NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT FACT SHEET
July 2021

Permittee Name: United States Air Force

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NPDES Permit No.: MW0020338

I. STATUS OF PERMIT

United States Air Force ("USAF" or the "permittee") has applied for the renewal of their National Pollutant Discharge Elimination System (NPDES) permit to authorize the discharge of treated effluent (i.e. reverse osmosis reject water) from Wake Island Water Plant (the "facility") to the Pacific Ocean. A complete application was submitted on June 30, 2020. Environmental Protection Agency Region IX (EPA) 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 a NPDES permit.

The permittee is currently discharging under NPDES permit MW0020338 issued on December 1st, 2015. Pursuant to 40 CFR § 122.6, the terms of the existing permit are administratively extended until the issuance of a new permit.

This permittee has been classified as a Minor discharger.

II. SIGNIFICANT CHANGES TO PREVIOUS PERMIT

Permit Condition	Previous Permit (2015 – 2020)	Re-issued permit (2020 – 2025)	Reason for change
Salinity monitoring	No salinity monitoring required.	Monthly monitoring required for salinity. Salinity monitoring must be concurrent with monitoring for temperature, pH, and ammonia.	Salinity monitoring is required to determine the applicable ammonia criteria from Attachment E to calculate the Ammonia Impact Ratio (AIR).
Priority	Monitor once in the 5-year	Monitor annually	Conducting more priority

Pollutants Scan	permit term.		pollutant scans will provide a more robust data set for effluent characterization.
Whole Effluent Toxicity (WET) Effluent Limitations	No effluent limitations for whole effluent toxicity.	Whole effluent toxicity effluent limitations established with annual monitoring required. WET testing is not required until the required salinity analysis is completed. See Part VIII.C.	The effluent contains high concentrations of heavy metals or other compounds (i.e. arsenic, chromium, copper, nickel, and zinc); these factors make it difficult to predict the toxicity of the effluent. Whole effluent toxicity testing will provide information regarding the toxicity of the effluent.
Effluent limits for chlorine, total residual (TRC)	Maximum daily and average monthly limit of 1 mg/L.	Maximum daily and average monthly limit of 0.01 mg/L established for chlorine.	Limits are revised because previous limits are not consistent with TRC limits for similar facilities. A limit of 0.01 mg/L is established based on PBJ.
Salinity Analysis	No salinity analysis required.	Salinity analysis required. See part VIII.C.	Salinity data is needed to determine appropriate WET testing requirements. See Part VIII.C.
Flow Limit	Average monthly limit of 0.220 MGD.	Average monthly limit of 0.206 MGD	The flow limit is revised to ensure the total capacity of the reverse osmosis units is not exceeded.
Ammonia Criteria	Ammonia criteria consistent with the *1999 Update of Ambient Water Quality Criteria for Ammonia* included for calculating Ammonia Impact Ratio (AIR).	Ammonia criteria consistent with the *1989 Ambient Water Quality for Ammonia (Saltwater)* included for calculating AIR.	The *1989 Ambient Water Quality for Ammonia (Saltwater)* contains ammonia water quality criteria applicable to discharges into saltwater receiving waters.

III. GENERAL DESCRIPTION OF FACILITY

The Wake Island Water Plant is located on Wake Island, which is located approximately 1,500 miles east of Guam and 2,300 miles west of Honolulu, Hawaii. Wake island is administered by USAF under agreement with the Department of the Interior and the center of activity on the island is at Wake Island Airfield. USAF maintains and operates the reverse osmosis treatment plant which provides drinking water for Wake Island.

The reverse osmosis treatment plant desalinates seawater for use as drinking water. Approximately 100,000 gallons of drinking water and 200,000 gallons of brine water are produced daily. The brine water is discharged out of Outfall 008 located at 19˚ 17’ 40.92” North and 166˚ 38’ 48.53” East. The treated water is chlorinated, stored, and distributed.

IV. DESCRIPTION OF RECEIVING WATER

The reverse osmosis reject water is discharged from Outfall 008 into the lagoon adjacent to Wake Island, which is part of the Pacific Ocean and located at 19˚ 17’ 40.92” North and 166˚ 38’ 48.53” East.

There are no impairments or TMDLs applicable to the receiving water.

V. DESCRIPTION OF DISCHARGE

The Wake Island Water Plant desalinates seawater using reverse osmosis. Reverse osmosis is the process by which a solution is forced through a membrane, separating the solute and the solvent. Intake water is pumped from two shallow wells that have been infiltrated with sea water, and then pumped into two reverse osmosis treatment systems. Each treatment system includes a Seawater Desalinator (Model No. SWL318TC), and each desalinator has a design flow of 0.103 MGD. Phosphate, lime, and chlorine are added to the product water, and approximately 100,000 GPD are stored and/or distributed as drinking water. The distributed drinking water is used for residential and industrial uses on Wake Island.

Approximately 200,000 GPD of reverse osmosis reject water is discharged continuously from Outfall 008.The discharge may contain elevated levels of salinity, sediment, metals and other pollutants that were present in the intake water and concentrated by reverse osmosis treatment.

Table 1 shows data related to discharge from Outfall 008 based on the permittee's discharge monitoring reports. More information is available on Enforcement and Compliance History Online (ECHO) at https://echo.epa.gov/detailed-facility-report?fid=110064608697. Pollutants believed to be absent or never detected in the effluent are not included. The data show elevated flow and elevated concentrations of ammonia. All exceedances are discussed further in Part VI.B.5 Some of the parameters that were reported are not limited in the 2015-2020 permit (i.e. arsenic, chromium, copper, nickel, and zinc).

Table 1. Discharge Monitoring Report (DMR) Data for Outfall 008 from 2015 to 2020[1]

Parameter	Units	2015-2020 Permit Effluent Limitations			Effluent Data			
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly	Highest Average Weekly	Highest Maximum Daily	Number of Samples
Flow Rate	MGD	0.220	--	[2]	0.27	--	0.84[5]	55
Turbidity	NTU	75	100	225	31.51	--	65	55
Ammonia (as N)	mg/L	[2]	--	[2]	1.39	--	1.59	55
Ammonia Impact Ratio (AIR)	Ratio	1.0[3]	--	--	1.24	--	--	55
Chlorine, Total Residual (TRC)	mg/L	1.0	--	1.0	0.05	--	0.33	55
Hardness, total as (CaCO3)	mg/L	[2]	--	[2]	12,000		12,000	55
Magnesium	mg/L	[2]	--	2700	2450	--	--	55

Parameter	Units	2015-2020 Permit Effluent Limitations			Effluent Data			
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly	Highest Average Weekly	Highest Maximum Daily	Number of Samples
Selenium	µg/L	(2)	--	370	750	--	--	52
Arsenic	µg/L	(4)			--	--	5.04	1
Chromium	µg/L	(4)			--	--	4.66	1
Copper	µg/L	(4)			--	--	128	1
Nickel	µg/L	(4)			--	--	29.3	1
Zinc	µg/L	(4)			--	--	32.5	1
Temperature	˚C	(2)	--	--	30	--	--	55
pH	Standard Units	Not < 6.0 SU, Not > 9.0 SU			6.09 – 8.68 (min - max)			55

(1) This table lists DMR data.
(2) No effluent limits were established; but monitoring and reporting were required.
(3) When monitoring for total ammonia (as nitrogen), pH, temperature, and salinity monitoring must be concurrent. The Ammonia Impact Ratio (AIR) is calculated as the ratio of the ammonia value in the effluent and the applicable calculated ammonia standard found in Attachment E of the permit. See Attachment D of the permit for a sample log to help calculate and record the AIR values. The AIR is the ammonia effluent limit and must be reported in the DMRs in addition to the ammonia-N, temperature, pH, and salinity effluent values.
(4) The 2015 – 2020 permit did not contain effluent limitations for arsenic, chromium, copper, nickel, and zinc.
(5) The discharger reported a flow of 91500 MDG on March 31, 2018. This concentration is much higher than regularly reported data, and the facility did not have any maintenance issues during this time. Therefore, the next highest value of 0.84 MGD is used. The measurement of 0.84 MGD is also consistent with the highest daily concentration of 0.89 MGD reported on the discharger's application.

VI. DETERMINATION OF NUMERICAL EFFLUENT LIMITATIONS

EPA has developed effluent limitations and monitoring requirements in the permit 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"). EPA has established the most stringent of applicable technology-based or water quality-based standards in the permit, as described below.

A. Applicable Technology-Based Effluent Limitations

Effluent Limitations Guidelines (ELGs)

EPA has established national standards based on the performance of treatment and control technologies for wastewater discharges to surface waters for certain industrial categories. Effluent limitations guidelines 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).

Currently, there are no Effluent Limitation Guidelines applicable to reverse osmosis desalination facilities.

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, designated uses, and impairments of receiving water
2. Applicable Ocean Discharge Criteria
3. Dilution in the receiving water
4. Type of industry
5. History of compliance problems and toxic impacts

1. Applicable Standards, Designated Uses, and Impairments of Receiving Water

No State water quality standards have been established for Wake Island, so there are no applicable State water quality standards, designated uses, or impairments.

2. Applicable Ocean Discharge Criteria

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 12 nautical miles offshore. Ocean Discharge Criteria are applicable because the permit authorizes discharge into the ocean within twelve nautical miles of the shore. Compliance with Ocean Discharge Criteria is typically not assessed because discharges that are in compliance with section 301(g), 301(h), or 316(a)

variance requirements or State water quality standards are presumed to be in compliance with Ocean Discharge Criteria (40 CFR § 125.122(b)). In this case, there are no applicable State water quality standards, so compliance with Ocean Discharge Criteria cannot be presumed.

Ocean Discharge Criteria establish that point source discharges into territorial seas may not cause unreasonable degradation to the marine environment (40 CFR § 125.123). Unreasonable degradation means: (1) Significant adverse changes in ecosystem diversity, productivity and stability of the biological community within the area of discharge and surrounding biological communities; (2) Threat to human health through direct exposure to pollutants or through consumption of exposed aquatic organisms; or (3) Loss of esthetic, recreational, scientific or economic values which is unreasonable in relation to the benefit derived from the discharge (40 CFR 125.121(e)). The Ocean Discharge Criteria include a list of ten factors to be considered to determine whether a point source discharge may cause unreasonable degradation (40 CFR § 125.122). These factors are:

(1) Quantities, composition, and potential for bioaccumulation or persistence of the pollutants discharged;
(2) Potential transport of such pollutants;
(3) Composition and vulnerability of biological communities exposed to such pollutants;
(4) Importance of the receiving water area to the surrounding biological community;
(5) Existence of special aquatic sites;
(6) Potential impacts on human health;
(7) Impacts on recreational and commercial fishing;
(8) Applicable requirements of approved Coastal Zone Management Plans;
(9) Other relevant factors relating to the effects of the discharge; and
(10) Marine water quality criteria developed pursuant to Section 304(a)(1) of the CWA.

The factors analyzed here are (1), (2), (5), and (10). Factors (3) and (4) are discussed in detail in Part X.B of the factsheet. Factors (6), and (7) are not applicable to this discharge, as there is no fishing, shellfishing, or recreation within the lagoon or near where the lagoon meets the ocean. Factor (8) and (9) are not applicable because there is no applicable Coastal Zone Management Plan and all known factors of the discharge have been considered.

Factors 1 & 2: The quantities, composition and potential for bioaccumulation or persistence of the pollutants to be discharged and potential transport of such pollutants

Table 1 includes information regarding the quantities and composition of the pollutants present in the effluent. Effluent monitoring data show elevated levels of toxic pollutants including ammonia, zinc, copper, nickel, chromium, arsenic, and selenium. Metals have the potential to bioaccumulate and persist in the aquatic environment, causing adverse effects to marine life in the receiving waters. Additionally, there is a potential for pollutants from the discharge to be transported by biological, physical, or chemical processes. Because there are no applicable State water quality standards, a reasonable potential analysis was completed for toxicity, and a chronic toxicity effluent limitation was included in the permit. Chronic toxicity effluent limits ensure that the quantity and composition of pollutants discharged will not cause adverse impacts to the marine environment. Furthermore, establishing chronic toxicity effluent limitations ensure that any impacts cause by the bioaccumulation, transport and persistence of discharged pollutants are minimized.

Factor 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 reef

Effluent from the facility is discharged into receiving waters that are located within the Wake Atoll National Wildlife Refuge (hereinafter "refuge"). Coral, including two species of endangered coral (*Acropora globiceps* and *Acropora retusa*), are present within the lagoon. Additionally, a coral reef is present near where the lagoon meets the ocean. Discharge monitoring data show elevated levels of toxic pollutants that may adversely affect the chemical characteristics of the marine environment within the refuge, as well as the coral present within the refuge. EPA completed a reasonable potential analysis for toxicity and established chronic toxicity effluent limitations to ensure the discharge will not adversely affect the Wake Atoll National Wildlife refuge or the marine organisms present within it.

Factor 10: Marine water quality criteria developed pursuant to section 304(a)(1)

EPA's Nationally Recommended Water Quality Criteria found in section 304(a) of the CWA (hereinafter "304(a) criteria") are criteria developed by EPA that are used as guidance for establishing water quality standards and controlling discharges of pollutants to protect aquatic life. These criteria include narrative criteria as well as numeric thresholds for pollutant toxicity to aquatic life. EPA has determined that more monitoring is necessary before applying numeric 304(a) criteria, as the effluent cannot be accurately characterized with current monitoring data. EPA has included annual monitoring for priority pollutants in order to provide a more robust dataset for effluent characterization. EPA has established chronic toxicity effluent limitations using narrative 304(a) criteria, in order to determine the toxicity of the effluent. Factor 10 has been considered and incorporated, as 304(a) criteria were considered in the establishment of monitoring requirements and effluent limitations in the permit.

Conclusion

EPA has considered the 10 factors listed at 40 C.F.R. 125.122 and determined that the discharge will not cause unreasonable degradation to the marine environment. This is due to the establishment of chronic toxicity effluent limitations in the permit that are derived from the 304(a) criteria established by EPA. In addition, EPA has determined that the discharge may affect, but is not likely to adversely affect, any threatened or endangered species (see part X.B. for consideration of the impact to threatened and endangered species).

3. Dilution in the Receiving Water

The permittee has not requested a mixing zone or provided a dilution study; therefore, no dilution was considered in the development of effluent limits applicable to the discharge.

4. Type of Industry

Effluent from reverse osmosis desalination facilities typically include pollutants that are present in the intake water, and chemicals that are added during the water treatment process. Pollutants in the intake water may be naturally occuring or orginating from human sources. The

reverse osmosis treatment concentrates pollutants to concentrations higher than the intake water. Chemicals introduced during the treatment process at the facility which may be discharged include chlorine, which is used to disinfect the drinking water before it is distributed, and other chemicals that are used to clean the membranes in the reverse osmosis units.

5. History of Compliance Problems and Toxic Impacts

In the previous five-year permit term, there was an instance of effluent limitation violation for both AIR and Flow. An AIR value of 1.24 was submitted on August 31, 2019, and a flow value of 0.27 MGD, as a monthly average, was submitted on July 31, 2017. Additionally, there were sixteen instances of effluent limitation violations for Selenium.

C. Rationale for Numeric 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.

Flow

The flow limit is revised to ensure the capacity of the RO units is not exceeded. An average monthly flow limit of 0.206 MGD is established in the permit, as there are two units each with a capacity of 0.103 MGD. Continuous monitoring is required.

Temperature

No limits are established for temperature, but temperature must be monitored and reported. Measurements should be taken concurrently with ammonia, pH, and salinity. Monitoring is required monthly.

Hardness

No limits are established for hardness, but hardness must be monitored and reported. Monitoring is required monthly.

pH

The discharge may contain elevated levels of salt, chlorine, and other parameters that may alter pH. Changes in pH can affect biological processes and the behavior of chemicals, which can alter the chemical characteristics and toxicity of the discharge. The permit retains the requirement that pH be maintained in the range of 6.0 and 9.0 standard units at all times. Monitoring is required monthly and pH measurements are to be taken concurrently with ammonia, salinity, and temperature measurements.

Turbidity

Turbidity is a measurement of light penetration, with high turbidity indicating less light is penetrating through the water. Corals are present around Wake Island and occur near Outfall 008. Corals are phototrophic; they derive their food from sunlight penetrating through the water

above. Due to the presence of corals near the Outfall and the importance of low turbidity for coral health, limits for turbidity are retained in the permit. EPA's Nationally Recommended Water Quality Criteria contain criteria for settleable solids and turbidity in the form of a narrative statement: "There shall be no discharge of pollutants to the receiving water that will produce objectionable color, odor, taste, or turbidity." To ensure this narrative criterion is met, an average monthly limit of 75 NTU, average weekly limit of 100 NTU, and a maximum daily limit of 225 NTU are retained in the permit. Monitoring is required monthly.

Ammonia and Ammonia Impact Ratio

Reverse osmosis treatment concentrates pollutants present in the intake water, so osmosis wastewater may contain elevated levels of ammonia that are toxic to aquatic organisms. Due to the exceedance of the previous AIR limit of 1.0, EPA has determined that there is a reasonable potential that the discharge will cause or contribute to an exceedance of EPA's Nationally Recommended Criteria for ammonia for the protection of aquatic life. Ammonia effluent limitations are established in the permit using the Ammonia Impact Ratio ("AIR").

The AIR is calculated as the ratio of the ammonia value in the effluent to the applicable ammonia water quality standard. EPA's Nationally Recommended Water Quality Criteria list *1989 Ammonia Water Quality Criteria for Aquatic Life (Saltwater)* as the applicable criteria for ocean discharges to ensure the protection of aquatic life. The *1989 Ammonia Water Quality Criteria for Aquatic Life (Saltwater)* contains ammonia criteria which are pH, temperature, and salinity dependent. Therefore, pH, temperature, salinity, and ammonia sampling must be concurrent. See Attachment D of the permit for a sample log to help calculate and record the AIR values and Attachment E of the permit for applicable criteria.

The permittee also must monitor and report ammonia effluent values in addition to the AIR value. AIR provides more flexibility than a specific, fixed effluent concentration and is protective of water quality standards since the value is set relative to the water quality criteria. If the reported value exceeds the AIR limitation, then the effluent ammonia-N concentration exceeded the *1989 Ammonia Water Quality Criteria for Aquatic Life (Saltwater)*. Monitoring is required monthly.

Total Residual Chlorine

Chlorine is added to the processed water in order to disinfect the drinking water prior to distribution. Chlorine is known to be toxic to aquatic organisms even in low concentrations. The previous permit established a daily maximum and monthly average limit of 1 mg/L. Drinking water facilities in similar geographic location and with similar facility processes are held to more stringent TRC limits. For example, Ugum Surface Water Treatment Plant located in Talofofo, Guam, treats surface water to produce drinking water. Membrane filters are used to treat surface water, and the drinking water is chlorinated before distribution. The NPDES permit (GU0020371) for this facility establishes a maximum daily limit for chlorine of 0.05 µg/L, or 0.0005 mg/L. It is evident that lower chlorine effluent concentrations are logistically and economically achievable for the Wake Island facility. A maximum daily effluent limitation of 0.01 mg/L for chlorine is established in the permit based on BPJ. Monitoring is required monthly.

Magnesium

The discharge data show elevated levels of magnesium. Magnesium is likely naturally present in the intake water and may be concentrated by reverse osmosis treatment. Monitoring data show that concentrations of magnesium in the discharge may exceed the previously established limit, based on the coefficient of variation and number of samples. A limit of 2700 mg/L as a daily maximum is retained in the permit. Monitoring is required monthly.

Selenium

Selenium is present in the effluent in elevated concentrations. Selenium is likely naturally occuring in the intake water and is concentrated by reverse osmosis treatment. Selenium is beneficial in low concentrations, but is toxic to aquatic life in higher concentrations. In high concentrations, Selenium is known to cause reproductive impairments in aquatic life, and affect juvenile growth and mortality. Selenium may bioaccumulate in aquatic food webs and affect wildlife that consume aquatic organisms. An average monthly limit of 370 µg/L is retained in the permit. Monitoring is required monthly.

Whole Effluent Toxicity

EPA's Nationally Recommended Water Quality Criteria include the following narrative standard: "There shall be no discharge of pollutants to the receiving water that will cause injury to, or be toxic to, or produce adverse physiological responses in humans, animals, or plants." Toxic pollutants, specifically arsenic, chromium, copper, selenium, and nickel, are present and detected in the effluent. The concentrations of these toxic pollutants are uncertain as only one priority pollutant scan was required in the last five-year permit term. Due to elevated concentrations of toxic pollutants in the effluent, and uncertainty regarding the additive and compounding effects of these pollutants, EPA has determined that there is reasonable potential that the discharge will cause or contribute to an exceedance of the narrative criterion. In order to ensure the narrative criterion is met, chronic toxicity effluent limitations are established in the permit. Monitoring is required annually. Toxicity monitoring must be concurrent with priority pollutant monitoring.

D. Anti-Backsliding

Section 402(o) and 303(d)(4) of the CWA and 40 CFR § 122.44(l)(1) prohibits 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. The permit does not establish any effluent limits less stringent than those in the previous permit, except for ammonia. This is due to the inclusion of the *1989 Ambient Water Quality for Ammonia (Saltwater)* instead of EPA's *1999 Update of Ambient Water Quality Criteria for Ammonia (Freshwater)*. The establishment of less stringent limits for ammonia is consistent with anti-backsliding requirements of the CWA and federal regulations.

The statue identifies six exceptions in CWA Section 402(o)(2) where effluent limitations may be relaxed and includes exceptions for technical mistakes or mistaken interpretations of law. See 40 CFR § 122.44(l)(2)(i)(B)(2). The ammonia criteria that were established previously were for freshwater; however, the effluent is discharged into saltwater and thus the 1989 Saltwater criteria should have been used. This was a technical mistake in the previous permit; thus, the establishment of less stringent limits for ammonia meets the exception for technical mistakes or mistaken interpretations of the law.

E. Antidegradation Policy

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

EPA determined that the discharge is not expected to adversely affect receiving water bodies or result in degradation of water quality due to the effluent limitations established in the permit that are derived from aquatic life criteria.

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, 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.

B. Priority Toxic Pollutants Scan

A Priority Toxic Pollutants scan shall be conducted annually to ensure that the discharge does not contain toxic pollutants in concentrations that may cause a violation of water quality standards. The permittee shall perform all effluent sampling and analyses for the priority pollutants scan in accordance with the methods described in the most recent edition of 40 CFR § 136, unless otherwise specified in the permit or by EPA. 40 CFR § 131.36 provides a complete list of Priority Toxic Pollutants.

C. Whole Effluent Toxicity (WET) Requirements

Aquatic life is a public resource protected in surface waters covered by the CWA. As evidence that CWA requirements protecting aquatic life from chronic and acute toxicity are met in surface waters receiving the NPDES discharge, samples are collected from the effluent and tested for toxicity in a laboratory using EPA’s WET methods. These aquatic toxicity test results are used to determine if the NPDES effluent causes toxicity to aquatic organisms. Toxicity testing is important because for scores of individual chemicals and compounds, chemical-specific environmentally protective levels for toxicity to aquatic life have not been developed, or set as water quality standards. In due course, some such chemicals and compounds can eventually make their way into effluents and their receiving surface waters. When this happens, toxicity tests of effluents can demonstrate toxicity due to present, but unknown, toxicants (including possible synergistic and additive effects), signaling a water quality problem for aquatic life.

EPA's WET methods are systematically-designed instructions for laboratory experiments that expose sensitive life stages of a test species (e.g., fish, invertebrate, algae) to both an NPDES effluent sample and a negative control sample. During the toxicity test, each exposed test organism can show a difference in biological response; some will be undesirable differences. Examples of undesirable biological responses include, but are not limited to, eggs not fertilized, early life stages that grow too slowly or abnormally, or death. At the end of a toxicity test, the different biological responses of the organisms in the effluent group and the organisms in the control group are summarized using common descriptive statistics (e.g., means, standard deviations, coefficients of variation). The effluent and control groups are then compared using an applicable inferential statistical approach (i.e., hypothesis testing or point estimate model) chosen by the permitting authority and specified in the NPDES permit. The chosen statistical approach is compatible with both the experimental design of the WET method. Based on this statistical comparison, a toxicity test will demonstrate that the effluent is either toxic or not toxic, in relation to the permit's toxicity level for the effluent, which is set to protect the quality of surface waters receiving the NPDES discharge. Because test procedures for measuring toxicity to estuarine and marine organisms of the Pacific Ocean are not listed at 40 CFR part 136, this permit includes (under 40 CFR 122.41(j)(4) and 122.44(i)(1)(iv)) requirements for the use of test procedures not approved at part 136 consistent with the EPA's WET Methods Rule (2002).[1]

EPA recommends inferential statistical approaches that a permitting authority chooses from to set a protective level for toxicity in an NPDES discharge. The statistical approach chosen for this permit is based on bioequivalence hypothesis testing and is called the Test of Significant Toxicity (TST) statistical approach. It is described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document* (EPA 833-R-10-004, 2010; TST Technical Document) and Denton DL, Diamond J, and Zheng L. 2011. Test of significant toxicity: A statistical application for assessing whether an effluent or site water is truly toxic. *Environ Toxicol Chem* 30:1117-1126. This statistical approach supports important choices made within a toxicity laboratory which favor quality data and EPA's intended levels for statistical power when true toxicity is statistically determined to be unacceptably high (≥ 25 PE, Percent (%) Effect), or acceptably low (< 10 PE). Example choices are practices supporting healthy test organisms, increasing the minimum recommended replication component of the WET method's experimental design (if needed), technician training, etc. TST results do not often differ from other EPA-recommended statistical approaches using hypothesis testing (Diamond D, Denton D, Roberts J, Zheng L. 2013. Evaluation of the Test of Significant Toxicity for determining the toxicity of effluents and ambient water samples. *Environ Toxicol Chem* 32:1101-1108.). The TST maintains EPA's desired low false positive rate for WET methods—the probability of declaring toxicity when true toxicity is acceptably low ≤ 5%—when quality toxicity laboratories conduct toxicity tests (TST Technical Document; Fox JF, Denton DL, Diamond J, and Stuber R. 2019. Comparison of false-positive rates of 2 hypothesis-test approaches in relation to laboratory toxicity test performance. *Environ Toxicol Chem* 38:511-523.). Note: The false positive rate is a long-run property for the toxicity laboratory conducting a WET method. A low false positive rate is indicted by a low long-run toxicity laboratory control coefficent of variation for the test species/WET method, by examining a minimum of 30 to 50 toxicity tests.

[1] https://www.federalregister.gov/documents/2002/11/19/02-29072/guidelines-establishing-test-procedures-for-the-analysis-of-pollutants-whole-effluent-toxicity-test

For ocean discharges governed by CWA § 403(c) and implementing regulations, the choice of TST is also based on EPA's recommendation to apply statistical considerations linking NPDES monitoring data, performance, and decision-making prior to data collection. See *CWA § 403: Procedural and Monitoring Guidance* (EPA 842-B-94-003, 1994), pages 37, 38, 209. Examples of such statistical considerations include defining acceptable type I (α) and type II (β) errors[2]; applying power analysis to evaluate the appropriate number of replicates (n) based on a prior knowledge of variation observed in historical data; etc.). Accordingly, statistical rigor (trustworthiness) is considered by EPA under 40 CFR § 125.122(a) in choosing the TST statistical approach for this permit because such components are explicitly considered.

In setting the permit conditions for chronic toxicity and conditions for discharge, EPA is using a test species/chronic short-term WET method and a discharge Instream Waste Concentration (IWC) representing conservative assumptions for effluent dilution necessary to protect receiving water quality. The IWC is a discharge-specific term based on the permit's authorized mixing zone or initial dilution. Generally, the dilution model result "S" from Visual Plumes/Cormix is used. S is the volumetric dilution factor, i.e. 1 volume effluent is diluted with S − 1 volumes surface water) = [(Ve + Va) / Ve]. Following the mass balance equation, if the dilution ratio D = Qs / Qe, then [(Qe + Qs) / Qe] = 1 + D = S.

For this discharge, S = 1 (i.e., no authorized dilution). The discharge-specific IWC = 1 to 1 dilution (1:1, 1/1) = 100% effluent. The IWC made by the toxicity laboratory is mixed as 1 part solute (i.e., effluent) to 0 parts dilutant (1: (1 – 1)) for a total of 1 part.

The TST's null hypothesis for chronic toxicity (H_o) is: In-stream Waste Concentration (IWC) mean response (% effluent) ≤ 0.75 Control mean response. The TST's alternative hypothesis is (H_a): IWC mean response (% effluent) > 0.75 Control mean response. For this permit, results obtained from a single chronic toxicity test are analyzed using the TST statistical approach, where the required chronic toxicity IWC for Discharge Point Number 008 is 100% effluent.

For NPDES samples for toxicity testing, the sample hold time begins when the 24-hour composite sampling period is completed (or the last grab sample in a series of grab samples is taken) and ends at the first time of sample use (initiation of toxicity test). 40 CFR § 136.3(e) states that the WET method's 36-hour hold time cannot be exceeded unless a variance of up to 72-hours is authorized by EPA. In a June 29, 2015 inter-office memorandum, EPA Region 9 authorized a hold time variance of up to 72-hours applicable only to Pacific Island Territory permittees **which ship the NPDES sample to the continental U.S. for toxicity testing**, with conditions (see Part II.C.4.b in NPDES permit).

[2] Type I error (α) is the error of rejecting the null hypothesis that should have been accepted. Type II (β) error is the error of accepting the null hypothesis that should have been rejected. For toxicity tests, the true population mean (μ) refers to the mean for a theoretical statistical population of results from indefinite repetition of toxicity tests on the same control water and sample (e.g., a 24-hour composite sample of effluent). For an individual toxicity test, there must be a statistical analysis to determine if the null hypothesis is rejected in favor of the alternative hypothesis—in other words, that the difference in sample and control means is real and not simply reflective of random variation among the tested organisms.

Species sensitivity screening for chronic toxicity is not an automatic requirement in this permit. However, the permit retains a species sensitivity screening condition as an option for the permitting authority to exercise, particularly when the quality of the permitted discharge has changed, or is expected to change, during the permit term.

D. Salinity Analysis to Determine Whole Effluent Toxicity Requirements

The effluent likely contains high concentrations of salt due to salt being removed from the intake water and concentrated in the effluent by reverse osmosis treatment. Salinity concentrations in the effluent have not been measured previously.

A salinity analysis is needed to ascertain the range of salinity of this facility. The WET testing methods have salinity ranges for the specific test species.[3] Therefore, it is essential that the facility conduct this salinity analysis to determine the appropriate toxicity test species that could tolerate the range of salinity in representative samples collected for WET testing.

A 30-day salinity analysis is required in the permit. The requirements are below and included in the permit.

Table 10: Salinity Analysis Requirements

Parameter	Units	Frequency	Duration	Sample Type
Salinity	Parts per thousand (ppt)	2x/week	30 days	Grab(1)(2)

(1) The permittee shall monitor both the effluent, influent, and receiving water. Effluent samples shall be taken after inplant return flows and the last treatment process and prior to mixing with the receiving water, where representative samples can be obtained. Influent samples shall be taken after the intake water is pumped into the facility and prior to any treatment. The receiving water sample shall be water column samples and taken at least 1000 feet away from the outfall.

(2) Salinity shall be measured using a method approved by USEPA.

The results of the salinity analysis shall be submitted to R9NPDES@epa.gov no later than 90 days after the effective permit date. The results shall include salinity data from the 30-day salinity analysis and indicate the chronic toxicity parameter from Table 2 of the permit that has been chosen based on the salinity measurements.

X. OTHER CONSIDERATIONS UNDER FEDERAL LAW

A. Consideration of Environmental Justice

EPA conducted a screening level evaluation of vulnerabilities in the community posed to residents near the vicinity of the facility using EPA's EJSCREEN tool, but the area is too small or sparsely populated to generate an EJSCREEN chart. There is a very small civilian population on Wake Island, and no permanent civilian community. Environmental justice impacts have been considered, and environmental justice concerns are considered to be very low in the vicinity of the discharge.

[3] https://www.waterboards.ca.gov/water_issues/programs/ocean/desalination/docs/saltoxfr08012.pdf

B. Impact to Threatened and Endangered Species

Section 7 of the Endangered Species Act 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 critical habitat.

Action Area

The action area is defined as the lagoon which Outfall 008 discharges into, which is surrounded by Wilkes Island, Peale Island, and Wake Island (hereinafter "the lagoon"). The terrestrial footprint of the facility, which is located on Wake Island near Outfall 008, is also part of the action area. The action area does not extend to the Pacific Ocean outside of the lagoon, as the effluent will become heavily diluted upon reaching the ocean and mixing with sea water.

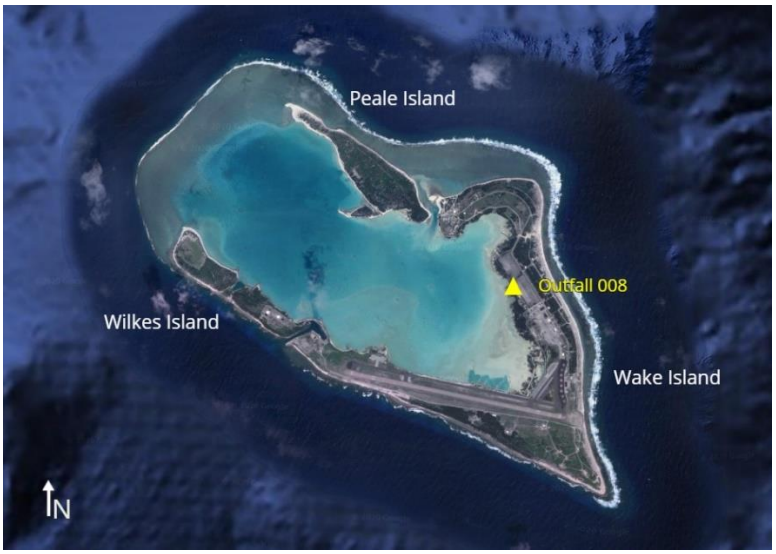


Figure 1. Wake Island, Peale Island, and Wilkes Island. The lagoon surrounded by these three islands is the action area, and yellow triangle indicates the location of Outfall 008.

Listed Species in the Action Area

On October 2, 2020, EPA sent a letter to the U.S. Fish and Wildlife's (USFWS) Pacific Islands Office requesting a list of threatened and endangered species in the vicinity of the lagoon. USFWS responded to EPA with a list of species under USFWS jurisdiction in the vicinity of the discharge, listed below.

Status	Species/Listing Name
E	Central West Pacific Green Sea Turtle *(Chelonia mydas)*
E	Hawksbill Turtle (*Eretmochelys imbricata*)[1]

On February 22, 2021, the National Marine Fisheries Service (NMFS) issued a letter to the United States Air Force (USAF) indicating that NMFS could concur with the determination that the proposed action to continue operating the reverse osmosis (RO) plant on Wake Island may affect, but is not likely to adversely affect the threatened and endangered species in the vicinity of the lagoon. The NMFS letter identified endangered and threatened species in the vicinity of Outfall 008, which are listed below ((E = endangered, T = threatened):

Status	Species/Listing Name
E	Central West Pacific Green Sea Turtle *(Chelonia mydas)*
E	Hawksbill Turtle (*Eretmochelys imbricata)*
T	Indo West Pacific Scalloped Hammerhead Shark *(Sphyrna lewini)*
T	Coral *(Acropora globiceps)*
T	Coral *(Acropora retusa)*

Central West Pacific Green Sea Turtle and Hawksbill Turtle

Both species of turtles have been sighted in the lagoon, but sightings are rare. The lagoon does not offer good habitat for turtles, as there is minimal algae growth and minimal habitat for marine macroinvertebrates. There has been no documented turtle breeding on Wake Island, and these species of turtles don't typically beach themselves outside of breeding season. If a turtle were to come into contact with the effluent, the individual would be able to pass through the effluent quickly or flee the high-concentration area. Additionally, the permit establishes limits that will ensure the protection of aquatic life.

USFWS provided information regarding activities that could adversely affect terrestrial sea turtle habitat and provided recommendations for minimizing impacts. These recommendations have been included, as applicable, in the permit to minimize impacts on sea turtle breeding, should sea turtles attempt to nest on Wake Island. The recommendations relate primarily to construction and other activities that cause compaction of nesting habitat. The effects of the proposed action do not include construction or other sand-compacting activities.

Due to the limited food and habitat offered by the lagoon, as well as the ability of individuals of these species to move quickly away from the effluent, EPA has determined that the action "may affect, but is not likely to adversely affect" the Central West Pacific Green Sea Turtle and Hawksbill Turtle. EPA has determined that the action will have no effect on sea turtle nesting habitat because sea turtles are not known to nest in the action area.

Indo West Pacific Scalloped Hammerhead Shark

There was one sighting of a scalloped hammerhead shark in 2007 by a NOAA diver in the lagoon. Hammerhead Shark sightings are rare as there is minimal prey in the lagoon due to high temperatures and minimal refuge. The fringing reef around Wake Island provides better habitat for prey species, and thus better habitat for hammerhead sharks. If an individual of this species were to enter the lagoon and come in contact with the effluent, the individual would be able to move away quickly.

Due to the infrequency of sightings in the lagoon, as well as the existence of more preferred habitat outside of the action area and the ability of the individuals to quickly move away from the effluent, EPA has made a "may affect, but not likely to adversely affect" determination for the Indo West Pacific Scalloped Hammerhead Shark.

Corals

There are two species of coral, both in the Acropora genus, potentially present in the lagoon: *Acropora retusa* and *Acropora globiceps*. These are both species of stony corals, which are a type of reef-building coral. In order to establish and thrive in an area, reef-building corals need the water temperature to be within a certain range (typically 25 °C-30 °C), as well as hard substrate, enough light, adequate water flow, and good water quality. The water near the outfall

can reach temperatures of 100 °F, and is characterized by a sandy substrate. These environmental factors are likely not directly caused by the effluent from Outfall 008, as temperatures of the effluent in the previous permit term didn't exceed 86 °F (30 °C) and the sandy substrate is naturally occuring.

The turbidity levels present in the effluent pose a threat to the corals in the vicinity, as corals require adequate light for photosynthesis performed by their zooxanthellae. However, it is unlikely that the turbidity level is preventing coral growth in that area of the lagoon, as the patch of high density coral growth is approximately 800 feet from the outfall, and the substrate and water temperature near the outfall are not adequate for coral growth.

The current flows into the lagoon from the north west, and flows out of the lagoon through a channel between Peale Island and Wake Island (Figure 2). Thus, the effluent would most likely move north east to exit the lagoon. Coral density appears to be better predicted by substrate type than proximity to the outfall or proximity to the path of effluent exiting the lagoon (Figure 3).

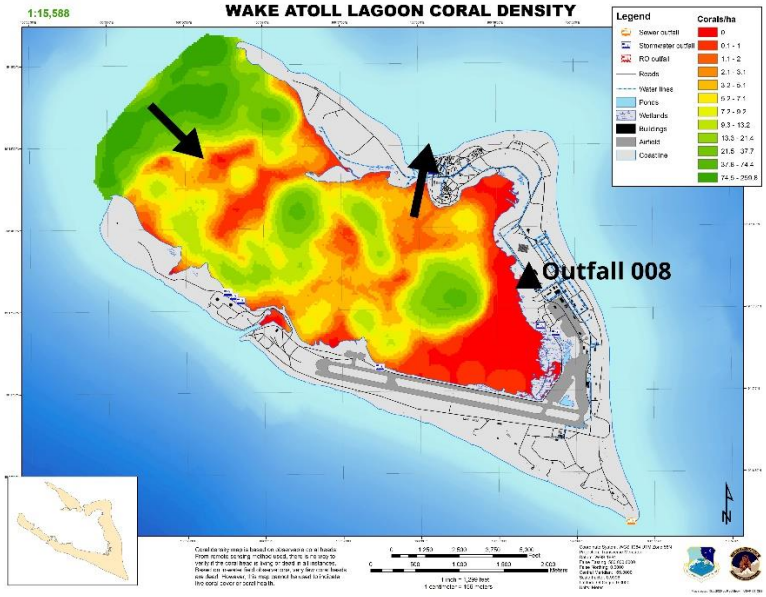
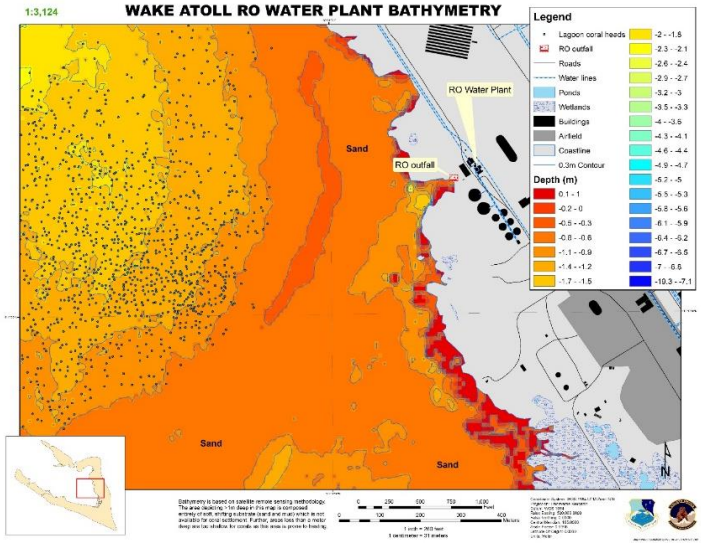


Figure 2. Coral density in the lagoon. The path of water exiting and entering the lagoon is indicated by arrows.



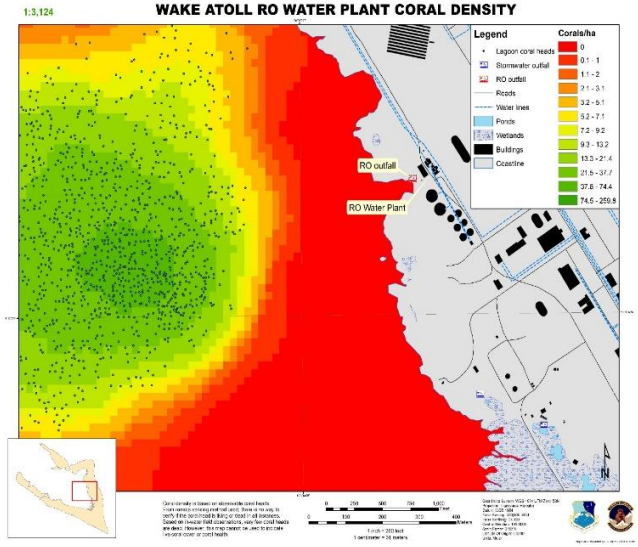


Figure 3. Bathymetry and Coral Density in the lagoon near Outfall 008.

Due to the substrate type and water temperature, it is unlikely that corals would establish near the outfall. Corals growth in the lagoon does not appear to be predicted by proximity to the outfall. Effluent may come in contact with corals, but exposure would be brief, and it is unlikely that suspended sediments would travel far enough to impact areas of high-density coral growth. Due to substrate considerations, limited exposure of high density coral patches to the effluent, and the localized effects of turbidity, EPA has made a "may affect, but is not likely to adversely affect" determination for the two listed species of coral, *Acropora retusa* and *Acropora globiceps.*

Conclusion

EPA has determined reissuance of the NPDES permit for the Wake Island Water Plant may affect, but is not likely to adversely affect Central West Pacific Green Sea Turtle, Hawksbill Turtle, Indo West Pacific Scalloped Hammerhead Shark, the two listed species of coral, or critical habitat.

On February 22, 2021, NMFS issued a letter to USAF indicating that NMFS concurs with the determination that the proposed action to continue operating the reverse osmosis (RO) plant on Wake Island may affect, but is not likely to adversely affect the Central West Pacific Green Sea Turtle, Hawksbill Turtle, Indo West Pacific Scalloped Hammerhead Shark, the two listed species of coral, or critical habitat. EPA confirmed this concurrence with NMFS on May 7, 2021.

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.

There are no applicable State or Territory Coastal Zone Management programs that would need to approve the permit.

D. Impact to Essential Fish Habitat and Habitat Areas of Particular Concern

The 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act (MSA) set forth a number of 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 determine whether their actions may adversely impact Essential Fish Habitat (EFH).

The Fishery Ecosystem Plan for the Pacific Remote Island Areas (hereinafter "Fishery Ecosystem Plan")[4] includes EFH and Habitat Areas of Particular Concern (HAPC) designations for the Pacific Remote Island Area (PRIA), which includes Wake Island. The Fishery Ecosystem Plan designates EFH in the PRIA for all currently and potentially harvested coral reef taxa in coral reef ecosystems, shallow and deep water bottomfish complexes, crustaceans (i.e. Kona crab and lobster complex[5]), and tropical and temperate pelagic fish. The Fishery Ecosystem Plan designates Habitat Areas of Particular Concern (HAPC) in the PRIA for all currently and potentially harvested coral reef taxa in coral reef ecosystems, shallow and deep water bottomfish complexes, and tropical and temperate pelagic fish.

The facility discharges into a lagoon adjacent to Wake Island ("the lagoon"). Designated EFH in the PRIA for corals, bottomfish, crustaceans, and pelagic fish include the water column and/or bottom habitat from the shoreline to the outer limit of the Exclusive Economic Zone (EEZ) up to a depth of 100 meters, 400 meters, 150 meters, and 250 meters, respectively. These EFH designations encompass the receiving water. Designated HAPC in the PRIA for coral reef taxa includes all coral reef habitat in the PRIA, and designated HAPC for bottomfish includes all slopes and escarpments between 40 meters and 280 meters of the shoreline. Designated HAPC in the PRIA for pelagic fish includes the water column from the surface down to a depth of 1,000 meters above all seamounts and banks with summits shallower that 2,000 meters within the EEZ. These HAPC designations encompass the receiving water. Both EFH and HAPC designations encompass the receiving water; thus, the lagoon is designated as EFH and HAPC.

The recruitment and survival of potentially harvested coral reef taxa is dependent on substrate, water temperature, and water quality. The lagoon has varying water temperatures and substrate; these naturally occuring factors appear to predict coral reef taxa recruitment in the lagoon, with shallow sandy areas supporting little recruitment or survival.[6] The effluent discharged through Outfall 008 has high turbidity and high levels of metals; however, information about discharges from the facility and coral distribution in the lagoon does not indicate that the effluent has caused any adverse effects to coral reef taxa. Potentially harvested coral reef taxa may come into contact with the effluent, but it is unlikely that suspended sediments would reach areas where coral taxa are established. Bottomfish, crustaceans, and pelagic fish may be negatively affected by the high levels of metals in the discharge, as heavy metals can be toxic to aquatic marine life. EPA has established effluent limitations in the permit for chronic toxicity to minimize adverse effects and ensure that marine life in the receiving water are protected. EPA has determined that the effluent may adversely affect the designated EFH and HAPC; however, any effects are expected to be minimal.

EPA consulted with the National Marine Fisheries Service, Pacific Islands Regional Office, (NMFS) regarding EPA's EFH determination. Consultation with NMFS resulted in the following conservation recommendation: if future habitat monitoring activities at Wake Island indicate a degradation of corals or other essential habitats, results and any efforts to address the issue should be coordinated with NMFS.

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[4] http://www.wpcouncil.org/wp-content/uploads/2019/05/WPRFMC-PRIA-FEP-2009-09-21.pdf

[5] Lobster complex includes *Panulirus marginatus, P. penicillatus, P. spp., Scyllarides haanii,* and *Parribacus antarticus*

[6] See part X.B. for maps of coral density and substrate within the lagoon.

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 draft NPDES permit does not have the potential to affect any historic properties or cultural properties. As a result, Section 106 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 Clean Water Act (CWA) Section 401 authority, EPA is the certifying agency.

Generally, the permit contains conditions and requirements for the facility discharges to protect aquatic life. The effluent limitations are set at levels such that the discharge will not harm aquatic life upon being discharged to the receiving waters.

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.

In addition to any other grounds specified herein, this permit shall be modified or revoked at any time if, on the basis of any new data, the director determines that continued discharges may cause unreasonable degradation of the marine environment.

B. Standard Provisions

The permit requires the permittee to comply with EPA Region IX Standard Federal NPDES Permit Conditions.

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 draft permit was placed on the EPA website, with 30 days provided for interested parties to respond in writing to EPA. The draft permit and fact sheet were 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. No comments were received during the public comment period for the permit.

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:

Sunny Elliott, (415) 972-3840
elliott.sunny@epa.gov

EPA Region 9
75 Hawthorne Street (WTR 2-3)
San Francisco, California 94105

XIV. REFERENCES

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. Office of Water, EPA. EPA/505/2-90-001.

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