

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT FACTSHEET

October 5, 2016

Permittee Name: United States Navy

Mailing Address: U.S. Navy Base Guam
PSC 455 Box 152
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Facility Location: U.S. Navy Fena Water Treatment Plant
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NPDES Permit No.: GU0020389

I. STATUS OF PERMIT

The United States Navy (the “permittee”) has applied for the renewal of its National Pollutant Discharge Elimination System (“NPDES”) permit to authorize the discharge of filter backwash water and clarifier overflows from the Fena Water Treatment Plant (the “facility” or “WTP”) to the Namu River. A completed application was submitted on August 20, 2015. The Environmental Protection Agency (“EPA”) Region IX is reissuing this facility’s permit pursuant to the Clean Water Act (“CWA”) section 402. CWA section 402, and EPA’s implementing regulations, contain provisions that govern EPA’s authorization to require NPDES permit conditions. (40 CFR 122).

The permittee currently is discharging under NPDES permit GU0020389 (previously GU0110019), which was issued February 23, 2011. Pursuant to 40 CFR 122.21, the terms of the existing permit are administratively extended until the issuance of a new permit.

This permit has been classified as a minor discharger. After completing the NPDES permit rating worksheet, EPA classified the permittee as a minor discharger receiving 70 points. A total of 80 points is required for classification as a major discharger.

II. GENERAL DESCRIPTION OF FACILITY

The Fena Water Treatment Plan treats approximately 10.5 MGD of water from Fena Lake for drinking water. Under normal operating conditions, the drinking water is treated by conventional clarifiers, multi-media filters, ultraviolet disinfection, and ultimately stored in a clearwell before distribution. Solids are removed from the clarifiers and sent to a sludge conditioning tank and belt filter press before being sent to a Navy landfill. Wastewater that goes

through the belt filter press is sent to the Navy's Apra Harbor Wastewater Treatment Plant. Wastewater from the sludge conditioning tank is sent to two backwash settling tanks. The supernatant from the settling tanks is recycled to the headworks while the solids are sent back to the sludge conditioning tank.

In the past, mechanical failures or limitations in the system have also caused upsets resulting in overflows from different parts of the treatment system. This type of discharge is not authorized in the NPDES permit.

III. DESCRIPTION OF RECEIVING WATER

The Guam Environmental Protection Agency ("GEPA") adopted water quality standards ("WQS") for different surface waterbodies, depending on the level of protection required. The WQS, revised in 2015, provides water quality criteria by surface waterbody classification. The Namu River is located within the area classified as Category S-3, low quality surface water(s). Category S-3 waters are used for commercial, agriculture, and industrial activities. (GEPA 2001).

The facility discharges to the Namu River at latitude 13°22'38" N and longitude 144°40'51" E through outfall 002, which flows downstream for about three miles into Agat Bay.

The Namu River and Agat Bay are not listed as impairment and no total maximum daily loads ("TMDLs") exists for either receiving water.

IV. DESCRIPTION OF DISCHARGE

The discharge consists of overflows of clean-in-place washwater or maintenance washwater used to clean the filters used during the treatment process. During heavy storm events, typhoons, or lake inversions, decreased settling times experienced by the spent backwash tanks results in poor quality supernatant being recycled back to the plant headworks.

As the quality of the recirculated water decreases, the fouling of the downstream processes increases, and a discharge occurs when the 549,000 gallon backwash tanks overflow. Specifically, tank B589 is connected to the emergency outfall 002 and overflows from tank B589 are discharged from the outfall.

A. Application Discharge Data

As part of the application for permit renewal, the permittee provided estimated effluent characteristics including the following pollutants, which are believed to be present: total residual chlorine, color, fluoride, nitrate-nitrate (as N), total aluminum, and total barium.

V. SIGNIFICANT CHANGES FROM PREVIOUS PERMIT TERM

Table 1. Changes from previous permit term (2011-2016)

Permit Condition	Previous Permit (2010 – 2015)	Re-issued permit (2016 – 2021)	Reason for change
Effluent Limitations	Contains effluent limits for arsenic, lead, and manganese.	Removes effluent limits for arsenic, lead, and manganese.	The permittee has not discharge during the last 10 years. No reasonable potential exists for arsenic and lead. Previous limits were based on the 401 water quality certification from GEPA. For manganese, the previous permit incorrectly used a marine water quality standard for manganese. There is no freshwater standard.
	Contains a 2.0 mg/L aluminum effluent limit, as a daily maximum.	Revises the aluminum effluent limitation to be 1.00 mg/L, as a daily maximum.	The revised aluminum limitation is based on GEPA’s water quality standard of 1.00 mg/L because there is reasonable potential for a discharge to exceed this standard.
	Contains a 2.0 ug/L mercury effluent limit, as a daily maximum.	Revises the mercury effluent limit to be 0.051 ug/L, as a daily maximum.	GEPA’s water quality standard includes a standard of 0.051 ug/L for organisms only. Per GEPA’s water quality standards, the organisms only standard applies to S-3 waters. The Namo River is an S-3 water. There is reasonable potential to exceed this standard.
	Contains a 100 ug/L zinc effluent limit, as a daily maximum.	Revises the zinc effluent limit to be 120 ug/L, as a daily maximum.	The revised zinc limitation is based on GEPA’s water quality standard, acute aquatic life, of 120 ug/L because there is reasonable potential for a discharge to exceed this standard.
	Contained narrative effluent limitations based on S-2 waters.	Revised narrative effluent limitations to be based on S-3 waters.	The receiving water, the Namo River, is an S-3 water, per GEPA’s water quality standards.
	Contained annual monitoring requirements for TDS, nitrate-nitrate (as N), fluoride, cadmium, chromium VI, selenium, and silver.	Revised all monitoring to be once per discharge.	The discharge is intermittent and monitoring should be conducted during the discharge to ensure data is available to assess compliance with effluent limitations.
Discharge Prohibitions	N/A.	Clarifies the only authorized discharge is for outfall 002, which consists of overflows from the backwash settling tank(s).	The previous permit called any unauthorized discharge, such as overflows from other parts of the treatment plant, as an upset. However, upset is defined in 40 CFR 122.41(n). The reissued permit clarifies that discharges from other parts of the treatment plant are not authorized.

The permit also contains electronic reporting requirements for DMRs, which are consistent with EPA’s final rule, NPDES Electronic Reporting Rule, effective December 2015, as well as

EPA’s final rule, Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting, effective September 2014.

VI. DETERMINATION OF NUMERICAL EFFLUENT LIMITATIONS

EPA developed 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”). EPA established, in the permit, the most stringent of the applicable technology-based or water quality-based standards, as described below.

A. Applicable Technology-Based Effluent Limitations

There are no applicable national or Guam criteria for drinking water treatment plants. There are, however, NPDES general permits for the water treatment industry in other states that contain technology-based effluent limits (TBELs) based on best professional judgement. The previous permit compared such TBELs for drinking water treatment plants in 4 states (Mississippi, South Carolina, South Dakota, and Washington).

The table below contains updated limits for these 4 states and includes an additional 5 general permits (for Alabama, Arkansas, Massachusetts and New Hampshire, Ohio, and Oklahoma)¹. The additional general permits were considered during this renewal because the permits included an aluminum effluent limit and were recently issued.

Table 2. Maximum Daily Limits from State General Permit Examples

State ²	Settleable Solids (mg/L)	TRC (mg/L)	Aluminum (mg/L)	TDS (mg/L)	TSS (mg/L)
Alabama	--	0.019	--	--	45.00
Arkansas	--	<0.100 instant max	2.00	--	30.00
Massachusetts and New Hampshire	--	<0.100	--	--	50.00

¹ Many general permits included effluent limits for other types of metals, like iron, manganese or arsenic, dependent on the type of source water and type of treatment process. Since this facility uses aluminum, only applicable limits for this metal are included in the table. All general permits included a pH limit, but this facility includes a pH limit based on GEPA’s water quality standards.

² See the following links for state general permits authorizing discharges from water treatment plants:

AL: <http://www.adem.state.al.us/programs/water/permits/ALG640000WaterTreat.pdf>;

AR: http://www2.adeq.state.ar.us/water/branch_permits/individual_permits/pdfs_forms/arg640000.pdf;

MA/NH: <https://www3.epa.gov/region1/npdes/pwtf/FinalPWTFGP.pdf>;

MS: [www.deq.state.ms.us/mdeq.nsf/pdf/epd_DrinkingWaterGeneralPermit/\\$File/Drinking_Water_GP.PDF?OpenElement](http://www.deq.state.ms.us/mdeq.nsf/pdf/epd_DrinkingWaterGeneralPermit/$File/Drinking_Water_GP.PDF?OpenElement);

OH: http://www.epa.ohio.gov/portals/35/permits/WaterTreatmentPlants_Final_GP_dec11.pdf;

OK: http://www.deq.state.ok.us/WQDnew/opdes/municipal/general_permits/2012%20OKG38%20Permit.pdf;

SC: <http://www.scdhec.gov/environment/docs/g646000.pdf>;

SD: <http://denr.sd.gov/des/sw/IPermits/WTPPermit.pdf>;

WA: <http://www.ecy.wa.gov/programs/wq/wtp/permitdocs/wtpfinal071509sig.pdf>

Mississippi	--	0.019	--	--	45.00
Ohio	--	0.019	--	--	45.00
Oklahoma	--		2.00	--	30.00
South Carolina	--		--	--	60.00
South Dakota	--	<0.050	--	1,000.00	90.00 instant max
Washington	0.200	0.150	--	--	--

Table 3. Average Monthly Limits from State General Permit Examples

State	Settleable Solids (mg/L)	TRC (mg/L)	Aluminum (mg/L)	TDS (mg/L)	TSS (mg/L)
Alabama	--	0.011		--	30.00
Arkansas	--	--	1.00	--	20.00
Massachusetts and New Hampshire	--	--	--	--	30.00
Mississippi	--	0.011	--	--	30.00
Ohio	--	--	--	--	30.00
Oklahoma	--	--	1.00	--	20.00
South Carolina	--	--	--	--	30.00
South Dakota	--	--	--	1,000.00	--
Washington	0.10	0.07	--	--	--

Based on best professional judgement (BPJ), EPA is retaining the TBELs developed for settleable solids and total dissolved solids (TDS) contained in the 2011 permit.

B. Water Quality-Based Effluent Limitations

Water quality-based effluent limitations are required in NPDES permits when the permitting authority determines 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 that 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 *TSD* (EPA 1991) and the *NPDES Permit Writers Manual* (EPA 2010). These factors are listed below and subsequently discussed:

1. Applicable standards, designated uses, and impairments of receiving water

2. Dilution in the receiving water
3. Type of industry
4. History of compliance problems
5. Reasonable Potential Analysis (using historical data provided to EPA in March 2010)

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

To protect the designated uses of waters of the U.S., GEPA adopted water quality standards for waterbodies depending on the level of protection required. Category S-3 waters are primarily for commercial, agricultural, and industrial activities. Aesthetic enjoyment and limited body contact recreation are acceptable in this zone, as well as maintenance of aquatic life. (GEPA 2001). Based on the categorization and intermittent nature of the discharge, EPA is applying the following criteria from Guam’s WQS: criteria maximum concentration (CMC or acute criteria) and human health criteria (for consumption of organisms only). The permit includes only daily maximum effluent limits because the discharge is intermittent.

2. Dilution in the Receiving Water

Discharges from Outfall 002 are to the Namo River, and the permittee has not requested a mixing zone. Dilution is not allowed and therefore, not considered by EPA in the development of water quality-based effluent limits applicable to the discharge. All effluent limits apply at the outfall.

3. Type of Industry

Typical pollutants of concern for drinking water treatment plant discharges include chlorine and the byproducts of chlorine, which at elevated levels is toxic to aquatic life. Other pollutants are concern include metals used in the treatment process to clean filters, such as iron and aluminum. The permit retains effluent limits for chlorine and aluminum. The permit includes a daily maximum effluent limit for aluminum as opposed to an average monthly effluent limit because the discharge is intermittent.

4. History of Compliance Problems

The permittee has not discharged during the last 5 years. The last discharge data provided to EPA was during permit cycle 2004 to 2009:

Table 4. Historical Effluent Characteristics (provided by permittee in application submitted on March 29, 2010).

Pollutant	Units	Max Daily	Long Term Avg	Sample No.
Flow	MG	16.2	15.1	--
Total Organic Carbon	mg/L	36.1	18.6	36
	lb/d	4672	2243	
Temperature	°C	32	28.6	378
pH	(min)	4.00	--	751
	(max)	9.25	--	

Pollutant	Units	Max Daily	Long Term Avg	Sample No.
Chlorine (Total Residual)	mg/L	5.05	--	
	lb/d	312	--	
Fluoride	mg/L	2.00	2.42	1094
	lb/d	259	292	
Nitrate-Nitrite	mg/L	0.134	0.0757	4
	lb/d	17.3	9.15	
Radium	pCi/L	0.609	0.609	2
Sulfate	mg/L	38.0	23.5	28
	lb/d	4.91	2.85	
Aluminum	ppb	2,130,000	600,370	7
	lbs	275,345	72,603	
Manganese	ppb	39200	6580	7
	lbs	5067	796	
Arsenic	ppb	32.5	8.82	7
	lbs	4.2	1.07	
Cadmium	ppb	1.27	0.215	7
	lbs	0.164	0.026	
Chromium	ppb	38.4	5.54	7
	lbs	4.96	0.670	
Copper	ppb	277	73.1	7
	lbs	35.8	8.85	
Lead	ppb	8.48	1.21	7
	lbs	1.10	0.146	
Mercury	ppb	1.72	0.440	7
	lbs	0.222	0.053	
Selenium	ppb	80.3	21.3	7
	lbs	10.4	2.57	
Silver	ppb	7.66	1.35	7
	lbs	0.990	0.163	
Zinc	ppb	312	83.7	7
	lbs	40.3	10.1	
Chlorodibiomomethane	ppb	3.74	2.34	7
	lbs	0.483	0.283	
Chloroform	ppb	142	34.2	7
	lbs	18.4	4.14	
Dichlorobromomethane	ppb	18.7	8.19	7
	lbs	2.42	0.990	
Chlordane	ppb	0.528	0.528	1
	lbs	0.0683	0.0683	
Heptachlor	ppb	23.4	23.4	1
	lbs	0.0030	0.0030	
Turbidity ⁽¹⁾	NTU	1300	--	3

(1) Turbidity data from Discharge Monitoring Reports (2004-2009).

5. Reasonable Potential Analysis using Historical Effluent Characteristics

EPA conducted a reasonable potential analysis based on statistical procedures outlined in the *TSD* (EPA 1991). These statistical procedures calculate the projected maximum effluent concentration based on available monitoring data to account for effluent variability and a limited data set. EPA estimated the projected maximum effluent concentrations assuming a coefficient of variation of 0.6 and a 95 % confidence interval (EPA 1991). EPA calculated the projected maximum effluent concentration for each pollutant using the following equation:

$$\text{Projected maximum concentration} = C_e \times \text{reasonable potential multiplier factor.}$$

Where, “C_e” is the reported maximum effluent value, and the multiplier factor is obtained from Table 3-1 of the *TSD*. (EPA 1991).

Table 5. Reasonable Potential Statistical Analysis using Historical Effluent Characteristics

Parameter ⁽¹⁾	Maximum Observed Concentration	n	RP Multiplier ⁽²⁾	Projected Max. Effluent Concentration	Most Stringent Water Quality Criterion ⁽³⁾	Statistical Reasonable Potential
Chlorine	5.05 mg/L	>20	2.3	11.6 mg/L	0.011 mg/L	Y
Fluoride	2.00 mg/L	>20	2.3	4.6 mg/L	0.80 mg/L	Y
Nitrate-Nitrite	0.134 mg/L	4	4.7	0.630 mg/L	0.50 mg/L	Y
Aluminum	275.3 mg/L	7	3.6	991.2 mg/L	1.0 mg/L	Y
Manganese	5,067 µg/L	7	3.6	18,241 µg/L	NA (marine only)	N
Arsenic	32.5 µg/L	7	3.6	117 µg/L	340 µg/L	N ⁽⁴⁾
Cadmium	1.27 µg/L	7	3.6	4.57 µg/L	3.9 µg/L	Y
Chromium	38.4 µg/L	7	3.6	138 µg/L	16 µg/L	Y
Copper	277 µg/L	7	3.6	997 µg/L	18 µg/L	Y
Lead	8.48 µg/L	7	3.6	30.5 µg/L	82 µg/L	N ⁽⁴⁾
Mercury	1.72 µg/L	7	3.6	6.19 µg/L	0.051 µg/L	Y
Selenium	80.3 µg/L	7	3.6	289 µg/L	20 µg/L	Y
Silver	7.66 µg/L	7	3.6	27.6 µg/L	4.1 µg/L	Y
Zinc	312 µg/L	7	3.6	1123 µg/L	120 µg/L	Y
Chlorodibromomethane	3.74 µg/L	7	3.6	13.5 µg/L	34 µg/L	N
Chloroform	142 µg/L	7	3.6	511 µg/L	470 µg/L	Y

Parameter ⁽¹⁾	Maximum Observed Concentration	<i>n</i>	RP Multiplier ⁽²⁾	Projected Max. Effluent Concentration	Most Stringent Water Quality Criterion ⁽³⁾	Statistical Reasonable Potential
Dichlorobromomethane	18.7 µg/L	7	3.6	67.3 µg/L	46 µg/L	Y
Heptachlor	0.0234 µg/L	1	13.2	>0.0234 µg/L	0.00021 µg/L	Y

- (1) Only parameters with Maximum Observed Concentration >0 were included in the RP analysis.
- (2) RP multiplier is based on 99 % probability using (n) and the coefficient of variation (CV). Because of data variability, EPA used a CV of 0.6 for all parameters.
- (3) The most stringent water quality criteria is based on acute aquatic life criteria (CMC) or human health (HH organisms) organisms only criteria. Freshwater aquatic life criteria for metals are expressed as a function of hardness (mg/L) in the waterbody and are based on a total hardness of 100 mg/L.
- (4) The previous permit limits for arsenic and lead were included because of the section 401 water quality certification.

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 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.

D. Anti-Backsliding

Section 402(o) of the CWA prohibits the renewal or reissuance of an NPDES permit that contains effluent limits less stringent than those required in the previous permit, except as provided in the statute. Federal regulations, 40 CFR 122.44(l)(1), allow for backsliding in cases where limits were not previously established appropriately or where new information is available to support a separate limit derivation.

The permit removes effluent limits for arsenic, lead, and manganese as reasonable potential for contributing or causing an exceedance of a water quality standard does not exist. For arsenic and lead, the previous permit contained effluent limits based on section 401 of the Clean Water Act, water quality certification. The previous permit applied a marine water quality criteria for manganese; however, the discharge is into fresh water. There is no freshwater manganese criteria. EPA is correcting this technical mistake in this permit.

EPA is also relaxing the zinc effluent limitation from 10 to 12 ug/L. The previous permit used standards related to groundwater for zinc as opposed to the standards related to S-3 waters. The Namo River is an S-3 water. Because the permit does not authorize an increase in loadings to the receiving, removal of these limits is consistent with the anti-backsliding exceptions in section 402(o)(2) and 303(d)(4) of the Clean Water Act.

E. Antidegradation Policy

The permit contains effluent limits and monitoring requirements to ensure that all applicable water quality standards are met, including EPA's antidegradation policy at 40 CFR 131.12 and at Section 5101.B of GEPA's water quality standards. The permit does not include a mixing zone, and therefore, all effluent limits apply at the end-of-pipe without consideration of dilution in the receiving water.

VII. NARRATIVE WATER QUALITY-BASED EFFLUENT LIMITS

The GEPA water quality standards, Section 5103, contains narrative water quality standards applicable to the receiving water. EPA is retaining the narrative effluent limits in order to implement GEPA's water quality standards.

VIII. MONITORING AND REPORTING REQUIREMENTS

The permit requires the permittee to conduct monitoring for all pollutants or parameters with effluent limits, at the minimum frequency specified. Where effluent concentrations of toxic parameters are unknown or where data are insufficient to determine reasonable potential, EPA may require monitoring for pollutants or parameters where effluent limits have not been established. This data may be re-evaluated, and the permit re-opened to incorporate effluent limitations, if necessary.

The permittee is required to 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 DMR forms and submitted quarterly as specified in the permit.

Grab samples are required for all parameters, except for flow and pH, because the discharge is intermittent. (40 CFR 136). Grab samples are appropriate when a sample is needed to monitor a non-continuous discharge and allow collection of a variable sample volume. Continuous metered monitoring of flow and pH rate is retained in the permit.

IX. SPECIAL CONDITIONS - RECEIVING WATER MONITORING

Additional parameter monitoring is required in order to determine compliance with narrative Guam WQS. The narrative portion of the Guam WQS describes limits while allowing flexibility to account for ambient concentrations. Downstream samples shall be used as a compliance point, while upstream samples shall be used as reference for ambient concentrations. Hence, the downstream compliance sample must be higher than the upstream background sample in order to constitute a violation of a narrative standard, or permit condition. EPA acknowledges statistical variations due to randomness in comparing downstream to upstream receiving water samples and will exercise enforcement discretion accordingly.

X. 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. Since the issuance of NPDES permits by the EPA is a federal action, consideration of the permitted discharge and its effect on any listed or candidate species or their critical habitat is appropriate.

To determine whether the discharge would affect any endangered or threatened species, EPA reviewed a list of species with habitats or known populations in Guam. (US FWS 2011). A discussion of each of these species is below.

Table 6. Listed species, designated under the U.S. Endangered Species Act for Guam

Type	Common Name	Scientific Name	Status	Critical Habitat Designated
<i>National Marine Fisheries Service</i>				
Fish	Scalloped hammerhead shark, Indo-West Pacific	<i>Sphyrna lewini</i>	Threatened (T)	
Mammals	Blue whale	<i>Balaenoptera musculus</i>	Endangered (E)	
	Fin whale	<i>Balaenoptera physalus</i>	E	
	Sperm whale	<i>Physeter catodon</i>	E	
	Humpback whale	<i>Megaptera novaeangliae</i>	E	
	Dugong ²	<i>Dugong dugon</i>	E	
	Sei Whale	<i>Balaenoptera borealis</i>	E	
Sea Turtles ²	Olive ridley sea turtle	<i>Lepidochelys olivacea</i>	T	
	Leatherback turtle	<i>Dermochelys coriacea</i>	E	
	Green Sea turtle	<i>Chelonia mydas (incl. agassizi)</i>	T	
	Loggerhead turtle, North Pacific	<i>Caretta caretta</i>	T	
	Hawksbill turtle	<i>Eretmochelys imbricate</i>	E	
Corals ³		<i>Acropora globiceps</i>	T	
		<i>Acropora jacquelineae</i>	T	
		<i>Acropora lokani</i>	T	
		<i>Acropora retusa</i>	T	
		Acropora speciose	T	
		Acropora tenella	T	
		Anacropora spinose	T	
		Euphyllia paradivisa	T	
		Isopora crateriformis	T	
		Montipora australiensis	T	
	Porites napopora	T		

		<i>Seriatopora aculeate</i>	T	
<i>U.S. Fish and Wildlife Service Species Associated with Ocean Habitats</i>				
Mammals	Little Mariana Fruit Bat	<i>Pteropus tokudae</i>	E	Guam
	Mariana Fruit Bat	<i>Pteropus mariannus mariannus</i>	T	Guam
Birds	Mariana Swiftlift	<i>Aerodramus bartschi</i>	E	
	Mariana Crow	<i>Corvus kubaryi</i>	E	Guam
Birds (cont.)	Mariana Common Moorhen	<i>Gallinula chloropus guami</i>	E	
	Guam Micronesian Kingfisher	<i>Halcyon cinnamominus cinnammominus</i>	E	Guam
	Micronesian Megapode	<i>Megapodius laperouse</i>	E	
	Guam Rail	<i>Rallus owstoni</i>	E	
	Guam Bridled White-eye	<i>Zosterops conspicillatus conspicillatus</i>	E	
Plants	Hayun lagu	<i>Serianthes nelsonii</i>	E	

Source: NOAA 2015 and US FWS [Environmental Conservation Online System](#).

¹ Critical habitat is defined as: (1) specific areas within the geographical area occupied by the species at the time of listing, if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation.

² The species is also under the jurisdiction of the U.S. FWS.

³ EPA obtained these corals from http://www.fpir.noaa.gov/Library/PRD/Coral/us_indo-pacific_corals_distribution.pdf and http://www.fpir.noaa.gov/Library/PRD/Coral/Field_ID_guide_Guam.pdf.

Within U.S. Pacific Areas, National Marine Fisheries recently added 15 coral species as threatened under the Endangered Species Act. Specifically within Guam waters, 3 species have been confirmed, 9 are possible and 3 are deemed unlikely. Top threats to corals include ocean warming, ocean acidification, dredging, coastal development, coastal point source pollution, agricultural and land use practices, disease, predation, reef fishing, aquarium trade, physical damage from boats and anchors, marine debris, and aquatic invasive species. In particular, *Seriatopora aculeate* is most susceptible to ocean warming, disease, acidification, sedimentation, nutrients, predation, and collection and trade. The proposed permit includes limitations for sediment in the form of total suspended solids. The discharge is also to inland water, approximately three miles upstream of the marine environment. Therefore, the discharge will not effect any listed marine species.

For inland species, EPA also concludes no effect to the listed species in Table 6, as described below.

Bats

The Little Mariana Fruit Bat (*Pteropus tokudae*) and the Mariana Fruit Bat (*Pteropus mariannus mariannus*) are listed as endangered and threatened, respectively, due to habitat

lost/degradation, over hunting, predation by the brown treesnake, and natural disturbances. On islands inhabited by humans, bat colonies usually occur in remote sites, especially near or along clifflines. The Mariana Fruit Bat is known to forage on military lands and at the Guam National Wildlife Refuge. (US FWS 2009; US FWS 2012). The potential interactions between the water from the Namu River and the bat species would be indirect considering the only known colony is located in the northern part of the island. Further, the discharge events are expected to be infrequent, if any. The facility's discharge will not effect the bats' food, habitat, or the bat itself.

Birds: Seven Endemic Bird Species

The U.S. FWS lists as threatened or endangered seven bird species: 1) Mariana Swiftlet (*Aerodramus bartschi*); 2) Mariana Crow (*Corvus kubaryi*); 3) Mariana Common Moorhen (*Gallinula chloropus guami*); 4) Guam Micronesian Megapode (*Megapodius laperouse*); 5) Guam Rail (*Rallus owstoni*); 6) Guam Bridled White-eye (*Zosterops conspicillatus conspicillatus*); and Guam Micronesian Kingfisher (*Halcyon cinnamominus cinnammominus*).

Many endemic birds, especially flightless birds like the Guam Rail, are listed as threatened or endangered due to predation by the brown treesnake or predation by other animals such as lizards, rats, and feral cats. The Kingfisher was listed as endangered solely from the predation by the brown treesnake and there are no known populations on Guam.

Many of these seven bird species are known to occur in the northern part of the island, miles away from the facilities discharge. Similar to the Mariana fruit bat, the Guam Micronesian kingfisher has critical habitat on the northern part of Guam. The Mariana Crow critical habitat also occurs in the northern tip of Guam (by Ritidian Point). Because the Guam Micronesian Kingfisher is only present in captivity and specific reintroduction locations have not yet been identified, it can be determined that the Guam Micronesian Kingfisher has no nexus with the Namu River.

The Micronesian Megapode is listed as endangered. No populations are known to exist on Guam. Current threats to megapodes in the pacific islands include habitat destruction by feral ungulates and commercial/residential development; competition with introduced species; and predation by lizards, cats, rats, pigs, dogs, and the brown treesnake. (US FWS 1998). The discharge will not effect the Micronesian Megapode.

The Mariana common moorhen is an inhabitant of emergent vegetation in freshwater marshes, ponds and placid, rivers. In the Mariana Islands its preferred habitat includes freshwater lakes, marshes and swamps. Both man-made and natural wetlands are used. Moorhens feed on both plant and animal matter in or near water. The Mariana common moorhen appears to be active both during the day and at night. Some evidence even suggests that moorhens fly primarily at night.

Because moorhens require wetlands with specific criteria for vegetative cover as well as depth, the most serious threat to the continued existence of the moorhen include the continuing disappearance of suitable wetland habitat. In addition, predation by the brown treesnake and the potential for avian disease are also considered serious threats to the species.

The Mariana common moorhen is known to habituate Fena Reservoir. Moorhens feed on both plants and animals in and near the floodplain. During the dry season, most moorhens reside on Fena Reservoir because other wetland habitats are hydrologically intermittent. During the wet season the range of the moorhens increases due to the increase in wetland habitats. Recently, conditions have changed in the Fena Reservoir, potentially due to a typhoon, causing eutrophication of the lake as well as the elimination of the *Hydrilla verticillata* plant species which is used by moorhens for foraging and nesting. As a result few moorhens have been seen at Fena Reservoir.

Although the Namu River contributes to the Fena Reservoir, the discharge to the river is expected to be infrequent and is expected to occur during the wet season when the range of the moorhen is expanded. Therefore, it is EPA's determination that the discharge will not affect the Mariana common moorhen ("no effect").

The Mariana gray swiftlet is a small swift species with grayish brown plumage and a square tail without spines. This is the only resident swift in the Marianas Islands and may be confused with migratory swallows. This species belongs to a genus of swiftlet with the rare ability of echolocation which allows them to reside in caves. Mariana gray swiftlets forage over a wide variety of terrain and capture insects while flying. Little information is available on the historical range of the Mariana gray swiftlet, but presently Mahlac cave, Fachi cave, and Maemong cave harbor swiftlet populations on Guam. As of 2005, the Mahlac cave, located in Fena Valley, harbored the largest swiftlet population with 600 to 800 birds.

The most likely historical and current threats to the survival of the Mariana gray swiftlet are the disturbance of caves by human activity, predation by brown tree snakes, the historical use and application of pesticides by the U.S. military, avian disease, the destruction of forests and habitats by typhoons, and the alteration of native habitats.

The Mariana gray swiftlet is known to nest and roost in deep caves. Although guano and nests of swiftlets have been found near Fena Reservoir, its potential interactions with the water from the Namu River would only be indirect, especially considering the low frequency of discharge events. Thus it can be determined that the Mariana gray swiftlet has no nexus with the Namu River, other than speculative incidental contact.

Plants: Hayun Iagu

Only one mature tree on Guam is known to exist and is endangered primarily by the browsing of introduced ungulates and infestations of herbivorous insects. The tree is not in the discharge area. The facility's discharge will not effect the Hayun Iagu (*Serianthes nelsonii*). (US FWS 1993).

In addition to the discussion above, the permittee is considered a minor discharger that discharges intermittently, three miles upstream of the ocean. This permit incorporates effluent limits and narrative conditions to ensure that the discharge meets GEPA WQS, without any mixing zones. All effluent limits will apply at end of pipe. Therefore, EPA is making a no effect determination for inland listed species.

Summary: ESA No Effect Determination

The permit is a reissuance of a permit for an existing facility. No new construction, new pipelines, land, habitat, or hydrology alterations are associated with the permit reissuance. The effluent limitations in this reissued permit are all as stringent as or equally protective as those in the previous permit. The effluent limits in the permit will not result in acute or chronic exposures to contaminants that would affect federally listed threatened and endangered species, or impair any designated critical habitat.

EPA believes that this permit reissuance will not affect any federally listed threatened and endangered species under the NOAA National Marine Fisheries or US Fish and Wildlife Services jurisdictions that may be present in the area of discharge. If, in the future, EPA obtains information or is provided information that indicates that there could be adverse impacts to federally listed species, EPA will contact the appropriate agency or agencies and initiate consultation, to ensure that such impacts are minimized or mitigated.

EPA drafted this permit to protect the beneficial uses of the river, which include propagation and preservation of aquatic wildlife. Therefore, EPA believes that the permit conditions will not affect the availability or distribution of prey species or produce undesirable aquatic life within the Namu River that may directly impact threatened or endangered species. In consideration of the factors stated above, EPA believes that a NO EFFECT determination is appropriate for the above listed endangered or threatened species in Guam.

EPA provided the Services with copies of this fact sheet and the draft permit during the public notice period.

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

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 permit contains technology-based effluent limits and numerical and narrative water quality-based effluent limits as necessary for the protection of applicable aquatic life uses. The permit does not directly discharge to areas of essential fish habitat. Therefore, EPA is not

required to make a determination on whether this action may adversely impact Essential Fish Habitat, as defined under the MSA.

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 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 reissuance.

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

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 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 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. During the public comment period, EPA received no comments.

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. No interest for a public hearing was expressed during the public comment period.

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

The GEPA has approved water quality standards. EPA requested certification from the GEPA that the 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. GEPA provided written certification on July 6, 2016. See 401WQC 16-05.

XIII. CONTACT INFORMATION

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

EPA Region IX
Attn: Becky Mitschele
75 Hawthorne Street (WTR 2-3)
San Francisco, California 94105

or

Becky Mitschele
mitschele.becky@epa.gov
(415) 972 – 3492

XIV. REFERENCES

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U.S. FWS. 2012. Endangered Species in the Pacific Islands. <http://www.fws.gov/pacificislands/fauna/marianabat.html>

ATTACHEMENT B. Diagram of the Treatment Process at Fena Water Treatment Plant

