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Subject: Draft Carlsbad Desalination Plant Intake Modifications Alternative 21 Term Sheet dated March 20, 2018
Date: Monday, April 9, 2018 4:02:09 PM
Attachments: [2018-03-20 Alternative 21 Term Sheet SDCWA - Poseidon .pdf](#)

Peter and Bob,

The San Diego Water Board has considered the terms and conditions of the attached *Draft Carlsbad Desalination Plant Intake Modifications Alternative 21 Term Sheet* dated March 20, 2018 proposed jointly by San Diego County Water Authority (SDCWA) and Poseidon at our recent meeting on March 20, 2018. While the San Diego Water Board appreciates SDCWA/Poseidon's decision to support moving forward with Alternative 21 for the permanent intake modification, as discussed below, the Board has significant concerns with a key aspect of the conditions regarding Alternative 15 that Poseidon/SDCWA have tied to that decision. The responses below are a preliminary indication of how San Diego Water Board staff will address the conditions in the administrative draft NPDES Permit for the Carlsbad Desalination Plant (CDP).

1. *Extension of current and interim intake and discharge operations (i.e., Phases 1 and 2) until the permanent configuration is constructed and operational.*

Response: The Water Code section 13142.5(b) determination can provide up to five years for interim intake and discharge operations during stand-alone operations to continue until the permanent intake configuration is constructed and operational. The compliance timeline would be established pursuant to a compliance schedule as allowed under section III.M.2.a.(5)(b) of the Ocean Plan. The 5-year compliance timeline is not automatic. Poseidon must propose a specific compliance schedule of up to five years and demonstrate the need for the proposed timeline. The compliance schedule would be subject to San Diego Water Board member approval in considering adoption of the NPDES Permit. The San Diego Water Board is considering whether measures, such as a fish return system, are needed to offset impacts to marine life during interim intake operations until the permanent intake modifications are complete.

2. *The Regional Board agrees to move forward with the existing discharge configuration with no further consideration of a brine diffuser.*

Response: The San Diego Water Board can conclude in a Water Code section 13142.5(b) determination that a brine diffuser is infeasible at this time pending the results of the Brine Discharge Technology Empirical Study. Such a conclusion would be made contingent on Poseidon effectively demonstrating in the Empirical Study, to the satisfaction of the San Diego Water Board in consultation with the State Water Board, that the existing discharge configuration is at least as protective (i.e., provides a comparable level of intake and mortality all forms of marine life) as discharging through multiport diffusers. Section III.M.2.d(2)(c)v of the Ocean Plan requires that if the Empirical Study shows that the alternative brine discharge technology results in more intake and mortality of marine life than using wastewater dilution or multiport diffusers, then Poseidon must either (1) cease using the alternative brine discharge

technology and install and use wastewater dilution or multiport diffusers to discharge brine waste, or (2) redesign the alternative brine discharge technology system to minimize intake and mortality of all forms of marine life to a level that is comparable with wastewater dilution if wastewater is available, or multiport diffusers if wastewater is unavailable.

3. *The mitigation required for Alternative 21 is the same as the mitigation previously calculated for Alternative 1 and Alternative 15, less the mitigation required to offset the fish return impacts that are avoided through the implementation of Alternative 21.*

Response: The San Diego Water Board has not yet determined the acreage of mitigation required to offset impacts from the construction and operation of Alternative 21. The preliminary analysis indicates Alternative 21 is likely to require less mitigation acreage than Alternative 1 or Alternative 15. The San Diego Water Board may need additional information from Poseidon to complete the evaluation.

4. *If the demonstration program shows that the lagoon-based intake screens (i.e., Alternative 21) do not perform in accordance with agreed upon criteria, the Regional Board shall authorize the construction and operation of Alternative 15.*

Response: This condition proposes that as part of the San Diego Water Board's Water Code section 13142.5(b) determination, the Board designate, or pre-determine, Alternative 15 as a default alternative that represents best available site, design, technology, and mitigation measures feasible dependent on the outcome of a future feasibility study of the Alternative 21 intake screen configuration proposed to be completed two years following adoption of the NPDES Permit.

The San Diego Water Board's role in making the Water Code section 13142.5(b) determination is to evaluate a range of feasible alternatives for the best available site, design, technology, and mitigation measures to minimize intake and mortality of all forms of marine life and then to determine the best combination of feasible alternatives to minimize intake and mortality of all forms of marine life. (Ocean Plan section III.M.2.a(2).)

After preliminary but not exhaustive evaluation, the San Diego Water Board does not believe the condition is supported by Water Code section 13142.5(b) or the relevant Ocean Plan language and staff do not intend to include it in the administrative draft of the NPDES Permit. Even if the Board were to conclude that pre-determination of a default alternative is somehow consistent with its regulatory obligations, it is not clear that Alternative 15 would represent the next best combination of alternatives in terms of marine life protection.

Pursuant to section III.M.2.a(5) of the Ocean Plan, the Water Code section 13142.5(b) determination may, at the San Diego Water Board's discretion, be conditioned based on the expectation of the occurrence of a future event. Such future events may include, but are not limited to, the permanent shutdown of a co-located power plant with intake structures shared with the desalination facility or a reduction in the volume of wastewater available for the dilution of brine. The Ocean Plan provides examples of a future event that may trigger the need

for a new Water Code section 13142.5(b) determination where the original determination is expressly conditioned on a future event. The San Diego Water Board is evaluating whether the Ocean Plan language would support a permit provision to expressly allow a new Water Code section 13142.5(b) determination on the future outcome of an Alternative 21 demonstration study. The Board is also evaluating whether a potential future facility design or operation change based upon the outcome of a demonstration study would support a limited new Water Code section 13142.5(b) determination as an expanded facility.

The final decision on all of these matters will be determined by San Diego Water Board members during the NPDES Permit reissuance proceedings. We look forward to discussing these issues further at our meeting scheduled for 2:00 pm on Tuesday, April 10, 2018.

Regards,

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**Carlsbad Desalination Plant Intake Modifications
Alternative 21 Term Sheet
For Discussion between the Water Authority and Poseidon Water and the San
Diego Regional Water Quality Control Board
March 20, 2018**

San Diego Water Board staff have indicated their intent to recommend Alternative 21 as a preferred alternative for the Intake Modification for the Lewis Carlsbad Desalination Facility. The Water Authority and Poseidon agree that Alternative 21 is promising and could be an acceptable choice, but we currently do not have sufficient information to confirm that the project's reliability needs can be sustained without incurring excessive maintenance cost.

Water Authority/Poseidon agree to cooperatively support moving forward with Alternative 21 as the permanent Intake Modification subject to the following conditions:

- In order to keep the plant in operation, the Regional Board Order would include a phased compliance approach
 - **Phase 1** - continue current operations using existing NRG pumps until interim facilities constructed
 - **Phase 2** - operate using new interim facilities (new flow augmentation pumps) until new permanent facilities are constructed.
 - **Phase 3** – New permanent intake meeting all Ocean Plan requirements.
- The compliance schedule in the Order would provide up to two years to conduct a pilot-scale demonstration of the Alternative 21 intake screen configuration to confirm the operational feasibility of the proposed intake configuration in a seawater lagoon environment.

As part of the conditions in the compliance schedule, all parties (Regional Board, Poseidon, and Water Authority) will agree upon specific, objective pass/fail criteria for determining feasibility including the following:

- Economic feasibility based on the lifecycle cost of the project.
 - Environmental feasibility based on protection of beneficial uses and the overall environmental impacts.
 - Social factors, based on the ability to ensure a reliable and continuous supply of safe drinking water to support the region's quality of life and protect public health.
 - Technical factors, based on the reliable and sustainable operation of the intake to support the long-term operation of the desalination facility.
- The Regional Board's Order shall include the following conditions, in line with the 3-phase approach discussed above:

- o Extension of current and interim intake and discharge operations (i.e., Phases 1 and 2) until the permanent configuration is constructed and operational.
- o The Regional Board agrees to move forward with the existing discharge configuration with no further consideration of a brine diffuser.
- o The mitigation required for Alternative 21 is the same as the mitigation previously calculated for Alternative 1 and Alternative 15, less the mitigation required to offset the fish return impacts that are avoided through the implementation of Alternative 21.
- o If the demonstration program shows that the lagoon based intake screens (i.e., Alternative 21) do not perform in accordance with agreed upon criteria, the Regional Board shall authorize the construction and operation of Alternative 15.