



### Poseidon's Carlsbad Desalination Plant

**Poseidon intentionally provided inaccurate, erroneous or incomplete information to the Coastal Commission when stating that its Carlsbad facility would be carbon neutral.**

In 2007, as part of its Coastal Development Permit hearing, Poseidon testified that its project would be 'net carbon neutral,' claiming that it would fully mitigate the project's net greenhouse gas (GHG) emissions which were estimated at 61,000 tonnes annually.

Poseidon's "Energy Minimization and Greenhouse Gas Reduction Plan" was largely based on its claim that operation of the Carlsbad facility would cause a one-to-one reduction in State Water Project imports from the Sacramento-San Joaquin Delta to San Diego. Based on Poseidon's statements, the Commission approved Poseidon's GHG Reduction Plan and gave it an automatic credit for the claimed one-to-one reduction in State Water Project imports.

Coastal Commission staff later learned that a 2005 agreement between the California Department of Water Resources and the Metropolitan Water District (MWD) prohibited desalination projects from reducing MWD's State Water Project entitlements. In addition, MWD's 2009 contractual agreement with the San Diego member agencies who agreed to buy Poseidon's water revealed a guarantee that the desalinated water could not interfere with MWD's ability to import or use its full State Water Project entitlements. Poseidon had been aware of this information but did not share it with the Commission.  
- See <https://documents.coastal.ca.gov/reports/2010/2/W6a-2-2010.pdf>

On this basis, the Commission found that Poseidon had intentionally provided inaccurate, erroneous or incomplete information in the course of seeking its permit.  
- See <https://documents.coastal.ca.gov/reports/2010/2/W6a-2-2010.pdf>

As there was no one-for one reduction in State Water Project imports, and in order to address its non-compliance with the GHG Plan that required it to be 'net carbon neutral,' Poseidon purchased and retired 78,048 tonnes of Climate Action Reserve (CAR) certified carbon offsets to mitigate its first year of emissions.

In 2013, when Poseidon submitted its permit application to the Coastal Commission for the proposed Huntington Beach desalination plant, it submitted an almost identical GHG plan and again attempted to obtain an automatic credit based on a one-to-one reduction in imports from the Sacramento-San Joaquin Delta to Orange County from the State Water Project. That application was withdrawn and Poseidon is no longer seeking an automatic credit for a reduction in imports from the State Water Project.

**Since Poseidon's Carlsbad desalination plant became operational, it has been responsible for repeated water quality violations.**

In April 2016, the San Diego Regional Water Quality Control Board issued a notice of violation (NOV) finding that Poseidon's Carlsbad facility had failed to comply with several provisions of its permit, including failures to comply with discharge prohibitions, failures to comply with receiving water limitations, failure to comply with effluent limitations, and failure to monitor in accordance with permit provisions. In December 2016, the board issued a staff enforcement letter describing 19 occasions on which Poseidon had exceeded daily maximum toxicity limits.  
- See *San Diego Regional Water Quality Control Board, Notice of Violation No. R9-2016-0112 (April 7, 2016)*, <http://bit.ly/2oChL8L>; *id.*, *San Diego Region - Enforcement Actions for December 2016*, <http://bit.ly/2oWoK00>.

It its annual permit discharge monitoring report for 2016, which Poseidon submitted in February 2017, Poseidon stated that it had exceeded chronic toxicity limits in 35 out of 116 or 30%, of chronic toxicity tests.  
-See *Poseidon Channelside, Cover letter for NPDES Discharge Monitoring Report - Annual 2016 NPDES No. CA019223 (February 28, 2017)*, <http://bit.ly/2pb3pQH>.

In its annual permit discharge monitoring report for 2017, which Poseidon submitted in March 2018, Poseidon stated that it had exceeded chronic toxicity limits in 36 out of 90 or 40%, of chronic toxicity tests. In its monthly reporting for 2018, Poseidon has exceeded chronic toxicity limits in 11 out of 21 or over 50%, of chronic toxicity tests available to date.

-See *Poseidon Channelside, Cover letter for NPDES Discharge Monitoring Report – Annual 2017 NPDES No. CA019223 (March 1, 2017)*, <https://bit.ly/2HnvppG>

-*State Water Resources Control Board, California Integrated Water Quality System Project (CIWQS)*, <https://bit.ly/2LpHj54>

The chronic toxicity limitations occur in testing location M-001, before the brine is diluted. However, chronic toxicity limits prior to dilution are set forth in the San Diego Regional Water Board's discharge permit as enforceable violations at location M-001. This testing location exists to ensure that toxic substances are not discharged beyond certain limits, even when diluted.

Poseidon completed a series of toxicity evaluations to determine the cause of the chronic toxicity and recently released the final report this April. Essentially, the report is inconclusive and rules out several potential direct causes such as salinity and harmful algal blooms. The study did find that certain chemical and polymer additives could contribute to the toxicity findings at higher concentrations. And though the study never tested the actual concentration of polymer additives in the final effluent, it concluded that the effluent is "suspected" to have low enough additive concentration levels that polymers wouldn't have a significant effect. The report speculates that a confluence of polymer and chemical additives may be at fault, however.

-See *IDE Americas. Toxicity Reduction Evaluation Final Report, Carlsbad Desalination Project. April 2018.*

One way to potentially avoid this issue with chronic toxicity is to avoid chemical additives in the first place. And remarkably, subsurface intakes do just that. A 2013 study by Thomas Missimer, et.al., found that, "[t]he use of chlorine, coagulants, and other chemicals can be essentially eliminated by the use of subsurface intake systems. Reduction in chemical use and power consumption in operation of pretreatment systems causes a reduction in the carbon footprint of a sea water RO system and in potential environmental impacts."

- See *Missimer, T.M., et.al., Subsurface intakes for seawater reverse osmosis facilities: Capacity limitation, water quality improvement, and economics. Elsevier Desalination 322 (2013) 37-51.* <https://bit.ly/2LICsSn>

**Since Poseidon's Carlsbad desalination plant became operational, it has been notably unreliable.** In 2017, the company published operating reports containing the following information:

- First quarter: Operations were at ~84% capacity.
- Second quarter: Operations at ~59% capacity. (Shortfalls caused by: "algae blooms resulting from excessive rains that occurred in late February... high ocean water temperatures ... and unscheduled maintenance.")
- Third quarter: Operations at ~42% capacity. (Shortfalls caused by: "unscheduled shutdowns of individual reverse osmosis trains ...due to membrane cleaning and replacement... elevated salinity in ocean water... and a mechanical coupling failure.")
- Fourth quarter: Operations at ~96% capacity.

- See *Municipal Securities Rulemaking Board, California Pollution Control Financing Authority Water Furnishing Revenue Bonds, Series 2012 (Poseidon Resources (Channelside) LP Desalination Project) ("Series 2012 Plant Bonds"). Continuing Disclosures.* <https://bit.ly/2HkieGd>