

CALIFORNIA COASTAL COMMISSION

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May 10, 2011

Mr. Scott Maloni
Poseidon Resources
17011 Beach Blvd., Suite 900
Huntington Beach, CA 92647

RE: Notice of Incomplete Coastal Development Permit (CDP) Application #E-06-007 for proposed Poseidon Resources Huntington Beach Desalination Facility

Dear Mr. Maloni:

Thank you for your request to amend Poseidon's CDP permit application for its proposed Huntington Beach desalination facility. We received the request on April 11, 2011. The proposal is to construct a desalination facility adjacent to the Huntington Beach Generating Station (HBGS), along with associated pipelines, storage facilities, pumps, and other components to provide up to 50 million gallons per day of potable water to nearby cities and water districts.

At this point, the application remains incomplete. Pursuant to the Commission's regulations at Section 13052 and 13053.5, we will need the information identified below to complete your application. We discussed many of these items at our March 3, 2011 meeting, but please let us know if you have any questions about them.

The proposed project includes components requiring a Section 10/404 permit from the Corps of Engineers and may also require other federal authorizations. It will therefore be subject to the Commission's federal consistency review, which will evaluate elements of the project both within and outside the coastal zone. We understand Poseidon has not yet applied for the federal permits, so deadlines related to federal consistency review have not yet been triggered; however, in an effort to facilitate such review once Poseidon has submitted the relevant applications, the information requests herein anticipate the Commission's federal consistency review and are therefore relevant to all components of the project.

INFORMATION NEEDED TO COMPLETE CDP APPLICATION**GENERAL INFORMATION REQUEST**

Poseidon first submitted a partial CDP application in 2006. We previously sent several information requests, most recently in 2009, but Poseidon has not yet provided adequate responses to much of the requested information. Its most recent response, from January 30, 2009, was based largely on a project description and CEQA document that have since been revised. After 2009, Poseidon and the City of Huntington Beach made several substantial changes to the proposed project, which were addressed in part through a 2010 Supplemental

Environmental Impact Report (SEIR) and through issuance by the City of a new CDP (which was appealed to the Coastal Commission). Even with the changes to the originally proposed project, our previous information requests remain relevant, and we are therefore incorporating into this letter information requests from our two most recent letters dated January 21, 2009 and February 28, 2009. Additionally, because the recent request to amend the CDP application relies primarily on the project as described in the 2010 SEIR, we are also incorporating information requests from our June 21, 2010 letter providing comments on the City's Draft SEIR, as many of the analyses in that document were not adequate for our review of the project's consistency with Coastal Act policies. Please note that we have repeated below some of the requests from these previous letters.

If in its response Poseidon chooses to reference information provided previously, please describe how Poseidon considers the previous responses adequate to provide the information necessary for filing the CDP application. Please note that, in many instances, the documents Poseidon has already provided present conclusions that are at odds with other relevant documents or studies prepared independent of the project or are not supported by relevant, site-specific information. The Commission must have sufficient information to evaluate Poseidon's proposal in light of these other documents and studies. Several examples of the type of additional information needed by the Commission are provided in more detail in our requests below. As several of our requests may require some effort to compile the necessary information, we recommend Poseidon consult with Commission staff to discuss how best to provide the necessary information.

ADMINISTRATIVE INFORMATION NEEDED

Other Discretionary Permits/Approvals and Proof of Legal Interest: Please identify local discretionary permits and approvals needed to construct and operate the project. For discretionary permits and approvals needed for components of the project located within the coastal zone, please submit, at minimum, preliminary approvals. For permits and approvals not yet obtained, please state whether Poseidon has submitted the necessary applications and provide the status of the permit reviews. We understand, too, that Poseidon has submitted an application for a revised NPDES permit. Please provide a copy of that application.

Please also provide proof of legal interest in properties within the coastal zone that would be used by the project. We understand that these include, but may not be limited to, properties associated with HBGS, a portion of which was recently sold by AES Corporation to Edison Mission Huntington Beach, LLC, easements controlled by Southern California Edison, and the California Department of Parks and Recreation (DPR) for use of the power plant intake and outfall.¹ Please also provide evidence that Poseidon's property interests obtained through approval of a State Lands Commission lease in October 2010 are adequate to construct and

¹ The Right-of-Entry DPR provided in December 2007 noted that the approval was subject to a number of conditions. Please provide evidence that these conditions are, and will continue to be met, or provide an updated Right-of-Entry permit. Pursuant to the most recent communications we received regarding this issue (March 2009) the Department of Parks and Recreation had not received written confirmation from Poseidon agreeing to the conditions.

operate the proposed project. Please clarify whether that lease will need to be modified to reflect the recent change in ownership referenced above or to reflect recently proposed changes to power plant operations – i.e., the expected shutdown of two of the four HBGS power units within the next few years, followed shortly thereafter by the shutdown of the other two units. Please also provide updated information showing that Poseidon has notified in writing all holders or owners of interest in any of the properties in the coastal zone affected by the project that they have been invited to join as co-applicant for the CDP application, and provide all responses to that invitation (pursuant to Coastal Act Section 30601.5). As you know, Poseidon's January 26, 2009 letter to the Commission provided only part of this required information and there have been several ownership changes since that time.

Please also provide the status of all water purchase agreements in place or being considered for purchase of water from Poseidon's facility. Please include any proposed water transfer agreements and proposed agreements with parties other than the previously identified local water districts. Please describe how these proposed or finalized agreements affect the amount of Poseidon's proposed water production and distribution from the facility.

Additional project components: Please identify whether there are project components not yet described in the CDP application that will be included as part of the proposed project – e.g., additional pipeline replacements or modifications. We understand local water districts are conducting or planning additional studies to determine the effects desalinated water may have on existing potable water quality and on the pipelines and distribution system – e.g., corrosion of pipeline linings, hydraulic modeling to determine pipeline capacities for desalinated water from the facility, conveyance and integration analysis, degradation of chloramine residuals due to higher bromide levels, etc. Please identify the status of these studies and describe whether study conclusions result in the need for more pipeline replacement or modification than described in the CDP application or the SEIR. We understand, too, that some water districts are considering incorporating some planned pipeline repairs into Poseidon's proposed project. Please identify the extent of these projects and whether they will result in additional components of Poseidon's proposed project.

Updated stamped, self-addressed envelopes: We previously received the required envelopes with Poseidon's initial CDP application; however, postage rates have changed, and we expect that many of the interested parties and nearby landowners may also have changed since your 2006 submittal. Please review the current list of interested parties (e.g., those identified through the City's 2010 CEQA review and CDP hearings, new property owners, etc.) to assess how the list of interested parties and nearby landowners may have changed. Before your application can be filed as complete, we will need updated or modified stamped and self-addressed envelopes. You may want wait to provide these to us until you are closer to completing the other information requests included in this letter.

INFORMATION NEEDED REGARDING COASTAL RESOURCES

Effects on Marine Life and Water Quality: The project proposes to use the soon-to-be-retired HBGS once-through cooling system and open-water intake.

- **Intake velocities:** Please describe the expected intake velocities for Poseidon's planned standalone operation of this intake. Please include a precise description of where the velocities are measured – e.g., at the velocity cap, at existing racks or screens, etc. – and include the intake volumes, dimensions, and calculations used to determine these velocities.
- **Marine life studies:** The project SEIR cites a benthic infaunal study done in 1993 and benthic invertebrate monitoring done in 2001. To provide more recent and appropriate data, please provide any more current site-specific studies conducted or reviewed to determine characteristics of the nearby benthos.
- **Effects on marine life – entrainment/impingement:** The SEIR concluded that the adverse effects to marine life resulting from use of this intake would be minimal and identified no feasible mitigation measures to avoid or reduce adverse impacts. For several reasons, however, the Commission staff disagrees with the SEIR's conclusions and we made those reasons known during our review and comment on the SEIR. For example, the SEIR did not adequately incorporate relevant studies conducted pursuant to the California Energy Commission's most recent HBGS review that identified substantial marine life impacts, it did not provide requested "Area of Production Foregone" (APF) calculations for facility impacts, etc. The SEIR also did not address the determination by DPR that entrainment and impingement caused by use of the HBGS intake resulted in significant impacts in the form of degraded foraging habitat for several protected bird species, including the endangered California Least Tern and California brown pelican and the threatened western snowy plover.

Therefore, please provide additional analyses regarding the types and levels of impacts expected from Poseidon's proposed continued long-term use of this intake. Please modify the project's previously completed entrainment study to include APF calculations. As part of those calculations, please identify the source water areas for the entrained species and cite the basis for selecting those areas. Please also identify all sensitive resource areas within the source water areas (which, according to the most recent HBGS entrainment study, can extend up to about 50 miles along the shoreline) – e.g., kelp habitat, rocky reef habitat, all Marine Protected Areas, etc. Please provide the impingement sampling data collected at HBGS subsequent to the 2003-04 sampling data referenced in the SEIR. We understand that more recent data regarding the plant's impingement show rates several times higher than those identified in the SEIR. Please also provide all site-specific analyses Poseidon has conducted to identify feasible mitigation measures to avoid, reduce, or minimize potential impacts to marine life, including any site-specific analyses of screening methods and technologies Poseidon has considered. Please also describe their feasibility and effectiveness in avoiding or reducing the loss of marine life. Poseidon may wish to incorporate the results of other recent studies in California showing the efficacy of such devices.

- **Expected Flows and Discharge Salinity Levels:** Please clarify the facility's expected intake and discharge volumes and provide updated modeling of the expected discharge salinities and mixing characteristics. The SEIR was inconsistent in describing the proposed facility's expected intake and discharge flows and was not clear about the expected discharge salinity

levels and their effects. For example, the SEIR states variously that the proposed facility would take in seawater at a rate of 102 MGD (at pages 3-58 and 4.10-26), 127 MGD (at pages 4.10-51 and 4.10-62), or 88.5 MGD of source water. Its analyses of salinity dispersion (in Appendix K) identified “worst case” low-flow conditions at a discharge of 76.7 MGD and stated that “average” conditions were based on an intake rate of 253.4 MGD. These analyses also assumed a “low probability” (i.e., less than 1%) of a power plant shutdown, yet the current proposed project is based on the plant shutting down entirely.

Please also describe the effects of the California Ocean Plan’s prohibition of flow augmentation for dilution purposes on the proposed project. We recognize that this would substantially reduce the project’s overall flows and may reduce some of its entrainment/impingement impacts, but may greatly modify the expected discharge characteristics and effects. Please also provide modified analyses of the project’s expected discharges as necessary to reflect this loss of dilution water.

Additionally, Poseidon’s proposed facility design would draw water from the discharges of all four HBGS generating units. Please describe how the phased shutdown of the two sets of units (i.e., first Units 3 & 4, then Units 1 & 2) affects Poseidon’s design for its source water intake and the project’s discharges.

- **Discharge contaminants and concentrations:** Please provide all studies Poseidon has conducted to determine how its proposed pre-treatment and treatment systems respond to contaminants expected to be found in the project’s source water, including its response to toxic algae or bacteria (e.g., “red tide”), oil spills, and other harmful substances. We note that the source water includes areas identified by the State Water Quality Control Board as “impaired waters” due to a number of contaminants, including *Enterococcus*, fecal coliform, and total coliform. Please identify the expected concentrations of these and all other contaminants in project discharges, including those derived from Poseidon’s operations and facility components – e.g., metals, cleaning compounds, etc. Please also identify the expected acidity (pH) of the discharge as compared to ambient seawater pH in the vicinity of the discharge, and please identify any feasible mitigation measures that would reduce the difference between the discharge and ambient pH levels.
- **Discharge treatment:** The SEIR states that the facility would generate about 91,000 gallons of used cleaning solution per month, which would be sent to the OCSD regional wastewater treatment facility pursuant to an Industrial Source Control Permit from OCSD. Along with the above-requested discharge approval from OCSD, please provide evidence showing the treatment facility has adequate capacity to treat the proposed discharge.

Wetlands – presence of wetlands at proposed project site: The SEIR states that the power plant site does not include wetland areas. However, based on a Coastal Commission site visit, historic area maps, and review of the Wetland Data Sheets provided with the SEIR, evidence suggests the site includes wetlands. Although Poseidon’s November 12, 2010 letter to the Commission regarding the appeal of the City’s CDP states that the SEIR analysis is consistent with the Commission’s wetland delineation methods, that is not the case, and it appears that the

consulting biologist did not properly use Coastal Commission criteria and guidance in the wetland determination. We recommend that Poseidon schedule a site visit with the Coastal Commission staff ecologist to provide a more up-to-date wetland evaluation. Based on that visit, we may then need additional information to confirm the presence or absence of wetlands within or adjacent to the project's development footprint.

Environmentally sensitive habitat areas (ESHA) – project effects on ESHA and sensitive species: Although several components of the currently proposed project at the HBGS site are slightly farther from areas of ESHA adjacent to HBGS than the previous version of the project, it appears that the project would still result in adverse impacts to ESHA and sensitive species using that ESHA. The SEIR did not adequately evaluate the effects of project-generated noise – both due to construction and due to ongoing operations – on nearby wildlife use. Please update the noise attenuation models to show expected sound levels in nearby ESHA during project construction and operation. Please also identify any proposed mitigation measures – timing restrictions, sound buffers, etc. – that would avoid or reduce sound levels harmful to wildlife.

Geologic hazards and project stability: The proposed facility site is underlain directly by the South Branch Fault, is within about a mile of the Newport-Inglewood Fault Zone, is designated by the City as being within a “Very High” zone of liquefaction potential, and is within a tsunami runup area. Please provide the information below to ensure the project, which is meant to provide a reliable, local water source, minimizes risks to life and property and assures stability and structural integrity.

- **Seismic hazards:** The SEIR identifies the South Branch Fault as a “Category C” fault, which, pursuant to City of Huntington Beach policies, requires special studies and subsurface investigation for projects such as Poseidon's. Please provide results of the required studies, including the maximum ground shaking and acceleration the facility is expected to experience, and design elements that Poseidon will build in to the project to address seismic hazards identified in those studies.
- **Liquefaction:** The proposed facility site and portions of the proposed pipeline routes are subject to “Very High” liquefaction potential. As noted in the SEIR, the project design in these areas is subject to a geotechnical investigation to examine the range of possible liquefaction, subsidence, lateral spread, and other similar potential events. Please identify results of the investigation along with the design and engineering components that will be included as part of the project to avoid and reduce risks associated with these events. Please identify any additional soil removal or compaction that may be needed based on these results and identify additional construction, truck trips, etc., that will be needed to implement the additional soil work. Please also include specific descriptions of measures to be taken in those portions of the pipeline route within public street rights-of-way, parks, and identify any proposed mitigation for impacts greater than those identified in the SEIR – e.g., additional trenching depths or widths, additional lane closures or traffic disruptions, etc.
- **Tsunami runup:** The City has identified the project site as being within a tsunami runup zone. Although the SEIR stated the project was subject to a “very low” tsunami risk, it cited

only a 1985 study that has been superseded by more recent documents that identify a much higher risk. The 1985 study anticipated tsunami heights of up to five feet (for a 100-year event) and 7.5 feet (for a 500-year event), while the 2007 Orange County emergency response plan applicable to Huntington Beach identifies likely tsunami heights up to several times higher – four to nine feet for a 100-year recurrence interval event, seven to 16 feet for a 500-year recurrence interval event, and a “worst-case” tsunami runup height of up to about 33 feet. The desalination facility would be located from nine to 14 feet above sea level. Please incorporate findings from this more recent documentation into the proposed project design and identify measures Poseidon will implement to minimize both primary and secondary risks from tsunamis. The recalculated runup levels should also incorporate increased water levels due to expected sea level rise, high tide levels, and storm surges. We understand that Poseidon is relying in part on berms and sheet piles that partially protect the HBGS site and may alleviate some of the risk – please identify the geotechnical and engineering characteristics of those features and describe the expected resistance of those features to the levels of seismic and tsunami risks identified in the updated studies and documents, including their resistance to expected ground motions and inundation.

Effects on public services: Please describe the proposed project’s effects on local electricity supplies and identify the expected source(s) of electricity.

Energy use & greenhouse gas emissions: Please update Poseidon’s proposed Energy Use and Greenhouse Gas (GHG) Emission Reduction Plan, to include sufficient information for the Commission to evaluate its consistency with the protocols developed by the California Air Resources Board and the California Climate Action Registry.

Poseidon’s proposed emissions reduction plan also includes proposed credits for sequestering carbon dioxide in its product water. Recent information suggests this measure may not provide effective mitigation for the project’s indirect GHG emissions. Please provide a more detailed (and peer-reviewed, if available) analysis of this proposal showing the fate and transport of such sequestration in product water.

Hazardous materials – pipeline route: Part of the proposed product water delivery pipeline route would be adjacent to the Ascon Landfill, which is undergoing site cleanup under the oversight of the Department of Toxic Substances Control (DTSC). Pipeline construction and operation are likely to mobilize contaminants from the landfill and possibly cause cross-contamination between the landfill and the pipeline. Several landfill cleanup documents show that the range of groundwater depths along Poseidon’s proposed pipeline route is within Poseidon’s proposed pipeline trench depth.

The SEIR required Poseidon implement three mitigation measures meant to address potential impacts from this aspect of the project, including coordinating with the Orange County Integrated Waste Management Department and providing methane mitigation measures. Please identify the status of mitigation implementation. DTSC has also requested that Poseidon provide detailed plans for its proposed pipeline placement. Please identify whether Poseidon has provided those plans to DTSC and describe any other coordination efforts conducted or planned

related to these cleanup efforts. Please also identify all measures that Poseidon will implement to prevent contaminant mobilization and potential cross-contamination between its project and the landfill, including expected dewatering amounts, discharge requirements, and specific measures to avoid potential discharge of contaminants due to dewatering.

Hazardous materials – tank removal at facility site: Please identify the status of tank removal at the facility site, including any removal activities completed, underway, or planned by the City or HBGS owners. The SEIR states that the project will be required to conduct remediation and cleanup activities associated with tank removal, but does not identify specific measures to be implemented. Please identify the specific cleanup measures known to be needed for tank removal and related soil and groundwater remediation, along with expected impacts and mitigation that may be needed with those cleanup measures – e.g., number of truck trips and traffic controls, use of pump-and-treat equipment and necessary containment, etc. Please provide the types and concentrations of known and expected contaminants present at the site. Please also provide any more recent sampling results than those cited in the SEIR, which include a 1996 Phase II Site Assessment and a 2000 Phase I Site Assessment. Please note, too, that any site remediation will need to address the presence and possible restoration of wetlands, as noted above.

Growth-inducement: To help clarify the expected growth-related effects of the proposed project and identify potential significant adverse effects on coastal resources resulting from that growth, please clarify where project water would be used and how that expected use correlates to approved growth plans in the use areas. Please also provide all proposed or existing water purchase, transfer, or exchange agreements involving water from the project and describe the effects of such agreements on growth in the region. Please also include any such agreements that would result in a measurable, one-to-one reduction of State Water Project imports to the region.

Project Feasibility and Alternatives Analyses:

- **Feasibility and project costs:** The SEIR's feasibility analyses appear to be based on out-of-date project construction and operating costs. The project is described as having capital costs of about \$300 million; however, current estimates for Poseidon's almost identical desalination facility in Carlsbad are close to \$700 million. Please provide updated project cost estimates, along with the basis for those costs.

Please also provide updated expected construction and operating costs for alternative or modified intake systems identified in the SEIR and the basis of the expected costs, including the effects of site-specific geotechnical information on those costs, and a comparison of operating costs of the different systems. Please identify how those costs affect the feasibility of the different systems. We recommend Poseidon approach this feasibility evaluation differently than it did for its Carlsbad project – for that project, Poseidon asserted that costs to construct one of several alternative intake systems would have made the project infeasible; however, its current expected Carlsbad project costs are greater than those Poseidon considered infeasible several years ago, though Poseidon has not identified that project as

being infeasible.² To help assess the feasibility of the project and its various components, please provide results of any analyses or modeling applied to Poseidon's proposed project to identify acceptable project costs, such as the project economic model developed by the Irvine Ranch Water District or other relevant analyses used), and please include the assumptions used in those analyses and models.

- **Alternatives – subsurface intakes:** The SEIR cites several analyses and modeling exercises conducted to conclude that various types of subsurface intakes near HBGS would be infeasible.³ However, the results do not appear to correlate to nearby site conditions described in other independent studies of subsurface conditions, local and regional hydrology, and geotechnical characteristics. For example, it appears that the SEIR analyses applied data and results from Dana Point subsurface studies to the very different site characteristics near HBGS even though those data and results do not appear applicable to the geotechnical and hydrogeologic characteristics of the much larger scale Talbert Aquifer and Talbert Gap area. For example, the SEIR's concern about subsurface intakes increasing seawater intrusion do not appear to recognize the diminished permeability of the Talbert Aquifer as it nears the coast or the scale of the proposed desalination facility compared to the aquifer. Similarly, the SEIR's concern about intakes causing contamination plumes from the Ascon landfill does not appear to recognize the presence of an aquitard beneath the landfill.

Please provide the site-specific data and information used in the subsurface intake investigations used in the SEIR, including the geotechnical and hydrogeologic modeling approaches and data used and results of the modeling efforts. Please include all information used in the SEIR's Talbert Gap drawdown analysis, including the approximation of the Theis equation used and the assumed aquifer dimensions and characteristics. Please also provide the subsurface geotechnical suitability analysis the SEIR required as a mitigation measure for the HBGS site. Please provide any information from site-specific acoustic surveys, geophysical surveys, or other surveys conducted in support of the various subsurface intake analyses. Based on the information to be provided, we may request some or all of the modeling be re-run using more applicable and site-specific parameters.

As noted above, Poseidon and the SEIR contend that subsurface intakes could mobilize contaminants from the nearby Ascon Landfill; however, it does not provide site-specific evidence in support of that contention, and does not address available documentation

² See, for example, at page 58 of the Commission's Final Adopted Findings for Poseidon's CDP E-06-013: "Regarding economic infeasibility, Poseidon believes that subsurface intake options would be infeasible in part because they would raise the anticipated cost of desalinated water from Poseidon's current estimate of \$950 per acre-foot to about \$1300 per acre-foot." Although Poseidon's expected costs at Carlsbad are now over \$600 million and its expected cost of produced water is more than \$1500 per acre-foot, Poseidon has not identified the project as being infeasible.

³ It appears, too, that Poseidon and the SEIR have generally rejected subsurface intakes overall as being impractical for the proposed 50 MGD facility. We note, however, that the San Diego County Water Authority is conducting site-specific geotechnical studies to determine the feasibility of subsurface intakes for a facility than could be provide up to 150 MGD. The approaches taken for some of those studies may be of use to Poseidon in responding to some of our information requests.

showing that such mobilization would be highly unlikely. Cleanup of the landfill is being conducted with oversight by the Department of Toxic Substances Control (DTSC), and DTSC's monitoring and geotechnical studies identify a confining layer beneath the landfill that impedes the downward movement of landfill wastes. Please provide all project- and site-specific geotechnical data collected to support Poseidon's analysis, including any core samples, geotechnical survey data, or other information that served as the basis of this contention.

Thank you for your attention to these requests. If you have any questions, please contact Tom Luster of my staff at 415-904-5248 or at tluster@coastal.ca.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Alison Dettmer". The signature is fluid and cursive, with the first name "Alison" written in a larger, more prominent script than the last name "Dettmer".

Alison Dettmer

Deputy Director, Energy, Ocean Resources, and Federal Consistency Division