

February 4, 2019

BY EMAIL

Hope A. Smythe
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***Re: Appendix OOOOO – State Water Resources Control Board Resolution No. 2017-012
Compliance Condition and Response to Surfrider Foundation Sea Level Rise Report***

Dear Ms. Smythe:

I am writing to provide the Santa Ana Regional Water Quality Control Board (“Regional Board”) with an analysis of the Huntington Beach Desalination Project’s (“Project”) compliance with the objectives found in the State Water Resources Control Board’s (“State Water Board”) Comprehensive Response to Climate Change Resolution No. 2017-002 (“Resolution No. 2017-012”). I am also writing to provide the Regional Board with a response to the Surfrider Foundation’s January 10, 2019 transmittal of a technical memorandum it commissioned, entitled “*Huntington Beach Desalination Review of Sea Level Rise Hazards,*” prepared by Dr. David Revell.

Poseidon acknowledges that State Water Board Resolution No. 2017-012 encourages individual regional water quality control boards to consider climate change-related issues when making recommendations on permits. It also recognizes that climate change-related effects like sea level rise and coastal erosion can affect the feasibility of some alternative project technologies like beach wells, as discussed later in this letter. However, as concluded by multiple public agencies, including the State Lands Commission and the City of Huntington Beach, the Project would be constructed in a manner that would be responsive to climate change impacts, including potential sea level rise. This letter provides the Regional Board with information that the Regional Board may wish to consider in making its recommendation on Poseidon’s application for an ND PES permit and California Water Code section 13142.5(b) determination for the Project.

State Water Board Resolution No. 2017-012 - Comprehensive Response to Climate Change

In March 2017, the State Water Board adopted Resolution No. 2017-012, entitled “Comprehensive Response to Climate Change.” The resolution’s statements of fact include:

“Climate change is affecting and will affect different regions in different ways. Current and future impacts include increasing frequency of extreme weather events, prolonged fire seasons with larger and more intense fires, increased tree mortality, heat waves, sea-level rise and storm surges. Changes in hydrology include declining snowpack and more frequent and longer droughts, more frequent and more severe flooding, changes in the timing and volume of peak runoff, and consequent impacts on water quality and water availability. Vulnerabilities of water resources include, but are not limited to, changes to water supplies, subsidence, increased amounts of water pollution, erosion, flooding, and related risks to water and wastewater infrastructure and operations, degradation of watersheds, alteration of aquatic ecosystems and loss of habitat, multiple impacts in coastal areas, and ocean acidification.

... In the water sector, the principal source of greenhouse gas is the fossil fuel-based energy used to pump, convey, and treat water, and for end-uses of water ...”

Seawater Desalination is a Climate Resilient Water Supply

Seawater desalination, and specifically the Huntington Beach Project, provide Southern California with a new, climate-resilient water supply consistent with the recommended responses to climate change impacts found in Resolution 2017-012¹. The Project will diversify Orange County’s water supply portfolio and reduce the need for the County to import water from the Colorado River and Sacramento San Joaquin Bay Delta, two environmentally strained resources affected by climate change and drought.

In fact, in 2016, during Governor Brown’s emergency drought declaration, the State Water Board designated Poseidon’s Carlsbad Desalination Project, the state’s first large-scale seawater desalination facility, a “drought-resilient water supply.” This historic regulatory designation provided relief for San Diego from State measures mandating reductions in draws from water supplies affected by climate and drought conditions. seawater desalination is identified as one of the pillars of enhancing regional water supply reliability, the second foundational action in the State’s Water Action Plan².

¹ “State Water Board staff shall coordinate with the Regional Water Boards and relevant agencies to identify and recommend actions the Water Boards could take for effective permitting of projects to develop new and underutilized water resources, expand surface water and groundwater storage where appropriate, and add operational flexibility to build and enhance resilience to impacts of climate change.” (Resolution 2017-012, p. 6.)

² “The California Water Action Plan is a suite of actions developed to build resiliency into California water management and the ecosystems it supports. The Water Action Plan directives include conservation, integrated management, ecosystem protection, drought planning, expanded water storage, recycled water use, and sustainable and integrated financing. The Water Action Plan also emphasizes diversified regional supply portfolios which provide resiliency to drought, flood, population growth, and

The Huntington Beach Project is Carbon Neutral

The reverse osmosis seawater desalination process does not result in direct emissions of greenhouse gases. Therefore, the Project will not directly contribute significant amounts of air emissions that may exacerbate global warming. Nevertheless, we recognize that, as with nearly all water conveyance, treatment, and distribution facilities, the Project will use electrical energy, the generation of which will result in some level of indirect emissions. To lessen emissions that could contribute to global warming to the maximum extent possible, Poseidon will implement industry-leading measures to ensure that the Project's indirect impacts are completely offset.

Poseidon's commitment to "zeroing out" the Project's indirect greenhouse gas emissions dates back nearly a decade. The City of Huntington Beach's 2010 Final Subsequent Environmental Impact Report includes as a Project Design Feature an Energy Minimization & Greenhouse Gas Reduction Plan ("GHG Plan"). Implementation of the Project's GHG Plan is also a condition of the State Lands Commission's 2017 Lease Amendment and requires Poseidon to "*minimize greenhouse gas generating energy consumption and offset or avoid 100 percent of the direct and indirect greenhouse gas emissions from construction and operation of the Huntington Beach Desalination Plant and Lease Modification Project.*" The 2017 Lease Amendment further requires Poseidon to pursue all feasible and commercially reasonable measures available to minimize energy consumption by: optimizing facility design and operations; implementing a demand management program; maximizing the use of renewable energy through a renewable energy power purchase agreement, if feasible; and continuing to research and implement energy saving technology changes within the facility.

Finally, with the implementation of regulatory measures, including recently-enacted Senate Bill 100 (which commits the state to 100 percent clean electricity by 2045) and Executive Order B-55-18 (setting a goal of zero net carbon in California's economy by 2045), we anticipate that indirect emissions associated with energy generation will continue to decrease over the life of the Project. It should also be noted that the California Air Resources Control Board has concluded that, consistent with California's historic leadership in emissions reductions and energy innovation, emissions reduction measures will assist the State in meeting its statutory reduction requirements. California's 2017 Climate Change Scoping Plan identifies securing California's water supply as an important driver of climate change policy and that innovative technologies, including desalination, are integral to the State's response to climate change.

Proposed NPDES Climate Change Action Plan Permit Condition

Consistent with the spirit and intent of State Water Board Resolution 2017-012, Poseidon proposes to the Regional Board staff that the Project's NPDES Permit include a condition requiring compliance with the Project's GHG Plan and the related conditions of the State Lands Commission's 2017 Lease Amendment.

climate change, and multiple-benefits projects, which are integral to climate mitigation and adaptation." (Resolution 2017-12, p. 3.)

Furthermore, Poseidon proposes that the NPDES permit include a condition that the Discharger (i.e., Poseidon) submit a Climate Change Action Plan (“CCAP”) within three years of the effective date of the permit. The CCAP shall identify the following:

- i. Projected regional impacts on the Facility and operations due to climate change if current trends continue.
- ii. Steps being taken or planned to address:
 - (a) Greenhouse gas emissions, directly and indirectly, attributable to the Facility operations and effluent discharge process;
 - (b) Flooding and sea level rise risks that may affect the operations including discharges at the Facility;
 - (c) Volatile rain period impacts (both dry and wet weather);
 - (d) Impacts on process design parameters due to changes caused by climate change; and
 - (e) Impacts on the Facility’s operations and effluent water quality.
- iii. Potential need to adjust the conditions of the permit;
- iv. Financing needed to pay for planned actions;
- v. Conformity with plans and requirements by other agencies, including but not limited to the California Air Resources Board, the Air Pollution Control District, State Lands Commission and the California Coastal Commission.
- vi. Schedules to update the CCAP as more information on climate change and its effects become available.

While the CCAP is not required to mitigate any of the Project’s environmental impacts under the California Environmental Quality Act, Poseidon proposes to implement the CCAP as a voluntary, applicant-proposed condition to further demonstrate Poseidon’s commitment to reducing or offsetting the Project’s indirect greenhouse gas emissions.

Site Hazards – Huntington Beach Project Is Not A “Critical Facility”

The January 10, 2019 Surfrider letter states: *“The proposed site will be a critical water supply facility and thus the state of California’s extreme sea level rise scenario, known as the H++ scenario, must be considered.”* This statement is incorrect. The Project is not a “critical facility” for purposes of hazard planning and an evaluation of the H++ sea level rise scenario (a scenario with no assigned probability of occurrence) is not required.

While the Project is needed to provide a reliable, drought-proof water supply for Orange County, the Project is distinguishable from the types of non-adaptable infrastructure that is recommended to be analyzed as “critical infrastructure” under sea level rise planning guidance. The California Coastal Commission’s 2018 Sea Level Rise Policy Guidance (“2018 Coastal Commission Guidance”) defines “critical infrastructure” to include “wastewater treatment plants, transportation infrastructure, and some power plants and energy transmission infrastructure,” with the following additional guidance:

“Critical infrastructure can vary widely from community to community, and may also include fire stations, police stations, and

hospitals. For planning purposes, a jurisdiction should determine criticality based on the relative importance of its various assets for the delivery of vital services, the protection of special populations, and other important functions, as well as the social, environmental, and economic risks associated with loss of or damage to such assets.”

(2018 California Coastal Commission Guidance (“2018 CCC Guidance”), p. 82.) Here, the Project has not been designated a “critical facility” or “critical infrastructure” in any local coastal planning documents. Further, while the Project will serve important water reliability needs, as discussed below, the Project has been designed in a manner that would withstand projected sea level rise, and therefore the Project would not cause or be significantly affected by social, environmental, and economic risks associated with sea level rise.

Dr. Revell’s technical memorandum repeats the incorrect assertion that the Project is a “critical facility” in numerous places, most notably on page two: *“The proposed facility includes a product storage water tank that will be designated as a critical water supply facility for the community.”* Dr. Revell’s only source of evidence for this statement is a November 2013 California Coastal Commission staff report that erroneously stated that Project’s storage tank will be “turned over” to the City for use as a reservoir in the City’s water system and thus the tank constitutes a “critical facility.” Coastal Commission staff’s designation of the storage tank as “critical” was based on the fact that the City of Huntington Beach had designated its other reservoirs as critical facilities in its 2012 Hazard Mitigation Plan. This rationale misses the point by ignoring that the City of Huntington Beach’s Hazard Mitigation Plan expressly states that “critical facilities” are limited to “City-owned properties.” (2017 City of Huntington Beach Hazard Mitigation Plan at p. 79.) As documented in numerous places, including the Coastal Commission’s administrative record and Orange County Water District’s Water Purchase Agreement Term Sheet with Poseidon, Poseidon will not “turn over” the storage tank to the City; rather, the tank will remain a component of the Project and will be owned and operated by Poseidon to store potable water prior to release to the product water transmission pipelines.

Regardless of Coastal Commission staff’s misunderstanding of the ownership and operations of the Project and its product water tank, the Project is not identified in City of Huntington Beach’s current Hazard Mitigation Plan or the hazard mitigation plan of the County of Orange, or by the Orange County Water District (“OCWD”).

No Scientific Rationale for Applying the H++ Sea Level Rise Scenario

The California Ocean Protection Council’s 2018 Sea Level Rise Guidance Document (“OPC 2018”) is widely acknowledged as the best available science on sea level rise. The report states: *“This updated document, the “State of California Sea-Level Rise Guidance” (Guidance), provides a bold, science-based methodology for state and local governments to analyze and assess the risks associated with sea-level rise, and to incorporate sea-level rise into their planning, permitting, and investment decisions.”*

OPC 2018 graduated from the previous scenario-based sea level rise planning approach to a more advanced approach of using probabilities of risk. As such, OPC 2018 incorporates

probabilistic sea-level rise projections along the coast of California, which associate a likelihood of occurrence (or probability) with sea-level rise heights and rates and are directly tied to a range of emissions scenarios. For example, OPC 2018 states “...*the scientific community has made significant progress in producing probabilistic projections of future sea level rise, and the team of scientists advising the OPC Protection Council (OPC) on this Guidance strongly recommended that decision-makers use probabilistic projections to understand and address potential sea-level rise impacts and consequences.*” (OPC 2018, p. 4 (emphasis added).)

OPC 2018 concludes that there is a 0.5 % probability (1 in 200 chance) of sea level rise meeting or exceeding 3.3 feet in the vicinity of the Project site in the year 2070 (see table 28 on page 72). This is the “Medium-High Risk Aversion” probabilistic scenario in OPC 2018. It represents a very conservative scenario as it combines projected sea level rise under the high emissions scenario within the last year of the anticipated 50-year design life of the Project. This Project design scenario is the scientifically defensible, worst-case probabilistic sea level rise scenario that should be applied to the Project’s hazard analysis.

In addition to the probabilistic sea level rise projections in OPC 2018, the report incorporates an H++ scenario to address the fact that the probabilistic projections may underestimate the levels of sea-level rise that could occur in the second half of the century if certain factors (e.g., high continued emissions, loss of the West Antarctic ice sheet) were to occur. For example, OPC 2018 states:

“For the purposes of use in policy guidance, the authors of the Rising Seas Report chose to include the H++ projections as a stand-alone scenario rather than incorporating ice sheet dynamics associated with this extreme into the model ensemble used to generate probabilistic projections. Because of the high level of uncertainty associated with physical processes that would trigger the H++ scenario and the emerging nature of the science, the authors felt the stand-alone scenario application was more appropriate for planning and permitting decisions at this time.” (OPC 2018, p. 16.)

H++ is a second half of the century, non-linear scenario, meaning it does not follow past or worst-case projected future sea level rise. The scenario is based on unknown rates of loss of Antarctic ice sheets and, as such, OPC 2018’s scientists assigned no probability of occurrence. Simply put, the H++ scenario is highly speculative. For instance, the H++ scenario’s projected sea level rise during the life of the Project at the Project Site demonstrates the extreme nature of the H++ scenario. Under the H++ scenario, the year 2070 sea level rise in the vicinity of the Project site is projected to be 5 feet. Using historical data as a baseline, this level of sea level rise (for the 2070 time period), would require an average rate of sea-level rise over the next 50 years that would be 42 times greater than has taken place over the past century.

The 2018 CCC Guidance confirms that the Medium-High risk aversion scenario, rather than the H++ scenario, is appropriate for analyzing potential sea level rise impacts in relation to the Project. The 2018 CCC Guidance states that the H++ scenario should be used for “projects with little to no adaptive capacity that would be irreversibly destroyed or significantly costly to

repair, and/or would have considerable public health, public safety, or environmental impacts should that level of sea level rise occur.” (2018 CCC Guidance, p. 49.) Unlike those types of projects, this Project has been designed to withstand anticipated sea level rise and Moffat & Nichol’s 2017 site hazard report outlines plans to adapt to address second half of the century sea level rise scenarios if they materialize. Nevertheless, while Poseidon believes there is no scientific rationale for designing the Project to address the H++ scenario, Poseidon has evaluated impacts from the H++ scenario, as described below, and the results indicate only temporary and minor nuisance flooding of the site would occur over the Project design life if the H++ scenario ever materialize.

Sea Level Rise Does Not Affect the Project Site’s Feasibility

In concert with its Coastal Development Permit application, Poseidon has updated the Project’s Sea Level Rise Hazard analysis to include an adaptive management plan and site hazard mitigation plan. As described below, the Project’s updated Sea Level Rise Hazard analysis incorporates a range of worst-case sea level rise projections, including the H++ scenario, despite the fact that the H++ scenario has an extremely low probability of occurrence.

Surfrider Foundation’s January 10, 2019 cover letter to the Regional Board asserts: *“The proposed location may not be feasible for the life of the project, given the projected threats of sea level rise.”* Surfrider requests that Dr. Revell’s report be taken into consideration as a component of the alternative sites analysis for the Project.

Surfrider’s logic is fundamentally flawed. First, it assumes that, under a worst-case, H++ scenario, the Project would be impacted by sea level rise. Poseidon’s Sea Level Rise Hazard analysis proves that no such impacts would occur. Thus, the proposed location is “feasible” for the life of the Project. Second, in the context of the Regional Board’s statutory authority to implement California Water Code 13142.5(b), the Ocean Plan Amendment defines feasible as capable of being accomplished in a successful manner in a reasonable period of time taking into account technical, environmental, social and economic factors. As described in detail below, an analysis of the extreme, worst-case sea level rise-related flooding hazards at the proposed site do not prevent Poseidon from accomplishing the Project in a “successful manner in a reasonable period of time.” Finally, an assessment of sea level rise along the coast of Orange County suggests the proposed site may not just be the best available and feasible site, but also the site best equipped to withstand climate change-induced flooding that could occur in the second half of the century. Given that seawater desalination is a coastal dependent use, the Project is sited in a very favorable location with a high adaptive capacity to accommodate sea level rise.

Furthermore, the development of the Project site falls under the land use authority of the Coastal Commission. Through the implementation of Poseidon’s proposed design features, mitigation measures, and other development requirements, the Project would be consistent with applicable provisions, goals and policies of the Huntington Beach Local Coastal Program (“LCP”) related to coastal hazards such as sea level rise, flooding, and tsunamis that require development to minimize structural instability and loss of life.

Understanding the need for the Regional Board to protect coastal infrastructure, wetlands, and other near-shore ecosystems by considering projections of sea level rise, Poseidon evaluated

potential sea level rise hazards over the design life of the Project and beyond. The Sea Level Rise Hazards analysis utilized best available science and relied upon prior site-specific studies prepared for the Project site. Moffat & Nichol evaluated impacts to the Project site from 1.6 feet, 3.3 feet, 5 feet and 6.6 feet of sea level rise and concluded that the Project site is not anticipated to be exposed to flooding or inundation from extreme tides (i.e., king tides), coastal storms, and/or fluvial storms during its 50-year design life. This conclusion is based, in part, on OPC 2018, which estimated that there is only a 0.5% chance that sea level rise will exceed 3.3 feet before 2070. In other words, if during the last year of the Project design life (~2070), an extreme 100-year storm event occurs in combination with this very unlikely amount of sea level rise (0.5% probability), the impacts to the proposed site would be insignificant. This finding is consistent with the results presented in the technical memorandum by Dr. Revell.

The Project's sea level rise analysis concludes that a 3.3-foot sea level rise in combination with a range of extreme storm events would not result in any flooding of the primary Project facilities, which will have finished grade elevations of +14 to +16 feet NAVD88. Facilities that contain sensitive processing equipment and materials will be constructed at elevations of +14 feet NAVD88 and higher. The product water tank will be at approximately +10 feet NAVD88 and exposure to temporary shallow flooding is not a concern. The post-treatment section of the facility will have an elevation of +14 feet NAVD88. Thus, a 3.3-foot increase in sea level rise would not expose the Project site to potential hazards when combined with king tides, 100-year coastal storms, or 100-year fluvial storms.

Going even further, Moffat & Nichol analyzed impacts beyond the 50-year design life of the project, evaluating potential hazard impacts associated with a 5.0-foot sea level rise (H++ scenario). Our analysis found that even with an assumed 5.0-foot increase, impacts to the Project from sea level rise coupled with king tides, coastal storms, and fluvial storms would be minimal. 100-year storm flooding plus a 5.0-foot increase in sea level would not result in significant flooding at the Project site. Likewise, a 100-year fluvial storm event, plus a 5.0-foot increase in sea level, would only result in temporary and shallow flooding around the perimeter of the site.

The potential impacts associated with either a 3.3-foot or 5.0-foot increase in sea level are largely mitigated by the fact that the proposed Project facilities that contain sensitive processing equipment and materials will have a finished floor elevations of +14 to +16 feet NAVD88. Also, the Project's approximately 2,000-foot setback from the active shoreline area, as well as the significant setback from Magnolia Marsh, substantially limit the impact of future impact of future tidal fluctuations on the Project. The topography of the Project site and its distance from the active shoreline offer both vertical and horizontal setbacks from hazards such as extreme tides, coastal storms, and fluvial storms.

Poseidon's environmental and technical experts have also conducted extensive alternative site and seawater intake technology analyses as part of its application, and we believe that the report by Dr. Revell corroborates findings that hazards related to sea level rise are significantly lower at our proposed site than at other locations where there were much shallower beaches. Furthermore, Dr. Revell's report corroborates Poseidon's site-specific findings that, if constructed, slant wells would need to be located on Huntington State Beach and that this

alternative intake technology is infeasible because the well heads and accompanying pump station and supporting infrastructure would be vulnerable to storm erosion and coastal wave run-up and permanently inundated as a result of projected future sea level rise³. Thus, beach wells would actually be subject to more risk from sea level rise and coastal hazards than the proposed Project.

Dr. Revell makes several findings and conclusions that are consistent with previous Moffat & Nichol hazard evaluations for the Project, including:

- The proposed site has relatively low risk to most coastal hazards and the risk of onsite coastal hazards until the year 2070 would be relatively low.
- The proposed grading to 14 feet will protect the facility from most hazards and sea level rise.
- Coastal erosion does not seem to be a vulnerability of the proposed site and it is unlikely that even with the H++ estimate of 9.9 feet at 2100, that coastal erosion would impact the proposed facility.
- FEMA identifies the site as being in “Zone X”, which is a designation for an area that is protected by certified flood control structures from a 100-year storm.
- Hard stabilization techniques, or “coastal armoring” such as revetments or seawalls to defend from erosion are unlikely to be needed to protect this site.

Dr. Revell’s report, submitted by Surfrider Foundation, also raises other contentions concerning tsunamis, 500-year floods, and barrier beach flooding. First, Dr. Revell contends that, under existing topography and hazards, the proposed facility location is subject to tsunamis and a 500-year fluvial flood event. Second, Dr. Revell asserts that existing access to the site may also be impacted by coastal confluence and barrier beach flooding. Poseidon has reviewed these claims and has specific responses as follows:

Tsunamis

Dr. Revell’s report notes: “*Analysis of historical tsunami events indicates the region has experienced wave heights on the order of 2 to 3 feet from the magnitude 9.5 earthquake in Chile in 1960 and the magnitude 9.2 earthquake in Alaska in 1964 (Michael Baker International, 2014).*” However, instead of relying on this historical information, Dr. Revell’s report relies upon Coastal Commission staff’s misguided use of the extreme worst-case tsunami run-up elevation of 11 feet above MSL. This run-up projection does not have any relationship to historical run-up analyses or well-accepted methodologies.

The tsunami inundation map the Coastal Commission staff cited in its 2013, and Dr. Revell cites in his report, were not developed for land-use planning or other regulatory purposes but were intended to assist in identifying the hazard for coastal evacuation planning uses only. Thus, the maps include no information about the probability of any tsunami affecting any area within a specific period. Using the hypothetical results from a tsunami model is not defensible

³ *Huntington Beach Desalination Review of Sea Level Rise Hazards*. Dr. Revell Page 19.

when there are other records of tsunamis from the major source areas. Assessing the potential impact of a tsunami of ten or eleven feet in height at Huntington Beach is not appropriate, verified or supported. Based on 200 years of tsunami observations, four feet is an appropriate and conservative tsunami height to use for the Project site.

Federal Emergency Management Agency (FEMA) 500-year fluvial flood event

Federal Emergency Management Agency (FEMA) identifies the Project site as being in “Zone X”, which is a designation for an area that is protected by certified flood control structures from a 100-year storm. FEMA maps do not quantify, model or map the 500-year flood event. Therefore, the “Zone X” designation refers to areas protected by levees from the 100-year flood and does not mean the areas are inside the 500-year floodplain.

Local authorities have built, operate, and maintain local flood control infrastructure and regional flood control infrastructure (i.e., Santa Ana River levees) that protect the community of Huntington Beach, including the Project site. While many existing levees and channels are designed for the 100-year event, they are designed to include freeboard of several feet above the base flood projections to provide protection against larger, unanticipated events. Exhibit 4 to Dr. Revell’s report, which is identified as a “Preliminary FEMA FIRM map,” acknowledges the beneficial effects of the existing levees and channels and shows the proposed Project site as designated by FEMA as an “Area with Reduced Flood Risk due to Levee, *Zone ‘X’*”. Furthermore, the Flood Insurance Studies published by FEMA (2009 and 2019) and cited by Dr. Revell do not provide a 500-year flow rate for the Huntington Beach Channel, Talbert Channel or Santa Ana River.

Poseidon is aware the facility is located in “Zone X” and, as such, the Project will be designed for the 100-year flood event in addition to the “Medium-High Risk Aversion” sea level rise projections in OPC 2018 over the Project’s design life. However, there is no justification for designing the facility for a 500-year fluvial event. Moffat & Nichol has opined that there is considerable uncertainty in quantifying parameters that would constitute a 500-year event given that the record of measured data (e.g. streamflow, rainfall, etc.) rarely goes back more than 50 years. Even if it were possible to determine this event with any degree of certainty, it is not practical or feasible to design the Project for such an unlikely event. The Project’s expert consulting team has devoted substantial effort in understanding existing and future hazards at the site and has determined the selected design criteria and Project design features will sufficiently mitigate risks to the facility.

Barrier beach flooding

Surfrider’s report notes that the Project site is reliant upon maintenance of the existing flood control channels and that continued management to maintain an open flood control channel across Huntington State Beach will be required to avoid barrier beach flooding. Surfrider further alleges that without maintenance, there could be barrier beach flooding that could back up watershed flows and fill the channel. While we disagree with the assumptions in the Surfrider report regarding closed barrier beach flooding, Poseidon recognizes that inlet management is

important and is aware that Orange County Public Works currently conducts management of the inlet to the Huntington Beach wetlands to maintain tidal fluctuation within the wetlands and capacity within the flood control system. Moffat & Nichol also has reported that wetland inlet stability has improved since restoration efforts were completed in 2010, and there is no indication that the County will not continue this effort into the future.

Nevertheless, this issue, related to all flood control facilities in the area, is worthy of continued monitoring, as demonstrated in the City of Huntington Beach's Coastal Resiliency Program's Summary of 2050 Vulnerabilities to Stormwater Infrastructure which recognizes that: *"Rising sea levels will increase the downstream controlling water surface elevation of flood control channels and storm drain systems that discharge into tidally-influenced waterways. This will reduce flood conveyance capacity and could result in drainage backing up and flooding upland areas that feed into the storm drain system."* The City has included specific general plan strategies to address this issue, including coordinating with the County to improve flood control facilities. Therefore, we have every reason to believe that the City and other agencies involved in the maintenance of flood control facilities will continue to maintain those facilities over the anticipated life of the Project.

I hope this information and proposed permit conditions is useful to the Regional Board staff. We look forward to working with you to perfect the amendment and renewal of the Project's NPDES Permit and updated CWC section 13142.5(b) compliance determination.

Sincerely,

A handwritten signature in black ink that reads "Scott Maloni". The signature is written in a cursive style with a large initial "S" and a long, sweeping underline.

Scott Maloni
Vice President
Poseidon Resources (Surfside) LLC