



Fact Sheet

Proposed Desalination Facility in Huntington Beach

Overview

Poseidon Water in 2016 applied to the Santa Ana Regional Water Quality Control Board for renewal of a National Pollutant Discharge Elimination System (NPDES) permit that is required for a proposed \$1.4 billion seawater desalination project it plans to construct on 12 acres of the AES Huntington Beach Generating Station property in Orange County. The facility will produce 50 million gallons of potable water daily for distribution or, groundwater replenishment. Because this would be a new facility, Poseidon must comply with the state's Ocean Plan Water Code 13142.5(b) that was amended in 2016 to address environmental impacts associated with the construction and operation of desalination plants.

During [three recent hearings](#), board members raised questions about the following: the need and cost of desalinated water; Orange County Water District's commitment to purchase the supply; the harm to marine life caused by the facility's intake process; and whether the Bolsa Chica wetlands Marine Life Mitigation Plan satisfies the state's Ocean Plan requirements for seawater desalination plants. The board in the August 7 session determined that 75 percent of the mitigation must be directed toward restoration rather than preservation (inlet dredging) and directed staff to provide additional information.

A scheduled September 17 hearing for the board's decision on the permit renewal was canceled to allow Poseidon more time to address the concerns. The company plans to evaluate the mitigation recommendations, work with resource agency and board staffs, and complete the process within 45-60 days.

The Process

Desalination removes salt, minerals and other compounds from seawater to produce fresh water for municipal needs such as drinking or industrial purposes. There are two types of intake methods. Surface intakes typically draw directly from a water body (e.g. an offshore intake pipe that lays on the ocean floor) while subsurface intakes generally draw water through pipes installed under the seafloor (e.g. slant wells and infiltration galleries). Reverse osmosis separates the salt from seawater and eliminates impurities such as bacteria and viruses. Once filtering is complete, the potable water is disinfected with chlorine. The brine that remains is saltier, denser and heavier than ocean water, and can be toxic to marine organisms. When brine is returned to the ocean, it can be diluted or mixed with seawater by use of engineered diffusers. If brine is discharged improperly, it can accumulate on the sea floor and damage bottom-dwelling fish, crustaceans and algae. Currently, there are 12 plants operating in California and almost as many in various stages of planning, evaluation and processing.



Surface vs. Subsurface Intakes

Surface intakes pose a greater threat to marine life and coastal habitats. Organisms can be trapped against screens (impingement) or drawn into the system and exposed to pressure and high heat (entrainment). Subsurface intakes draw water through angled slant wells and beneath the sea floor, preventing harm to aquatic life.

Though environmentally preferable, the regional board staff agrees that based on the information provided, subsurface intake is not feasible at the Huntington Beach location because the geology, which consists largely of silt and clay, would limit the amount of seawater that can be pulled through the sand and may cause the wells to draw fresh water from inland groundwater basins, a highly undesirable outcome.

NPDES Permit and Water Code Determination

Poseidon in 2016 submitted a report of waste discharge to renew its 2012 NPDES permit. Since the facility has not been constructed, it also is subject to the State Water Board's [Water Quality Control Plan for Ocean Waters \(Ocean Plan\)](#) amendment that in 2016 established a uniform, consistent process for permitting seawater facilities. Water Code 13142.5(b) states: "For each new or expanded coastal powerplant or industrial installation (desalination plants) using seawater for cooling, heating or industrial processing, the best available **site, design, technology and mitigation measures** feasible shall be used to minimize intake and mortality of all forms of marine life. "

Mitigation and Minimizing Harm to Marine Life

To reduce the threat to marine life from surface intakes and comply with mitigation requirements in the Ocean Plan, Poseidon agreed to do the following: Use fine mesh wedge wire screens to block organisms and marine life from being drawn into intake pipes; retrofit the discharge structure to allow for better dilution and minimize shearing-related mortality; and adhere to a strict schedule for completion of a mitigation project at Bolsa Chica. During the August 7 meeting, board members reached consensus on mitigation measures, requiring that 75 percent be directed toward restoration rather than preservation (inlet dredging).

What's Next for Poseidon Project

If the board issues the permit renewal, the company still needs Coastal Commission approval before finalizing an agreement with the Orange County Water District and beginning construction.

Additional Resources

Additional information on [desalination](#) and the proposed [Poseidon Huntington Beach](#) facility can be found on the State Water Board website.

(This fact sheet was last updated Sept. 10, 2020)