

US EPA ARCHIVE DOCUMENT

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**  
**FACT SHEET**  
**April 2010**

Permittee Name: United States Air Force

Mailing Address: 1502 Wake Ave, Wake Island, HI 96898

Facility Location: Building 1303, Wake Island, WK 96898

Contact Person(s): Travis Pearson  
Kristen Warren, Booz Allen Hamilton

NPDES Permit No.: MW0020338

**I. STATUS OF PERMIT**

The United States Air Force (the “permittee”) has applied for a National Pollutant Discharge Elimination System (“NPDES”) permit to allow the discharge of treated reverse osmosis reject water from Wake Island Airfield to the Pacific Ocean located on Wake Atoll. A complete application was submitted on January 15, 2009. EPA Region IX has developed this permit and fact sheet pursuant to Section 402 of the Clean Water Act, 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.

This is a new permit. The permittee has been classified as a minor discharger.

**II. GENERAL DESCRIPTION OF FACILITY**

The following description was submitted by the permittee in Form 1, Section XII of the NPDES application:

Wake Island Airfield is located in the Pacific Ocean 2,460 miles west of Honolulu, and 1,590 miles east of Guam. [U.S.] Air Force currently maintains Wake Atoll for the benefit of other Department of Defense services and various government agencies and other tenants. All operational needs from an airfield perspective are in place (e.g. runway in excellent condition, lighting operative, POL systems fully functional). Present tenants include the U.S. Geological Survey, Missile Defense Agency, National Oceanic and Atmospheric Administration, Air Force Technical Applications Center, and the National Weather Service. These tenants have facilities on Wake Atoll that are contracted to the Base Operation and Support (BOS) contractor to maintain. The only personnel presently stationed on Wake Atoll are military and BOS contractors.

### III. DESCRIPTION OF RECEIVING WATER

The permittee will discharge into the Wake Atoll lagoon, part of the Pacific Ocean.

### IV. DESCRIPTION OF DISCHARGE

The facility treats drinking water for Wake Island through reverse osmosis (RO). The discharge will be reverse osmosis reject water.

The facility operates two Model SWL318TC Seawater Desalinators. 374,000 gallons/day of brackish water from wells in buildings 1309 and 1310 are pumped to the building 1303 reverse osmosis unit. 168,000 gallons are pumped to building 1302 for chlorination and storage for residential and industrial uses on the atoll. 206,000 gallons will be discharged through outfall 008, the reverse osmosis outfall.

Reverse osmosis works by using pressure to force a solution through a membrane, retaining the solute on one side (to be discharged) and allowing the pure solvent to pass to the other side (to be distributed). The result is that the waste water carries the rejected contaminants and therefore may contain elevated levels of sediment, nutrients, salinity, and other parameters present in the intake water.

The applicant has requested the outfall “outfall 008” for their reverse osmosis discharge so that the nomenclature is not redundant with dedicated stormwater outfalls 001-007, covered under a separate stormwater general permit (the 2008 MSGP).

### V. DETERMINATION OF NUMERICAL EFFLUENT LIMITATIONS

EPA develops effluent limitations and monitoring requirements in the permit based on an evaluation of the technology used to treat the pollutant (e.g., “technology-based effluent limits”) and the water quality standards applicable to the receiving water (e.g., “water quality-based effluent limits”). Because Wake Atoll does not have established water quality standards, these permit limits are exclusively technology-based.

#### A. Applicable Technology-based Effluent Limitations

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).

At the time of drafting of this permit, no effluent limit guidelines applicable to the permittee have been developed. In accordance with 40 CFR 125.3, EPA is using Best Professional Judgment (BPJ) to develop technology-based effluent limitations in this permit.

**B. Rationale for Effluent Limits**

*Flow.*

The designed discharge flow calculated based on the manufacturer’s manual is .103 MGD per unit. Since the facility is operating two units, the average monthly flow limit in the permit is .206 MGD.

*pH.*

pH shall at all time be in the range of 6.0 and 9.0 standard units.

*Settleable Solids*

The minimum levels of effluent quality attainable by secondary treatment for Settleable Solids, as specified in the EPA Region IX Policy memo dated May 14, 1979, are listed below:

Concentration Based Effluent Limits		
	30-day Average	Daily Maximum
Settleable Solids	1 ml/l	2 ml/l

Although these limits were developed in consideration of secondary treated wastewater, using BPJ, EPA has determined that these limits are also applicable to RO reject wastewater. Therefore, effluent limitations are established in this permit for settleable solids.

*Turbidity*

The turbidity limits in this permit have been adopted using BPJ from Table A of the California Ocean Plan. Effluent limitations are established accordingly.

*Ammonia*

Ammonia is likely naturally present in the intake water and may be concentrated by the reverse osmosis process in the wastewater. Due to the potential for ammonia to be present in process wastewater at toxic levels, effluent limitations are established in this permit for ammonia.

*Chlorine, Total Residual*

Chlorine is added to the processed water in order to disinfect the drinking water. Due to acute toxicity presented by chlorine to wildlife, effluent limitations are established in this permit for chlorine.

**C. Antidegradation Policy**

EPA's antidegradation policy at 40 CFR 131.12 require that existing water uses and the level of water quality necessary to protect the existing uses be maintained.

Without established water quality standards for Wake Atoll, no existing uses are established for the receiving water. Without established existing uses, an antidegradation analysis is not applicable.

Although the analysis is not applicable, EPA determined that the discharge is not expected to adversely affect receiving water bodies because the discharge from the permittee may be considered *de minimis* in its potential degradation due to the low volume of discharge (206,000 gallons/day) into the vast receiving water body (the Pacific Ocean). Additionally, technology-based limitations are established to ensure a high level of effluent quality.

## **VI. 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 is 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 proposed 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 proposed permit. All monitoring data shall be reported on monthly DMR forms and submitted quarterly as specified in the proposed permit.

### **B. Priority Toxic Pollutants Scan**

A Priority Toxics Pollutants scan shall be conducted during the fifth year of the five-year permit term 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 proposed permit or by EPA. 40 CFR 131.36 provides a complete list of Priority Toxic Pollutants.

## **VII. OTHER CONSIDERATIONS UNDER FEDERAL LAW**

### **A. 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 habitat.

The US Fish and Wildlife Service has not listed any species as endangered for Wake Atoll. Therefore, due to no species federally listed in the vicinity, EPA has made a determination of “no effect” by the permittee under ESA consultation.

## **B. 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 Sections 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 proposed activity complies with the State (or Territory) Coastal Zone Management program, and the State (or Territory) or its designated agency concurs with the certification.

No state or territory coastal management program has been established for Wake Atoll, therefore consistency with CZMA is assumed.

## **C. 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 make a determination on Federal actions that may adversely impact Essential Fish Habitat ("EFH").

The proposed permit contains technology-based effluent limits. The proposed permit does not directly discharge to areas of essential fish habitat. Therefore, EPA has determined that the proposed permit will not adversely affect essential fish habitat.

## **D. 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 proposed 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.

## **VIII. 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 permit requires the permittee to comply with EPA Region IX Standard Federal NPDES Permit Conditions, dated July 1, 2001.

## IX. 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 will be placed in a daily or weekly newspaper within the area affected by the facility or activity, with a minimum of 30 days provided for interested parties to respond in writing to EPA. 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(c))

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.

### D. Water Quality Certification Requirements (40 CFR 124.53 and 124.54)

For States, Territories, or Tribes with EPA approved water quality standards, EPA is requesting certification from the affected State, Territory, or Tribe that the proposed permit will meet all applicable water quality standards. Certification under section 401 of the CWA shall be in writing and shall include the conditions necessary to assure compliance with referenced applicable provisions of sections 208(e), 301, 302, 303, 306, and 307 of the CWA and appropriate requirements of Territory law.

For Wake Atoll, no State agency exists to issue such a certification. Therefore, no water quality certification is required.

## X. CONTACT INFORMATION

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

Jamie Marincola  
415-972-3520  
Marincola.jamespaul@epa.gov  
EPA Region IX  
75 Hawthorne Street (WTR-5)  
San Francisco, California 94105

## XI. REFERENCES

California EPA. 2005. *California Ocean Plan*. State Water Resources Control Board.

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. Prepared by EPA, Office of Water Enforcement and Permits, in March 1991. EPA/505/2-90-001.

EPA. 1996. *Regions IX & X Guidance for Implementing Whole Effluent Toxicity Testing Programs*, Interim Final, May 31. 1996.

EPA. 2002a. *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* - Fifth Edition. Office of Water, EPA. EPA-821-R-02-012.

EPA. 2002b. *National Recommended Water Quality Criteria*. Office of Water, EPA. EPA-822-R-02-047.

EPA. 1996. *U.S. EPA NPDES Basic Permit Writers Manual*. EPA. EPA-833-B-96-003.

EPA. 2009. *Draft NPDES General Permit for Reject Water from Reverse Osmosis*. Office of Ecosystem Protection, Environmental Protection Agency- New England.

EPA, Region 9. 2006. NPDES permit CA0047881, West Basin Municipal Dischargers.



XII. Site Maps

Figure 1: General Location Map

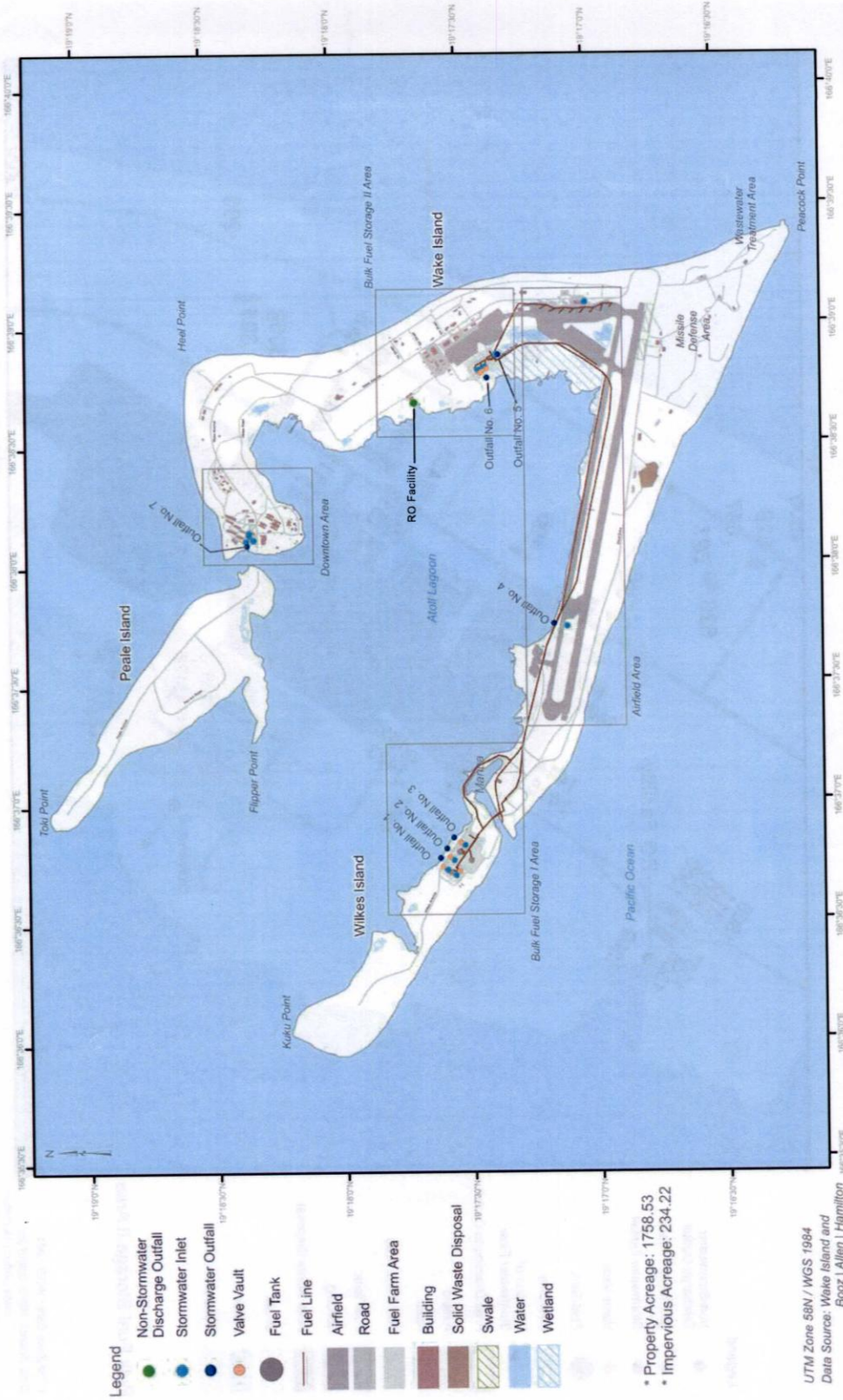
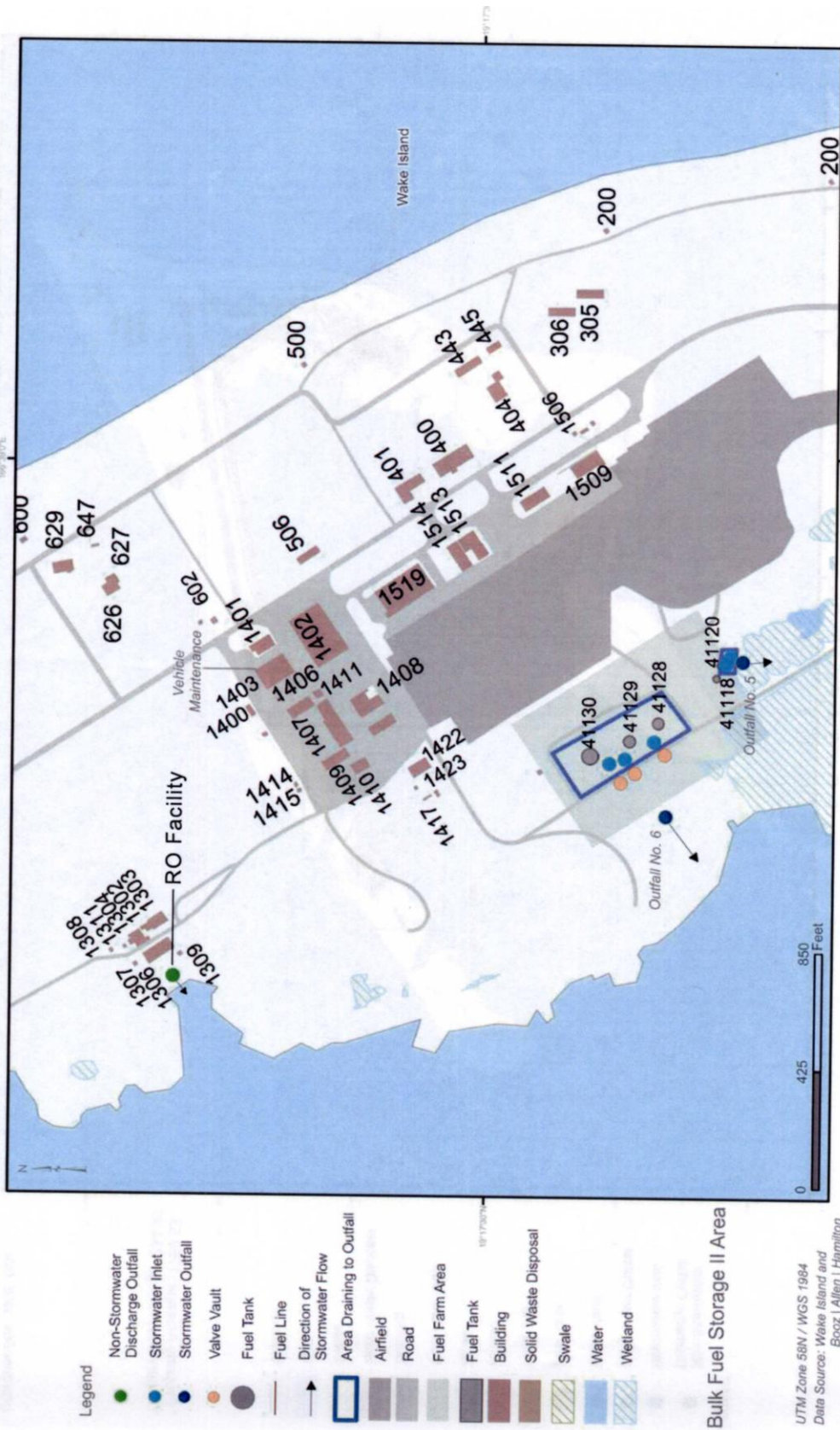


Figure 2: RO Facility Location



### XIII. Flow Schematic

**Figure 1.**  
**Wake Island Reverse Osmosis Drinking Water Production**

