CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 87-170

WASTE DISCHARGE REQUIREMENTS FOR:

UNITED STATES NAVY
MARE ISLAND NAVAL SHIPYARD
SOLID WASTE MANAGEMENT UNITS
MARE ISLAND, SOLANO COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter called the Board, finds that:

1. The United States Navy, Mare Island Naval Shipyard (hereinafter called the discharger) repairs, overhauls, and builds ships. These activities include metal cleaning, electroplating, lead acid battery repair, oil handling and reclamation, and abrasive blasting.

2. The discharger owns, and is responsible for, the operation of all waste management units on the Mare Island Complex. The discharger also owns, and is responsible for, other sites of water quality concern on the Complex. These combined sites are described in various reports prepared by the discharger. These reports include:

   a. Report of Waste Discharge dated July 3, 1979 for the Mare Island Sanitary Landfill.

   b. Resource Conservation and Recovery Act (RCRA) Part B application dated July 1, 1987 for all hazardous waste storage, treatment and disposal facilities on the Mare Island Complex including the Mare Island Sanitary Landfill and the surface impoundments associated with the Industrial Wastewater Treatment Plant (IWTP).

   c. Initial Assessment Study of Naval Shipyard, Mare Island, California (IAS) dated March 1983.

   d. Verification Study Report, Mare Island Naval Shipyard, Ca. (VSR) dated January 1987.

   e. miscellaneous correspondence related to leaks from underground tanks.

3. The approximate locations of most of the sites are shown on Attachment A. These and other sites are described in the Findings below and are the subject of this Order.

4. The facility is a peninsula bordered by Mare Island Strait on the east, Carquinez Strait on the south, and San Pablo Bay on the west. Groundwater near the sites is generally encountered between 1 and 8 feet below ground surface. In general, the geology in the areas of the sites consist of up to 10 feet of mixed artificial fill material over natural estuarine deposits. The natural material is a clay commonly referred to as bay mud. Sandy/silty layers and peat layers have been encountered in

stablized flow of wastewater to the IWTP for treatment. Effluent from the IWTP receives final treatment at the VSFCD sewage treatment plant. The discharger's RCRA Part B application contains a more detailed description of the wastes handled at these units. Furthermore, prior to 1981 (back to 1973), unlined sludge ponds at roughly the same locations were used to dry and store sludge generated at the IWTP. Documentation of sludge removal from these older ponds is not complete.

3) **Oil Sumps**—There were two unlined sumps: one approximately 20,000 square feet; the other, 8,000 square feet. They were in use around 1942 to 1964 for disposal of waste oils. Some of these oils may have been contaminated with PCBs. The IAS estimates that 4.5 million gallons of waste oils were disposed to these sumps. French drains may also have been used to disperse the oil. These sumps are now covered with soil.

4) **'A' Street Lead Oxide Contamination**—This area was used to store batteries destined for offsite disposal. The batteries have been removed (pursuant to enforcement action by the Department of Health Services) but the surface soil has been contaminated with lead oxide due to leakage from the batteries.

b. **900 Area**—This area has been used for sandblasting since about 1952. Most of the spent abrasives were collected and disposed to the facility landfill. The IAS estimates that approximately 350 tons of the spent abrasive material remain on the ground in this area. Some of this spent abrasive material is in Mare Island Strait adjacent to this area.

c. **Concord Annex**—The Naval Weapons Station (NWS) Concord, Mare Island Annex (Concord Annex for short) was used from 1857 to 1974 as an ordnance manufacturing and handling facility. The IAS identified two activities of interest. The first involved the disposal of ordnance for at least 30 years in the southwest corner of the Concord Annex. The second involved decontamination of Buildings contaminated with TNT, RDX, smokeless powder, and black powder. Decontamination of the ground around these buildings was not certified.

d. **Berths 4 and 5**—The IAS reports that the groundwater in the area of Berths 4 and 5 may be contaminated with oil. Excavations, sewers, and electrical vaults have been reported to contain oil. The source of the oil may be underground tanks or abandoned fuel lines. Also, oil sheens have been reported in Mare Island Strait in the area of Berths 4 and 5 coinciding with oil handling activities at the berths.

e. **Tank 772**—Tank 772 holds fuel oil for the discharger's steam power plant. This is a cylindrical partially buried tank measuring 138.5 feet in diameter and 20 feet high. The IAS estimated that up to 1,000 gallons of fuel oil have leaked from small cracks in the walls of the tank.

f. **Building 629 Battery Storage Area**—In the past, batteries awaiting recharging or disposal have been stored in an area adjacent to

8. As mentioned in Finding 6, during the investigation for the VSR, borings were drilled to collect subsurface soil samples. Some of these borings were completed as monitoring wells. The status of the other borings are uncertain. The VSR does not describe any steps taken to seal these borings. Instead, the VSR recommends that monitoring wells be installed in some of these borings, implying that many of the borings were left open for that purpose. During an inspection of the Concord Annex site in September of 1987, Regional Board staff found at least one boring that was left open. Because these open borings are in areas known to contain wastes, the borings may act as conduits to spread waste constituents.

9. The Hazardous Solid Waste Amendments (HSWA) of 1984 requires investigation of potential releases from all other solid waste management units at a RCRA facility. The discharger is required to prepare a RCRA facility investigation (RFI) plan to determine whether the units cited in the RFA report have released to the environment, and if so, to what extent. A RFA report has not been completed for the discharger pending a visual site investigation (VSI) by EPA, DHS and Regional Board staff. The VSI is scheduled for sometime in January of 1988.

10. The units described in Findings 5. a., a.1), a.2), a.3), a.4), b., c., f., and h. are subject to the regulations contained in Title 23, Chapter 3, Subchapter 15 (Subchapter 15) of the California Administrative Code.

11. Because of the lack of any containment structures or barriers separating the wastes in the sites described in Findings 5.a., 5.a.1), 5.a.3) and 5.a.4), these four sites shall be considered as one contiguous existing waste management unit for the purposes of compliance with Subchapter 15 and shall be referred to as the Facility Landfill in this Order. However, the Mare Island Sanitary Landfill portion will receive special attention because of permitting concerns of the Department of Health Services and Environmental Protection Agency.

12. The Facility Landfill and the four IWTP surface impoundments described in Findings 5.a. and 5.a.2) receive wastes classified as hazardous. Therefore, these units need to comply with the Class I requirements in Subchapter 15. However, the units do not meet most of the siting and construction criteria contained in Subchapter 15 for classification as a Class I landfill and as Class I surface impoundments, respectively. The existing groundwater monitoring programs for these units do not meet the monitoring requirements contained in Article 5 of Subchapter 15.

13. The wastes at the 900 Area and the Building 629 Battery Storage Area described in Findings 5.b. and 5.f., respectively, are classified as hazardous. These units need to comply with the requirements contained in Subchapter 15 for an existing inactive Class I waste pile. These units do not meet the construction requirements of Subchapter 15. There is no information to determine whether these units meet the siting requirements. There are no groundwater monitoring wells at these units.

14. The wastes disposed at the Concord Annex and possibly at part of the IWTP Collection System as described in Findings 5.c. and 5.h., respectively, are classified as hazardous. These units need to comply with the requirements for an existing inactive Class I landfill. No information

21. In response to the CAO and the Stipulated Partial Consent Decree, the discharger has performed further hydrogeologic investigations to serve as a technical basis for a revised groundwater monitoring program for the Mare Island Sanitary Landfill and the IWTP sludge ponds. The discharger, in the Stipulated Consent Decree, committed to make good faith efforts, to accomplish the goal of successful installation of a groundwater detection monitoring system and the initiation of a well sampling and analysis program for these sites meeting all applicable laws and regulations by November 8, 1987.

22. The requirements contained in this Order update and expand upon the requirements of CAO No. 85-019, and take into consideration the agreements contained in the Stipulated Consent Decree mentioned in Finding 20 above. Because the CAO has not been fully complied with, it will not be rescinded by this Order but will remain outstanding. However, satisfactory compliance with this Order will satisfy the requirements of CAO No. 85-019.

23. The Facility Landfill was ranked as one of the first 150 sites by the State Water Resources Control Board pursuant to Water Code Section 13273. Water Code Section 13273 requires that sites on this list prepare and submit a solid waste water quality assessment test (SWAT) by July 1, 1987. Regional Board letter of August 13, 1986 notified the discharger of its rank one status, and requested submittal of a SWAT. The discharger was given a notification of violation of Section 13273 of the Water Code on July 27, 1987 because of failure to submit a SWAT. The discharger replied that information was being gathered to complete the SWAT.

24. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986. This Order implements the water quality objectives stated in the Basin Plan.

25. The beneficial uses of Mare Island Strait, Carquinez Strait, and San Pablo Bay in the vicinity of the site are:

    a. Contact and non-contact water recreation
    b. Fish migration and spawning
    c. Wildlife and estuarine habitat
    d. Preservation of rare and endangered species
    e. Industrial process supply
    f. Navigation
    g. Commercial and sport fishing
    h. Shellfish harvesting

26. The potential beneficial uses of the groundwater underlying the site are:

    a. Industrial process water and service supply
    b. Agricultural supply

27. The action to issue waste discharge requirements for continued operation of existing waste management units and for closure of waste management units is exempt from the California Environmental Quality Act (Public

IT IS HEREBY ORDERED, that the discharger and any other persons that own the land or operate these units shall meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder and shall comply with the following:

A. Prohibitions

1. The discharge, storage, or treatment of waste shall not create a condition of pollution or nuisance as defined in Sections 13050 (l) and (m), respectively, of the California Water Code.

2. There shall be no discharges of wastes to surface waters except as permitted under the National Pollutant Discharge Elimination System.

B. Specifications

1. The Facility Landfill as described in Findings 5.a. and 11 shall comply with the following:

a. Disposal of waste at the Facility Landfill shall be restricted to the Mare Island Sanitary Landfill and shall consist only of wastes described in Finding 5.a.1). Disposal of liquid wastes or containers containing free liquid to this unit is prohibited.

b. During waste disposal, handling, or treatment, no waste shall be placed in a position where they can be carried from the unit into waters of the State.

c. The containment structures for the unit shall have a foundation or base capable of providing support for the structures and capable of withstanding hydraulic pressure gradients to prevent failure due to settlement, compression, or uplift.

d. The unit shall be operated to ensure that wastes will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater.

e. The unit shall be immediately underlain by natural geologic materials which have a permeability of not more than $1 \times 10^{-7}$ cm/sec, and which are of sufficient thickness to prevent vertical movement of fluid, including waste and leachate, from the unit to waters of the state.

f. The unit shall be located outside of floodplains subject to inundation by floods with a 100-year return period.

g. The unit shall have a 200-foot set back from any known Holocene fault.

h. The unit shall be located outside areas of potential rapid geologic change.

f. The operation of the unit shall meet the specifications contained in Section 2548 of Subchapter 15. In part, a minimum of 2 feet of freeboard shall be maintained at each impoundment.

g. The discharger shall install and implement a groundwater monitoring program for these units which meet the applicable specifications contained in Article 5 of Subchapter 15.

h. Liquid hazardous wastes or hazardous wastes containing free liquids shall not be discharged [as defined in Section 25208.2(f) of the HSC] to the existing IWTP surface impoundments after December 31, 1988.

3. The 900 Area as described in Finding 5.b. shall comply with the following:

a. Only spent abrasives shall be stored at the 900 Area. No additional spent abrasives, other than the amount that presently exists at the unit, shall be stored at the unit for more than 90 days.

b. The waste stored at the unit shall not be in a position where it is in contact with, or may be carried into waters of the state.

c. The unit shall comply with Specifications B.1. c., d., e., f., j., k., l., m., n., o.

d. The unit shall be covered as necessary to prevent percolation of precipitation through wastes.

e. The unit shall have double liners with a leachate collection and removal system meeting the specifications contained in Sections 2542 and 2543 of Subchapter 15.

4. The unit described in Finding 5.c., Concord Annex, and the unit described in Finding 5.h., IWTP Collection System, shall comply with the following:

a. Disposal or storage of additional wastes in these units is prohibited.

b. The wastes disposed to these units shall not be located in any position where they may be carried into waters of the state.

c. The units shall comply with Specifications B.1. c., d., e., f., g., h., i., j., k., l., m., n., o.

5. The unit described in Finding 5.f., Building 629 Battery Storage Area, shall comply with the following:

a. No additional wastes shall be stored at this unit.

C. Provisions

1. An exemption to the prescriptive standards contained in the Specifications section of this Order may be granted by the Board based on a demonstration submitted by the discharger pursuant to Sections 2510 (b) and (c) of Subchapter 15.

2. Facility Landfill

The discharger shall comply with Specifications B.1. a., b., f., and i. upon adoption of this Order. Compliance with Specifications B.1. c., d., e., g., h., and j. through o. shall be in accordance with the following tasks and time schedule:

a. Submit a solid waste assessment monitoring proposal for the Mare Island Sanitary Landfill portion of the Facility Landfill which is in accordance with the guidance document developed by the State Board dated October 1986.
REPORT DUE: January 1, 1988

b. Submit a well completion report satisfactory to the Executive Officer for the groundwater wells installed in 1987. This report shall describe in detail the method of installation and well development. It shall include the as built construction details and boring logs. It shall also include detailed cross sections showing all permeable zones, the filter pack and screen intervals of the monitoring wells, and the groundwater elevations. A minimum of four cross sections shall be included, one for each side of the Mare Island Sanitary Landfill. The cross sections shall have a vertical to horizontal exaggeration of no more than ten to one. The scale shall be as appropriate to clearly show the details of the lithology of the site.
REPORT DUE: January 1, 1988

c. Submit a groundwater data report satisfactory to the Executive Officer from analyses of one groundwater sample from each well installed in 1987 for at least the following parameters: pH, EC, temperature, all priority pollutant metals, iron, major cations and anions, volatile organics, semivolatile organics, pesticides, and herbicides. The report shall describe the sampling procedures and analysis methods used. Appropriate analytical methods specified in EPA's document SW-846 (3rd ed.) shall be used. Proper sample collection and handling methods, and field quality control quality assurance methods shall be used.
REPORT DUE: February 1, 1988

d. Submit a groundwater monitoring program proposal which complies with the groundwater monitoring aspects of Article 5 of Subchapter 15 for the Mare Island Sanitary Landfill portion of the Facility Landfill. This report shall be capable of describing the groundwater flow paths of the area and shall be able to demonstrate the adequacy of the placement of groundwater monitoring wells. The report shall include at a minimum calculated flow nets for the area superimposed over the cross

9 of Subchapter 15 for closure and post-closure maintenance of the unit.

REPORT DUE: By a date to be established by the Executive Officer based on the information submitted pursuant to Provision C.2.e.

h. Achieve full compliance with Specifications B.1.c., d., e., g., h., j. through o. by a date to be established by the Board based on information submitted pursuant to Provision C.2.g.

3. IWTP Surface Impoundments

The discharger shall comply with Specifications B.2. a., b., d., and h. upon adoption of this Order. Compliance with Specifications B.2. c., e., f., and g. shall be in accordance with the following tasks and time schedule:

a. Submit a hydrogeological assessment report for the IWTP surface impoundments in accordance with Section 25208.8 of the Health and Safety Code satisfactory to the Executive Officer.
REPORT DUE: January 1, 1988

b. Achieve compliance with Specification B.2.f. in all aspects except that a freeboard of 18 inches instead of 2 feet shall be maintained for each impoundment upon adoption of this Order. Submit a report pursuant to Provision C.1. which demonstrates that a minimum freeboard of less than 2 feet is adequate to prevent overtopping of the impoundments. This report may be submitted as part of the report required pursuant to Provision C.3.c.
REPORT DUE: April 1, 1988

c. Submit a Report of Waste Discharge in accordance with Article 9 of Subchapter 15 satisfactory to the Executive Officer detailing the closure/retrofitting plans, the groundwater monitoring program for the IWTP surface impoundments, and a schedule for completing the closure/retrofitting activities. The details of the groundwater monitoring program for the impoundments may be incorporated into the report required in Provision C.2.d. for the Facility Landfill in accordance with Section 2553(c) of Subchapter 15. The details in the report shall include at a minimum:

1) date of ceasing placement or disposal of any additional wastes into the impoundments,

2) dates for removing the hazardous liquids and sludges from the units.

3) the criteria to be used in determining the point at which all materials contaminated by waste constituents have been removed,

5. Berths 4 & 5 Area, Tank 772, PCBs Contaminated Areas, T-3 Acid Tank Area, Building 225 Area, Building 334 Area

The discharger shall comply with Specification B.6. upon adoption of this Order. To demonstrate compliance, the discharger shall perform the following tasks in accordance with the time schedule:

a. Submit a report of the cleanup activities at the PCBs Contaminated Areas. The report shall include at a minimum:

1) The data from any sampling of soils or surfaces at these areas, before, during, and after any cleanup activities.

2) A summary of the cleanup activities that were performed and a discussion of planned cleanup activities.

REPORT DUE: June 1, 1988

b. Submit a report of the results of the investigation currently in progress at the Building 225 Area and the Building 334 Area.
REPORT DUE: March 1, 1988

c. Submit a detailed proposal for an investigation which will fully define the extent of the waste constituents in the soil and groundwater in the Berths 4 & 5 Area, Tank 772 area, T-3 Acid Tank Area, Building 225 Area, and Building 334 Area.
REPORT DUE: July 1, 1988

d. Commence work in accordance with the plans and time schedule submitted pursuant to Provision C.5.c. as approved by the Executive Officer.

e. Submit a report of the results of the investigation performed pursuant to Provision C.5.d. and submit a proposal for corrective action. The proposal shall include a detailed discussion of at least three clean-up strategies and the estimated cost and consequences of each one. The alternatives must range from complete removal of all waste constituents to no action.
REPORT DUE: By a date to be established by the Executive Officer based on the information submitted pursuant to Provision C.5.c.

6. To assure compliance with Specifications B. 1.b, 2.b, 3.b., 4.b., 5.b., and 6., the discharger shall perform the following tasks in accordance with the time schedule:

a. Submit a report of the status of the borings drilled during the verification study investigation and a proposal to properly seal any open borings. The report shall include a listing of all borings drilled that were not completed as monitoring wells. The report shall describe, from review of records and site inspections, which borings have been sealed and the method(s) of sealing. The report shall describe, from site inspections, the condition of borings for which no sealing records exist. The

14. These requirements do not authorize commission of any act causing injury to the property of another or of the public, do not convey any property rights, do not remove liability under federal, state, or local laws, and do not authorized the discharge of waste without appropriate federal, state, or local permits, authorizations, or determinations.

15. Compliance with this Order constitutes compliance with CAO No. 85-019.

16. This Order is subject to Board review and updating, as necessary, to comply with changing State and Federal laws, regulations, policies, or guidelines; changes in the Regional Board Basin Plan; or changes in the discharge characteristics.

I, Roger B. James, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on December 16, 1987.

ROGER B. JAMES
Executive Officer

Attachments:

Attachment A - Site Map