

US EPA ARCHIVE DOCUMENT

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

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NPDES Permit No.: GU0020346

**I: STATUS OF PERMIT**

Unitek Environmental Guam (hereinafter, the “permittee”) has applied for renewal of its National Pollution Discharge Elimination System (“NPDES”) permit pursuant to U.S. Environmental Protection Agency (“EPA”) regulations set forth in Title 40, U.S. Code of Federal Regulations (“CFR”), Part 122.21, for the discharge of treated wastewater from its mobile treatment plant to Category M-2 and Category M-3 marine waters of Apra Harbor. Because the Guam Environmental Protection Agency (GEPA) does not have primary regulatory responsibility for administering the NPDES permitting program, EPA Region 9 has primary regulatory responsibility for the discharge. EPA Region 9 is proposing to issue an NPDES permit incorporating both federal secondary treatment standards and GEPA water quality requirements.

The permittee is currently discharging to the Apra Harbor under the NPDES permit No. GU0020346, which became effective on January 1, 2012, and expired on December 31, 2016. Pursuant to 40 CFR 122.21, the terms of the existing permit are administratively extended until the issuance of a new permit.

**II. Proposed permit changes – the table below provides an overview of change from the existing permit to the proposed permit.**

Parameter/item	Existing Permit	Proposed Permit	Reason for Change
Toxicity	Acute toxicity – freshwater species	Chronic toxicity – marine species	Discharge into marine waters so marine species appropriate,

Parameter/item	Existing Permit	Proposed Permit	Reason for Change
Lead	Limit included	Limit removed	No Reasonable Potential
Copper and Zinc	Monitoring	Limit included	Yes Reasonable Potential

### III: DESCRIPTION OF FACILITY

The permittee owns and operates a mobile treatment plant that removes oil from bilge and oily wastewater. The mobile treatment plant consists of two two-inch, air-operated diaphragm pumps, one 100 gallons per minute oil water separator with corrugated plate interceptor, one 550-gallon oil storage tank, two dual sock filter units, and an activated carbon tank. Effluent discharges from the mobile treatment plant include treated bilge water from vessels that are cleaned during routine maintenance, repair, or decommissioning and facility wastewater contaminated by used oil. Vessels serviced by the mobile treatment plan in this permit include U.S. Military Sealift Command (MSC), Matson, Horizon, various cargo carriers, fishing vessels, and tugs.

Wastewater is processed directly through the mobile treatment plant or stored in mobile tanker trailers or intermodal tanks prior to processing. All wastewater is treated by the mobile treatment plant prior to discharge to Apra Harbor to Philippine Sea. The mobile treatment plant is operated on an on-call basis at the Port of Guam and has an estimated design flow rate of 0.144 million gallons per day (“MGD”) although actual discharge varied from 0 MGD to 0.29 MGD (or 100,000 gallons in a month) over the previous permit cycle. Discharge from the mobile treatment plant has been intermittent, with ten discharge events reported from 2012-2016.

### PART IV: DESCRIPTION OF RECEIVING WATER

The facility discharges to Philippine Sea or Apra Harbor. To protect the designated uses of surface waters of the U.S., the Territory of Guam (“Guam”) has adopted water quality standards for marine waters depending on the level of protection required. According to *Guam Water Quality Standards, 2001 Revision* (“Guam WQS”) (Public Law 26-113, June 18, 2002, GEPA classifies Philippine Sea as a Category M-2 (“Good” quality) marine water in the vicinity of Outfalls 001 and 004 and Apra Harbor as a Category M-3 (“Fair” quality) marine water in the vicinity of Outfall 002 and 003.

Beneficial uses assigned to Category M-2 include:

1. propagation and survival of marine organisms, especially shellfish and other similarly harvested aquatic organisms, corals, and reef-related resources;
2. whole body contact recreation;
3. mariculture activities; and
4. aesthetic enjoyment and related activities.

Beneficial uses assigned to Category M-3 include:

1. general, commercial and industrial use;
2. protection of aquatic life;
3. aesthetic enjoyment;
4. recreation with limited body contact; and
5. shipping, boating and berthing, industrial cooling water, and marinas.

Apra Harbor is listed in the 2016 Guam 303(d) list for impaired water bodies for PCBs based on a 1999 fish advisory. A TMDL has not currently been developed for this water body.

The mobile treatment plant discharges to Philippine Sea (outfall 001 and 003) or to Apra Harbor (outfall 002) through the following discharge outfalls during operation:

Discharge Outfall Number	Latitude	Longitude	Outfall Description
001	13°28'00" N	144°40'30" E	Philippine Sea or Port of Guam, Guam Regional Hazardous Waste Transfer Facility (discharge 001 will be prohibited upon relocation to 004)
002	13°27'30" N	144°40'00" E	Port of Guam, Foxtrot Wharf
003	13°27'45" N	144°39'00" E	Port of Guam, Hotel Wharf
004	13°27'52" N	144°39'59" E	Port of Guam, Proposed Relocation (will replace 001; discharge is prohibited before relocation of 001)

## V: DESCRIPTION OF DISCHARGE

The permittee provides a service to vessel operators and various island facilities for the removal of oil in bilge and oily wastewaters, respectively; discharge is intermittent in nature as the treatment plant operates on an as-needed basis. The mobile treatment plant receives the oily wastewater and discharges the treated effluent to Apra Harbor via the discharge points previously described. The reclaimed oil is processed for energy at the Cabras Island power plant. Table 1 provides a summary of discharge characteristics based on monitoring data from ten reported events, which were provided on the Discharge Monitoring Report (“DMR”) forms from the period of February 2012 to December 2016 as well as the permittee’s NPDES permit application, EPA Form 3510-2C, dated June 13, 2016. Effluent data from Outfalls 001-003 were pooled for purpose of this analysis as the waste stream is treated by the same mobile treatment plant before discharge.

The permittee requested an additional outfall in the permit renewal application to accommodate the relocation of Unitek’s facility; discharge from the new outfall, Outfall 004, is assumed to be

of the same quality as Outfalls 001-003. The schedule for the relocation, which will occur as part of the Port of Guam expansion, is not finalized at the time of this proposed permit. At the time of the facility's relocation, discharge will be authorized from Outfalls 002, 003, and 004 only; discharge from Outfall 001 will then be prohibited.

**Table 1. Comparison of effluent limitations from the previous permit period (2011-2016) and effluent data from the Discharge Monitoring Report forms and the permit application**

Parameter	Units	Daily Maximum Allowable Effluent Limitation	Reported Maximum Concentration
Flow rate	MGD	--	0.29
pH	S.U.	6.5-8.5	7.14, 7.89 <sup>1</sup>
TSS	mg/L	20	28
Ammonia	mg N/L	monitor only	0.25
Oil and Grease	mg/L	15	<5
Orthophosphate	mg/L	0.05	0.99
Copper	ug/L	monitor only	550
Lead	ug/L	0.21	<0.85
Zinc	ug/L	monitor only	37
BTEX:		monitor only	
Benzene	mg/L		<.0005
Toluene	mg/L		<.0005
Ethylbenzene	mg/L		<.0005
Xylene	mg/L		<.0005

1. pH concentrations are the minimum and maximum values reported.
2. "<" means the concentration was below the laboratory's practical quantitation level for the parameter.

### C. Inspection Report

On October 17, 2016, EPA issued a letter requesting information under Clean Water Act Section 308(a) that required Unitek to provide discharge monitoring reports (DMRs) for 2012 to 2016. Unitek replied on November 8, 2016 and supplied the requested DMRs. On April 6, 2017, EPA issued an NPDES Compliance Inspection Report and concluded no significant issues with facility operation with exception of several exceedances of maximum daily effluent limit for phosphate from Outfall 001. Unitek's response explained difficulties in meeting laboratory hold times due to unavailability of analytical lab in Guam (samples need to be shipped to California). Unitek also stated they have implemented a more frequent replacement of carbon filtration device and system cleaning regimen.

## **VI: DETERMINATION OF NUMERICAL EFFLUENT LIMITATIONS**

The Clean Water Act ("CWA") requires point source dischargers to control the amount of pollutants that are discharged to waters of the United States. The control of pollutants is established through effluent limitations and other requirements in NPDES permits. When determining effluent limitations, EPA must consider limitations based on the technology used to treat the pollutant(s) (i.e., technology-based effluent limits) and limitations that are protective of water quality standards (i.e., water quality-based effluent limits).

EPA evaluated the typical pollutants expected to be present in the effluent and selected the more stringent of applicable technology-based effluent limits or water quality-based effluent limitations. Where effluent concentrations of toxic parameters are unknown or are not reasonably expected to be discharged in concentrations that have the reasonable potential to cause or contribute to violations of water quality standards, 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.

### **A. Applicable Technology-based Effluent Limits**

Section 402(a)(1) of the CWA and 40 CFR 125.3 authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where effluent limitations guidelines are not available for certain industrial categories and/or pollutants of concern; BPJ was used to derive the technology-based effluent limitation for oil and grease proposed in this permit because effluent limitations guidelines were not available.

#### **1. Technology-based Effluent Limitations**

Effluent limitations for oil and grease are proposed for discharge from all outfalls (Outfalls 001-004). The current permit established a maximum daily effluent limitation of 15 mg/L. The effluent limitation has been carried over to the proposed permit from the current permit and remains applicable. The limitation is based on EPA's BPJ as there are no applicable effluent limitation guidelines or performance standards for oil and grease.

### **B. Applicable Water Quality-based Limits**

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)).

Effluent limitations were established using:

1. Guam water quality standards, revised and approved by Guam EPA in 2001 and amended in June 2002.
2. National Recommended Water Quality Criteria, December 2013; and
3. Best Professional Judgment

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

The GEPA water quality standards (2002) establish water quality criteria for marine waters which for the protection of designated beneficial uses. The GEPA water quality standards categorize Apra Harbor as Class A marine waterbody. Class A marine waters are protected for recreational and aesthetic enjoyment. Other uses are allowed as long as they are compatible with protection and propagation of fish, shellfish, and wildlife, and with compatible recreation with risk of water ingestion by humans.

The Guam WQS for Category M-2 (“Good”) and Category M-3 (“Fair”) marine waters are relevant to the reasonable potential analysis and the development of WQBELs for this permit. The WQS for orthophosphate and total suspended solids (TSS) vary for M-2 and M-3 waters; for the other pollutants of concern, the WQS for M-2 and M-3 waters are the same. In order to comply with Guam WQS, the effluent limitations for Outfall 002 will be consistent with M-3 WQS and the effluent limitations for Outfalls 001, 003, and 004 will be consistent with the M-2 WQS. The previous permit set WQBELs for all outfalls based on M-3 WQS; however, WQBELs for Outfalls 001-003 were made consistent with M-2 WQS in the permit to reflect an updated interpretation of the Guam WQS.

### 3. Existing Data on Toxic Pollutants

For pollutants with effluent data available, EPA has conducted a reasonable potential analysis based on statistical procedures outlined in EPA’s *Technical Support Document for Water Quality-based Toxics Control* herein after referred to as EPA’s TSD (EPA 1991). These statistical procedures result in the calculation of the projected maximum effluent concentration based on monitoring data to account for effluent variability and a limited data set. The projected maximum effluent concentrations were estimated assuming a coefficient of variation of 0.6 and the 99 percent confidence interval of the 99<sup>th</sup> percentile based on an assumed lognormal distribution of daily effluent values (sections 3.3.2 and 5.5.2 of EPA’s TSD). 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<sub>e</sub>” is the reported maximum effluent value and the multiplier factor is obtained from Table 3-1 of the TSD. The projected maximum effluent concentration is compared directly to the applicable water quality criterion to determine the reasonable potential for effluent concentration to exceed the receiving water criterion.

**Table 2. Summary of Reasonable Potential Statistical Analysis:**

Parameter	Maximum Observed Concentration (mg/L)	n	RP Multiplier	Projected Maximum Effluent Concentration (mg/L)	Most Stringent Water Quality Criterion (mg/L)	Statistical Reasonable Potential?
orthophosphate	0.99	5	2.3	2.277	0.055	YES
copper	0.550	10	1.7	0.935	0.0037	YES
lead	0.0008.5	9	1.8	0.0015	0.0085	NO
zinc	0.037	1	6.2	0.229	0.086	YES
benzene	0.0005	1	6.2	0.0031	0.071	NO
ethylbenzene	0.0005	1	6.2	0.0031	29	NO
toluene	0.0005	1	6.2	0.0031	200	NO
xylene	0.0005	1	6.2	0.0031		NO
TSS	28	6	2.1	58.8	20	YES

### 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.

Appendix A provides example calculations for determining the numeric water quality-based effluent limits.

**pH.** The permit proposes maintaining the instantaneous effluent limitation for pH from the current permit, which requires that pH remain within the range of 6.5 to 8.5 standard units (S.U.) at all times. The pH effluent limitation in the permit is consistent with Guam WQS for marine waters. Field measurement of pH is required for each discharge.

**Orthophosphate (PO<sub>4</sub>-P).** The permit proposes maintaining the daily maximum effluent limitation for orthophosphate from the current permit for Outfall 002 of 0.10 mg/L and proposes a more stringent effluent limitation for orthophosphate for Outfalls 001, 003, and 004 of 0.05 mg/L in accordance with the appropriate marine water classifications for Category M-3 and Category M-2, respectively. An effluent limitation for orthophosphate was established in the permit because bilge water can consist of a mixture of vessel wastewater and leakage from a variety of sources containing phosphorus.



Effluent data for orthophosphate were available for review from five monitoring events between February 2012 and December 2016. Based on the reasonable potential analysis procedures outlined in section 3.3 of the TSD, the discharge demonstrates reasonable potential to exceed the M-2 water quality criterion. However, because of the nature of the discharge and the limited data set, effluent limitations for orthophosphate will be included for all outfalls in the permit in accordance with Guam WQS. Effluent monitoring for orthophosphate is required once per month or once per discharge event.

**Copper.** The permit proposes including an effluent limitation for copper, which is based on Guam WQS for aquatic life protection. The effluent limitation for copper was established in the proposed permit because copper is commonly found in wastewaters and bilge water.

Effluent data for copper were available for review from ten monitoring events between February 2012 and December 2016. The maximum effluent concentration was reported as 550 µg/L. Based on the reasonable potential analysis procedures outlined in section 3.3 of the TSD, the discharge demonstrates reasonable potential to exceed the most stringent water quality criterion, the Criteria Continuous Concentration (CCC), which is a chronic concentration. The proposed daily maximum effluent limit for copper is 0.0048 mg/L (4.8 µg/L), which is the Criteria Maximum Concentration (CMC). The CMC is an acute concentration. The proposed average monthly effluent limitation for copper is 0.0024 mg/L, which is the CCC. Effluent monitoring for copper is required monthly or once per discharge event.

**Zinc.** The permit proposes maintaining the effluent limitation for zinc from the current permit, which is based on GUAM WQS for aquatic life protection. The effluent limitation for zinc was established in the proposed permit because zinc is commonly found in bilge water.

Effluent data for zinc were available for review from six monitoring events between 2012 and 2016. The maximum effluent concentration was reported as 37 µg/L. Based on the reasonable potential analysis procedures outlined in section 3.3 of the TSD, the discharge demonstrates reasonable potential to exceed the most stringent water quality criterion, the Criteria Continuous Concentration (CCC), which is a chronic concentration. The proposed daily maximum effluent limit for zinc is 0.090 mg/L (90 µg/L), which is the Criteria Maximum Concentration (CMC). The CMC is an acute concentration. The proposed average monthly effluent limitation for zinc is 0.043 mg/L, which is the CCC. Effluent monitoring for zinc is required monthly or once per discharge event.

**Total suspended solids.** The current permit includes an effluent limitation for total suspended solids (TSS). Effluent data for TSS were available for review from ten monitoring events between February 2012 and December 2016. Based on the reasonable potential analyses procedures outlined in section 3.3 of the TSD, the discharge demonstrates reasonable potential for TSS to exceed water quality criteria for Category

M-2 and Category M-3 waters. Effluent limitations for TSS will be included for discharge from all outfalls in the permit in accordance with Guam WQS. For Outfalls 001, 003, and 004 (Category M-2), the maximum daily effluent limitation for TSS is 20 mg/L. Concentrations of total suspended solids at any point shall not be increased by discharge from Outfalls 001, 003, or 004 by more than ten percent (10%) from ambient at any time. For Outfall 002 (Category M-3), the maximum daily effluent limitation for TSS is 40 mg/L. In addition, concentrations of suspended matters at any point shall not be increased by discharge from Outfall 002 by more than twenty-five percent (25%) from ambient at any time. The permit proposes effluent TSS monitoring once per month or once per discharge event.

**Turbidity.** The current permit does not include an effluent limitation for turbidity; however, Guam WQS require that the turbidity at any point not exceed 1.0 NTU over ambient conditions. The permit requires turbidity monitoring for each discharge to ensure compliance with Guam WQS.

**BTEX (Benzene, Toluene, Ethylbenzene, and Xylene).** The permit maintains the requirement from the current permit to monitor for BTEX once per year or once per discharge (whichever is less frequent) without numeric effluent limits. Monitoring requirements were included because BTEX are common components of refined oil products and solvents, which are likely to occur in oily water and bilge water. Effluent data from one discharge event in 2015 were available for review. Based on the reasonable potential analyses procedures outlined in section 3.3 of the TSD, the discharge does not demonstrate reasonable potential to exceed water quality criteria; however, annual BTEX monitoring will continue under the permit because limited data were available for review and there remains a potential for these pollutants to be present in the effluent.

## D. Anti-Backsliding Provisions

### 1. Technology-based Effluent Limitations (TEBLs)

The renewal or reissuance of an existing NPDES permit that contains technology-based effluent limits based on BPJ that are less stringent than those established in the previous permit is prohibited, except as provided in 40 CFR 122.44(k)(1)(i). This is referred to as "anti-backsliding." The permit establishes more stringent technology-based effluent limitations for oil and grease. The permit establishes equally stringent technology-based effluent limitations for oil and grease.

### 2. Water Quality-based Effluent Limitations (WQBELs)

Section 402(o) of the CWA and 40 CFR 122.44(l) prohibits the renewal or reissuance of an NPDES permit that contains WQBELs less stringent than those established in the current permit, with some exceptions. The permit includes effluent limitations at least as stringent as those contained in the previous permit. The requirements of this permit are

consistent with the requirements of 40 CFR 122.44(l) and Guam's anti-degradation policy.

#### **E. Anti-degradation Policy**

EPA's anti-degradation policy at 40 CFR 131.12 and Section 5101 of the GUAM WQS require that existing water uses and the level of water quality necessary to protect the existing uses be maintained.

As described in this document, the permit establishes effluent limits and monitoring requirements that are designed to ensure that all applicable water quality standards are met. The permit does not include a mixing zone; therefore these limits will apply at the end of pipe without consideration of dilution in the receiving water. The permit is consistent with EPA and Guam's anti-degradation policies.

The Permittee notified EPA in the permit renewal application that Outfall 001 may be relocated as part of the Port of Guam's (Jose D. Leon Guerrero Commercial Port) planned expansion and modernization. Although the exact date of relocation is unknown, it may occur within the five-year permit cycle. The proposed location of the new outfall, Outfall 004, is approximately 0.60 miles (1 km) west along the shoreline from the current location of Outfall 001. Both Outfall 001 and Outfall 004 discharge to the same segment of Philippine Sea; the receiving water quality at the new outfall and the receiving water quality at the current outfall are therefore Category M-2. The effluent quality should also be similar to the effluent quality that would be discharged from the three current outfalls. As Outfall 004 would be replacing Outfall 001, the effluent quantity would also not change as a result of relocating the outfall. The permit allows discharge from three outfalls, one of which will potentially be relocated during the permit cycle; however, moving the discharge point from Outfall 001 to Outfall 004 will not result in lowering water quality and is consistent with EPA and GEPA's anti-degradation policies.

#### **F. Toxicity Testing Requirement**

The draft permit proposes a "no chronic toxicity" discharge trigger in 100 percent effluent where compliance is evaluated using a single-concentration toxicity test result (reported as pass/fail), rather than a multi-concentration test result (reported as a point estimate, e.g., LC<sub>50</sub>). While this approach does not yield information regarding the level of toxicity present in the diluted effluent, EPA Region 9 believes that this approach provides a reasonable balance between the need for annual compliance monitoring and cost savings resulting from the use of single-concentration rather than multi-concentration testing considering that the approved testing facility may be in Hawaii or even farther away. If toxicity (as defined) is detected, then additional multi-concentration testing may be recommended by EPA Region 9.

This permit changes toxicity testing to use of marine species since the discharge flows into either Philippine Sea or Apra Harbor, which are marine waters. At the beginning of the permit term, the permittee is expected to perform a species sensitivity test, whereby three different trophic level species - fish, invertebrate and alga/plant are evaluated using chronic toxicity methods.

Once the most sensitive marine species is identified via the sensitivity test, then permittee will continue to conduct toxicity testing using only the one most sensitive species through remainder of permit term for compliance purposes. EPA is available to provide additional technical support to the permittee to complete the species sensitivity test.

## **VII: NARRATIVE WATER QUALITY-BASED EFFLUENT LIMITATIONS**

The discharge prohibitions Section 5103 of Guam WQS contains narrative water quality standards that apply to all waters of Guam including but not limited to marine and surface waters. The permit proposes narrative water quality-based effluent limits in the receiving water of Apra Harbor and the Philippine Sea based on narrative GUAM WQS.

## **VIII: MONITORING AND REPORTING REQUIREMENTS**

The permit requires the permittee to continue to monitor the effluent for pollutants or parameters with technology-based effluent limits (i.e., oil and grease) and water quality-based effluent limits (i.e., pH, lead, etc.) for the duration of the permit term.

### **A. Effluent Monitoring and Reporting**

The permit requires the permittee 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 DMR forms and submitted quarterly, as specified in the permit.

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

The permit requires the permittee to conduct a priority pollutants scan once during 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 toxic pollutants scan in accordance with the methods described in the most recent edition of 40 CFR Part 136, unless otherwise specified in the permit. The method quantitation limit should be below the most stringent applicable water quality criterion. If such method is not available, then the method with the lowest quantitation limit shall be used. 40 CFR 131.36 provides a complete list of priority pollutants. Ammonia analyses shall be included with the priority pollutant scan.

### **C. Whole Effluent Toxicity Testing**

The permit establishes semi-annual tests for chronic toxicity. Chronic toxicity testing evaluates reduced growth/reproduction at 100 percent effluent. Chronic toxicity is to be reported as “pass/fail” based on the Test of Significant Toxicity (“TST”).

#### **D. Receiving Water Monitoring and Mixing Zone Study**

The permit incorporates receiving water monitoring requirements for nutrients as well as the development of a mixing zone study. The discharger can use data gathered during the permit term to request a mixing zone from GEPA prior to requesting a permit revision or applying for their next permit.

The permit requires the permittee to continue to monitor for pollutants or parameters with technology-based effluent limits (i.e., oil and grease) and water quality-based effluent limits (i.e., pH) in the effluent for the duration of the permit. Pollutants or parameters with water quality-based effluent limits shall be monitored once per month with grab sampling methods.

In accordance with federal regulations, the permittee must conduct a Priority Toxics Pollutants scan once during the permit cycle, preferably prior to fourth year of permit cycle so effluent results can be reviewed prior to next permit cycle and to ensure the discharge does not contain toxic pollutants in concentrations that may cause violation of water quality standards. If the scan results indicate that a limit has actually been exceeded or there is a reasonable potential for such a limit to be exceeded, then during next cycle, this permit may include appropriate numeric limits for those parameters with exceedances.

All monitoring, sampling, and analyses shall be performed as described in the most recent edition of 40 CFR 136, unless otherwise specified in the draft permit. All monitoring data must be reported via net-DMR and submitted quarterly to EPA and GEPA as specified in the permit.

#### **IX: SPECIAL CONDITIONS**

Permits issued by EPA require State review and certification under Section 401 of the Clean Water Act (CWA) ensures that the permit will comply, not only with applicable Federal standards under the CWA, but also with State water quality standards. Therefore, EPA will forward this draft permit and factsheet to GEPA and request CWA Section 401(a)(1) certification.

##### **A. Authorization to Discharge from Outfalls**

The current permit allows discharge from three outfalls: Outfall 001, 002, and 003. The permit allows discharge from the same three outfalls until such a time that the facility moves from its current location at Outfall 001 to its new location at Outfall 004. The permittee must notify EPA and Guam EPA in writing 60 days prior to the facility's relocation from Outfall 001 to Outfall 004 and will confirm the location of Outfall 004. Upon notifying EPA and Guam EPA, the permittee is (1) no longer authorized to discharge from 001 and (2) becomes authorized to discharge from Outfall 004 in accordance with the requirements in this permit.

Guam EPA may identify permit conditions to be met in their Clean Water Act Section 401 water quality certification letter, to be submitted upon review of this proposed permit.

## B. Pollution Prevention Plan and Best Management Practices

In accordance with 40 CFR 122.44(k), the permit requires the permittee to develop and implement a Pollution Prevention Plan that includes Best Management Practices (BMPs) that are designed to prevent pollutants from entering Philippine Sea or Apra Harbor while maintaining, operating, transporting, and/or storing the mobile treatment plant.

## X: OTHER CONSIDERATIONS UNDER FEDERAL LAW

### A. 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. 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	<a href="#"><i>Sphyrna lewini</i></a>	Threatened (T)	
Mammals	Blue whale	<a href="#"><i>Balaenoptera musculus</i></a>	Endangered (E)	
	Fin whale	<a href="#"><i>Balaenoptera physalus</i></a>	E	
	Sperm whale	<a href="#"><i>Physeter catodon</i></a>	E	
	Humpback whale	<a href="#"><i>Megaptera novaeangliae</i></a>	E	
	Dugong <sup>2</sup>	<a href="#"><i>Dugong dugon</i></a>	E	
	Sei Whale	<a href="#"><i>Balaenoptera borealis</i></a>	E	
Sea Turtles <sup>2</sup>	Olive ridley sea turtle	<a href="#"><i>Lepidochelys olivacea</i></a>	T	
	Leatherback turtle	<a href="#"><i>Dermochelys coriacea</i></a>	E	
	Green Sea turtle	<a href="#"><i>Chelonia mydas (incl. agassizi)</i></a>	T	
	Loggerhead turtle, North Pacific	<a href="#"><i>Caretta caretta</i></a>	T	
	Hawksbill turtle	<a href="#"><i>Eretmochelys imbricate</i></a>	E	
Corals <sup>3</sup>		<a href="#"><i>Acropora globiceps</i></a>	T	
		<a href="#"><i>Acropora jacquelineae</i></a>	T	
		<a href="#"><i>Acropora lokani</i></a>	T	

Type	Common Name	Scientific Name	Status	Critical Habitat Designated
		<a href="#">Acropora retusa</a>	T	
		<a href="#">Acropora speciose</a>	T	
		<a href="#">Acropora tenella</a>	T	
		<a href="#">Anacropora spinose</a>	T	
		<a href="#">Euphyllia paradivisa</a>	T	
		<a href="#">Isopora crateriformis</a>	T	
		<a href="#">Montipora australiensis</a>	T	
		<a href="#">Porites napopora</a>	T	
		<a href="#">Seriatopora aculeate</a>	T	
<b>U.S. Fish and Wildlife Service Species Associated with Ocean Habitats</b>				
Mammals	Little Mariana Fruit Bat	<a href="#">Pteropus tokudae</a>	E	Guam
	Mariana Fruit Bat	<a href="#">Pteropus mariannus mariannus</a>	T	Guam
Birds	Mariana Swiftlift	<a href="#">Aerodramus bartschi</a>	E	
	Mariana Crow	<a href="#">Corvus kubaryi</a>	E	Guam
Birds (cont.)	Mariana Common Moorhen	<a href="#">Gallinula chloropus guami</a>	E	
	Guam Micronesian Kingfisher	<a href="#">Halcyon cinnamominus cinnamominus</a>	E	Guam
	Micronesian Megapode	<a href="#">Megapodius laperouse</a>	E	
	Guam Rail	<a href="#">Rallus owstoni</a>	E	
	Guam Bridled White-eye	<a href="#">Zosterops conspicillatus conspicillatus</a>	E	
Plants	Hayun lagu	<a href="#">Serianthes nelsonii</a>	E	

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

<sup>1</sup> 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.

<sup>2</sup> The species is also under the jurisdiction of the U.S. FWS.

<sup>3</sup> EPA obtained these corals from [http://www.fpir.noaa.gov/Library/PRD/Coral/us\\_indo-pacific\\_corals\\_distribution.pdf](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](http://www.fpir.noaa.gov/Library/PRD/Coral/Field_ID_guide_Guam.pdf).

### ***Fish and Marine Mammals***

Within U.S. Pacific Areas, National Marine Fisheries Service (NMFS) recently identified several marine mammals, sea turtles, fish and coral species as threatened or endangered under the Endangered Species Act (NMFS update, Jan. 2015). The list includes: Blue Whale (*Balaenoptera musculus*), Fin Whale (*Balaenoptera physalus*), Humpback whale (*Megaptera novaeangliae*), Sei whale (*Balaenoptera borealis*), Sperm whale (*Physeter macrocephalus*), Dugong (*Dugong dugon*), Green Sea Turtle (*Chelonia mydas*), Hawksbill Sea Turtle (*Eretmochelys imbricate*), Leatherback Sea Turtle (*Dermochelys coriacea*), North Pacific Loggerhead Sea Turtle (*Caretta caretta*), Olive Ridley Turtle (*Lepidochelys olivacea*), Scalloped Hammerhead shark (*Sphyrna lewini*) and several species of corals.

Limited information is available on threats to the turtle population in Guam. The harvest of green sea turtles and their eggs on land is occurring in Guam and may be occurring to hawksbills as well. Other factors besides harvest affecting the hawksbill and green sea turtle populations in Guam are habitat loss, problems associated with urbanization and expanding tourism, and potentially incidental take by fisheries. Additionally, sedimentation from land development has damaged Guam's coral reefs, and presumably, food sources for turtles.

Water quality could potentially affect hawksbill and green sea turtles via absorption of contaminants or direct ingestion of contaminated water or prey. The effluent discharged under this permit would consist of bilge water, which would be treated by the mobile treatment facility prior to discharge to Apra Harbor and the Philippine Sea. Monitoring data from the mobile treatment facility have shown exceedances of effluent limitations only for orthophosphate water quality standards during the previous five-year permitting period (see Table 1). The technology and water quality-based effluent limits in the permit should not result in acute or chronic exposures of contaminants that would significantly affect the hawksbill turtle or green sea turtle. These effluent limits also are not likely to affect the availability or distribution of prey species or produce undesirable aquatic life within Apra Harbor that may impact hawksbill or green sea turtles.

### ***Corals***

Within Guam waters, NMFS has confirmed three coral species as threatened – *Seriatopora aculeata*, *Acropora globiceps*, and *Acropora retusa*. Of the two confirmed species of coral, only *Seriatopora aculeate* has a listed habitat depth greater than 10 meters. *Seriatopora aculeate* has a listed depth range of up to 40 meters. 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 effluent limitations for: pH, sediment (as TSS), one nutrient (orthophosphate) and two metals (copper and zinc). The permit is a reissuance of a permit for an existing facility with infrequent and very low volume discharges (less than 0.3 MGD). EPA has therefore determined the outfall may affect, but is not likely to adversely affect threatened corals in the vicinity of the outfall.

### ***Birds: Seven Bird Species***

The U.S. Fish and Wildlife Services (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 Phillipine Sea.

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. 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. 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.

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; thus it can be determined that the Mariana gray swiftlet has little overlap with Apra Harbor water, other than speculative incidental contact. It is EPA's determination that the discharge will have no effect on the Mariana gray swiftlet.

### ***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 discharges and Apra Harbor area 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 and small volumes, if any. The facility's discharge will not effect the bats' food, habitat, or the bat itself.

### ***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 affect the Hayun Iagu (*Serianthes nelsonii*).

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.

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 either not affect or not likely to adversely affect 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 Philippine Sea that may directly impact threatened or endangered species. EPA provided both

NMFS and FWS with copies of this fact sheet and the draft permit during the public notice period.

## **B. 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) in marine environments. Apra Harbor connects to the Philippine Sea and is considered a marine ecosystem, thus federal requirements of the MSA apply to EPA's proposed action to issue an NPDES permit to discharge into Apra Harbor. Therefore, EPA is required to make a determination on whether this action may adversely impact EFH, as defined under the MSA. Given that effluent limitations in the permit are written to meet water quality standards established to be protective of applicable aquatic life uses and the discharge flow (volume and frequency) was *de minimis* in nature over the previous permit cycle, EPA has determined there will be no adverse impacts to EFH from the issuance of the NPDES permit for Unitek's mobile treatment plant.

EPA has provided a copy of the draft permit and factsheet to NMFS for review.

## **C. 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 Part 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.

EPA has provided copies of the draft permit and this fact sheet to Guam for review and comment during the public notice period.

## **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 either listed on, or eligible for listing on, the National Register of Historic Places. Pursuant to federal requirements of NHPA and 36 CFR 800.3(a)(1), EPA has determined the permit does not have the potential to affect any historic or cultural properties.

## PART XI - ADMINISTRATIVE INFORMATION

### A. Public Notice

In accordance with 40 CFR 124.10, the EPA Director shall give public notice that a draft NPDES permit has been prepared under 40 CFR 124.6(d) by mailing a copy of the notice to the permit applicant and other federal and state agencies, and through publication of a notice in a daily or weekly newspaper within the area affected by the facility.

### B. Public Comment Period

EPA issued a public notice from **May XX to June XX, 2017** soliciting public comment on the permit.

### C. Public Hearing

In accordance with 40 CFR 124.12, the EPA Director shall hold a public hearing whenever she finds, on the basis of requests, a significant degree of public interest in a draft permit. The Director may also hold a public hearing when, for instance, such a hearing might clarify one or more issues involved in the permit decision. Public notice of such hearing shall be given as specified in 40 CFR 124.10.

### D. Water Quality Certification Requirements

In accordance with 40 CFR 124.53, under section 401 of the Act, EPA may not issue a permit until a certification is granted or waived in accordance with that section by the State or Territory in which the discharge originates or will originate. EPA shall send GEPA EPA a copy of the draft permit, a statement that EPA cannot issue or deny the permit until the Territory of GEPA has granted or denied certification under 40 CFR 124.55, or waived its right to certify, and a statement that the Territory of GEPA will be deemed to have waived its right to certify unless that right is exercised within a specified reasonable time not to exceed 60 days from the date the draft permit is mailed to GEPA EPA unless EPA Regional Administrator finds that unusual circumstances require more a longer time. Territorial certification under section 401 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 has not yet provided 401 certification for this permit. Upon receipt, EPA will incorporate conditions into the final permit.

## PART XI: REFERENCES

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## Appendix A. Calculations for Water quality based effluent limitations

### WOBEL Calculations for Toxic Metals

As a mixing zone for copper and zinc is not authorized by GEPA, then acute, chronic, and human health wasteload allocations are calculated using the following modified steady-state mass balance equation:

$$C_e = C_r = WLA$$

“C<sub>r</sub>” is the water quality criterion (in mg/l, µg/l, or TU).

### Sample Step-by-Step Calculations for Copper

- Using the September 2004 CNMI WQS incorporating EPA’s 2004 National recommended water quality criteria for copper (EPA-822-H-04-001), the saltwater acute criterion (C<sub>r acute</sub>) is 4.8 µg/l, the saltwater chronic criterion (C<sub>r chronic</sub>) is 3.1 µg/l, and the human health (organisms only) criterion (C<sub>r human</sub>) is 1,300 µg/l.

$$\text{Acute } C_e = 4.8 \text{ } \mu\text{g/l} = \text{acute WLA}$$

$$\text{Chronic } C_e = 3.1 \text{ } \mu\text{g/l} = \text{chronic WLA}$$

- Following TSD Table 5-1 for acute water quality criteria protecting aquatic life, a value of 0.321 is used as the statistical multiplier for back-calculating the acute long-term average (LTA) when the acute wasteload allocation is established at the 99<sup>th</sup> percentile occurrence probability. EPA estimates that the coefficient of variation (CV) of the pollutant in the effluent is 0.6.

$$\begin{aligned} \text{Acute LTA} &= \text{acute WLA} \times \text{acute WLA multiplier factor} \\ &= 4.8 \times 0.321 \\ &= 1.54 \text{ } \mu\text{g/l} \end{aligned}$$

- Following TSD Table 5-2 for chronic water quality criteria protecting aquatic life, a value of 0.527 is used as the statistical multiplier for back-calculating the chronic long-term average when the chronic wasteload allocation is established at the 99<sup>th</sup> percentile occurrence probability and EPA estimates that the CV of the pollutant in the effluent is 0.6:

$$\begin{aligned} \text{Chronic LTA} &= \text{chronic WLA} \times \text{chronic WLA multiplier factor} \\ &= 3.1 \times 0.527 \\ &= 1.63 \text{ } \mu\text{g/l} \end{aligned}$$

- (4) Following TSD Section 5.4.4 for human health water quality criteria, the human health wasteload allocation is established as the human health long-term average:

$$\begin{aligned}\text{Human health LTA} &= \text{human health WLA} \\ &= 1,300 \mu\text{g/l}\end{aligned}$$

- (5) Following TSD Section 5.4, the lowest of the acute, chronic or human health long-term average is selected and used to calculate maximum daily and average monthly water quality-based effluent limits:

$$\begin{aligned}\text{Minimum LTA} &= \text{Acute LTA} \\ &= 1.54 \mu\text{g/l}\end{aligned}$$

- (6) If the minimum long-term average is based on a water quality criterion protecting aquatic life, then the statistical procedure outlined in TSD Table 5-2 is used to calculate maximum daily and average monthly WQBELs. In this procedure, EPA estimates that the CV of pollutants in the effluent is 0.6 and chooses the statistical multiplier factor of 3.11 to calculate a maximum daily water quality-based effluent limit established at the 99<sup>th</sup> percentile occurrence probability:

$$\begin{aligned}\text{Max daily WQBEL} &= \text{minimum LTA} \times \text{LTA multiplier factor} \\ &= 1.54 \times 3.11 \\ &= \mathbf{4.8 \mu\text{g/l for copper}}\end{aligned}$$

- (7) Continuing with this procedure, EPA estimates that the CV of pollutants in the effluent is 0.6, assumes that the minimum number of effluent samples per month is four, and chooses the statistical multiplier factor of “1.55” to calculate an average monthly water quality based effluent limit established at the 95<sup>th</sup> percentile occurrence probability:

$$\begin{aligned}\text{Avg month WQBEL} &= \text{minimum LTA} \times \text{LTA multiplier factor} \\ &= 1.54 \times 1.55 \\ &= \mathbf{2.4 \mu\text{g/l for copper}}\end{aligned}$$