



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

215 Fremont Street
San Francisco, Ca. 94105

2 December 1987

Commander
Western Division
Naval Facilities
Attn: Ray Ramos
P.O. Box 727
San Bruno, CA 94066

Dear Sir:

The Environmental Protection Agency has completed its review of the documents entitled: (1) Initial Assessment Study (IAS) of Naval Shipyard Mare Island, CA, March 1983; (2) Verification Study Work Plan, Mare Island Naval Shipyard, November 1984; (3) Verification Study Work Plan, Mare Island Naval Shipyard, November 1984. We have reviewed the documents for consistency with EPA guidelines, rules, regulations, and criteria developed pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA). Our comments are enclosed for your incorporation into the next phase of your Installation Restoration Program (IRP) efforts.

In reviewing the information contained in our files, we have determined that sufficient information has been submitted to fulfill your responsibility to submit a Preliminary Assessment (PA) to EPA by April 1987 (CERCLA Section 120). Our PA review is also enclosed for your incorporation into the IRP.

If you have any questions, please contact Nicholas Morgan, Superfund Federal Facilities Coordinator, 415/974-8603, or Nancy Woo, Remedial Project Manager, 415/974-7537.

Sincerely,


Amy Zimpfer, Chief
Federal Response Section

cc: Commander, Mare Island Naval Shipyard



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

215 Fremont Street
San Francisco, Ca. 94105

MEMORANDUM

Date: September 30, 1987

Subject: Preliminary Assessment for Mare Island Naval Shipyard

From: Nancy Woo
Remedial Project Manager, T-4-3

To: Mare Island Shipyard Files

Background

The Mare Island Naval Complex is located on a peninsula in Solano County along the northeastern side of San Pablo Bay. The site occupies 5,667 acres, of which 2,582 acres are dry land and 3,085 acres are wetlands. Mare Island provides services associated with the maintenance, overhaul, and refueling of Navy ships. In addition, other tenants of the Island provide fleet support. There were approximately 17,350 personnel assigned on the site as of 1983.

The site is bounded by water on all sides except the north. To the northwest are marshlands which are part of the San Pablo Bay National Wildlife Refuge. To the northeast are housing areas which were empty as of 1983. The city of Vallejo is located across the Mare Island Strait, east of the naval facility. Several industries are located in this area along with a yacht club, marina, and a housing area. The Navy acquired part of Mare Island in 1852 and has conducted operations here for 135 years.

Discussion

The Preliminary Assessment includes the review of the following documents:

1. Initial Assessment Study (IAS) of Naval Shipyard, Mare Island, CA, March 1983
2. Verification Study Work Plan, Mare Island Naval Shipyard, November 1984
3. Verification Study Report, Mare Island Naval Shipyard, January 1987

The following sites were identified in the IAS as being potentially contaminated:

1. Landfill (household rubbish, asbestos, waste oils, industrial wastes)
2. Oil Sumps (waste oil, maybe PCBs)
3. Tanks 772 (fuel oil)
4. Berths 4 & 5 (fuel oil)
5. 900 Area (sand blasting residue including paint, metals, metallic oxides)
6. Building 505 (rubble)
7. Building 629 (leaking battery fluid)
8. Building 831, 866, 516, 433 (PCBs)
9. Concord Annex (burning powders and primers, exploded and unexploded ordnances)
10. Mare Island Strait (oils, heavy metals, PCBs)
11. Sludge Ponds (heavy metals, solvents, caustics, alkylenes and other industrial waste)

Sites numbered 3, 6, 7, 8 and 10 were eliminated from further investigation because these sites were either scheduled for clean up, cleaned up or the material released into the environment was determined to be insignificant. Since definitive information has not been presented on the eliminated sites, it is not possible to be certain that these sites are not potentially contaminated. Sufficient criteria should be provided to justify the exclusion of potentially contaminated sites from further investigation. This criteria should be based upon site specific data that definitely shows there is not a significant problem related to hazardous materials. Therefore, Building 629 - Battery Storage Area, Buildings 831, 866, 516 and 433 and the Mare Island Strait should not be excluded from further investigation. Site specific data should be collected to prove that a contamination problem does not exist. In addition, after reviewing Chapter 6 of the IAS, the following sites or incidents should be investigated for the same reason:

100-Foot-Diameter Circle--Storm Sewers

Storm sewers downgradient of the "100-foot-diameter circle" are contaminated by an "oily, sand-covered sludge." Page 6-4.

Central Tool Shop

Mercury spills, use of solvents, production of waste oils, and disposal of PCBs into the sewer system have occurred at this shop. Pages 6-4 and 6-19.

Sheet Metal Operation

Tanks are used for storing etching solutions, chromic acid, caustic soda, primers, and other painting products in Building 1310. Similar activities occur outside of Buildings 672, 62, 117, and 155. Use of these same chemicals may occur in these areas. Prior to the construction of Building 1310, sheet metal operations occurred in Buildings 116 and 52. All of these buildings and areas may have been contaminated by spills. Pages 6-19 to 6-20.

Inside Machine Shop

This is a large operation located in Building 680. Waste streams include solvents, coolants, oils, mercury, asbestos, lead, acids, and paint strippers. Prior to 1965, waste streams were dumped into the storm sewer. From 1965 to 1982, a 200-cubic-foot dumpster was used to collect liquid wastes. Spills were common in the building and could have occurred around the dumpster. Pages 6-21 to 6-22.

Outside Machine Shop

This operation is housed in Buildings 128 and 108, and in the drydocks area. Activities include paint stripping and painting. Asbestos wastes are produced along with cleaning solvents and wastes associated with the painting operations. Wastes have been collected in dumpsters known to overflow. Page 6-22.

Boiler Shop

Industrial parts are cleaned in acid baths. Ten tanks exist for this purpose and contain phosphoric, sulfuric, hydrochloric, and acetic acids. Neutralized acid is dumped into the Industrial Waste Treatment (IWT) system and prior to its construction into the sewer system. Page 6-22.

Electrical/Electronics Shop

This operation was housed in Building 686 and then in Building 866 after 1955. Solvents are used for cleaning, and

were used more extensively in the past. Prior to construction of the IWT, wastes could have been dumped into the sewer system. Page 6-23.

Building 225--Plating Shop

Twenty tanks, ranging in capacity from 75 to 2,000 gallons, are used in this building for plating operations. Tanks contain acid and caustic baths, and metal plating solutions. A large sump is used for waste collection prior to disposal to the IWT, however, prior to the construction of the sump, wastes may have been discharged to the sewer system. Page 6-23.

Buildings 461 And 463

Batteries are charged, rebuilt, and parts removed. Wastes include acids, lead, antimony, and potassium hydroxide electrolyte. Large spills of sulfuric acid have occurred in the past. Page 6-24.

Pipe Shop

Pipe fitting operations are headquartered in Building 46, but are also conducted in Buildings 101, 273, and 855. Wastes from the operations include solvents, acids, sodium dichromate, and trisodium phosphate. Wastewater in the amount of 3,000 gpd has been discharged to the IWT. Dip tanks, containing 14,000 gallons, were also discharged to the IWT. Page 6-25.

Woodworking Shop

Small amounts of solvents are used in the shop during the repairing furniture. Page 6-25.

Paint Shop

Currently, the main paint shop is located in Building 750A, with other operations in Buildings 112, 334, and 900. Wastes include paints, solvents, acids, tetrafluoroethylene, paint sludges, and silver nitrate. A gravity separator has been used in Building 334 for waste collection prior to discharge to the sewer system. Large dip tanks are located outside of Building 900 for cleaning and irridite conversion coating. Pages 6-25 to 6-27.

Transportation Shop

Operations for the maintenance of transportation and other equipment are conducted at Buildings 637 and 639. Wastes include solvents, kerosene, oil, grease, and detergent. Page 6-28.

Utilities Shop

Operation of the base power plant, located in Building 121, is conducted by the Utilities Shop. Potential contaminants produced from the power plant operations include fuel oil, natural gas, oily wastes and waste solvents, and products associated with cleaning the boilers. Pages 6-28 and 6-33.

Public Works Department--Pesticide Use

Pesticides were stored and used by the Public Works Department. Storage, mixing, and cleaning of pesticide containers occurred on Building 455. Table 6-3, pages 6-34 and 6-35 lists the chemicals used. Page 6-33.

Laboratory Division

This division has been located in Building 746 since 1943. Activities at the facility have changed over the years, but have been primarily associated with quality assurance and testing the shelf life of materials. Organics, inorganics, PCBs, and mercury have been disposed of through the drains in the lab prior to 1966.

Paint And Rubber Shop And Laboratory

Testing and research services on paints and rubber are conducted in Building 810. Wastes include solvents, paints, and small quantities of waste rubber. Pages 6-37 to 6-38.

Naval Regional Medical Center (NRMC) Branch Clinic

Wastes produced by the clinic include small amounts of laboratory reagents, X-ray developing and fixing solutions, and solid wastes. Pages 6-41 to 6-42.

Defense Property Disposal Office (DPDO)

This office handles much of the wastes produced on the station. In the past, it has handled PCB transformers and battery elements containing lead. Within the last 20 years, it has started to handle waste oil solvents. It is unknown if DPDO has their own storage area used prior to disposal. If it does, contamination may be a problem.

Navy Publications And Printing Service Branch Office

Solvents, electrostatic solution and other wastes are stored in drums prior to disposal at the landfill. Page 6-42.

Radiological Operations

Between 1950 and 1977, overhaul of radium-containing instruments was conducted in several shops across the base. Although no instances of improper handling have been detected, contamination of storage areas is possible. Pages 6-43 to 6-44.

Tank 772

The criteria that were used to determine that the 1,000-gallon fuel oil spill was insignificant were not provided. Specific information, such as soil testing or groundwater monitoring, must be provided which show that the leak can be considered insignificant. See also the above comment on Underground Storage Tanks, Page 7.

Building 505

There are "indications" that the disposal site behind the building does not contain any hazardous materials. What are these indications? Definitive criteria must be provided which show that hazardous materials have not been disposed of at this site.

Page 6-28

Reference is made to other "major" spills at the waterfront. Is it known if any potentially hazardous materials were involved?

Page 6-42

"Various PCB spills have occurred" on Mare Island during the past few years. Only three spills have been specifically identified. The location of all spills should be provided along with an indication of the extent of contamination and potential hazards.

Page 6-63

Significant corrosion problems have developed in the IWT waste collection system. The integrity of the overall system should be investigated to identify areas where leaks and significant contamination could have occurred requiring remedial action. Plans should be provided showing how this investigation will be conducted.

Pages 6-63 and 6-64

Three pretreatment facilities are used on Mare Island. The potential for leaks from these tanks and from the collection systems leading to and from them should be investigated.

Underground Storage Tanks

There are service stations and many waste storage tanks identified in Chapter 6. However, there is no specific information concerning the integrity, monitoring, or testing of all of these tanks. Current state law calls for monitoring the integrity of underground tanks. All storage tanks should be catalogued and a plan for compliance with state law developed.

PCBs

There is no discussion of a PCBs replacement program for this installation. Current practices for any dielectric fluids removed from services should be identified and evaluated for potential release to the environment. Past practices have been described for several sites throughout Mare Island which consisted of storage and then disposal at the landfill, or other means. It should be shown that all PCB storage areas and areas of potential contamination have been identified at Mare Island. This should include the sewer and sanitary systems where PCBs may have been dumped.

EPA realizes that we are reviewing the sampling events (i.e. verification study) after the fact and that the Navy will not be able to act upon our comments. However, the Navy is planning a Confirmation Study and EPA would like to include the comments regarding the Verification Work Plan and final report for future reference (See Attachment 1 and 2). In general the comments call for verification of areas of contamination and pathway identification utilizing appropriate field procedures. Documentation and rationale for all conclusions drawn for specific sampling events should be included.

Recommendation

EPA should continue monitoring the progress of Mare Island's investigation. The Verification Report indicates contamination directly adjacent to the San Pablo Bay, an environmentally sensitive area. The facility should be scored for inclusion on the National Priority List as soon as possible.

Concur

Paul J. Courage
11.16.77

EPA COMMENTS ON THE VERIFICATION STUDY--WORK PLAN 9/30/87

Site 1 - Landfill

The monitoring investigation incorporates the use of wells developed to meet DHS requirements. It is not known if those wells have been constructed yet nor what the construction plans are. If these wells are not installed correctly and insufficient information collected on the subsurface geology, etc., then there will not be adequate information collected on the landfill from the three wells proposed in this study. As information on the installation and sampling plan is developed for the other wells, it should be submitted for review. Page 5.

It must be shown that the Bay muds are consistently impermeable throughout the site and that migration of contaminants through interbedded sands and gravels will not be a concern. It is proposed to discontinue drilling in the Bay muds at this time. If there is migration from the landfill through deeper layers, it will not be detected by the proposed monitoring plan. Additionally, it should be shown that the landfill was not excavated to depths below the probably confining layers of Bay mud. Page 5.

Composited samples should not be used in this investigation. If there are any contaminated "hot spots," this information may be lost by compositing due to dilution in the mixed concentration. Page 6.

Four existing shallow wells are to be sampled. Where are these wells and how are they constructed? Page 6.

Site 2 - Oil Sumps

A plan for the use of the Ground Penetrating Radar should be provided. Page 6.

Site 4 - Berths 4 and 5

The proposed testing plan is located in front of Berth 4. However, in the IAS, page 3-1, contamination appears to be concentrated in the vicinity of Berths 4 and 5. In addition, the fuel leaks appear to stem from Area 693 and the associated distribution system which extends from Berths 3 through 8. It should be shown that the sampling plan in the vicinity of Berth 4 only will detect all areas of potential contamination.

Site 5 - 900

Area It should be shown that enough samples are being taken in the 900 Area to detect all areas of potential contamination. Pages 7 - 8.

Additional information must be provided on the leachate tests to show that the leaching process will adequately simulate field conditions. Response to the following concerns should be included.

- o Length of time the leaching will be conducted.
- o Temperature during the test.
- o Will the test be conducted under saturated conditions or unsaturated?
- o Is oxidation of the material under unsaturated conditions a factor in solubilization of contaminants.
- o How will saturation (or wetting) of the entire column be ensured?
- o Are there any other factors which might affect solubilization of contaminants in the field such as bacterial action, acid or alkaline soil conditions?

Site 12 - Concord Annex

The rationale for only sampling soils to a depth of one foot should be provided. If no contamination is found at one foot, does that imply there is no contamination at deeper locations?

Site 14 - Sludge Ponds

The use of only two test boring and well locations should be shown to be adequate to detect contamination and potential movement of contaminants. It should be shown that at least one of the wells is located downgradient of the ponds. RCRA requirements provide for one upgradient and three down-gradient wells.

ATTACHMENT 2

EPA's COMMENTS ON THE VERIFICATION STEP REPORT 9/30/97

Page 3--Subsurface sampling for soil contamination was generally conducted in soils above the ground water level. As such contamination of soils at levels below the ground water would not have been detected. The rationale for limiting the soil sampling program should be provided along with sufficient evidence showing that the extent of contamination has been identified or will be identified in the next step.

Page 4--Methods for disposal of drill cuttings should be described.

Page 6--The type of suction pump that was used to collect groundwater samples should be identified.

Page 6--Describe the measures taken to ensure or verify that decontamination of the suction lines and pumps was adequate, i.e., were any pump blanks taken.

Page 6--As part of the ground water sampling procedures, wells were purged prior to sampling and the purge water contained in drums. The method of the ultimate disposal of this water should be identified.

Page 7--Reference is made to Figure II-1. This figure is not in the report.

Page 11--The statement is made that total volatile organic concentrations of less than 5 micrograms per liter are believed to exist in soils. The basis for this statement should be provided.

Page 12--The location of the Aqua Terra boring referenced on this page should be shown on a map.

Page 13--Data and analyses supporting the statement that evidence of movement of contaminants in the groundwater in the oil sump area is not present and should be provided. The wells that have been constructed in this area are located in the oil sumps and could not be used to detect offsite migration. It is stated that the viscosity of the contaminants and low hydraulic gradients appear to indicate that contamination cannot migrate. A technical basis for making this statement should be provided.

Page 15--Free product has only been identified in one boring. Although some of the wells have been constructed with the slotted casing below the water table and therefore would not be expected to show any free product, were any of the other wells sampled for floating product?

Page 15--A general statement is made concerning the native clayey soils being considerably less permeable and that they could tend to serve as a vertical boundary to uppermost

groundwater flow. The possibility for migration through the the less permeable clays exist; therefore justification for limiting future site investigations based upon the less permeable nature of the clays should be provided.

Page 16--The method used to detect "oils and fuels" and oil and grease should be identified.

Page 17--Information should be provided which demonstrates that groundwater flow in the 900 Site Area is towards the east to northeast and that there is not significant vertical migration of contaminants.

Page 17--The listing of contaminant concentrations in the 900 Area does not appear to be complete in Table IV - 2.

Page 19--The description of the hydrogeology at the Concord Annex is very vague. The relationship between subsurface water, surface waters and tide waters has not been defined. Future site investigations should be conducted to define the hydrology of the site and potential pathways of contaminant migration.

Page 24--Since the soil samples in the T-3 area were composited, areas of contamination may not have been identified due to dilution with potentially uncontaminated materials. Justification for limiting future sampling based upon the current study should be provided.

Page 26--Specific characterization efforts for the investigation of the landfill site, oil sumps and sludge ponds must be provided. A detailed workplan for site investigation should be developed prior to assessment of the adequacy of the proposed future investigations.

Page 26--The proposal for studying the landfill site states future studies should concentrate on the area primarily to the east of the current landfill site. The rationale for limiting the study at this time should be provided.

Page 27--Justification should be provided for limiting future analyses to contaminants identified in significant quantities in the previous studies at the sludge ponds. Since the samples collected were composites, dilution of significant contaminants could have occurred.

Page 27--The location of wells for additional sampling around the sludge ponds should be identified. Soil samples collected from the borings should not be composited.

Page 27--It is suggested that characterization efforts must preclude any remedial feasibility studies. If sufficient hazard is presented by the oil sump area, interim remedial activities should be developed.

Page 28--The characterization study for the Berth area should be expanded to include installation of additional wells to determine the extent of contamination. Since contamination was found in the T-3 area, migration of fuel and other contaminants in other areas could be possible, particularly along utility trenches.

Page 29--The basis for limiting the sampling and testing to the procedures identified for the T-3 Tank Area should be provided. It appears that the information available on potential contamination at this site is limited and limiting future studies is without basis. It appears that offsite migration of contamination associated with the berths is extensive, and migration from the T-3 area should be investigated.

Page 29--There does not appear to be sufficient evidence to limit sampling in the 900 Area. Only four soil borings have been sampled to date. Sampling should be conducted to delineate the extent of contamination at the site.

Page 30--The location of the proposed two to three monitoring wells in the Concord Annex should be identified. It should be shown that the location and number of wells will be adequate to characterize the extent of contamination at the Concord Annex and the associated buildings.

Page 30--PCB's should be added to the list of test parameters.