

**Poseidon Resources Corporation's Responses to San Diego Audubon Society Oral
Comments Made at February 11, 2009 San Diego Regional Water Quality Control
Board Hearing**

At the February 11, 2009 hearing before the San Diego Regional Water Quality Control Board, Mr. Peugh provided oral comments on behalf of the San Diego Audubon Society (SDAS). The following provides responses to his comments.

SDAS Comment No. 1 – *“Without a detailed mitigation plan you have absolutely no way of knowing whether the resulting mitigation project can or will satisfy these performance standards, and actually offset the project’s significant environmental impacts.”*

Response to SDAS Comment No. 1 – A detailed restoration plan is a required step prior to construction of the planned wetlands. The MLMP provides for a multi-phase process that begins with an initial approval of the project and then proceeds to the development and consideration of a highly detailed restoration plan. This multi-phase process is modeled after Southern California Edison’s (“SCE”) successful San Dieguito Restoration Project. Before restoring the wetlands in Del Mar’s San Dieguito Lagoon, SCE developed a highly-detailed, 265-page Final Restoration Plan that included the elements specified in SCE’s Coastal Development Permit (“CDP”). Within two years of receipt of its own CDP, Poseidon will submit a similar type of document for review and approval by the Regional Board and Coastal Commission. MLMP, Condition A, § 1.0 “PHASED IMPLEMENTATION.”

In addition, the performance standards of the MLMP are stringent and rigorous, requiring that the restored wetlands support biological populations, including vascular plants and algae, fish, macrobenthic invertebrates, birds, and food chain support that are 95% similar to the same populations at up to four reference wetlands. The performance standards require the distribution of habitats in the restored wetlands and their relative elevation do not vary substantially. This approach was accepted by the California Coastal Commission. The Regional Board and the Coastal Commission are authorized to determine project success or failure, based on the MLMPs rigorous performance standards, and require the remedial measures.

The comment notes that the mitigation plans include some uncertainties. This is not unusual and is well accounted for in the MLMP. Nonetheless, wetlands restoration, including restoration as mitigation and restoration for the sake of restoration, is a high priority among resource managers and local, state, and regional governments. The key to addressing this uncertainty rests in establishing rigorous performance standards that must be satisfied. By imposing such standards, the Coastal Commission has determined there is a high degree of scientific confidence that the required restoration will succeed

SDAS Comment No. 2 – *“You need the specifics. You need the time to analyze it. You need the resources to analyze it, which is a tough time right now with cutbacks.”*

Response to SDAS Comment No. 2 – Please see Response to SDAS Comment No. 1. As discussed, the kinds of specifics and analysis requested in the comment will be provided, with adequate time for agency review.

SDAS Comment No. 3 – *“Richard Ambrose, Professor Richard Ambrose of UCLA has done research and discovered a large percentage of the wetland mitigation projects in our region have not satisfied their performance requirements. Our region's wildlife continues to suffer from their underperformance. It would be nice if wetland restoration was as straightforward as building with Legos, but it's not.”*

Response to SDAS Comment No. 3 – Comment noted.

SDAS Comment No. 4 – *“To be really effective, a wetland project must soon become self-sufficient and self-sustaining. That takes a -- has a lot of things that -- a lot of things have to happen to make that -- that work out.”*

Response to SDAS Comment No. 4 –The performance standards adopted by the Coastal Commission include a requirement that the biological communities of the restored site be 95% similar to up to four reference sites for at least 3 consecutive years. Only a self-sustaining site could meet this stringent standard.

Dr. John Teal, scientist emeritus at the Woods Hole Oceanographic Institution, summarized the steps necessary for successful wetlands restoration plan.¹ Restoration of degraded estuarine marshes has the greatest probability of success when the right lands are selected, the right design is implemented, and the right follow-up is pursued. The selected lands should be former salt marshes with elevations, groundwater and tide relationships appropriate for restoration. Plant propagules and animals should be present in neighboring marshes in order to populate the restored marsh. Sediments with the appropriate organic content should be confirmed. The restoration design should be based on ecological engineering which is an integrated approach to environmental management that assures that restoration takes the most natural path, the path most likely to be stable into the future. The restoration should incorporate adaptive management that provides a framework for identifying and implementing actions necessary to keep the restoration on track.

All of these steps must and will be taken. The Coastal Commission has determined that restoration or creation must take place at one of 11 existing wetlands, thereby providing a high degree of certainty that the area was a former marsh, that the appropriate soils are present, that tidal and groundwater relationships are favorable, and that plant and animal propagules are present. Adaptive management is an important aspect of any restoration or creation and will be incorporated into the mitigation plan.

¹ Wetland Restoration Success, Appendix G Attachment G-2, Public Service Electric and Gas Company Renewal Application, Salem Generating Station, Permit No. NJ0005622, Marsh 4, 1999.

SDAS Comment No. 5 – *“The natural wetlands have had hundreds of thousands of years for these things to work out. But when you're restoring one, it doesn't -- you have to make sure the hydrology is totally appropriate, and that in a time where our climate is changing and our sea level is rising. So there's a lot of uncertainties to shoot for.”*

Response to SDAS Comment No. 5 – The MLMP builds on well-established, scientific methods for developing viable wetlands mitigation. As discussed in the Response to SDAS Comment No. 1, the MLMP requires a wide range of performance standards that must be met to ensure the effectiveness and longevity of the mitigation area.

Regarding the potential for sea level rise, this issue is of primary consideration among wetland scientists and will be addressed in the restoration plan. Coastal Commission scientists are actively involved in analyzing potential sea level rise scenarios.

The hydrology is addressed by the performance standards described in Response to SDAS Comment No. 1.

SDAS Comment No. 6 – *“The inputs and outputs of sediments must be totally appropriate in terms of amplitude, particle size, and seasonal variation.”*

Response to SDAS Comment No. 6 – While the sediment of the restored wetland must be appropriate to support the plants and animals that inhabit these habitats, there is no scientific method for determining *a priori* the degree of detail that Mr. Peugh describes. Many scientists examine sediment characteristics in support of wetland restoration projects. Hydrologists model sediment movement through a wetland system and geologists examine grain size and possible contaminants.

Similar analyses will be conducted in support of the site selected by Poseidon. However, the variation of amplitude and particle size can be modeled only in relation to predicted tides and selected flood events and not predicted to the degree stated. To a large degree, sediment suitability must be measured indirectly through the development of the marsh and algal canopies and benthic invertebrate populations. The MLMP includes performance standards for these components of the restored marsh, as discussed above in Response to SDAS Comment No. 1.

SDAS Comment No. 7 – *“Nutrient flows into, within, and out of the project must be totally appropriate or it won't work.”*

Response to SDAS Comment No. 7 – Implicit in the restoration planning approach is the obligation to produce a healthy functioning wetlands from a nutrient and sediment perspective. Nutrients can feasibly only be measured indirectly through plant canopy development and animal populations. The performance standards referenced in Response to SDAS Comment No. 1 are a proxy for a healthy, functioning wetlands, which necessarily requires appropriate nutrient flows.

SDAS Comment No. 8 – *“The project must be so healthy that it will eventually inherently resist invasion of species. There are a lot of other effects.”*

Response to SDAS Comment No. 8 – The assertion that the restored site must “inherently resist” invasion of such species puts forth a standard that is not feasible, and ignores the adaptive management needed to deal with such species. In short, natural systems have not been shown to have sufficient inherent resistance to prevent the spread of such species, so holding Poseidon to such a quixotic standard is unrealistic. As discussed in the Response to SDAS Comment No. 4, the performance standards ensure the mitigation area will be a self-sustaining system which will facilitate its ability to resist invasive species. However, there are virtually no wetlands in southern California that are not subject to invasive species to some extent. This includes successful, healthy wetlands that may be used as reference sites, such as Tijuana Estuary. It is acknowledged by resource managers that active control of exotic species is required. The MLMP states that exotics shall not impair important functions of the restored site. To the extent that exotic species occur at the restoration site, the appropriate control method will be determined by the Regional Board and the Coastal Commission.

SDAS Comment No. 9 – *“It has -- it has -- as Ed mentioned, it has to have access to larvae and seeds from other sites, so if something happens on this site, that it can be recovered over time.”*

Response to SDAS Comment No. 9 – That restored site must have access to larvae and seeds is correct. The restoration must occur at a one of 11 existing southern California coastal wetlands. The final site will be a part of a larger, functioning wetland and will be connected hydraulically to both the existing wetland and the ocean, by which reproductive propagules, including ichthyoplankton and plant seed, will be dispersed.

The entire wetland is being built to compensate for larvae entrained at Aqua Hedionda. The only way to measure the larvae is to do so indirectly through the establishment of the plants and animals required under the MLMP, as described in Response to SDAS Comment No. 1.

SDAS Comment No. 10 – *“As people love to say, the devil is in the details. It will take a lot of review and analysis of specifics to assess whether this -- whether their specified project has a chance to satisfy its goals. But you won't even see the project until after you make these improvements. You have no way, and your staff has no way of making these assessments to figure out whether the mitigation is feasible.”*

Response to SDAS Comment No. 9 – See Response to SDAS Comment No. 2.