NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FACT SHEET April 24, 2025

DRAFT

Permittee Name:	Vessel Testing a Pilot OceanWell
Mailing Address:	1300 El Camino Real, Suite 100, Menlo Park, CA 94025
Facility Location:	Six test sites in federal waters off the Coast of California
Contact Person(s):	Mark Golay, Director of Engineering Projects, (757) 635-4355, mark@oceanwellwater.com
NPDES Permit No.:	CA0000018

I. STATUS OF PERMIT

Vessel Testing a Pilot OceanWell (the "permittee") has applied for a National Pollutant Discharge Elimination System ("NPDES") permit to authorize the discharge of effluent from desalination technology to the Pacific Ocean at up to six test locations located in federal waters between five and fifteen miles off the California coast. A complete application was submitted on February 23, 2024. EPA Region 9 has developed this permit and fact sheet pursuant to Section 402 of the Clean Water Act ("CWA"), which requires point source dischargers to control the amount of pollutants that are discharged to waters of the United States through obtaining an NPDES permit.

This permit is a new permit, NPDES permit CA0000018.

This permittee is classified as a minor discharger.

III. GENERAL DESCRIPTION OF FACILITY

A. PURPOSE

The permittee proposes testing its desalination technology in a pilot study. A desalination modular unit ("unit") will be tested from a vessel at up to six test locations along the coast of California in the Pacific Ocean. Testing and discharge at each location will occur for up to 24 hours per day, lasting up to one month in total. The unit will intake seawater and have two outfalls, outfall 001 and outfall 002, that discharge freshwater and brine, respectively. The unit will operate at three different depths between 400 to 500 meters deep at each location and will discharge brine for at least four hours at each depth. The unit will discharge desalinated freshwater at the three operating depths between 400 to 500 meters or at the surface.

B. LOCATION

The desalination pilot study will occur in federal waters between five and fifteen miles off the California coast. The permittee has identified six potential test locations (Test Sites A-F) that avoid sensitive biological areas, including canopy-forming kelp and designated marine protected areas. Not all of the six Test Sites A-F will be active, some will be available as backups if needed.

Test Site	Effluent Discharged	Outfall Latitude	Outfall Longitude	Receiving Water
А	Freshwater & Brine	N 35º 28' 12"	W 121º 21' 0"	Pacific Ocean
В	Freshwater & Brine	N 34º 19' 12"	W 119º 59' 24"	Pacific Ocean
С	Freshwater & Brine	N 34º 0' 36"	W 119º 5' 24"	Pacific Ocean
D	Freshwater & Brine	N 33º 55' 48"	W 118º 48' 36"	Pacific Ocean
Е	Freshwater & Brine	N 33º 24' 0"	W 117º 44' 24"	Pacific Ocean
F	Freshwater & Brine	N 33º 5' 24"	W 117º 30' 0"	Pacific Ocean

Table 1. Proposed test site locations.

IV. DESCRIPTION OF RECEIVING WATER

Effluent will may be discharged to the Pacific Ocean at Test Sites A-F listed in Table 1. See Attachment B of the permit for location maps.

V. DESCRIPTION OF DISCHARGE

List of Proposed Outfalls at each Test Site (A-F)

Outfall 001 - Freshwater at module depth at 400 to 500 meters or at ocean surface Outfall 002 – Brine at module depth at 400 to 500 meters

Outfall 001 - Freshwater

Outfall 001 will discharge at the operating depth or the surface of the Pacific Ocean at each Test Sites A-F. Salinity of influent seawater is expected to be approximately 35 parts per thousand (ppt). Maximum influent flow is expected to be 271,000 gallons per day ("GPD"). Effluent is expected to be 13,500 GPD. Temperature of the discharge must remain unchanged relative to the influent flow. The freshwater discharge is a product from the unit and is not mixed with residual from filter cleaning processes.

Outfall 002 - Brine

Outfall 002 will be underwater, discharging at various depths from 400 to 500 meters deep, where the unit is operating. Salinity of influent seawater is expected to be approximately 35 ppt. Brine effluent is allowed a maximum salinity of 70 ppt, and diffusion will result in a less than 1% increase above natural background salinity within approximately 10 meters of the outfall. The expected influent and maximum effluent flow is 271,000 GPD and 257,000 GPD, respectively. Temperature of the discharge must remain unchanged relative to the influent flow.

	Average Flowrate – GPD	Max Flowrate – GPD (5%
	(10% recovery)	recovery)
Influent: Seawater ¹	136,00	271,000
Outfall 001: Freshwater ¹	13,500	13,500
Outfall 002: Brine ¹	122,000	257,000

Table	2	Expected	influent	and	offluont	flow	rates
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(1) The discrepancy between the total influent and effluent flowrates is due to rounding each number to three significant figures.

Effluent Characteristics

The facility will discharge freshwater and brine, which will be produced through reverse osmosis (hyperfiltration), a physical/mechanical separation process. The permit prohibits chemical and thermal additions to the discharge. Any pollutants present in the discharge will be from the intake of seawater containing pollutants. Given hyperfiltration of the influent, there will be no solids or particulate matter in the effluent. If present in the intake water, the pollutants would not pass through the reverse osmosis ("RO") membrane and not expected to be present in the freshwater effluent. Any pollutants present in the brine effluent are estimated to be at concentrations elevated proportional to the increase in salinity.

The permittee studied the brine outfall using the CORMIX Mixing Zone Model and using the most conservative model inputs (i.e., slowest subsea current and highest brine salinity), diffusion of salinity was modeled to be less than 1% above natural background salinity within approximately 10 meters of Outfall 002. The maximum salinity of the brine would occur at the unit's minimum flow. The range of testing parameters and expected maximums are based on experimental data from a "proof of concept" test. The permittee performed this test in a hyperbaric chamber with simulated seawater. Based on permit application materials, effluent characteristics are expected to be the following in Table 3.

Table 3. Expected Effluent Characteristics

	Influent Seawater	Outfall 001: Freshwater	Outfall 002: Brine
Max Salinity (ppt)	35	0.50	70
Max Flow (GPD)	271,000	13,500	257,000

VI. DETERMINATION OF EFFLUENT LIMITATIONS

EPA has developed effluent limitations and monitoring requirements based on an evaluation of the technology used to treat the pollutant (i.e., "technology-based effluent limits") and the water quality standards applicable to the receiving water (i.e., "water quality-based effluent limits"). Regulations contained in 40 CFR § 122.44 require that NPDES permit limits meet the more stringent of either technology-based effluent limitations, water quality standard-based effluent limitations, or the previous permit. This is a new facility that was not previously discharged, therefore EPA considered only the technology-based effluent limitations and water quality standard-based effluent limitations. EPA also considered the Ocean Discharge Criteria, under CWA Section 403(c) and 40 CFR Part 125, Subpart M.

A. Applicable Technology-Based Effluent Limitations

EPA typically relies on effluent limitations guidelines ("ELGs") to identify applicable technology-based effluent limits. ELGs are established national standards based on the performance of treatment and control technologies for wastewater discharges to surface waters for certain industrial categories. ELGs represent the greatest pollutant reductions that are economically achievable for an industry, and are based on Best Practicable Control Technology (BPT), Best Conventional Pollutant Control Technology ("BCT"), and Best Available

Technology Economically Achievable ("BAT"). (Sections 304(b)(1), 304(b)(4), and 304(b)(2) of the CWA, respectively). There are no applicable ELGs for this desalination facility.

EPA established technology-based effluent limitations for free oil, flow, temperature, and salinity for this facility based on information provided by the applicant about the desalination unit, pursuant to 122.44(a)(1), based on BPJ and informed by EPA Region 6's analysis and permit conditions for the permittee's similar desalination pilot study in the Gulf of Mexico.

B. Water Quality-Based Effluent Limitations

Water quality-based effluent limitations are required in NPDES permits when the permitting authority determines that a discharge causes, has the reasonable potential to cause, or contributes to an excursion above any water quality standard (40 CFR § 122.44(d)(1)).

When determining whether an effluent discharge causes, has the reasonable potential to cause, or contributes to an excursion above narrative or numeric criteria, the permitting authority shall use procedures which account for existing controls on point and non-point sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity) and where appropriate, the dilution of the effluent in the receiving water (40 CFR § 122.44(d)(1)(ii)).

EPA evaluated the reasonable potential to discharge toxic pollutants according to guidance provided in the *Technical Support Document for Water Quality-Based Toxics Control* ("TSD") (Office of Water, U.S. EPA, March 1991) and the *U.S. EPA NPDES Permit Writers' Manual* (Office of Water, U.S. EPA, September 2010). These factors include:

- 1. Applicable Standards
- 2. Ocean Discharge Criteria

1. Applicable Standards

The California Ocean Plan applies to state waters extending out to three miles. This facility is located five to fifteen miles offshore. Given the small volume and distance from shore, the discharge is not expected to impact state waters. EPA determined that there are no water quality standards applicable to the discharges authorized by this permit. Because there are no applicable water quality standards, there are no more stringent water quality-based effluent limitations and the permit contains only technology-based effluent limitations.

2. Ocean Discharge Criteria

EPA's Ocean Discharge Criteria establish guidelines for the issuance of NPDES permits for discharges into territorial seas, the contiguous zone, and the ocean (40 CFR § 125.120). Territorial seas are defined as the waters between the shore and twelve nautical miles offshore. The contiguous zone extends twelve nautical miles beyond the territorial seas. Ocean Discharge Criteria are applicable because the permit authorizes discharge into both territorial seas and the contiguous zone. EPA may issue an NPDES permit if the discharge will not cause unreasonable degradation of the marine environment (40 CFR § 125.123). EPA must consider ten criteria to determine whether the discharges will cause unreasonable degradation to the marine environment (40 CFR § 125.122). EPA has considered the ten Ocean Discharge Criteria as described below and determined that the no more stringent limitations are required and that the discharge will not cause unreasonable degradation of the marine environment that the no more stringent limitations are required and that the discharge will not cause unreasonable degradation of the marine environment (40 CFR § 125.122).

1. *The quantities, composition and potential for bioaccumulation or persistence of the pollutants to be discharged.*

This permit authorizes the discharge of a small volume of freshwater and brine, and does not authorize discharge of any toxic pollutants or chemical additives that have the potential to bioaccumulate. The permit application does not identify any bioaccumulative pollutants in the discharges. Additionally, discharges are expected to be rapidly dispersed and diluted in the receiving water, further minimizing the potential for bioaccumulation or persistence of pollutants.

- 2. The potential transport of such pollutants by biological, physical or chemical processes. This permit authorizes the discharge of freshwater and brine, and does not authorize discharge of any toxic pollutants or chemical additives. The proof-of-concept test conducted by the permittee indicates that the brine discharge will rapidly be diluted and dispersed, preventing harmful salinity buildup or pollutant transport. The "proof of concept" test indicates that the freshwater discharge plume will be dispersed by wave action, where there will be no transport of pollutants. The ocean current will disperse the freshwater discharge plume when released at the operating depth.
- 3. The composition and vulnerability of the biological communities which may be exposed to such pollutants, including the presence of unique species or communities of species, the presence of species identified as endangered or threatened pursuant to the Endangered Species Act, or the presence of those species critical to the structure or function of the ecosystem, such as those important for the food chain.

Test Sites A-F avoid biologically sensitive areas including critical habitat, essential fish habitat (EFH), national marine sanctuaries (NMSs), and marine protected areas (MPAs). As described below, EPA evaluated the potential effects of this permit on threatened and endangered species and determined "no effect" on all marine species in the vicinity of the pilot study.

4. The importance of the receiving water area to the surrounding biological community, including the presence of spawning sites, nursery/forage areas, migratory pathways, or areas necessary for other functions or critical stages in the life cycle of an organism.

The receiving water area does not contain biologically sensitive areas. Test Sites A-F avoid biologically sensitive areas including critical habitat, EFH, NMS, and MPAs.

5. The existence of special aquatic sites including, but not limited to marine sanctuaries and refuges, parks, national and historic monuments, national seashores, wilderness areas and coral reefs.

Test Sites A-F avoid special aquatic sites including NMS, refuges, parks, national and historic monuments, national seashores, coral reefs, and other MPAs.

6. The potential impacts on human health through direct and indirect pathways.

The permittee discharges freshwater and brine offshore, outside of designated human health use areas, with no toxic pollutants or chemical additives. The desalination unit produces freshwater and brine discharges that effectively disperse at the surface and depth of approximately 500 meters. Human contact is unlikely because the brine discharge is released at depth and subsequently dispersed prior to reaching areas used by humans.

7. Existing or potential recreational and commercial fishing, including finfishing and shellfishing.

Test Sites A-F avoid areas of commercial fishing, shipping lanes, and other areas of economic significance.

- 8. Any applicable requirements of an approved Coastal Zone Management plan. The permittee obtained consistency certification from the California Coastal Commission. Certification confirms that the permittee adheres to federal Coastal Zone Management Act responsibilities.
- 9. Such other factors relating to the effects of the discharge as may be appropriate. The permittee discharges freshwater and brine, with no toxic pollutants or chemical additives. The desalination unit operates on a temporary basis and discharges at low, intermittent flow rates.
- 10. Marine water quality criteria developed pursuant to section 304(a)(1). The permittee discharges solely freshwater and brine, with no toxic pollutants or chemical additives. Brine is not associated with the pollutants for which EPA has established criteria. As such, there are no applicable marine water quality criteria developed under section 304(a)(1).

The discharge sites were selected to avoid sensitive habitats, and hydrodynamic modeling confirms that brine will rapidly dilute without causing harmful salinity buildup. The pilot study does not introduce toxic pollutants, chemical additives, or pathogens. Given the location, the temporary nature of the project and the low volume of the discharge, and the technology-based effluent limitations and other limitations, EPA has determined that the discharge will not cause unreasonable degradation of the marine environment.

C. Rationale for Effluent Limits and Monitoring

EPA evaluated the typical pollutants expected to be present in the effluent and selected the most stringent of applicable technology-based standards or water quality-based-effluent limitations. Where effluent concentrations of toxic parameters are unknown or are not reasonably expected to be discharged in concentration that have the reasonable potential to cause or contribute to water quality violations, EPA may establish monitoring requirements in the permit. Where monitoring is required, data will be re-evaluated and the permit may be re-opened to incorporate effluent limitations as necessary.

Discharge Flow

The permit contains a flow limit for brine discharges and monitoring of brine and freshwater discharges to provide data on compliance and potential impacts to the surrounding water. Flow monitoring shall be taken as a field measurement at the time of each discharge. Influent flow monitoring will be required as well. To be protective of the Pacific Ocean water quality and control salinity, brine discharges will be limited to a maximum flow of 257,000 GPD. EPA evaluated the Ocean Discharge Criteria along with the permit application materials and the

257,000 GPD flow limit for brine discharges, and determined that the discharge will not cause unreasonable degradation of the marine environment.

Temperature

The permit contains a temperature limit and monitoring requirements because the permit prohibits thermal additions to effluent discharges. Influent and effluent monitoring is required to ensure that there are no thermal additions to the discharge using daily monitoring requirements. EPA evaluated the ten Ocean Discharge Criteria along with the permit application materials, and determined that the discharge will not cause unreasonable degradation of the marine environment.

Salinity

The permit contains a salinity limit and monitoring requirements since salinity is a common constituent in discharge from desalination plants. The permit includes salinity monitoring to evaluate compliance and assess the salt levels in the brine and freshwater discharges. The permit limits salinity of brine discharges to 70 ppt (i.e., the maximum salinity provided by the "proof of concept" test previously mentioned), with diffusion of salinity being less than 1% above natural background salinity within approximately 10 meters of the outfall. EPA evaluated the ten Ocean Discharge Criteria along with the permit application materials and the salinity limit of 70 ppt, and determined that the discharge will not cause unreasonable degradation of the marine environment.

Free Oil

The permit does not contain numeric limits for oil and grease because the permit prohibits the discharge of chemical additives, oil, grease, film, and other pollutants that float. Monitoring is required to ensure no oil or grease is added to the discharge using the visual sheen test method for surface discharges. EPA evaluated the ten Ocean Discharge Criteria along with the permit application materials, and determined that the discharge will not cause unreasonable degradation of the marine environment.

D. Anti-Backsliding

Sections 402(o) and 303(d)(4) of the CWA and 40 CFR § 122.44(l)(1) prohibit the renewal or reissuance of an NPDES permit that contains effluent limits and permit conditions less stringent than those established in the previous permit, except as provided in the statute and regulation.

This facility does not have a previous permit and thus the permit does not establish any effluent limits less stringent than those in the previous permit and does not allow backsliding.

E. Antidegradation Policy

EPA's antidegradation policy under section 303(d)(4) of the CWA and 40 CFR § 131.12 requires that existing water uses and the level of water quality necessary to protect the existing uses be maintained.

As described in this Factsheet, there are no applicable water quality standards and the permit establishes effluent limits and monitoring requirements to prevent unreasonable degradation of the marine environment.

Therefore, due to the low flow rate and salinity concentrations in the effluent, the discharge is not expected to adversely affect receiving waters or result in any degradation of water quality at the six test locations.

VII. OTHER LIMITATIONS

The permit contains other limitations in Part I.A to prevent unreasonable degradation of the marine environment.

VIII. MONITORING AND REPORTING REQUIREMENTS

The permit requires the permittee to conduct monitoring for all pollutants or parameters where effluent limits have been established, at the minimum frequency specified. Additionally, where effluent concentrations of toxic parameters are unknown or where data are insufficient to determine reasonable potential, monitoring may be required for pollutants or parameters where effluent limits have not been established.

A. Effluent Monitoring and Reporting

The permittee shall conduct effluent monitoring to evaluate compliance with the permit conditions. The permittee shall perform all monitoring, sampling and analyses in accordance with the methods described in the most recent edition of 40 CFR § 136, unless otherwise specified in the permit. All monitoring data shall be reported on monthly DMRs and submitted quarterly as specified in the permit. All DMRs are to be submitted electronically to EPA using NetDMR.

For all outfalls, monitoring for flow and salinity, shall be daily, using totalizing and salinity meters when discharging. Free oil monitoring shall be performed daily, when discharging to surface waters.

C. Whole Effluent Toxicity (WET) Requirements

EPA has reviewed the permittee's application along with relevant information and determined that no WET monitoring is required.

The discharges will consist of a freshwater component and a brine component resulting from the reverse osmosis process, which removes salinity and other constituents from seawater and produces fresh water and reject brine. Chemical additives are prohibited, therefore pollutants in brine will be a concentrate of those constituents present in in the ambient seawater. Freshwater will be discharged at the operating depth and surface, where natural mixing from waves and currents further dilutes the freshwater, ensuring no significant impact on marine organisms. As such, the permit does not propose any biomonitoring of the discharge.

IX. SPECIAL CONDITIONS

A. Development and Implementation of Best Management Practices

Pursuant to 40 CFR § 122.44(k)(4), EPA may impose Best Management Practices (BMPs) which are "reasonably necessary...to carry out the purposes of the CWA." The pollution prevention requirements or BMPs in the permit operate as technology-based limitations on effluent discharges that reflect the application of Best Available Technology and Best Control Technology. Thus, the permit requires that the permittee develop (or update) and implement a Pollution Prevention Plan with appropriate pollution prevention measures or BMPs designed to prevent pollutants from entering the receiving water while performing normal processing operations at the Facility.

B. Discharge Frequency

The permit authorizes discharge for a total duration of three months. Based on the permit application materials, three months should allow plenty of time for the permittee to conduct the pilot study with flexibility. The three months of discharge may occur at any time during the fiveyear permit term.

X. OTHER CONSIDERATIONS UNDER FEDERAL LAW

A. National Environmental Policy Act Compliance

The facility is not a "new source" as defined at 40 C.F.R. § 122.2. A "new source" is a facility from which there is or may be a discharge of pollutants and where construction commenced after promulgation of applicable standards of performance under CWA Section 306 (or in some instances, after proposal of applicable standards of performance) under Section 306 of the CWA. EPA has not proposed or promulgated standards of performance for desalination facilities therefore the facility is not a new source.

New sources are subject to the environmental review provisions of the National Environmental Policy Act pursuant to 40 C.F.R. § 122.29(c)(i). Because the facility is not a new source it is not subject to the requirements of 40 C.F.R. § 122.29(c)(i).

B. Impact to Threatened and Endangered Species

Section 7 of the Endangered Species Act (ESA) of 1973 (16 U.S.C. § 1536) requires federal agencies to ensure that any action authorized, funded, or carried out by the federal agency does not jeopardize the continued existence of a listed or candidate species, or result in the destruction or adverse modification of its habitat.

Action Area

Under the ESA's implementing regulations, the "action area" means all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR § 402.02). The action area for the proposed permit includes up to six test locations located in federal waters, the surface plume and plume at a depth of up to 500 meters, the vessel launch point, the vessel transit route, and the physical desalination structure including the modular unit, the umbilical line hanging from the vessel attached to the unit, and the vessel itself.

Species List

EPA coordinated with the U.S. Fish and Wildlife ("USFWS") and the National Marine Fisheries Service ("NMFS") to obtain a list of threatened and endangered species in the vicinity of the six test locations in the Pacific Ocean off the California coast. USFWS and NFMS responded to EPA with the following list (E = endangered, T = threatened, and P = proposed):

Status	Species/Listing Name	Designated Critical Habitat				
U.S. Fi	U.S. Fish and Wildlife Services					
E	California Least Tern (Sternula antillarum browni)	No				
E	Hawaiian Petrel (Pterodroma sandwichensis)	No				
E	Short-tailed Albatross (Phoebastria (=Diomedea) albatrus)	No				
Р	Southwestern Pond Turtle (Actinemys pallida)	No				
Р	Monarch Butterfly (Danaus plexippus)	Р				
E	Nevin's Barberry (Berberis nevinii)	Yes				
National Marine Fisheries Service						
E	Humpback Whale, Central America DPS (Megaptera novaeangliae)	Yes				
Т	Humpback Whale, Mexico DPS (Megaptera novaeangliae)	Yes				
E	Leatherback Sea Turtle (Dermochelys coriacea)	Yes				

Analysis

The following is an analysis of the effects of the permit action on these species and any associated critical habitat.

Birds

California Least Tern (Sternula antillarum browni)

The California least tern is found along the coast of California. The California least tern was listed as an endangered species under the ESA in 1970. The geographic range of this species is along the Pacific coast from San Pablo Bay to San Jose del Cabo, in the state of Baja California Sur, Mexico. Nesting is sporadic and occurs in San Francisco Bay, Sacramento River Delta, and along the coast from San Luis Obispo County to San Diego County. Nesting in recent years is increasing at inland sites in the Bay-Delta. Breeding birds are present at the colony from April through September. Nesting starts in mid-May.

The habitat of the species is described as nearshore with foraging occurring within approximately two miles of shore. The tern feeds on small fish caught in estuaries, bays, and nearshore marine waters. When looking for prey, the tern hovers above the water and plunge to its surface when fish are spotted. In the 1960s, habitat availability was severely reduced due to coastal development and intense human recreational use of beaches. Management consists of actions to limit disturbance and predation (U.S. FWS 2006 and U.S. FWS 2009).

Hawaiian Petrel (Pterodroma sandwichensis)

The Hawaiian petrel is a seabird native to the Hawaiian Islands, where it breeds in remote, high-elevation areas on several islands, including Maui, Kaua'i, Lana'i, and Hawai'i. The species was listed as endangered under the ESA in 1967 due to significant population declines caused by habitat loss, predation, and other threats. The geographic range of the Hawaiian petrel includes the Pacific Ocean, where it spends most of its life foraging over open waters, traveling

thousands of miles between breeding seasons. Breeding birds return to their colonies between March and November, with peak nesting activity occurring from May to October.

The Hawaiian petrel nests in burrows or crevices located in steep, remote cliffs and volcanic slopes, often at elevations above 1,200 meters. These areas provide protection from human disturbance but remain vulnerable to introduced predators such as feral cats, mongooses, and rats. The petrel feeds primarily on squid, fish, and crustaceans, which it captures while foraging over deep ocean waters. Management of the Hawaiian petrel involves predator control, habitat restoration, and monitoring breeding colonies to reduce threats and ensure population stability. USFWS established a recovery plan for the Hawaiian petrel in 2019.

Short-tailed Albatross (Phoebastria (=Diomedea) albatrus)

The short-tailed albatross is a large seabird that ranges across the North Pacific Ocean, breeding on a few remote islands off the coasts of Japan. This species was listed as endangered under the ESA in 2000 due to historical overharvesting, habitat degradation, and other threats. The geographic range of the short-tailed albatross spans the North Pacific, with foraging areas extending from the Sea of Japan to the coasts of Alaska, California, and Hawaii. Breeding occurs primarily on Torishima Island and the Senkaku Islands, with birds returning to their colonies from October through May.

The short-tailed albatross nests on volcanic islands, where it builds ground nests on slopes covered with grasses or shrubs. Its diet consists mainly of squid, fish, and other marine organisms, which it captures by surface seizing or shallow diving. Management efforts for the short-tailed albatross include habitat protection, artificial nest site creation, and monitoring of breeding colonies. Collaborative efforts between the United States, Japan, and international organizations continue to support the recovery of this species, whose population is slowly increasing after nearly being driven to extinction in the 20th century. (U.S. FWS 2000 and U.S. FWS 2005). USFWS established a recovery plan for the Hawaiian petrel in 2009.

Determination

Activities authorized by the permit will not cause an adverse response because prey species are not in the vicinity of the underwater brine or freshwater discharge. Prey species of the short-tailed albatross – such as squid, crustaceans, and fish – are found in the upper ocean layers, typically within the epipelagic zone at 0 to 200 meters deep. The shot-tailed albatross will not be impacted by the surface freshwater discharge due to current and wave action dispersing the freshwater plume. The brine and freshwater discharges are intermittent and will have no harmful impact on surrounding seawater. EPA has determined issuance of the NPDES permit for will not impact the following bird species: California least tern, Hawaiian petrel, and short-tailed albatross. EPA therefore makes a "no effect" determination for these listed bird species.

Reptiles

Southwestern Pond Turtle (Actinemys pallida)

The southwestern pond turtle is a small, freshwater turtle found in inland regions of southern California and Baja California, Mexico. This species is a subspecies of the western pond turtle (*Actinemys marmorata*) and inhabits a variety of aquatic habitats, including ponds, rivers, marshes, and reservoirs. The southwestern pond turtle is currently being considered for listing

under the ESA to habitat loss, predation, and other threats. Its range has been significantly reduced, with remaining populations primarily concentrated in fragmented and isolated habitats.

The turtle's habitat is characterized by slow-moving or still water with abundant aquatic vegetation and basking sites. Southwestern pond turtles are omnivorous, feeding on a variety of invertebrates, plants, and small vertebrates. They bask on logs or rocks to regulate their body temperature but rely on nearby terrestrial areas for nesting and overwintering. Conservation efforts focus on habitat restoration, protection from development, and mitigating predation from non-native species such as bullfrogs and largemouth bass. Collaborative research and management are critical to understanding population dynamics and ensuring the long-term survival of this species (U.S. FWS 2015).

Determination

The southwestern pond turtle primarily inhabits freshwater environments and there is no direct exposure to brine or freshwater discharges in the turtle's habitat. The turtle species does not occur in the action area of the pilot study. Due to the species residing in freshwater habitats, EPA has determined that the action will not affect the southwestern pond turtle.

Insects

Monarch Butterfly (Danaus plexippus)

The monarch butterfly is a migratory species found throughout North America. The species was proposed for listing under ESA as a candidate species in December 2024 due to significant population declines caused by habitat loss, pesticide use, and changing weather patterns. Monarchs are known for their migration, with eastern populations traveling thousands of miles from breeding grounds in the United States and Canada to sites in central Mexico, while western populations migrate to sites along the California coast.

The monarch butterfly depends on milkweed plants (*Asclepias syriaca*) for reproduction, as larvae feed exclusively on milkweed leaves. Adults feed on nectar from a wide variety of flowering plants, contributing to pollination. Conservation efforts focus on habitat restoration, including planting milkweed and nectar plants, protecting critical overwintering sites, and reducing the use of pesticides that harm milkweed and butterflies (U.S. FWS 2020).

Determination

The monarch butterfly primarily relies on terrestrial habitats, such as milkweed and nectar plants, which are not affected by the desalination process. There is no indication that the discharge of brine or changes in the marine ecosystem will lead to alterations in the monarch's habitat or food sources. Additionally, there is no proposed critical habitat in the action area of this pilot study. As such, EPA makes a determination that the authorized action is not likely to jeopardize the continued existence of the monarch butterfly.

Flowering Plants

Navin's barberry (Berberis nevinii)

This species is a rare evergreen shrub in the barberry family and is native to Southern California. It was listed as endangered under ESA in 1998 due to habitat loss, invasive species, and changes in fire regimes. The species occurs in limited populations within Los Angeles, Riverside, and San Bernardino counties, typically found in chaparral and coastal sage scrub habitats at elevations between 300 and 1,200 meters.

Navin's barberry is characterized by its rigid, spiny leaves, yellow flowers, and red, berrylike fruits. This flowering plant species provides food and shelter for birds and insects. Threats to this species include urban development, invasive plants that compete for resources, and altered fire regimes that disrupt its natural habitat. Conservation efforts focus on habitat protection, seed banking, and reintroduction of plants into suitable areas to promote population recovery (U.S. FWS 1998).

Determination

Nevin's Barberry is a coastal sage scrub species that is not expected to be affected by desalination discharges in the Pacific Ocean. Since the project focuses on marine water quality, there is no anticipated risk to terrestrial plants like Nevin's Barberry. There is no critical habitat in the action are of this pilot study. EPA has determined that the action will not affect the Navin's Barberry or its critical habitat.

Marine Mammals

Humpback Whale (Megaptera novaeangliae)

The humpback whale is a large migratory baleen whale known for its long migrations between feeding and breeding grounds. The Central America Distinct Population Segment (DPS) of humpback whales was listed as endangered under ESA due to population declines caused by ship strikes, entanglement in fishing gear, and habitat degradation. This population migrates between feeding grounds in Alaska and breeding grounds along the western coasts of Central America, primarily from Nicaragua to Costa Rica. The Mexico DPS, while not currently listed under the ESA, is protected under other international regulations and migrates between breeding areas off the Baja California Peninsula and feeding grounds in the northern Pacific Ocean.

Threats to both populations include entanglement in fishing gear, ship strikes, and changing weather patterns affecting their migratory routes and feeding success. Conservation efforts include habitat protection, reducing human-induced threats, and monitoring population health through both national and international collaboration. (NMFS 2023).

Humpback whales migrate through the action area in late April to early December. The current abundance estimate for the Central America DPS is approximately 1,800 individuals, which is relatively low compared to most other North Pacific breeding populations. For the Mexico DPS, the current abundance estimate is approximately 7,000 individuals (NOAA 2018).

Determination

While EPA does not expect any individuals of these whale species to take up extended residence in the test locations based on the highly migratory nature of their ecology, we do expect that some individuals could make numerous visits to at least two of the test locations (i.e., Test Sites A and B) during the pilot study due to migrations in feeding areas that include the Southern California Bight. The Southern California Bight includes a stretch of curved coastline extending from Point Conception to the coast of Mexico. The duration of exposure to the proposed action (duration of visits) for individuals of the species may be variable, but generally

can be expected to be as little as an hour up to one day at a time. Activities authorized by the permit will not cause an adverse response because salinity levels from the brine discharge are negligible and the freshwater discharge is dispersed through wave action at surface and through current at operating depth. The brine and freshwater discharges will not impact the humpback whale species as intermittent discharges. EPA consulted with National Marine Fisheries Service ("NMFS") regarding potential humpback whale entanglement with the cable attached to the vessel and desalination unit. NMFS described that such entanglement will not occur for two interconnected reasons: (a) line that supports the module hanging off the vessel, is a polyurethane wrap of materials including a steel tension cable single and therefore it is a well-maintained, taut, vertical line that is free of knots, leads, and any floating line on the surface, and (b) humpback whale are able to use sonar to detect the cable and therefore navigate to avoid encountering the taut cable. (NMFS personal comm. 2025). EPA has determined that the proposed action will have "no effect" on the ESA-listed humpback (Central American DPS and Mexico DPS) whales that occur within the action area or its critical habitat.

Sea Turtles

Leatherback Sea Turtle (Dermochelys coriacea)

The leatherback sea turtle is the largest of all sea turtles, known for its distinctive leathery, flexible shell. It was listed as endangered under ESA in 1970 due to population declines caused by habitat loss, accidental capture in fishing gear, and poaching of eggs. The leatherback's geographic range spans the Atlantic, Pacific, and Indian Oceans, with nesting populations found on tropical beaches in countries such as Trinidad and Tobago, Costa Rica, and Indonesia. These turtles are highly migratory, often traveling thousands of miles between feeding and nesting sites.

Leatherbacks primarily feed on jellyfish, and their foraging behavior contributes to controlling jellyfish populations in marine ecosystems. Threats to their survival include the loss of nesting habitat due to coastal development, pollution, and the ingestion of plastic debris mistaken for jellyfish. Conservation efforts include protecting nesting beaches, reducing bycatch with turtle excluder devices in fishing nets, and minimizing marine pollution (U.S. FWS 1978).

Determination

Leatherback sea turtles are highly migratory and may pass through the action area. The brine and freshwater discharges will not cause any effect on leatherback turtles as the increased salinity and surface freshwater levels are minimal due to low flow rates and very short duration and intermittent discharges. Additionally, the leatherback sea turtles primarily feed on jellyfish in offshore waters EPA consulted with National Marine Fisheries Service ("NMFS") regarding potential sea turtle entanglement with the cable attached to the vessel and desalination unit. NMFS described that such entanglement will not occur for two reasons: (a) line that supports the module hanging off the vessel, is a polyurethane wrap of materials including a steel tension cable single and therefore it is a well-maintained, taut, vertical line that is free of knots, leads, and any floating line on the surface, and (b) should the leatherback sea turtle encounter the cable, the turtle will simply use its flippers to bat the cable and continue moving on therefore no effect due to this encounter. (NMFS personal comm. 2025) No evidence suggests that the proposed action will lead to changes in the leatherback's habitat or food sources that would cause harm. EPA has determined that the proposed action will have "no effect" on the ESA-listed humpback (Central American DPS and Mexico DPS) whales that occur within the action area or its critical habitat.

C. Impact to Coastal Zones

The Coastal Zone Management Act ("CZMA") requires that Federal activities and licenses, including Federally permitted activities, must be consistent with an approved state Coastal Management Plan (CZMA §§ 307(c)(1) through (3)). Section 307(c) of the CZMA and implementing regulations at 40 CFR § 930 prohibit EPA from issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the activity complies with the State (or Territory) Coastal Zone Management program, and the State (or Territory) or its designated agency concurs with the certification.

The California Coastal Commission determined that the project will not affect coastal resources and that the permittee has met its CZMA responsibilities by the following:

- a. Avoiding biologically sensitive areas during operations such as Marine Protected Areas ("MPA"), National Marine Sanctuaries ("NMS"), and Essential Fish Habitat ("EFH");
- b. Reducing entanglement potential for marine organisms with a rigid polyurethane umbilical line attached to the vessel and desalination unit;
- c. Minimizing impingement of marine life by returning entrained marine life to natural waters, unharmed;
- d. Reducing the accumulation of brine through a low discharge flow rate at a depth of approximately 500 meters;
- e. Avoiding the introduction of additives into the desalination process and preventing the release of oil or hazardous substances from the vessel; and
- f. Avoiding, where practicable, areas of commercial fishing, shipping lanes, and other areas of economic significance.

D. Impact to Essential Fish Habitat

The 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act ("MSA") set forth a number of new mandates for the National Marine Fisheries Service, regional fishery management councils and other federal agencies to identify and protect important marine and anadromous fish species and habitat. The MSA requires Federal agencies to consult on Federal actions that may adversely impact EFH.

The permit contains technology-based effluent limits and other limitations as necessary for the protection of applicable aquatic life uses. The permit proposed discharge is not located in essential fish habitat. Therefore, EPA has determined that the permit will not adversely affect essential fish habitat.

E. Impact to National Historic Properties

Section 106 of the National Historic Preservation Act ("NHPA") requires federal agencies to consider the effect of their undertakings on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. Pursuant to the NHPA and 36 CFR § 800.3(a)(1), EPA is making a determination that issuing this NPDES permit does not have the potential to affect any historic properties or cultural properties. As a result, Section 106 of NHPA does not require EPA to undertake additional consulting on this permit issuance.

F. Water Quality Certification Requirements (40 CFR §§ 124.53 and 124.54)

Where the discharge originates within a jurisdiction without authority under section 401 of the CWA, EPA is the certifying agency. As stated in the public notice for this permit, EPA is also seeking public comment on Section 401 certification.

XI. STANDARD CONDITIONS

A. Reopener Provision

In accordance with 40 CFR §§ 122 and 124, this permit may be modified by EPA to include effluent limits, monitoring, or other conditions to implement new regulations, including EPA-approved water quality standards; or to address new information indicating the presence of effluent toxicity or the reasonable potential for the discharge to cause or contribute to exceedances of water quality standards.

B. Standard Provisions

The permittee is authorized to discharge from the identified facility at the outfall locations specified in the permit, in accordance with the effluent limits, monitoring requirements, and other conditions set forth in the permit. This permit authorizes the discharge of only those pollutants resulting from facility processes, waste streams, and operations that have been clearly identified in the permit application process. Any discharges not expressly authorized in the Permit cannot become authorized or shielded from liability under CWA section 402(k) by disclosure to EPA, State, or local authorities after issuance of the Permit via any means, including during an inspection.

Any pollutant loading greater than or different than the proposed discharge (the "proposed discharge" is based on the chemical-specific data and the facility's design flow as described in the permit application, or any other information provided to EPA during the permitting process) is not authorized by this permit.

EPA notes that such other discharge or increases may be allowable, but the Permittee must first submit a request to EPA to authorize such other discharge or increase. This request will allow EPA to conduct an updated reasonable potential analysis to reassess whether a WQBEL is needed for the newly proposed discharge. Permit modification or reissuance may be required before the proposed discharge would be authorized.

XII. ADMINISTRATIVE INFORMATION

A. Public Notice (40 CFR § 124.10)

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft NPDES permit or other significant action with respect to an NPDES permit or application.

B. Public Comment Period (40 CFR § 124.10)

Notice of the permit will be placed on the EPA website, with a minimum of 30 days provided for interested parties to respond in writing to EPA. The permit and fact sheet will be posted on the EPA website for the duration of the public comment period. After the closing of the public comment period, EPA is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

C. Public Hearing (40 CFR § 124.12)

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if EPA determines there is a significant amount of interest expressed during the 30-day public comment period or when it is necessary to clarify the issues involved in the permit decision.

XIII. CONTACT INFORMATION

Comments, submittals, and additional information relating to this proposal may be directed to:

Kelsey Husted EPA Region 9 (415) 972-3599 Husted.Kelsey@epa.gov

XIV. REFERENCES

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- U.S. Fish and Wildlife Service (US FWS). 2009. Spotlight Species Action Plan, California Least *Tern*, September 2009.
- U.S. Fish and Wildlife Service (US FWS). 2015. Species Assessment and Listing Priority Assignment Form: Southwestern Pond Turtle (Actinemys marmorata pallida). Sacramento Fish and Wildlife Office, California.
- U.S. Fish and Wildlife Service (US FWS). 2020. Endangered and Threatened Wildlife and Plants; 12-Month Finding for the Monarch Butterfly. Federal Register. 85 FR 81813, December 17, 2020.