

PORTSMOUTH NAVAL SHIPYARD
ONSHORE TOUR OF SOLID WASTE
MANAGEMENT UNITS (SWMU)
AND STUDY AREAS (SA)

SOLID WASTE MANAGEMENT UNIT (SWMU) :

WHAT IS A SWMU ?

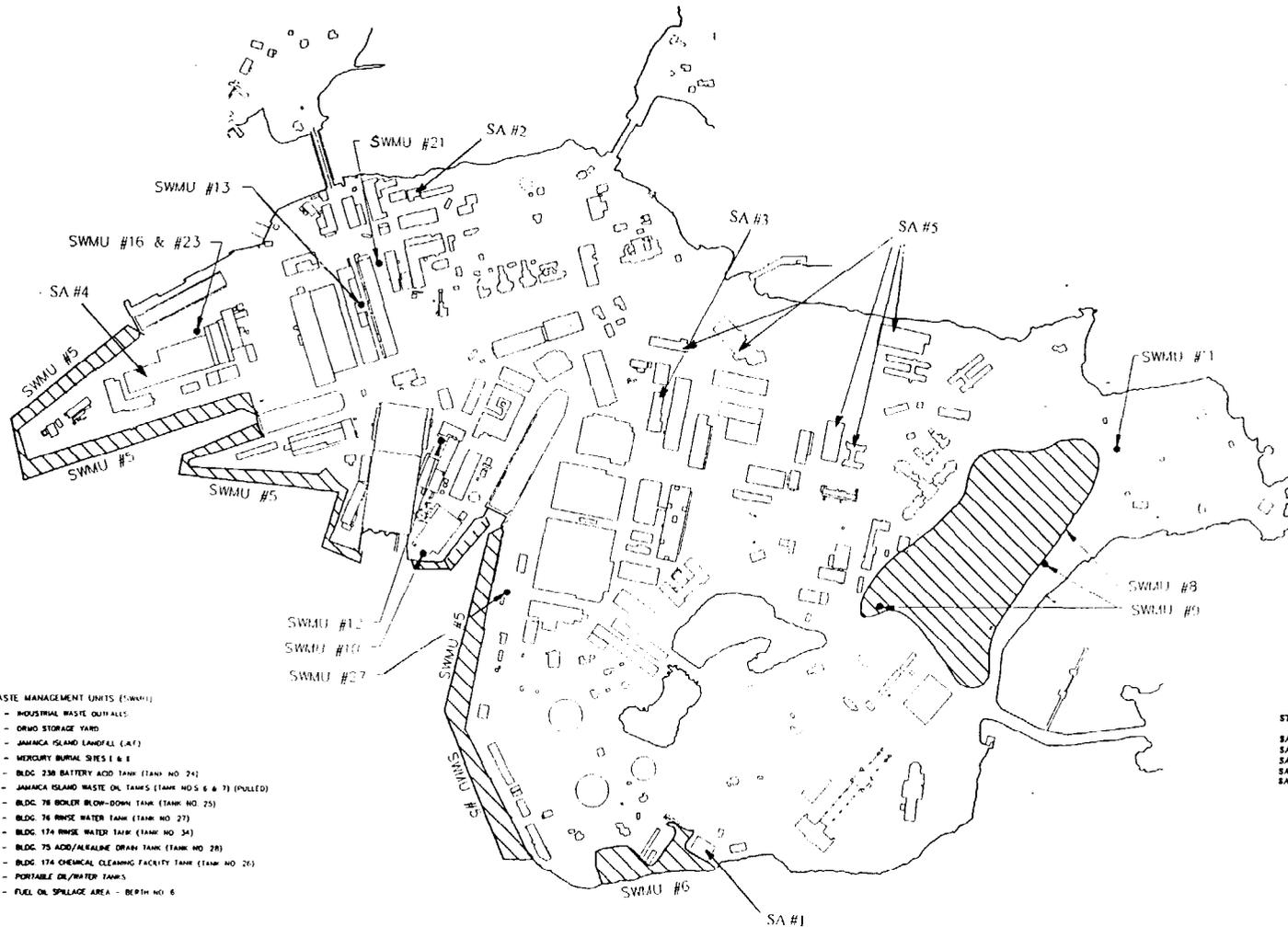
A SWMU IS AN AREA ON THE SHIPYARD WHERE IN THE PAST HAZARDOUS SUBSTANCES WERE HANDLED, STORED, OR USED WHICH HAS THE POTENTIAL TO POSE A THREAT TO HUMAN HEALTH OR THE ENVIRONMENT.

PORTSMOUTH NAVAL SHIPYARD WAS ASSESSED TO DETERMINE ALL THE SITES THAT POSED A POTENTIAL THREAT TO HUMAN HEALTH OR THE ENVIRONMENT. 13 OF THE ORIGINAL 28 SITES IDENTIFIED WERE FOUND TO REQUIRE FURTHER INVESTIGATION.

FEASIBILITY STUDY (FS):

ANALYSIS OF THE REMEDIAL TECHNOLOGIES AGAINST THE NINE (9) CERCLA EVALUATION CRITERIA WHICH INCLUDE THE FOLLOWING:

1. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT.
2. COMPLIANCE WITH ARARS
3. LONG-TERM EFFECTIVENESS AND PERMANENCE
4. REDUCTION OF TOXICITY, MOBILITY, OR VOLUME THROUGH TREATMENT.
5. SHORT TERM EFFECTIVENESS
6. IMPLEMENTABILITY
7. COST
8. STATE ACCEPTANCE
9. COMMUNITY ACCEPTANCE



- SOLID WASTE MANAGEMENT UNITS (SWMU)
- SWMU #3 - INDUSTRIAL WASTE OUTFALLS
 - SWMU #6 - DRUM STORAGE YARD
 - SWMU #8 - JAMAICA ISLAND LANDFILL (A-F)
 - SWMU #9 - MERCURY BURIAL SITES E & E
 - SWMU #10 - BLDG 238 BATTERY ACID TANK (TANK NO 24)
 - SWMU #11 - JAMAICA ISLAND WASTE OIL TANKS (TANK NOS 6 & 7) (PULLED)
 - SWMU #12 - BLDG 78 BOILER BLOW-DOWN TANK (TANK NO 25)
 - SWMU #13 - BLDG 76 RINSE WATER TANK (TANK NO 27)
 - SWMU #16 - BLDG 174 RINSE WATER TANK (TANK NO 34)
 - SWMU #21 - BLDG 75 ACID/ALKALINE DRAIN TANK (TANK NO 28)
 - SWMU #23 - BLDG 174 CHEMICAL CLEANING FACILITY TANK (TANK NO 26)
 - SWMU #28 - PORTABLE OIL/WATER TANKS
 - SWMU #27 - FUEL OIL SPILLAGE AREA - BERTH NO 6

- STUDY AREAS (SA)
- SA #1 - INCINERATOR SITE, BLDG 7398
 - SA #2 - OIL GASIFICATION PLANT, BLDG 62
 - SA #3 - ACID DIP TANK, BLDG 184
 - SA #4 - WEST TIMBER BASIN LANDFILL
 - SA #5 - TOPEKA PIER SITE

N.D.E.
DRAWING NOT INTENDED FOR DESIGN OR ENGINEERING PURPOSES



McLAREN/HART
ENVIRONMENTAL ENGINEERING CORP.
PHILADELPHIA, PA

SOLID WASTE MANAGEMENT UNIT LOCATION
NAVAL FACILITIES ENGINEERING COMMAND
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

DATE 07-18-92
REV 1
1.7
FIGURE 1-3

SWMU #5 Industrial Waste Outfalls

Description:

The outfall points are located along the shore fronts of the Controlled Industrial Area (CIA), used to discharge industrial wastewaters directly into the Piscataqua River prior to the construction of the Industrial Waste Treatment Plant in 1975. The outfalls operated from 1945 to 1975.

Waste Streams:

Industrial wastewaters including wastes not limited to plating operations, the battery shops, and metal cleaning & finishing waters.

Historical Releases:

In the late 1970s, a dredging project was conducted near the berthing areas to accommodate a new class of submarine. As part of the Environmental Impact Statement (EIS), sediment samples were taken and analyzed. Results showed heavy metals, PCBs, and high concentrations of oil & grease. In 1978, over 100,000 cubic yards of dredge materials were removed & disposed of in accordance with an U S Army Corp. of Engineer's dredging permit, at the Jamaica Island Landfill. The permit included provisions for installing a 2-foot clay cap over the dredge spoils and also the construction of a clay barrier inside a rock dike to prevent migration of the materials.

Past Investigations:

McLaren /Hart conducted an RCRA Facilities Investigation (RFI) during the RFI Phase IV in the Summer/Fall of 1991. Offshore studies which are also being conducted separately are addressing sediment, biota, and offshore human health & ecological issues.

Contaminants of Concern (COC): (Contaminants by Media)

SEDIMENTS:

Metals: Mercury, Arsenic, Nickel, Lead, Cadmium, Chromium, Copper, and Zinc
TPH
Polycyclic Aromatic Hydrocarbons (PAHs)

Current Status:

SWMU #5 sediments will be addressed in the Off-Shore Feasibility Study. MPS for sediments have not yet been developed for sediments.

SWMU #6 Defense Reutilization Marketing Office (DRMO)

Description:

This storage yard covers an area of approximately 2 acres and served as a temporary storage area for materials prior to off-site disposal or recycling. This facility has been in operation for more than 30 years. The DRMO is located at the southern end of the Shipyard immediately adjacent to the Piscataqua River.

Waste Streams:

Materials stored in the scrap yard included lead-acid and nickel-cadmium batteries of various types, as well as lead-acid Submarine battery elements, motors, typewriters, paper products and scrap metal.

Historical Releases:

Contaminated soil was migrating off site by way of fugitive dust emissions and storm water run-off to the Piscataqua River. In 1983, the practice of open storage of batteries was discontinued.

Past Investigations:

It was proposed that the RCRA Facilities Investigations (RFI) at PNSY be performed in a phased manner. McLaren/Hart conducted the RFI in four phases from 1989 to 1992:

RFI Phase I Fall, 1989

RFI Phase II Summer, 1990

RFI Phase III Winter, 1990-1991

RFI Phase IV Summer, Fall 1991

RFI Phase IVA Winter, 1992

Halliburton NUS conducted a RFI Data Gap Study in the Summer of 1994.

An Interim Corrective Measure, in the form of a Geo-composite clay liner, was performed at the DRMO in late 1993 to reduce the risk to workers and reduce migration of fugitive dust emissions and storm water run-off into the Piscataqua River.

SWMU #6 (CONTINUED)

Contaminants of Concern (COC): (Contaminants by Media)

SOILS:

Metals: (Antimony, Arsenic, Beryllium, Cadmium, Lead, Mercury, Nickel, Zinc)
PCBs (Arochlor 1254)
Pesticides (Aldrin, Dieldrin)
Semi-Volatile Organic Compounds
Total Petroleum Hydrocarbons
Polycyclic Aromatic Hydrocarbons (PAHs)

GROUNDWATER:

Metals: (Arsenic, Beryllium, Cadmium, Chromium, Lead, Mercury)
PCBs

AIR:

Metals: (Arsenic, Cadmium, Lead) Prior to implementing Interim Corrective Measure in the form of a cap.

Current Status:

In 1993, an interim corrective measure was conducted at the DRMO which included capping and paving sections of the DRMO, installation of storm water controls, and installation of a new concrete curb.

A Draft Feasibility Study (FS) Report has been sent to EPA, MEDEP, and RAB members. A Feasibility Study identifies, develops, evaluates, and proposes potential remedial alternatives that can be implemented and that will be protective of human health and the environment. Offshore studies which are being conducted separately are addressing sediment, biota, and offshore human health & ecological issues.

Feasibility Study (Technologies Retained for Consideration):

The following remedial alternatives have been developed based on seven of the nine CERCLA evaluation criteria. They should be considered as preliminary.

- Alternative 1: Retain Existing Cap, Institutional Controls
- Alternative 2: Retain Existing Cap, Groundwater Hydraulic Barrier
- Alternative 3: Retain Existing Cap, Cut-off Barriers
- Alternative 4: On-site Soil Fixation, Disposal
 - Alternative 4A: Unsaturated Soil, On-site Disposal
 - Alternative 4B: Unsaturated Soil, Off-site Disposal
 - Alternative 4C: Unsat./Saturated Soil, On-site Disposal
 - Alternative 4D: Unsat./Saturated Soil, Off-site Disposal
 - Alternative 4E: Unsaturated Soil, Consolidation at JILF
 - Alternative 4F: Unsat./Saturated Soil, Consolidation at JILF

Alternative 5: On-site Soil Washing

Alternative 6: Extend Existing Geotextile Cap

Alternative 7: Maine Secure Landfill Cap, Cut-off Barrier

SWMU #8 Jamaica Island Landfill (JILF)

Description:

A former tidal flat area between Jamaica and Seavey Island which was landfilled. The landfill is located at the eastern end of the facility adjacent to the Piscataqua River. The landfill extends over an area of approximately 25 acres containing construction rubble and unknown amounts of materials containing hazardous waste and/or hazardous constituents. Operation of the landfill was from approximately 1945 to 1978. A portion of the landfill that accepted contaminated dredge spoils, has a clay barrier wall along the Piscataqua River and a 2 foot thick clay cap to prevent infiltration.

Waste Streams:

In addition to construction/demolition debris, excavated materials, general rubble and trash the landfill accepted incinerator ash, plating sludges containing chrome, lead, and cadmium; volatile organics including TCE, methylene chloride, toluene and MEK; acetylene and chlorine gas cylinders; contaminated dredge spoils containing chromium, lead, small amounts of PCBs, mercury and possibly phenols; waste paints and solvents; and spent sandblasting grit. Waste oils containing PCBs may also have been disposed at the site prior to construction of a holding tank in 1972.

Historical Releases:

Onshore studies have shown elevated levels of chromium, lead, nickel, copper, cadmium, and zinc along the face of the landfill. Offshore studies will be covered separately.

Past Investigations:

It was proposed that the RCRA Facilities Investigations (RFI) at PNSY be performed in a phased manner. McLaren/Hart conducted the RFI in four phases from 1989 to 1992:

RFI Phase I Fall, 1989

RFI Phase II Summer, 1990

RFI Phase III Winter, 1990-1991

RFI Phase IV Summer, Fall 1991

RFI Phase IVA Winter, 1992

Halliburton NUS conducted a RFI Data Gap Study in the Summer of 1994.

Contaminants of Concern (COC): (Contaminants by Media)

SOILS:

Metals: (Beryllium, Zinc, Cadmium, Antimony, Copper, Nickel)
PCBs
Pesticides
Volatile & Semi-Volatile Organic Compounds

GROUNDWATER:

Metals: (Arsenic, Beryllium, Cadmium, Copper, Nickel, Zinc)
PCBs (Arochlor 1254)
Pesticides (DDT, DDD, DDE)
Volatile & Semi-Volatile Organic Compounds
Total Petroleum Hydrocarbons
Polycyclic Aromatic Hydrocarbons (PAHs)

Current Status:

A Draft Feasibility Study (FS) Report has been sent to EPA, MEDEP, and RAB members. A Feasibility Study identifies, develops, evaluates, and proposes potential remedial alternatives that can be implemented and that will be protective of human health and the environment. Offshore studies which are being conducted separately are addressing sediment, biota, and offshore human health & ecological issues.

Feasibility Study (Technologies Retained for Consideration):

The following remedial alternatives have been developed based on seven of the nine CERCLA evaluation criteria. They should be considered as preliminary.

Alternative 1A: Soil/Asphalt Cap, Institutional Controls
Alternative 1B: Maine Cap, Institutional Controls
Alternative 2A: Soil/Asphalt Cap, GW Hydraulic Barrier
Alternative 2B: Marine Cap, GW Hydraulic Barrier
Alternative 3A: Soil/Asphalt Cap, Estuarine Habitat Reconstruction
Alternative 3B: Maine Cap, Estuarine Habitat Reconstruction
Alternative 4A: Soil/Asphalt Cap, Cut-off Barriers
Alternative 4B: Maine Cap, Cut-off Barriers
Alternative 5: Soil Off-site Treatment, GW Treatment for Dewatering

SWMU #9 Mercury Burial Sites I & II

Description:

Two sites located within SWMU #8, Jamaica Island Landfill, which contain mercury waste encased in concrete vaults. The period of operation was from 1973 to 1975. Mercury Burial Site I (MBS I) is located at the east end of JILF adjacent to the Piscataqua River while Mercury Burial Site II (MBS II) is located at the southwest end of JILF.

Waste Streams:

Mercury contaminated wastes including fluorescent bulbs, thermometers, mercury switches and dials, rags, brooms, and dust pans contaminated with mercury and small quantities of elemental mercury.

Historical Releases:

In the summer of 1994, MBS I, was excavated and the vaults were found to be in good condition. A vertical section of concrete pipe was removed because it was determined to be sealed at both ends but would be less stable than the other vaults. No mercury levels were found to exceed background. An attempt was made to excavate MBS II, but efforts to locate the vaults were not successful.

Past Investigations:

It was proposed that the RCRA Facilities Investigations (RFI) at PNSY be performed in a phased manner. McLaren/Hart conducted the RFI in four phases from 1989 to 1992:

RFI Phase I Fall, 1989

RFI Phase II Summer, 1990

RFI Phase III Winter, 1990-1991

RFI Phase IV Summer, Fall 1991

RFI Phase IVA Winter, 1992

Halliburton NUS conducted a RFI Data Gap Study in the Summer of 1994.

Contaminants of Concern (COC): (Contaminant by Media)

SOILS:

Metals at MBS I: (Beryllium, Lead, Copper) Mercury was found below the accepted Media Protection Standards (MPS) which indicates that there has been no release from this SWMU.

Polycyclic Aromatic Hydrocarbons (PAHs) at MBS II

GROUNDWATER:

Metals

Pesticides

Polycyclic Aromatic Hydrocarbons (PAHs)

Current Status:

A Draft Feasibility Study (FS) Report has been sent to EPA, MEDEP, and RAB members. A Feasibility Study identifies, develops, evaluates, and proposes potential remedial alternatives that can be implemented and that will be protective of human health and the environment.

Feasibility Study (Technologies Retained for Consideration):

The following remedial alternatives have been developed based on seven of the nine CERCLA evaluation criteria. They should be considered as preliminary.

Alternative 1: Institutional Controls (Such as deed restrictions)

Alternative 2: Concrete Block Off-site Disposal

Alternative 3: Soil Fixation/Off-Site Disposal, Concrete Blocks Off-site Disposal

Alternative 3A: On-site Soil Fixation

Alternative 3B: Off-site Soil Fixation

Alternative 4: Address with SWMU #8 JILF

Address with SWMU#8 (JILF), Free Product Removal

Alternatives 3 & 5 were eliminated during the alternative screening process, because with alternative #3 no Mercury contaminated soil was encountered. With alternative #5 no free product was encountered which would then make alternative #5 the same as #4, so it was eliminated.

SWMU #10 Battery Acid Tank

Description:

This unit was an underground storage tank, 9,680 gallon holding tank used from 1974 to 1984 to store waste battery acid resulting from battery disposal operations located adjacent to the Piscataqua River. The tank was taken out of service in 1984. The tank removal was coordinated with and witnessed by MEDEP in Oct. 1986. The unit was located outside of Building 238.

Waste Streams:

Sulfuric acid contaminated with lead from battery operations.

Historical Releases:

In 1984 a 2-inch hole was discovered at the bottom of the tank.

Past Investigations:

McLaren /Hart conducted an RCRA Facilities Investigation (RFI) during the Phase IV in the Summer/Fall of 1991.

Contaminant of Concern(COC) : (Contaminant by Media)

SOILS:

Metals: Lead slightly above MPS

GROUNDWATER:

No monitoring wells on site.

SEDIMENTS:

Metals:

TPH

Current Status:

A Draft Feasibility Study (FS) Report has been sent to EPA, MEDEP, and RAB members. A Feasibility Study identifies, develops, evaluates, and proposes potential remedial alternatives that can be implemented and that will be protective of human health and the environment. Offshore studies which are being conducted separately are addressing sediment, biota, and offshore human health & ecological issues.

Feasibility Study (Technologies Retained for Consideration):

The following remedial alternatives have been developed based on seven of the nine CERCLA evaluation criteria. They should be considered as preliminary.

- Alternative 1: Institutional Controls, Asphalt Repair
- Alternative 2A: On-site Soil Fixation, Off-site Disposal
- Alternative 2B: Off-site Soil Fixation, Off-site Disposal
- Alternative 3: Soil Off-site Disposal
- Alternative 4: Consolidate with DRMO

SWMU #11 Waste Oil Tanks

Description:

This unit consists of two 8,000-gallon underground storage tanks (buried railroad tank cars) of steel construction . The tanks are buried side by side at the northeastern end of the Jamaica Island Landfill Area. The tanks are used to store a variety of used oils and other oily wastes prior to offsite disposal.

Waste Streams:

Waste oils consisting of the following : cooling and cutting, motor, transmission, and hydraulic oils.

Historical Releases:

In 1979, the tanks were excavated, tested and found to be intact and reburied. In 1986, both tanks passed tightness tests. Spillage and overfilling of the tanks caused contamination of the surrounding soil. The tanks were removed and excavated in 1989. MEDEP witnessed the tank removal.

Past Investigations:

It was proposed to conduct the RCRA Facilities Investigation (RFI) at PNSY be performed in a phased manner. McLaren/Hart conducted the RFI at this site in two phases.

- RFI Phase IV Summer, Fall 1991

- RFI Phase IVA Winter, 1992

- Haliburton NUS conducted a RFI Data Gap Study in the Summer of 1994.

Contaminants of Concern (COC): (Contaminants by Media)

SOILS:

Metals: Lead

TPH

GROUNDWATER:

Metals:

Volatiles plus Freon

Semivolatiles

Pesticides/PCBs

Total gasoline and total diesel

Current Status:

A Draft Feasibility Study (FS) Report has been sent to EPA, MEDEP, and RAB members. A Feasibility Study identifies, develops, evaluates, and proposes potential remedial alternatives that can be implemented and that will be protective of human health and the environment.

Feasibility Study (Technologies Retained for Consideration):

The following remedial alternatives have been developed based on seven of the nine CERCLA evaluation criteria. They should be considered as preliminary.

Alternative 1: Institutional Controls

Alternative 2: Soil Off-site Disposal

Alternative 3: Consolidate with JILF

SWMU #12
Boiler Blowdown Tank #25

Description:

This unit is a 3,800-gallon steel underground storage tank which was used for temporarily storage and acts as a lift station for non-hazardous blowdown liquids from the power plant prior to discharge to the sanitary sewer. The unit has been in operation since 1974 and is located adjacent to Building 72.

Waste Streams:

Non-hazardous blowdown water containing minor quantities of boiler additives with a pH of approximately 10.5 at the discharge point.

Historical Releases:

No report of any releases.

Contaminants of Concern (COC): (Contaminants by Media)

Tank contents are not RCRA hazardous, based on sample results for reactivity, ignitability, corrosivity, and TCLP. Priority Pollutant Metals were at detectable concentrations but were below the TCLP criteria. No groundwater and soils sampling was conducted.

Current Status:

No remedial action is proposed in the Feasibility Study (FS)
The Public Works Department is contemplating upgrading the Boiler Blowdown System in the future, which would potentially include removal of the underground storage tank and replacement with an above ground storage tank.

SWMU #13 Rinse Water Tank #27

Description:

This unit was a 700-gallon, steel, underground storage tank used for holding rinse waters from Building 76 since 1974. The tank removal efforts were coordinated with the MEDEP & EPA in 1991. The tank also showed signs of minor corrosion.

Waste Streams:

Mostly non-hazardous rinse waters, on rare occasions hazardous dilute metal surface cleaning solutions were stored in the tank.

Historical Releases:

There was no visual or olfactory evidence of contamination in the fill material encountered during tank excavation. The fill material was replaced during backfilling and covered with a hot asphalt cap.

Past Investigations:

As part of the Phase IV RFI, an Interim Corrective Measure (ICM) was conducted in the form of a tank removal. McLaren Hart took some confirmation samples from the floor and sidewalls of the excavation.

Contaminants of Concern (COC): (Contaminants by Media)

SOILS:

Sporadic exceedences of MPSs occurred (at approximately 1.5 times the residential MPS). these exceedences were found in the sidewall samples; there were no exceedences from the floor samples. There were no exceedences of industrial MPSs.

GROUNDWATER:

There are no groundwater monitoring wells at this site. Groundwater contamination is not expected.

Current Status:

No remedial action is proposed in the Feasibility Study (FS)

SWMU #16 Rinse Water Tank #34

Description:

This unit was a 750-gallon, steel, underground storage tank used to hold rinse water from Building 174 since 1978. The tank removal efforts were coordinated with MEDEP and EPA in 1991. The tank was found to be intact showing only minor signs of corrosion.

Waste Streams:

Mostly non-hazardous rinse waters, on rare occasions hazardous dilute metal surface cleaning solutions were stored in the tank.

Historical Releases:

There was no visual or olfactory evidence of contamination in the fill material encountered during tank excavation. The fill material was replaced during backfilling and covered with a hot asphalt cap.

Past investigations:

As part of the Phase IV RFI, an Interim Corrective Measure (ICM) was conducted in the form of a tank removal. McLaren Hart took some confirmation samples from the floor and sidewalls of the excavation.

Contaminants of Concern (COC): (Contaminants by Media)

SOILS:

Sporadic exceedences of MPSs occurred (at approximately 7 times the residential MPS). There were no exceedences of industrial MPSs.

GROUNDWATER:

There are no groundwater monitoring wells at this site. Groundwater contamination is not expected.

Current Status:

No remedial action is proposed in the Feasibility Study (FS)

SWMU #21 Acid /Alkaline Drain Tank

Description:

This unit is a 695-gallon underground storage tank used to store spent acid/alkaline metal surface-cleaning solutions and solid residues from metal working operations. This tank is located outside the sheet metal shop, Building 75. This tank was placed in service in 1974. The tank removal efforts were coordinated with MEDEP and EPA in 1991.

Waste Streams:

Unspecified waste acid and alkaline metal surface-cleaning solutions were stored in this tank.

Historical Releases:

A large 1 foot by 2 foot hole was found in the tank . The tank was removed and no soils were removed. Fresh hot tar /soil plus clean fill and an asphalt cap were used for backfilling purposes.

Past Investigations:

As part of the Phase IV RFI, an Interim Corrective Measure was conducted in the form of a tank removal. McLaren Hart took some confirmation samples from the floor and sidewalls of the excavation.

Contaminants of Concern (COC): (Contaminants by Media)

SOILS:

Polycyclic Aromatic Hydrocarbons (PAHs)

Metals: Cadmium

GROUNDWATER:

There are no groundwater monitoring wells at this site. It is not known whether groundwater is contaminated. There were holes found in the tank and some spillage of tank contents occurred during tank excavation.

Current Status:

A Draft Feasibility Study (FS) Report that has been sent out to EPA, MEDEP, and RAB members. A Feasibility Study identifies, develops, evaluates, and proposes potential remedial alternatives that can be implemented and that will be protective of human health and the environment.

Feasibility Study (Technologies Retained for Consideration):

The following remedial alternatives have been developed based on seven of the nine CERCLA evaluation criteria. They should be considered as preliminary.

Alternative 1: Institutional Controls

Alternative 2: Soil Off-site Disposal

Alternative 3: Consolidate with JILF

SWMU #23

Chemical Cleaning Facility Tank, Building 174

Description:

This unit was a 2270-gallon underground storage tank used to store waste acid and alkaline metal surface cleaning solutions and solid residues from activities in Building 174. This tank was placed in service in 1978. The tank removal efforts were coordinated with the MEDEP & EPA in 1991. Tank contents were found to be RCRA hazardous for cadmium.

Waste Streams:

Unspecified waste acid and alkaline metal surface cleaning solutions and were stored in this tank.

Historical Releases:

The tank was found to be intact with no evidence of corrosion. There was no visual or olfactory evidence of contamination in the fill material encountered during tank excavation. The fill material was replaced during backfilling and covered with a hot asphalt cap.

Past investigations:

During the Interim Corrective Measure Study or tank removal McLaren Hart took some confirmation samples from the floor and sidewalls of the excavation.

Contaminants of Concern (COC): (Contaminants by Media)

SOILS:

Sporadic exceedences of MPS occurred (at 1 or 2 times the residential MPS) for cadmium in one of the excavation floor samples. There were no exceedences of industrial MPS.

GROUNDWATER:

There are no groundwater monitoring wells at this site. Groundwater contamination is not expected.

Current Status:

No remedial action is proposed in the Feasibility Study (FS).

SWMU #26

Portable Oil/Water Tanks

Description:

Portable tanks stationed at the submarine berths and dry-docks were used for collection of bilge waters and various other oily wastes. The portable tanks were pumped to the waste oil tanks in the Jamaica Island Landfill Area.

Waste Streams:

Waste oils and bilge waters collected from submarine berths and dry-docks.

Historical Releases:

Past operations of the portable tanks have resulted in oil spills. The causes were overfilling, leaky valves, spillage during transport and unsecured filling hoses.

Past Investigations:

It was determined that the sites would not pose a threat onshore.

Contaminants of Concern (COC): (Contamination by Media)

SOILS:

Total Petroleum Hydrocarbons (TPH)

Current Status:

This site was not included in the Onshore Feasibility Study (FS) Report that has been out to EPA, MEDEP, and RAB members. Offshore studies which are being conducted separately are addressing sediment, biota, and offshore human health & ecological issues. The tanks and operating procedures have been modified to preclude spillage.

SWMU #27 Fuel Oil Spill

Description:

A fuel oil tank farm exists southeast of Berth #6. The tanks were constructed in the early 1920s. Due to the age of the tank farm and associated ship to shore underground piping resulting in breakage, seepage and leakage of #6 oil (Bunker "C") and #2 fuel oil.

Waste Streams:

Petroleum contamination found within the tank farm and along Berth #6.

Historical Releases:

In the early 1980's a ship-to-shore oil distribution line leaked. The underground distribution line, located along Berth #6, was excavated and removed.

Past Investigations:

It was proposed that the RCRA Facilities Investigations (RFI) at PNSY be performed in a phased manner. McLaren/Hart conducted the RFI in four phases from 1989 to 1992:

RFI Phase II Summer, 1990

RFI Phase III Winter, 1990-1991

RFI Phase IV Summer, Fall 1991

RFI Phase IVA Winter, 1992

The Fuel Farm was investigated under a separate hydrogeologic investigation for MEDEP permitting of the facility. Offshore studies which are also being conducted separately are addressing sediment, biota, and offshore human health & ecological issues.

Contaminants of Concern (COC): (Contaminants by Media)

SOILS:

Slight exceedences (less 2 times the MPS) for lead, zinc, cadmium, and benzo(a)anthracene.

GROUNDWATER:

Metals: Isolated exceedences of MPS for numerous metals including arsenic, aluminum, cadmium, chromium, lead, manganese, copper, and beryllium.

Inorganics primarily detected in the particulate form.

No TPH analysis performed.

GC fingerprinting for FW-06 only indicated the presence of #4 fuel oil and lube oil.

Free product observed in monitoring wells FW-02 and FW-04.

Current Status:

A Draft Feasibility Study (FS) Report has been sent to EPA, MEDEP, and RAB members. A Feasibility Study identifies, develops, evaluates, and proposes potential remedial alternatives that can be implemented and that will be protective of human health and the environment.

Feasibility Study (Technologies Retained for Consideration):

The following remedial alternatives have been developed based on seven of the nine CERCLA evaluation criteria. They should be considered as preliminary.

Alternative 1: Institutional Controls

Alternative 2: Soil Off-site Disposal

Alternative 3A: Off-site Asphalt Kiln

Alternative 3B: On-site Low Temperature Thermal Stripping

INTERIM CORRECTIVE MEASURES

ICMs COMPLETED AT:

SWMU #5	Industrial Waste Outfalls (Dredged sediments) **
SWMU #6	DRMO (Interim Cap)
SWMU #10	Battery Acid Tank (Removed)
SWMU #11	Rinse Water Tank #6 & #7 (Removed)
SWMU #13	Rinse Water Tank #27 (Removed)
SWMU #16	Rinse Water Tank #34 (Removed)
SWMU #21	Acid/Alkaline Drain Tank (Removed)
SWMU #23	Chemical Cleaning Facility Tank (Removed)

** Although this is not considered a formal Interim Corrective Measure, sediment was removed in 1978 to accommodate a new class of submarine.

SA #1 Incinerator Site

Description:

Aerial photographs reveal that the land beneath and around the Industrial Waste Treatment Plant was originally used for open pit and incinerator burning. The ash and residue was removed after burning and placed in landfills. By the 1950's the fill was being deposited in the Jamaica Island Landfill, SWMU #8.

SA #2 Oil Gasification Plant, Bldg. 62

Description:

Constructed in the early 1870's building 62 served as the Shipyard Illuminating Gas Manufacturing Plant, for about 30 years. At the turn of the century gas illumination on the Shipyard was replaced by electricity. Approximately 8,000 gallons of paraffin or gas oil was used per year as the source for illuminating gas. Early gas oil illumination advertisements indicate one gallon of oil would produce approximately 100 gallons of gas. Also, little waste product was produced compared to the more prevalent coal gasification process.

The building was subsequently used by Public Works for a variety of purposes, including a blacksmith shop.

SA #3 Acid Dip Tank, Bldg. 184

Description:

Constructed in 1943 as a Galvanizing Plant, Building 184 was closed after WWII and most equipment removed. Later the building was used by the Electrical Manufacturing Department for dye storage and test equipment. In the late 1950's the space was converted into an area for the cleaning piping with the use of such chemicals as sulfuric acid. In the late 1960's the area was converted into the present day Welding School and Laboratory.

SA #4

West Timber Basin Landfill

Description:

This area was used for over 100 years for the storage and preservation of timber. As wooden shipbuilding and repair declined this area was no longer needed for this purpose. A second timber basin, that had been constructed after the turn of the century was sufficient to handle the Shipyard's requirements. The West Timber Basin was filled in prior to WWII. Shipyard plans indicate that the area was used for the disposal of general refuse.

SA #5

Topeka Pier Site

Description:

The area underlying buildings 237, 154, 306, 129, 158 and H-23 was previously a salvage yard and landfilled areas.

**PORTSMOUTH NAVAL SHIPYARD
INSTALLATION RESTORATION PROGRAM**

(No site designation) Oil Gasification Plant, Bldg 62

Constructed in the early 1870's building 62 served as the Shipyard Illuminating Gas Manufacturing Plant, for about 30 years. At the turn of the century gas illumination on the Shipyard was replaced by electricity. Approximately 8,000 gallons of paraffin or gas oil was used per year as the source for illuminating gas. Early gas oil illumination advertisements indicate one gallon of oil would produce approximately 100 cubic feet of gas. Also, little waste product was produced compared to the more prevalent coal gasification process. The building was subsequently used by Public Works for a variety of purposes, including a blacksmith shop.

SITE #21 Acid /Alkaline Drain Tank

Description: This unit is a 695-gallon underground storage tank used to store spent acid/alkaline metal surface-cleaning solutions from metal working operations. This tank is located outside the sheet metal shop, Building 75. This tank was placed in service in 1974. The tank removal efforts were coordinated with MEDEP and EPA in 1991.

Waste Streams: Unspecified waste acid and alkaline metal surface-cleaning solutions were stored in this tank. **Historical Releases:** A large 1 foot by 2 foot hole was found in the tank when it was removed. Clean soil backfill covered with asphalt pavement was used to close the site.

Contaminants of Concern: **SOILS:** Slight exceedance of the industrial risk standard for PAHs. Cadmium did not exceed the industrial risk standard, however it did slightly exceed the residential risk standard. **GROUNDWATER:** Although tank contents were non-hazardous, groundwater contamination may have occurred.

Relative Risk: Medium Potential exposure to contaminated soils.

Current Status: No further remedial action is proposed for soils at this site, draft decision document prepared. Investigation of the groundwater will be included with Site 31 (FY 01).

SITE #16 Rinse Water Tank #34

Description: This unit was a 750-gallon, steel, underground storage tank used to hold rinse water from Building 174 since 1978. The tank removal efforts were coordinated with MEDEP and EPA in 1991. The tank was found to be intact showing only minor signs of corrosion.

Waste Streams: Mostly non-hazardous rinse waters, on rare occasions hazardous dilute metal surface cleaning solutions were stored in the tank. **Historical Releases:** There was no visual or olfactory evidence of contamination in the fill material encountered during tank excavation. The fill material was replaced during backfilling and covered with a hot asphalt pavement.

Contaminants of Concern: **SOILS:** No exceedances of industrial use risk standards. **GROUNDWATER:** Groundwater contamination is not expected.

Relative Risk: Low

Current Status: No further remedial action is proposed for this site, draft decision document prepared.

SITE #23 Chemical Cleaning Facility Tank, Building 174

Description: This unit was a 2270-gallon underground storage tank used to store waste acid and alkaline metal surface cleaning solutions and solid residues from activities in Building 174. This tank was placed in service in 1978. The tank was removed in 1991. Tank contents were RCRA hazardous for cadmium.

Waste Streams: Waste acid and alkaline metal surface cleaning solutions and were stored in this tank. **Historical Releases:** The tank was found to be intact with no evidence of corrosion. There was no visual or olfactory evidence of contamination in the fill material encountered during tank excavation. The fill material was replaced during backfilling and covered with a hot asphalt pavement.

Contaminants of Concern: **SOILS:** There were no exceedances of industrial risk standards. **GROUNDWATER:** Groundwater contamination is not expected.

Relative Risk: Low

Current Status: No further remedial action is proposed for this site, draft decision document prepared.

SITE #5 Industrial Waste Outfalls

Description: The outfall points are located along the shore fronts of the Controlled Industrial Area (CIA), used to discharge industrial wastewaters directly into the Piscataqua River prior to the construction of the Industrial Waste Treatment Plant in 1975. The outfalls operated from 1945 to 1975.

Waste Streams: Industrial wastewaters including wastes not limited to plating operations, the battery shops, and metal cleaning & finishing waters. Historical Releases: Discharge of industrial wastes directly into the river.

Contaminants of Concern: SEDIMENTS AND SURFACE WATER: Metals: Lead, copper, mercury, zinc, arsenic, silver, chromium, nickel, cadmium, Polychlorinated Biphenyls (PCBs) Pesticides Polycyclic Aromatic Hydrocarbons (PAHs)

Relative Risk: High Evident contaminant exposure to human and ecological receptors.

Current Status/Expected Cleanup:

SITE #5 The off-shore ecological risk assessment is near completion. Sediments will be addressed in the Off-Shore Feasibility Study if necessary.

Site #31 West Timber Basin Landfill

This area was used for over 100 years for the storage and preservation of timber. As wooden shipbuilding and repair declined this area was no longer needed for this purpose. A second timber basin, that had been constructed after the turn of the century was sufficient to handle the Shipyard's requirements. The West Timber Basin was filled in prior to WW II. Shipyard plans indicate that the area was used for the disposal of general refuse.

SITE #13 Rinse Water Tank #27

Description: This unit was a 700-gallon, steel, underground storage tank used for holding rinse waters from Building 76 since 1974. The tank removal efforts were coordinated with the MEDEP & EPA in 1991. The tank also showed signs of minor corrosion.

Waste Streams: Mostly non-hazardous rinse waters, on rare occasions hazardous dilute metal surface cleaning solutions were stored in the tank. **Historical Releases:** There was no visual or olfactory evidence of contamination in the fill material encountered during tank excavation. The fill material was replaced during backfilling and covered with a hot asphalt pavement.

Contaminants of Concern: SOILS: PAHs GROUNDWATER: Groundwater contamination is not expected.

Relative Risk: Low

Current Status: No further remedial action is proposed for this site, draft decision document prepared.

SITE #12 Boiler Blowdown Tank #25

Description: This unit is a 3,800-gallon steel underground storage tank which was used for temporarily storage and acts as a lift station for non-hazardous blowdown liquids from the power plant prior to discharge to the sanitary sewer. The unit has been in operation since 1974 and is located adjacent to Building 72.

Waste Streams: Non-hazardous blowdown water containing minor quantities of boiler additives with a pH of approximately 10.5 at the discharge point. **Historical Releases:** The investigations have shown no indication of any releases.

Contaminants of Concern Tank contents are not RCRA hazardous, based on sample results for reactivity, ignitability, corrosivity, and TCLP. Priority Pollutant Metals were at detectable concentrations but were below the TCLP criteria. No groundwater and soils sampling was conducted.

Relative Risk: Not ranked

Current Status: No further action is proposed for this site. Pending regulatory approval.

SITE #10 Battery Acid Tank

Description: This unit was an underground storage tank, 9,680 gallon holding tank used from 1974 to 1984 to store waste battery acid resulting from battery disposal operations located in building 238. The tank was taken out of service in 1984. The tank removal was coordinated with and witnessed by MEDEP in Oct. 1986.

Waste Streams: Sulfuric acid contaminated with lead from battery operations.

Historical Releases: In 1984 a 2-inch hole was discovered at the bottom of the tank, at which time it was taken out of service. Past releases to the Piscataqua River will be addressed with the off-shore operable unit.

Contaminant of Concern: SOILS: Metals: Lead

SEDIMENTS AND SURFACE WATER: Addressed in the offshore operable unit.

Relative Risk: High Evident contaminant exposure to off-shore human and ecological receptors.

Current Status/Expected Cleanup: Investigation of this site has expanded to the adjacent buildings to determine if the lines leading to this tank leaked. (RI/FS-FY 96 to 98)

SITE #26 Portable Oil/Water Tanks

Description: Portable tanks stationed at the submarine berths and dry-docks were used for collection of bilge waters and various other oily wastes. The portable tanks were pumped to the waste oil tanks in the Jamaica Island Landfill Area.

Waste Streams: Waste oils and bilge waters collected from submarine berths and dry-docks. **Historical Releases:** Past operations of the portable tanks have resulted in oil spills. The causes were overfilling, leaky valves, spillage during transport and unsecured filling hoses.

Contaminants of Concern: SEDIMENTS AND SURFACE WATER: Addressed in offshore operable unit.

SITE #27 Fuel Oil Spill Area

Description: A fuel oil tank farm exists southeast of Berth #6. The tanks were constructed in the early 1920s. Due to the age of the tank farm and associated ship to shore underground piping resulting in breakage, seepage and leakage of #6 oil (Bunker "C") and #2 fuel oil.

Waste Streams: Petroleum contamination found within the tank farm and along Berth #6. **Historical Releases:** In the early 1980's a ship-to-shore oil distribution line leaked. The underground distribution line, located along Berth #6, was excavated and removed.

Contaminants of Concern: **SOILS:** Slight exceedances for lead, zinc, cadmium, and benzo(a)anthracene. **GROUNDWATER:** Metals: arsenic, aluminum, cadmium, chromium, lead, manganese, copper, and beryllium. #4 fuel and lube oil.

Relative Risk: High Evident contaminant exposure to human and ecological receptors.

Current Status/Expected Cleanup: Investigation of this site has expanded to determine source of metals contamination. (RI/FS-FY 96 to 98)

SITE #6/SITE#29

Defense Reutilization Marketing Office (DRMO)/Incinerator Site

Description: This storage yard covers an area of approximately 2 acres and served as a temporary storage area for materials prior to off-site disposal or recycling. This facility has been in operation for more than 30 years. The DRMO is located at the southern end of the Shipyard immediately adjacent to the Piscataqua River. Additionally, adjacent to the eastern end of the DRMO is an approximate 2 acre area which was used as an open burn landfill and later was the location of an incinerator. This site has been designated Site 29 and will be addressed along with the DRMO.

Waste Streams: Materials stored in the scrap yard included lead-acid and nickel-cadmium batteries of various types, as well as lead-acid Submarine battery elements, motors, typewriters, paper products and scrap metal as well as any other excess government property. The landfill and incinerator received all types of burnable industrial wastes from the Shipyard. **Historical Releases:** Contaminated soil and groundwater migrating off site to the Piscataqua River. Migration through the air from burning and contaminated soil.

Contaminants of Concern: SOILS: Metals: (Antimony, Arsenic, Beryllium, Cadmium, Lead, Mercury, Nickel, Zinc), PCBs, Pesticides, Semi-Volatile Organic Compounds (SVOCs), Polycyclic Aromatic Hydrocarbons (PAHs)
GROUNDWATER: Metals: (Arsenic, Beryllium, Cadmium, Chromium, Lead, Mercury), PCBs
SEDIMENTS AND SURFACE WATER: Addressed in the offshore operable unit.

Relative Risk: High Evident contaminant exposure to human and ecological receptors.

Current Status/Expected Cleanup: In 1993, an interim corrective measure was conducted at the DRMO which included capping and paving sections of the DRMO, installation of storm water controls, and installation of a new concrete curb. Additional site characterization is necessary to include the adjacent site (FY96/97). Possible remedial alternatives include: soil removal, capping, in situ stabilization, soil washing, and installation of a slurry wall (FY 02/03). Offshore studies which are being conducted separately are addressing sediment, biota, and offshore human health & ecological issues.

Site #29 Incinerator Site

Aerial photographs and written documentation reveal that the land beneath and around the Industrial Waste Treatment Plant was originally used for open pit and incinerator burning. By the 1950's the ash was being deposited in the Jamaica Island Landfill. Remediation of this site will be completed in conjunction with the DRMO site following additional characterization.

SITE #8 Jamaica Island Landfill (JILF)

Description: A former tidal flat area between Jamaica and Seavey Island which was landfilled. The landfill is located at the eastern end of the facility adjacent to the Piscataqua River. The landfill extends over an area of approximately 25 acres containing construction rubble and unknown amounts of materials containing hazardous waste and/or hazardous constituents. Operation of the landfill was from approximately 1945 to 1978. A portion of the landfill that accepted contaminated dredge spoils, has a clay barrier wall along the Piscataqua River and a 2 foot thick clay cap to prevent infiltration.

Waste Streams: In addition to construction/demolition debris, excavated materials, general rubble and trash the landfill accepted incinerator ash, plating sludges containing chrome, lead, and cadmium; volatile organics including TCE, methylene chloride, toluene and MEK; acetylene and chlorine gas cylinders; contaminated dredge spoils containing chromium, lead, small amounts of PCBs, mercury and possibly phenols; waste paints and solvents; and spent sandblasting grit. Waste oils containing PCBs may also have been disposed at the site prior to construction of a holding tank in 1972. Historical

Releases: Onshore studies have shown elevated levels of chromium, lead, nickel, copper, cadmium, and zinc along the face of the landfill. Offshore studies have been covered separately.

Contaminants of Concern: SOILS: Metals: (Beryllium, Zinc, Cadmium, Antimony, Copper, Nickel), PCBs, Pesticides, Volatile & Semi-Volatile Organic Compounds GROUNDWATER: Metals: (Arsenic, Beryllium, Cadmium, Copper, Nickel, Zinc), PCBs, Pesticides (DDT, DDD, DDE), Volatile & Semi-Volatile Organic Compounds, Polycyclic Aromatic Hydrocarbons (PAHs)
SEDIMENTS AND SURFACE WATER: Addressed in the offshore operable unit.

Relative Risk: High Evident contaminant exposure to human and ecological receptors.

Current Status/Expected Cleanup: A Draft Feasibility Study (FS) Report has been submitted to the EPA, MEDEP, and RAB members. A groundwater/surface water modeling effort is being developed to help determine if groundwater remediation is necessary. Possible remedial alternatives include: institutional controls, capping (soil cap or RCRA Subtitle C cap), slurry wall (FY 99, 00, 01).

SITE #9 Mercury Burial Sites I & II

Description: Two sites located within SITE #8, Jamaica Island Landfill, which contain mercury waste encased in concrete vaults. The period of operation was from 1973 to 1975. Mercury Burial Site I (MBS I) is located at the east end of JILF adjacent to the Piscataqua River while Mercury Burial Site II (MBS II) is located at the southwest end of JILF.

Waste Streams: Mercury contaminated wastes including fluorescent bulbs, thermometers, mercury switches and dials, rags, brooms, and dust pans contaminated with mercury and small quantities of elemental mercury. **Historical Releases:** In the summer of 1994, MBS I, was excavated and the concrete blocks were found to be in good condition. No mercury levels were found to exceed background. Several attempts have been made to find MBS II, but efforts to locate the vaults were not successful.

Contaminants of Concern: **SOILS:** Mercury levels were found below the Media Protection Standards (MPS) as well as below levels found within the JILF. This indicates that there has been no release of mercury from this site. **GROUNDWATER:** No indication of release of mercury from SITE #9.

Relative Risk: Medium Potential contaminant exposure to human and ecological receptors due to proximity to river.

Current Status/Expected Cleanup: This site is included in the Jamaica Island Landfill operable unit. Possible remedial alternatives which would be completed in conjunction with remediation of the landfill are: institutional controls, removal and off-site disposal.

SITE #11 Waste Oil Tanks

Description: This unit consists of two 8,000-gallon underground storage tanks (buried railroad tank cars) of steel construction . The tanks are buried side by side at the northeastern end of the Jamaica Island Landfill Area. The tanks are used to store a variety of used oils and other oily wastes prior to offsite disposal.

Waste Streams: Waste oils consisting of the following : cooling and cutting, motor, transmission, and hydraulic oils. **Historical Releases:** Spillage and overfilling of the tanks caused contamination of the surrounding soil. The tanks were removed and excavated in 1989.

Contaminants of Concern: SOILS: Metals: Lead, GROUNDWATER: Metals, Volatiles plus Freon, Semivolatiles, Pesticides/PCBs,

Relative Risk: High Evident migration of contaminated groundwater.

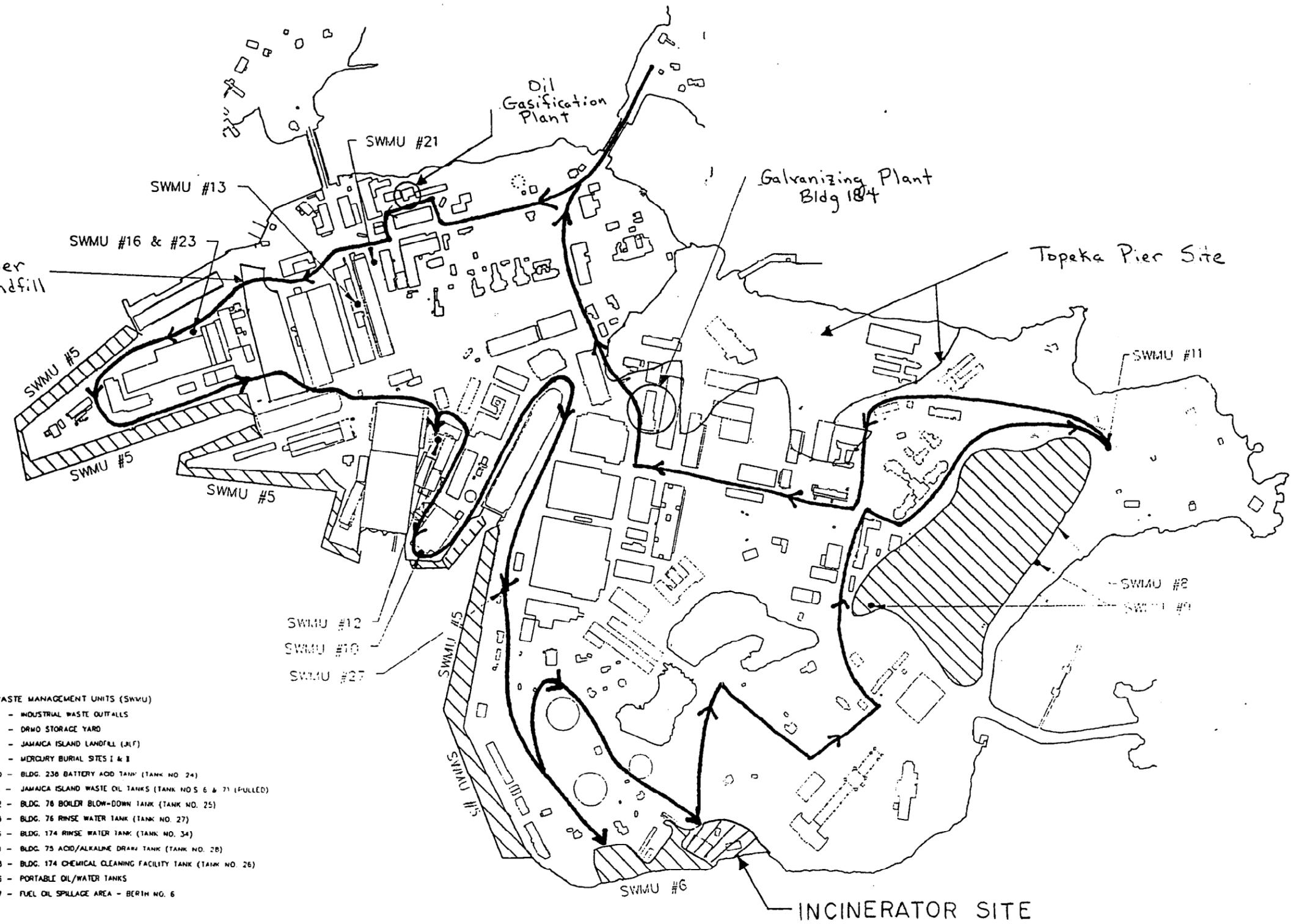
Current Status/Expected Cleanup: This site will be included with the Jamaica Island Landfill operable unit. Possible remedial actions include: institutional controls, soil removal with off-site disposal, cap along with JILF, groundwater hotspot treatment.

Site #32 - Topeka Pier Site

The area underlying buildings 237, 154, 306, 129, 158 and H-23 was previously a salvage yard prior to 1920. This area was also once used as a timber basin and then landfilled.

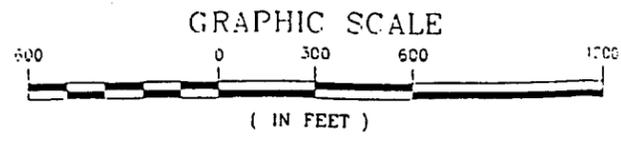
Site #30 - Galvanizing Plant, Building 184

Constructed in 1943 as a Galvanizing Plant, Building 184 was closed after WW II and most equipment removed. In 1946 the building was used by the Electrical Manufacturing Department for storage of test equipment, molds and dies for electrical equipment. In the late 1950's the space was converted into an area for the cleaning piping with the use of such chemicals as sulfuric acid. In the early 1960's the area was converted into the present day Welding School and Laboratory. Concern about this site began due to an efflorescence appearing at the wall/floor joint in the building.



- SOLID WASTE MANAGEMENT UNITS (SWMU)
- SWMU #5 - INDUSTRIAL WASTE OUTFALLS
 - SWMU #6 - DRUM STORAGE YARD
 - SWMU #8 - JAMAICA ISLAND LANDFILL (JILF)
 - SWMU #9 - MERCURY BURIAL SITES I & II
 - SWMU #10 - BLDG. 238 BATTERY ACID TANK (TANK NO. 24)
 - SWMU #11 - JAMAICA ISLAND WASTE OIL TANKS (TANK NOS 6 & 7) (FILLED)
 - SWMU #12 - BLDG. 78 BOILER BLOW-DOWN TANK (TANK NO. 25)
 - SWMU #13 - BLDG. 76 RINSE WATER TANK (TANK NO. 27)
 - SWMU #16 - BLDG. 174 RINSE WATER TANK (TANK NO. 34)
 - SWMU #21 - BLDG. 75 ACID/ALKALINE DRAIN TANK (TANK NO. 28)
 - SWMU #23 - BLDG. 174 CHEMICAL CLEANING FACILITY TANK (TANK NO. 26)
 - SWMU #26 - PORTABLE OIL/WATER TANKS
 - SWMU #27 - FUEL OIL SPILLAGE AREA - BERTH NO. 6

NOTE:
DRAWING NOT INTENDED FOR DESIGN OR ENGINEERING PURPOSES



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		DATE: 03-16-93 APP'D:	DRAWING NO. FIGURE 1-3