

Neill, Ben@Waterboards

From: Peter MacLaggan <pmaclaggan@poseidonwater.com>
Sent: Friday, June 24, 2016 5:10 PM
To: Outwin-Beals, Brandi@Waterboards
Cc: Barker, David@Waterboards; Neill, Ben@Waterboards; Waggoner, Claire@Waterboards; Tenggardjaja, Kimberly@Waterboards; Isorena, Philip@Waterboards; Jauregui, Renan@Waterboards
Subject: RE: Carlsbad Desalination Plant Questions - 6-16-16
Attachments: EWA Letter 2016.05.12.pdf

Follow Up Flag: Follow up
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Hi Brandi,

The following is in response to your June 16 email:

- Poseidon is revising the April 2016 Dilution Study to incorporate responses your questions 1 through 5. We will submit a replacement for the April 2016 Dilution Study when the revisions are complete.
- Poseidon is evaluating the feasibility of rerouting the proposed fish return to the discharge pond. When the investigation is complete, Poseidon will submit an amended ROWD addressing the reconfiguration of the fish return.
- Poseidon sent the attached letter to the Encina Wastewater Authority (EWA) May 12 requesting information to assess the feasibility of discharging a portion of the brine to the Encina Ocean Outfall. EWA has contracted with a consulting engineering firm to assist with the information request. Poseidon has contracted engineering firms to: (i) prepare a brine conveyance study; (ii) prepare a brine discharge modeling study; and (iii) prepare the feasibility assessment. Once we receive EWA's response to the information request, we anticipate being able to complete the feasibility assessment in 30 to 45 days.

Thank you for your attention to Poseidon's ROWD. Please let me know if you have any questions or comments regarding this information.

Peter

From: Outwin-Beals, Brandi@Waterboards [mailto:Brandi.Outwin-Beals@waterboards.ca.gov]
Sent: Thursday, June 16, 2016 10:08 AM
To: Peter MacLaggan <pmaclaggan@poseidon1.com>
Cc: Barker, David@Waterboards <David.Barker@waterboards.ca.gov>; Neill, Ben@Waterboards <Ben.Neill@waterboards.ca.gov>; Waggoner, Claire@Waterboards <Claire.Waggoner@waterboards.ca.gov>; Tenggardjaja, Kimberly@Waterboards <Kimberly.Tenggardjaja@Waterboards.ca.gov>; Isorena, Philip@Waterboards <Philip.Isorena@waterboards.ca.gov>; Jauregui, Renan@Waterboards <Renan.Jauregui@waterboards.ca.gov>
Subject: Carlsbad Desalination Plant Questions - 6-16-16

Good morning Peter-

The following are questions/comments that we have regarding the Report of Waste Discharge (ROWD) for the Carlsbad Desalination Plant (CDP):

1. The Hydrodynamic Discharge Study in Appendix C of the ROWD indicates that a minimum monthly initial dilution (Dm) of only 3.25:1 would be required to ensure that a 42 parts per thousand (ppt) effluent concentration at M-002 complies with the Ocean Plan receiving water standard that salinity not exceed 2 ppt above ambient receiving water salinity beyond a brine mixing zone (BMZ) of 200 meters. In light of the Note on the Zone of Initial Dilution in a Quiescent Ocean Due to Discharges of Concentrated Seawater from the Carlsbad Desalination Project (April 2016 Dilution Study), please provide the horizontal distance from the effluent discharge point where a dilution ratio of 3.25:1 is modeled in the receiving waters.
2. In order to assist us with reviewing Poseidon's request for a 200 meter BMZ for consistency with the Ocean Plan requirements including the Desalination Amendment, please provide the minimum monthly dilution at 100, 110, 120, 130, 140, 150, 160, 170, 180, 190 and 200 meters from the point of discharge into the receiving water.
3. The April 2016 Dilution Study incorporates a dilution factor based on the potential energy due to brine density being greater than the ambient density of seawater. Please explain how and why this is consistent with the Ocean Plan's definition of Initial Dilution which is considered to be complete when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste.
4. Figures 9 and 10 in the April 2016 Dilution Study show the "streamline pattern of brine discharge jet and entrainment flow." The streamline patterns in the figure appear to imply that the brine discharge and entrainment flow will recirculate back towards the shoreline, i.e. upslope of the ocean floor bathymetry. Please provide clarification regarding the streamline pattern of the brine discharge jet and entrainment flow Figures 9 and 10 in the April 2016 Dilution Study.
5. Figure 7 in the ROWD states that the concentrate discharge is 67 million gallons per day (MGD) at salinity of 65 ppt. Based on our review of the ROWD, the concentrate discharge will have a maximum of 60 MGD of brine at a salinity of 65 parts per thousand blended with 7 MGD of filter backwash at a salinity closer to an ambient level of approximately 33.5 ppt. The mixing of these two waste streams would result in 67 MGD with a salinity somewhat less than 65 ppt. Please provide clarification, and if needed, a revised Figure 7.
6. Please provide a status update on an amended ROWD that includes additional information/supporting material on a new fish return discharge point to the lagoon including but not limited to the antidegradation analysis.
7. Please provide a status update on discussions with the Encina Wastewater Authority regarding the possibility of discharging a portion of the brine to the Encina Ocean Outfall.

I thank you in advance for your urgent attention to these questions/comments. As we continue to develop the draft permit, we may have additional questions/comments. In order to continue to develop the draft permit as quickly as possible, I will pose those questions/comments as they arise.

Brandi Outwin-Beals, PE
Senior WRCE, Source Control Regulation Unit

San Diego Regional Water Board
2375 Northside Drive, Suite 100
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(619) 521-5896



May 12, 2016

Mr. Michael Steinlicht
General Manager
Encina Wastewater Authority
6200 Avenida Encinas
Carlsbad, CA 92011

RE: Carlsbad Desalination Plant Brine Discharge Alternative

Dear Mr. Steinlicht:

Poseidon Resources (Channelside) LP (Poseidon) is proposing to modify the intake and discharge at the Claude “Bud” Lewis Carlsbad Desalination Plant (CDP) to convert to “stand-alone” operation following the planned closure of the adjacent Encina Power Station in 2017. The intake and discharge modifications will need to comply with the 2015 California Ocean Plan amendment addressing the regulation of desalination facilities.

The Ocean Plan requires the discharger assess the feasibility of comingling the brine discharge with effluent from a wastewater treatment plant. Section M.2.d.(2).(a). of the Ocean Plan which addresses considerations for brine discharge technology provides:

The preferred technology for minimizing intake and mortality of all forms of marine life resulting from brine discharge is to commingle brine with wastewater (e.g., agricultural, municipal, industrial, power plant cooling water, etc.) that would otherwise be discharged to the ocean. The wastewater must provide adequate dilution to ensure salinity of the commingled discharge meets the receiving water limitation for salinity in chapter III.M.3. Nothing in this section shall preclude future recycling of the wastewater.

Poseidon filed an Amended Report of Waste Discharge (ROWD) with the San Diego Regional Water Board that relies on an alternative brine discharge technology described Section M.2.d.(2).(d) of the Ocean Plan. The Regional Water Board staff is currently reviewing Poseidon’s ROWD, and has requested Poseidon evaluate the possible use of the Encina Wastewater Authority’s (EWA) Ocean Outfall for a portion of the brine discharge from the CDP.

In light of the Regional Water Board’s request, Poseidon would like to understand EWA’s willingness to entertain the possible use of the EWA’s outfall for discharge

of a portion of the brine from the CDP. Furthermore, to the extent EWA may be interested in exploring such an option, Poseidon will need certain information to assess the feasibility of this brine discharge option, including:

1. Taking into consideration current and future water recycling plans, please provide the average and minimum outfall capacity that may be available in 2018, 2025, 2030, and 2040.
2. Please describe the frequency and duration that the available outfall capacity is expected to be at or near the minimum level.
3. Taking into consideration current and future water recycling plans, please provide the average and minimum wastewater effluent available for blending with the brine discharge in 2018, 2025, 2030, and 2040.
4. Please describe the frequency and duration that the wastewater effluent available for blending with the brine discharge is expected to be at or near the minimum level.
5. The addition of brine to the discharge from the Encina Water Pollution Control Facility (EWPCF) at the maximum 1:1 brine to municipal wastewater blending ratio allowed under the Ocean Plan would change the positively buoyant discharge from the EWPCF to a neutrally buoyant combined discharge. Poseidon would like to understand any concerns that EWA may have with such a change in the effluent density. The effect of this change will need to be modeled to assess whether the combined discharge will have an adverse impact on effluent mixing and dispersion. Please describe the existing diffuser design and operation to support such a modeling effort (i.e., discharge pressure, velocity, flow).
6. Please describe any other issues or concerns that should be evaluated in the feasibility assessment.

Thank you for your consideration of this request.



Peter MacLaggan
Vice President

Cc: Douglas Campbell, Director of Environmental Compliance