The cost of installing energy efficient equipment can be achieved in the range of 2-8 cents/KWH, and are among the most cost-effective mitigations options available to Poseidon. An added benefit of energy conservation measures is that they tend to be low capital cost with significant operating cost savings.

LEED-type Process - Poseidon could evaluate the project against Leadership in Energy and Environmental Design (LEED) principles. However, the LEED program was designed around making office and commercial buildings more energy efficient, and LEED certification for industrial facilities is notoriously difficult, if not impossible, to achieve. Nevertheless, the Project can be evaluated through a LEED-type process, and Poseidon Resources can implement as many of the LEED Checklist items as are reasonably possible, including many of the following items:

- Alternative Transportation: Bicycle Storage & Changing Rooms
- Alternative Transportation: Low Emitting & Fuel Efficient Vehicles
- Alternative Transportation: Parking Capacity
- Site Development: Protect & Restore Habitat
- Water Efficient Landscaping: Reduce by 50%
- Innovative Energy Saving Technologies, Materials and Equipment
- Water Use Reduction: 20% Reduction Goal
- Fundamental Refrigerant Management
- Optimize Energy Performance
- Storage & Collection of Recyclables
- Minimum IAQ Performance
- Construction IAQ Management Plan
- Low-Emitting Materials: Adhesives & Sealants
- Controllability of Systems: Lighting
- Innovation in Design: LEED Educational Program
- Use a LEED Accredited Professional

Other Carbon-Reducing Measures – Poseidon is exploring other measures to reduce the overall carbon footprint of the seawater desalination project, including the use of carbon dioxide from the air for water treatment. Carbon dioxide would be added to the desalinated water for increased product water stability and corrosion protection. When carbon dioxide is combined with calcium hydroxide (lime) and injected into the low-salinity water produced by the RO process, it would calcium hardness in the form of calcium bicarbonate to the drinking water. In this process gaseous carbon dioxide is converted to soluble calcium bicarbonate which remains in the drinking water. Sequestration of gaseous carbon dioxide obtained from ambient air into soluble form of calcium bicarbonate and introducing it in the drinking water would have two key benefits – (1) it would allow reducing the overall carbon dioxide footprint of the plant, and (2) it would enhance product water stability.

The costs of energy conservation measures and the LEED-type process are difficult to calculate at this time without a more specific and comprehensive engineering analysis, but these items are likely to be some of the most cost-effective options for reducing the Project's energy consumption and carbon footprint.

2. Building On-Site Or Near-By Renewable Resources

Displacing SDG&E system power with clean on-site, or nearby, renewable resources reduces the Project's carbon footprint. The March 2007 Brummitt study shows that a tilt array design on the Project's 55,000 square foot roof could generate about 777 MWH per

year. With a \$4.1 million up-front cost and the substantial federal and state incentives (Business Energy Tax Credit, California Solar Initiative, the Modified Accelerated Cost-Recovery System, and Net Metering), along with the energy savings, the PV project would have a payback period of approximately 10 years. The system would provide about 0.3% of the total energy consumption of the Project and reduce the Project's carbon footprint by 193 metric tons. In addition to the economic development benefits bestowed on the local solar community by a large PV project, adding a solar PV array on the Project's rooftop would lower the Project's operating costs.

Other renewable projects could include the installation of mini-hydro turbines (i.e. - Pelton turbines) on the discharge pipeline.

3. Purchasing Offset Projects

Carbon offset projects derived from a bidding process is another option for reducing the Project's carbon footprint. A Greenhouse Gas (GHG) offset project is created when a specific project either reduces, avoids or sequesters GHG emissions. Offset projects can come from increasing energy efficiency in buildings or industries, reducing transportation emissions, generating electricity from renewable resources such as solar or wind, modifying industrial processes so that they emitted fewer GHGs, installing cogeneration, or capturing CO₂ in protected forests. (Another option described in the section below is called "Green Tags". These differ from offsets in that green tags come solely from certain renewable energy projects built after 1999).

In order for an offset to be recognized as legitimate and thus effective, it must demonstrate that the offset project would not have occurred without the funding from the offset purchaser. This is called "additionality." Once the project is complete, the reductions must also be rigorously monitored, verified and quantified. To measure the reductions, a baseline of GHG emissions must be established that quantifies the GHG emissions prior to the development of the offset project. Once the offset project is developed a new projection of GHG emissions must be undertaken by an independent third party to quantify the reduction, and the project must be monitored to verify that the reductions persist over time. A certified monitoring and verification plan is an essential component to ensure future regulatory compatibility of offset purchases.

"Green-e" recently embarked on an effort to standardize and certify the procurement of carbon offset projects – as they have done with Renewable Energy Credits (RECs) (Green-e is more fully described below). The Green-e Greenhouse Gas (GHG) Emission Reduction Product Certification Standard was approved by the Green-e Governance Board in June 2007. This standard will form the basis of a new consumer protection certification program offered by Green-e for offsets sold in the voluntary market. Green-e program staff is now working on developing a list of eligible organizations that will offer offsets. This is essential for future regulatory compliance.

Offsets have additional important environmental, social, and economic co-benefits. They commonly reduce other atmospheric pollutants, restore degraded lands, improve water quality and watersheds, protect endangered species, create jobs and save money through avoided energy purchases.

Examples of previously certified offset projects include: steam plant & paper manufacturer energy efficiency upgrades, small-scale rural wind development, rainforest restoration, forest preservation, school boiler conversion, lumber mill cogeneration, truck stop electrification, internet-based carpool matching, and traffic signal optimization.

The Project could acquire offsets by soliciting projects through a Request For Proposals (RFP). The steps in the RFP process are:

1. Determine how many tons of carbon to be offset.
2. Determine the RFP parameters such as: minimum project size, geographic boundaries for acceptable projects and implementation deadline. Determine the evaluation criteria such as: additionality, cost-effectiveness, reliability of the project proposer, reliability of the project concept and implementation plan, ownership, financial risk and mitigation plan, monitoring and verification plan, and co-benefits.
3. Advertise and distribute the RFP.
4. Evaluate the responses and proposals.
5. Make a selection of one or more offset projects.
6. Negotiate a contract with the offset project provider.
7. Certify the project's implementation/completion and make the payment

8. Monitor the project over time and verify the actual tons of carbon reduced.

The cost of offset projects varies depending on the geographic boundaries. Recent offset projects developed for compliance with California's AB 32 rules ranged from \$7-\$11 per metric ton. Some of these offers included the monitoring and verification plan and some did not. An appropriate average cost of offsets is about \$9 per ton. The term for offset projects usually varies from 10-20 years.

4. Purchasing Green Power

There are two ways to purchase green power for the Project: direct purchase of a renewable project's output or the purchase of renewable energy credits or RECs (some times called green tags).

Direct Purchase - The market for renewables is currently very tight. Both the supply and demand for renewables is expected to grow because of the California Renewable

Portfolio Standard law (SB 1078) which requires 20% of electricity purchases in California to come from qualifying renewable resources by 2017. Currently the most competitive renewable resource is wind power, followed by geothermal and then solar PV. A significant challenge in purchasing wind power is the limited amount of available transmission capacity on the system to get the output delivered to the Project.

To directly purchase the output of a renewable resource, Poseidon would issue an RFP or work with a consultant to solicit proposals. The steps include:

1. Determine how much power will want to be purchased.
2. Determine the RFP parameters such as: response deadline, types of power contract required (i.e. – a purely output or guaranteed flat amount), payment terms, require power to be delivered to the Project, statement of qualifications, and project description.
3. Advertise and distribute the RFP.
4. Evaluate the responses and proposals.
5. Make a selection of one or more of the projects.
6. Negotiate a contract (Power Purchase Agreement or PPA) with the renewables project provider.
7. Accept and manage delivery of power and make payments.

Current prices for wind projects are at or above \$70 per MWH at the busbar plus about an additional \$10 for transmission and delivery, for a total cost of about \$80 per MWH. One would have to net out the cost of the regular purchased power, and the resulting cost would be about \$26 per ton of CO₂.

RECs or Green Tags - An alternative to purchasing renewables directly would be to purchase Green Tags or Renewable Energy Credits (RECs), which are created when a renewable energy facility generates electricity. Each unique certificate represents all of the environmental attributes or benefits of a specific quantity of renewable generation (wind, geothermal and solar), namely the benefits that everyone receives when conventional fuels, such as coal, nuclear, oil, or gas are displaced. What you pay for when you buy renewable energy certificates is the benefit of displacing other non-renewable sources from the electric grid.³ RECs are essentially carbon offsets that come exclusively from renewable generation resources.

Green-e is the national organization that certifies renewable energy projects, and is the nation's leading independent certification and verification program for renewable energy and companies that use renewable energy. Green-e certified over five million MWH of renewable energy sold in 2005. The Green-e Governance Board approved the Green-e National Standard in December 2005. This standard went into effect on January 1, 2007. Compliance with the Green-e standard ensures that your REC purchases will be

³ From Green-e web site

recognized as legitimate. When purchasing RECs, Poseidon will be Green-e certified to ensure future regulatory compliance. Green Tags are a brand-name of RECs sold by one of the leading suppliers -- the Bonneville Environmental Foundation (BEF). One REC equals 1 metric ton of carbon. If and when comparable entities have adopted comparable standards as the marketplace develops for RECs, RECs may be secured from such alternative providers.

The process for obtaining RECs or Green Tags is similar to the process for purchasing offset projects. Poseidon will issue an RFP or contract directly with a supplier of RECs (such as BEF):

1. Determine how many MWH will want to be purchased and then calculate the number of tags or RECs required.
2. Determine the RFP parameters such as: geographic boundaries for acceptable RECs and a proposal deadline.
3. Determine the evaluation criteria such as: additionality, cost-effectiveness, reliability of the project proposer, reliability of the project concept and implementation plan, ownership, financial risk and mitigation plan, monitoring and verification plan, and co-benefits.
4. Advertise and distribute the RFP.
5. Evaluate the responses and proposals.
6. Make a selection of one or more RECs.
7. Negotiate a contract with the REC provider.
8. Make an annual payment over the term of the contract. Currently RECs are being sold for a term of 1-3 years, which means they would need to be repurchased at the end of that term. This also means that this process would become an on-going task every 1 to 3 years for the life of the Project.

RECs in California are currently being sold for about \$5.00 per MWH. National RECs are being sold for less (in the range of about \$2.50-\$3.00), but they may not be certified and may not be recognized by local regulators.

Exhibit E

Requested Additions to Substantive File Documents

EXHIBIT E
REQUESTED ADDITIONS TO SUBSTANTIVE FILE DOCUMENTS

APPENDIX A: SUBSTANTIAL FILE DOCUMENTS E-06-013

Bay, Steven, and Darrin Greenstein. Toxic effects of elevated salinity and desalination waste brine, Southern California Coastal Water Research Project, 1994.

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Dale, Larry, Camilla Dunham Whitehead, and Andre Fargeix. Electricity Price and Southern California's Water Supply Options, in *Resources, Conservation and Recycling*, Volume 42, Issue 4, November 2004.

Del Bene, J.V., Gerhard Jirka, and John Largier. Ocean brine disposal, in *Desalination*, Volume 97, 1994.

Dickie, Phil. Desalination: Option or Distraction for a Thirsty World, World Wildlife Fund, June 2007.

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Latham & Watkins. Letter to State Lands Commission Re: CEQA Issues Raised for Poseidon Project By Coastal Commission Staff, October 31, 2007.

Lilien, Ben. Public Versus Private Ownership of Seawater Desalination Facilities, Stanford Environmental Law Clinic, June 2005.

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Peters, Thomas, Domenech Pinto, and Esteve Pinto. Improved seawater intake and pre-treatment system based on Neodren technology, in *Desalination* #203, 2007.

Planning and Conservation League. Investment Strategy for California Water, 2004.

Poseidon Resources Corporation. Application for Coastal Development Permit, August 28, 2006, including (but not limited to) attachments:

- **11 - Final Environmental Impact Report**
- **12 - Verification of All Other Permits or Approvals Applied for by Public Agencies**
 - **City of Carlsbad Resolution No. 2006-156 - EIR 03-05**
 - **City of Carlsbad Resolution No. 420 - RP 05-12**
 - **City of Carlsbad Ordinance No. NS-805 - SP 144 (H)**
 - **City of Carlsbad Ordinance No. NS-806 - PDP 00-02**
 - **Planning Commission Resolution No. 6093 - SUP 05-04**
 - **Planning Commission Resolution No. 6092 - CDP 04-41**

- **Planning Commission Resolution No. 6090 - DA 05-01 / Development Agreement, Finding of Fact**
- **CEQA Mitigation Monitoring and Reporting Program for the FEIR**
- **Planning Commission Resolution No. 6094 - HMPP 05-08**
- **Planning Commission Resolution No. 6088 - PDP 00-02**
- **Planning Commission Resolution No. 6091 - RP 05-12**
- **Planning Commission Resolution No. 6089 - SP 144 (H)**

Poseidon Resources Corporation. Response to California Coastal Commission's September 28, 2006 Request for Additional Information, November 30, 2006, including (but not limited to) attachments:

- **1 - San Diego Regional Water Quality Control Board, Order No. R9-2006-0065 ("NPDES Permit")**

Poseidon Resources Corporation. Response to California Coastal Commission's December 28, 2006 Request for Additional Information (including attachments), January 19, 2006.

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Poseidon Resources Corporation. Response to California Coastal Commission's July 3, 2007 Request for Additional Information (including attachments), July 16, 2007.

Poseidon Resources Corporation. Additional Analysis of Submerged Seabed Intake Gallery (including attachments), October 8, 2007.

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- J.B. Graham, S. Le Page and D. Mayer. Issues Related to the Use of the Agua Hedionda Inlet Jetty Extension EIR to Recommend An Alternative Seawater Intake for the Carlsbad Desalination Project, October 8, 2007.

Poseidon Resources Corporation. Coastal Habitat Restoration and Enhancement Plan (including attachments), October 9, 2007.

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Poseidon Resources Corporation. Transmittal of Intake Cost Estimates, October 17, 2007.

Poseidon Resources Corporation. Climate Action Registry CO2 Conversion Calculation, October 18, 2007.

Poseidon Resources Corporation. Updated Response to Coastal Commission's September 28, 2006 Request for Additional Information, Section 13, CDP Energy Use, GHG Production & Mitigation, October 21, 2007.

Poseidon Resources Corporation. Transmittal of GHG Emission Baseline Protocol, October 22, 2007.

Poseidon Resources Corporation. Transmittal of SDG&E GHG CCAR Report 2005, October 22, 2007.

Poseidon Resources Corporation. Carlsbad Desalination Project Briefing Package, CDP Application No. E-06-013, November 2007.

Poseidon Resources Corporation. Transmittal of Garibaldi Study and Coastal Development Permit for Southern California Edison and San Dieguito River Valley Joint Powers Authority's San Dieguito Wetland Restoration Plan, November 7, 2007.

Poseidon Resources Corporation. Letter to Chairman Kruer and Honorable Commissioners Attaching Draft Proposed Conditions of Approval, November 7, 2007.

Poseidon Resources Corporation. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use, November 8, 2007, including the following attachments:

- Carlsbad Municipal Water District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 7, 2007.

- **Valley Center Municipal Water District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 6, 2007.**
- **Rincon del Diablo Municipal Water District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 6, 2007.**
- **Rainbow Municipal Water District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 6, 2007.**
- **Sweetwater Authority. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 6, 2007.**
- **Vallecitos Water District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 6, 2007.**
- **Santa Fe Irrigation District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 7, 2007.**
- **Olivenhain Municipal Water District. Letter to State Lands Commission Executive Director Re: Desalination Project's Impact on Imported Water Use (including attachments), November 6, 2007.**

Poseidon Resources Corporation. Letter to T. Luster Transmitting State Lands Commission Hearing Presentation, November 8, 2007.

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Wolff, Gary. The Economics of Desalination, Pacific Institute, September 9, 2006.

World Health Organization. Desalination for Safe Water Supply: Guidance for the Health and Environmental Aspects Applicable to Desalination, 2007.

THIS ADDENDUM WAS SUBMITTED BY POSEIDON RESOURCES.
THE FULL BRIEFING PACKET INCLUDED CORRESPONDENCE ALREADY PROVIDED
IN THE PREVIOUS ADDENDUM.

Th 7a

E-06-013

Poseidon Resources LLC



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

*** A copy of this communication has been sent to Coastal Commission staff***

November 2, 2007

Commissioner Dave Potter
California Coastal Commission
1200 Aguajito Road, Suite 1
Monterey, CA 93940

RE: Briefing Book - Carlsbad Desalination Project

Dear Commissioner Potter:

Enclosed for your review is a briefing book summarizing the key issues associated with the Carlsbad Desalination Project. The information contained herein is the result of extensive research on the environmental, economic, and social aspects of the project, specifically pertaining to the project's compliance with the California Coastal Act.

The briefing book covers issues related to the need for the project; environment; land use; growth inducement; public access and health and welfare; power plant operations; project mitigation and alternatives; project economics; plant ownership; water conservation and management plans; product water purchase agreements; energy use; community support and the future of the Agua Hedionda Lagoon.

Poseidon Resources and the City of Carlsbad have worked in partnership since 1998 to bring the Carlsbad Desalination Project to fruition. This period includes eight years of environmental research and study and a 396-day California Environmental Quality Act (CEQA) process culminating in the City of Carlsbad's unanimous approval of the Project's Environmental Impact Report (EIR).

The Project has earned permits from the City of Carlsbad, San Diego Regional Water Quality Control Board, and Department of Health Services. Additionally, Poseidon has entered into 30-year water purchase agreements with eight San Diego County public water agencies, and today 100% of the plant's 56,000 AFY capacity is appropriated for public use.

We hope this information provides you with a comprehensive overview of the project. We are looking forward to meeting with you on November 6th.

Sincerely,

Peter MacLaggan.
Senior Vice President Poseidon Resources

cc Tom Luster w/o enclosure

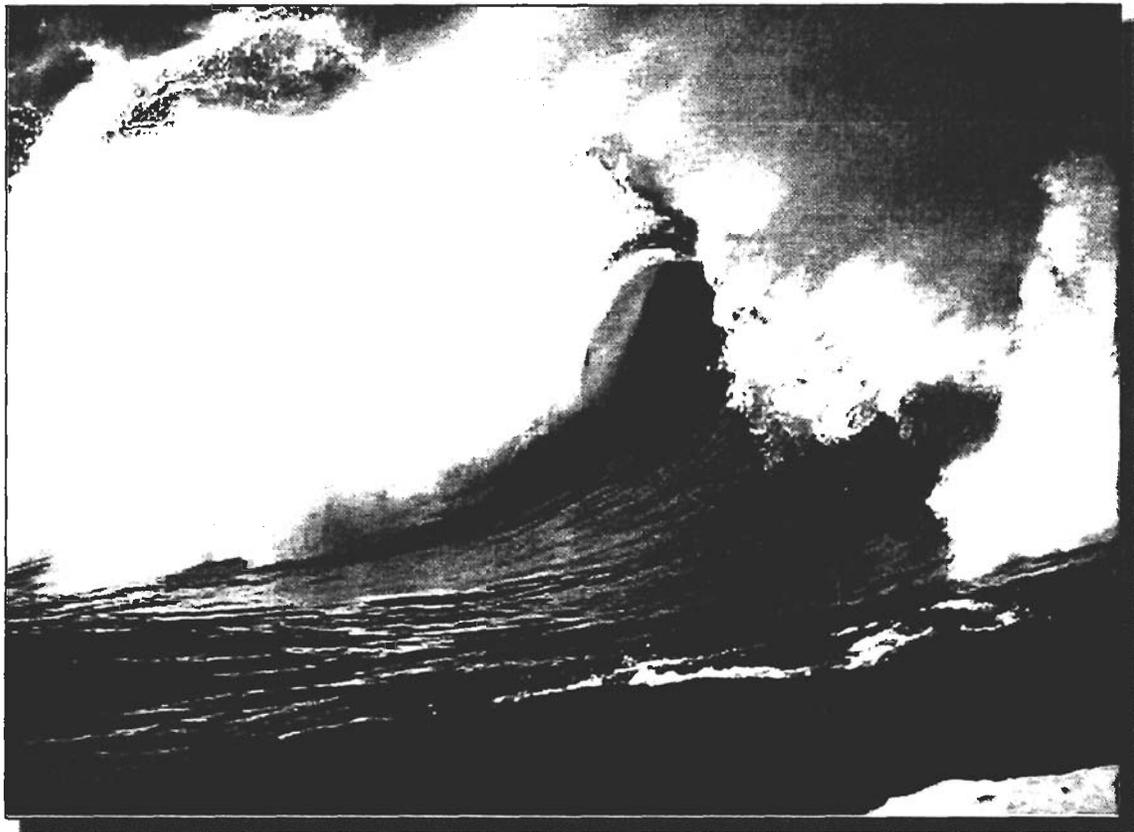
Poseidon Resources Corporation

501 West Broadway, Suite 840, San Diego, CA 92101, USA

619-595-7802 Fax: 619-595-7892

Project Office: 4600 Carlsbad Boulevard, Carlsbad, CA 92008

Carlsbad Desalination Project



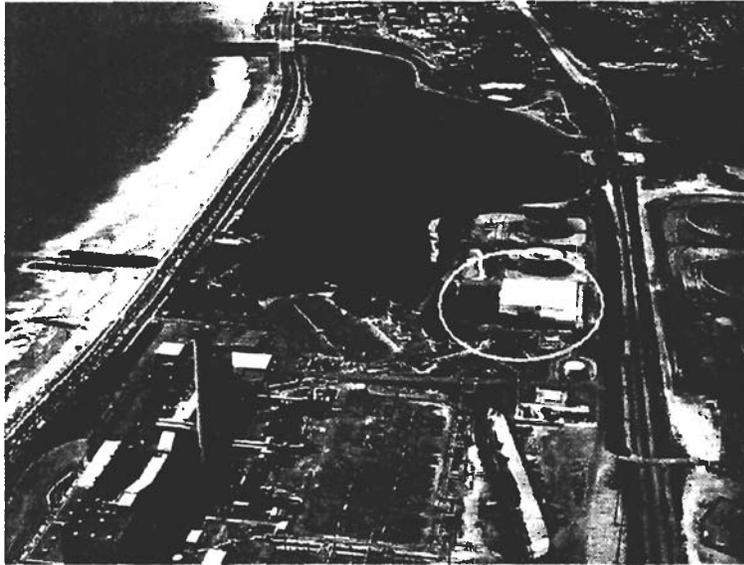
Briefing Package
CDP Application No. E-06-013



November 2007

*** Coastal Commission Staff Has Been Copied on This Submittal***

Executive Summary



- The Carlsbad Desalination Project consists of a 50 million gallon per day (56,000 acre-feet per year (AFY)) seawater desalination plant and associated water delivery pipelines.
- The project is an environmentally responsible solution to the state's water crisis that will maintain, restore and enhance the marine environment and create opportunities for enhanced public access and recreation in the Coastal zone.
- The project is being advanced under a public-private partnership that will ensure that traditional governmental oversight remains in place while placing the risk of performance on the private sector rather than the public.
- The proposed project is necessary to address immediate and pressing water supply needs in San Diego County.
- Water conservation and water recycling alone will not fully address the water supply reliability needs of the project participants.

Executive Summary *Continued...*

- The proposed project will:
 - Provide public agency participants with a secure drought-proof supply of high-quality water for 30 years with two optional 30-year extensions.
 - Maintain, restore and enhance marine resources, biological productivity and recreational opportunities through continued stewardship of Agua Hedionda Lagoon and the surrounding watershed.
 - Enhance opportunities for public access to Agua Hedionda Lagoon and Carlsbad State Beach through the public dedication of 15 acres of private lagoon and oceanfront property.
 - Maintain, restore and enhance 37 acres of new coastal wetlands habitat within the San Diego region.
 - Reduce its net carbon footprint to zero through implementation of a forward thinking Climate Action Plan.
 - Eliminate the need for importing 56,000 AFY of water into San Diego County.
 - Generate \$2.0 million per year of tax revenue for infrastructure improvements in the coastal zone due to the project's location within the South Carlsbad Redevelopment Project.
 - Generate up to 2,100 construction jobs (Voluntary Project Labor Agreement with SD Building Trades) and 400 new permanent jobs.

Project Purpose



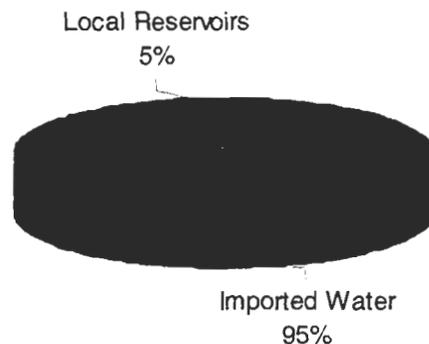
Artist Rendering of the
Carlsbad Desalination
Project

- The Carlsbad Desalination Project consists of a 50 million gallon per day (56,000 acre-feet per year (AFY)) seawater desalination plant and associated water delivery pipelines.
- Project purpose:
 - Improve water supply reliability in the San Diego region;
 - Reduce dependence on imported water;
 - Provide a new source of locally controlled, drought-proof, potable water to augment ongoing water conservation, water recycling and other supply diversification programs;
 - Improve water quality;
 - Maintain, restore and enhance the marine environment;
 - Maintain, restore and enhance opportunities for coastal access and recreation.

Improving Reliability Through Diversification

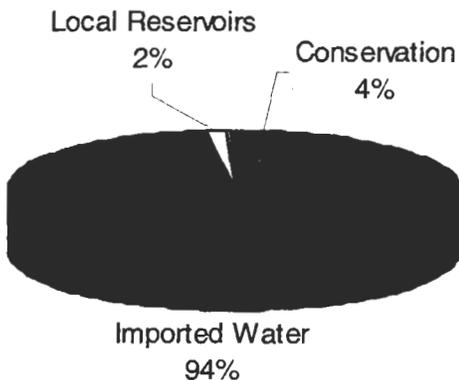
- The San Diego region's water supply has grown more diverse since 1990, and plans for even greater diversity in 2010 and beyond include the proposed Carlsbad Seawater Desalination Project to achieve the region's water supply reliability goals.

1990



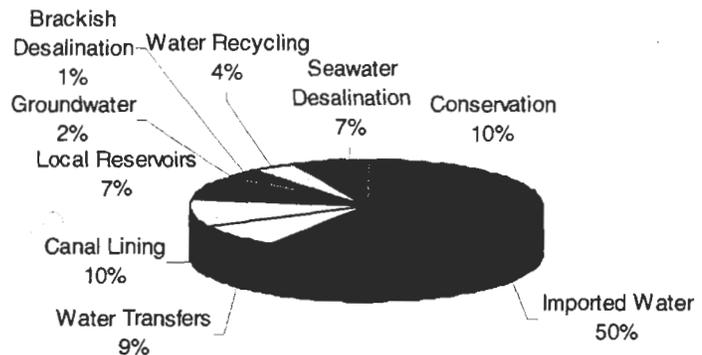
Total Demand: 717,017 AFY
Conservation Savings: 0 AFY
Per Capita Demand: 190 GPD*

2000



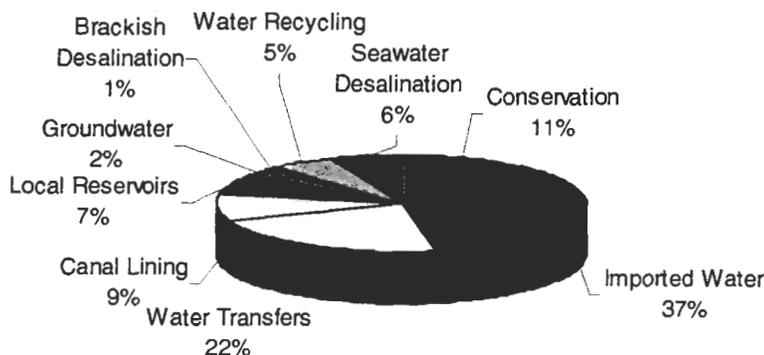
Total Demand: 694,995 AFY
Conservation Savings: 25,518 AFY
Per Capita Demand: 178 GPD*

2010



Total Demand: 715,450 AFY
Conservation Savings: 79,960 AFY
Per Capita Demand: 166 GPD*

2020



Total Demand: 771,510 AFY
Conservation Savings: 94,170 AFY
Per Capita Demand: 158 GPD*

Source: San Diego County Water Authority
 * Gallons Per Capita Per Day

Need for the Project

Los Angeles Times
latimes.com

MWD warns of water cuts, higher rates;
The agency says that if dry weather continues,
local districts may have to consider rationing for the first time in years
October 9, 2007

The San Diego
 **Union-Tribune.**

Sizing up water worries;
Regional shortage real; what's being done?
October 9, 2007

NORTH COUNTY TIMES

Calls for local water cutbacks here to stay
October 1, 2007

- The severity of San Diego County's water supply challenges cannot be understated:
 - More than 85% of the water consumed in San Diego County is imported;
 - Legal, regulatory and environmental threats have created an imported water supply crisis;
 - The Colorado River is suffering through the ninth year of drought;
 - Sierra snow pack is 38% below normal this year;
 - San Diego County is experiencing the driest two consecutive years in its history;
 - Scientists are predicting climate change will have dire impacts on California's hydrology;
 - The federal court ruling to protect the delta smelt may result in the loss of up to 30% of San Diego's supply;
 - MWD has notified agricultural water users to expect a 30% reduction in supply beginning January 1, 2008;
 - Urban water use restrictions are likely to follow.
- Additional local supplies must be developed to augment on-going conservation and water recycling measures.

Need for the Project *Continued...*

- Long before the current water crisis, state, regional and local water plans confirmed that immediate and pressing water needs cannot be met without some investment in seawater desalination.
 - The proposed project will provide 56,000 AFY – a critical component of the region’s water supply portfolio.
 - The San Diego County Water Authority (SDCWA) Urban Water Management Plan identifies a need for 56,000 AFY of seawater desalination from the Carlsbad project by 2011.
 - The Metropolitan Water District of Southern California (MWD) Integrated Water Resources Plan identifies a need for 150,000 AFY of seawater desalination (including 56,000 AFY from the Carlsbad project) by the year 2020.
 - The CA Department of Water Resources’ 2006 Water Plan Update identifies the need for 500,000 AFY of desalinated water by 2030.
 - Carlsbad Municipal Water District, Olivenhain Municipal Water District, Rainbow Municipal Water District, Rincon del Diablo Municipal Water District, Sweetwater Authority, Santa Fe Irrigation District, Valley Center Municipal Water District and Vallecitos Water District have entered into long-term agreements to purchase water produced by the Carlsbad desalination plant. Desalination plant output is fully subscribed.

Water Conservation & Recycling

- The public agencies participating in the project share a long-standing commitment to water conservation and water recycling.
- Conservation 1990-2007
 - 430,000 acre-feet of water conserved, including a record high of 51,000 acre-feet in 2007
 - 518,000 ultra-low-flush toilets installed
 - 600,000 water-saving showerheads installed
 - 59,000 high-efficiency clothes washers installed
 - 15,000 acre-feet of water saved through commercial-industrial-institutional hardware replacements
 - Ongoing programs aimed at conserving nearly 100,000 AFY by 2020
 - As a result of these efforts, per capita demand for water today is 170 gallons per capita per day (GPD) compared to 194 GPD in 1990. By 2020, this demand is expected to be reduced to 158 GPD.
- Water Recycling
 - 20% of Carlsbad MWD's water demand is met with recycled water due to a recently completed \$50 million investment in treatment and distribution facilities
 - 33% of Rincon del Diablo MWD's water demand is met with recycled water
 - Valley Center MWD recycles 100% of the wastewater generated in its service area
 - A 250% increase in Vallecitos recycling plant capacity is currently under construction – planned capacity 5,000 AFY
 - SDCWA projecting 45,000 AFY of recycled water use by 2020.

San Diego Desal Partners

- The proposed project is being advanced through a public-private partnership that ensures protection of public trust, preserves governmental oversight, insulates the public from financial risk, and will conform to all applicable environmental laws and regulations.
 - Eight public water agencies, known as the San Diego Desal Partners, have entered into long-term agreements with Poseidon to receive desalinated water from the project.
 - The partnership will result in improved water supply reliability for residents, businesses and industries throughout the San Diego region.
 - The water will remain in the public domain – the entire plant output has been appropriated for public use by the public agency partners.
 - Existing governmental oversight is preserved – the public agency partners control the allocation and use of water.
 - The water purchase agreements provide ratepayers with a specified quantity of high-quality drinking water at a guaranteed price for 30 years.
 - The public agency partners do not pay for the water unless delivered in accordance with quantity and quality specifications.
 - The price of desalinated water to the public partners is equal to or less than their avoided cost of imported water.
 - Poseidon must operate the project in accordance with all applicable environmental laws and regulations and, while Poseidon is not a multi-national corporation, it has waived any rights it or a future project owner/operator may have under international treaties to contest the validity of environmental laws and regulations or terms and conditions of any permits.

San Diego Desal Partners *Continued...*

Executed Agreements



Carlsbad Municipal Water District

- Quantity: 22,000 AFY
- Water Purchase Agreement: Executed October 2004



Valley Center Municipal Water District

- Quantity: 7,500 AFY
- Water Purchase Agreement: Executed December 2005



Rincon del Diablo Municipal Water District

- Quantity: 4,000 AFY
- Water Purchase Agreement: Executed March 2006



Sweetwater Authority

- Quantity: 2,400 AFY
- Water Purchase Agreement: Executed January 2007



Rainbow Municipal Water District

- Quantity: 7,500 AFY
- Water Purchase Agreement: Executed July 2007

San Diego Desal Partners *Continued...*

Executed Agreements



Santa Fe Irrigation District

- Quantity: 2,000 AFY
- Water Purchase Agreement Executed-September 2007



Vallecitos Water District

- Quantity: 7,500 AFY
- Water Purchase Agreement Executed-September 2007

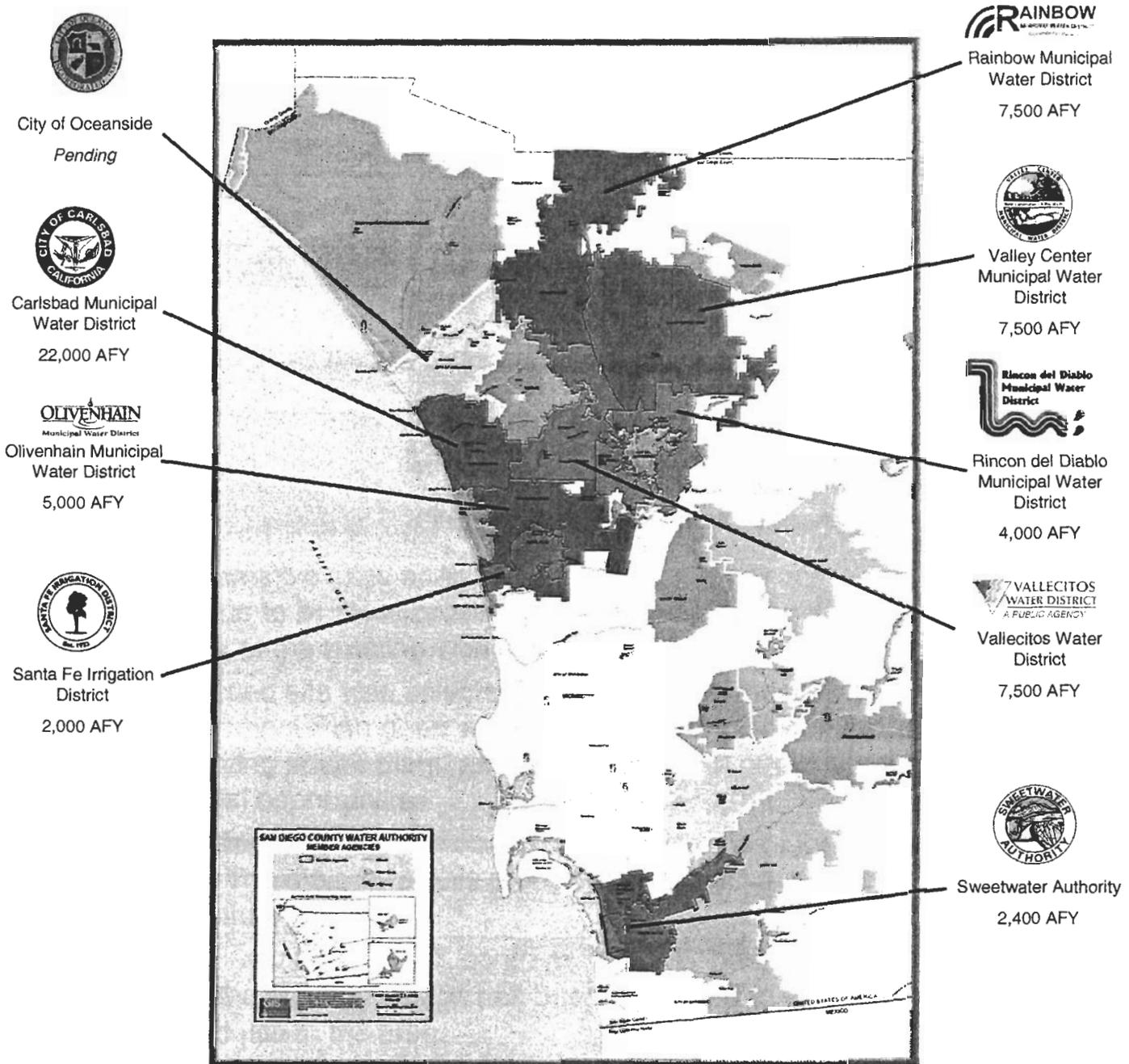


Olivenhain Municipal Water District

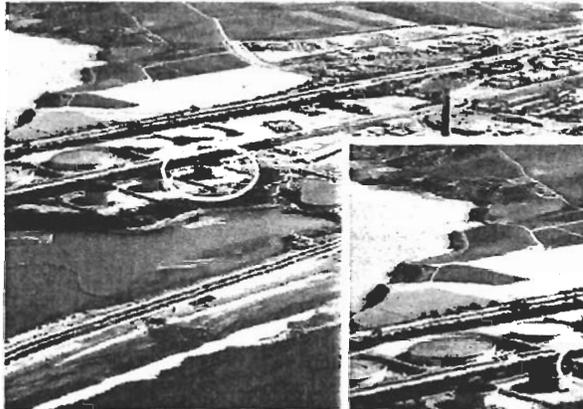
- Quantity: 5,000 AFY
- Water Purchase Agreement Executed-October 2007

Poseidon continues to work with local water agencies and cities, such as the City of Oceanside, to optimize the project's customer base and delivery arrangements.

Water Agency Partners



Desalination Facility Site



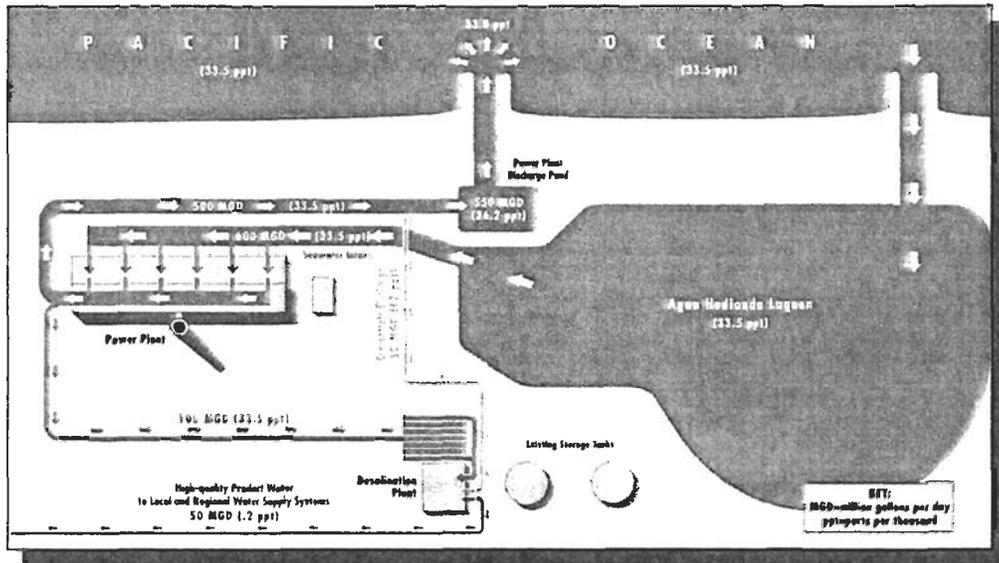
EXISTING SITE
CONDITIONS



COMPUTER SIMULATION OF PROPOSED DESALINATION
FACILITY AT ENCINA POWER STATION

- Of the alternative sites analyzed, the Encina Power Station is the superior location due to its close proximity to the ocean, compatible land use and the availability of the existing intake and outfall.
- The proposed site was selected to conform with the City of Carlsbad Redevelopment Plan goals related to facilitating the conversion and relocation of the existing power plant, and enhancement of public serving uses, and recreational opportunities.
- The Desalination plant site occupies less than 5% of the power station property. The majority of this property will remain available for redevelopment at some future date.
- The desalination facility will conform to the 35' height limit in the Local Coastal Plan and the building design has been enhanced to ensure compatibility with future land use in the area.
- Onsite improvements include: an intake pump station, and pipeline, concentrate return pipeline, sewer connection, electrical transmission lines, road improvements, and product water pump station and pipeline.

Relationship Between the Power Plant and Desalination Facility



- The desalination facility is connected to the discharge channel of the Encina Power Station at two locations.
- The intake pump station is connected to the upstream portion of the discharge channel and delivers 100 million gallons per day (mgd) of seawater to the desalination facility.
- Half of the seawater processed by the desalination facility is converted to high quality drinking water. This water is delivered to Carlsbad and the surrounding communities.
- The remaining 50 mgd of seawater is returned to the discharge channel where it is diluted with additional seawater prior to discharge to the ocean. This ensures that the increased salinity will meet strict RWQCB requirements and not impact the marine organisms in the vicinity of the discharge channel.

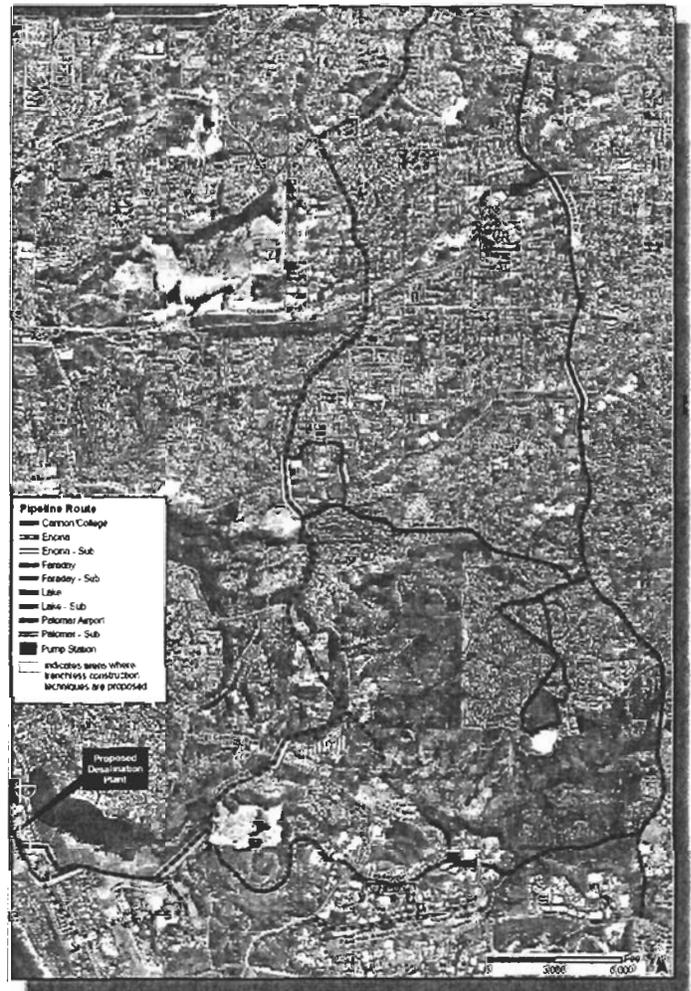
Project Setting



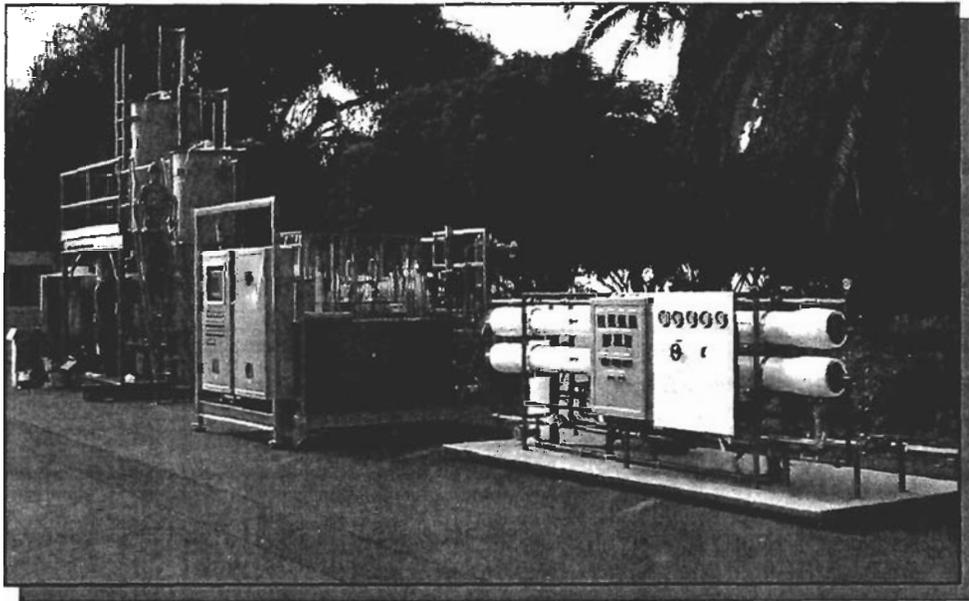
- The desalination facility will be located at the EPS, which is adjacent to the Agua Hedionda Lagoon.
- Agua Hedionda Lagoon is a man-made, shallow, coastal embayment that is wholly owned by Cabrillo Power LLC.
- Since 1952 the Lagoon has been kept open to the Pacific Ocean by routine maintenance dredging.
- Today the Lagoon supports a wide variety of beneficial uses, including:
 - 388 acres of coastal wetland habitat;
 - Public access and recreation;
 - Power production;
 - Aquaculture;
 - White Sea Bass fish hatchery;
 - Marine education and research;
 - Beach restoration.

Desalinated Water Delivery System

- The desalination facility is capable of serving the cities of Oceanside, Vista, Carlsbad, San Marcos, Escondido, Encinitas and Solana Beach.
- The offsite facilities consist of water delivery pipelines and a pump station.
- The alternative water delivery pipeline alignments follow existing roadways.
- A number of alignment options have been analyzed.
- Only one of the potential alignment options will be constructed.
- Pipeline sizes vary from 48" to 24".
- The majority of the pipelines are located outside of the Coastal Zone.



Demonstration Plant



- Poseidon has been operating an international award-winning seawater desalination demonstration plant at the EPS since January 2003.
- The facility has produced over 20 million gallons of high-quality potable water.
- The demonstration plant operation has confirmed several important considerations related to the full-scale project:
 - The project will perform under both normal and adverse conditions;
 - The project will comply with all applicable local, state and federal regulations;
 - The project will operate at optimal efficiency and have no significant impacts on the marine environment.
 - Desalinated water will be safe to use in existing water distribution system.
 - Use of state-of-the-art energy recovery system proven to be viable.
 - State-of-the-art pretreatment technology proven to perform well without chemicals.

Poseidon Team Capabilities

The Carlsbad desalination project is implemented by an internationally-renowned team. The project team members have decades of experience in building large-scale water infrastructure projects, and the team scientists and engineers include some of the leading experts in seawater desalination from around the world. Collectively, Poseidon has assembled an unparalleled team to build one of California's most important water infrastructure projects in decades.

- **Poseidon Resources** – Develops and invests in water projects throughout North America. Poseidon offers customized solutions to meet the water needs of municipal governments, businesses and industrial clients. The company's innovative approach to project development, financing, asset management and community outreach makes it a leader in water resources development.
- **Dr. Scott Jenkins - Scripps Institute of Oceanography**- Analyzed potential salinity changes in the marine environment.
- **Steven Le Page - M-REP Consulting** - Evaluated the salinity tolerance of local marine species.
- **Dr. Jeffrey Graham – Scripps Institute of Oceanography** – Evaluated impacts of increased salinity on marine resources.
- **Tenera Environmental- David Mayer** - Evaluated the entrainment and impingement impacts of the project.
- **Renewable Resources Group** – Responsible for development and implementation of Climate Action Plan.

Team Capabilities *Continued...*

- **Acciona Agua** – Responsible for engineering of the desalination system. Acciona has designed, built and operated over 70 desalination facilities with a combined capacity of 420 mgd, and 120 water treatment plants, including the largest desalination plant in Europe.
- **American Water** – Responsible for overall project management, American Water is the oldest and largest water services company in the U.S.
- **Filanc Construction** - Responsible for construction of the Carlsbad desalination plant. Headquartered in Escondido, Filanc has completed more than 300 water and wastewater treatment projects for cities, counties and water agencies throughout California and the southwest.
- **PBS&J** — Responsible for civil engineering and construction management. PBS&J has over 60 offices and 3,500 employees across the country. PBS&J provides infrastructure planning, engineering, construction, architecture, and program management services to public and private clients.
- **GE** - GE Water & Process Technologies will invest in the final stage of the desalination project and will also provide and guarantee performance of the state-of-the-art membrane pretreatment system. Seawater desalination is a big part of GE's Eco-imagination Green Campaign.
- **Simon Wong Engineering** – Engineering firm in San Diego since 1986 and will be responsible for project structural engineering.

Permitting Status



Environmental Impact Report: **Completed**

- Lead Agency: City of Carlsbad
- Draft EIR: May 2006
- Final EIR: Certified June 13, 2006
- CEQA Lawsuit Dismissed Septmeber 2006



Local Land Use Permits: **Completed**

- Responsible Jurisdiction: City of Carlsbad
- Local Coastal Development Permit: N/A
- Conditional Use Permit: Approved June 13, 2006



Discharge (NPDES) Permit: **Completed**

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



Drinking Water Permit: **Completed**

- Responsible Agency: CA Department of Health Services
- Conditional Drinking Water Permit: Approved October 19, 2006

Permitting Status *Continued...*



Coastal Development Permit (CA only): **In Progress**

- Responsible Agency: CA Coastal Commission
- Application: Submitted August 2006
- Notice of Incomplete (1):
 - Received - September 2006
 - Response – November 2006
- Notice of Incomplete (2):
 - Received - December 2006
 - Response – January 22, 2007
- Notice of Incomplete (3):
 - Received - February 2007
 - Response – June 4, 2007
- Notice of Incomplete (4):
 - Received – July 3, 2007
 - Response – July 16, 2007
- Application Deemed Complete: July 25, 2007
- Hearing Date: November 15, 2007



State Lands Commission (CA only): **In Progress**

- Lease Application: Submitted February 2007
- Hearing Date: October 30, 2007

Environmental Review

- In 2006, the Carlsbad City Council certified the project's Final Environmental Impact Report.
- EIR certification culminated six years of environmental review, including review by local, regional and state agencies and comprehensive analysis of and response to hundreds of comments raised by the public.
- 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.
- The certified EIR concluded no unmitigated significant environmental impacts, regardless of whether the power plant was operating.
 - no significant impact from impingement or entrainment.
 - no significant impact from prolonged exposure to salinity levels below 40 parts per thousand, which the San Diego Regional Water Quality Control Board also found.

Coastal Act Chapter 3 - Resources Planning and Management Policies

The Coastal Act provides standards by which the adequacy of proposed development are determined. This section evaluates the proposed desalination project in the context of those standards.

- Public Access
 - § 30210 Maximum public access is provided through public dedication of private property. (See page 26).
 - § 30211 The project does not interfere with the public's right of access to the sea.
- Recreation
 - § 30220 Coastal areas suited for water oriented recreation are protected and enhanced. Poseidon will assume responsibility for the stewardship of Agua Hedionda Lagoon when the power plant is retired and the project includes dedication of parcels suitable for water-oriented recreation. (see pages 24-26).
 - § 30222.5 Lagoon areas used for coastal dependent aquaculture will be protected and enhanced through Poseidon's assumption of responsibility for the stewardship of the Lagoon when the power plant is retired. (See pages 24 and 25).
 - § 30223 Private upland areas necessary to support coastal recreation will be dedicated to the public for such uses. (See page 26).
 - § 30224 Existing recreational boating use of coastal waters will be protected and enhanced through Poseidon's assumption of responsibility for the stewardship of the Lagoon when the power plant is retired. (See pages 24 and 25).

Coastal Act Resources Planning and Management Policies *Continued...*

➤ Marine Resources

- §§ 30230 - 30231 Marine resources and biological productivity are maintained, enhanced and where feasible, restored through permit requirements, impact minimization measures and mitigation (See pages 24-28 and 37).

➤ Energy Use and Greenhouse Gas Production

- § 30252 Requires new development to minimize energy consumption (See pages 29 and 38).
- § 30253(3) Requires new development be consistent with requirements imposed by an air pollution control district or the State Air Resources Control Board (See pages 30 and 38).

➤ Coastal Dependent Industrial Facilities

- § 30260 Coastal-dependent industrial facilities shall be encouraged to locate within existing sites. Although the project is consistent with Coastal Act policies, where new coastal-dependent facilities are inconsistent with these policies, they may nonetheless be permitted if:
 1. Project alternatives are infeasible or more environmentally damaging
 - a) For alternative project locations see page 31.
 - b) For alternative water supplies see page 32.
 - c) For alternative intakes see pages 33 and 34.
 2. To do otherwise would adversely affect the public welfare (see page 36); and
 3. Adverse environmental effects are mitigated to the maximum extent feasible
 - a) For proposed Coastal Habitat Restoration and Enhancement Plan see page 37.
 - b) For Climate Action Plan see page 38.

➤ Growth Inducement

- § 30254 New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or permitted uses (See page 39).

Agua Hedionda Lagoon

Carlsbad's Environmental and Recreational Treasure



The Agua Hedionda Lagoon is one of the City of Carlsbad's environmental and recreational treasures. But it was not always this way. In Spanish, Agua Hedionda literally means "stinking water". This was an accurate description of the Lagoon, which lacked the diversity of marine habitats before the Encina Power Station was commissioned in 1952.

For over 50 years, the operators of the Encina Power Station have regularly dredged an opening between the ocean and the Lagoon to sustain a source of seawater to cool the power plant's generators. As a result, today the 388-acre Agua Hedionda Lagoon is a man-made, shallow coastal embayment teeming with marine life and an array of recreational and educational activities, and aquaculture and marine research.

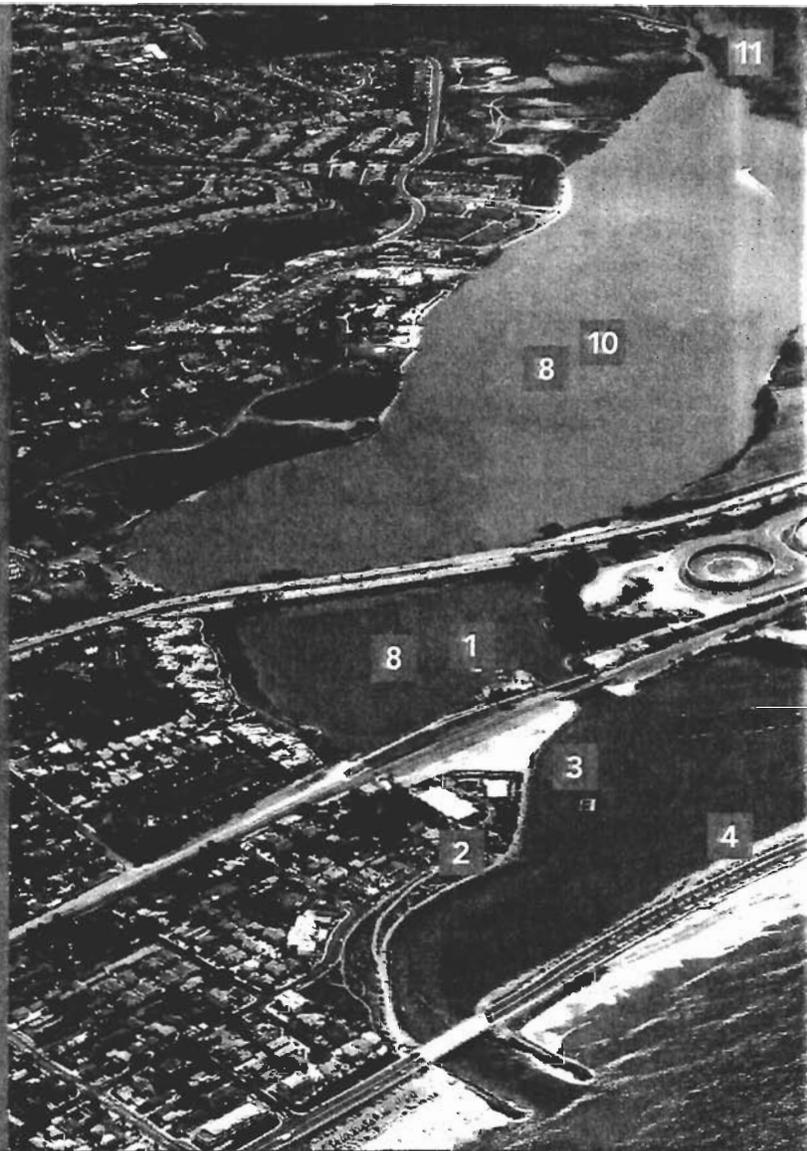
Preserving the Agua Hedionda Lagoon

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 survival. Locating the seawater desalination plant next to the Encina Power Station solves this problem.

Carlsbad's desalination plant requires a healthy environment and a clean watershed to produce high-quality drinking water. Once built, the desalination plant will ensure the continued stewardship of the Agua Hedionda Lagoon and the surrounding watershed, and will guarantee for many years to come that the citizens of Carlsbad will be able to enjoy the benefits of this clean Lagoon and its surrounding beaches.



Preserving the Agua Hedionda Lagoon



YMCA Aquatic Park 1

The YMCA Aquatic Park, better known as Camp H₂O, is a summer camp geared towards seven to twelve-year olds that offers affordable day camp activities including swimming, kayaking, paddleboats, rowboats and fishing.



[C.A. § 30220: Protection of water-oriented recreational activities.
C.A. § 30224: Recreational boating use of coastal waters.]

The camp plays an important role in educating our youth about the precious

marine environment and the need to preserve the Lagoon for future generations.

Hubbs-SeaWorld Fish Hatchery 2

Hubbs-SeaWorld Resources Enhancement and Hatchery Program includes a 20,000 square foot fish hatchery on the Lagoon. To date, Hubbs-SeaWorld has released over 1.5 million

endangered white sea bass into the wild. Hubbs-SeaWorld will be able to expand its marine restoration activities as a result of additional acreage dedicated by the owners of the power plant, Cabrillo Power.



[C.A. § 30222.5: Coastal dependent aquaculture.]

Public Access to the Lagoon and Coast 3

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



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

[C.A. § 30210: Enhancing opportunities for public access.
C.A. § 30223: Dedication of upland area to support coastal recreational uses.]

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

[C.A. § 30222.5: Protection of ocean front land suitable for coastal aquaculture.]

New Recreation Areas 4

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

[C.A. § 30220: Protection of water-oriented recreational activities.]





Warm Water Jetties Surf Break 7

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

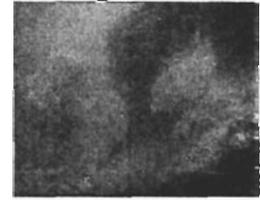


The jetties would be removed when the power plant is decommissioned, resulting in a loss of this surf break. The existence of the desalination plant will ensure that the jetties remain and this popular surf spot exists for many years to come.

[C.A. § 30226: Protection of water-oriented recreational activities.]

Enhancing Fish Habitat 8

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



[C.A. § 30230: Preservation of marine resources.]

Carlsbad Aquafarm 9



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

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

[C.A. § 30222.5: Protection of ocean from land suitable for coastal aquaculture.]

Desalination Plant 5

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



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

[C.A. § 30255: Priority Coastal Dependent Development.]

Beach Sand Replenishment 6

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



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

[C.A. § 30210: Enhancing opportunities for public access.]

Recreational Boating 10

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



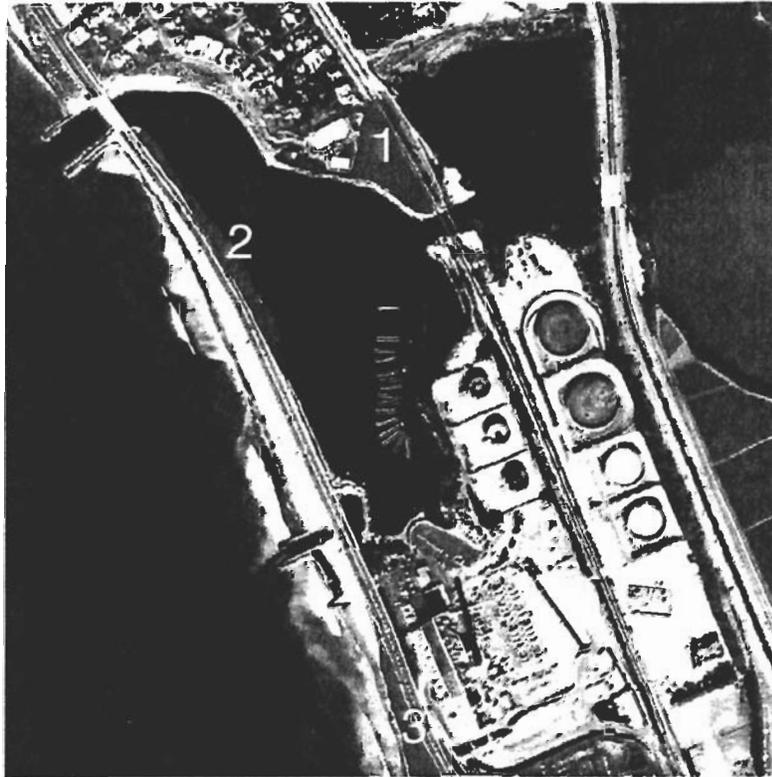
[C.A. § 30220: Protection of water-oriented recreational activities. C.A. § 30224: Recreational boating use of coastal waters.]

Agua Hedionda Lagoon Foundation Discovery Center 11



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

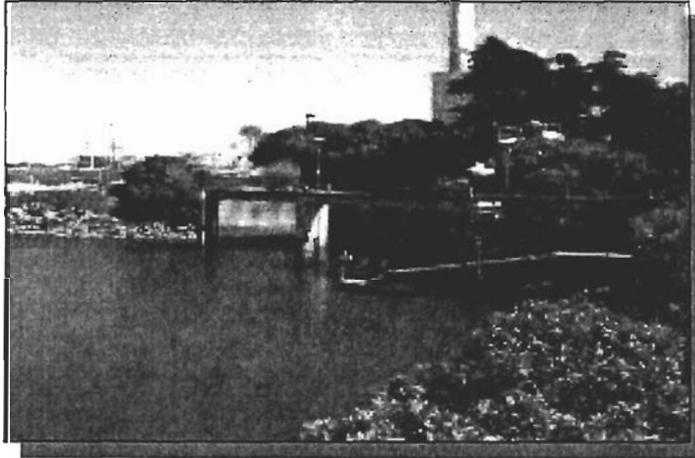
Public Dedications



➤ The project will advance the Coastal Act goals to maintain, restore and enhance public access and recreation and maintain, restore and enhance the marine environment through the dedication of more than 15 acres of lagoon and ocean front land for public purposes:

1. Hubbs site along the lagoon north shore will be dedicated for expansion of the fish hatchery, marine research and a public trail system along the lagoon (C.A. §§ 30210, 30222.5, 30223, 30230 and 30231).
2. Fishing Beach along the shore of Agua Hedionda Lagoon will be dedicated for public recreational and coastal access use (C.A. §§ 30210 and 30220).
3. Bluff Area on the west side of Carlsbad Blvd. will be dedicated for recreational and coastal access uses (C.A. §§ 30210, 30220, and 30223).
4. South power plant parking area (not shown) will be dedicated for public parking (C.A. §§ 30210 and 30223).

Marine Resources - Intake



- Coastal Act
 - § 30412 The State Water Resources Control Board and San Diego Regional Water Quality Control Board are the State agencies with primary control of water quality.
 - § 30230 Requires marine resources be maintained, enhanced and where feasible, restored.
 - § 30231 Requires biological productivity to be maintained and, where feasible, restored through minimizing adverse effects of entrainment.
- Site, design, and technology:
 - Subsurface intake determined to be infeasible -- see Alternative Intakes analysis Pages 33 and 34.
 - The project will use the power plant discharge as its source water when available and will minimize the flow and velocity of the water when desalination plant is operating independently of the power plant.
- Unavoidable Impacts Under Stand-Alone Operations
 - With minimization measures in place, the production of a water supply for 300,000 people will result in unavoidable impingement losses of less than 2 lbs. of fish per day.
 - Unavoidable entrainment loss would potentially affect up to 12.2% of the Lagoon area.
 - None of the impacted fish species are threatened or endangered and less than 0.5% are sport fish of significance.
- Mitigation
 - RWQCB Permit requires the best available site, design, technology, and mitigation feasible to minimize the impacts to marine organisms.
 - Unavoidable losses fully mitigated through restoration and enhancement of 37 acres of marine habitat. See Page 37 for a description of the proposed Coastal Habitat Restoration and Enhancement Plan.
 - Additional mitigation provided in the form of dedication of 2 acres of Lagoon front property for expansion of the Hubbs SeaWorld White Sea Bass Fish Hatchery.
 - In the event of a permanent shutdown of the Encina Power Station, Poseidon will identify additional opportunities to reduce unavoidable impact and implement those measures determined to be feasible.

Marine Impacts - Discharge



➤ Coastal Act

- § 30412 The State Water Resources Control Board and San Diego Regional Water Quality Control Board are the State agencies with primary control of water quality.
- § 30230 Requires marine resources to be maintained, enhanced and where feasible, restored.
- § 30231 Requires biological productivity be maintained and, where feasible, restored through minimizing adverse effects of discharges.

➤ Permit Requirements

- On August 16, 2006 the RWQCB issued Poseidon an NPDES Permit (Order No. R9-2006-0065) for the project that provides for comprehensive regulation of the discharge of concentrated seawater and other discharges from the proposed desalination facility through the implementation of applicable water quality control plans of the State of California.
- The RWQCB found that the permit will be fully protective of all beneficial uses applicable to the Pacific Ocean in the vicinity of the discharge including, recreation; aesthetic enjoyment; commercial and sport fishing; preservation of areas of special biological significance; rare and endangered species; marine habitat; fish spawning; and shell fish harvesting.
- Key permit provisions:
 - Discharge salinity not to exceed 40 parts per thousand (daily average);
 - Compliance with discharge salinity limit continuously monitored;
 - Monthly monitoring for chronic toxicity;
 - Quarterly monitoring for acute toxicity and priority pollutants (e.g., metals);
 - Storm water to be collected onsite and reused; and
 - Chemical wastes to be neutralized and discharged to the sewer.

Energy Consumption

- Coastal Act
 - § 30252 Requires that new development minimize energy consumption.
- Project Design Includes State-Of-The-Art Energy Use Reduction Measures:
 - High efficiency energy recovery devices,
 - Variable frequency drives,
 - High-efficiency motors,
 - Use of low-friction piping materials,
 - Implement LEED (Leadership in Energy and Environmental Design) checklist items determined to be feasible, including:
 - Reduce building and process energy consumption;
 - Incorporate natural lighting through the use of translucent panels in the building façade;
 - Use LEED accredited professional; and
 - Incorporate innovative environmental features such as reuse of storm water.
- Measuring Energy Use
 - The project will supply 56,000 AFY that would otherwise have to be pumped from California State Water Project (SWP) – energy savings 3.4 mWh/AF
 - SDG&E will supply Poseidon with the power to purify the seawater for increased water supply reliability – energy required 4.4 mWh/AF
 - The net energy consumption associated with the proposed project is 1.0 mWh/AF

Energy Consumption and Greenhouse Gas Production

- Coastal Act
 - § 30252(3) Requires new development to be consistent with requirements imposed by an air pollution control district or the California Air Resources Control Board (CARB). CARB has not yet established regulations for greenhouse gases (GHG).
- Assembly Bill 32
 - AB 32 requires that each sector of the economy reduce GHG production to 1990 levels by 2020. CARB is convening a public rule-making process for implementation of AB 32 and is encouraging voluntary early actions to reduce GHG, including carbon.
- Measuring the Carbon Footprint
 - SDG&E will supply Poseidon with the power to purify the seawater for increased water supply reliability – based on data certified by California’s Climate Action Registry (CCAR) 61,004 metric tons per year of CO₂ will be created by the SDG&E system power required to operate the facility.
 - The project will supply 56,000 AFY that would otherwise have to be pumped from California State Water Project (SWP) – with corresponding reduction in carbon emissions of 47,240 metric tons of CO₂ per year.
 - The net carbon footprint associated with the proposed project is 13,764 metric tons of CO₂ per year
- Erasing the Carbon Footprint
 - Poseidon will voluntarily eliminate the project’s net carbon footprint through implementation of a forward thinking Climate Action Plan described on page 38.

Alternative Locations

All available alternative sites are infeasible or inferior.

➤ 7 Sites Evaluated

- Poseidon and the City of Carlsbad evaluated six possible sites for the project, five sites within the Encina Power Station and one at the Encina Water Pollution Control Facility located two miles south of the power station.
- At the request of Coastal Commission staff, Poseidon evaluated another site at the Maerkle Reservoir, 10.6 miles east of the proposed project site.
- These sites are the only parcels in the City of Carlsbad with compatible land use designation and sufficient space available to accommodate the desalination facility.

➤ Preferred Site

- The proposed project location is the only site that is in reasonable proximity to the seawater intake, outfall and key delivery points of the largest user of desalinated water.
- Advantages of this site include: least environmental impacts; lowest energy consumption; least disruption to public and private property; lowest construction cost; and lowest operating cost.

➤ Infeasible Sites

- Alternative sites at the Encina Power Station were needed for relocation of the power plant and enhancement of commercial and recreational opportunities in the area currently occupied by the existing power plant.
- Alternative site at the Encina Water Pollution Control Facility can only accommodate a desalination facility with a 10 million gallon per day capacity due to outfall constraints. In addition, this site would require construction of a new intake which was found to be economically and environmentally prohibitive.
- Alternative site at Maerkle Reservoir is 10.6 miles from the existing intake and outfall at an elevation of 531 feet above sea level. The construction of intake and discharge pipelines would be extremely disruptive to the public and the environment.

Alternative Water Supplies

➤ **Evaluation Process**

- The San Diego County Water Authority (SDCWA) adopted the Regional Water Facilities Master Plan (Master Plan) following an extensive public review process.
- The purpose of the Master Plan is to evaluate the ability of the SDCWA to meet its water supply mission through 2030.
- The SDCWA certified a Program EIR in 2003 following an opportunity for the public and responsible agencies to comment on the potential environmental effects of the proposed Master plan.

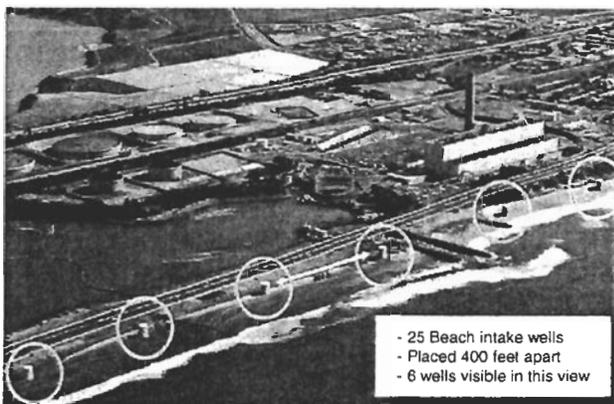
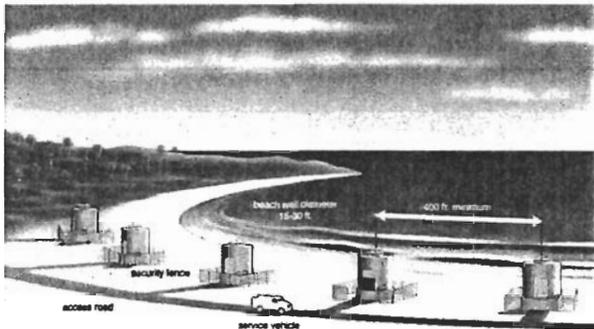
➤ **Water Supply Components**

- The SDCWA's 2007 Urban Water Management Plan includes the following implementation schedule for water supply components of the adopted Master Plan for the period 2007 to 2020:
 - Two-fold increase in water conservation;
 - Three-fold increase in water recycling;
 - Four-fold increase in water transfers;
 - Three-fold increase in water from canal lining projects;
 - 56,000 AFY from the Carlsbad Desalination Project; and
 - 50% reduction in imported water purchases from MWD.
- The SDCWA considered and rejected alternatives that included higher levels of recycling and conservation because they did not meet the region's supply reliability and diversification objectives.

➤ **Alternative Water Supplies Considered in Carlsbad EIR**

- Increased water conservation; and
- Increased recycled water and groundwater
- These alternatives were rejected because the level of conservation and recycling practices that would be required to meet the project's water supply objectives was determined to be infeasible and did not meet the basic water supply objectives and they require conservation and recycling practices that go beyond what is considered to be feasible.

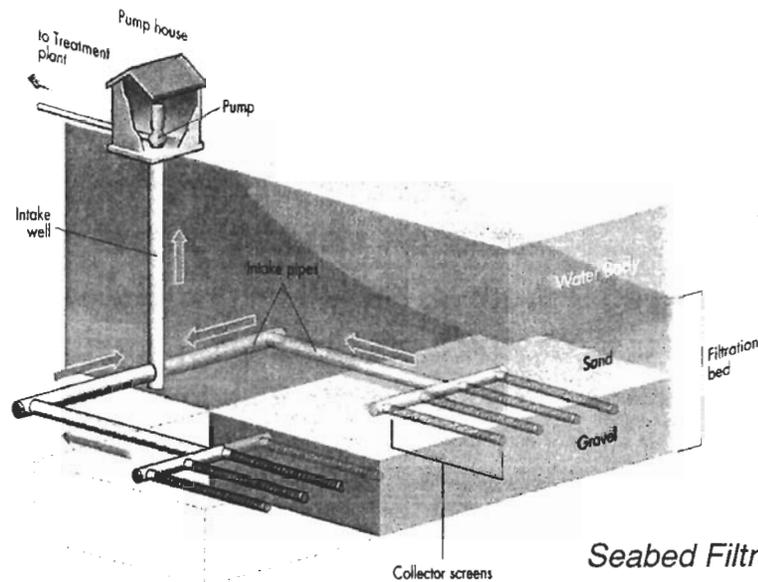
Alternative Intakes



Beach Wells Were Considered and Rejected Because:

- Unable to pump an adequate quantity and quality of water.
- Could *only* provide about 5 percent of the seawater for the project due to site-specific hydrogeologic conditions.
- 20 intake systems and supporting infrastructure would be required impacting public access and visual resources up to four miles of coastline.
- Water quality from the wells (salinity twice that of seawater, excessive iron and high suspended solids) would be difficult, if not impossible, to treat.
- The estimated cost of various configurations of beach wells range from \$438-\$650 million.

Alternative Intakes *Continued...*



Seabed Filtration System

- The Fukuoka-type subsurface seabed filtration intake system was considered and rejected for the following reasons:
 - The seabed filtration system and associated collector pipes would permanently remove over 150 acres of seafloor – 70% of this area would contain environmentally sensitive habitat.
 - Location of 140 seawater collector wells along a three mile stretch of the coast would result in a permanent loss in public access and visual resources impacts.
 - Construction and maintenance activities would severely impact public access and recreation.
 - Significantly greater impacts than using the existing intake at the Encina Power Station.
 - The estimated cost of the seabed filtration intake system is \$650 million.

Poseidon's Use of the EPS Intake System Complies With All Applicable Laws

- Clean Water Act Section 316(b) (interpreted in the recent *Riverkeeper* decision) does not prohibit Poseidon's use of the power plant's intake system.
- The *Riverkeeper* decision and Section 316(b) apply only to cooling water intakes used to generate electricity.
 - While the existing intake will be the source of water for the desalination facility when the power plant is not operating, none of the water used by the desalination facility will be used for cooling purposes or generation of electricity.
 - The State Water Quality Control Board's (SWQCB's) recent Section 316(b) scoping document states that desalination plants are outside the scope of Section 316(b) and should be addressed through other water quality control plans.
 - San Diego Regional Water Quality Control Board acknowledged in the NPDES permit for the project that Section 316(b) is not applicable to the desalination facility. Surfrider petitioned for review of the NPDES permit, arguing in part that Section 316(b) should govern the project. SWRCB dismissed the petition and upheld the NPDES permit.
- California Water Code Section 13142.5(b) does not prohibit Poseidon's use of the power plant's intake system.
 - Section 13142.5(b) requires that new or expanded coastal power plants or other industrial facilities using seawater for cooling, heating, or industrial processing, utilize the best available site, design, technology, and mitigation measures feasible to minimize marine impacts.
 - The section does not specify any specific intake technology and has not been interpreted to prohibit Poseidon's use of EPS's seawater intake system.

Public Welfare

- Coastal Act Policy
 - § 30260 Coastal-dependent industrial facilities may be permitted if to do otherwise would adversely affect the public welfare.
- The proposed project addresses a critical public need, the San Diego region is facing a water supply crisis:
 - Below normal precipitation and snow packs have reduced available supply.
 - State Water Project operations are in jeopardy.
 - District Court ruling in *NRDC v. Kempthorne*, the “Delta Smelt” case, could severely cut San Diego’s imported water supply.
 - Global warming threatens further supply reductions.
 - The proposed project is needed to protect the public against drought conditions and disruptions to the region’s imported water supply.
 - All levels of government in the State of California recognize the importance of seawater desalination and have confirmed the immediate and pressing water needs cannot be met without seawater desalination. (See page 6).
 - The San Diego County Water Authority’s (SDCWA) commitment to seawater desalination will augment ongoing conservation and water recycling efforts; the SDCWA determined that conservation and recycling measures alone will not ensure reliable supply. (See pages 7 and 32).
 - The proposed desalination facility serves a unique and critically important role in the region’s water supply master plan. It is the only source of potable water that the region can rely on should supply conditions continue to deteriorate.
 - Approval of the project will provide myriad public and environmental benefits in addition to a reliable water supply, including:
 - Maintenance and Preservation of Agua Hedionda Lagoon (see pages 24 and 25);
 - Implementation of the Coastal Habitat Restoration and Enhancement Plan (see page 37);
 - Implementation of the Climate Action Plan (see page 38);
 - Dedication of more than 15 acres of lagoon- and ocean-front land (see page 26);
 - Funding for public infrastructure (see page 40); and
 - Generation of tax revenues and new jobs (see page 40).

Mitigation – Coastal Habitat Restoration and Enhancement Plan

➤ Coastal Act Policy

- § 30260 Coastal-dependent industrial facilities shall mitigate adverse impacts to the maximum extent feasible
- The proposed Coastal Habitat Restoration and Enhancement Plan (CHREP) will fully mitigate unavoidable entrainment & impingement impacts associated with the desalination facility operating independent of the power plant.
- CHREP Benefits:
 - Create 37 acres of new coastal wetlands habitat;
 - Generate coastal habitat comparable to that found in Agua Hedionda Lagoon;
 - Provide sustainable, environmental benefits for water quality and habitat diversity for species abundance for the life of the project; and
 - Comply with the requirements of the Coastal Commission, Regional Water Quality Control Board, National Marine Fisheries Service, US Fish & Wildlife Service, and CA Department of Fish & Game.
- CHREP Proposal
 - The San Dieguito River Park Joint Powers Authority (JPA) proposes to directly expand the number of acres of functional wetland and associated habitat in the San Dieguito Lagoon by supplementing the Coastal Commission approved Wetlands Restoration Project currently underway.
 - The proposed restoration project would create, monitor and maintain 29 acres of wetlands and eight acres of native grassland habitat from what is now entirely disturbed land.

Mitigation – Climate Action Plan

- To fulfill its commitment to eliminate Carlsbad Desalination Facility's net carbon footprint, Poseidon is developing a forward thinking Climate Action Plan that will employ a mix of potential approaches, including:
 - Installing state-of-the-art high-efficiency energy recovery system;
 - Improving the energy efficiency of the proposed Project;
 - Implementing as many of the LEED (Leadership in Energy and Environmental Design) checklist items as feasible;
 - Installing an on-site rooftop solar energy generation system;
 - Purchasing carbon offsets;
 - Acquisition of Renewable Energy Credits (RECs);
 - Restoring and preserving coastal wetlands for carbon sequestration

- A combination of these actions will enable the proposed desalination project to become carbon neutral.

Improving Reliability Without Inducing Growth

- Coastal Act
 - § 30254 New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or permitted uses.
- The availability of water from the proposed project will not effect growth in the coastal zone or the greater San Diego region.
 - The City of Carlsbad is the only project participant that will use desalinated water in the Coastal Zone.
 - The City of Carlsbad's voter approved Growth Management Plan includes specific limitations on new housing development and provides a mechanism to aggressively manage and control growth.
 - Additionally, the desalination facility would not affect planned growth within the greater San Diego region.
 - Two-thirds of the projected growth within the San Diego region is internal
 - The project does not generate water supplies over and above that identified as needed in regional planning documents.
 - The San Diego County Water Authority (SDCWA) maintains an Urban Water Management Plans that identifies and quantifies existing and future water demand and supplies needed to serve projected demand.
 - The SDCWA UWMP specifically identifies a need for 56,000 AFY of seawater desalination by 2011 to satisfy existing demand.

Public Benefits

- The Carlsbad City Council found that “the desalination plant serves an extraordinary public purpose.”
- The proposed project will:
 - Provide public agency participants with a secure drought-proof supply of high-quality water for 30 years with two optional 30-year extensions.
 - Maintain, restore and enhance marine resources, biological productivity and recreational opportunities through continued stewardship of Agua Hedionda Lagoon and the surrounding watershed.
 - Enhance opportunities for public access to Agua Hedionda Lagoon and Carlsbad State Beach through the public dedication of 15 acres of private lagoon and oceanfront property.
 - Maintain, restore and enhance 37 acres of new coastal wetlands habitat within the San Diego region.
 - Reduce its net carbon footprint to zero through implementation of a forward thinking Climate Action Plan.
 - Eliminate the need for importing 56,000 AFY of water into San Diego County.
 - Generate \$2.0 million per year of tax revenue for infrastructure improvements in the coastal zone due to the project’s location within the South Carlsbad Redevelopment Project.
 - Generate up to 2,100 construction jobs (Voluntary Project Labor Agreement with SD Building Trades) and 400 new permanent jobs.

Elected Officials' Support

The Carlsbad Desalination Project enjoys widespread support
From elected officials including:

- US Congressman Brian Bilbray (R) -San Diego
- US Congressman Duncan Hunter (R) – El Cajon
- US Congressman Darrell Issa (R) - Oceanside
- US Congressman Bob Filner (D) – Chula Vista
- US Congresswoman Susan Davis (D) – San Diego
- CA Senator Mark Wyland (R) - Carlsbad
- CA Senator Denise Ducheny (D) – Chula Vista
- CA Senator Dennis Hollingsworth (R) - Temecula
- CA Senator Christine Kehoe (D) – San Diego
- CA Senator Darrell Steinberg (D) - Sacramento
- CA Assemblymember George Plescia (R) – San Diego
- CA Assemblymember Martin Garrick (R) - Carlsbad
- CA Assemblymember Joel Anderson (R) – El Cajon
- CA Assemblymember Shirley Horton (R) – Lemon Grove
- CA Assemblymember Kevin Jeffries (R) - Murrieta
- CA Assemblymember Mary Salas (D) – Chula Vista
- CA Assemblymember Lori Saldana (D) – San Diego

Public Support

The Carlsbad Desalination Project enjoys widespread public support including the following organizations:

- Metropolitan Water District of Southern California
- SD County Water Authority
- City of Carlsbad
- Carlsbad Municipal Water District
- Valley Center Municipal Water District
- Rincon Del Diablo Municipal Water District
- Sweetwater Authority
- Rainbow Municipal Water District
- Vallecitos Water District
- Santa Fe Irrigation District
- City of Oceanside
- Olivenhain Municipal Water District
- SD County Supervisor Bill Horn
- Agua Hedionda Lagoon Foundation
- California Chamber of Commerce
- BIOCUM
- California Coastal Coalition
- Carlsbad Chamber of Commerce
- Carlsbad Flower Fields
- Farm Bureau of SD County
- California Water Sports
- City of National City
- Gemological Institute of America
- Carlsbad Aquafarm
- Grand Pacific Resorts
- Hubbs Seaworld Research Institute
- Industrial Environmental Association
- SD North Economic Development Council
- SD Economic Development Council
- SD County Taxpayer Association
- SD County Building & Construction Trades Council
- Southwestern Regional Council of Carpenters
- SD Regional Chamber of Commerce
- SD Regional Economic Development Council
- Bristol Cove Property Owners Association
- Hospital Association of SD & Imperial Counties
- Oceanside Chamber of Commerce
- SD League of Woman Voters



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

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STEVEN ACETI, J.D.
Executive Director

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This letter has been sent to all Coastal Commission members and staff.

October 17, 2007

California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105

RE: Carlsbad Desalination Project [Coastal Development Permit Application No. E-06-013]

Dear Coastal Commission Members:

The California Coastal Coalition (CalCoast) is a non-profit advocacy group comprised of 35 coastal cities, five counties, the Association of Monterey Bay Area Governments, the San Diego Association of Area Governments and the Southern California Association of Governments; along with business associations and allied groups committed to restoring California's coast through sand replenishment, increasing the flow of natural sediment, wetlands recovery and improved water quality.

CalCoast has sponsored or supported legislation, budget requests and bond measures (Propositions 12, 13, 40, 50 and 84) that have raised billions of dollars in state and federal funding for beaches, wetlands, clean water and parks. In 1999, our organization sponsored the California Public Beach Restoration Act (AB 64-Ducheny), which created the state's first fund for beach restoration projects.

We have given considerable consideration to Poseidon Resources' proposed desalination plant and find that the project includes the necessary design, protections and mitigation for us to conclude it represents an appropriate use of coastal property and public trust resources.

In addition to the obvious benefits of providing an affordable and reliable new source of drinking water, the project has made numerous pledges to protect and enhance the adjacent marine and lagoon environments. The project also includes a dedication of land for increased public access and recreational opportunities and it will generate revenue for the South Carlsbad Coastal Redevelopment plant to be used for enhancement of public infrastructure in the coastal zone.

CalCoast is an advocacy organization comprised of coastal communities and interest groups

The Carlsbad Desalination Project offers many benefits to the citizens of California and the California Coastal Coalition is pleased to give our full support of the desalination project. We urge you to issue a development permit to the project at your November 15th hearing.

Sincerely,



Steven Aceti, J.D.
Executive Director

cc.

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