May 2002
FACT SHEET
Guam Shipyward
NPDES Permit No. GU0020362

I. INTRODUCTION

Guam Shipyard proposes to operate a floating drydock in Apra Harbor in the Territory of Guam. The facility will be used to overhaul, repair, and alter marine vessels. Wastewater to be discharged from the facility comprises of non-contact cooling water, wash water, and storm water.

The proposed facility will located at Latitude: 13_ 26' 30" N to 13_ 26' 39" N and Longitude: 144_ 39' 24" E

Applicant Address: Guam Shipyard
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II. FACILITY DESCRIPTION

Guam Shipyard's proposed floating drydock (AFDB-8) will be located in Apra Harbor Complex, Marianas Islands. The facility includes an existing floating drydock (AFDM-8) with a NPDES Permit No. GU0000035 issued by EPA on January 22, 2001.

The proposed floating AFDB-8 drydock, similar to the existing AFDM-8 unit, will discharge non-contact cooling water, wash water, and storm water. Outfall Serial Numbers 001-010 discharge unit-in-dock, wash water and storm water at an average flow rate of 2.25 million gallons per day (MGD). Similar to the existing AFDM-8 unit, wash water will be collected from Outfall 001 during the dock washing. The dock will be thoroughly swept and rinsed prior to being submerged. The wash water (rinse) sample is taken as water starts to drain into Outfall 001. Ambient monitoring sample fro the dock rinsing wash water is collected from the fire main. The effluent ambient monitoring samples for temperature are collected at Pierce Park and Lima Wharf to ensure compliance with the thermal mixing zone requirements.

An additional source of discharge, herein designated as Outfall Serial Number 011, includes non-contact cooling water from air conditioner units, compressors, and an emergency diesel generator. These equipment will be in operation during docking and undocking operations and discharge at average flow rates of 0.216 MGD.

The facility was owned and operated by U.S. Navy until 1997, when it was transferred to Guam Shipyard. The proposed drydock will be used to perform overhaul, repair, alteration work and industrial services on a variety of ships, including U.S. Navy and private commercial vessels. Activities typically undertaken at floating drydocks include abrasive blasting, pressure washing, and coating operations. The proposed facility is in service approximately 12 times per year. Figure 1 contains a floor plan of the facility.

Abrasive blasting involves removing sea growth and paints from ship surfaces to prepare them for resurfacing. By-products of this process include spent abrasive, rust, scale, and paint particles (hereafter collectively referred to as spent abrasive). Spent abrasive may include a variety of pollutants (e.g. chromium, copper, lead, zinc, and tributyltin), which are released to the atmosphere and subsequently discharged to waters through direct deposition and/or surface runoff.

Pressure washing uses water to remove sea growth and surface materials from ship surfaces. This process results in the production of wash water, which, like spent abrasive, may contain rust, scale, paint particles, and associated pollutants. These pollutants enter waters through direct deposition and/or surface runoff.

Coating operations involve resurfacing ship surfaces with paints and other materials. Products typically used include anticorrosives to prevent rust and antifoulants to prevent sea growth. These materials contain a variety of pollutants, including chromium, copper, lead, zinc, and tributyltin). Like abrasive blasting and pressure washing, these pollutants enter waters via direct deposition and/or surface runoff.

Other pollutants released from floating drydocks may include bilge/ballast water, black water, coliform bacteria, fuels, grey water, oil and grease, oxygen-demanding wastes, solvents, suspended solids, tank cleaning residuals, trash and debris and undesirable marine organisms.

III. PERMIT HISTORY

This is a new NPDES permit for a proposed AFDB-8 drydock facility, similar to the existing AFDM-8 facility that is presently being operated under NPDES Permit No. GU0000035, issued by EPA on January 22, 2001. The permit was previously issued to the U.S. Navy on February 12, 1991, and transferred to Guam Shipyard in1998.

The proposed permit authorizes the operator of AFDB-8 to discharge storm water and wash water from ten (10) outfalls [Serial Numbers 001 through 010]. The permit also authorizes discharge of non-contact cooling water from an

emergency DSL generator and nine (9) air conditioning units Nos.1, 3, 4, 8, 9, 10, 12, 13 and 15 from an outfall, herein designated as Outfall Serial Number 011. The air conditioning units and emergency diesel generator are closed-typed fresh water cooling systems consisting of seawater heat exchangers, expansion tanks, pipes and valves.

IV. REGULATORY BASIS FOR NPDES PERMIT-EFFLUENT LIMITATIONS

Section 301(a) of the Clean Water Act ("Act") provides that the discharge of any pollutant to waters of the United States is unlawful except in accordance with a National Pollutant Discharge Elimination System (NPDES) permit. Section 402 of the Act establishes the NPDES program. The program is designed to limit the discharge of pollutants into waters of the United States from point sources [40 CFR '122.1(b)(1)] through a combination of various requirements including technology-based and water quality-based effluent limitations.

Sections 402 and 301(b)(1)(C) of the Clean Water Act require that the permit contain effluent limitations to meet water quality standards. Specifically, the regulation under 40 CFR '122.44 (d) states that an NPDES permit must contain:

> *"Water quality standards and State requirements: any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards under sections 301, 304, 306, 307, 318 and 405 of CWA necessary to:*
>
> (1) Achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality."

Section 40 CFR ' 122.44 (d) (i) states the following:

> "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."*

A. Technology-Based Effluent Limitations

Technology-based effluent limitations require minimum levels of treatment based on currently available treatment technologies. Two general approaches

exist for developing such limits: EPA-promulgated national effluent limitations guidelines ("ELGs"), and best professional judgment ("BPJ") applied on a case-by-case basis. EPA has promulgated ELGs for more than 50 industrial categories. Because this list does not include the shipbuilding and repair industry, the proposed permit relies on BPJ for establishing technology-based effluent limitations for TSS and oil and grease. Where technology-based effluent limitations are not sufficiently stringent to meet water quality standards and/or do not exist, CWA regulations allow EPA to develop water quality-based effluent limitations.

Using this approach, EPA proposes the following provisions and effluent limitations for temperature, pH, turbidity, coliform bacteria, oil and grease, orthophosphate, nitrate, chromium, copper, lead, zinc, and tributyltin. The proposed permit also contains these: pH, TSS, turbidity, coliform bacteria, oil and grease, orthorphosphate, and nitrate.

The effluent limitations applicable to storm water and wash water discharge to ten outfalls [Serial Numbers 001 through 010] will be as follows:

1. Total suspended solid (TSS) effluent concentrations shall not exceed 30 mg/l (monthly average) and 60 mg/l (daily maximum); and,

2. TSS concentrations in the effluent and receiving water shall not exceed 10% of ambient concentrations at any time.

B. Guam Water Quality Standards

The proposed permit establishes effluent limitations for temperature, pH, coliform bacteria, orthophosphate, nitrate, and tributyltin, which are based on Guam Water Quality Standards (WQS). The proposed permit also sets effluent limitations for chromium, copper, lead, and zinc, which are based on EPA's National Recommended Water Quality Criteria.

The effluent limitations pertaining to the discharge from the air conditioning units and an emergency diesel generator to Outfall Serial Number 011 comprise the following:

1. Water temperature shall not be changed more that 1.0 _C from ambient conditions outside the established mixing zone;

2. The discharge shall not cause objectionable odors in receiving water;

3. There shall be no discharge of floating solids or visible foam in other than trace amounts; and,

4. The use of any cooling water additives is prohibited.

C. Water Pollution Control Plan ("WPCP")

As a condition of the permit, the operator is required to implement a WPCP, which contains the following provisions:

1. There shall no discharge from Outfall Serial Numbers 001 through 010, except for wash water immediately prior to ship undocking, storm water runoff from precipitation events, and overflows during docking;

2. All sanitary wastes shall be pumped to the sanitary sewer system;

3. Trash containers shall be provided near work areas in the drydock basin;

4. Signs prohibiting the dumping of trash or other materials shall be conspicuously posted;

5. All collected trash must be disposed of at a sanitary landfill;

6. Booms or other devices shall be readily available to contain and remove any accidental discharge of oil and grease;

7. Spent abrasive, rust, scale, and paint particles shall be removed from the deck floor as soon as practicable;

8. All scuppers, or other potential means of spent abrasive or waste discharge, shall be covered during periods when abrasive blasting or other methods of paint removal, paint application, or spent abrasive removal operations are being performed; and

9. The drydock floor shall be scraped and swept clean of spent abrasive, trash, and debris prior to flooding.

D. Best Management Practices (BMPs)

The proposed permit includes these provisions as discharge specifications and prohibitions and/or required BMPs. The proposed permit contains additional BMPs that will be implemented on a mandatory basis and where appropriate, on a recommended basis.

E. Reference Materials used for Permit Development

Water Quality Criteria:

1. Guam Environmental Protection Agency. 1992. Revised Guam Water Quality Standards

2. U.S. Environmental Protection Agency. 1999. National Recommended Water Quality Criteria--Correction. EPA 822-Z-99-001. Washington, DC.

Receiving Water Characteristics:

3. Belt Collins Hawaii. 1994. Environmental assessment for causeway to drydock AFDM-8, ship repair facility. Report Prepared for Pacific Division Naval Facilities Engineering Command.

4. Marine Research Consultants. 1992. Marine environmental assessment in the vicinity of the U.S. Naval Station, Guam Marianas Island (Apra Harbor and Tipalao Bay). Report Prepared for Belt Collins Hawaii.

5. Sea Engineering, Inc. 1992. Marine environmental impact evaluation: relocation of facilities from Subic Bay Naval Base, Philippines to Apra Harbor, Guam. Report Prepared for Belt Collins Hawaii.

BMPs, Effluent Limitations, and Pollutants from the Ship Repair Industry

6. Commonwealth of Virginia State Water Control Board. nd. Best Management Practices Manual for the Shipbuilding and Repair Industry. Richmond,

7. National Steel and Shipbuilding Company, 1992. Best Management Practices Guidance Document for the Shipbuilding and Repair Industry. San Diego, CA.

8. San Diego Regional Water Quality Control Board. 1997. General NPDES Permit No. CAG039001. Ship construction, modification, repair, and maintenance facilities and activities located in the San Diego Region.

9. U.S. Environmental Protection Agency. 1976. Draft Development Document for Proposed Effluent Limitations and Guidelines and Standards for the Shipbuilding and Repair Point Source Category.

10. U.S. Environmental Protection Agency. 1991. Guides to pollution prevention: the marine maintenance and repair industry. EPA/625/7-91/015. Office of Research and Development. Washington,

11. U.S. Environmental Protection Agency. 1995. NPDES Storm Water Multi-Sector General Permit for Industrial Activities. Federal Register 60(189)

12. U.S. Environmental Protection Agency, Region 9. 1997. NPDES Permit No. AS0020036. Southwest Marine of America Samoa.

13. U.S. Environmental Protection Agency, Region 10. nd. NPDES Permit No. WA-000206-2. Puget Sound Naval Shipyard.

V. DESIGNATED USES OF THE RECEIVING WATER

Guam EPA ("GEPA") classifies Apra Harbor as a good quality marine water (M-2 category). Beneficial uses assigned to this category of waters 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; and, (4) aesthetic enjoyment.

A. General Water Quality Criteria

All waters in the Territory of Guam shall meet generally accepted aesthetic qualifications, shall be capable of supporting desirable aquatic life, and shall be free from substances, conditions, or combinations thereof attributable to domestic, commercial, and industrial discharges or agricultural, construction, and land use practices or other human activities that:

1. Cause visible floating materials, debris, oils, grease, scum, foam, or other floating matter which degrades water quality or use

2. Produce visible turbidity, settle to form deposits or otherwise adversely affect aquatic life;

3. Produce objectionable color, odor, or taste directly or by chemical or biological action

4. Injure or are toxic or harmful to humans, animals, plants, or aquatic life; and,

5. Induce the growth of undesirable aquatic life.

B. Specific Water Quality Criteria

The specific water quality criteria applicable to M-2 category waters include the following:

1. The fecal coliform bacteria count shall not exceed an arithmetic mean of 70/100 ml during any 30-day period and shall not exceed 400/100 ml at any time.

1. The ambient pH ranges from 7.0-9.0 for marine waters. Variations of more than 0.5 pH units from ambient shall not be allowed except due to natural causes

2. Orthophosphate (PO_4-P) concentrations shall not exceed 0.05 mg/l

3. Nitrate (NO_3-N) concentrations shall not exceed 0.20 mg/l

4. Concentrations of dissolved oxygen shall not be decreased below 75 percent saturation at any time, as influenced by salinity or naturally occurring temperature variations. Where natural conditions cause lower dissolved oxygen levels, controllable water quality factors shall not cause further reductions.

5. No alterations of the marine environment shall occur that would alter the salinity of marine waters by more than 10% of ambient conditions, except due to natural conditions

6. Concentrations of suspended matter at any point shall not be increased by more than 10% from ambient at any time and should not exceed 20 mg/l except when due to natural conditions

7. Turbidity values at any time shall not exceed 1.0 nephelometric turbidity units (NTU) over ambient conditions at any time, except when due to natural conditions

8. Discharges of radioactive materials are prohibited

9. Water temperature shall not be changed more than 1.0 degree centigrade from ambient conditions;

10. Concentrations of oil or petroleum products. Those that exceed the limits described below are unacceptable:
    (a) detectable as a visible film, or sheen, or results in discoloration of the surface with a corresponding oil or petroleum product odor;
    (b) causes damage to fish, invertebrates, or objectionable degradation of drinking water quality; or
    (c) forms an oil deposit on the shores or bottom of receiving body of water.

11. Concentrations of pesticides shall not exceed one percent of the 24-hour LC_{50} value using the receiving water in question and the most sensitive species of aquatic organisms affected.

12. Concentrations of toxic substances (a) shall not exceed 5 percent (0.05) of the 96-hour LC_{50} at any time or place, nor should the 24-hour average concentration exceed one percent (0.01) of the 96-hour LC_{50} or, (b) shall not exceed levels calculated by multiplying the appropriate application factor by the 96-hour LC_{50} values determined by using the most sensitive species of aquatic organism affected. Whichever value (a or b) is less shall be the maximum allowable

concentration, unless this value exceeds the Maximum Numerical Limit, then the numerical limit shall constitute the maximum allowable concentration.

13. The four-day average concentration of tributyltin shall not exceed 0.01 ug/l more than once every three years on the average and the one-hour average concentration shall not exceed 0.356 ug/l more than once every three years on average.

VI. DETERMINATION OF EFFLUENT LIMITATIONS, MONITORING AND REPORTING REQUIREMENTS

According to the "Draft Development Document for Proposed Effluent Limitations and Guidelines and Standards for the Shipbuilding and Repair Point Source Category" (EPA 1976), major pollutants of concern include suspended solids, oil and grease, chromium, copper, lead, zinc, and tributyltin. The proposed permit contains effluent limitations for these constituents and several other parameters for which the GEPA has promulgated water quality criteria.

Effluent limitations for temperature, pH, turbidity, coliform bacteria, orthophosphate, nitrate, and tributyltin are derived from Guam WQS for M-2 category waters. Effluent limitations for chromium, copper, lead, and zinc are based on acute and chronic saltwater criteria published in EPA's (1999) National Recommended Water Quality Criteria. Effluent limitation for TSS and oil and grease are technology-based limits based on the permit writer's BPJ. All effluent limitations are applied end-of-pipe, without dilution credits or allowance of a mixing zone.

The proposed permit contains a number of discharge specifications and prohibitions. Provisions pertaining to trash and debris and spent abrasive were taken from the existing permit. Prohibitions relating to oil or petroleum products, radioactive materials, and sanitary waste were adopted from Guam WQS. Restrictions on bilge and ballast water were based on pollution concerns outlined in the aforementioned references.

The permittee will be required to perform semi-annual toxicity tests on discharges from Outfall Serial Numbers 001 through 010 using the Hawaiian sea urchin, *Trypneustes gratilla*. This test species was selected because it is representative of local faunal assemblages, and is capable of being evaluated in Hawaiian analytical laboratories, precluding the need to ship samples to mainland U.S. facilities.

VII. PROPOSED POLLUTION PREVENTION REQUIREMENTS

Pollution from floating drydocks is difficult to control due to their open-air nature and proximity to receiving waters. Because these facilities are not in constant operation, discharges from floating drydocks are intermittent. For these and other reasons, treating drydock discharges generally is not practicable and pollutant discharges are best controlled through the development and implementation of BMPs.

Similar to the existing permit for the similar drydock AFDM-8, the proposed permit requires Guam Shipyard to develop and implement a Storm Water Pollution Prevention Plan ("SWPPP"), which is consistent with Sector R (Ship and Boat Building and Repairing Yards) of the NPDES Storm Water Multi-Sector General Permit for Industrial Activities. The SWPPP shall include the following elements: (1) pollution prevention team, (2) description of potential pollutant sources, (3) measures and controls, (4) employee training and weekly inspections, and (5) reporting provisions.

Two categories of BMPs are included in the draft permit: required and recommended. Required BMPs are considered mandatory; recommended BMPs will be implemented "where appropriate." Both sets of measures are intended to control pollutants at their source and eliminate potential transport mechanisms. They can be implemented with no or few engineering modifications to the facility. If BMPs are implemented effectively, EPA Region 9 believes they will substantially reduce pollutant inputs to Apra Harbor from the floating drydock.

VIII. REPORTING

The proposed permit requires Guam Shipyard to monitor effluent characteristics on a quarterly basis, except for flow, which will be estimated monthly. If there is no discharge for the month, indicate "Zero Discharge". These reports are due January 28, April 28, July 28, and October 28 of each year. Duplicate signed copies of these, and all other reports required herein, shall be submitted to the Regional Administrator.

IX. GENERAL STANDARDS

The proposed permit sets general standards that are narrative water quality standards contained in the Guam Water Quality Standards and that are based on the requirements of the Clean Water Act. These general standards are set forth in Section B. General Discharge Specifications of the permit.

X. PERMIT REOPENER

At this time, there is no reasonable potential to establish any other water quality-based limits. Should any monitoring indicate that the discharge causes, has the reasonable potential to cause, or contributes to excursions above a water quality criterion, the permit may be reopened for the imposition of water quality-based limits and/or whole effluent toxicity limits. This permit may be modified, in accordance with the requirements set forth at 40 CFR '122.44 and '124.14, to include appropriate conditions or

limits to address demonstrated effluent toxicity based on newly available information, or to implement any new EPA-approved water quality standards.

XI. ENDANGERED SPECIES ACT

EPA is currently requesting information on threatened or endangered species from the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (NMFS) regarding the proposed action. While EPA believes that discharge in compliance with this permit will have no effect on threatened or endangered, and is proposing to issue the permit at this time, EPA may decide that changes to the permit may be warranted based on receipt of new information.

XII. WRITTEN COMMENTS

Persons who wish to comment upon, object to the proposed action, or request a public hearing pursuant to 40 CFR '124.11 should submit their comments and requests in writing within thirty (30) days from the date of the Public Notice, either in person or by mail to:

U.S. Environmental Protection Agency, Region IX
Cross Media Division
Pacific Islands Office (CMD-6)
Attn: Michael Lee
75 Hawthorne Street
San Francisco, CA 94105
Telephone: (415) 972-3511

XIII. INFORMATION AND COPYING

The Administrative Record, which contains the draft NPDES permit, the fact sheet, comments received, and other relevant documents, is available for review and may be obtained by calling or writing to the above address.

All comments or objections received within thirty (30) days from the date of the Public Notice, will be retained and considered in the formulation of the final determination regarding the permit issuance.

XIV. PUBLIC HEARING

When public interest warrants, the Regional Administrator shall hold a public hearing and such notice of hearing shall be issued by public notice at least thirty (30)

days prior to the hearing date. A request for a public hearing must be in writing and must also state the nature of the issue proposed to be raised in the hearing.