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RESOURCE CONSERVATION AND RECOVERY ACT FACILITY ASSESSMENT OF NS MAYPORT FL

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A T KEARNEY

RCRA FACILITY ASSESSMENT

OF THE

NAVAL STATION MAYPORT
JACKSONVILLE, FLORIDA

EPA I.D. NO. FL9170024260

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RCRA FACILITY ASSESSMENT
NAVAL STATION MAYPORT
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TABLE OF CONTENTS

LIST OF ATTACHMENTS

LIST OF FIGURES

LIST OF FIGURES
(cont.)

LIST OF TABLES

I. EXECUTIVE SUMMARY

The 1984 Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA) authorize the U.S. Environmental Protection Agency (EPA) to require corrective action for releases of hazardous wastes and/or hazardous constituents from solid waste management units (SWMUs) and other areas of concern (AOCs) at all operating, closed, or closing RCRA facilities. The intent of this authority is to address previously unregulated releases to air, surface water, soil and groundwater, and from the generation of subsurface gas. One phase of the corrective action program as established by EPA is performance of a RCRA Facility Assessment (RFA). The RFA includes a Preliminary Review (PR) of all available relevant documents, a Visual Site Inspection (VSI), and, if appropriate, a Sampling Visit (SV).

This report summarizes the results of the PR and VSI phases of the RFA for the Naval Station Mayport facility in Jacksonville, Florida. The findings in the report are based on a review of files provided by EPA Region IV in Atlanta, Georgia and files obtained from the Florida Department of Environmental Regulation (FDER) office in Jacksonville, Florida and the City of Jacksonville Bio-Environmental Services Division (BESD), and a VSI performed June 26-29, 1989. In addition, information was obtained from the facility during the VSI. Fifty-six (56) SWMUs, including sixteen sites identified in an Initial Assessment Study conducted under the Navy Installation Restoration Program (NIRP), have been identified at the facility. Two (2) AOCs have also been identified as a result of this assessment. Figure I-1, the Site Plan, illustrates the locations of these SWMUs and AOCs.

This report is organized under six chapter headings and contains two attachments. As specified in the Work Plan for this project, the organization of the report is based on: (1) the March 21, 1988 memorandum to the Florida/Georgia Unit Staff of U.S. EPA Region IV entitled, "RCRA Facility Assessment Reports", and (2) the RCRA Facility Assessment for USAF Patrick Air Force Base, dated February 23, 1989. Chapter II of this report provides background information concerning the facility which addresses the following topics: facility description; waste generation and management; history of

releases; and environmental setting. Chapter III summarizes the ongoing planned corrective actions at the facility. Chapter IV summarizes the findings and conclusions of the assessment. Recommendations for further action are included in Chapter V. The references and file material reviewed during this assessment are listed in Chapter VI. A summary of the VSI and a photograph log showing facility conditions at the time of the VSI are included in Attachment A.

II. BACKGROUND

Facility Description

The Mayport Naval Complex (Mayport) is located within the corporate limits of the City of Jacksonville, Florida, although it is approximately twelve miles to the northeast of the downtown Jacksonville area. Figure II-1 illustrates the location of Mayport within the State of Florida. The complex is located on the northern end of a peninsula that is bounded by the Atlantic Ocean to the east and the Saint Johns River to the north and west. The Mayport complex occupies the entire northern part of the peninsula except for the town of Mayport, which is on the Saint Johns River and is completely surrounded by the River and the Mayport Complex. The complex consists of approximately 3,400 acres (of which 1,666 acres are covered by marshes) and it is located to the west of and separated from the main portion of the facility by the Mayport Road. Mayport Basin is an improved bay that is surrounded on all sides with ship piers and is located at the northern end of the peninsula. A site map for Mayport is included as Figure II-2.

The Mayport Naval Complex houses two Naval installations: Naval Station Mayport which supports the surface fleet, and Naval Air Station Mayport which supports naval air operations. The support operations at the base, such as the Public Works Department, provide support for both the Naval Station and the Air Station. The Naval Station facilities are located in the northern areas of the facility near the basin, and the Air Station facilities are located in the central western areas near the runways.

Mayport employs approximately 20,000 active duty personnel and 3,000 civilian employees. Mayport is the fourth largest Navy home port in the United States. Currently, two aircraft carriers, destroyers, frigates, one destroyer tender and three minesweepers are ported at Mayport. The Naval Air Station is home to four helicopter squadrons, and there are approximately 200,000 take-offs and landings on the 8,000 foot runways per year.

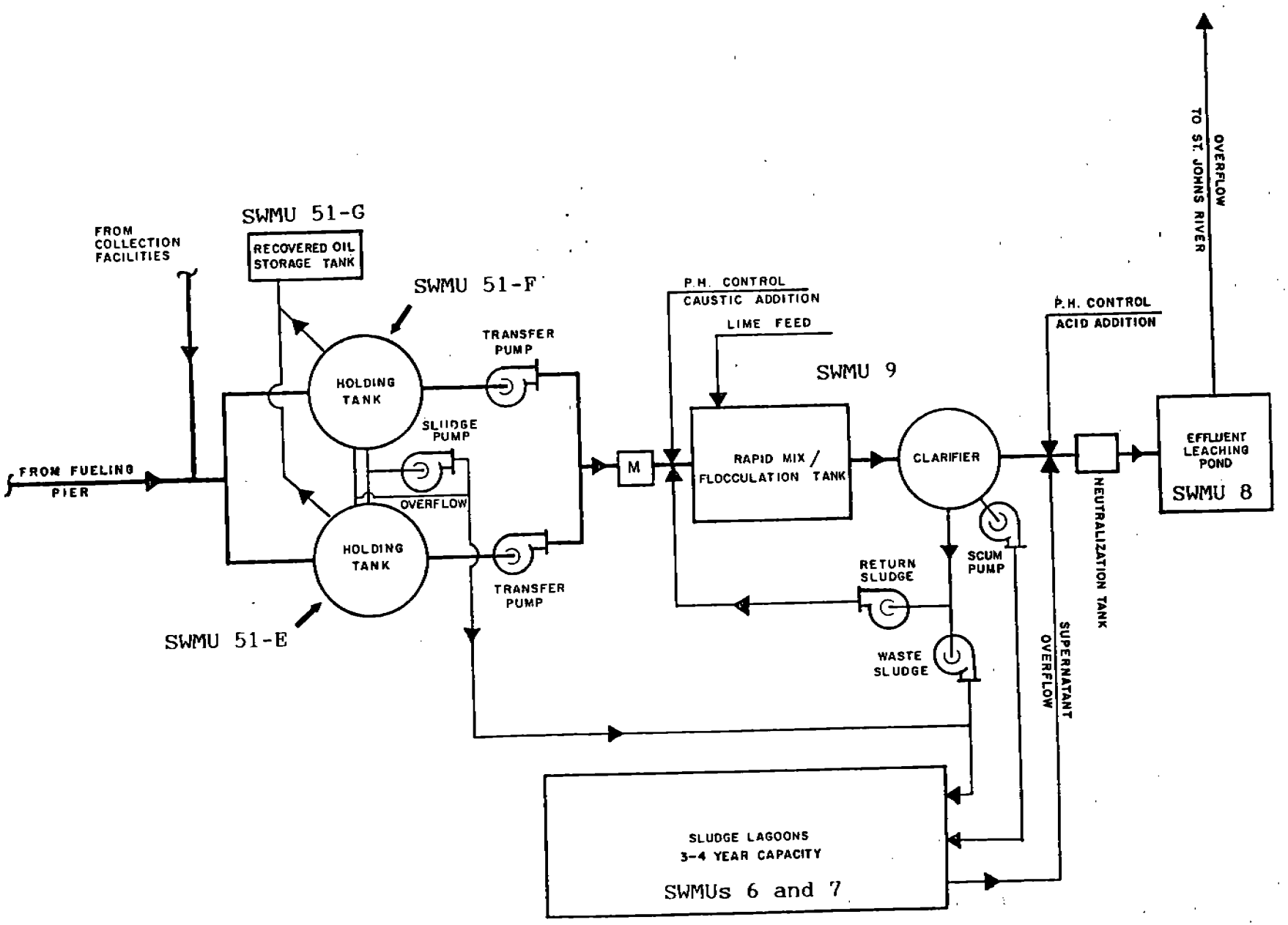


FIGURE II-4: PROCESS FLOW DIAGRAM, OILY WASTE TREATMENT PLANT (SWMUs 7-9, 51-E, F, and G) (REFERENCE 92)

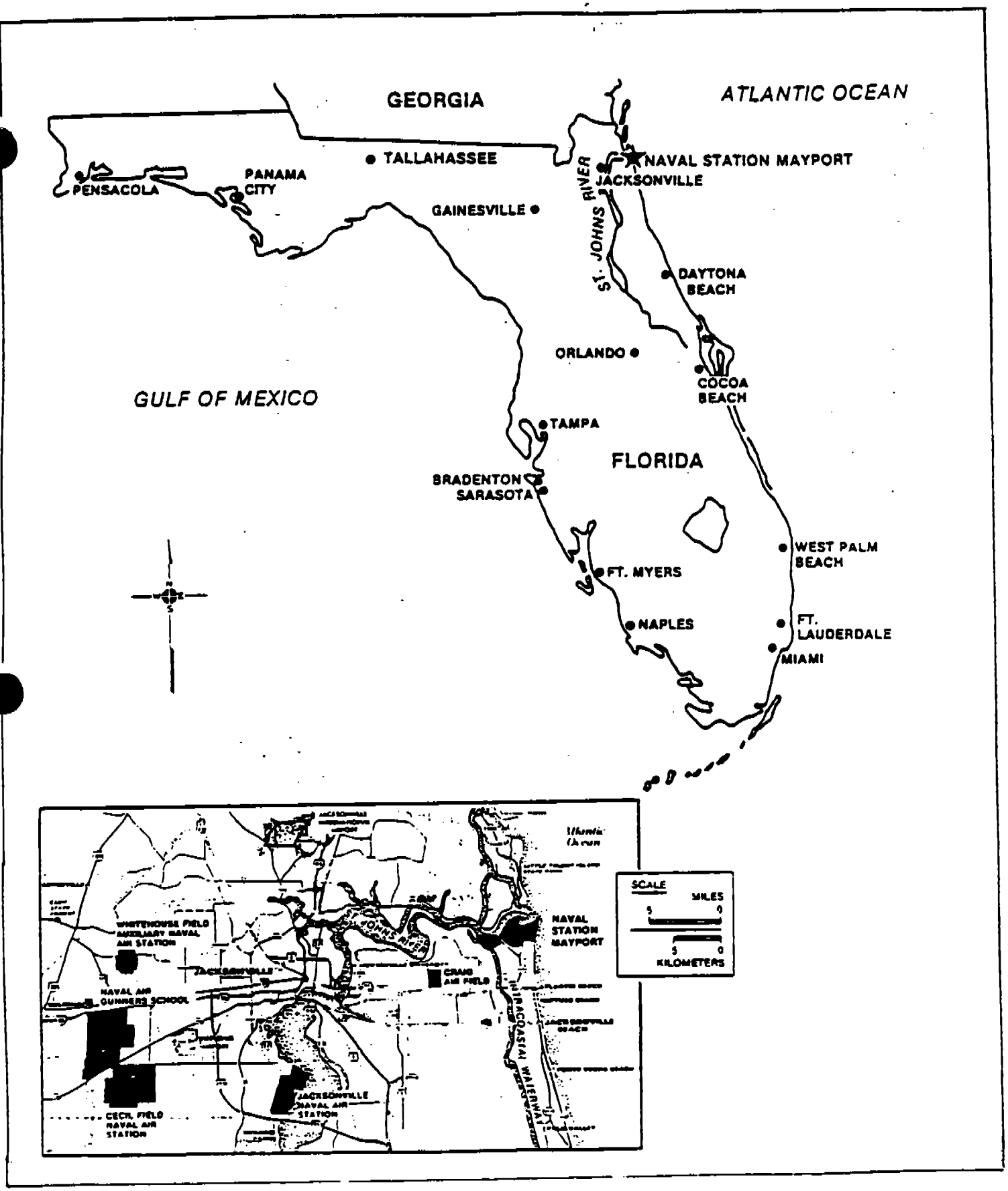
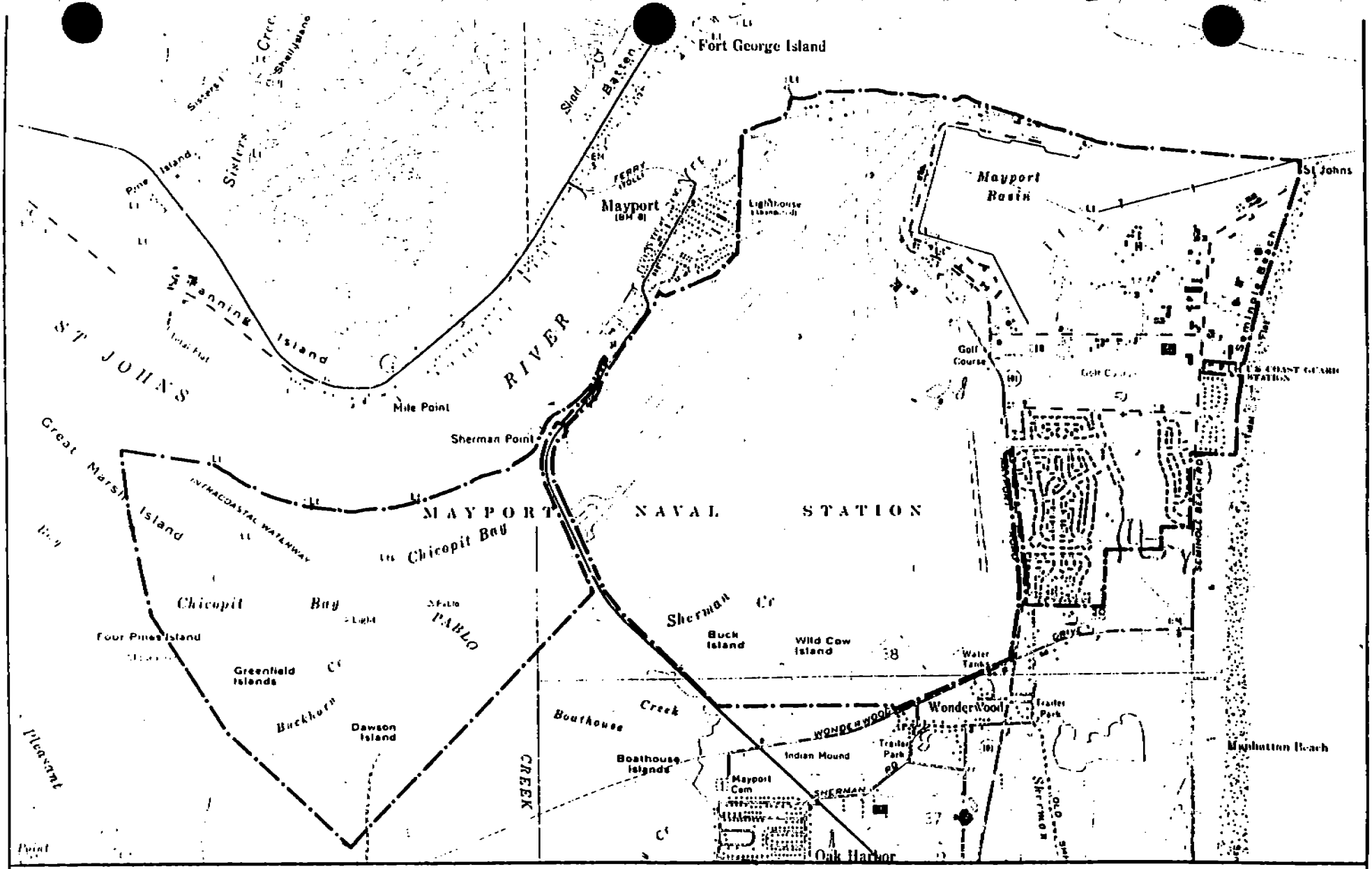


FIGURE II-1: LOCATION MAP OF NAVAL STATION MAYPORT, FLORIDA (REFERENCE 34)



SCALE IN FEET

0 2500 5000

INSTALLATION BOUNDARY

N

SOURCE: U.S.G.S. 7.5 MINUTE QUADRANGLE MAYPORT, FL, PHOTOREVISED 1982, AND U.S.G.S. 7.6 MINUTE QUADRANGLE JACKSONVILLE BEACH, FL., PHOTOREVISED 1981.

E.C. JORDAN CO. ENGINEERS & SCIENTISTS	SITE LOCATION MAP
U.S. DEPARTMENT OF THE NAVY	NIRP EXPANDED SITE INVESTIGATION
U.S. NAVAL STATION MAYPORT, FLORIDA	5097-06

FIGURE II-2: MAYPORT SITE MAP

of solid waste management. Regulatory activity concerning Mayport has been conducted largely by the Florida Department of Environmental Regulation (FDER), although both U.S. EPA Region IV and the City of Jacksonville Bio-Environmental Services Division (BESD) have also been involved.

Based on the information obtained from BESD (Reference 2), there are currently nine air emissions sources that are permitted at Mayport, including the following:

1) Carbonaceous Fuel Boiler
2) Building 250 Boiler No. 1
3) Building 250 Boiler No. 2
4) Building 1241 Boiler No. 1
5) Building 1241 Boiler No. 2
6) Building 1241 Boiler No. 3
7) New Firefighting Training Area
8) Classified Waste Incinerator
9) Hot Water Boiler.

Many of the operations that are conducted at Mayport that might emit materials to the air are excluded from regulation under the Florida air emissions control program, including surface coating of the exterior of airplanes, marine vessels, automobiles, light duty trucks, and large appliances (Reference 20). A listing of environmental permits at Mayport that was likely completed in August of 1985 listed four air emissions permits issued by FDER; A016-17873 (expired 1985), A016-65591 (expired 1988), A016-65594 (expired 1988), and A016-74130 (expired June, 1989) (Reference 26). No additional information concerning regulation of air emissions at Mayport was found in the files reviewed.

Regulation of surface water discharges at Mayport is more fully documented in the files reviewed. There are two NPDES-regulated discharges at the complex; one from the Oily Waste Treatment Plant (OWTP) (SWMUs 8, 9) into the Saint

Johns River, and one from the Wastewater Treatment Facility (WWTF) (SWMUs 43, 44), also into the Saint Johns River. There is more information for the OWTP which is regulated by FDER as an Industrial Waste Treatment plant. FDER issued Mayport Permit No. IO16-44723 to construct/operate the OWTP in February of 1982. Later correspondence suggests that Mayport applied for a temporary operation permit for the OWTP (No. IT16-144214), and for a construction permit to add a DAF unit to the facility (No. IC16-155209) (References 6, 9, 22, 29). The current status of these permit applications is not known at this time.

U.S. EPA issued NPDES discharge permit No. FL0033308 for the OWTP in September of 1983, which was scheduled to expire on September 11, 1988 (References 28, 77, 80). This permit required monitoring of the plant effluent for oil and grease. A letter from Mayport to FDER noted that an application for renewal of NPDES Permit No. FL0033308 was submitted to U.S. EPA on October 20, 1988 (Reference 22). The OWTP NPDES permit allowed discharge of a concentration of 10 mg/l monthly average and 15 mg/l daily maximum oil and grease. According to Reference 43, the facility violated the 10 mg/l standard for six months during the time period from April 1986 through March 1987, and 17% of all samples had oil and grease concentrations greater than the 15 mg/l maximum. No further information concerning application for renewal of this permit was found in the files.

U.S. EPA issued NPDES permit No. FL0000922 for the Wastewater Treatment Facility on January 5, 1980. This permit was scheduled to expire on June 5, 1985 (Reference 75). There was no documentation found in the files, but the facility representative indicated that the permit had been renewed (References 101, 103). Although no documentation of specific violations for noncompliance with NPDES limits at Mayport was found in the files, Reference 46 noted that during 1986-1987 there had been several violations of TSS, fecal coliform, and total residual chlorine for the Wastewater Treatment Facility effluent.

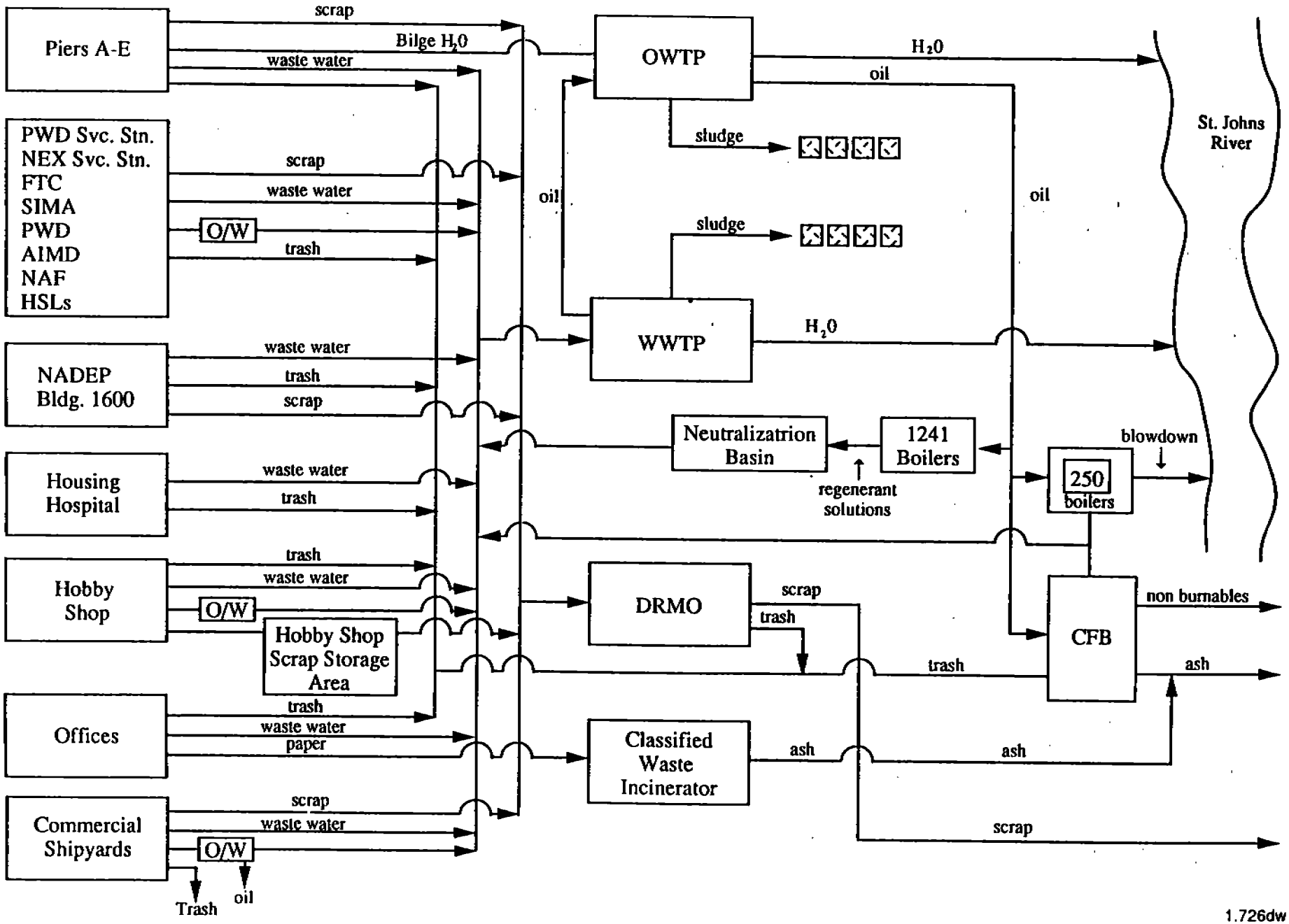
Storm water discharges from the Storm Sewer System (SWMU 55) and from uncollected run-off at Mayport are not currently regulated under the NPDES program.

Regulatory activity under the hazardous waste program was well documented in the files. Mayport submitted a Part A Application in December of 1982 which included container storage of five spent solvent listed wastes (F001, F002, F003, F004, and F005), one electroplating wastewater treatment sludge (F007), ignitable, corrosive, and five EP toxicity characteristic wastes, and eight listed commercial chemical products (U listed wastes). FDER issued Mayport a permit (No. HC16-64635) to construct the current hazardous waste container storage facility in 1983. This permit expired in 1988. FDER then issued Mayport a permit (No. HO16-118598) to operate the current container storage facility on March 2, 1988. This permit will expire on March 1, 1993 (References 26, 37).

U.S. EPA issued Mayport a federal hazardous waste storage permit on July 26, 1983. This orginal EPA permit expired upon issuance of the federal HSWA permit and the FDER operating permit in March of 1988. U.S. EPA issued Mayport HSWA Permit No. FL9-170-024-260 on March 25, 1988, which requires that corrective action, and specifically a RCRA Facility Investigation (RFI), be conducted. The permit identified seventeen SWMUs which were to be included in the RFI. Ten of the SWMUs listed were sites that the Navy previously had identified as sites requiring further investigation in the first phase of its Navy Installation Restoration Program (NIRP), the Initial Assessment Study (IAS). Further investigation of these SWMUs was conducted under the second phase of the NIRP program which is called the Expanded Site Investigation (ESI). Two of the SWMUs listed in the HSWA permit were sites identified in the IAS that the Navy had determined did not require further action, and five of the SWMUs listed were not included in the NIRP program at all. The SWMUs for which an RFI was required in the HSWA permit are listed in Table II-1, and the status of each site under the NIRP Program is identified (References 34, 36, 66).

Mayport submitted an RFI Work Plan in July of 1987 as required by the HSWA permit (Reference 47). A technical review of the work plan conducted by the U.S. EPA contractor indentified deficiencies in the work plan (Reference 21). At the time of this writing, the Navy is updating the RFI work plan to include the NIRP work conducted to date, and plans to submit a revised work plan to EPA in January of 1990.

Figure II-3: Generalized Waste Flow, Mayport Naval Station



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All wastewater generated at Mayport can be divided into three types of waste streams that are managed through three different waste management systems. The three types of wastewaters generated are:

1) Bilge water off-loaded from ships in port;
2) Domestic sewage and other wastewater; and
3) Storm water run-off.

Water and other liquids that collect in the bilges of Navy ships are normally discharged into the ocean, usually after treatment in an on-board oil water separator. However, under the Clean Water Act, liquids may not be discharged within the 12 mile limit of U.S. waters. To comply with this limitation, ships coming into port do not discharge bilge water but collect it until reaching port. Bilge waters are also generated while ships are docked in Mayport Basin. At Mayport, bilge water may be off-loaded in one of three ways. The bilge water may be pumped using inductor pumps into one of the 47 risers located on the piers which connect to the Oily Waste Collection System (OWCS) (SWMU 47). The bilge water is then pumped through the OWCS pipelines to the Oily Waste Treatment Plant (OWTP) (SWMUs 7-9) for treatment. If, for some reason, it is not possible to utilize the OWCS, bilge water may be off-loaded to barges that transport the bilge water to a riser connected to the OWCS at a pier at the Naval Supply Center fuel farm area, or the bilge may be pumped to floating oil water separators known as doughnuts. From the doughnuts the separated oil is off-loaded to the OWCS and the effluent is discharged to the Mayport Basin.

The OWTP system consists of three 210,000-gallon holding tanks (SWMUs 51-E, F, and G), a physical/chemical treatment system (SWMU 9), a percolation pond (SWMU 8) and four drying beds (SWMUs 6 and 7). Figure II-4 presents a flow diagram for the OWTP system. Oil separated from the bilge water is burned in on-site boilers or the Carbonaceous Fuel Boiler (SWMU 17). Effluent from the OWTP is discharged into the Saint Johns River in the NSC fuels farm area. The discharge is regulated under NPDES Permit No. FL0033308.

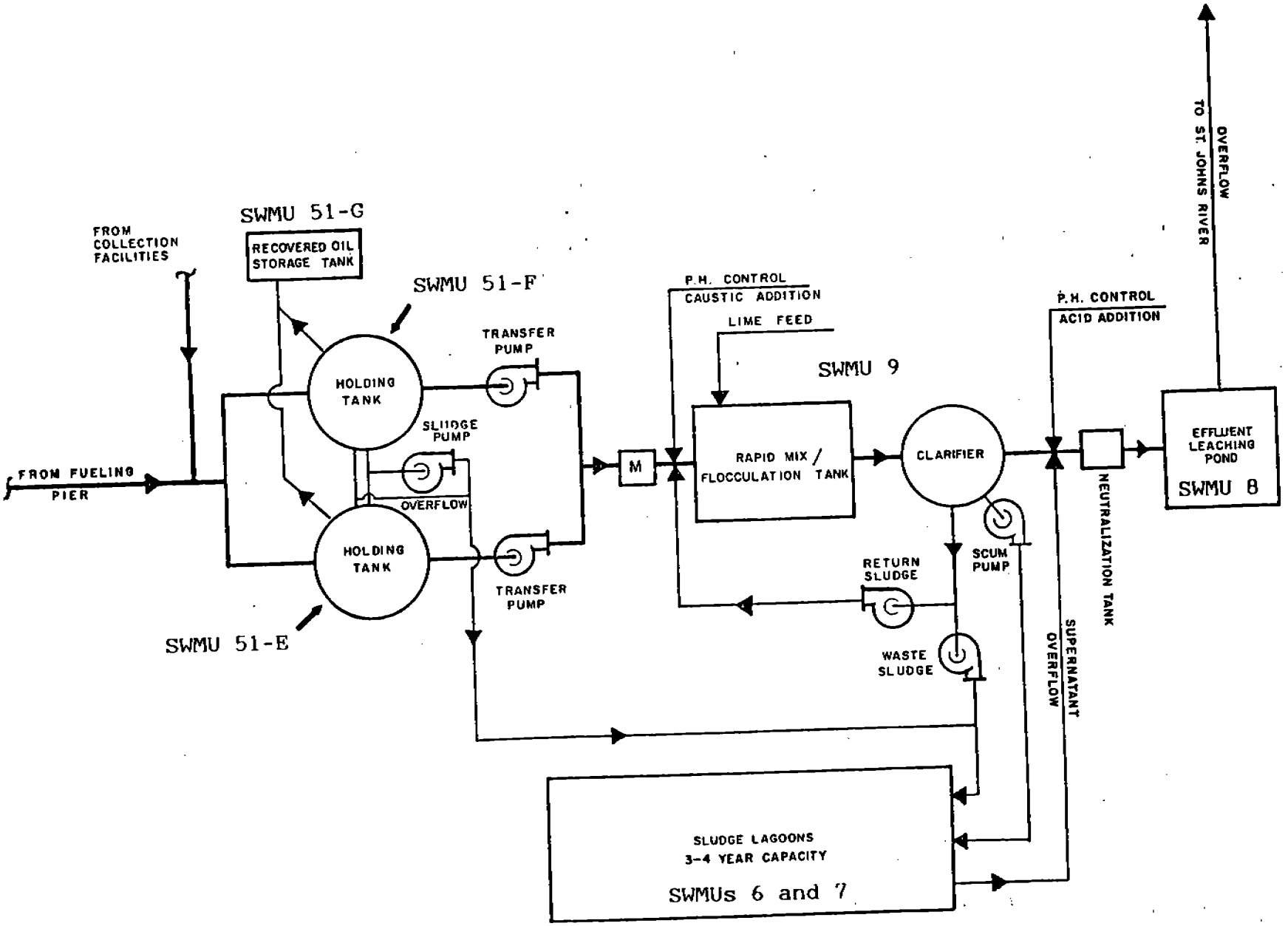


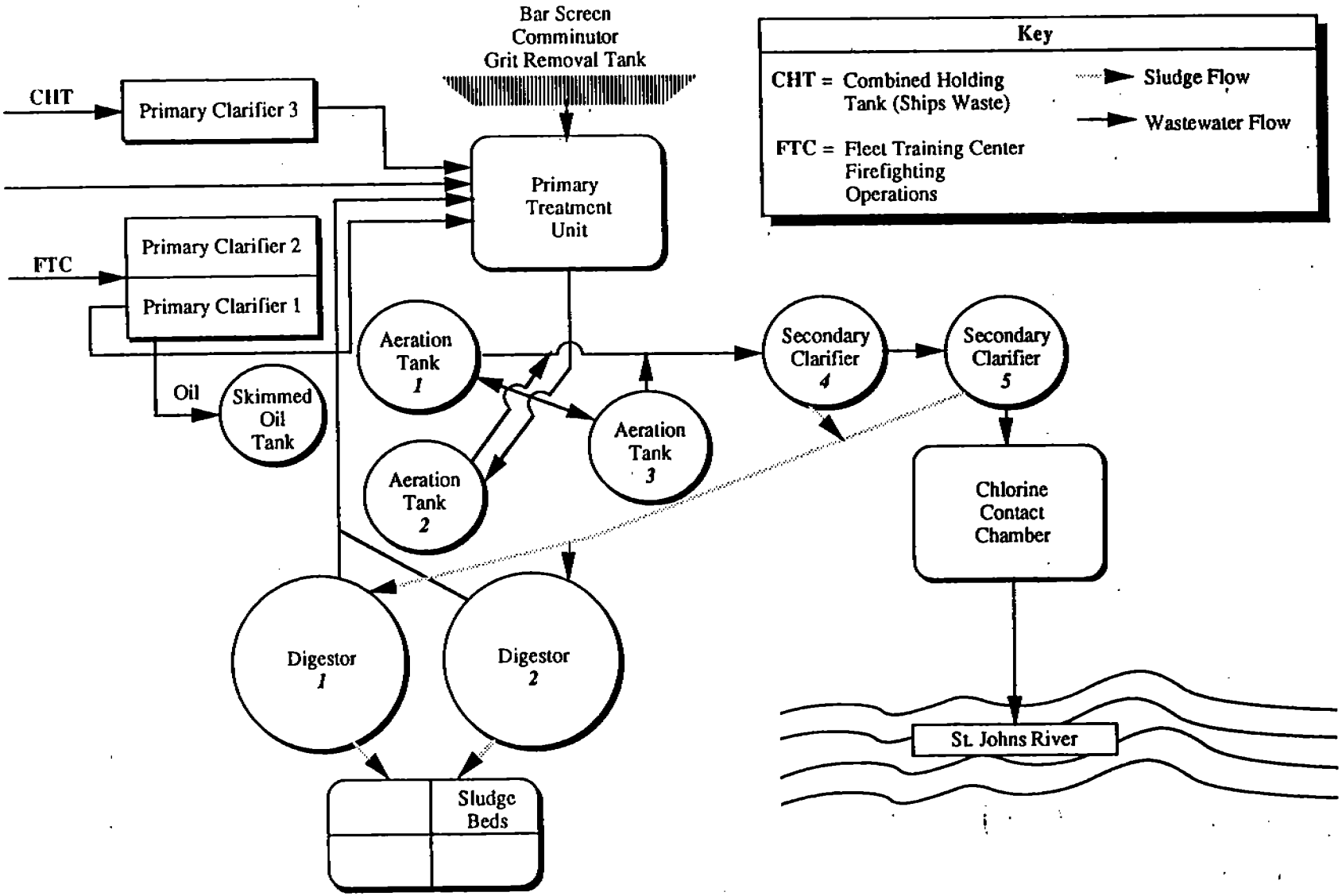
FIGURE II-4: PROCESS FLOW DIAGRAM, OILY WASTE TREATMENT PLANT (SWMUs 7-9, 51-E, F, and G) (REFERENCE 92)

The second type of wastewater generated at Mayport includes domestic sewage generated from on-station housing and other buildings, domestic-type wastewater generated on board ships while in port and stored on board after passing the 12-mile limit returning to port, wastewater generated in firefighting training at the Fleet Training Center (FTC), and wastewater generated from the repair and maintenance activities conducted at Mayport (Reference 46). These wastewaters are all collected through the domestic sewer line system (SWMU 53). Some of the industrial wastewaters are treated through Oil Water Separators (SWMU 54) before entering the sewer system. All of the domestic and other wastewaters received through the sewer system are treated at the domestic Wastewater Treatment Facility (WWTF) (SWMU 43-45). Figure II-5 presents a flow diagram of the WWTF. The wastewater from the FTC is treated in clarifiers 1 and 2 at the WWTF (SWMU 44) to separate oil prior to entering the WWTF. Oil separated from these clarifiers is collected in a holding tank (SWMU 51-V), and transported to the OWTP. Sludge generated in the WWTF is pumped to the WWTF Sludge Drying Beds (SWMU 45), from which it is periodically transported off-site for disposal. The effluent from the WWTF is discharged to the Saint Johns River at the mouth of Mayport Basin. The discharge is regulated under NPDES Permit No. FL0000922.

The third type of wastewater generated at Mayport is stormwater run-off. From most areas of Mayport, stormwater run-off flows to storm water sewers and ditches (SWMU 55) which discharge to natural drainage-ways or to other water bodies. Figure II-6 illustrates the drainage ditches and natural drainage-ways and shows the direction of flow for each. Stormwater ditches and sewers discharge to the Saint Johns River, Mayport Basin, Lake Wonderwood and Sherman Creek. The locations of storm sewers are illustrated in Reference 76 but these drawings have not been updated recently and the locations of discharge points could not be provided by the facility. Stormwater discharges at Mayport are not currently regulated under the NPDES program.

Solid waste generated at Mayport is collected in dumpsters that are located throughout the station. The trash disposed of in dumpsters is collected and taken to the Carbonaceous Fuel Boiler (CFB) in Building 1430 (SWMU 17), which is similar to a municipal waste incinerator. At the CFB, non-burnable

Figure II-5: Process Flow Diagram, Wastewater Treatment Facility (SWMUs 43-45)



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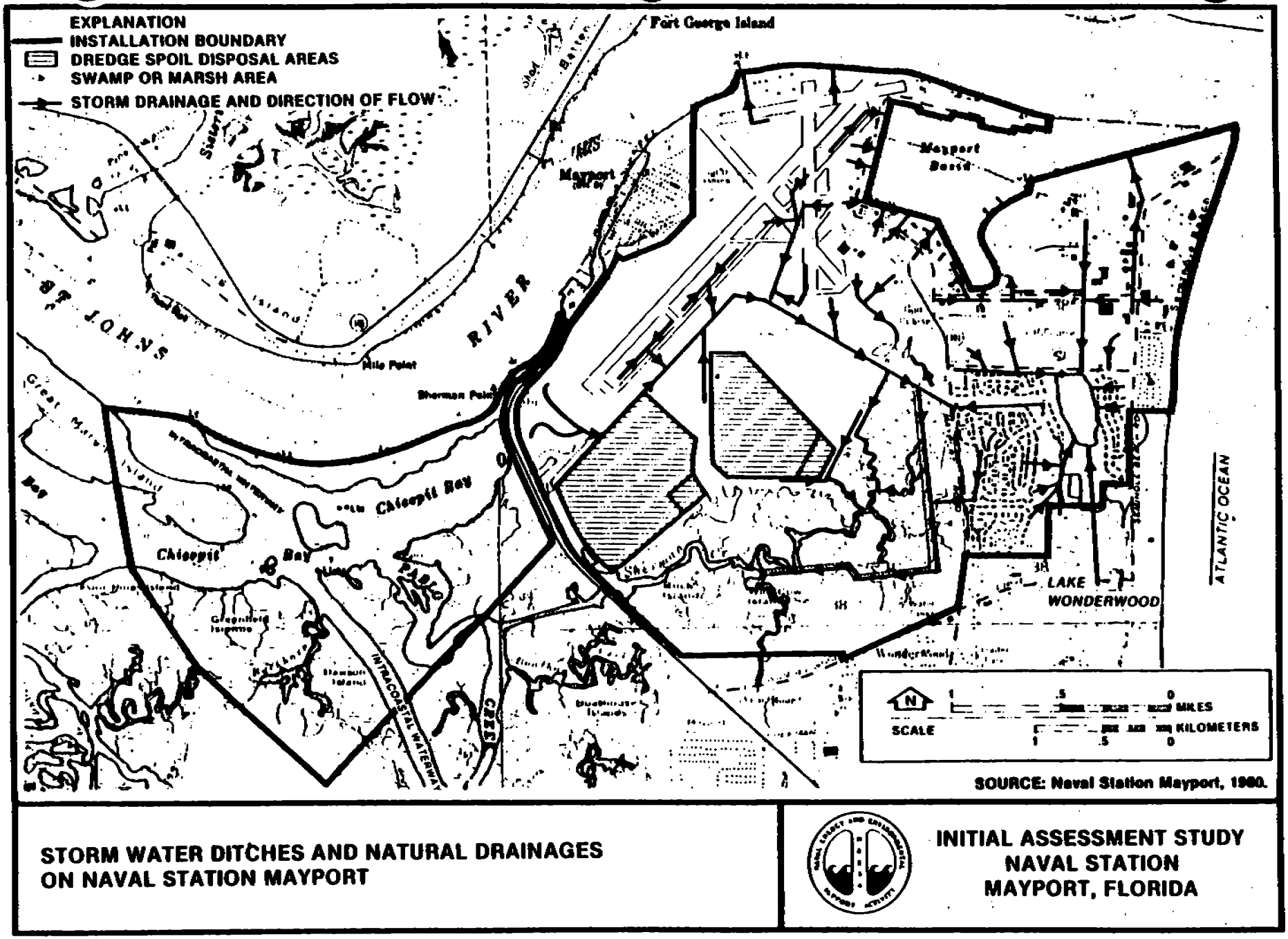


FIGURE II-6: STORM WATER DITCHES AND NATURAL DRAINAGES ON NAVAL STATION MAYPORT (SWMU 55) (REFERENCE 66)

materials are separated out of the trash and the remainder is burned in the boiler. The CFB also burns reclaimed oil from the OWTP which is stored in two 6,000-gallon underground tanks (SWMUs 51-Q and R), and generates steam which is used to supply ships while they are in port. Wet bottom ash from the CFB is collected in a roll-off box prior to off-site landfill disposal. Dry fly ash collected in a dust collector and cleaned weekly out of the secondary combustion chamber is stored in a second roll-off box prior to off-site landfill disposal (Reference 94).

Classified documents are burned in a small Classified Waste Incinerator located in Building 1601. Fly ash from this incinerator is taken to Building 1430 and transported off-site for disposal with the CFB ash.

Scrap metal generated throughout Mayport in the process of maintenance and repair operations is collected in dumpsters labeled "metal only." The scrap is collected by the Defense Reutilization and Marketing Organization, taken to the DRMO storage yard (SWMU 28), and eventually sold or disposed of off-site. Asbestos waste generated throughout Mayport is double bagged, collected by the Public Works Department, and stored temporarily in labelled dumpsters located just to the north of the OWTP sludge drying beds (SWMUs 6 and 7) prior to off-site disposal. PCB-containing wastes generated throughout Mayport are collected by the Public Works Department, stored for less than 180 days in drums on the southwest side of the fenced area outside the RCRA Hazardous Waste Storage Building (fenced area and building are SWMU 10), and sent off-site for disposal.

Hazardous waste is generated at Mayport in the process of maintenance and repair operations which include engine repairs, parts cleaning, degreasing, stripping, machining, cutting, metal casting, sand blasting, coating, painting, electroplating, repair and maintenance of electronic equipment, battery replacement, and replacement of oils (hydraulic, lube, engine, compressor, and transmission oils). In general, operations conducted outdoors at Mayport present a greater likelihood of releases of wastes to the environment than do operations conducted indoors. Sandblasting (SWMU 15, 19, 21, 23) and painting (SWMU 21) operations were found to be of particular concern.

Organizations generating hazardous waste include the following (Reference 100):

Fleet Training Center (Buildings 1456, 1388)
Aircraft Intermediate Maintenance Division (Building 1533)
Ship Intermediate Maintenance Activity (Building 1488)
Harbor Operations
Public Works Department (Buildings 12, 38, 148)
Hobby Shop (Building 414)
Naval Exchange Service Center (Building 255)
Helicopter Squadrons 40, 42, (Building 1552)
Helicopter Squadron 36 (Building 1343)
North Florida Shipyards
Jacksonville Shipyards
Atlantic Marine
Naval Avionics Depots (NADEP) (Bldgs. 1470 and 1471)
Navy Ships at Piers A-E
Helicopter Squadron 44 (Building 1344)
Naval Supply Center (Building 191)
NAVSECGRUDET
Fast Sea Lift Command
ISSOT/Spare Parts

For each organization, an individual is assigned and trained as Hazardous Waste Coordinator (HWC). Each organization is responsible for collecting hazardous waste from the point of generation, packaging and labeling the waste, and accumulating the waste in a designated less-than-90-day hazardous waste accumulation area (SWMUs 31-42, 56). The HWC is responsible for notifying the Public Works Department when a pick-up is required. Public Works then picks up the hazardous waste and transports it to the permitted RCRA Hazardous Waste Storage Building, or to the fenced less-than-90-day accumulation area surrounding the building (building and fenced area are SWMU 10). The Public Works Department staff then schedules pick-ups with DRMO who provides a transporter to ship the waste to an off-site RCRA hazardous waste management facility (Reference 100).

Permanent hazardous waste accumulation areas at Mayport include the following:

FTC OBA Accumulation Area (SWMU 31)
FTC Mercuric Waste Accumulation Area (SWMU 32)
SIMA Accumulation Areas (SWMU 33)
Hobby Shop Accumulation Area (SWMU 34)
NADEP Accumulation Area (SWMU 35)
Carrier Pier Accumulation Areas (SWMUs 36-38)
PWD Paint Shop Accumulation Area (SWMU 39)
Bldg 1343 Accumulation Area (SWMU 40)
Bldg. 1600 Accumulation Area (SWMU 41)
AIMD Building 1553 Accumulation Areas (SWMU 42)
Bldg. 1552 Accumulation Area (SWMU 56)
Carbonaceous Fuel Boiler Accumulation Area (SWMU 17)

Hazardous waste generated at Mayport can generally be classified into the following four waste types:

1) Paint wastes
2) Halogenated solvents
3) Non-halogenated solvents
4) Acids

Table II-2 is a list of hazardous materials typically used on Navy Ships that may eventually become wastes and be off-loaded for management by Mayport. Appendix B includes a list of hazardous materials stocked by the Mayport materials supplier, the Naval Supply Center. These materials used at Mayport may eventually become wastes (Reference 100). Waste oils are generated by most of the maintenance and repair organizations, and are often also accumulated in the hazardous waste accumulation areas. Waste oils are collected by the Public Works Department and taken to the OWTP for treatment. Some organizations at Mayport contract separately to have waste oil picked up and taken off-site for management, including the three commercial shipyards, the PWD service station, and the Naval Exchange service center.

TABLE II-2: HAZARDOUS SHIPBOARD MATERIALS (REFERENCE 100)

Hazardous Material	EPA HW No.
Acetic acid, conc.	D002
Acetic acid, glacial	D002
Acetone	U002
Adhesive, lagging	D001
Adhesives, other	D001
Alodine (chromic acid)	D007/D002
Ammonia solution	D002
Aniline	U012
Battery acid (surfuric)	D002
Boiler passivator (oxalic acid)	D002
Chromium plating solution	D007/F007
Cleaning solvents	D001
Cleaning/degreasing compound	F001
Copper acetoarsenite	D004
Descaling comp'd. (NOAH)	D002
Disodium phosphate	D002
Etching solution	D002/D011
Ethyl acetate	U112
Ethyl butanol	D001
Film developing chem.	D011
Film fixers	D011
Formic acid	D002
Methyl ethyl ketone	F005
Naptha	D001
Nickel plating sol'n.	F007
Paint removers	F004/D002
Paints	D001
Perchloroethylene	F001
Silver plating sol'n.	F007
sodium hydroxide sol'n.	D002
Sodium nitrate	D001
Sodium nitrate flux	D001
Sulfamic acid	D002
Sulfuric acid	D002
Tin plating sol'n.	D002
Toluene	U220/F003
Trichloroethane	F001/U226
Trichloroethylene	F002/U228
Trichlorotrifluoroethane	F001
Trisodium phosphate	D002
Varnish	D001
Xylene	U239/F003
Zinc plating sol'n.	D002

Source: EPA Hazardous Waste Storage Facility Permit Application

History of Releases

There were two types of releases of materials to the environment at Mayport documented in the files reviewed for this report. The first type includes the NIRP sites and other SWMUs. The NIRP sites were first identified as solid waste disposal/release sites through earlier reports. Other SWMUs were identified in the course of this RCRA Facility Assessment. NIRP sites that were determined to be of concern were further investigated under the NIRP program, and the nature and extent of release to the environment were further defined through soil, groundwater, and sediment/surface water samples. The information obtained during the earlier studies and the NIRP investigations for each site are summarized in the SWMU descriptions for the sites found in Chapter IV. To maintain consistency, we have presented SWMU information in this report to correspond with the NIRP investigations. Historical records of releases associated with other SWMUs that were found in the files reviewed are also described in the appropriate SWMU descriptions.

The second type of releases documented in the files were largely one-time spill incidents. Numerous reports of releases of materials, largely ship and aircraft fuels, from ships into Mayport Basin were found in the facility's spill reports files (see Reference 103). Corrective measures for these releases were documented, as were notifications made to the Coast Guard concerning the releases. It was also noted by facility personnel that during fueling operations at the piers small spills of fuels often occur when a gasket blows or a pipe connection breaks. Incidents documented at the Mayport facility included several one-time releases of marine diesel fuel (DFM), often caused by tank overfilling. One-time spills of fuels were noted at Building 1241, the McDonald's parking lot, Building 1340, and at Tank 204 (see References 101, 103, 109, 110).

A one-time spill of sodium hydroxide from a product storage tank at the Oily Waste Treatment Plant was also documented. Response activities including neutralization with an acidic solution were approved by FDER (see references 24, 104).

Environmental Setting

U.S. Naval Station Mayport (Mayport) is located in the southeastern Coastal Plain physigraphic province on the remnants of two ancient marine terraces, the Pamlico and the Silver Bluff. These terraces form a low coastal plain throughout central and eastern northeast Florida and at Mayport have been modified by development, stream erosion, and dredging and filling activities (References 34, 78).

The climate at Mayport is subtropical with extensive marine influence. The mean annual temperature for Mayport is 68.8 degrees Fahrenheit. July and August are the warmest months having an average temperature of 80.8 degrees Fahrenheit. January is the coldest month, averaging 54.7 degrees Fahrenheit. Annual precipitation in the area averages 50.8 inches, with the monthly precipitation for June through September ranging from 5.28 to 7.19 inches. Thunderstorms occur frequently from April to September and tropical storms are not unusual. Flooding occurs quickly at Mayport during tropical storms (Reference 34).

The major surface water features on Mayport, in addition to the Atlantic Ocean and the Saint Johns River, are the approximately 1,667 acres of salt marsh located on the southern and western portions of the facility, Mayport Basin to the north, and Lake Wonderwood, which is an approximately 20-acre, fresh water lake that was excavated to provide fill for construction of station housing (References 34, 66).

Dredged sediments from the construction of Mayport Basin in the early 1940s were used to fill in the western portion of the Ribault Bay (which is now occupied by the Delta Pier, runway, and fuel farm areas). In 1952, the Basin was dredged from a depth of 20 feet to a depth of 40 feet, and since then the Basin is dredged regularly to maintain sufficient depth for the fleet. Dredge spoil material was disposed of in the central portion of Mayport, in two dredge spoil disposal areas (SWMU 50). The northeastern area was used until sometime in 1983, when use of the southwestern area began (Reference 78). Disposal of sludge spoil is no longer conducted at Mayport.

Elevations at Mayport range from approximately 0 to 30 feet above mean sea level, and the highest areas on the station are the runways and dredge spoil disposal areas. These areas act as a drainage divide between the southeast and northwest areas of the station. To the northeast, drainage is toward the Saint Johns River and Mayport Basin. There are few surface drainage features in the northeast-because the soils along the Saint Johns River are high in sand content and water infiltrates quickly. Surface water drainage in the southern portion of the facility drains into a system of ditches that bounds the dredge spoil disposal areas and then flows east into Sherman Creek, Pablo Creek, Chicopit Bay, and eventually the Saint Johns River through the Intercoastal Waterway (References 34, 66, 78).

The natural soils of Mayport consist mainly of sand, shells, and clay, with organic peats occuring in the marsh areas. The three major groups of soils in the Mayport vicinity are: 1) soils of the sand ridges, 2) soils of the tidal marsh, and 3) soils of the flatwoods. Sand ridge soils occur on approximately two-thirds of the station and have, in many areas, been filled or reworked by dredging and earth moving operations. These soils are sandy to a depth of 80 inches or more and are well-drained.

Permeabilities in these soils range from moderate to rapid. The soils of the tidal marsh and soils of the flatwoods occur in the salt marsh areas and consist of mucky peat underlain by clay with some areas of sand. These areas are poorly drained, and permeabilities are moderate to rapid in the peat and sand and very slow in the clay (References 34, 66, 78).

The geology underlying Mayport is controlled by the Peninsular Arch and the Southeast Georgia Embayment. The Station is located at the southern boundary of the embayment. More than 1,500 feet of Miocene and younger age sediments underlie the Mayport area. These sediment consist of flat-lying unconsolidated deposits of sand, silts, and clays that overlie a thick sequence of marine carbonates. A generalized geologic column of the Mayport area is presented as Figure II-7 which illustrates the following three geologic units that underlie the station:

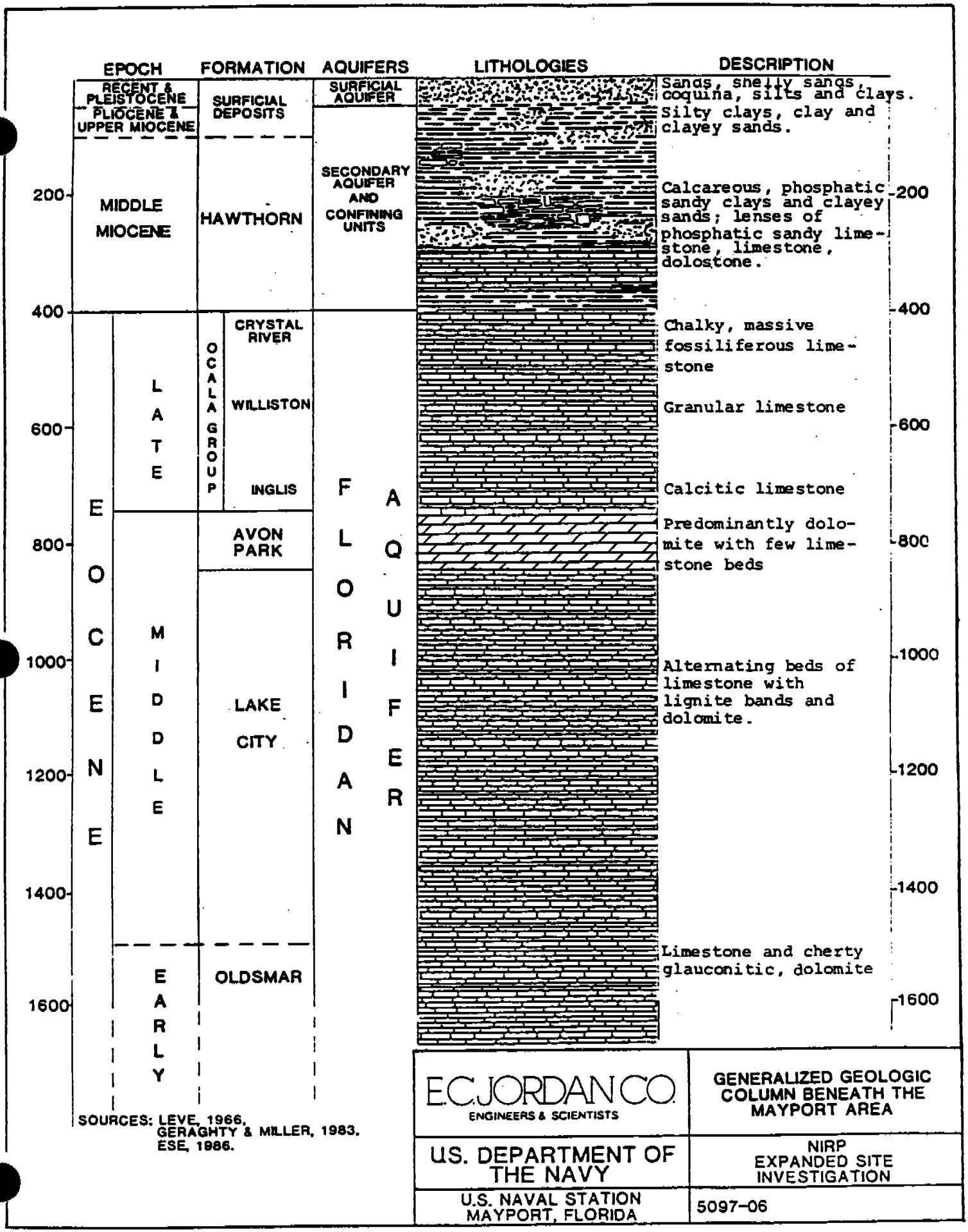


FIGURE II-7: GENERALIZED GEOLOGIC COLUMN BENEATH THE MAYPORT AREA (REFERENCE 34)

1) Late Miocene to Recent surficial deposits, approximately 100 feet thick;
2) Middle Miocene Hawthorn formation, approximately 300 feet thick;
3) Eocene marine carbonate sequences of the Floridan aquifer, more than 1,000 feet thick (Reference 19).

The water table at Mayport generally ranges from one to five feet above mean sea level (MSL) in most areas. In the landfill and dredge spoil disposal areas, the water table is somewhat higher, and in the area of recent dredge spoil disposal, the water table has been measured to be as high as 22 feet MSL. An approximate piezometric surface map illustrating water level elevations measured in October of 1987 is presented in Figure II-8. Note that at the time these water level measurements were taken, dredge spoil disposal was still ongoing at the southwest disposal area. Since disposal of dredge soil materials at Mayport is no longer occurring, the hydraulic gradient for this area may be reduced. It is generally anticipated that the near-surface groundwater flow at Mayport is radial towards the four major surface water features; the Atlantic Ocean to the east, Mayport Basin to the north, the Saint Johns River to the west, and Sherman Creek to the south (References 19, 34, 78). The surficial aquifer (water table aquifer) at Mayport consists of approximately 70 feet of variable unconsolidated sands, shells, and clays. The upper zone of the surficial aquifer contains fresh water but the groundwater becomes brackish below approximately 40 feet. The transmissivity of the primary water-bearing zone (35 to 55 feet BLS) has been estimated at 320 gpd/ft (gallons per day per foot) (Reference 78). A hydraulic conductivity of 3.8 ft/day was measured in laboratory testing of a near-surface Shelby tube sample from the landfill area (8 to 10 feet BLS). Single hole permeability tests conducted as part of the ESI (Reference 34) indicate that the hydraulic conductivity throughout much of the facility exceeds 2.8 ft/day, which was the upper limit of the test procedure (Reference 34).

Below the surficial aquifer lies the Hawthorn formation, which consists of clayey sands and sandy clays. Interbedded with these lithologies are lenses of sand and limestone which are described as a secondary artesian aquifer. Water levels measured in the Hawthorn formation indicate that groundwater flow

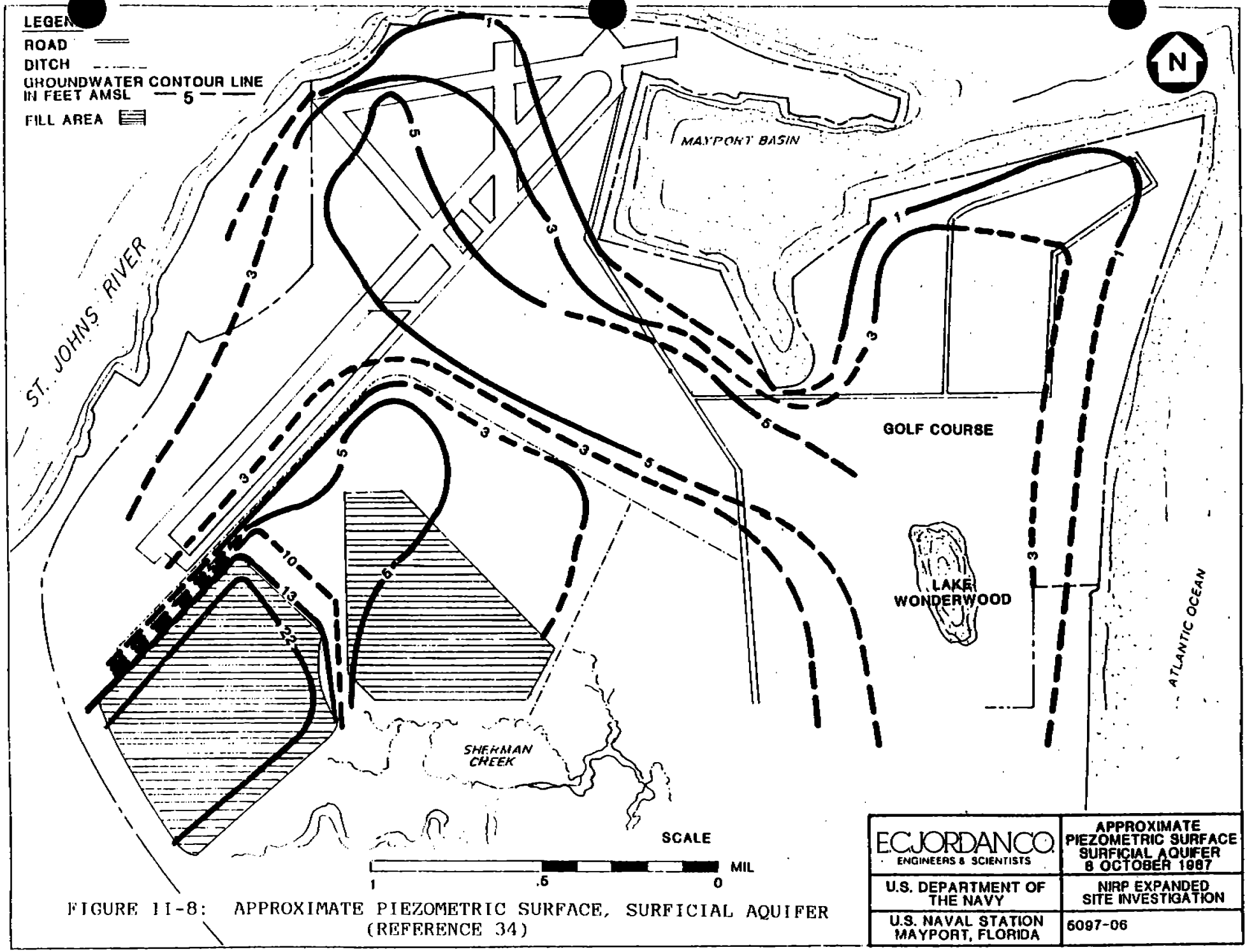


FIGURE 11-8: APPROXIMATE PIEZOMETRIC SURFACE, SURFICIAL AQUIFER (REFERENCE 34)

E.C JORDAN CO. ENGINEERS & SCIENTISTS	APPROXIMATE PIEZOMETRIC SURFACE SURFICIAL AQUIFER 8 OCTOBER 1987
U.S. DEPARTMENT OF THE NAVY	NIRP EXPANDED SITE INVESTIGATION
U.S. NAVAL STATION MAYPORT, FLORIDA	5097-06

in the Mayport area is towards the northeast. The water quality is reportedly within state and federal standards (References 19, 78, 87).

The Floridan aquifer, which is found in the Eocene sediments underlying the Hawthorn formation, is the principal source of fresh water in northeast Florida and at Mayport. The top of the Floridan is found at approximately 400 feet below the surface in the Mayport area, and it is believed that flow in the aquifer in this area is toward the south due to heavy pumpage along the coast (References 19, 34).

The surficial aquifer and the Hawthorn formation are not used for potable water supplies, but there are numerous production wells in the Floridan aquifer both at Mayport and downgradient from Mayport. Although the Hawthorn formation acts as a confining layer and the Floridan aquifer is under artesian conditions in the Mayport area, it must be noted that improper well installation could allow contaminants to move into the aquifer or that extensive pumping could cause existing flow patterns to change or saltwater intrusion (Reference 34).

III. ONGOING/PLANNED CORRECTIVE ACTIONS

Corrective Action Activities are ongoing at Mayport as part of the Navy Installation Restoration Program (NIRP) which has been initiated and implemented by the Navy. The NIRP program is modeled after the CERCLA (Superfund) site remediation program and the NIRP program at Mayport is being conducted under review by the Superfund office of EPA. During the time that the Navy has been in the process of implementing the NIRP at Mayport, EPA has begun to require corrective action activities under the authority of the RCRA/HSWA program through the mechanisms of the HSWA permit. Due to the differences in the focus of the NIRP and of RCRA corrective action, the activities being conducted by the Navy under the NIRP and activities required by EPA under RCRA are not exactly the same. In addition, the schedules of the two programs do not mesh well. The differences in the two programs have caused some confusion and made it difficult to integrate the corrective action activities of the two programs.

The two major differences between the two programs are the units covered and the timing of the activities. The units are referred to as sites in the NIRP program; however, the unit of investigation in the corrective action program is the SWMU. There were 16 sites identified for investigation under the NIRP program, and 17 SWMUs identified for a RCRA Facility Investigation (RFI) in the RCRA HSWA permit. Twelve sites/SWMUs were identified under both programs; (SWMUs 7-10, and 17) were not identified as NIRP sites, and four of the NIRP sites (SWMUs 26-29) were not identified as SWMUs in the HSWA Permit.

The timing of the two programs has also made coordination difficult. The Navy first identified 17 sites and conducted initial investigations of those sites in the Initial Assessment Study (IAS) which was completed in May of 1986. The IAS recommended further investigation for eight of the 17 sites (Reference 66). A work plan for the next phase of investigation (now called the Expanded Site Investigation, ESI, previously called the Confirmation Study) was completed by the Navy in April 1987 which described planned investigations for ten sites (two sites which were not recommended for further investigation in the IAS were added) (Reference 53). U.S. EPA then issued a draft HSWA permit that identified 16 SWMUs (eleven of which were NIRP sites) and required

that an RFI be conducted for these units (see Introduction, Reference 47). The Navy submitted planned investigations for these 16 SWMUs (Reference 47). For the units that were both NIRP sites and HSWA SWMUs, the investigations described in the ESI work plan and the RFI work plan were, in most cases, the same but in several places were somewhat different.

The Navy conducted the ESI and submitted a final report describing the results in April of 1988 (Reference 34). It is not known whether the Navy altered the ESI activities proposed in the work plan for the sites that are also SWMUS to include any differences in the activities proposed in the RFI work plan. In late March of 1988, EPA issued a final HSWA permit that identified 17 SWMUs; the Neutralization Basin (SWMU 12) had been added since the draft version of the permit was issued (Reference 36). In November of 1988, EPA issued evaluation of the Navy's RFI work plan that identified a number of technical deficiencies in the plan (Reference 21). No further work has been conducted to date under either program. Table III-1 summarizes the further actions recommended in the ESI and the primary chemicals of concern for all of the SWMUs addressed in the ESI.

In an effort to consolidate the work conducted under the NIRP and the RCRA program, the Navy is, at the time of writing, planning to submit an updated RFI work plan in January of 1990. The updated work plan will describe all the work conducted so far under any program for each SWMU and will propose further actions to be conducted (Reference 103). It is not known whether the further actions proposed in the updated RFI work plan will be the same as the further actions recommended in the ESI report for those SWMUs that are also NIRP sites. It is also not known at this time whether SWMUs identified in this report will be included in the updated RFI work plan or in a separate document.

Table III-1

NIRP ESI Recommended Further Actions
and Reasons or Chemicals of Concern
(Reference 34)

SWMU	NIRP SITE	RECOMMENDATION	REASONS OR CHEMICAL(S) OF CONCERN
1.	1.	Risk Assessment	4,4'-DD, lead in groundwater
2.	2.	Remedial Action	PCB-1260 in Soil
3.	4.	Risk Assessment	Lead in groundwater
4.	5.	Risk Assessment	Vinyl chloride in surface water/ chromium in groundwater
5.	6.	Risk Assessment	Heptachlor in groundwater
6.	8.	Risk Assessment	Groundwater
11.	9.	Risk Assessment	Naphthalene in groundwater
13.	13.	Phase II ESI	Release to groundwater not verified
14.	14.	Risk Assessment	Mercury in groundwater
16.	16.	Phase II ESI	Release to groundwater not verified

IV. FINDINGS/CONCLUSIONS

The fifty-six SWMUs identified at Mayport are classified into three categories: (1) units requiring an RFI, which are identified in Table IV-1, (2) units requiring no further action, which are identified in Table IV-2, and (3) units requiring further assessment, which are identified in Table IV-3. Table IV-4 identifies two other Areas of Concern (AOCs). The tables identify all of the references that include information concerning each unit. Following the tables, descriptions of the units and the suggested further actions for each SWMU are presented.

Table IV-1

SOLID WASTE MANAGEMENT UNITS REQUIRING AN RFI

SWMU	NAME	REFERENCES
1.	Landfill A (HSWA SWMU A, NIRP Site 1)	21, 34, 36, 47, 53, 66, 101, 103
2.	Landfill B (HSWA SWMU B, NIRP Site 2)	21, 34, 36, 47 53, 66, 101, 103
3.	Landfill D (HSWA SWMU C, NIRP Site 4)	21, 34, 36, 47, 53, 66, 101, 103
4.	Landfill E (HSWA SWMU D, NIRP Site 5)	21, 34, 36, 47, 53, 66, 101, 103
5.	Landfill F (HSWA SWMU E, NIRP Site 6)	21, 34, 36, 47, 53, 66, 101, 103
6.	Waste Oil Pit/Sludge Drying Bed (HSWA SWMU F, NIRP Site 8)	21, 34, 36, 47, 53, 66, 78, 101, 103
7.	OWTP Sludge Drying Beds (HSWA SWMU G)	21, 32, 36, 46, 47, 66, 78, 93, 101, 103
29 8.	OWTP Percolation Pond (HSWA SWMU H)	21, 36, 47, 62, 66, 78, 93, 101, 103
30 9.	OWTP (HSWA SWMU I)	6, 7, 8, 9, 14, 21, 22, 28, 29, 30, 36, 41, 43, 46, 47, 62, 66, 77, 78, 79, 80, 81, 93, 101, 103
31 *10.	Hazardous Waste Storage Area (HSWA SWMU J)	21, 26, 36, 37, 39, 44, 47, 50, 55, 57, 58, 60, 61, 63, 66, 70, 100, 101, 103
11.	Fuel Spill Area (HSWA SWMU K, NIRP Site 9)	21, 34, 36, 47, 53, 66, 78, 101, 103
**12.	Neutralization Basin (HSWA SWMU L, NIRP Site 11)	16, 18, 19, 21, 35, 36, 44, 45, 52, 57, 66, 101, 103

* = RCRA-Regulated Unit, Permitted
** = RCRA-Regulated Unit, Closed under Order

Table IV-1

SOLID WASTE MANAGEMENT UNITS REQUIRING AN RFI
(cont.)

SWMU	NAME	REFERENCES
13.	Old Firefighting Training Area (HSWA SWMU M, NIRP Site 13)	21, 34, 36, 47, 53, 66, 101, 103
14.	Mercury/Oily Waste Spill Area (HSWA SWMU N, NIRP Site 14)	21, 34, 36, 47, 53, 66, 97, 101, 103
15.	Old Pesticide Area (HSWA SWMU O, NIRP Site 15)	21, 36, 47, 54, 66, 101, 103
16.	Old Transformer Storage Yard (HSWA SWMU P, (NIRP Site 16)	21, 34, 36, 47, 53, 66, 101, 103
33 17.	Carbonaceous Fuel Boiler (HSWA SWMU Q)	21, 36, 47, 51, 65, 66, 72, 94, 101, 103
22.	Building 1600 Blasting Area	101, 103

Table IV-2

SOLID WASTE MANAGEMENT UNITS REQUIRING NO FURTHER ACTION

SWMU	NAME	REFERENCES
*27.	Former Hazardous Waste Storage Area (NIRP Site 7)	59, 66, 101, 103
30.	NEX Battery Corral	101, 103
31.	FTC OBA Accumulation Area	100, 101, 103
32.	FTC Mercuric Waste Accumulation Area	100,101, 103
33.	SIMA Accumulation Area	63, 100, 101, 103
34.	Hobby Shop Accumulation Area	100, 101, 103
35.	NADEP Accumulation Areas	100, 101, 103
36-38	Carrier Pier Accumulation Areas (3)	100, 101, 103
39.	PWD Paint Shop Accumulation Area	100, 101, 103
40.	Building 1343 Accumulation Area	63, 100, 101, 103
41.	Building 1600 Accumulation Area	100, 101, 103
42.	AIMD Building 1533 Accumulation Area	39, 42, 44, 100, 101, 103
43.	Wastewater Treatment Facility (WWTF)	10, 11, 12, 27, 43, 46, 66, 67, 75, 101, 103

* = RCRA-Regulated Unit, closed under Interim Status

Table IV-3

SOLID WASTE MANAGEMENT UNITS REQUIRING FURTHER INVESTIGATION

SWMU	NAME	REFERENCES
18.	FTC Diesel Generator Sump	101, 103
19.	NADEP Blasting Area	101, 103
20.	Hobby Shop Drain	101, 103
21.	Hobby Shop Scrap Storage Area	101, 103
23.	Jacksonville Shipyards, Inc.	66, 101, 103
24.	North Florida Shipyards, Inc.	66, 101, 103
25.	Atlantic Marine, Inc.	66, 101, 103
26.	Landfill C (NIRP Site 3)	66, 101, 103
28.	DRMO Yard (NIRP Site 10)	66, 101, 103
29.	Oily Waste Pipeline Break (NIRP Site 12)	66, 101, 103
44.	Wastewater Treatment Facility Clarifiers 1 and 2	67, 75, 101, 103
45.	Wastewater Treatment Facility Sludge Drying Beds (4)	2, 4, 12, 13, 46, 66, 67, 68, 69, 71, 75, 98, 101, 103
46.	SIMA Engine Drain Sump	95, 101, 103
47.	Oily Waste Collection System	41, 66, 76, 92, 101, 103, 107
48.	Former Chemistry Lab Accumulation Area	82, 83, 84
49.	Flight Line Retention Ponds	48, 49, 73, 93, 96, 101, 103
50.	Dredge Spoil Disposal Areas	25, 66, 74, 90, 101, 103
51.	Waste Oil Tanks	2, 5, 17, 66, 95, 99, 101, 103

Table IV-3

SOLID WASTE MANAGEMENT UNITS REQUIRING FURTHER INVESTIGATION
(cont.)

SWMU	NAME	REFERENCES
37 52.	PWD Service Station Storage Area	95, 101, 103
38 53.	Sewer Pipelines	66, 75, 76, 101, 103
39 54.	Oil/Water Separators	33, 66, 95, 101, 103
40 55.	Storm Sewer and Drainage System	23, 66, 67, 76, 78, 101, 103, 107, 108
41 56.	Building 1552 Accumulation Area	100, 101, 103

Table IV-4

OTHER AREAS OF CONCERN (AOCs)

SWMU	NAME	REFERENCES
A2 A.	Fuel Distribution Pipelines	76, 101, 103, 107, 108, 109
A3 B.	Underground Product Storage Tanks	5, 17

1: Landfill A (HSWA SWMU A, NIRP Site 1)

Landfill A includes an area of approximately four acres located approximately 600 feet to the south of the entrance to Mayport Basin. The area is now occupied by Jacksonville Shipyard (SWMU 23) and the domestic Wastewater Treatment Facility (WWTF) (SWMUs 43-45). See Figure IV-1 for the approximate location of the landfill. During construction activity at the WWTF, scrap sheet metal and piping was unearthed to the north of the previously estimated northern boundary of Landfill A (Reference 103, see photograph). The landfill consisted of a series of trenches approximately 15 feet wide, 400 feet long, and eight feet deep. The landfill was operated between the years of 1942 and 1960 and is currently covered with soil. Industrial and sanitary wastes disposed of in Landfill A included waste oils, paints, solvents, mercury wastes, pesticide cans, plating solutions, batteries, bilge water, magnaflux dye, penetrants, photo-processing wastes, sanitary garbage, and construction rubble. For detailed information concerning past waste management practices, see Reference 66.

Soil borings and water level measurements taken as part of the NIRP ESI indicate that the soil in the area of Landfill A is sandy and that the hydraulic gradient across the area is north towards the Saint Johns River. The water table was measured ranging from six to four feet above mean sea level (Reference 34). For further information on the hydrogeology of the area, see Reference 34.

Landfill A was first identified as a NIRP site in the IAS (Reference 66). The IAS recommended that the site be included in the ESI. The ESI was conducted, including Landfill A, and a final report was completed in April 1988 (Reference 34). The ESI determined that the preliminary HRS score for Landfill A was 19.45 and recommended that a Risk Assessment be conducted for the site.

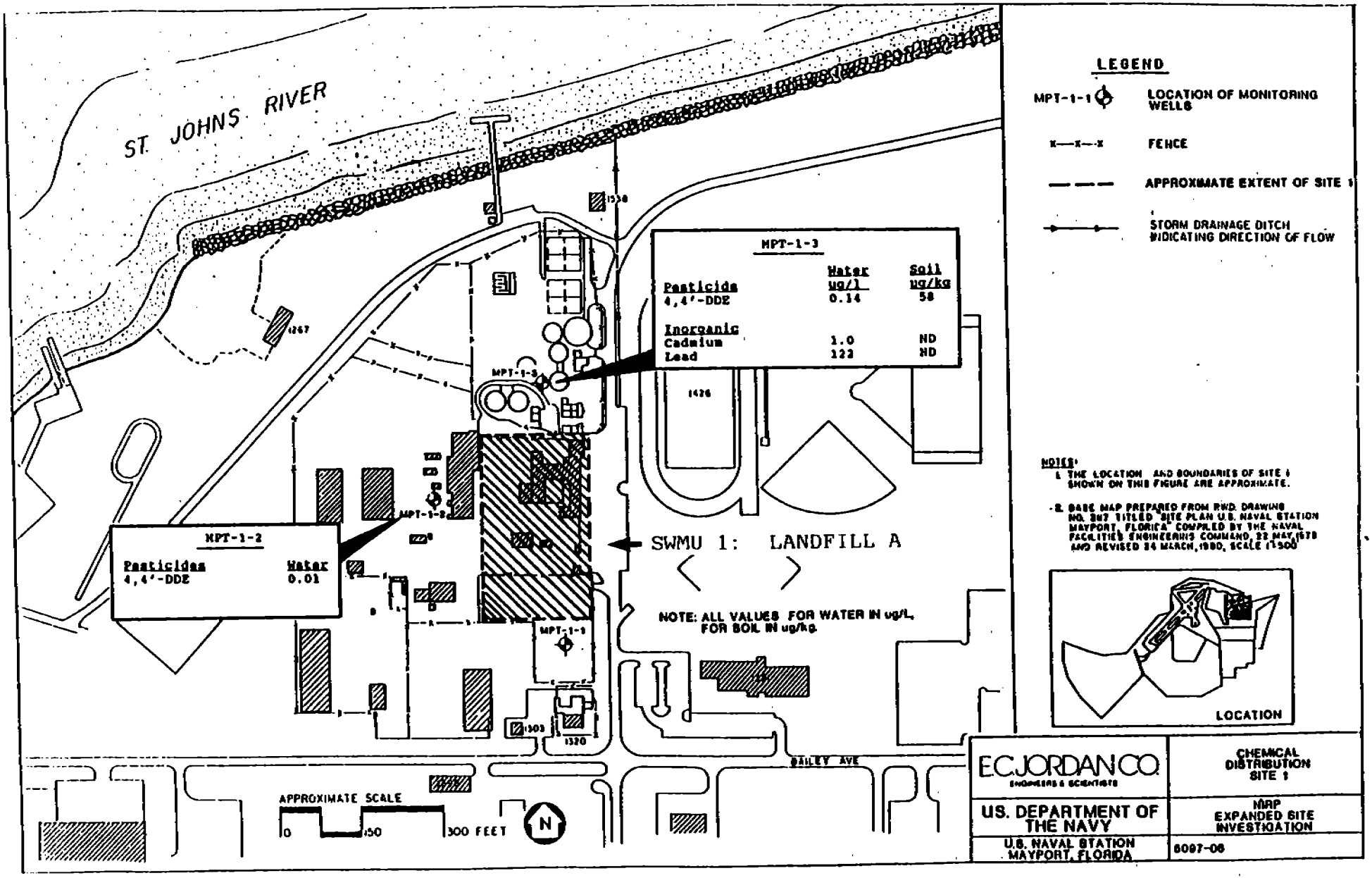


FIGURE IV-1: LOCATION OF SWMU 1 AND CHEMICAL DISTRIBUTION (REFERENCE 34)

The HSWA permit for Mayport identified Landfill A as a SWMU and required that an RFI be conducted. Mayport submitted an RFI work plan addressing Landfill A in July 1987, and a review of the work plan was completed by an EPA contractor in November 1988. The RFI work plan proposed sampling and analysis procedures for the area of Landfill A that appear to be similar to the work conducted as part of the ESI (References 34, 47).

The RFI work plan proposed the installation of three monitoring wells (and a fourth, if determined necessary) and collection of three soil and three groundwater samples. The proposed monitoring well and sample collection locations were the same as those used in the ESI, which are illustrated in Figure IV-1. Analysis of the soil samples resulted in the detection of the pesticide 4,4'-DDE in the sample obtained from boring MPT-1-3. Analysis of the groundwater samples resulted in the detection of 4,4'-DDE in samples obtained from borings MPT-1-2 and MPT-1-3; and detection of cadmium and lead in samples obtained from boring MPT-1-3. The distribution of constituents detected is illustrated on Figure IV-1 (Reference 34).

The concentrations of 4,4'-DDE found in groundwater, 0.01 and 0.14 ug/l, exceed the U.S. EPA ambient water quality criteria for chronic exposure in saltwater environments, which is 0.001 ug/l. The concentrations of total lead detected in groundwater, 122 ug/l and 26 ug/l, also exceed the U.S. EPA ambient water quality criteria for chronic exposure in marine environments, 5.6 ug/l. The concentration of cadmium found in groundwater, 2.0 ug/l, does not exceed the U.S. EPA ambient water quality criteria for chronic exposure in saltwater environments, which is 9.3 ug/l (Reference 34).

2-5: Landfills B, D, E, F (HSWA SWMUs B, C, D, E, NIRP Sites 2, 4, 5, 6)

Landfills B, D, E, and F have been investigated together due to their close proximity and similarity of unit type and wastes managed. The locations of these landfills are illustrated on Figure IV-2. See Reference 34 for information on the soils and hydrogeology of the landfill area. No information is available concerning the construction of release controls for these landfills; it is believed that the landfill areas were simply excavated

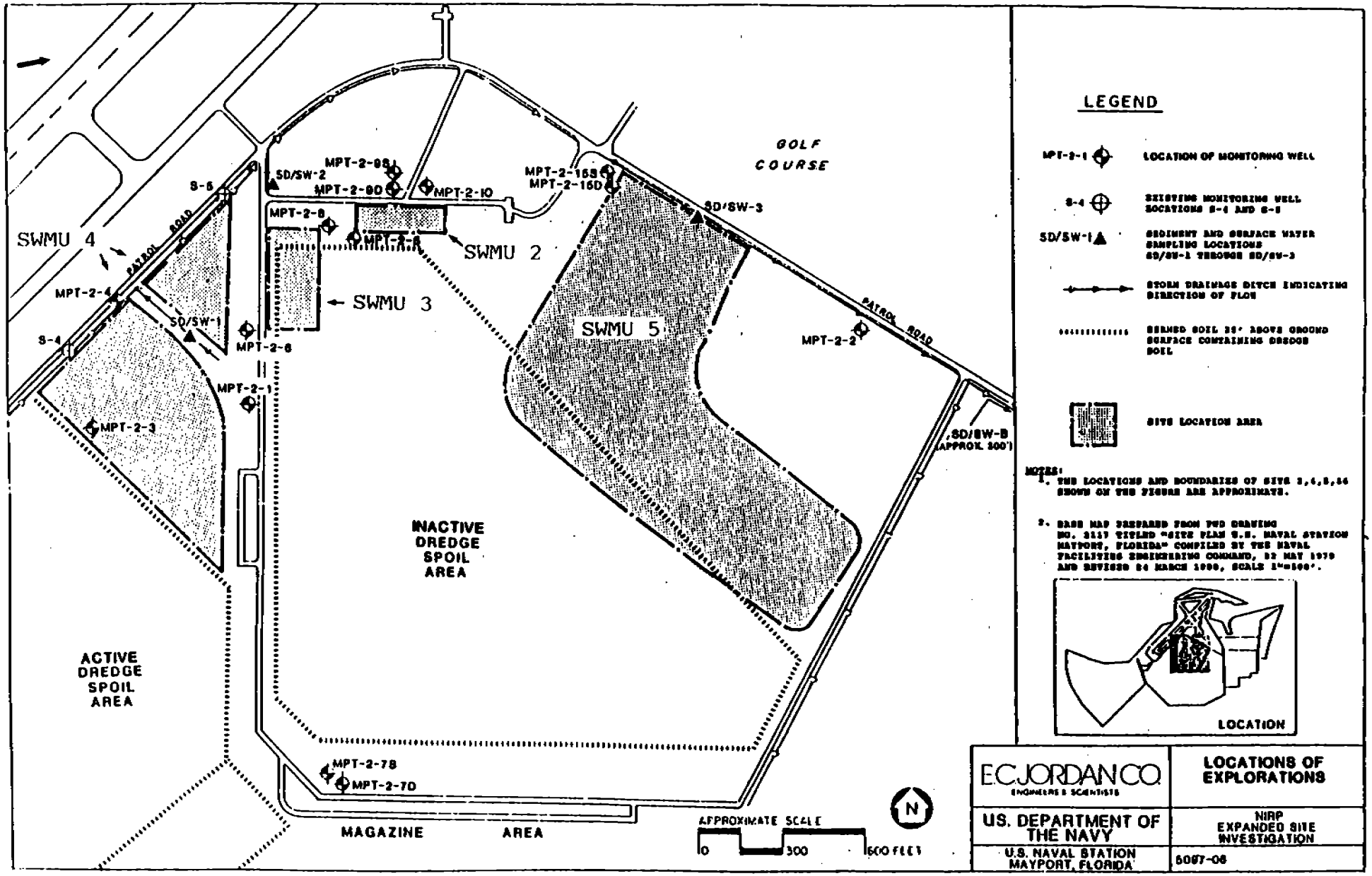


FIGURE IV-2: LOCATIONS OF SWMUs 2, 3, 4, AND 5
(REFERENCE 34)

in the native soil. There also is no information concerning the construction of covers for the landfills; it is believed that native soil was used to cover the areas when operations ceased. Each of these landfills was used for disposal of most of the wastes generated at Mayport during the time of its operation. Thus, the types of waste disposed of in each landfill are, as far as can be determined from the information available, essentially the same. The wastes included waste oils, transmission fluids, hydraulic fluids, transformer oils, mercury wastes from shipboard and onshore activities, paint wastes, asbestos, solvents (chlorinated and nonchlorinated), plating solutions, pesticide cans (including chlordane, 2,4-D, heptachlor, DDT, and others), batteries, bilge water, magnaflux dye, penetrants, photo-processing wastes, sanitary garbage and construction rubble.

Landfill B (SWMU 2) was operated as a trench-and-fill landfill from 1960 to 1964, and later as an area landfill from 1979 to 1980. The landfill was approximately 2 acres in size and consisted of a series of trenches approximately 15 feet wide, 300 feet long, and eight feet deep. During operation, the trenches intersected the water table and materials floating on the water in the trenches were burned daily.

After operation of the landfill ceased, it was covered with soil and paved. An ordnance storage yard was constructed above the landfill and was in operation at the time of the VSI. The landfill area is located within 500 feet to the south of a drainage ditch that flows to Sherman Creek and just to the north of the northeast dredge spoil disposal area.

Landfill D (SWMU 3) was operated from 1963 to 1965. The landfill area was approximately four acres in size and consisted of a number of pits (eight are estimated) constructed with a dragline. The pits are estimated to have been approximately 40 feet square and eight feet deep. The pits intersected the water table, and materials were dumped into standing water at the bottom of the pits. After operation of the landfill ceased, it was covered with soil, and later part of the landfill was covered by the northeastern dredge spoil disposal area (SWMU 50). The landfill is located within 500 feet to the southeast of a drainage ditch that flows to Sherman Creek.

Landfill E (SWMU 4) was operated as a trench-and-fill landfill from 1963 to 1966 and subsequently as an area fill landfill from 1974 to 1980. The trenches were constructed with a dragline and were approximately 15 feet wide, 750 feet long, and eight feet deep. The trenches intersected the water table, and materials were dumped into standing water at the bottom of the trenches. The landfill consists of two contiguous areas separated by a storm drainage ditch and occupies a total of approximately eleven acres. A connecting storm drainage ditch runs along the northeastern edge of the landfill area and flows to Sherman Creek. The landfill area is located to the northeast of the southwest dredge spoil disposal area and to the west of the northeast dredge spoil disposal area (SWMU 50).

Landfill F (SWMU 5) was operated from 1966 to 1985. The landfill was first operated as a trench-and-fill operation, having trenches 15 feet wide, eight feet deep, and up to several hundred feet long. After the trenches were filled, a soil cover was added, and on-surface disposal operations were subsequently conducted. The material disposed of on-surface was covered with soil. The landfill area is approximately 24 acres in size and is located northeast of the northeast dredge spoil disposal area (SWMU 50). A storm drainage ditch which flows to Sherman Creek runs along the northeastern edge of the landfill.

Landfills B, D, E, and F (SWMUs 2, 3, 4, and 5) were first identified as NIRP sites in the IAS (NIRP Sites 2, 4, 5, and 6) (Reference 66). In the IAS, it was recommended that these landfills be included in the ESI. The ESI was completed and a final report submitted in April 1988 (Reference 34). In the ESI, it was determined that the preliminary HRS scores for the landfills were 10.14, 9.87, 13.10, and 12.09, respectively. The ESI also recommended that environmental risk assessments be conducted for Landfills D, E, and F (SWMUs 3, 4, and 5; NIRP Sites 4, 5, and 6), and that remedial action be taken at Landfill B (SWMU 2; NIRP Site 2) due to the presence of high levels of PCB-1260 in the soil.

The HSWA permit for Mayport identified landfills B, D, E, and F as SWMUs B, C, D, and E respectively, and required that an RFI be conducted for these SWMUs. Mayport submitted an RFI work plan addressing these SWMUs in July 1987 which

proposed sampling and analysis procedures for these SWMUs which were similar to, or the same as, the procedures described in the ESI work plan. The ESI was completed in April 1988. A review of the RFI work plan was completed by an EPA contractor in November 1988. It has not been determined whether EPA will accept the work conducted under the ESI to satisfy the RFI requirements.

Under the ESI, groundwater and soil samples were collected in the area of the landfills and fourteen groundwater monitoring wells were installed (two additional monitoring wells had been installed previously). Sediment and surface water samples were also taken in the storm drainage ditches. The locations of monitoring wells and sample collection sites are illustrated in Figure IV-2. The results of analytical analysis of soil, groundwater, and sediment/surface water samples are illustrated in Figure IV-3. Constituents detected in groundwater include di-n-butyl phthalate, bis (2-ethylhexyl) phthalate, 2,4-dimethyl phenol, benzene, chlorobenzene, di-n-octyl phthalate, phenol, 1,4-dichlorobenzene, acenaphthene, heptachlor, lead, cadmium, and chromium. Constituents detected in soils include chlorobenzene, toluene, 1,1,1-trichloroethane, and PCB-1260. Constituents detected in surface water/sediments include trans-1,2-dichloroethene, vinyl chloride, bis(2-ethylhexyl) phthalate, 4,4'-DDE, and total chromium.

Table IV-5 illustrates the sites at which constituents were found to exceed ambient water quality criteria for chronic exposure in marine environments.

Releases of hazardous constituents from SWMUs B, C, D, and E have been documented through the soil, groundwater, and surface water/sediment sampling conducted as part of the ESI. An RFI is therefore necessary, and has been required as part of the HSWA permit for Mayport. An evaluation of whether the work conducted under the ESI will be accepted by U.S. EPA in place of an RFI for these units has not been conducted and appears warranted.

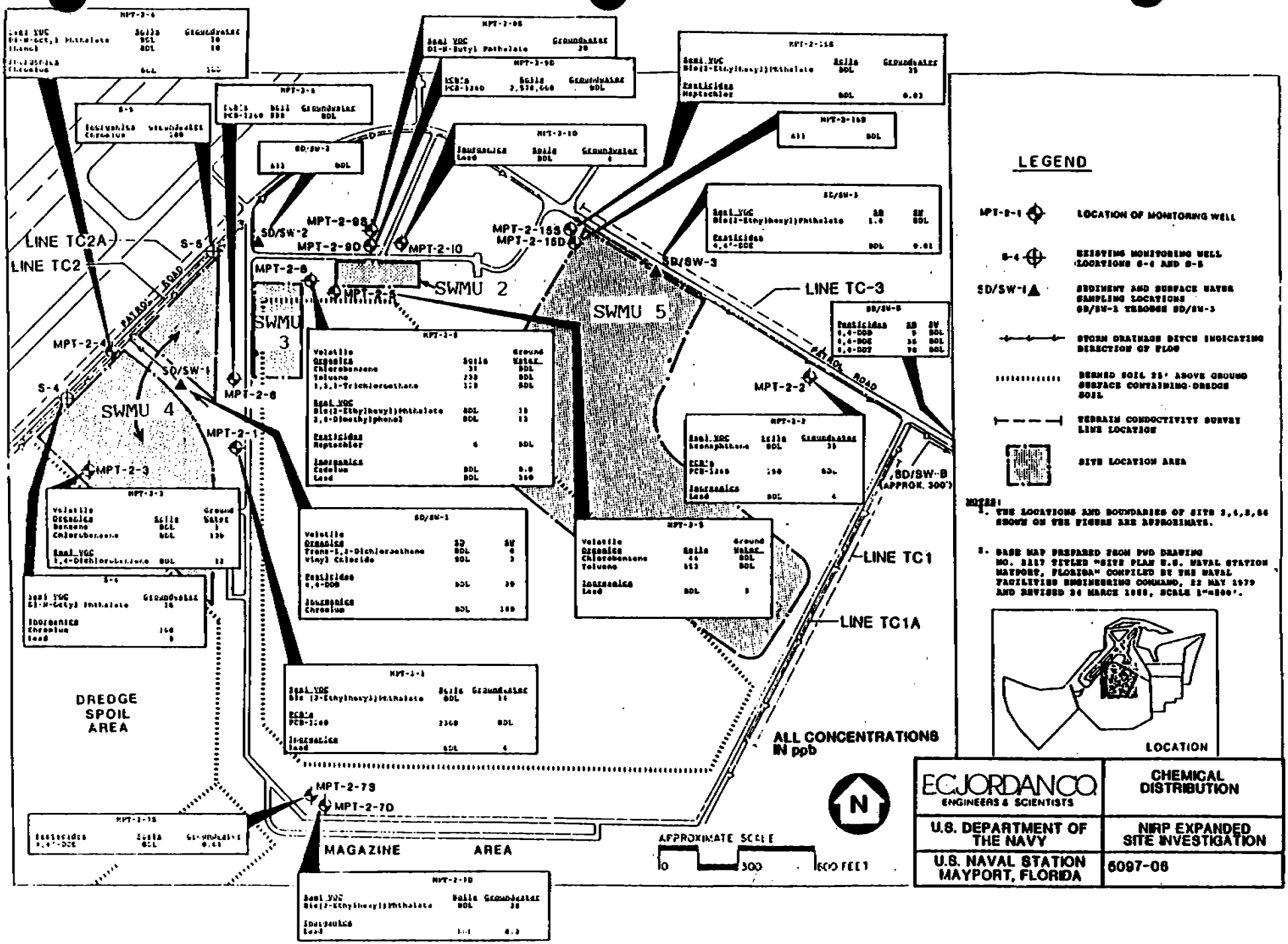


FIGURE IV-3: CHEMICAL DISTRIBUTION FOR SWMUs 2, 3, 4, AND 5 (REFERENCE 34)

Table IV-5

Constituents Exceeding Salt Water Quality Criteria (SWMUs 2-5)
(Reference 34)

SWMU	CONSTITUENTS	LEVEL
2	*PCB-1260 (Soil)	2,576,000 ug/kg
3	Lead (groundwater)	160 ug/l
4	4,4'-DDD (surface water)	20 ug/l
	Chromium (groundwater)	100 ug/l
5	Heptachlor (groundwater)	0.03 ug/l
	4,4'-DDE (surface water)	0.01 ug/l

* = PCB - 1260 exceeds TSCA soil standard of 50,000 ug/kg.

6-10: Oily Waste Treatment Plant Area SWMUs

The RFI work plan proposed to address all five of these SWMUs as a group due to their close proximity. Each SWMU will be described separately, and then the ongoing corrective action for the area will be addressed.

6: Waste Oil Pit/Sludge Drying Bed (HWSA SWMU F, NIRP Site 8)

The Waste Oil Pit was located in the general area of the Oily Waste Treatment Plant (SWMUs 7-9), where the westernmost sludge drying bed is now located. This drying bed is one of four constructed; the remaining three are presented as SWMU 7, while this unit is presented as a part of SWMU 6 due to its location. The pit was excavated to a depth of approximately six feet and was used from 1973 to 1978 to store waste oily bilge water. The pit was reportedly 0.2 acres in size and triangular in shape (Reference 66). Figure IV-4 illustrates the inferred location and shape of this unit. However, it should be noted that Figure IV-5, which was taken from Reference 78 (dated 1983) shows a "waste oil pond" in the same area to cover a larger area, including the area now occupied by the two western sludge drying beds (SWMUs 6 and 7).

While the pit was in operation, the oil and wastes disposed of in the pit soaked into the soils. In addition to bilge water, it is believed that waste oils and other items mixed with waste oils, possibly including solvents and transformer oils, were disposed of in the pit. It is estimated that 250,000 gallons of bilge water and several thousand gallons of waste oil were disposed of in the pit. The waste oil pit was covered in 1979 when the sludge drying beds were constructed (Reference 66).

The soils in the area of the waste oil pit are permeable and the groundwater flow direction has been determined to be north towards the Saint Johns River. The water table ranges from five feet to less than one foot above mean sea level. Refer to Reference 34 for additional information concerning the soils and hydrogeology of the area.

The Waste Oil Pit was identified as NIRP Site 8 in the IAS. In the IAS, it was recommended that the Waste Oil Pit be included in the ESI. The ESI was

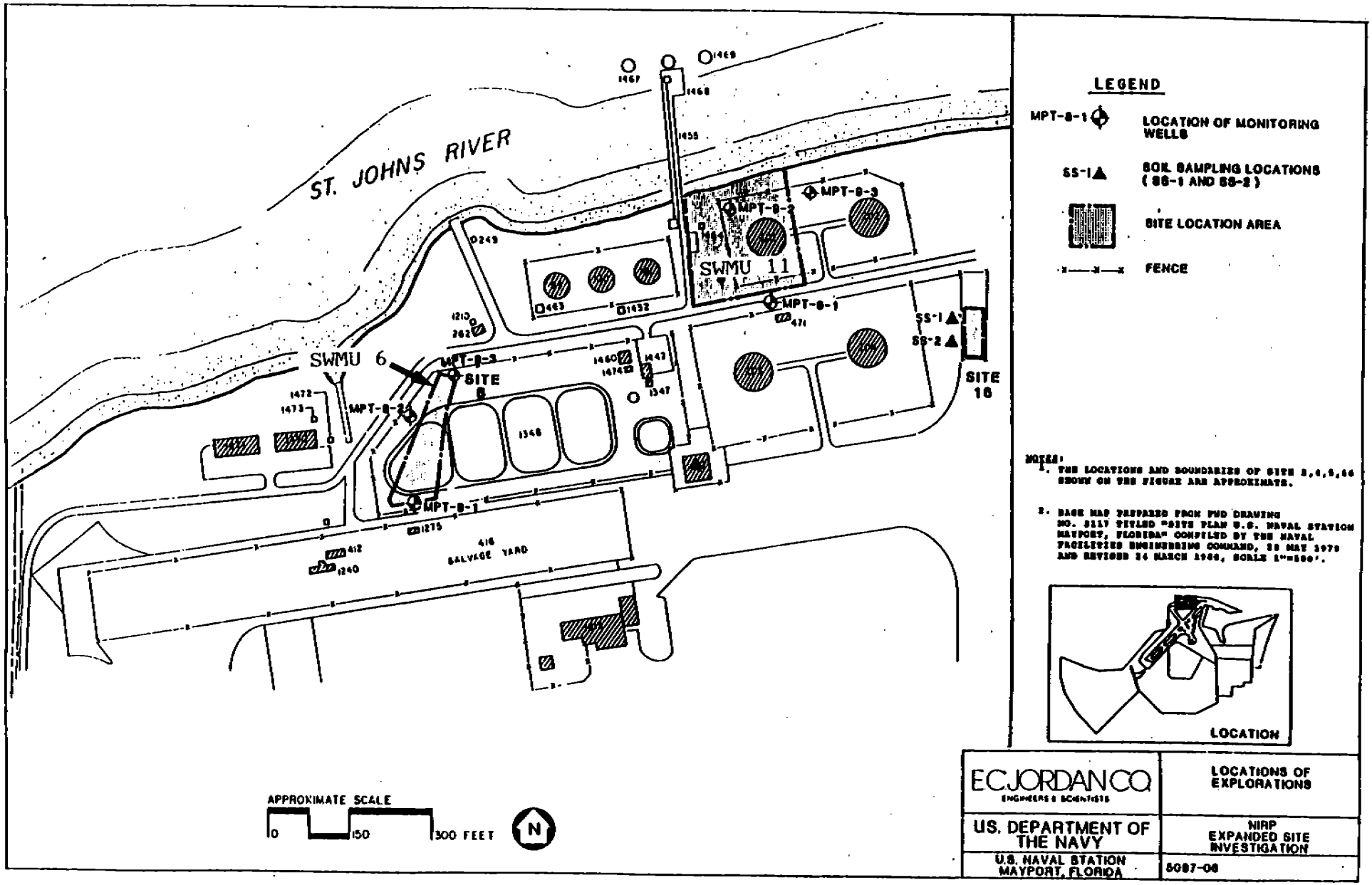


FIGURE IV-4: LOCATIONS OF SWMUs 6 AND 11; WASTE OIL PIT AND FUEL SPILL AREA (REFERENCE 34)

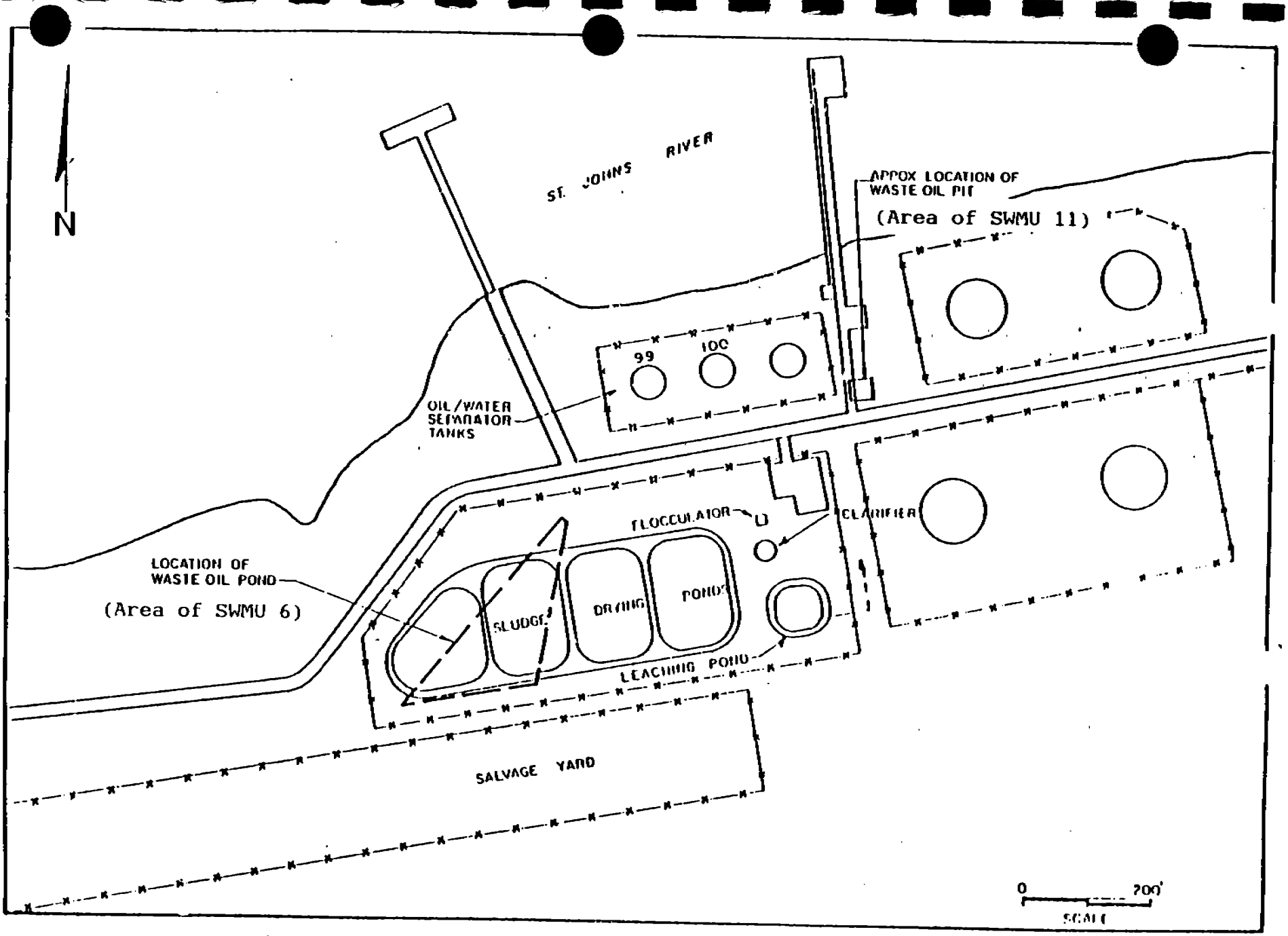


FIGURE IV-5: FORMER WASTE OIL FACILITIES; SWMUs 6 AND 11
(REFERENCE 78)

conducted and a final report completed in May 1988 (Reference 34). In the ESI, it was estimated that the preliminary HRS score for the Waste Oil Pit was 6.73 and it was recommended that an environmental risk assessment be conducted for the area. Under the ESI, soil and groundwater samples were collected in the area of the waste oil pit and groundwater monitoring wells were installed. Figure IV-6 illustrates the sample collection and monitoring well installation locations. The results of analytical analysis of the soil and groundwater samples are also illustrated on Figure IV-6. Constituents detected in groundwater include bis(2-ethylhexyl)phthalate, naphthalene, benzene, ethylbenzene, endrine aldehyde, G-BHC, and lead. Freon was detected in soil samples. The concentration of endrine aldehyde (0.05 ug/l) found in groundwater exceeds the U.S. EPA ambient water quality criteria for chronic exposure in marine environments.

The HSWA permit identified the Waste Oil Pit as SWMU F and required that an RFI be conducted. It has yet to be determined whether EPA will accept the work conducted under the ESI in place of an RFI.

7: OWTP Sludge Drying Beds (HSWA SWMU G)

The three OWTP Sludge Drying Beds were constructed to dewater sludge from the Oily Waste Treatment Plant (SWMUs 8 and 9) in 1979. A fourth was also constructed, but it is located in the same place as and is included with the Waste Oil Pit (SWMU 6). Figure IV-7 illustrates the location of the Sludge Drying Beds as identified in the HSWA permit. The northern edge of the beds lies within 300 feet of the Saint Johns River. Each drying bed is approximately 150 feet in length and fifty feet wide. The drying beds are excavated, unlined beds with earthen berms approximately fifteen feet above the land surface. Drying beds one and two (the two eastern beds) are connected by an overflow sluice gate. Beds three and four, that is the bed included as part of SWMU 6 and the westernmost of the remaining three sludge drying beds, are also connected by an overflow sluice gate. The waste managed in these beds is sludge that is collected from the clarifier of the Oily Waste Treatment Plant (OWTP) (SWMU 9). Approximately 1,500 gallons of sludge is conveyed to the drying beds each day that the OWTP is in operation (currently twice a week). Sludge that settles to the bottoms of bilge water receiving tanks Nos. 99 and 100 (SWMUs 51-E and F) is also pumped

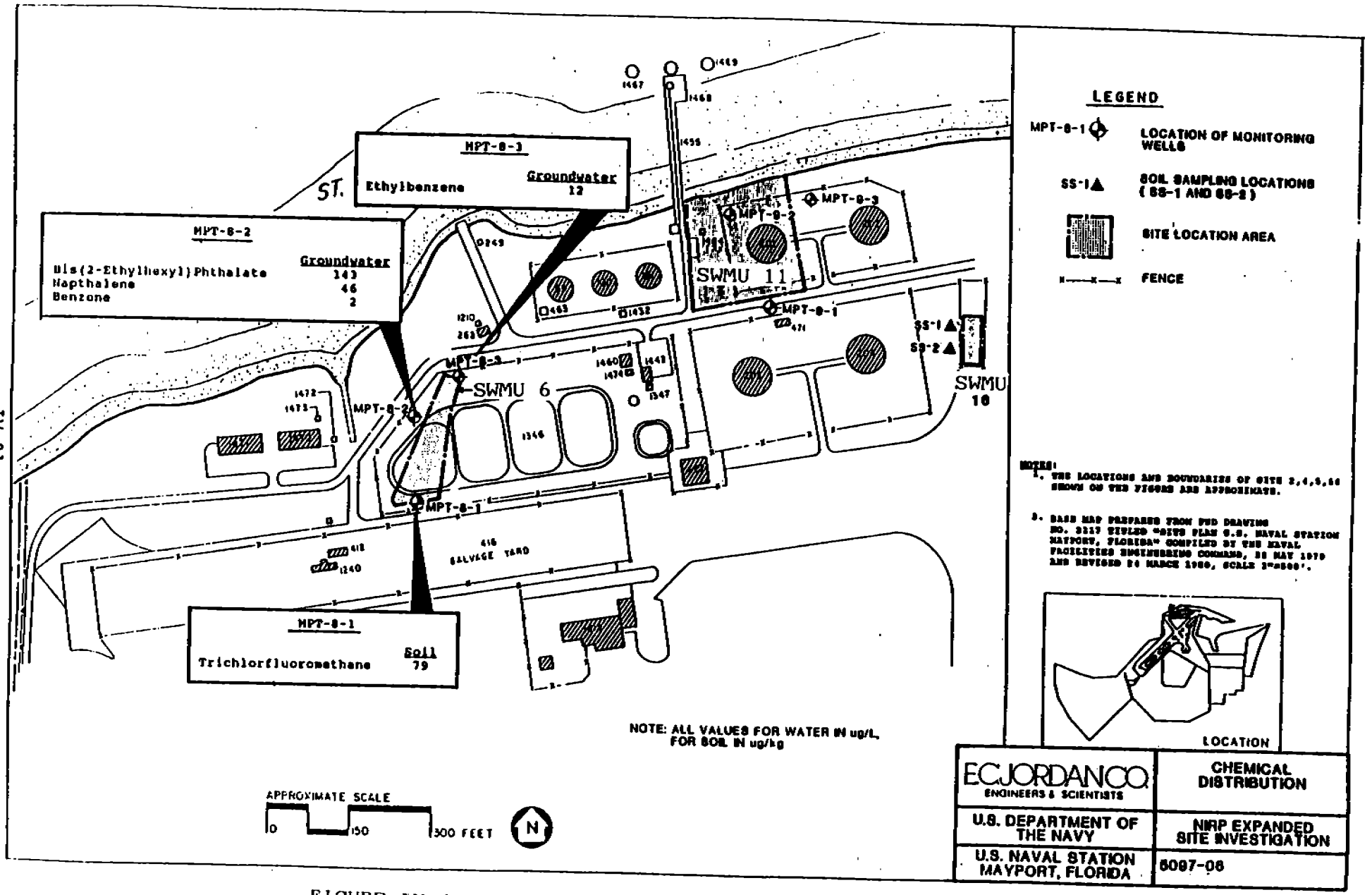


FIGURE IV-6: CHEMICAL DISTRIBUTION FOR SWMU 6
(REFERENCE 34)

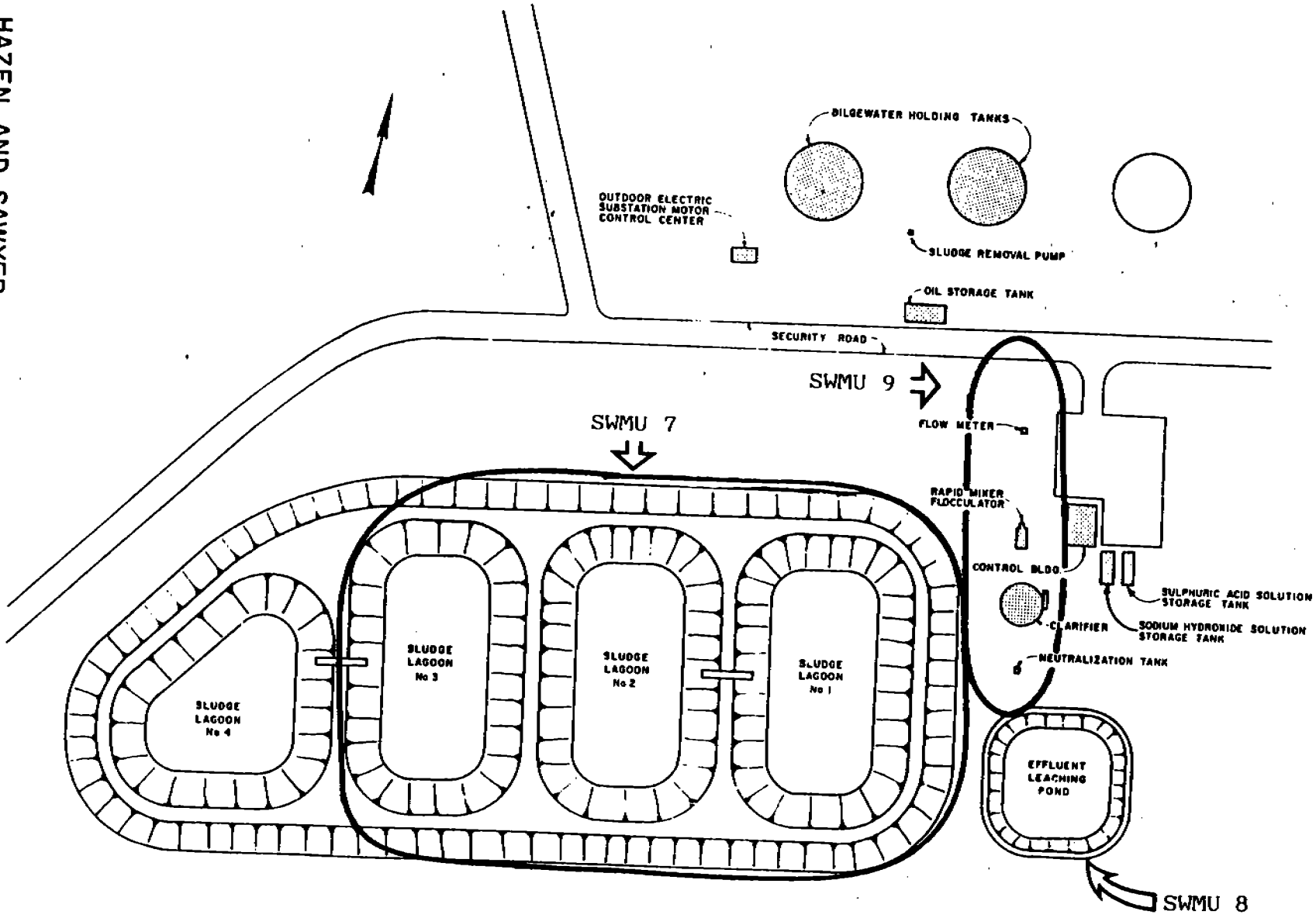


FIGURE IV-7: LOCATIONS OF SWMUs 7, 8, AND 9
(REFERENCE 92)

directly to the sludge drying beds, as is overflow from these tanks when the tank capacity is exceeded by the volume of influent oily wastewater. The sludge beds are designed to allow supernatant from the beds to be recirculated back to the neutralization tank for discharge to the OWTP Percolation Pond (SWMU 8) (Reference 92).

Since the beds were constructed, sludge has been disposed of in beds one, two, and three. No sludge has been taken off-site from the beds. Recently, all the sludge that was disposed of in bed one was excavated and moved to bed two to allow construction of three new holding tanks for the OWTP in the same location. Soil samples were collected from the soil beneath the excavation. The results of analysis of the samples documented high pH (9.2-9.4) and high oil and grease (3093-3323 mg/kg) concentrations in the soil. In addition, no metals were found using the EP toxicity test and no organics were detected other than xylene, which was detected at 3.5 ug/g in one sample (Reference 32). The sludge in the drying beds has been sampled and analyzed on a number of occasions (References 32, 46) and found to contain organics below detection limits and metals at concentrations comparable to typical municipal sludges (Reference 46). Table IV-6 indicates metals concentrations found in the sludges. None of the sludges exhibited the characteristic of EP toxicity for any of the EP toxic metals (Reference 32).

The sludge drying beds were not identified as NIRP sites in the IAS, and they were not included in the ESI. The sludge beds were identified as SWMU G in the HSWA permit which required an RFI for the unit. Mayport submitted an RFI work plan which proposed to address SWMUs 6 through 10 as one area. Some of the work proposed for this area in the RFI work plan has been conducted as part of the investigation of NIRP Site 8, the Waste Oil Pit (SWMU 6), under the EIS phase of the NIRP program.

Due to the unlined nature of the sludge drying beds, the permeability of the soils in the area, and the presence of hazardous constituents (metals) in the sludge, an RFI appears warranted for this unit. An RFI has been required through the mechanism of the HSWA permit. An evaluation of whether the work conducted under the ESI for SWMU 6 will be accepted by U.S. EPA in place of some of the RFI requirements has not been conducted. A further evaluation

Table IV-6

Metals Concentrations: OWTP Sludge in Drying Beds
(SWMU 7) (Reference 46)

Cadmium	7.5 mg/kg
Chromium	330 mg/kg
Copper	830 mg/kg
Nickel	290 mg/kg
Lead	440 mg/kg
Zinc	1700 mg/kg

of any additional work that may be necessary to better characterize releases from the sludge drying beds, taking into account the information obtained for Waste Oil Pit (SWMU 6, Site 8) under the ESI, will also be required.

8: (OWTP) Percolation Pond (HSWA SWMU H)

The Percolation Pond is the final unit of the OWTP. (See SWMU 9 for description of the OWTP). Figure IV-7 (page IV-22) illustrates the location of the Percolation Pond. The influent is treated wastewater from the OWTP, and the discharge point is the NPDES-permitted outfall for the plant which flows through a pipe and a storm drainage ditch to the Saint Johns River. The outfall is regulated under NPDES Permit No. FL0033308. Figures IV-8 and IV-9 illustrate the design and process piping for the pond. The percolation pond was originally designed to allow the treated effluent to percolate into the ground, but an overflow pipe was included to allow overflow to the Saint Johns River if the water level became too high (Reference 92). Apparently, the pond did discharge to the Saint Johns River at least some of the time (Reference 46).

In March or April of 1988, the OWTP was overloaded with oil from one of the receiving tanks (SWMU 51E or F) due to operator error, and the oil flowed through the system into the Percolation Pond. In order to remove the oil, the pond was excavated. At that time, a liner of one foot of gravel covered with six inches of compacted clay was added to the pond (Reference 103).

The percolation pond is approximately 1575 square feet in size and has earthen berms on all sides that are approximately 10 feet wide and five feet above the level of the discharge pipe. See Reference 92 for further information about the design and operation of the pond.

No information concerning the characterization of the influent wastewater was available, but the effluent is sampled and analyzed regularly for compliance with the requirements of the NPDES permit (References 6, 9). A study conducted by U.S. EPA in July 1987 determined that the quality of the effluent was acceptable, with a BOD_5 of 28 mg/l, TSS of 16 mg/l, and oil and grease content of 9.9 mg/l. Organic compounds detected in the effluent included

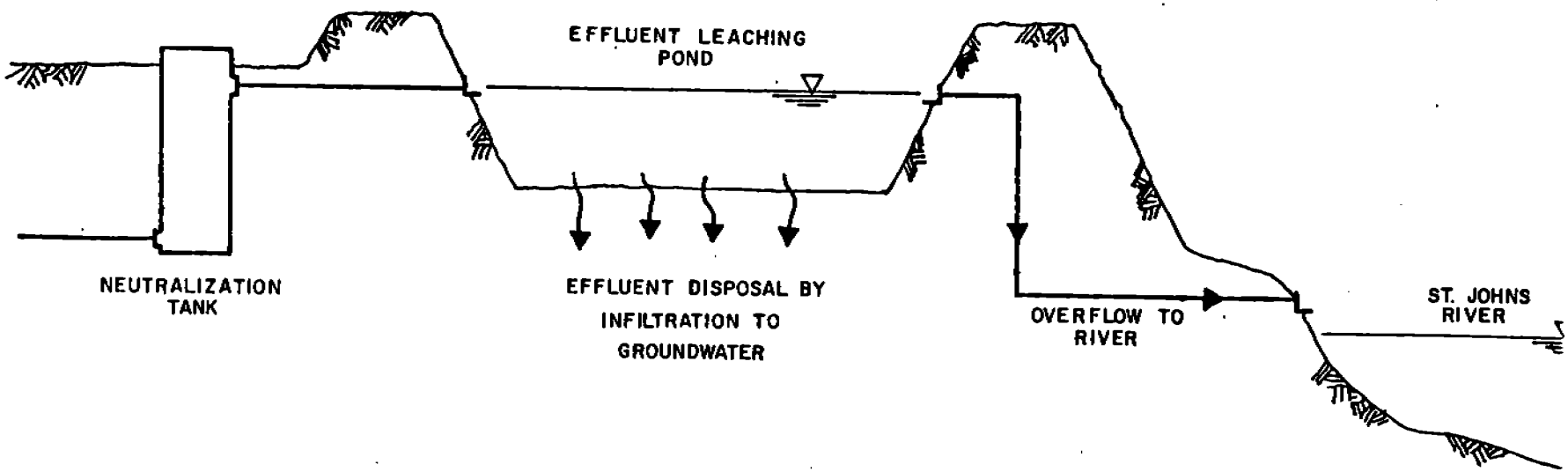


FIGURE IV-8: PROCESS FLOW DIAGRAM; OWTP PERCOLATION POND (SWMU 8)
(REFERENCE 92)

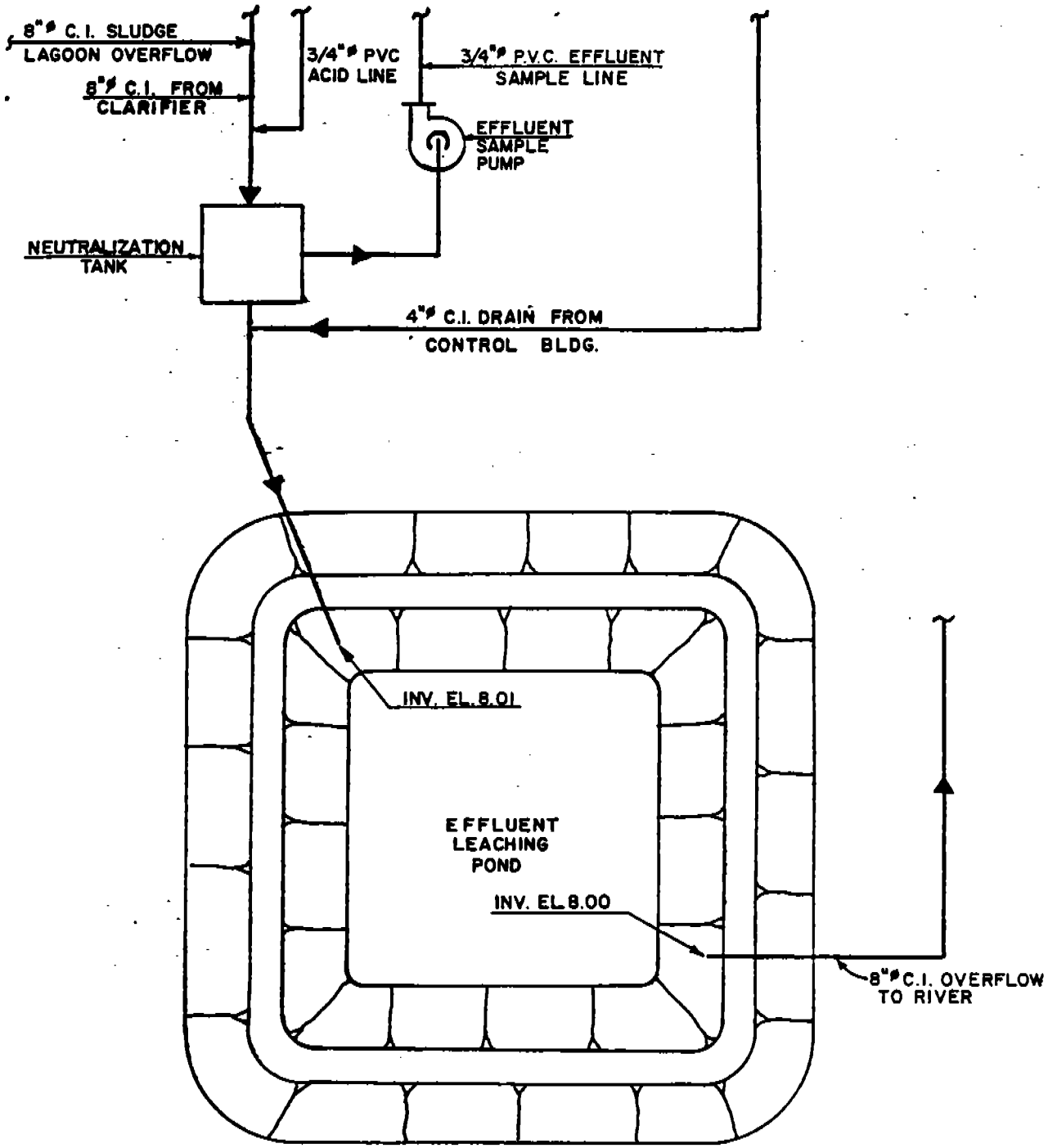


FIGURE IV-9: PROCESS PIPING DIAGRAM; OWTP PERCOLATION POND (SWMU 8) (REFERENCE 92)

acetone, benzene, toluene, ethyl benzene, methyl ethyl ketone, and 2,4-dimethylphenol (Reference 46). A study conducted by the Naval Facilities Engineering Command noted that the effluent for the OWTP violated the NPDES standard for monthly average oil and grease content for six months during the twelve-month period from April 1986 to March 1987 and that 17% of all samples exceeded the daily maximum standard (Reference 43).

The effluent discharge to the Saint Johns River is regulated under the NPDES program. The potential for past releases to groundwater is high due to the unlined nature of the pond and the fact that it was designed to percolate to underlying soils. The potential for future releases to groundwater are moderate due to the nature of the liner installed.

The Percolation Pond was not identified as a NIRP site in the IAS and was not investigated under the ESI.

The Percolation Pond was identified as SWMU H in the Mayport HSWA permit, which also required that an RFI be conducted. Mayport submitted an RFI work plan which proposed to address SWMUs 6 through 10 as one area. Some of the work proposed for this area in the RFI work plan has been conducted as part of the investigation of Site 8, the Waste Oil Pit (SWMU 6), under the ESI phase of the NIRP program.

Due to the unlined nature of the percolation pond (in the past), the design for purposes of percolation, and the presence of hazardous constituents in the effluent from the pond, an RFI appears warranted for this unit. An RFI has been required as part of the HSWA permit. An evaluation of whether the work conducted for the Waste Oil Pit/Sludge Drying Bed SWMU 6 (Site 8) under the ESI phase of the NIRP program will be accepted by U.S. EPA in place of the RFI requirements has yet to be made. An evaluation of any additional work that may be necessary to further characterize releases from the percolation pond, taking into account the information obtained for SWMU 6 (Site 8) under the ESI, will also be required.

9: Oily Waste Treatment Plant (OWTP) (HSWA SWMU I)

The Oily Waste Treatment Plant (OWTP) was constructed in approximately 1979 (Reference 66) to treat bilge waters and other oily wastes generated at Mayport. The system has been in operation since its construction. The entire system includes three 210,000-gallon receiving tanks (SWMU 51-E, F, and G), the treatment plant (SWMU 9), the percolation pond (SWMU 8), and the sludge drying beds (SWMUs 6 and 7). The HSWA permit identified each of these parts of the system as separate SWMUs (except the tanks, which are included as SWMU 51), so each is addressed separately within this report also. SWMU 9 includes a rapid mix/flocculation tank, a clarifier, a neutralization tank, and connected piping. Figure IV-10 presents a site diagram of the OWTP and Figure IV-11 illustrates the process flow of the system. Construction and operation of the OWTP is regulated by FDER through the issuance of State construction and operation permits. Currently the plant is operated and a new Dissolved Air Flotation (DAF) unit and the three holding tanks are being constructed under Permit No. IC16-155209.

The influent to the OWTP consists largely of ships' bilge water from which the oily fraction has been separated. A study evaluating the characteristics of bilge waters indicated that bilge water, after separation, would likely contain low concentrations of metals such as aluminum, chromium, copper, iron, manganese, nickel, lead, and zinc, and of organics such as toluene and 1,1,1-Trichloroethane (Reference 41).

After the oily layer has been allowed to float to the top of receiving tanks 99 and 100 (SWMUs 51-E and F), the separated water is pumped through an underground line from the bottom of the tanks to the OWTP. The influent first enters the rapid mix/flocculation tank, which is a rectangular concrete tank with intermediate baffle walls. The tank contains a rapid mix and a flocculation (slow mix) section. The rapid mix section of the tank is approximately five feet wide and five feet long and has a capacity of 160 cubic feet. The flocculation section of the tank consists of two flocculation units and is approximately 20 feet long and eight feet wide. The flocculation units have a capacity of 833 cubic feet. The rapid mix section of the tank is three feet deeper than the flocculation section.

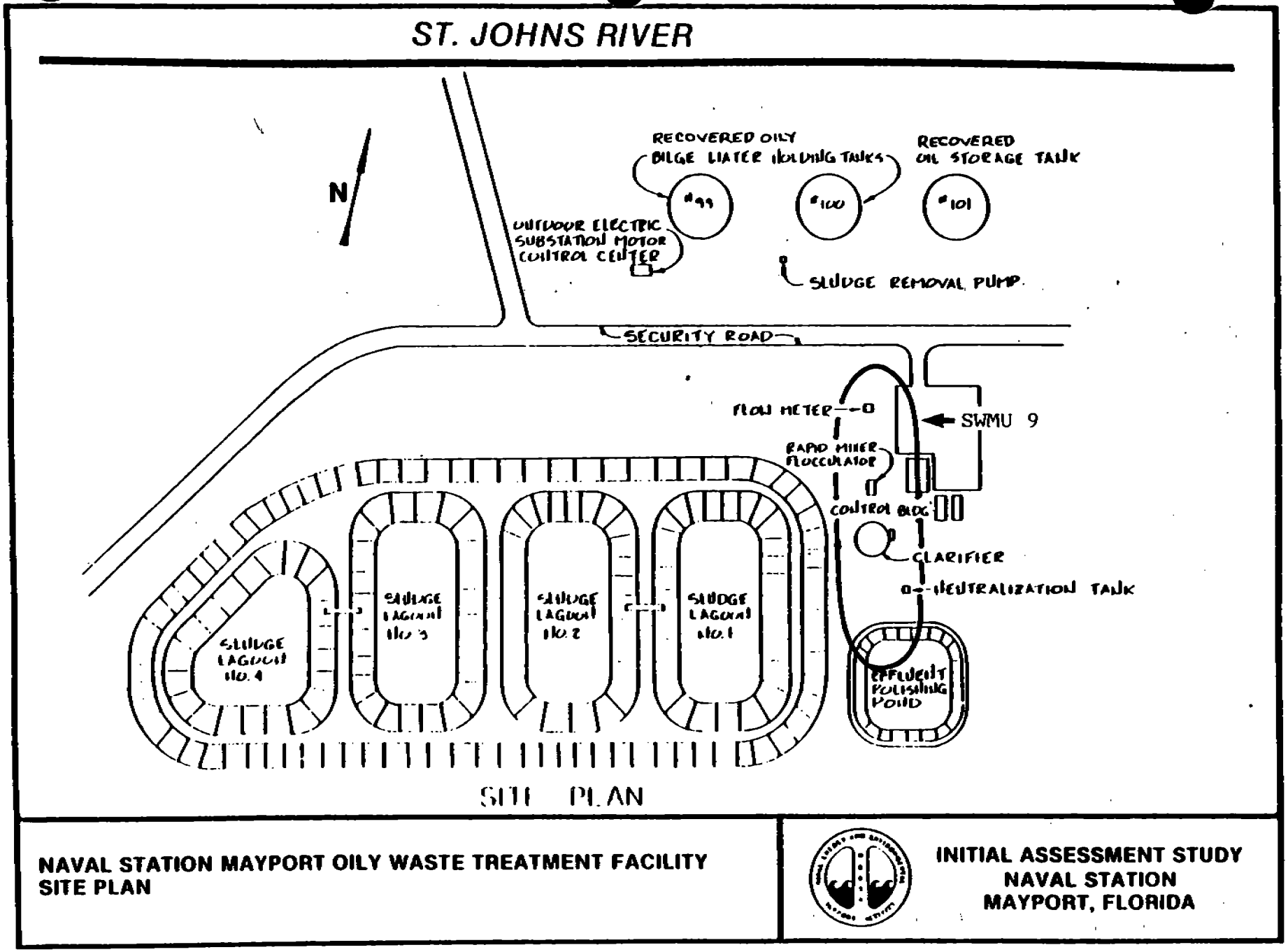


FIGURE IV-10: SITE DIAGRAM; OILY WASTE TREATMENT PLANT (SWMU 9)
(REFERENCE 66)

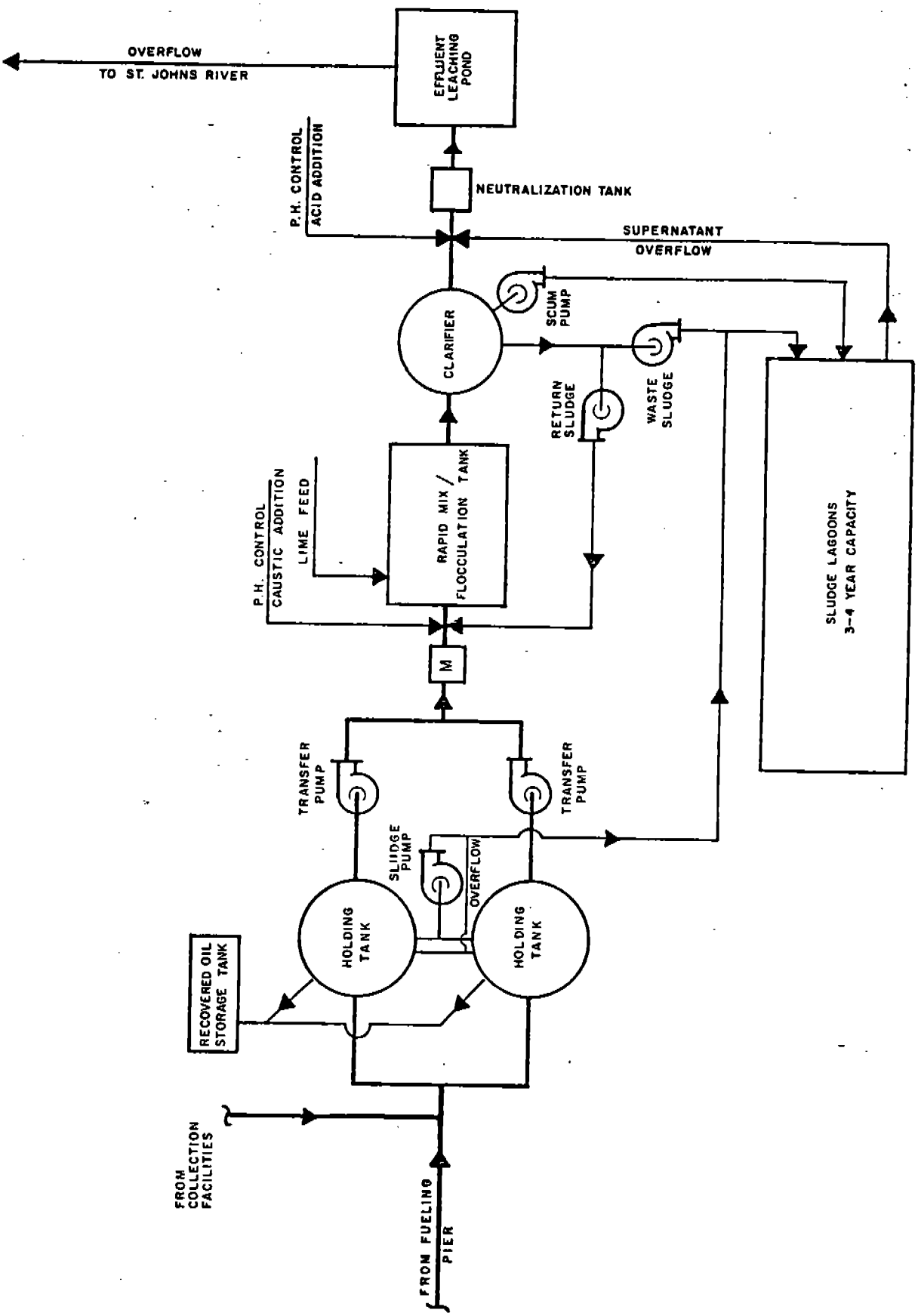


FIGURE IV-11: PROCESS FLOW DIAGRAM: OILY WASTE TREATMENT PLANT (SWMU 9)
(REFERENCE 92)

In the rapid mix/flocculation tank, bags of hydrated lime are added by hand to assist in the flocculation process. The system was designed to be semi-automatic using a lime feeder, but this feeder is not currently used.

The effluent from the rapid mix/flocculation tank flows through an above-ground pipe to the clarifier. The clarifier is a cylindrical concrete tank, 25 feet in diameter, with a conical bottom and a rotating collection mechanism. The clarifier has a capacity of 5370 cubic feet, and is designed for an influent flow rate of 200 gallons per minute.

In the clarifier, particles in the influent settle to the bottom. The settled sludge is pumped through the clarifier underflow to the sludge drying beds. Floating solids and oil and grease are skimmed off and also are pumped to the sludge drying beds.

Effluent from the clarifier is pumped through an 8-inch cast iron underground pipeline to the underground neutralization tank. The neutralization tank is constructed of concrete and has a capacity of 125 cubic feet. Sulfuric acid is added to the influent through an underground pipeline to adjust the pH of the liquid. In the neutralization tank, a rapid mixer mixes the solution prior to discharge through an underground pipeline to the percolation pond (SWMU 8) (Reference 92).

The only release from the OWTP that was documented in the files reviewed for this report occurred when a portion of the oil layer from the receiving tanks was pumped through the system. The oil flowed through the system and settled in the percolation pond (SWMU 8) (References 101, 103).

The HSWA permit for Mayport identified the OWTP as SWMU I and required that an RFI be conducted (Reference 36). Mayport submitted an RFI work plan which proposed to address HSWA SWMUs 6 through 10 as one area and to conduct soil and groundwater sampling (Reference 47). Some of the work proposed for this area in the RFI work plan has been conducted under the ESI phase of the NIRP program, as part of the NIRP Site 8 (SWMU 6) investigation.

Due to the permeability of soils in the area, the underground or on-ground construction of the system, the wastes managed in the system, and the presence of hazardous constituents in the influent, an RFI appears warranted for this unit. An RFI has been required through the mechanism of the HSWA permit. An evaluation of whether the work conducted under the ESI will be accepted by U.S. EPA for SWMU 6 in place of some of the requisite RFI work has yet to be made.

Due to the age of the OWTP, the materials of construction (concrete tanks, iron pipes), the high and low pH of the materials managed in the system, and the on-ground or underground construction of the majority of the system, it is also suggested that the integrity of the entire system be evaluated. If the structural integrity is impaired, it is suggested that repairs be made, as necessary, and that localized soil sampling be conducted to determine whether hazardous constituents have been released from the system.

10: Hazardous Waste Storage Area (HSWA SWMU J)

SWMU J as identified in the HSWA permit for Mayport (SWMU 10) includes both the RCRA-regulated Hazardous Waste Storage Building and the less-than-90-day hazardous waste accumulation area that occupies the fenced area surrounding the building. The Hazardous Waste Storage Building is approximately 60 feet square and is operated under RCRA Permit No. HO16-118598, issued by FDER. The Hazardous Waste Storage Building consists of a concrete base coated with synthetic epoxy which is separated into seven storage bays. Each bay is surrounded by a 12" curb on three sides, and slopes one half inch per foot toward grated isolated containment basins in the central portion of the building. Sheet metal outer walls were recently added to the building. The facility is permitted to store a maximum of 480 55-gallon drums holding no more than 26,400 gallons of hazardous waste (References 26, 37, 57, 103).

Wastes are stored in drums on pallets in the less-than-90-day storage area, which is encircled by a chain-link fence. The area is approximately 100 feet square. The base is native soil covered with a layer of crushed lime rock. PCB-containing wastes in drums are stored on pallets in the northwestern

corner of the fenced area, which is grassy and not covered with lime rock. Both the storage building and the 90-day-storage area have been in operation since construction approximately five years ago (References 101, 103).

No known releases have occurred from either the building or the 90-day-storage area. During the VSI, several small stains were noted on the lime rock near the entrance to the fenced area but these did not appear large or deep enough to be of concern. However, one item of concern with respect to a potential release pathway to groundwater was noted. Along the eastern side of the fenced area, bumpers and an area of concrete suggested that a well had been installed and abandoned at this location. No information was available concerning the installation or abandonment of this well (References 101, 103).

The RCRA Hazardous Waste Storage Building and the surrounding fenced area were identified in the Mayport HSWA permit as HSWA SWMU J. The permit required that an RFI be conducted for this unit. Mayport submitted an RFI work plan which proposed to address SWMUs 6 through 10 as one area, and to conduct soil and groundwater sampling (Reference 47). Some of the work proposed for this area in the RFI work plan has been conducted under the ESI phase of the NIRP, as part of the NIRP Site 8 (SWMU 6) investigation. An evaluation of whether the work conducted under the ESI will be accepted by U.S. EPA in place of some of the requisite RFI work has yet to be made.

Due to the unsurfaced nature of the outer storage area, the nature of wastes managed in the area, the permeability of the soils in the area, and the proximity to the Saint Johns River, an RFI appears to be warranted for this unit. It is also suggested that information be obtained concerning the construction and abandonment of the suspected well within the less-than-90-day storage area. If a well was abandoned at this location, the abandonment should be evaluated to determine whether the procedures used will prevent the well from providing a pathway for contaminants from spilled hazardous waste to preferentially move to near-surface groundwater or to move to deeper aquifers. If the procedures used were not adequate, corrective action should be taken to ensure that the well shaft does not provide a preferential release pathway.

11: Fuel Spill Area (HSWA SWMU K, NIRP Site 9)

The Fuel Spill Area is located in the NSC fuel farm area, north and west of Tank 201. The site was identified when soil borings made for a construction site were found to smell strongly of fuel. Figure IV-4 (page IV-18) illustrates the inferred location of the spill area. The IAS and ESI reports note that the source of the fuel is unknown but that it is likely to have originated in the fuel farm area. No further information concerning the wastes managed or the unit was available. However, during the file review conducted for this report, it was noted that Reference 78 contained a description of a waste oil pit and a map showing the pit to have been located to the southwest of Tank 201. The report describes the pit as having been used for disposal of waste oil, which when pumped into the pit overflowed into the Saint Johns River. It is possible that this unit may be the source of the noted contamination. Figure IV-5 (page IV-19) is the location map included in Reference 78 and illustrates the location of the waste oil pit.

The Fuel Spill Area was identified as NIRP Site 9 in the IAS, and further investigation under the ESI was recommended. Under the ESI, three monitoring wells were installed and soil and groundwater samples taken from these locations. Methylene chloride was detected in one soil sample, and naphthalene, lead, mercury, and the pesticides aldrin and 4,4'-DDE were detected in groundwater samples. Figure IV-12 illustrates the distribution of constituents detected in soil and groundwater samples. An environmental risk assessment was recommended as further action in the ESI. The preliminary HRS score calculated for this site was 4.52 (Reference 34).

The Fuel Spill Area was identified as SWMU K in the HSWA permit for Mayport, and an RFI was required. Mayport submitted an RFI work plan that proposed five locations for installation of monitoring wells and soil and groundwater sample collection. Wells were installed and samples were collected in three of the five locations under the ESI investigation, as noted above.

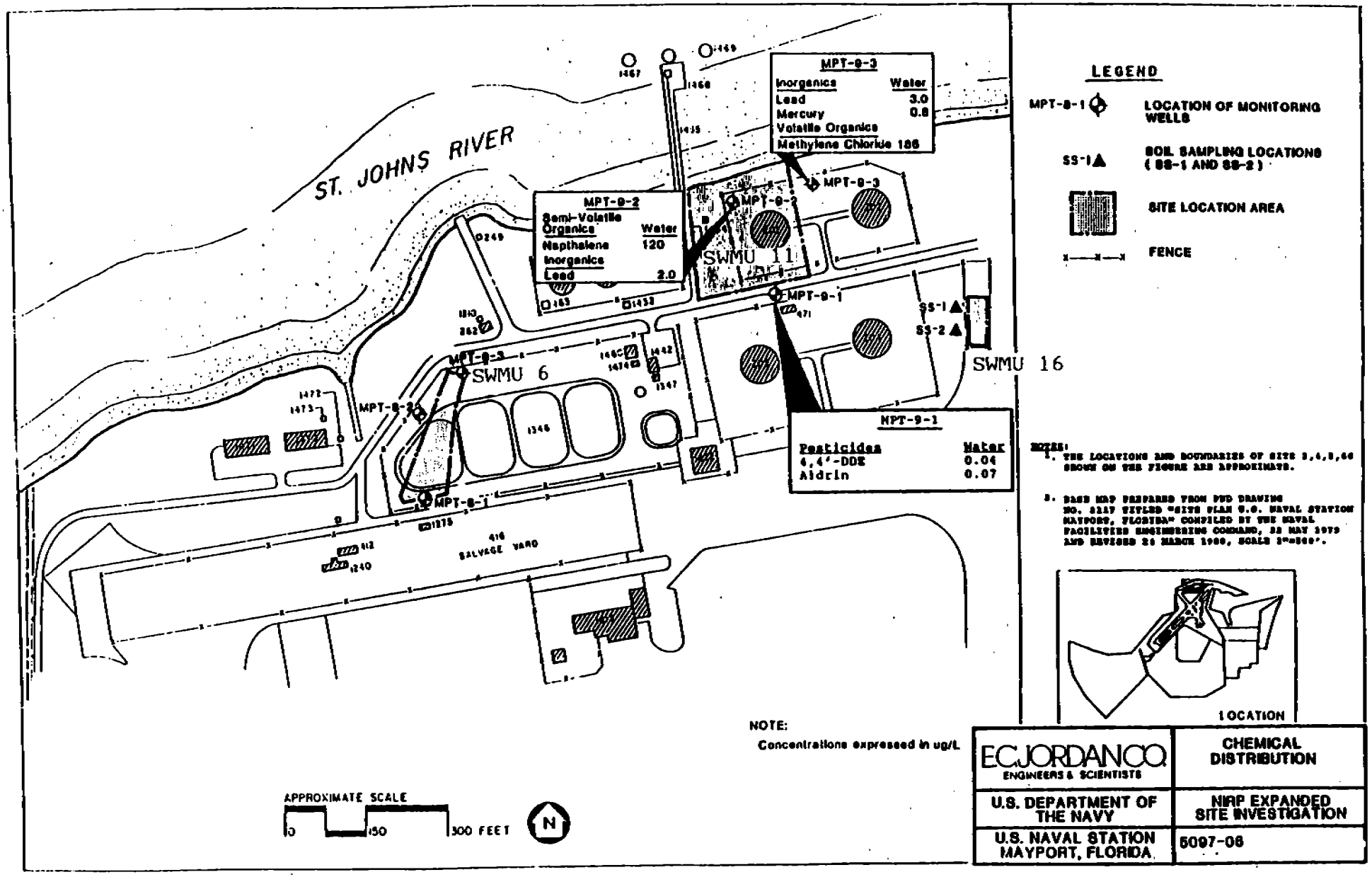


FIGURE IV-12: CHEMICAL DISTRIBUTION FOR THE FUEL SPILL AREA (SWMU 11)
(REFERENCE 34)

Since releases of hazardous constituents have been documented in the ESI, an RFI is warranted for this area. An RFI has been required through the mechanism of the HSWA permit. An evaluation of whether the work conducted under the ESI will be accepted in place of some of the requisite RFI work has yet to be made.

Based on the information found in Reference 78 regarding the waste oil disposal pit, it is also suggested that sampling be conducted in the area of the pit to determine whether the waste oil pit and overflow from the pit are the source of the contamination discovered in the area. If these units are determined to be a continuing source of contaminants, corrective action may be designed to remove the source and to more specifically define the extent of contamination (Reference 78).

12: Neutralization Basin (HSWA SWMU L, NIRP Site 11)

The Neutralization Basin is located in the northern part of Mayport, approximately 40 feet to the north of Boiler Building 1241. The Basin is approximately 75 feet from the St. Johns River. Figure IV-13 illustrates the location of the Neutralization Basin. The Basin is used to store treated effluent from the anion/cation exchange process used in the boiler plant. The original Neutralization Basin was first put into operation in February of 1971 and was constructed of an asphalt base covered with a synthetic liner. Based on information obtained from Mayport personnel, the liner and asphalt were in good condition until the liner was damaged by a hurricane in 1985 (Reference 18).

A new basin was constructed to replace the old Basin in 1986 and was first operated in January of 1987. The new Basin, which is currently in use, is constructed of 6-inch-thick concrete on top of 12 inches of compacted soil. The concrete is covered with a Hypalon liner. The Basin is six feet deep, 59 feet wide, and 78 feet long. Influent from the Boiler Building enters the Basin through a 6-inch underground pipeline. The Basin is divided into two cells, and the effluent is discharged through sewer pipes to the Wastewater Treatment Facility (SWMUs 43-45). Release controls for the unit include six-foot-high berms on all sides of the Basin and flow rate controls in the regenerant system.

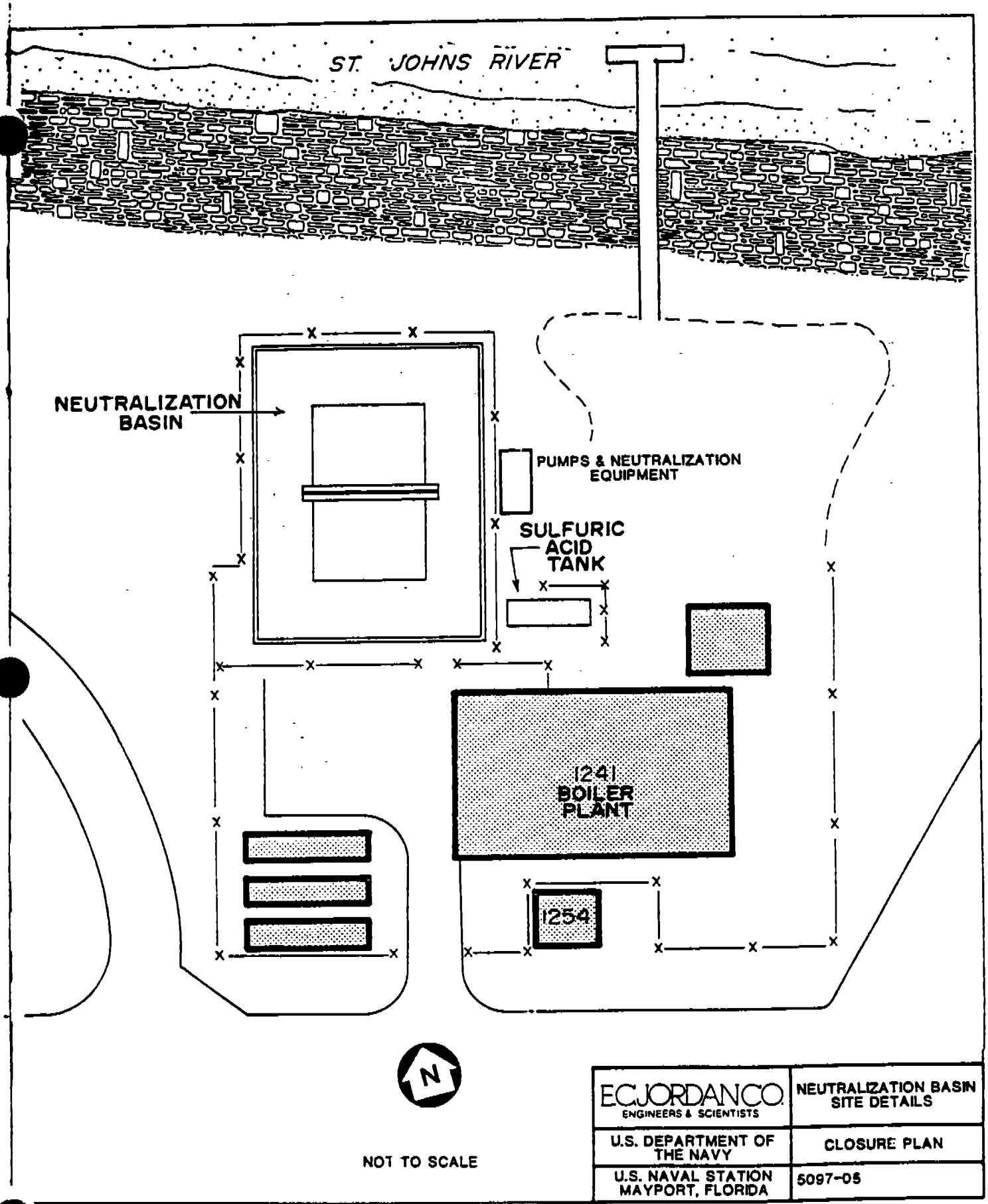


FIGURE IV-13: LOCATION OF THE NEUTRALIZATION BASIN (SWMU 12) (REFERENCE 18)

The Neutralization Basin was determined to be a RCRA hazardous waste management unit during a site inspection when it was determined that the effluent entering the Basin sometimes had a pH less than 2 or greater than 12.5. FDER issued Mayport a Notice of Violation for operating a hazardous waste surface impoundment and required Mayport to submit a closure plan for the unit (References 45, 57).

A closure plan and a groundwater monitoring plan for the Neutralization Basin were submitted to FDER in December of 1988 (References 18, 19). The closure plan proposed soil and sediment sampling to demonstrate clean closure for the unit, to be verified by one year of quarterly groundwater sampling and analysis. Mayport planned to continue to use the Neutralization Basin after closure for management of nonhazardous boiler regenerant water. A study was conducted in May of 1987 which identified procedures to be used to ensure that the regenerant water discharged to the Basin in the future did not have a pH below 2 or above 12.5 (Reference 52).

Soil and sediment samples were recently collected from the Neutralization Basin and the two proposed monitoring wells were installed. Closure is in process, but has not been completed or approved by FDER.

The Neutralization Basin was identified as Site 11 in the IAS study because it was reported that wastes from ships including solvents, mercuric wastes, and chromium wastes had been disposed of in the old Neutralization Basin. It was also reported that the Basin had leaked in the past and that the wastes disposed of in the Basin had seeped into the highly permeable soils beneath the Basin. In addition, during the VSI, facility personnel reported that in the past, untreated regenerant solutions were discharged into Mayport Basin through a pipeline that bypassed the Neutralization Basin. The untreated solutions caused concrete and soils in the Charlie Pier area to collapse. The concrete and soils were replaced and the bypass to Mayport Basin is no longer used. No further investigation under the NIRP program was recommended in the IAS because it was believed that the quantities of wastes disposed of in the old Basin would already have migrated into the Saint Johns River (Reference 66).

Based on the high permeability of the soils in the area of the Neutralization Basin and on the reports of releases of hazardous constituents from the unit to soils and likely to groundwater, an RFI appears warranted for this unit. The Neutralization Basin was identified as SWMU L in the final HSWA permit for Mayport, and conduct of an RFI was required. Mayport submitted an RFI work plan in July of 1987, but the Neutralization Basin was not included in the plan because the plan was based on a draft permit that had not included the Neutralization Basin (Reference 47). However, soil sampling and groundwater monitoring are being conducted as part of RCRA closure of the Basin which has been required by FDER. Final evaluation of the sampling plan, sampling results, and closure certification will be subject to approval by FDER. An evaluation of whether the activities conducted under the RCRA closure authorities, subject to FDER approval, will be accepted by U.S. EPA in place of the requisite RFI work has yet to be conducted.

13: Old Firefighting Training Area (HSWA SWMU M, NIRP Site 13)

The Old Firefighting Training Area was located in an area of the Naval Air Station where a parking lot for the AIMD Building is currently located. The area was used from 1973 to 1982 for training exercises. Approximately 4,880 gallons per year of waste oils, solvents, and mercury wastes were placed in a low earthen-bermed pit built on top of an abandoned asphalt runway and ignited for firefighting training. Unburned materials would have seeped into the soil beneath the runway or flowed off the edges of the runway (Reference 66).

Although further investigation of this area was not recommended in the IAS study, the site was included as part of the ESI. In the course of the conduct of the ESI, it was determined using aerial photos that two additional areas to the north of the first area had also been used for firefighting training during this same time period. Figure IV-14 illustrates the locations of all three of the training areas (Reference 34).

During construction activities, the soils of the southernmost training area were disturbed to a depth of four to six feet and spread over the area. The area was then paved for a parking lot. The areas where the two northern areas were located are now covered by a ramp, building, paved roads, parking areas, and grass (Reference 34).

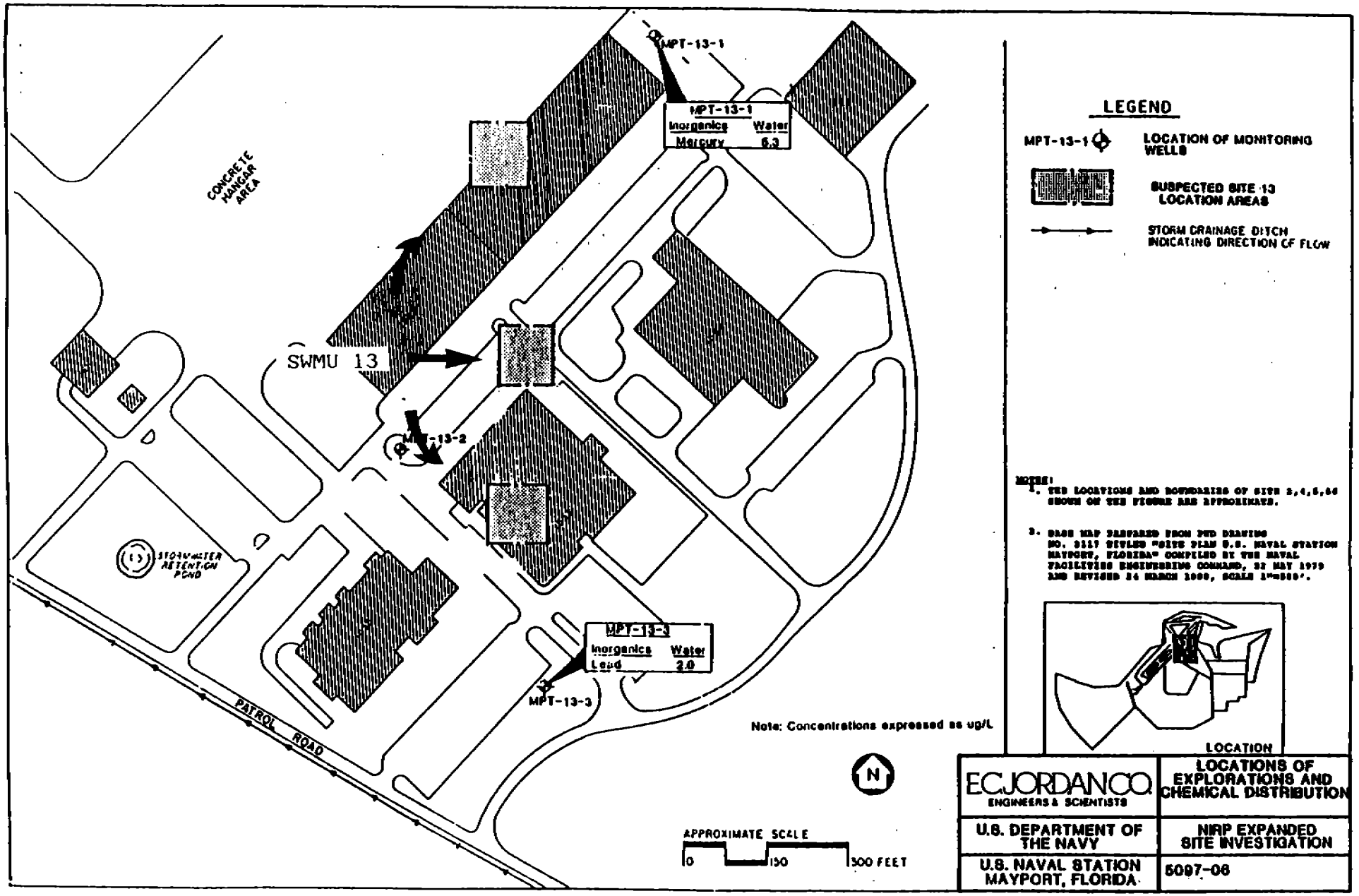


FIGURE IV-14: LOCATION AND CHEMICAL DISTRIBUTION FOR OLD FIREFIGHTING AREA (SWMU 13) (REFERENCE 34)

As part of the ESI, soil and groundwater samples were collected from three locations where monitoring wells were installed. No hazardous constituents were detected in the soil samples, but lead and mercury were each detected in one groundwater sample. Figure IV-14 illustrates the locations of the samples collected and the constituents detected. Due to the lack of sufficient information concerning groundwater flow directions in the area, it was recommended in the ESI that further investigation of the area be conducted under a Phase II ESI. It was recommended that the Phase II include installation of five piezometers to establish groundwater flow directions, and three groundwater monitoring wells to verify the presence or absence of hazardous constituents in the groundwater (Reference 34).

The Old Firefighting Training Area was identified as SWMU M in the HSWA permit for Mayport. An RFI was required for the area. Mayport submitted an RFI work plan that proposed three locations for soil and groundwater sampling and monitoring well installation. The three locations proposed in the RFI work plan were not exactly the same three locations at which samples were taken and wells were installed under the ESI (References 34, 47).

Due to the wastes managed and the waste management practices utilized at this site, the permeability of the soils in the area, and the shallow water table, an RFI appears warranted for this site. An RFI has been required as part of the HSWA permit. An evaluation of whether the work conducted under the ESI will be accepted by U.S. EPA in place of the requisite RFI work has yet to be made.

14: Mercury/Oil Waste Spill Area (HSWA SWMU N, NIRP Site 14)

The Mercury/Oily Waste Spill Area is located in the northeastern part of Mayport on a point of land between the St. Johns River and the Atlantic Ocean. The suspected spill area is located to the west and north of the Fleet Training Center (FTC), Buildings 1458 and 1388, and is within 250 feet of the St. Johns River.

The area encompasses several parts, including the old firefighting training apron, the wet wells and oil/water separator area, the concrete pond associated with the oil/water separator, the FTC retention pond east, the new firefighting training apron, the new apron equalization tanks, and the FTC retention pond west. The old firefighting apron is a concrete apron that is roughly 400 feet square in size on which firefighting training activities occur. Firefighting activities are conducted on the old apron using several types of equipment. Diesel fuel marine (DFM) is floated on water in two circular half tanks and ignited. Pots of DFM are burned inside two small bunkers. A mock-up of a helicopter and of a plane are doused with DFM and lighted. Small two-inch berms are located around the helicopter and plane mock-ups to contain the fuel.

The old apron is constructed of concrete sections. In some places, tar has been placed along the cracks between the sections to prevent leaks through the concrete. Small cracks in the concrete were noted during the VSI, and some cracks and other discontinuities in the concrete had dark stains along the edges.

The oil/water separator (SWMU 54-A), wet well, and concrete pond are located in the northeast side of the old apron, between the apron and Building 1458.

Grated drains in the old concrete apron lead to 24" and 15" reinforced concrete piping that flows to the oil/water separator (SWMU 54-A). All liquids from the old apron area are drained to the oil/water separator. The effluent from the oil/water separator is piped to the Wastewater Treatment Facility (SWMU 43), where it first enters Clarifiers 1 and 2 (SWMU 44). Also in the area of the old apron, an underground diesel tank was removed approximately three years ago and replaced with a new diesel tank. It is not known whether the old tank was in the same location as the new tank or whether any leak or soil testing was done to evaluate whether any leaks had occurred from the tank. It is believed that the old tank was installed in the early 1970s, at the same time that the FTC Buildings were constructed.

extinguishing material in firefighting training on the old apron. In the last several years, an AFFF simulant that is non-toxic has been used (References 66, 101, 103).

Evidence of releases at this site noted during the VSI included an oil sheen on the FTC retention pond east, oily residue deposited on soils at the water line of the pond, and oily rags lying on the soil near monitoring well MPT-14-1. According to the facility personnel, several shallow soil borings have been made in the area and soil to a depth of approximately four feet has been surveyed with an Organic Vapor Analyzer (OVA). In at least one boring located between the southern border of the old apron and the road, organics were detected using the OVA (References 101, 103).

The Mercury/Oily Waste Spill Area was identified as Site 14 in the IAS. It was recommended in the IAS that further investigation be conducted as part of the ESI. Investigation conducted under the ESI indicates that the soils in the area consist of fine to medium quartz sand with shells. The groundwater flow direction in the area was not well defined but is anticipated to flow north towards the St. Johns River. For further information on the hydrogeology of the area see Reference 34. Under the ESI, groundwater monitoring wells were installed and soil and groundwater samples were collected at two locations. The locations of the monitoring wells and sample sites are illustrated on Figure IV-15. Analysis of samples collected as part of the ESI found no hazardous constituents in the soil samples, but mercury was detected in the groundwater sample collected from well MPT-14-2, at a concentration of 1.8 ug/l. This concentration of mercury exceeds the U.S. EPA ambient water quality criteria established for chronic exposure in marine environments which has been set at 0.025 ug/l. Figure IV-15 illustrates the chemical distribution at SWMU 14 (Reference 34).

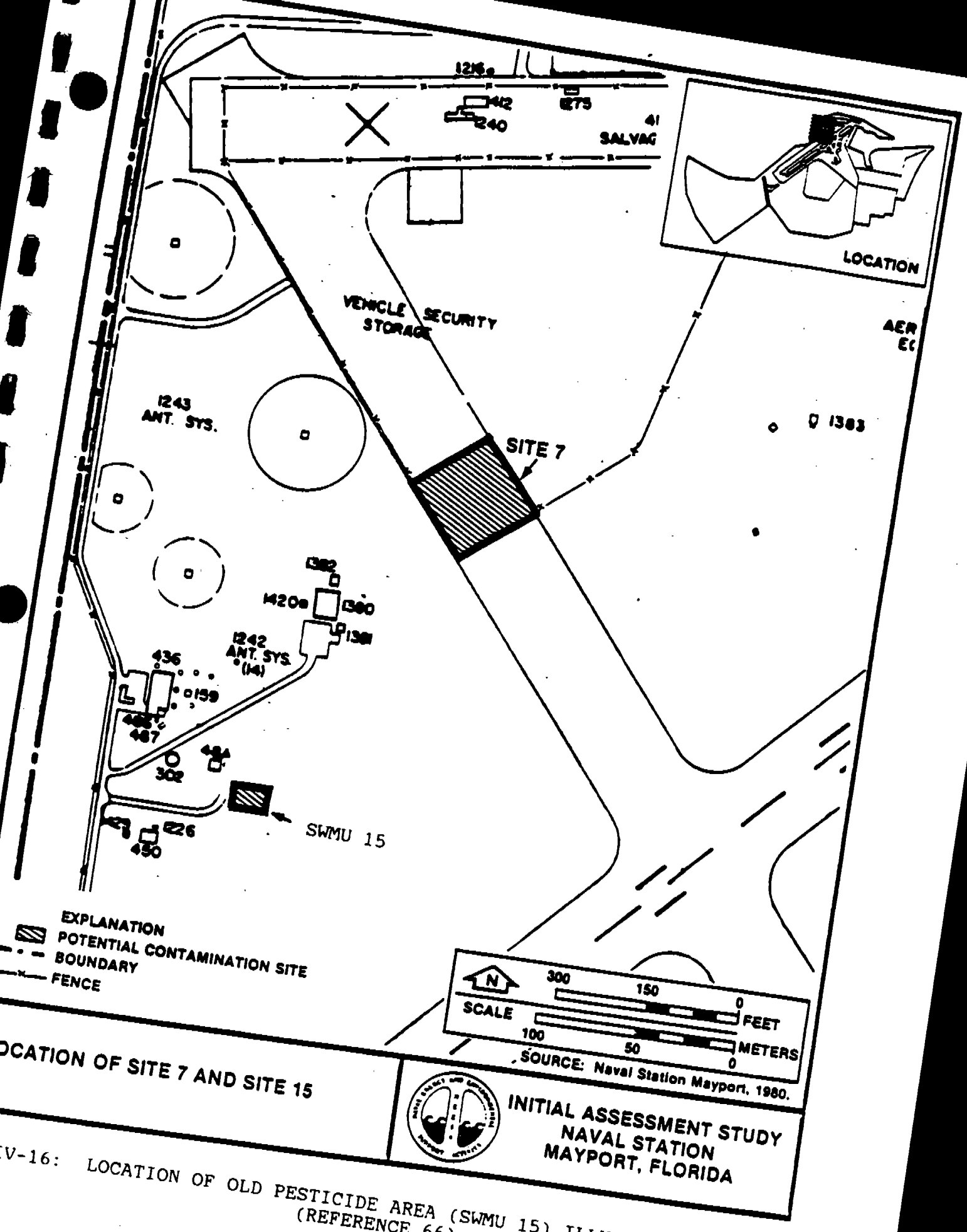
The Mercury/Oily Waste spill area was identified as SWMU N in the HSWA permit for Mayport. The permit required Mayport to conduct an RFI for the unit. Mayport submitted an RFI work plan that proposed to install monitoring wells and collect soil and groundwater samples at three locations. One of the

locations proposed (MPT-14-2) is the same as one of the wells installed under the ESI, and one (MPT-14-1) is in a slightly different location than a well of the same number that was installed as part of the ESI (References 34, 37).

Based on the knowledge of materials spilled or leaked in this area, the high permeability of the soils, the proximity to the St. Johns River, and evidence of releases documented in the ESI, the VSI, and other investigations conducted by the facility, an RFI appears warranted for this SWMU. An RFI has been required as part of the HSWA permit, and an RFI work plan has been submitted. An evaluation of the investigations completed under the ESI must be conducted and a determination made regarding whether the work completed will be accepted in place of some of the requisite RFI work.

In addition to the investigation conducted under the ESI, it is also suggested that further investigation be conducted to identify, if possible, the source and extent of the oil releases noted during the VSI and the organics detected by the facility in shallow soil samples. Sampling should include collection of sediment and surface water samples in both retention basins and the storm drainage ditches in the area. It is also suggested that the integrity of the wet well and of the old firefighting training apron and the associated drains and drain pipes be evaluated, and if the integrity is found to have been impaired, that repairs be made and that localized soil sampling be conducted to determine whether releases have occurred.

It is further recommended that the former location of the old underground diesel tank be determined, as well as procedures that were used for its removal. If no investigation of potential leaks from the tank was conducted, it is recommended that soil sampling be conducted to verify that the tank and any associated contaminated materials were removed. As is discussed under SWMU 54-A, Oil/Water Separators, it is further recommended that a regular program of oil removal and maintenance be established and implemented for the oil/water separator to ensure that separated oil is removed in a timely manner, that the integrity of the oil collection unit is periodically verified, and that the oil/water handling system in this area is operating properly.



V-16: LOCATION OF OLD PESTICIDE AREA (SWMU 15) ILLUSTRATED IN THE IAS (REFERENCE 66)

It is suggested that before samples are collected, the specific location at which pesticide equipment rinsing occurred should be determined. The location identified for the area in the IAS is approximately 35 feet to the southwest of existing Building 48A. The proposed soil sampling locations identified in the RFI work plan appear to be to the immediate northwest and southwest of Building 48A (References 47, 66).

There are "ruins" noted on the Utility Distribution System Map Sheet 1G (Reference 76) approximately 150 feet to the west of Building 48A. The remnants of an old foundation were also noted in the area during the VSI. The Site Plan (Reference 88) and the Building List for Mayport (Reference 33) identify current Building 484 as a transformer pad located in the northeast of the Station. It is unclear at this time whether current Building 48A was old Building 484, or whether perhaps the foundation noted during the VSI was old Building 484. The location of the building and of rinsing activities should be verified before sampling is conducted.

16: Old Transformer Storage Yard (HSWA SWMU P, NIRP Site 16)

The Old Transformer Storage Yard is located in the northern part of NAVSTA Mayport in the NSC Fuel Farm area. Transformers were stored on part of an abandoned asphalt runway that is located to the east of Tank 204. The area is approximately 350 feet south of the St. Johns River. Figure IV-12 (page IV-36) illustrates the location of SWMU 16. Transformers were stored at this location since 1981, and there were approximately thirty non-PCB transformers in the area during the October 1985 site visit conducted for the IAS. All transformers had been removed by the time of the ESI site visit in late 1987. It is not known whether any PCB-containing transformers were stored in this area, but minor spills or leaks of transformer oil are reported to have occurred while transformers were stored in the area (Reference 34, 66).

The Old Transformer Storage Yard was identified as Site 16 in the IAS report and no further investigation was recommended for the area. The site was nevertheless included in the ESI and two surface soil samples were collected from the area immediately to the west of the runway, in the direction that

surface water would run off from the runway. Figure IV-12 (page IV-36) illustrates the location of the soil samples (References 34, 66).

PCBs were not detected in either of the samples, but the pesticides 4,4'-DDT, 4,4'-DDD, and 4,4'-DDE were detected. In the ESI it was recommended that further investigation of the pesticides contamination be conducted as part of a Phase II ESI.

The Old Transformer Storage Yard was identified as SWMU P in the HSWA permit, which required an RFI for the area. Mayport submitted an RFI workplan that proposed to collect soil samples from the same two locations that soil samples were collected under the ESI (References 34, 47).

Due to the high permeability of soils in the area, the proximity to the St. Johns River, the possibility that PCB-containing transformer oils may have leaked onto the soils, and the documented contamination of 4,4'-DDT and its degradation products, an RFI appears warranted for this area. An RFI was required as part of the HSWA permit. An evaluation of the work conducted in the ESI and whether it will be accepted by U.S. EPA in place of the requisite RFI will have to be made. The further investigation suggested in the ESI will also have to be evaluated against the standards for work conducted under the RFI program.

17: Carbonaceous Fuel Boiler (HSWA SWMU Q)

The Carbonaceous Fuel Boiler (CFB) (SWMU 17) is located near the southwestern corner of the Destroyer slip in Building 1430. The CFB is similar to a municipal solid waste incinerator and has been used since 1979 to dispose of all refuse and burnable garbage generated at Mayport. The plant operates 24 hours a day, six days a week, and can burn approximately two tons per hour of solid waste refuse and up to 50 gallons per hour of reclaimed oil. Figures IV-17, IV-18 and IV-19 present a plant flow diagram, plant plan, and a cut-away plant control diagram for the CFB. The plant can generate up to 10,000 pounds per hour of saturated steam at 200 p.s.i.g. which is delivered through an underground conduit to the steam header in Building 250 (Reference 94).

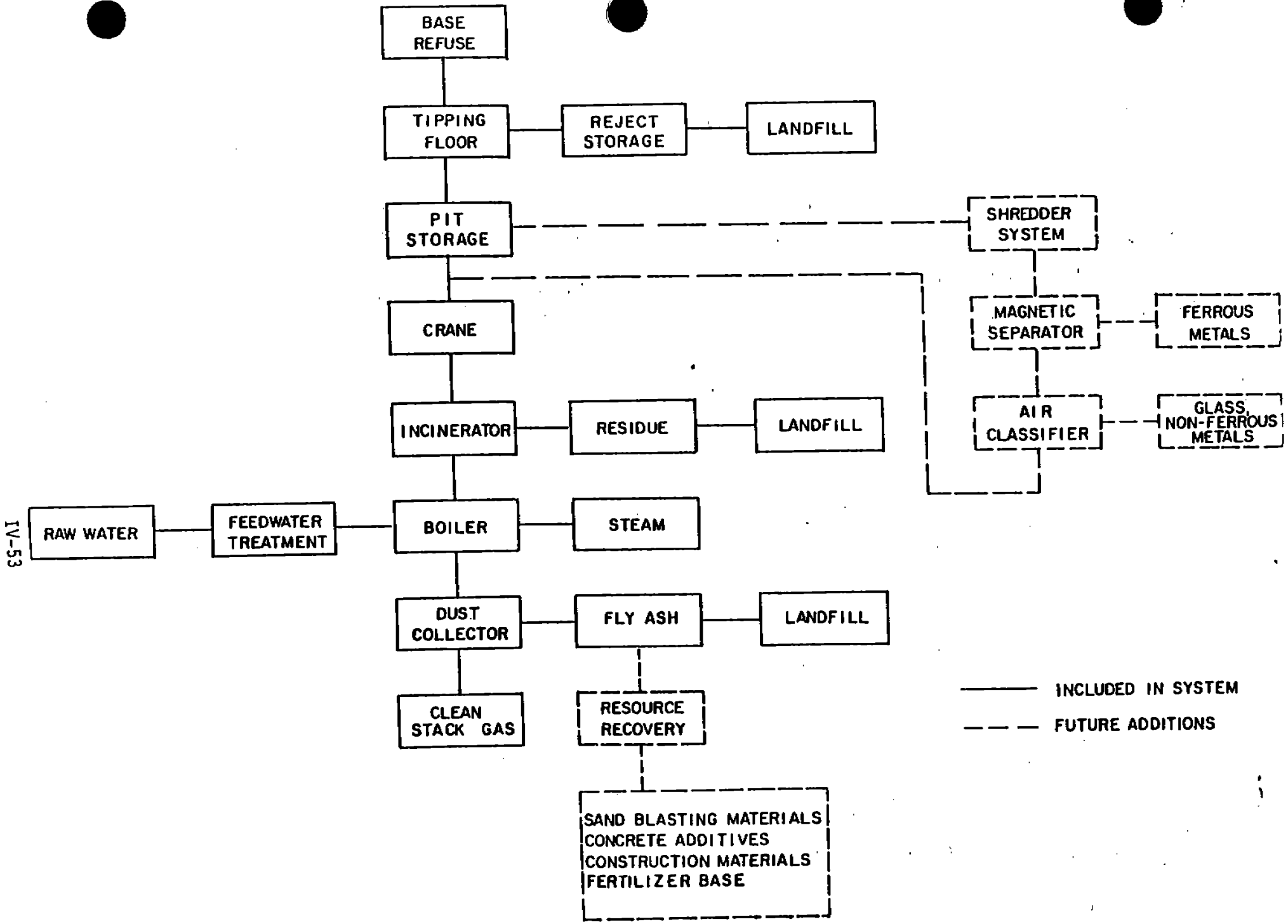


FIGURE IV-17: PLANT FLOW DIAGRAM; CARBONACEOUS FUEL BOILER (SWMU 17)
(REFERENCE 94)

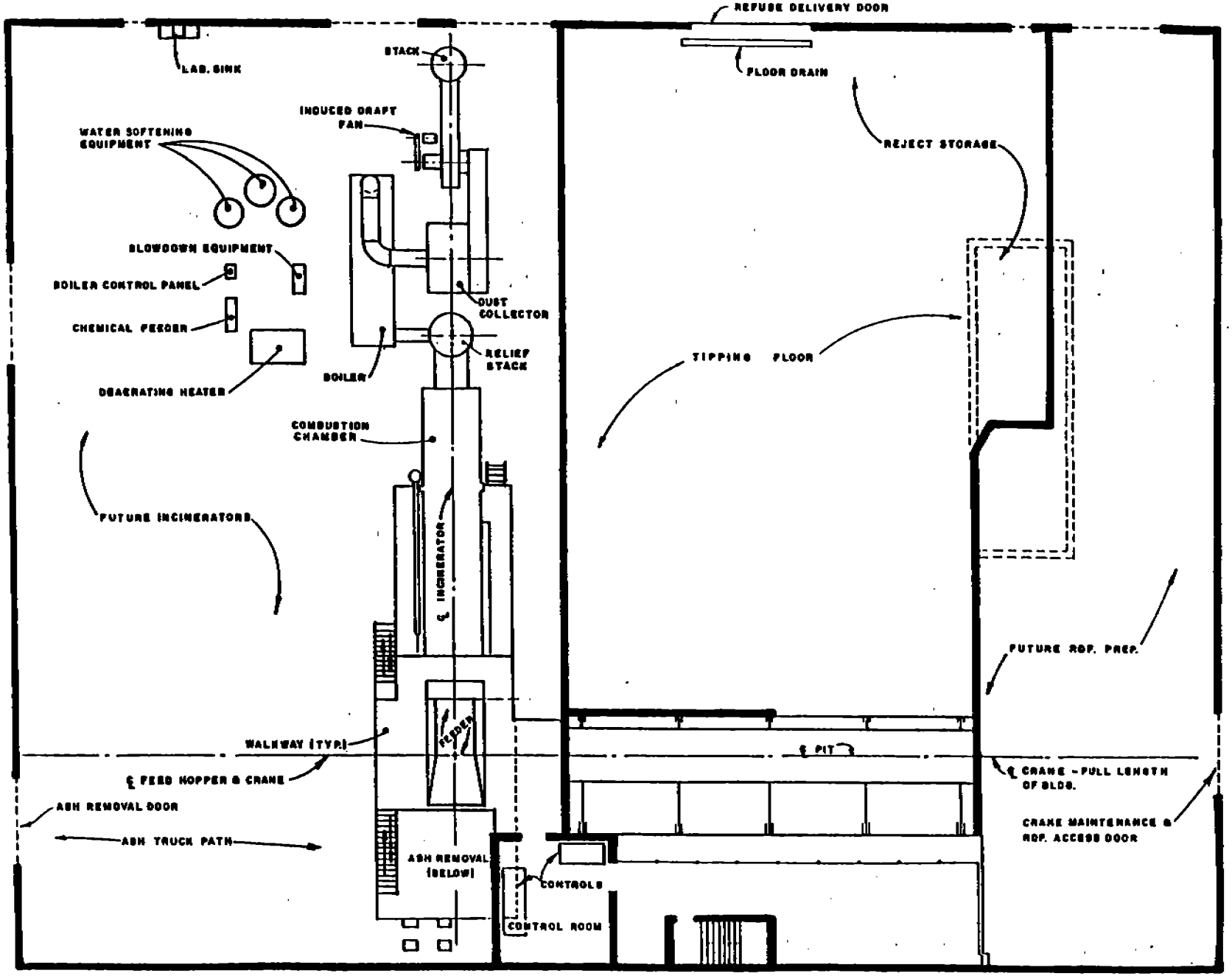
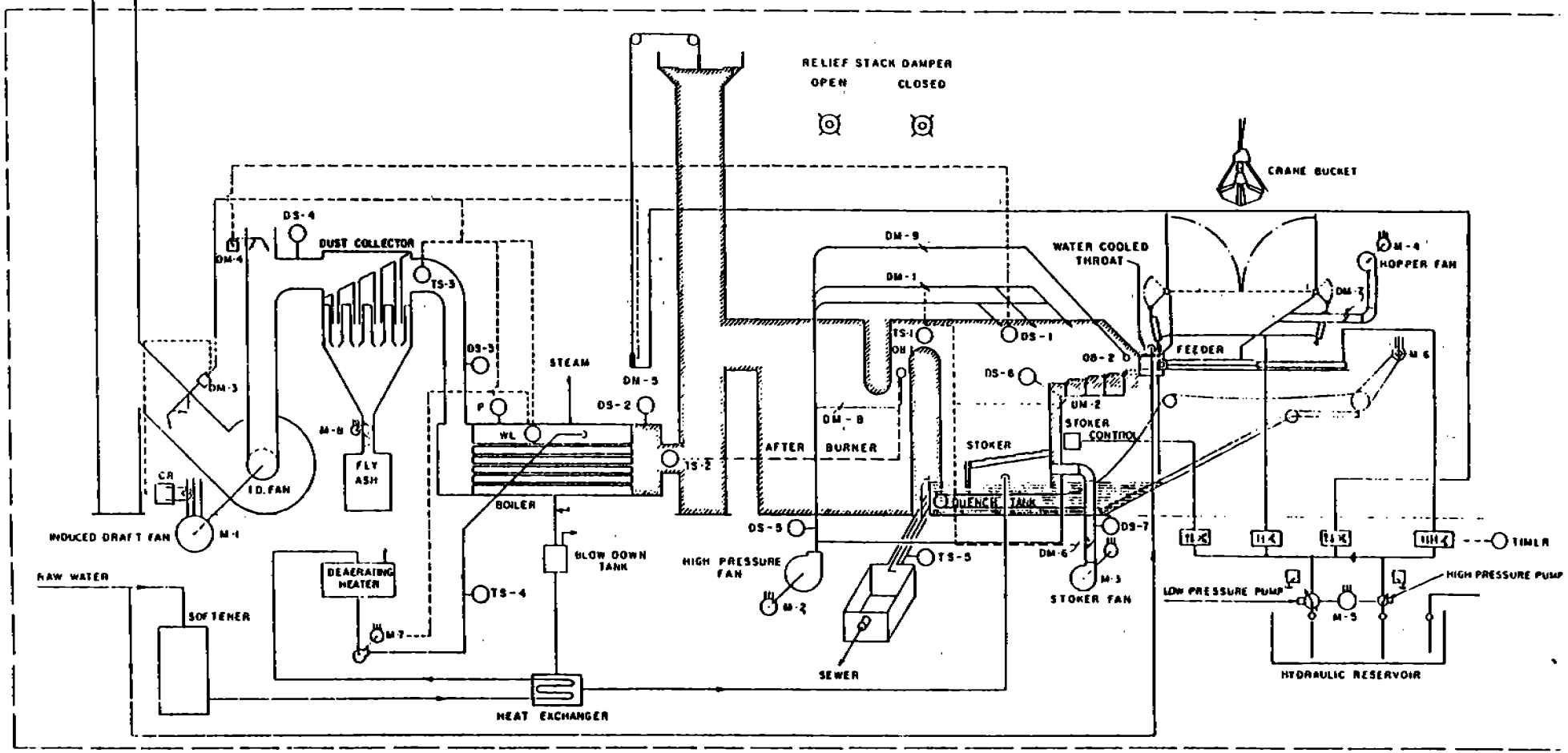


FIGURE IV-18: PLANT FLOOR PLAN; CARBONACEOUS FUEL BOILER (SWMU 17)
(REFERENCE 94)



SYMBOLS:

TS	TEMPERATURE SENSOR
DS	DRAFT SENSOR
DM	DAMPER MOTOR
M	MOTOR
CR	CURRENT RELAY
OB	OIL BURNER
P	BOILER PRESSURE CONTROL, HIGH LIMIT
WL	BOILER WATER LEVEL CONTROLLER

FIGURE IV-19: CUTAWAY PLANT CONTROL DIAGRAM; CARBONACEOUS FUEL BOILER (SWMU 17) (REFERENCE 94)

Trash collected in trash dumpsters all over Mayport is brought to the CFB and dumped onto the tipping floor, where non-burnable items including hard plastics, tires, explosives and metal scrap are separated out manually. An overhead crane loads the burnable refuse into a ram feeder/hopper assembly. The feeder ram pushes the refuse into the furnace at a controlled rate. The mostly-burned refuse falls out of the hearth onto a stoker grate where combustion is completed. Ash and non-combustable material then drop into a quench tank of water which cools the residue. A drag-flight conveyor moves the ash up an incline from the quench tank bottom to a roll off-box from which this wet ash is taken off-site for disposal. Approximately three to five tons per day of this wet ash are generated.

The gas stream from the primary combustion chamber is forced into a secondary combustion character and then to an afterburner. Boiler blowdown, tipping floor runoff, and quench tank water are discharged to the domestic sewer system (SWMU 53) which leads to the Wastewater Treatment Facility (SWMU 43) (References 94, 103). Fly ash is collected in a dust collector multi-cyclone from where it drops into a 55-gallon drum. Fly ash must also be cleaned from the floor of the secondary combustion chamber during the weekly 24-hour period of down time. Dry fly ash is stored in a covered roll-off box located outside Building 1430 on an asphalt covered area. Both the wet and dry ash are sampled and tested for EP toxicity. The wet ash has never been found to be EP toxic. The dry fly ash tested EP toxic for lead and cadmium in the past, but for approximately one year results indicated the dry fly ash EP toxic. However, shortly before the VSI was conducted in June of 1989, the dry ash had been determined to be EP toxic for cadmium and chromium. Both the wet ash and the dry fly ash are now taken off-site for disposal. When the Mayport landfills were in operation, the ash was disposed of in the on-site landfills (References 65, 66, 72, 94).

Air emissions from the CFB are permitted under FDER Permit No. A019-17873, and monitoring of stack emissions was being conducted by the City of Jacksonville BESD in 1987 (Reference 47).

The CFB area includes both the burner system, Building 1430, and the ash storage areas: wet ash in a roll-off box inside on the west side of the building, and dry ash in the dust collector drum and the covered roll-off box outside along the north wall of the building.

The CFB was not identified as a site under the NIRP program, but was identified as SWMU Q in the HSWA permit. The permit required that Mayport conduct an RFI for the CFB. In the RFI workplan submitted by Mayport in July of 1987, it was proposed that four soil samples be collected near the solid waste transfer area (east side of Building 1430) and two collected in the vicinity of the wet/dry ash collectors (illustrated in the work plan as being on the west side of Building 1430).

During the VSI, dry ash was being stored on the north side of the facility and a small amount of ash was noted to be piled on the asphalt near the roll-off box. It is therefore suggested that soil samples also be collected on the north side of the building.

18: FTC Diesel Generator Sump

The FTC Diesel Generator Sump is located on the south side of FTC Building 351, just to the east of an antenna tower. The sump is a concrete containment structure in which a diesel generator is located. The sump is approximately five feet wide and ten feet long. The sides of the sump are approximately six inches high. The generator is contractor-operated and maintained, and reportedly fueled from a day tank which is filled frequently. The generator has been at this location since approximately 1982 (References 76, 101, 103).

A section of pipe with a valve leads out through the concrete side of the sump on the south side, at a height of approximately two inches from the base of the sump. At the time of the VSI, the valve was open and there were puddles of oily liquid in the bottom of the sump. Soil staining was noted in the area

directly under the outlet pipe and valve. The soil stains extended towards a catch basin approximately ten feet to the southwest of the valve. (See photographs #18.1 and 18.2 in Appendix A, the VSI Photograph Log.) The catch basin leads to a storm sewer pipe (References 76, 101, 103).

The soils in the area of the Diesel Generator Sump are sandy and the location is approximately 600 feet from the St. Johns River and 900 feet from the Atlantic Ocean.

Due to the permeability of the soils in the area, the proximity to the St. Johns River and the Atlantic Ocean, and evidence of continuing releases of petroleum hydrocarbons noted in the FTC retention pond east (SWMU 14), any possible sources of releases of petroleum hydrocarbons should be investigated.

Since evidence of releases from the Diesel Generator Sump were observed during the VSI, further investigation appears warranted for this unit. It is suggested that soil sampling be conducted to evaluate the extent and depth of the area affected by releases from the sump. It is also suggested that the final disposition of any materials that may have flowed into the catch basin be identified and any release characterized. Based on the Utility Distribution Maps (Reference 76), it appears that any material that flowed into the catch basin would flow to an outlet on the east side of Building 351. It is not known if liquids discharged at this location would flow to the firefighting apron/retention pond area, but it would be possible if flow is generally towards the St. Johns River.

19. NADEP Blasting Area

The NADEP Blasting Area (SWMU 19) is located to the north of Naval Avionics Depots (NADEP) Buildings 1470 and 1471, approximately 25 feet from the St. Johns River. Figure I-1 illustrates the approximate location of the Blasting Area. The area is used for sand blasting of painted and unpainted carrier parts, including catapult and arresting gear for carrier flight decks. It is believed that the painted parts are painted with enamel paints. Sand blasting has been conducted in this area since approximately 1981. The area is outside

and blasting occurs on a blasting rack that is located on bare soil. The abrasive used in blasting is Black Beauty, a slag product marketed for sand blasting purposes (Reference 101, 103).

The soils in the Blasting Area appeared to be largely sand, and the area is at the edge of the St. Johns River. At the time of the VSI, Black Beauty was piled on the soil around the blasting grate and spread on the soils over an area approximately 75 feet in diameter. Facility personnel said that the Black Beauty blasting media had not been collected or removed from the area since operations began there (Reference 101, 103).

Due to the permeability of the soils in the area, the proximity to the St. Johns River, the evidence of releases of solid waste to the environment, and the possibility that the spent sand may contain hazardous constituents, further investigation appears warranted for this SWMU. It is suggested that the blasting media be removed from the area and disposed of in accordance with applicable state and federal regulations. The residual blasting media should be tested for EP toxicity prior to disposal to ensure that appropriate disposal methods are selected. It is further suggested that soil sampling be conducted in the area visually contaminated with Black Beauty and in the area between the residual basting rack and the river. Sediment samples should also be collected from St. Johns River sediments in the immediate vicinity of the Blasting Area. The soil and sediment samples collected should be analyzed for metals. It is further suggested that future blasting be conducted in an enclosed area on an impervious base and that the residual media be regularly collected and disposed of in compliance with applicable regulations.

20: Hobby Shop Drain

The Hobby Shop is located in and around Building 414 in the southeastern part of Mayport. The Hobby Shop Drain (SWMU 20) is located at the southeast corner of Building 1277 which houses auto maintenance and repair bays. The drain is located on the soil adjacent to a sloped concrete apron leading to the raised concrete floor of Building 1277. The drain inlet is covered with a screen and leads to an underground pipe. The outlet for the pipe can be seen at grade in

the western side of Building 1277 at the edge of an asphalt parking lot. The Hobby Shop has been in operation since 1959 (References 66, 101, 103).

At the time of the VSI, the soil in the area of the drain inlet and along the edge of the concrete apron was stained dark and appeared oily. Dark stains were also noted leading from the outlet of the drain pipe, across the parking lot, and toward a storm drainage ditch that parallels Massey Avenue on the south side of the roadway. The drainage pathway across the asphalt, a small gully, was clearly visible due to staining, and was observed to be cracked and repaired along its length. Dark oily sediments were noted in the drainage ditch and an oil sheen was noted at the point where the water in the drainage ditch entered a drain pipe that flowed under a side street perpendicular to Massey Avenue (References 101, 103).

The source of the dark staining and oil was not identifiable at the time of the VSI. Possible sources include material drained from inside the automobile maintenance and repair bays, or runoff from the roadway/parking area to the east of Building 1277.

Due to the high permeability of soils in the area, the evidence of releases of an oily substance to soils and surface water documented during the VSI, and the types of materials typically generated in automobile maintenance and repair activities, further investigation appears warranted for this SWMU. It is suggested that the source of the influent to the drain be identified and that soil samples be collected in the area of the drain and of the source area. It is also suggested that soil samples be collected from beneath the asphalt along the drainage pathway across the parking lot on the west side of Building 1277, and that sediment and surface water samples be collected in the storm drainage ditch into which the effluent from the drain is believed to discharge. It is suggested that samples collected be analyzed for volatiles, semi-volatiles, and metals. Samples collected and analyzed should be of sufficient number and location to identify the extent and the characteristics of releases to the environment. It is further suggested that release controls be constructed to ensure that releases to the environment from the identified sources are prevented in the future.

21: Hobby Shop Scrap Storage Area

The Hobby Shop Scrap Storage Area (SWMU 21) is a fenced area, approximately 20 feet square, located adjacent to the southern wall of Building 414, approximately 20 feet from the southeastern corner of the building. The area is enclosed by the wall of Building 414, and by a chain link fence, except for an entrance way on the south side of the area. The area is underlain by the old, pitted asphalt of the surrounding parking area. There are no beams or curbs around the area. Scrap metal, engine parts, and appliances are stored in the area. The scrap stored in the area is to be collected by the Defense Reutilization and Marketing Office for resale. Facility personnel were not able to provide the start-up date of the storage area but the Hobby Shop has been in operation since 1959 (References 66, 101, 103).

At the time of the VSI, wastes stored in the area included engine parts, (including engine blocks, rocker arms, mufflers), two open gas cylinders, a 50-pound container labeled Freon 22, an automobile battery, a refrigerator, and other scrap metal items. Several of the engine parts were oily and dripping oil onto the base of the storage area. The base of the storage area was heavily stained with dark oily materials (References 101, 103).

Due to the high permeability of soils in the area, the poor condition of the asphalt base of the storage area, and the evidence of releases of oily materials documented during the VSI, further investigation appears warranted for this unit to determine the characteristics and extent of releases of hazardous constituents. It is suggested that the integrity of the asphalt base be evaluated and that soil sampling be conducted under the base if the structural integrity is determined to have been impaired. It is suggested that soil sampling also be conducted around the perimeter of the area in locations of likely runoff and drainage from the storage area. It is further suggested that the soil samples be analyzed for volatiles, semi-volatiles, and metals.

22: Building 1600 Blasting Area

The Building 1600 Blasting Area (SWMU 22) is a fenced area located just to the northeast of Building 1600, which is located in the central portion of

Mayport to the north of the northeast dredge spoil disposal area (SWMU 50). Abrasive media blasting is conducted in a sheet metal quonset hut set on a concrete base and concrete foundation. The base extends past the quonset hut approximately ten feet and is encircled by a chain link fence. A dust collector attached to the back of the building collects dust and abrasive during blasting operations (References 101, 103).

The equipment blasted in this area is largely ground support equipment, most of which is painted with yellow enamel paint and zinc-containing primers. The abrasive media used for blasting is Black Beauty. The area has been in use for two or three years (References 101, 103).

The sheet metal quonset hut is constructed on a concrete foundation and the lower two feet of the walls are also concrete. At the juncture between the concrete foundation walls and the sheet metal walls, there are small gaps, particularly where the sheet metal is creased (References 101, 103).

According to facility personnel, in response to an EPA Inspection conducted in February of 1988, approximately 100 55-gallon drums of used Black Beauty were removed from piles that had been located outside on the concrete base on the south side of the quonset hut. The used Black Beauty was determined to be EP toxic and was disposed of as hazardous waste. At that time, some of the gaps in the building walls were closed to prevent the abrasive from escaping during operations (References 101, 103).

At the time of the VSI, residual abrasive material could be observed on the concrete base outside of the building and in the sand outside of the area on the south side of the building. Small piles of abrasive could be observed along the outside edge of the building, indicating that abrasive continues to escape between the gaps in the walls at the junction of the concrete foundation walls and the sheet metal walls. At least three 55-gallon drums of used abrasive were located inside the quonset hut, and residual abrasive was visible on the floor of the hut (References 101, 103).

Based on the high permeability of the soils in the area, the proximity to a storm drainage ditch, the evidence of releases noted during the VSI, and the evidence that the used abrasive has been determined to be EP toxic in the past, an RFI appears warranted for this SWMU. It is suggested that soil samples be collected from the area immediately outside of the fenced concrete base and that the samples be analyzed for the presence of metals. The purpose of this sampling is to characterize the extent and the nature of any releases from this SWMU. It is also suggested that the gaps in the quonset hut walls be closed completely and that operational procedures be evaluated, and revised if necessary, to ensure that used abrasive is not released from the blasting hut.

23: Jacksonville Shipyards

The Jacksonville Shipyards area (SWMU 23) occupies approximately four acres of land on the east side of the Destroyer Slip and to the south of the Wastewater Treatment Facility (SWMUs 43-45). Jacksonville Shipyards is a commercial shipyard company that works under contract to the Supervisor of Shipbuilding (SUPSHIPs). The Jacksonville Shipyards property is owned by and leased to the company for use in conducting maintenance and repair work on Navy ships. Jacksonville Shipyards has been at this location since approximately 1961. Figure IV-20 presents a layout map of the Jacksonville Shipyards area. The location of SWMU 23 is illustrated on Figure I-1.

Operations conducted at Jacksonville Shipyards include abrasive media blasting, fabrication of metal parts, metal working, degreasing, stripping, welding, engine maintenance and repair, automobile maintenance and repair, and other ship support operations. The entire Jacksonville Shipyards area has been designated as one SWMU because, at the time of the VSI, evidence of releases were noted in numerous areas from numerous operations and it was determined with the concurrence of the EPA WAM that based on the information available, it would not be practical to separate the various units from one another.

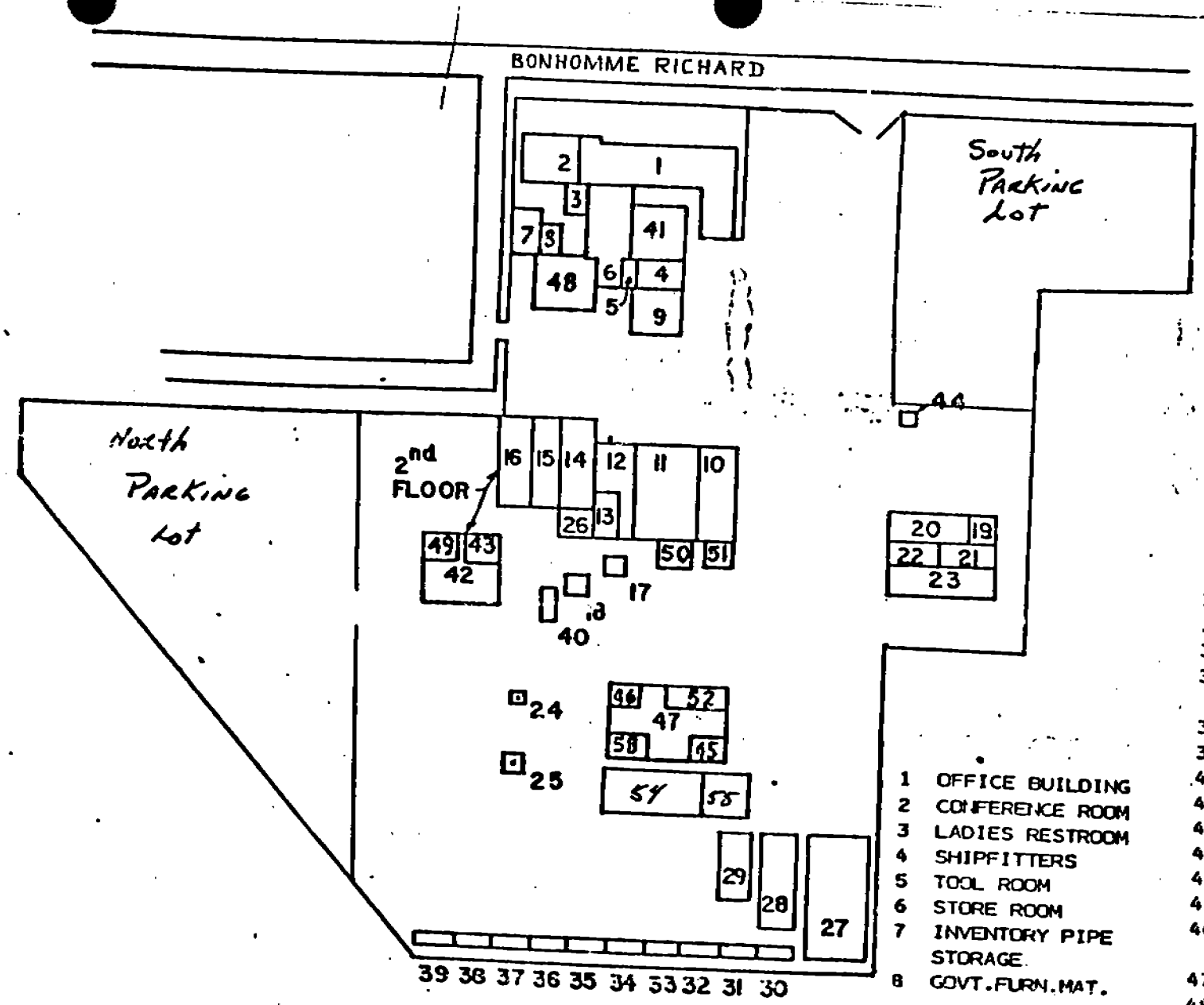


FIGURE IV-20: LAYOUT DRAWING; JACKSONVILLE SHIPYARDS (SWMU 23) (REFERENCE 103)

Abrasive media blasting is conducted using Black Beauty in the southeastern portion of the area, and at the time of the VSI, Black Beauty was noted to heavily cover the immediate area and also to be dispersed around the remainder of the area. Two small above-ground diesel tanks were noted to have stained soil beneath the tanks. Painting operations are also conducted in the southeastern portion of the facility, and paint was noted on the ground in this area during the VSI. Also, numerous empty and partially empty paint and solvent cans were noted to be stored in a small storage building. Approximately 100 55-gallon drums were observed to be stored in the southwestern portion of the area. Some of the drums were stacked on pallets and some were stacked directly on the soil. Stained soil and stressed vegetation were noted near some of the stored drums. Shipyard personnel indicated that the drums contained lube oil, transmission oils, synthetic oils, and engine oil. There was also a larger circular tank in the area, the contents of which was not known. Stained soils were also noted in the area of five 500-gallon diesel storage tanks, near the northern entrance to the outside machine ship. An underground automotive fuel tank was identified in the northern portion of the area. The tank was installed in 1980. A previous gasoline tank was located along the northern edge of the facility to the west of the welding shop and was removed in 1972 because it was suspected to be leaking (References 101, 103).

Based on the high permeability of the soils in the area, the proximity to Mayport Basin, and the evidence of releases noted during the VSI, further investigation appears warranted for this SWMU. It is suggested that soil and groundwater samples be collected from all areas of the Shipyard to determine the nature and extent of releases of hazardous constituents, and that the samples be analyzed for volatiles, semi-volatiles, and metals. It is also suggested that the material stored in drums (and tanks) and the abrasive media that is piled on the soils be analyzed to evaluate their characteristics, and to determine whether hazardous constituents are present. If these materials are determined to be hazardous, it is suggested that future blasting be conducted in an enclosed area and that the drummed materials be managed in accordance with applicable regulations.

24: North Florida Shipyards

The North Florida Shipyards (NFS) area is approximately an acre and a half in size and is located to the south of Jacksonville Shipyards. The location of SWMU 24 is illustrated on Figure I-1. NFS is a commercial shipyard company that conducts maintenance and repair of Navy Ships under contract to the Supervisor of Shipbuilding (SUPSHIPs). The NFS property is owned by Mayport and leased to the company for use in conducting maintenance and repair operations. NFS has been at this location since approximately 1982.

Activities conducted at NFS are similar to those conducted by SIMA and Jacksonville Shipyards, although NFS operations at Mayport appear to be on a smaller scale.

At the time of the VSI, approximately fifteen 55-gallon drums of waste oil and other materials were located by the northern fenceline of an outdoor area on the west side of the NFS building. At least one 55-gallon drum was located in an outdoor area on the east side of the NFS building. According to NFS personnel, the contents of most of the drums were unknown and the drums had been there for at least five years. NFS personnel indicated that analysis of the unknown material to identify appropriate disposal methods was in process. As is documented in the photograph log (photograph #24.2), at the time of the VSI, stained soils and dead vegetation were noted in the vicinity of the drums located on the west side of the NFS building (References 101, 103).

Based on the high permeability of the soils in the area, the proximity to Mayport Basin, the evidence of releases noted during the VSI, and the unknown nature of the materials stored in the drums, further investigation appears warranted for this SWMU. It is suggested that soil samples be taken in the area of the drums and that the samples be analyzed for volatiles, semi-volatiles, and metals. It is also suggested that the contents of the drums be identified and the materials disposed of in accordance with applicable regulations.

25: Atlantic Marine, Inc.

The Atlantic Marine (AM) area is approximately one and a half areas in size and is located to the west of North Florida Shipyards. The location of SWMU 25 is illustrated on Figure I-1. AM is a commercial shipyard company that conducts maintenance and repair of Navy ships under contract to the Supervisor of Shipbuilding (SUPSHIPs). The AM property is owned by Mayport and leased to the company for use in carrying out its maintenance and repair operations. AM has been in this location since approximately 1980.

Activities conducted at AM are similar to those conducted at SIMA and Jacksonville Shipyards, although AM operations at Mayport appear to be on a smaller scale.

At the time of the VSI, a build up of abrasive blasting media was noted on the asphalt in the northeastern corner of the area, and dark staining was noted in the hazardous waste and waste oil accumulation area. Spent solvents, paint wastes, and used or contaminated oil products are stored in the accumulation area, which is a chained-off portion of the asphalt area to the north of the AM buildings.

Based on the high permeability of soils in the area, the shallow water table, the proximity to Mayport Basin, and the evidence of releases noted during the VSI, further investigation appears warranted for this SWMU. It is suggested that soil sampling be conducted in the abrasive media blasting area and in the accumulation area at the locations of visible staining. It is suggested that the samples be analyzed for metals in the blasting area, and for volatiles, semi-volatiles, and metals in the accumulation area. It is further suggested that the abrasive media be tested for EP toxicity, and if determined to be hazardous, that blasting be conducted in an enclosed area.

26: Landfill C (NIRP Site 3)

Landfill C (SWMU 26) is located in the central portion of Mayport, to the north of Landfill B (SWMU 2). Landfill C was used during 1963 for one-time disposal of scrap metal and construction material transported to Mayport from

another Naval facility. The disposal area consisted of a trench approximately 100 feet long, 20 feet wide, and 8 feet deep. The landfill is now covered with soil, and reportedly no toxic or hazardous materials were disposed of at this site (Reference 66).

This SWMU was identified as NIRP Site 3 in the IAS, and no further investigation was recommended for the site because no toxic or hazardous materials were reported to have been disposed of (Reference 66). The SWMU was not identified in the HSWA permit as a SWMU requiring an RFI. Based on the information available regarding materials disposed of in this landfill, it is suggested that documentation of the waste materials buried at this site be provided. Alternatively, conduct soil sampling to determine if a release to soils has occurred.

27: Former Hazardous Waste Storage Area (NIRP Site 7)

The Former Hazardous Waste Storage Area (SWMU 27) is located in the northern part of Mayport, on an abandoned runway spur that runs in the north-south direction. The area is located just to the south of, and adjacent to, the southern extension of the DRMO Storage Area (SWMU 28). Approximately 150 feet square in size, the area is enclosed with a chain-link fence topped with barbed wire. The Former Hazardous Waste Storage Area was used for firefighting training from 1959 to 1972, and as a hazardous waste storage area from 1981 to 1985. It is estimated that approximately 6,000 gallons of fuel were burned in the area during the firefighting training, and that approximately 100 gallons of waste oil and solvents were spilled during use as a storage area (Reference 66).

The Former Hazardous Waste Storage Area was operated under FDER hazardous waste management regulation. After Mayport built and began using the new RCRA Hazardous Waste Storage Building (SWMU 10), the Former Hazardous Waste Storage Area was closed under Interim Status. FDER approved the closure plan, and after one disapproval (Reference 59), later accepted the closure conducted by Mayport (Reference 103).

At the time of the VSI, vegetation was noted to be growing up through the old asphalt base. There was nothing stored in the area, which was completely enclosed by a high chain-link fence.

The Former Hazardous Storage Area was identified as NIRP Site 7 in the IAS. No further investigation was recommended because Mayport was (in 1985) in the process of closing the area in compliance with RCRA rules and regulations (Reference 66). The Former Hazardous Waste Storage Area was not identified as a SWMU requiring further action. Due to FDER review of the closure plan and acceptance of the closure report, and the sampling and analysis activities conducted as part of closure, no further action is suggested for this SWMU at this time.

28: DRMO Yard (NIRP Site 10)

The DRMO Storage Area (SWMU 28) is located in the northern part of Mayport on an abandoned asphalt runway spur that runs from west to east, just to the south of the Oily Waste Treatment Plant Sludge Drying Beds (SWMUs 6 and 7). The west-east section of the Storage Area is approximately 1,300 feet long and 150 feet wide. The Storage Area also includes a triangular area that extends to the south approximately 800 feet from the western side of the west-east runway. The triangular area includes a section of the abandoned runway that is perpendicular to the west-east portion. The entire area is fenced (References 66, 76, 103).

The DRMO Storage Area is currently active and DRMO uses the area for staging scrap metal and other items turned into DRMO for salvage. The area has been in use since 1967, and items stored there in the past that may have leaked or spilled include transformers, paints, and solvents. At the time of the VSI, vegetation was noted to be growing up through the asphalt. Items in storage in the area at the time included automobiles, trucks, a storage tank, and a wrecked helicopter (References 101, 103).

The DRMO Storage Area was identified as NIRP Site 10 in the IAS, in which it was estimated that less than 200 gallons of liquids had been spilled in the

area (Reference 66). The SWMU was not identified in the HSWA permit as a SWMU requiring an RFI. Based on the information available regarding materials possibly spilled in the area, soil sampling in the vicinity of the pad is suggested.

29: Oily Waste Pipeline Break (NIRP Site 12)

The Oily Waste Pipeline Break (SWMU 29) occurred at the intersection of Alpha and Bravo piers near Building 38. An investigation conducted in response to reports that oil was seeping into Mayport Basin indicated that an Oily Waste Collection System (SWMU 47) pipeline valve was leaking. The area was excavated, all of the observed oil-stained soil was removed, and the valve was repaired. The amount of oily waste that leaked from the pipeline was not known. Since the cleanup of the area, small amounts of oil were noted in a manhole and in a storm drain nearby.

The Oily Waste Pipeline Break was identified as NIRP Site 12 in the IAS. No further investigation was recommended in the IAS because it was believed that the quantities of oil remaining in the soil would be small (Reference 66). The Oily Waste Pipeline Break was not identified as a SWMU requiring an RFI in the HSWA permit. Based on the potential that residuals may remain in the soils, soil sampling is suggested to verify adequacy of clean-up measures. Note that integrity testing and sampling in any areas of impaired integrity are suggested for the entire Oily Waste Collection System (SWMU 47).

30: NEX Battery Corral

The NEX Battery Corral (SWMU 30) is located just off the southern edge of a parking lot on the east side of the Naval Exchange (NEX) Service Station, Building 265. The location of SWMU 30 is illustrated on Figure I-1. The Battery Corral is an area approximately 15 feet square, enclosed by high wood-slatted walls. At the time of the VSI, approximately 18 batteries were stored in the corral, most of which were stored on deteriorating cardboard. The batteries appeared to be in relatively good condition and there was no evidence of any leakage, although the area underneath the pallet was not visible. There was also a very rusty, 25-gallon approximately tank in the

area on a cradle. The tank sounded empty when tapped. An employee of the service station said that the batteries were picked up periodically by a contractor (References 101, 103).

Since there was no evidence of releases of hazardous constituents to the environment from the NEX Service Station Battery Corral, further investigation is not necessary at this time. It is suggested, however, that the battery storage area be moved to a covered and paved area, and that the batteries be stored on pallets in such a manner that the area under the pallets is visible.

31-42, 56: Hazardous Waste Accumulation Areas

There are at least thirteen Hazardous Waste Accumulation Areas at NAVSTA Mayport where hazardous wastes are accumulated for less than 90 days, prior to being transferred to the permitted Hazardous Waste Storage Building (SWMU 10). The locations of these accumulation areas are illustrated on Figure I-1. There are four additional accumulational areas that are addressed as part of other SWMUs, including the accumulation area surrounding the permitted Hazardous Waste Storage Building (SWMU 10), the ash accumulation area for the Carbonaceous Fuel Boiler Building 1430 (SWMU 17), and Hazardous Waste Accumulation Areas at North Florida Shipyard and Atlantic Marine (SWMUs 24 and 25). Each accumulation area is operated and maintained by the activity that stores its waste in the area. The wastes are picked up by the Public Works Department for transport to the permitted storage area. There were several less-than-90-day accumulation areas that were noted to have been used in the past in the files, but at the time of the VSI were no longer in use. These included four tanks at Building 1533, AIMD, that are situated in below grade 100% secondary containment vaults. A fifth tank is still in use for storage of waste oil (SWMU 51-T). Based on Reference 39, it appears that only one of the tanks was ever actually used to store hazardous waste although all five originally were labeled "hazardous waste" (References 39, 44, 42).

The accumulation areas are situated near the various activities that use them, and are predominantly outdoors. The accumulation areas are described in greater detail in Table IV-7. All of these areas are currently active, and most were first used in approximately 1985 when the hazardous waste collection and storage system was established at Mayport.

Table IV-7: Hazardous Waste Accumulation Areas (SWMUs 31-42, 56)

SWMU No.	SWMU Name	Location and Site Plan Quadrant	Dimensions (feet)	Date of Start Up	Wastes Managed	Release Controls
31.	FTC OBA Accumulation Area	West of Bldg. 1388 (C-15)	6 x 10	1984	Spent Oxygen Breathing Apparatus (EP toxic)	The unit is underlain by the new concrete firefighting apron. Drums are elevated 2 feet on wooden structure.
32.	FTC Mercuric Waste Accumulation Area	West of Bldg. 1456 (C-15)	5 x 5 x 8	1987	Mercuric Nitrate Wastes	The unit is underlain by the old concrete firefighting apron. Drums are placed in enclosed shed with 8 inch berm at doorway.
33.	SIMA Accumulation Area	West side of Bldg. 1488 (E-12)	6 x 12 x 8	1988	Abrasive media, plating wastes, paint wastes, photo-processing wastes, solvents, waste oils	Drums are stored in metal storage shed, elevated on I beams above bermed concrete pad. Drain in center of pad may lead to sewer system.
34.	Hobby Shop Accumulation Area	South of Bldg. 414 (F-13)	15 x 15	1984	Waste oils, ethylene glycol, spent solvents	The unit is underlain by a small unbermed concrete pad.
35.	NADEP Accumulation Area	West side of Bldg. 1471 (B-6)	15 x 6 x 6	1984	Paint wastes, solvent wastes (PD-680), epoxies, waste oil	Drums are stored in a metal lean-to with 3 walls, containment sump, and roof. Lean-to is elevated on 6-inch I beams on asphalt. Containment sump is valved to allow removal of collected rainwater.
36-38.	Carrier Pier Accumulation Areas (3)	West of Butler Hut 1401, Near Butler Hut 1259, North of Bldg. 163 (Harbor Ops) (B-11)	4 x 4 (pallets)	1984	Waste oils, any wastes from ships	Drums are placed on pallets on asphalt in fenced areas.
39.	Paint Shop Accumulation Area	South side of Bldg. 38 (D-9)	20 x 20	1984	Paint wastes	Drums are placed on pallets on asphalt in a fenced area.
40.	Building 1343 Accumulation Area	Southwest side of Bldg. 1343 (F-9)	10 x 22	1984	Paint wastes, solvents, synthetic oils, jet fuel, waste oils	Drums are placed on pallets on a bermed concrete pad (2-4 inch berms). Drain in center of pad.

Table IV-7: Hazardous Waste Accumulation Areas (Cont'd)

SWMU No.	SWMU Name	Location and Site Plan Quadrant	Dimensions (feet)	Date of Start Up	Wastes Managed	Release Controls
41.	Building 1600 Accumulation Area	South side of Bldg. 1600 (F-7)	20 x 20	1985	Paint wastes, abrasive media, solvents, waste oils	Drums are placed on pallets on asphalt.
42.	AIMD Building 1553 Accumulation Area	East of northern corner of Bldg. 1553 (E-9)	50 x 30	1985 (approximate)	Paint thinner, synthetic oils, solvents, paint wastes, alodine, waste oils	Drums are placed on pallets on a fenced asphalt pad.
56.	Building 1552 Accumulation Area	South side of 1552 (E-8)	20 x 10	1985	Solvents, paint thinners, dirty rags, aerosol cans, waste oils	Drums are placed on a fenced concrete pad.

At the time of the VSI, evidence of a release was noted at one of the accumulation areas. At the Building 1552 Accumulation Area (SWMU 56), a stained area with sparse vegetation was noted just to the east of the accumulation area, and residual absorbent material was noted in the grass along the edges of the concrete pad. Facility personnel were not aware of any recent spills at the accumulation area. Based on the evidence of a release from the unit, further investigation appears warranted. It is suggested that soil samples be collected from the stained and sparsely vegetated area and from the edge of the concrete on the east side. It is suggested that the samples be analyzed for volatiles, semi-volatiles, and metals.

Minor staining was also noted during the VSI at the Building 1553 and Building 1343 accumulation areas. This staining did not appear to be of sufficient size to require further action at this time. Provision of secondary containment (berms) and closing of drains located within containment areas should be considered for the appropriate accumulation areas.

43: Wastewater Treatment Facility (WWTF)

The Wastewater Treatment Facility (WWTF) (SWMU 43) was constructed in 1962 for the treatment of domestic wastewater, wastewater from the Ship Intermediary Maintenance Activity (SIMA) and Fleet Training Center (FTC) Firefighting School, and secondary industrial wastewater sources, such as the maintenance activities and subcontractor facilities. The unit is located adjacent to Building 285 (Reference 66). Figure IV-21 illustrates the layout of the Wastewater Treatment Facility (WWTF). The plant was designed for the collection and primary treatment of wastewaters and was expanded in 1972 for secondary treatment by the addition of activated sludge aeration basins, secondary clarifiers and sludge drying beds (SWMU 45). The WWTF is currently active, and is composed of the following units:

1. Primary Clarifier No. 3
2. Primary Treatment Unit
3. Activated Sludge Aeration Basins (3) (Nos. 1, 2, and 3)

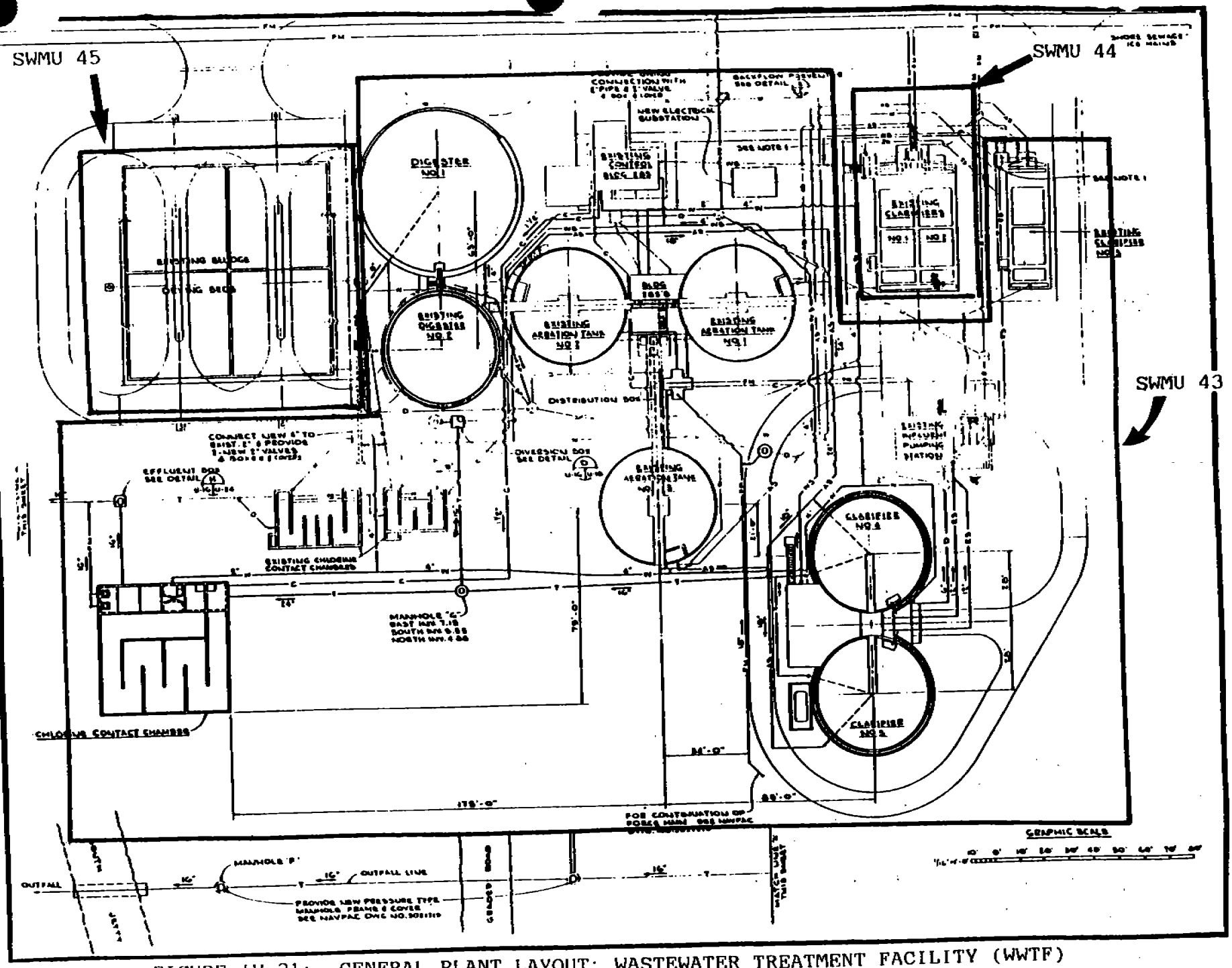


FIGURE IV-21: GENERAL PLANT LAYOUT; WASTEWATER TREATMENT FACILITY (WWTF) (SWMUs 43 - 45) (REFERENCE 75)

4. Secondary Clarifiers (Nos. 4 and 5)
5. Aerobic Digestors (Nos. 1 and 2)
6. Chlorine Contact Chamber

Wastewater from FTC is pretreated in the Primary Clarifiers No. 1 and 2 (SWMU 44) prior to discharge to the WWTF. Figure IV-22 presents a flow diagram of the Wastewater Treatment Facility and associated units (SWMUs 43-45).

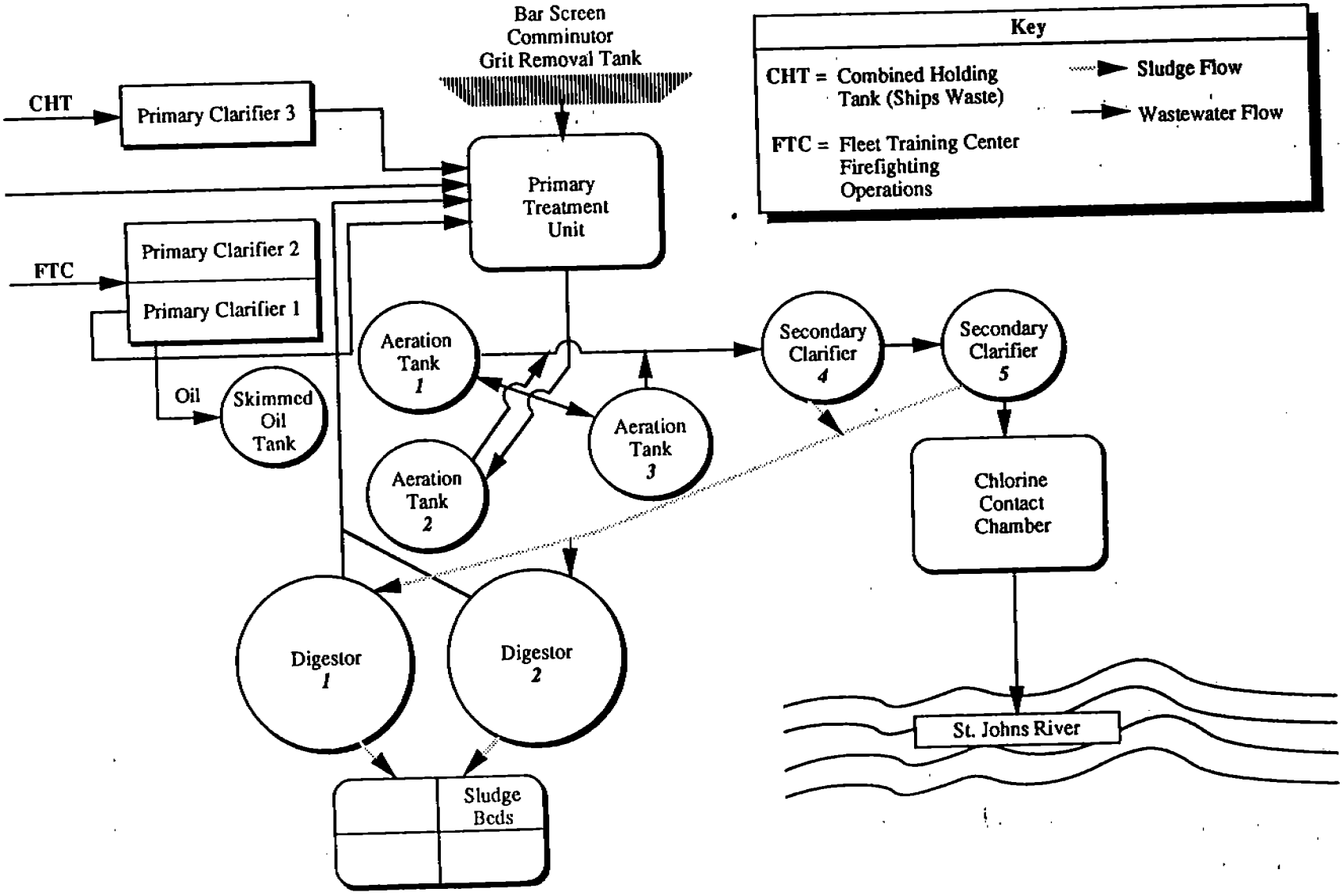
The original design flow was 1.8 million gallons per day, with an operating flow of approximately 1.0 million gallons per day. The effluent has been discharged to the St. Johns River since 1962, and is currently regulated under NPDES Permit FL0000922 (References 46 and 66).

Incoming wastewater is equalized in the Primary Clarifier No. 3, which has a nominal volume of 40,500 gallons (Reference 75). Equalized wastewater is discharged over a parallel trough weir into a gravity line which feeds into the primary treatment unit.

The Primary Treatment Unit is comprised of a bar screen, comminutor, grit collector, cyclone degritting system, and a wet well. The influent is first directed through a bar screen to remove large particles. The particles are subsequently shredded in the comminutor. The effluent is then directed through the grit collector and cyclone degritting system, which discharge the separated grit to a waste container for transport offsite. Previously, these wastes were disposed of at the base landfill (Reference 75).

The wastewater flows to the wet well from which it is conveyed to the three Aeration Basins for secondary treatment. The wastewater is distributed to any of the three concrete basins, each of which is 45 feet in diameter and has 19 and a half foot sidewalls. Tank No. 1 has a conical bottom with an approximate volume of 256,346 gallons, and Tanks No. 2 and 3 have approximate volumes of 232,499 gallons (Reference 75).

Figure IV-22: Process Flow Diagram, Wastewater Treatment Facility (SWMUs 43-45)



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In the aeration tanks, the wastewater and recirculated solids are mixed in the presence of dissolved oxygen with activated sludge. The mixture overflows a weir and is conveyed by cast iron gravity lines to the Secondary Clarifiers Nos. 4 and 5 (Reference 75).

The Secondary Clarifiers are 45 feet in diameter by 12 feet 6 inches deep. The activated sludge is separated by gravity from the treated wastewater. A portion of the sludge is recirculated to the aeration tanks through the primary treatment unit. The remainder of the sludge is removed from hoppers in the clarifier bottom.

Waste activated sludge withdrawn from Secondary Clarifiers is pumped to Aerobic Digestors Nos. 1 and 2. Digestor No. 1 is 65 feet in diameter, while Digestor No. 2 is 45 feet in diamater. Supernatant is withdrawn from the two digestors and discharges to the influent pumping station. Digested sludge is withdrawn from the digestors through an 8-inch valved digested sludge line that connects both digestors to the Sludge Drying Beds (SWMU 45).

Treated effluent from the Secondary Clarifiers flows by gravity for disinfection with chlorine in the chlorine contact chamber prior to discharge from the plant to the St. Johns River. A representative analysis of the treated effluent is reflected in Table IV-8.

The WWTF has a history of NPDES violations for total suspended solids, fecal coliform and total residual coliform. In addition, there are reports of the overflow of scum from the final clarifier (Reference 46). Design modifications for improvements have been proposed (References 43, 46). No further action is suggested, other than to implement improvements as necessary to assure full compliance with NPDES permit requirements.

44: Wastewater Treatment Facility (WWTF) Clarifiers 1 and 2

Pretreatment is provided for wastewater from the FTC firefighting activities in Primary Clarifiers 1 and 2. Figure IV-21 illustrates the location of SWMU 44. The clarifiers normally operate in sequence (No. 2, then No. 1) to separate and recover oil from the FTC Wastewater. Floating oil is manually

TABLE IV-8

July 1986 - June 1987 Performance
Mayport Naval Station WWTP
(REFERENCE 46)

Month	Flow (mgd)	BOD5 (mg/1)	TSS (mg/1)	Fecal Coliform (#/100 ml)
July	1.5	5.9	14	5
August	1.6	19	100	1,587
September	1.5	12	20	120
October	1.7	10	18	116
November	1.6	5.2	27	170
December	1.2	15	35	2,669
January	1.7	12	49	360
February	1.8	13	32	1,663
March	1.9	9.5	36	2,976
April	2.0	11	48	3
May	2.0	12	49	2,146
June	1.5	9.4	49	93
Average	1.4	11	39	992
NPDES limit 1/		30/45	30/45	200/400
Compliance Agreement 1/		30/45	60/90	2000/3000

1 - Monthly average values/Weekly average values

skimmed from the surface and transported by gravity flow into an oil storage tank (SWMU 51-V). Clarifiers 1 and 2 are on-ground, square concrete tanks, each having a nominal capacity of approximately 40,500 gallons.

The Clarifiers were likely constructed when the primary wastewater treatment plant was constructed in 1962. The units are located in an area of sandy soils within 500 feet of Mayport Basin.

At the time of the VSI, the sides of the Clarifiers were noted to have oily stains on the outside of the tanks following small hairline fractures. Due to the permeability of the soils in the area, the proximity to Mayport Basin, and the evidence of possible releases noted during the VSI, further assessment is suggested for this unit. It is suggested that the structural integrity of the Clarifiers be evaluated. If the integrity is determined to be impaired, repairs should be implemented and soil sampling conducted to determine whether release of hazardous constituents have occurred. If releases have occurred, an RFI will be necessary to characterize the nature and extent of the releases to determine the need for and allow selection of appropriate corrective measures.

45: Wastewater Treatment Facility (WWTF) Sludge Drying Beds (4)

The WWTF was expanded in 1972 to a secondary treatment facility using an activated sludge system and four sludge drying beds. The sludge beds, each comprised of two cells, total approximately 14,000 square feet in size, and are constructed of concrete curbs and sand bottoms (Reference 43). The location of SWMU 45 is illustrated on Figure IV-21. The beds receive digested sludge from Aerobic Digestors Nos. 1 and 2 from the WWTF. During sludge dewatering, filtrate is collected by an underdrain system in the beds, which diverts the flow to the influent pumping station (Reference 75).

Between 1972 and April 1985, the sludge drying beds were cleaned once every quarter, with the dewatered sludge disposed in the on-site landfills (SWMUs 1-5) (Reference 66). Currently, the sludge is taken off-site for disposal (References 101, 103).

According to References 66 and 99, sludges have been stockpiled on soils adjacent to the sludge drying beds; however, at the time of the VSI, no sludges were stored outside of the active cells. Analytical results have indicated that high concentrations of copper, zinc, and nickel have been found in the sludge and that these elevated levels are above median values observed for municipal sludges (References 46, 71).

At the time of the VSI, one of the beds had recently been emptied of sludge. The remaining three beds appeared to be full.

Based on the reported presence of hazardous constituents with a high potential for release to soils from the sand-bottomed beds, further assessment appears warranted to verify if a release has occurred. Soil sampling beneath the unit should be conducted with analysis for metals.

46: SIMA Engine Drain Sump

The SIMA (Ship Intermediate Maintenance Activity) Engine Drain Sump is located in an engine repair shop (known as 31 echo) which is located in the eastern half of the SIMA Building (Building 1488). The SIMA Building is located approximately 400 feet from and runs in a north-south direction parallel to the Basin. See Figure I-1 for the location of the SIMA Building.

In the engine shop, small diesel engines are drained and washed with soap and water over a grate that is approximately 15 feet square. The Engine Drain Sump (SWMU 46) is a holding tank or sump under the grate that collects the drained diesel oil and wash water. During the VSI, the sump appeared to be constructed of concrete and to be approximately 12 inches in depth and 15 feet square. A drain pipe was visible in the base of the sump and the base appeared to be covered with oil with a metallic sheen. Facility personnel believed that the sump drain led to an underground holding tank located just to the west of the western wall of the SIMA Building. SIMA employees interviewed during the VSI were not sure of the location of the holding tank and did not know how the tank was cleaned out or who was responsible for tank

clean out. See Figure I-1 for the suspected location of the holding tank and of the possible clean-out port (Photograph 46 in Appendix A). Due to the proximity of the suspected holding tank to the SIMA oil/water separators (SWMUs 54-E and F), it may also be possible that the Engine Drain Sump is drained to the oil water separator rather than to a holding tank.

Due to the lack of available information regarding the existence, location, and integrity of the equipment used to manage the wastes disposed of in the Engine Drain Sump, as well as the high permeability of the soils in the area, and the proximity of the SIMA Building to Mayport Basin, further investigation appears warranted for this unit. It is suggested that the types and location of the mechanism used to transport and manage waste from the the Engine Drain Sump be determined. It is further suggested that maintenance and repair procedures for these mechanisms be evaluated to determine whether they are adequate to ensure that wastes from the Engine Drain Sump are managed properly and that releases to the environment are prevented.

It is further suggested that the structural integrity of the sump itself, the drain leading from the sump, and any associated tanks or piping be evaluated. If the structural integrity of any of these items has been impaired, the unit should be repaired and localized soil sampling should be conducted to determine whether hazardous constituents have been released to the environment. If hazardous constituents have been released, an RFI will be necessary to characterize the nature and extent of releases to the environment to determine the need for and allow selection of appropriate corrective measures.

47: Oily Waste Collection System

The Oily Waste Collection System (SWMU 47) at Mayport is designed to collect oily wastewaters (primarily bilge waters) from the various locations where they are offloaded from ships or generated and to transport the oily wastewater to the Oily Waste Treatment Plant (SWMUs 7-9). The OWTP is located in the northern part of the facility to the west of Mayport Basin. The water that collects in ships' bilges is normally discharged to the ocean after

treatment through an on-board oil/water separator, but within the 12-mile limit of U.S. waters, discharge is not permitted. When ships arrive at Mayport, they must pump out all of the bilge water collected while coming into port, and any bilge water collected while in port. The oil collected in the ships' oil/water separators while at sea is stored in tanks and also offloaded through the Oily Waste Collection System. Waste oil generated in ship maintenance and repair operations is also pumped into the OWCS by organizations such as SIMA and the commercial shipyards.

The Oily Waste Collection System consists of underground pipelines that flow to the Oily Waste Treatment Plant (OWTP) from a pier at the NSC Fuel Farm and from the piers that encircle Mayport Basin. The pipelines parallel Alpha, Bravo, Charlie, Delta, and Echo piers, which have oily waste risers approximately every 50 feet. Bilge water is pumped from the ships' bilges to the risers, from which the wastewater flows by gravity to one of four lift stations. From the lift stations, the oily wastewater is pumped through the oily waste force main to the OWTP. Oily waste can also be pumped from barges or doughnuts to a riser located on the pier at the NSC Fuel Farm. Figure IV-23 illustrates the general layout of the Oily Waste Collection System. The Oily Waste Collection System was installed in approximately 1978-1980 and is not cathodically protected (References 76, 103, 107).

A study of the characteristics of bilge water generated by Navy ships was conducted by the David W. Taylor Naval Ship Research and Development Center, and a report summarizing the findings was published in 1987 (Reference 41). The study evaluated bilge water prior to treatment through shipboard oil/water separators as well as the separated oil and the effluent from the separators. The results of the analysis of the separated oil are presented in Table IV-9, and the results of the analysis of untreated bilge water are presented in Table IV-10.

According to facility representatives, the integrity of the Oily Waste Collection System has not been leak tested because the appropriate methods are not currently available to Station personnel (Reference 103). However, it is suspected that leaks may have occurred or be occurring. Evidence of a release from the Oily Waste Collection System has been found at the intersection of Alpha and Bravo piers (see SWMU 28), and during an excavation project

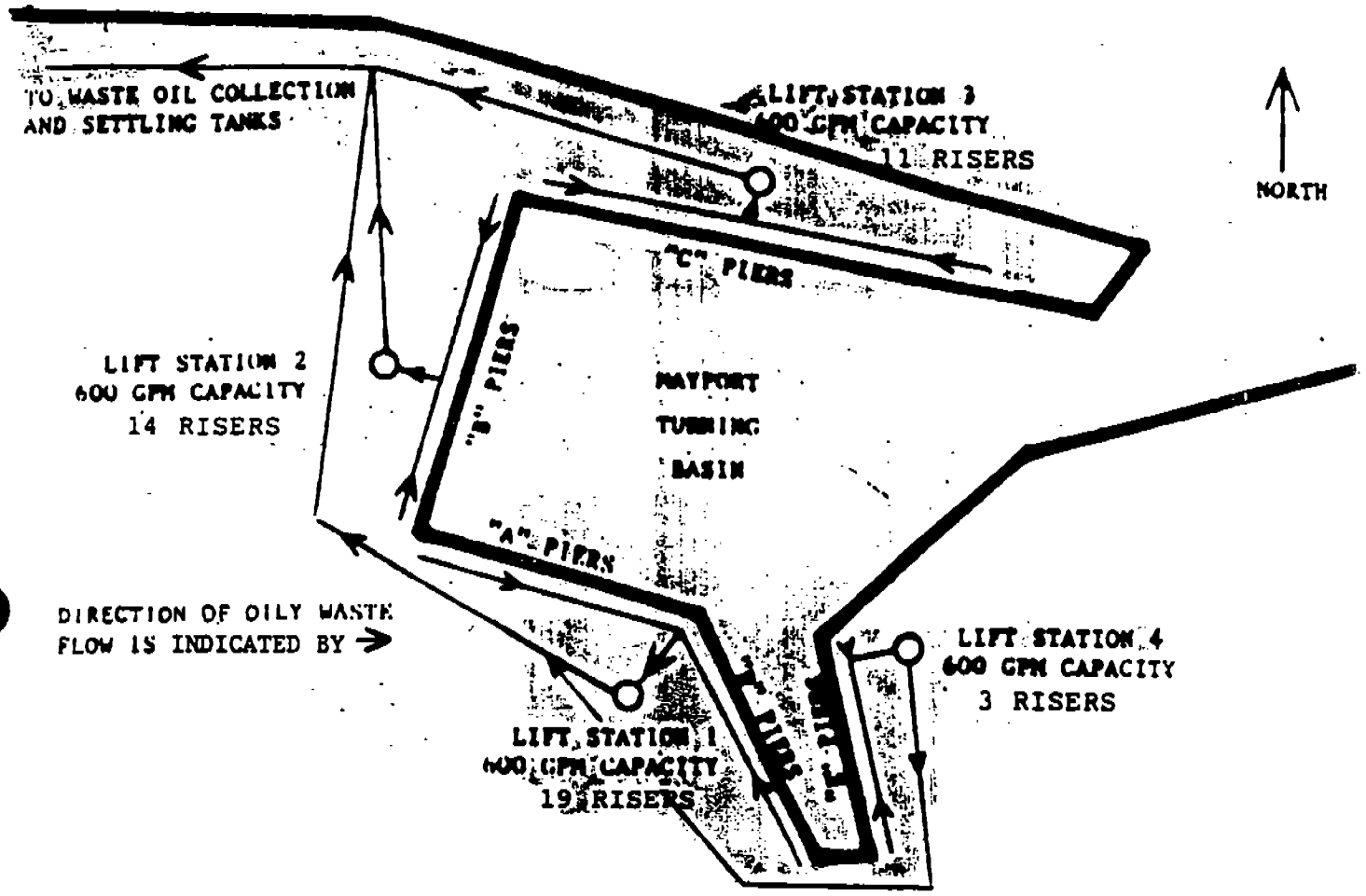


FIGURE IV-23: OILY WASTE COLLECTION SYSTEM (SWMU 47)
(REFERENCE 103)

TABLE IV-9

SHIPBOARD SEPARATED OIL
(Reference 41)

Constituent	Sample 1 Concentration	Sample 2 Concentration	Sample 3 Concentration
As (ppm)	8	BD	7
Cd (ppm)	0.4	3.8	BD
Cr (ppm)	BD	BD	BD
Pb (ppm)	0.9	55.6	0.4
1,1,1-Trichloroethane (ppm)	BD	BD	BD
Trichloroethylene (ppm)	BD	BD	BD
Tetrachloroethylene (ppm)	BD	BD	BD
Toluene (ppm)	300	53	BD
Naphthalene (ppm)	BD	BD	BD
Flash Point (°C (°F))	20 (68)	62 (143.6)	20 (68)
Total Halides (ppm)	6000	1300	9500

BD- Below detection limits.

TABLE IV-10

SHIPBOARD OIL/WATER SEPARATOR INFLUENT
(Reference 41)

Constituent	Concentration		
	Low	High	Average
As (ppm)	0.001	0.009	0.005
Cd (ppm)	BD	0.010	<0.004
Cr (ppm)	0.002	0.097	0.034
Pb (ppm)	0.009	0.109	0.038
1,1,1-Trichloroethane (ppb)	BD	1.5	BD
Trichloroethylene (ppb)	BD	BD	BD
Tetrachloroethylene (ppb)	BD	18	BD
Toluene (ppb)	BD	280	104
Naphthalene (ppb)	BD	BD	BD
Flash Point (°C (°F))	24 (75.2)	>110 (230)	>50 (122)

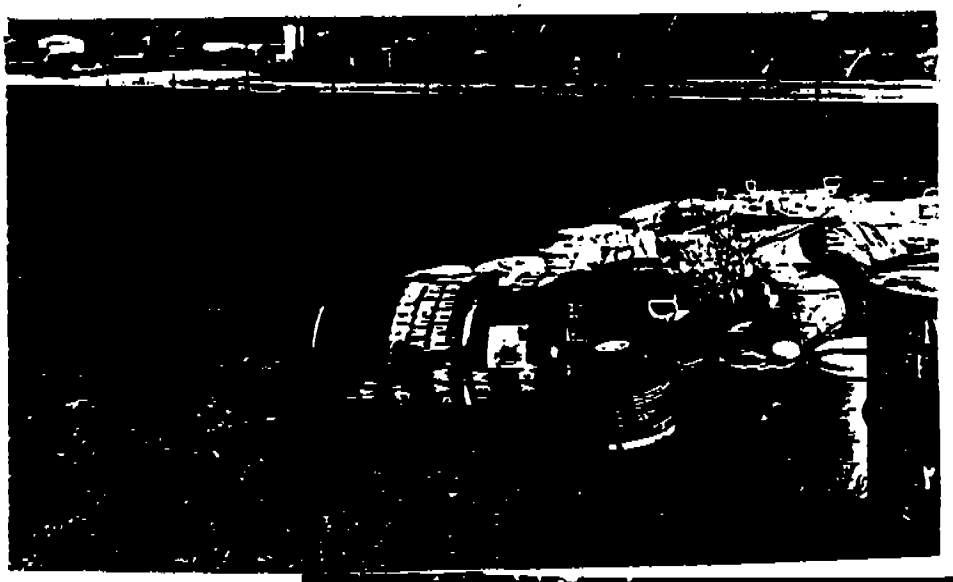
BD- Below detection limits.

conducted along Alpha-Delta pier, a black, viscous oil was found in the soils and on the groundwater. It was suspected that the oil was either Bunker C oil or weathered waste oil. In response to these and other incidents, Mayport personnel were proceeding with plans to investigate the situation and to identify available methods for pipeline tracer testing (Reference 107).

Due to the high permeability of the soils at Mayport, the shallow water table, the proximity of the Oily Waste Collection System to Mayport Basin and the Saint Johns River, the age of the system, and the fact that the pipelines have never been integrity tested, the potential for release of materials from the system to soils, groundwater, and surface waters is high. Since the system handles oily wastewaters that typically contain hazardous constituents (Reference 41), it is suggested that further investigation is warranted to verify the extent of releases of hazardous constituents which have occurred or are occurring. It is suggested that the structural integrity of the entire Oily Waste Collection System be evaluated, and if the structural integrity has been impaired, the appropriate repairs implemented and soil sampling conducted to determine whether releases of hazardous constituents have occurred. If releases have occurred, an RFI will be necessary to characterize the nature and extent of release to determine the need for and to allow selection of appropriate corrective measures. It is further suggested that procedures for regular maintenance and repair to prevent and detect future releases be designed and implemented.

48: Former Chemistry Lab Accumulation Area

The Former Chemistry Lab Accumulation Area (SWMU 48) was identified after the VSI from photographs obtained from FDER files (Reference 84). Copies of the photographs are presented as Figures IV-24 and IV-25. The photographs show numerous plastic and steel containers, many of which are labeled "Mercury Waste," stored outside in a grassy field near a fence. There appear to be at least ten 55-gallon drums and over fifty smaller plastic containers. The half-buried tank (SWMU 51-S) is visible in one photograph with an underground, above-grade tank behind it and a road and fence line in front. Other



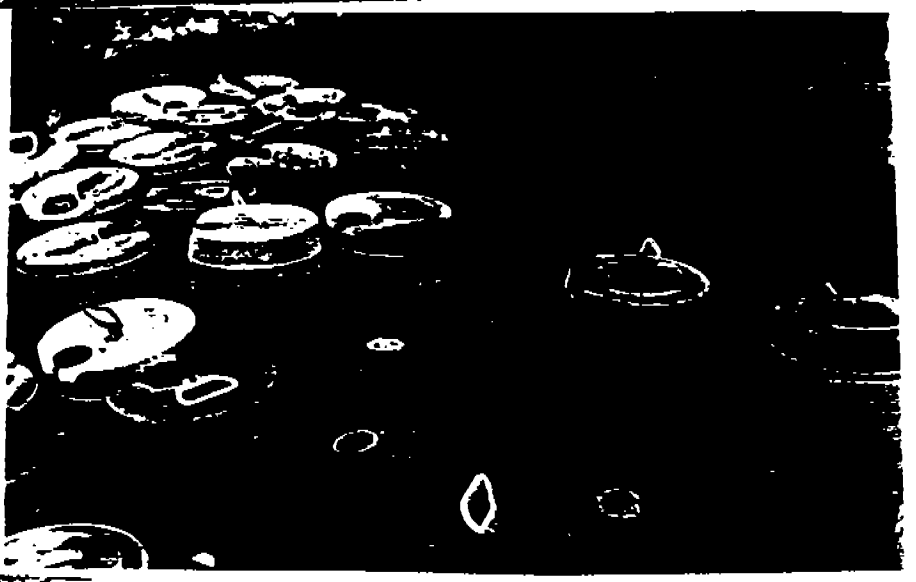


FIGURE IV-24: FDER FILE PHOTOGRAPHS; FORMER CHEMISTRY LAB ACCUMULATION AREA (SWMU 48) (REFERENCE 84)

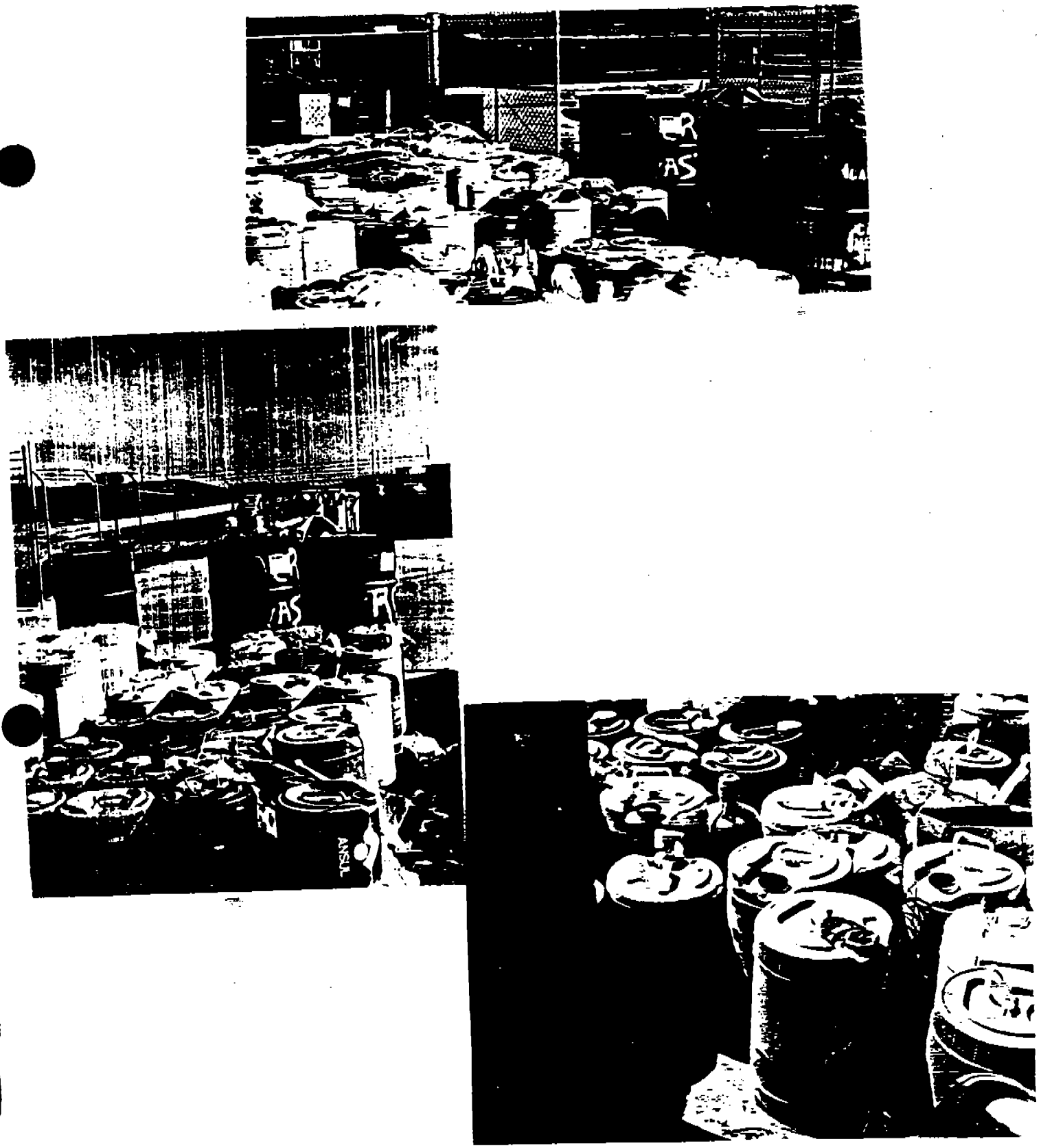


FIGURE IV-25: FDER FILE PHOTOGRAPHS: FORMER CHEMISTRY LAB ACCUMULATION AREA (SWMU 48) (REFERENCE 84)

photographs show drums stored near a cinder block wall. Some of the smaller plastic drums appear to be on pallets. At least one 55-gallon steel drum is shown lying on its side.

The location of this SWMU was determined based on the location of the Half-Buried Waste Oil Tank (SWMU 51-S) and the silhouettes of buried (above-grade) NSC Fuel Farm Tanks in the photographs. Based on this information, the Former Chemistry Lab Accumulation Area is believed to have been located behind (to the west and north of) the Chemistry Lab at the Oily Waste Treatment Plant (Building 1442). This location is further supported by the captions on the backs of the photographs, which read "Waste Behind Chemistry Lab" and "Mercury Wastes." All six photographs were dated April 29, 1981. This location is approximately 400 feet from the Saint Johns River.

An FDER letter to the Mayport Public Works Officer dated December 4, 1981, mentions mercuric nitrate wastes and plating wastes stored outdoors, in plastic containers in varying conditions, many without lids (Reference 82). It appears likely that the letter is referring to the Former Chemistry Lab Accumulation Area because the letter mentions plans to conduct a follow-up inspection of the area in March 1981, which is very close in time to the April 1981 dates on the photographs. The letter also mentions that the area is in an open field and close to surface water, which is consistent with the location behind Building 1442 (Reference 82).

At the time of the VSI, no drums or containers were noted in the area during a general walk-through of the OWTP and sludge drying beds area. However, since this SWMU was not identified until after the VSI, the area was not specifically examined for evidence of releases.

Due to the permeability of the soils in the area, the shallow water table, the proximity of the Saint Johns River, the photographic and descriptive evidence of long-term storage in poorly maintained containers, and the relative toxicity of the wastes reportedly stored in the area (mercury and plating wastes), further investigation of this site appears warranted to verify whether releases of hazardous constituents have occurred. It is suggested that the location and extent of the area in which these wastes were stored be

verified. It is further suggested that shallow soil and groundwater samples be collected from the identified area and that they be analyzed for mercury and other heavy metals, to verify whether releases of these hazardous constituents have occurred and to characterize the nature and extent of any releases.

49: Flight Line Retention Ponds

The Flight Line Retention Ponds (SWMU 49) are located in the Naval Air Station portion of Mayport, directly north of the northeast dredge spoil disposal area (SWMU 50). There are two ponds situated on the north side of the patrol road and to the south of an aircraft wash rack, Building 1611. The location of SWMU 49 is illustrated on Figure I-1. The ponds were constructed at the same time that the Naval Air Station Buildings in the area were constructed, in approximately 1985 (References 66, 103).

There are at least two storm sewer system influent points into the western pond. This pond is irregularly shaped with an area of approximately 75,000 square feet. There are at least three storm sewer system influent points into the eastern pond. This pond is roughly triangular with an area of approximately 9,000 square feet. Both ponds are excavated in native soil to a depth of approximately two feet below mean sea level. The water in the ponds is approximately four feet deep (Reference 96). The two ponds are connected by a 36" storm sewer pipe, and the outlet from the ponds is at the southeast corner of the western pond. The pond empties into two 36" storm pipes which extend under a patrol road to the south of the ponds, and discharge to the storm drainage ditch which parallels the road. This ditch eventually discharges to Sherman Creek.

The Flight Line Retention Ponds collect run-off from the Naval Air Station area southeast of the main runway, through a system of underground storm sewer pipes. The area that drains to the ponds includes the aircraft parking and washing areas between the main runway and Building 1552, as well as the Building 1552 area and the parking/roadway areas on the east side of Building 1552 (Reference 96).

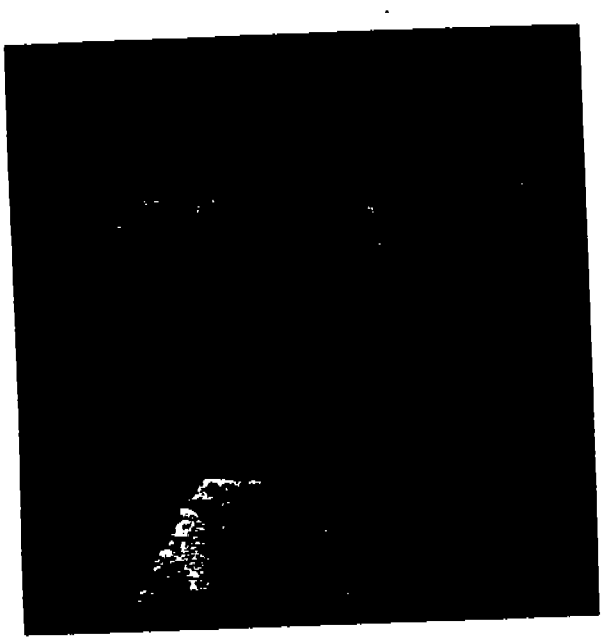
The Flight Line Retention Ponds have been identified as a SWMU because Aqueous Film Forming Foam (AFFF), a fire extinguishing material, has been discharged to the ponds in the past, because rinsate from a helicopter wash rack (Building 1611) may be discharged to the ponds due to a non-operational valve or operational error, and because run-off from aircraft maintenance areas is also discharged to the pond (References 101, 103).

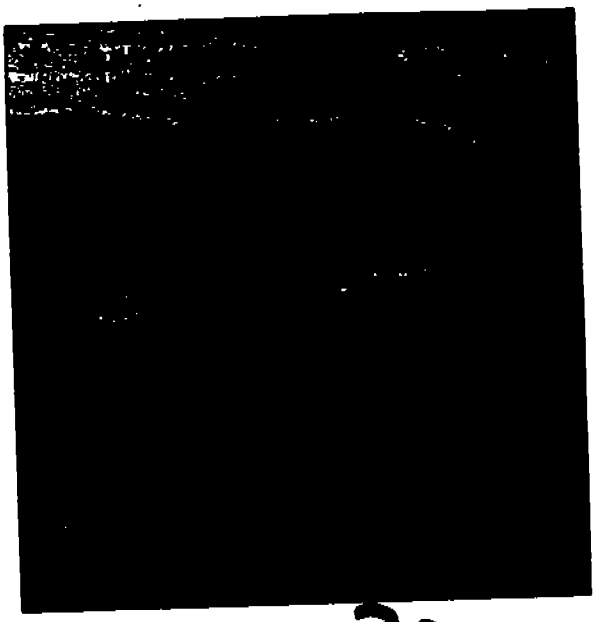
Hangar Building 1552 is fitted with an automatic fire suppressant sprinkler system that discharges an AFFF solution, and the system has discharged a number of times since construction of the building. AFFF that is discharged runs off through the storm sewer system into the Flight Line Retention Ponds. The system was discharged once in June of 1987, and at least twice since then. Several photographs of the ponds after the June 1987 incident were found in the files and show patches of foam floating on the pond and at least one dead fish (Reference 49). Copies of several of these photographs are included as Figures IV-26 and IV-27. An analytical report regarding samples taken from the ponds on June 15 and 17, 1987 concluded that levels of AFFF or a related compound were high in the pond, especially on June 17, 1987. AFFF is a fluorocarbon surfactant with excellent foaming characteristics that is moderately to extremely toxic to most organisms including sewage microorganisms (Reference 93). It is not known whether AFFF contains Appendix VIII hazardous constituents (Reference 73).

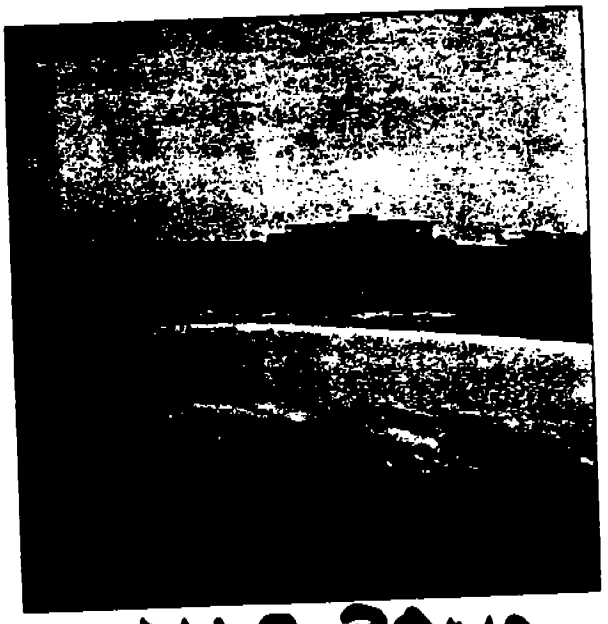
Based on the high permeability of the soils in the area, the fact that the ponds are excavated to below sea level and likely intersect the water table, and that the ponds discharge to a storm drainage ditch which in turn discharges to Sherman Creek, the potential for releases of hazardous constituents from the ponds is high if the materials are indeed hazardous. Due to the history of discharges of AFFF to the ponds, and of the influent of storm sewer system drainage from wash racks and maintenance areas, further investigation appears warranted for this SWMU to determine whether hazardous constituents have been released. It is suggested that the presence or absence of Appendix VIII constituents in AFFF be determined, and the identity of any hazardous constituents be confirmed. It is also suggested that soil and sediment samples be collected from the ponds, from the storm drainage ditch into which the ponds discharge, and from the surrounding area. It is also

Figure IV-26

File Photographs; Flight Line Retention Ponds
(SWMU 49) (Reference 49)







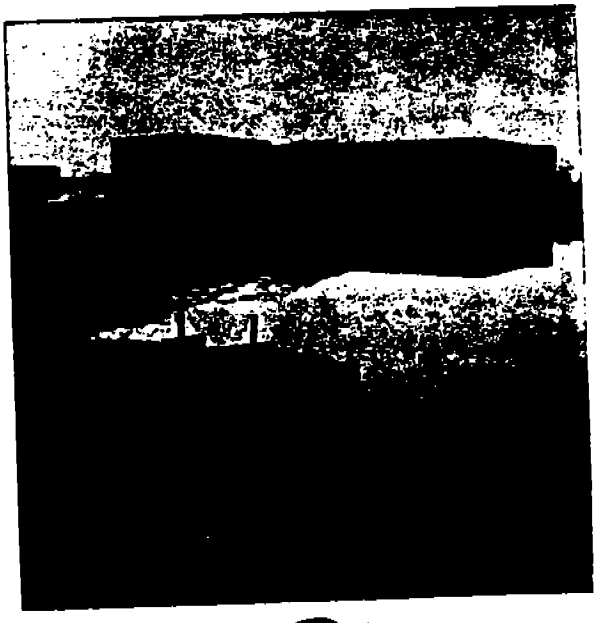
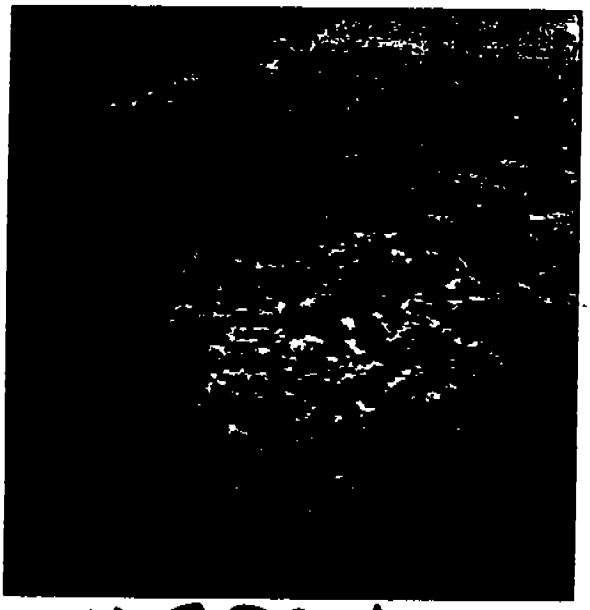
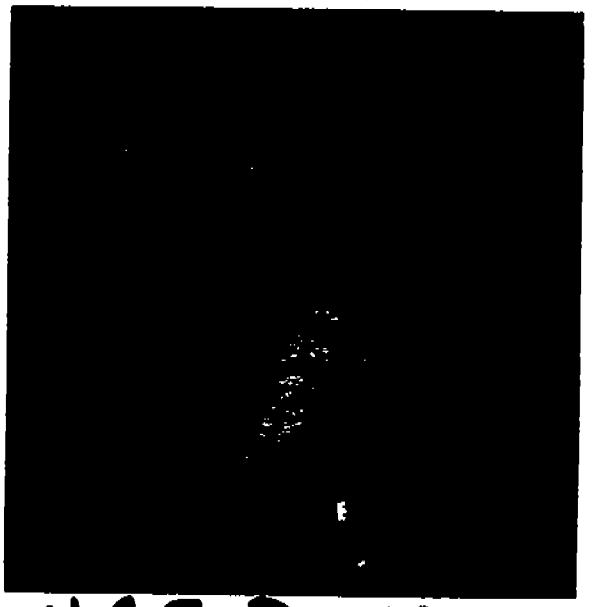


Figure IV-27

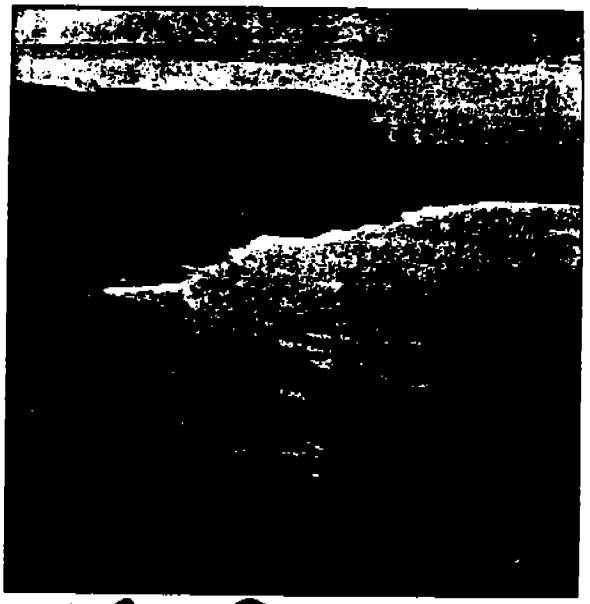
File Photographs; Flight Line Retention Ponds
(SWMU 49) (Reference 49)



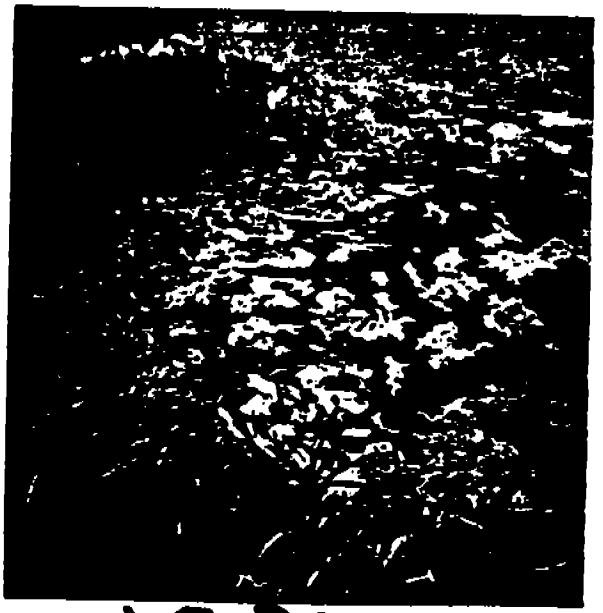
NAF POND
5:00 AM 6/17/87



NAF POND
6:00 AM 6/17/87



NAF POND
6:00 AM 6/17/87



NAF POND
6:00 AM 6/17/87

suggested that surface water samples be collected from the pond and from the drainage ditch. The samples should be analyzed for the presence of AFFF or related compounds (see Reference 48 concerning Methylene Blue testing), for any hazardous constituents found to be in AFFF, and for other Appendix VIII constituents including semi-volatiles and metals. It is further suggested that procedures for preventing future discharges of AFFF to the Flight Line Retention Ponds be designed and implemented.

50: Dredge Spoil Disposal Areas

There are two Dredge Spoil Disposal Areas (SWMU 50) located in the central portion of Mayport. The northeast area is roughly triangular and covers an area of approximately one quarter mile square. The southwest disposal area is roughly rectangular and covers an area of approximately one third of a mile square. Both disposal areas were constructed in marshy lowlands and are encircled with earthen dikes approximately twenty feet high and fifteen feet wide. Material that was dredged from Mayport Basin, and possibly from the Saint Johns River, was disposed of inside the diked areas. It is not known when these disposal areas were first used, but Mayport Basin was constructed and dredged first in the 1940s, and later deepened in the 1950s. Reference 78 indicates that dredge spoil from the original construction of Mayport Basin was used to fill in the western portions of Ribault Bay, and that spoil from subsequent maintenance dredging operations has been used as fill in other locations, most recently in the diked dredge spoil disposal areas. Reference 78 also indicates that the northeast area was filled to capacity at some time in 1983 and that spoil disposal was expected to begin in the southwest area in late 1983. Spoil disposal was ongoing in the southwest area during field work for the ESI, which was conducted in September and October of 1987 (Reference 34). However, according to facility personnel, dredge spoil disposal is no longer occurring at Mayport because it has been prohibited by the City of Jacksonville or by the State of Florida.

According to Reference 90, sampling of sediments in Mayport Basin was conducted in 1971 in preparation for dredging scheduled in 1972, and the results indicated that the sediments exceeded EPA standards for heavy metals

content. These sediments were reportedly dredged and disposed of in an offshore dumping site. Reference 90 presents the conclusions of a 1978 water quality and sediment monitoring program conducted for Mayport Basin and the approach channel. The conclusions indicate that concentrations of mercury, zinc, iron, chromium, and vanadium were found to be high in the sediments and that the concentrations of cadmium, lead, nickel, copper, beryllium, selenium, and arsenic were relatively low in the sediments. The study, which also included and compared the results of previous sampling from 1971, 1974, and 1976, noted that compared to earlier sampling results, the concentrations of cadmium, lead, mercury, chromium, arsenic, nickel, iron, oil, and grease showed some decrease, and the concentrations of COD and zinc showed small increases. Reference 74 includes analytical results from elutriate tests, and from sediment and water samples collected in 1983 and 1984 from both the Saint Johns River and Mayport Basin. These reports also indicate the presence of oil and grease, zinc, iron, lead, copper, nickel, and mercury in Basin sediments. A comparison of the 1984 river sediment results to the 1984 Basin Sediment results also indicates that the Basin sediments contained higher concentrations of these constituents than the river sediments did.

The dredge spoil disposal areas have been identified as a SWMU because of the concern that hazardous constituents discharged into the Mayport Basin or other dredged areas may have settled into the sediments and subsequently dredged out of the basin and disposed of in the Dredge Spoil Disposal Areas. Due to the permeability of the spoils, the high water content of the spoils, the expected groundwater flow direction radially away from the spoil disposal areas, and the proximity of the disposal area to salt marsh land and surface water bodies including Sherman Creek and its tributaries, the potential for release of any hazardous constituents present in the spoils is high.

Based on the potential for release, and the indications of the presence of hazardous constituents in the sediments in Mayport Basin, further investigation appears warranted for this SWMU. It is suggested that in order to verify and characterize the presence of hazardous constituents in the dredge spoil, samples be collected from various depths and locations of both of the disposal areas and analyzed for semi-volatiles and metals. It is

further suggested that groundwater samples be collected, and that sediment and surface water samples be collected from the storm drainage ditches and the portions of Sherman Creek and its tributaries into which it is believed that ground and surface water from the disposal areas would discharge. These samples should be analyzed for hazardous constituents determined to be present in the dredge spoils. It is possible that some of the groundwater monitoring wells installed and analytical results obtained in studies of the landfill areas (Reference 34) might be useful in characterizing the nature and extent of releases from the dredge spoil disposal areas.

51: Waste Oil Tanks

There are at least 22 tanks used to store waste oil at Mayport (SWMU 51 (A-V). The majority of these tanks are underground, but there are three above ground and one that is half buried. The majority of these tanks hold oily wastewater or waste oil that is separated from the oily wastewater collected through the Oily Waste Collection System (SWMU 47). Two of the tanks, 99 and 100, are the oily wastewater receiving tanks for the Oily Waste Treatment Plant. The oil phase from Tanks 99 and 100 is conveyed to Tank 101. The half-buried tank, Tank 1432, is used to hold oil pumped from Tank 101 prior to loading into tanker trucks. Oil transported from Tanks 101 and 1432 is used to fuel boilers and refuse burners at Mayport, most of which have underground storage tanks for the reclaimed oil. Tanks 1430-A and 1430-B contain fuel for the Carbonaceous Fuel Boiler (SWMU 17); Tanks 250-A, 250-B, and 250-C contain fuel for the Building 250 boilers; Tank 1601 contains fuel for the Classified Waste Incinerator, and Tank 1241-A, 1241-B, 1241-C, and 1241-D contain fuel for the Building 1241 boilers. Some or all of these tanks may contain product fuel as well as reclaimed oil.

Table IV-10 presents the information available concerning these tanks, including their location, tank construction, leak detection methods, and references which contain information about each tank.

In addition to the leak detection methods indicated on Table IV-11, Tanks 99, 100, and 101 are constructed with a ring drain system surrounding the tanks

Table IV-11: Waste Oil Tanks (SWMU 51)

Tank ID	Tank No.	Installation Year	Location	Capacity	Tank Construction	Piping Construction	Leak Detection	References
A.	22	1962	U	1,000 gal.	PAS	UPM	U	5
B.	35	1981	U	1,000 gal.	PAS	UPM	U	5
C.	36	1981	U	1,000 gal.	PAS	UPM	U	5
D.	37	1984	U	1,000 gal.	PAS	UPM	U	5
E.	99*	1954	NSC Fuel Farm	210,000 gal.	PAS, IL	CRC	SP,IC,MSW	5,17
F.	100*	1954	NSC Fuel Farm	210,000 gal.	PAS, IL	CRC	SP,IC,MSW	5,17
G.	101*	1954	NSC Fuel Farm	210,000 gal.	PAS, IL	CRC	SP,IC,MSW	5,17
H.	250-A	1980	250 Boiler	10,000 gal.	PAS	UPM	SP	5,17
I.	250-B**	1982	250 Boiler	30,000 gal.	U,ID	UPM, BI	SP	5,17
J.	250-C**	1962	250 Boiler	30,000 gal.	U,ID	UPM, BI	SP	5,17
K.	163-4	1961	NEX SVC STN	550 gal	PAS	UPM	SP	17, 101, 103
L.	286	1962	U	1,000 gal.	PAS	UPM	None	5,17
M.	1241-A	1970	1241 Boiler	5,000 gal.	PAS/OP	UPM	SP,IC	5,17,130
N.	1241-B	1970	1241 Boiler	35,000 gal.	PAS,OP	UPM	SP,IC	5,17,130
O.	1241-C	1970	1241 Boiler	35,000 gal.	PAS,OP	UPM	SP,IC	5,17,130
P.	1241-D	1970	1241 Boiler	35,000 gal.	PAS,OP	UPM	SP,IC	5,17,130
Q.	1430-A	1980	CFB	6,000 gal.	PAS	UPM,BI	SP,IC	5,17,94
R.	1430-B	1980	CFB	6,000 gal.	PAS	UPM,BI	SP,IC	5,17,94
S.	1432***	U	NSC Fuel Farm	25,000 gal.****	ST	U	U	101,103
T.	1553 (East)	1985****	AIMD	500 gal.	ST,SC	U	VI	101,103
U.	1601	1984	Class. Incin.	1,000 gal.	PAS	CRC	None	5,17
V.	U.**	1962****	WWTF	3,000 gal.	FRO	U	U	75,101,103

* = Above-grade, buried tank.
** = Above ground tank.
*** = Half-buried tank.
**** = Approximate.
U = Unknown.
PAS = Painted/Asphalted Steel.
IL = Interior Lined.
ID = Imperious Dike.
CRC = Corrosion Resistant Coated

OP = Overfill Protection.
ST = Steel.
SC = Secondary Containment.
UPM = Unprotected Metal.
BI = Black Iron.
SP = SPCC Plan.
IC = Inventory Control.
MSW = Manually Sampled Wells.
VI = Visual Inspection of Secondary Containment.
F = Fiberglass Reinforced Plastic.

that would collect any leaks and return the leaked liquid to Tanks 99 or 100. There may be a wet well or oil/water separator associated with this ring drain system about which no information was available at the time of the VSI.

Due to the high permeability of the soils at Mayport, the shallow depth of the water table in the area, the underground location of many of the waste oil tanks, and the wastes managed in these tanks, further investigation of these units appears warranted.

Some of these tanks will be regulated under the RCRA Subtitle I Underground Storage Tank program as it is implemented by FDER, but some may be exempt from regulation under this program as heating oil tanks. Suggested further actions include compliance with applicable Subtitle I regulations, and similar activities for those tanks that are excluded. Suggested investigation activities include integrity testing for all tanks and associated piping, soil sampling with analysis for volatiles, semi-volatiles, and metals if the integrity of any tank is determined to be impaired, and corrective measures as appropriate. Installation and/or implementation of leak detection procedures is also suggested. It is further suggested that the nature of the tank and or oil/water separator associated with the Tanks 99, 100, and 101 ring drain system be determined, and that the integrity of this unit also be evaluated.

52: PWD Service Station Storage Area

The Public Works Department (PWD) Service Station is housed in Building 25, which is located to the east of the Destroyer Slip. The PWD Service Station Storage area is located on and adjacent to a concrete slab that is 30 feet long and 20 feet wide and is situated along the northeast wall of the building. There is a drain in the concrete slab that flows to a nearby oil/water separator.

At the time of the VSI, there were at least four 55-gallon drums stored on the concrete slab. Facility personnel indicated that one drum contained window washing solution, one contained coolant, and one contained waste oil. Another drum has an open bung and appeared to be one quarter full of an oily substance.

A waste oil bowser having a capacity of approximately 300 gallons was located on the asphalt just off the northeast edge of the concrete slab. Reportedly the bowser is emptied periodically and the oil is taken off-site to be recycled. Dark stains were noted under the waste oil bowser. Based on the high permeability of the soils in the area, the proximity to Mayport Basin, and the evidence of a release noted during the VSI, further investigation appears warranted for this SWMU. It is suggested that soil sampling be conducted in the area of the stained asphalt and that the samples be analyzed for volatiles, semi-volatiles, and metals. This sampling will allow an assessment of the nature and extent of release of hazardous constituents.

53: Sewer Pipelines

The sewer pipline system at Mayport collects and transports wastewater from all areas of the station to the Wastewater Treatment Facility (WWTF) (SWMUs 43-45), located to the south of the entrance to Mayport Basin from the Saint Johns River. The majority of sewer piplelines at Mayport are underground and are constructed of six-, eight-, and ten-inch pipes. The age of the system was not reported, but the various parts of the system were likely constructed

that would collect any leaks and return the leaked liquid to Tanks 99 or 100. There may be a wet well or oil/water separator associated with this ring drain system about which no information was available at the time of the VSI.

Due to the high permeability of the soils at Mayport, the shallow depth of the water table in the area, the underground location of many of the waste oil tanks, and the wastes managed in these tanks, further investigation of these units appears warranted.

Some of these tanks will be regulated under the RCRA Subtitle I Underground Storage Tank program as it is implemented by FDER, but some may be exempt from regulation under this program as heating oil tanks. Suggested further actions include compliance with applicable Subtitle I regulations, and similar activities for those tanks that are excluded. Suggested investigation activities include integrity testing for all tanks and associated piping, soil sampling with analysis for volatiles, semi-volatiles, and metals if the integrity of any tank is determined to be impaired, and corrective measures as appropriate. Installation and/or implementation of leak detection procedures is also suggested. It is further suggested that the nature of the tank and or oil/water separator associated with the Tanks 99, 100, and 101 ring drain system be determined, and that the integrity of this unit also be evaluated.

52: PWD Service Station Storage Area

The Public Works Department (PWD) Service Station is housed in Building 25, which is located to the east of the Destroyer Slip. The PWD Service Station Storage area is located on and adjacent to a concrete slab that is 30 feet long and 20 feet wide and is situated along the northeast wall of the building. There is a drain in the concrete slab that flows to a nearby oil/water separator.

At the time of the VSI, there were at least four 55-gallon drums stored on the concrete slab. Facility personnel indicated that one drum contained window washing solution, one contained coolant, and one contained waste oil. Another drum has an open bung and appeared to be one quarter full of an oily substance.

A waste oil bowser having a capacity of approximately 300 gallons was located on the asphalt just off the northeast edge of the concrete slab. Reportedly the bowser is emptied periodically and the oil is taken off-site to be recycled. Dark stains were noted under the waste oil bowser. Based on the high permeability of the soils in the area, the proximity to Mayport Basin, and the evidence of a release noted during the VSI, further investigation appears warranted for this SWMU. It is suggested that soil sampling be conducted in the area of the stained asphalt and that the samples be analyzed for volatiles, semi-volatiles, and metals. This sampling will allow an assessment of the nature and extent of release of hazardous constituents.

53: Sewer Pipelines

The sewer pipline system at Mayport collects and transports wastewater from all areas of the station to the Wastewater Treatment Facility (WWTF) (SWMUs 43-45), located to the south of the entrance to Mayport Basin from the Saint Johns River. The majority of sewer piplelines at Mayport are underground and are constructed of six-, eight-, and ten-inch pipes. The age of the system was not reported, but the various parts of the system were likely constructed at the time that the buildings they serve were constructed. Since Naval operations have been conducted at Mayport since 1942, it is possible that parts of the system are over 55 years old. Since the Naval Station was established and the Basin deepened to handle larger ships in the early 1950s, it is expected that much of the system was constructed at that time and is at least thirty years old.

In addition to transporting domestic sewage and domestic wastewater, the sewer pipelines at Mayport also transport wastewater from industrial operations at the station to the Wastewater Treatment Plant. For example, operations that discharge wastewater to the Sewer Pipeline system include, SIMA, AIMD, helicopter maintenance areas, commercial shipyards, and ships. Although waste management procedures utilized at Mayport are designed to prevent hazardous waste from being disposed of through the sewer pipeline system, materials that are not defined as hazardous wastes but that contain hazardous constituents may be discharged through sink and floor drains or other sources to the sewer pipeline system. Examples of materials that may be discharged to the Sewer

Sewer System include paint booth effluent (SIMA, AIMD), cleaning compounds, alkali soap degreaser effluent (SIMA), CFB quench liquid, foundry cleaning solutions (SIMA), oil water separator effluent, discharges from ships (Combined Holding Tanks, CHT), and various rinsewaters. A study conducted by U.S. EPA in 1987 sampled and analyzed several of the influent wastewater streams that are discharged to the Wastewater Treatment Facility through the Sewer Pipelines and detected a number of hazardous constituents including chromium, nickel, chloroform, toluene, naphthalene, methyl ethyl ketone, benzene, 1,4 - dichlorobenzene, bromoform, and phenols (Reference 40). Although it was determined in the study that most of the organic constituents were reduced to below detection limits in the effluent wastewater through treatment at the Wastewater Treatment Facility, the influent wastewaters flowing through the Sewer Pipelines did contain hazardous constituents.

Due to the high permeability of the soils at Mayport, the shallow water table, and the proximity to surface water bodies, the potential for release of materials from the sewer pipelines to soils, groundwater, and surface waters is high. Since many of the sewer pipelines handle wastewater from industrial operations, and the presence of hazardous constituents in the wastewater has been documented (Reference 46), further investigation appears warranted for the sewer pipelines. It is suggested that the maintenance and repair procedures for the sewer pipelines be evaluated to determine whether they are adequate to ensure that releases to the environment are prevented. It is also suggested that the structural integrity of the system be evaluated, and if the structural integrity has been impaired, that repairs are made and soil sampling conducted to determine whether releases of hazardous constituents have occurred.

54: Oil/Water Separators

There are at least 13 Oil/Water Separators at Mayport that are used to separate the oily fraction from wastewaters before the wastewaters are discharged to the domestic sewer system. All of the Oil/Water Separators observed during the VSI were underground with manhole access. According to facility personnel, the separated oil from each separator is stored in an underground tank, and the effluent is discharged to the domestic sewer system and flows eventually to the Wastewater Treatment Facility (SWMUs 43-45).

Table IV-12 presents a list of Oil/Water Separators and includes any information available concerning the oil storage tanks associated with the separators. The table also includes the References in which information concerning the existence, location, and characteristics of the Oil/Water Separator was found.

Facility personnel reported that most of the oil/water separators were cleaned out in the fall of 1988, but that there is no ongoing program in place for removing the separated oil from the tanks and for routine maintenance. It was not known when any maintenance was conducted prior to that time. Facility personnel reported that there have been problems with the oil/water separators at SIMA backing up, and that when one of the 1,000 gallon SIMA oil/water separator tanks was pumped out in 1988, 3,000 gallons of oil were removed from the tank. The origin of the excess oil was not known. Facility personnel also suspect that high oil and grease inputs to the Wastewater Treatment Facility (SWMUs 43-45) may be caused by non-operational or inefficient oil/water separators (Reference 103).

Due to the high permeability of the soils at Mayport, the underground location of the oil/water separators and associated tanks, the oily waste managed in these units, and the lack of documentation of past assessment, maintenance, repair, and clean-out activities conducted for these units, further investigation of these units appears warranted.

Since the underground storage tanks associated with the oil/water separators will be regulated under the RCRA Subtitle I Underground Storage Tanks program as it is implemented by FDER, suggested further actions for these tanks include insuring compliance with these regulations as they become effective in Florida. Further investigation should include integrity testing and corrective action for any released substances if the integrity of the tanks is found to be impaired. It is further suggested the structural integrity of the oil/water separator enclosures be evaluated and that if the integrity is

Table IV-12: Oil/Water Separators and Associated Underground Tanks (SWMU 54)

Oil/Water Separator Identification	Oil/Water Separator Building No.	Installation Year	Nearby Building No.	Grid Location (SWMU Map)	Tank Capacity	Tank Construction	Piping Construction	Reference
A.	1323*	1974	1456 (FTC)	C-15	10,000 gal.	PAS	UPM	5, 17, 33
B.	1342	U	1431 (NAS)	E-9	U	U	U	33, 95
C.	1417	U	1343 (NAS)	E-9	U	U	U	33, 95
D.	1461	1979	25 (PWD)	E-11	4,000 gal.	PAS	UPM	5, 17, 33, 95
E.	1490-A	1981	1488 (SIMA)	E-12	1,000 gal.	PAS	UPM	5, 17, 33
F.	1490-B	1981	1488 (SIMA)	E-12	1,000 gal.	PAS	UPM	5, 17, 33
G.	1512	U	U	F-7	2,880 kg.	U	U	33
H.	1515	U	414 (Hobby Shop)	F-13	72 kg.	U	U	33, 95
I.	U	U	1552 (Hangar)	E-8	U	U	U	95
J.	U	U	1553 (AIMD)	E-8	U	U	U	95
K.	1573	U	U	F-12	5,760 kg.	U	U	33
L.	U	U	Atlantic Marine	D-13	U	U	U	103
M.	U	U	Atlantic Marine	D-13	U	U	U	103

U = Unknown.
PAS = Painted/asphalted steel.
UPM = Unprotected metal.
* = References 5 and 17 list this tank as empty.

determined to be impaired, soil sampling be conducted to determine whether releases of hazardous constituents have occurred.

It is also noted that although the list of tanks included in References 17 and 5 included some of the oil/water separator tanks, they did not include the majority of the tanks. It is thus suggested that the facility provide an update of the Mayport storage tanks list which includes all oil/water separator tanks. It is also suggested that a rigorous assessment, maintenance, repair and clean-out program for the separator mechanisms, the separator enclosures, and the associated oil storage tanks be designed and implemented in the near future to ensure that future releases to the environment are prevented.

55: Storm Sewer and Drainage System

The Storm Sewer System at Mayport includes both underground storm sewer pipes and lined and unlined storm sewer ditches. Figure II-6 (page II-15) illustrates some of the major drainage ways of the system. The storm sewer system conveys run-off from both developed and undeveloped areas of the station, and discharges the run-off to the Saint John River, Mayport Basin, the Atlantic Ocean, Sherman Creek, and Lake Wonderwood.

The Flight Line retention Ponds (SWMU 49) discharge into the Storm Sewer System and boiler blowdown from the Building 250 boilers is discharged to the system as well. Any uncontained surface spill or leaks would be washed into the system, and leaks from underground tanks, pipelines, oil/water separators, or the Oily Waste Collection System might also be discharged to the system. The ESI study (Reference 34) included surface water and sediment sampling in the drainage ditches in the landfill area, which documented contamination of the sediments that is thought to originate from the old landfills, Reference 108 documents a long-term intermittent discharge of an oily material from a storm water outfall in the Alpha pier area that is thought to originate from a fuel-line leak. The Hobby Shop Drain (SWMU 20) also discharged to a storm sewer ditch.

Storm sewer discharges at Mayport are not regulated or controlled under the National Pollutant Discharge Elimination System (NPDES), which at Mayport addresses only the two wastewater treatment plant discharges. According to facility personnel, an inventory of storm sewer discharges has not been conducted and the locations of all of the discharge points are not known.

Due to the permeability of the soils at Mayport, the shallow depth of the water table, and the fact that the storm sewer system discharges to surface water bodies, the potential for releases of any hazardous constituents present in the system to surface waters, groundwater, or soils is high. Based on the industrial nature of operations at Mayport and the examples of materials that may contain hazardous constituents discharged to the system discussed above, further investigation of the system is warranted. Contamination of the storm water drainage ditches in the old landfill areas may be addressed as part of the RFI for the landfill areas. A program of sediment and surface water sampling is suggested for the remaining drainage ditches and for the discharge points for both storm sewer pipes and storm drainage ditches. It is also suggested that the inputs to any drainage-ways that are determined to be discharging hazardous constituents be identified and evaluated and that procedures be implemented to prevent future releases from these sources. It is further suggested that an evaluation of the nature and extent of past releases be conducted for any drainage ways in which sediment are determined to contain hazardous constituents.

56: Building 1552 Accumulation Area

See discussion under Accumulation Areas, SWMUs 31-42

Areas of Concern (AOCs)

A: Fuel Distribution Pipelines

Fuel is stored in tanks at the Naval Supply Center (NSC) Fuel Farm in the northern portion of Mayport along the Saint Johns River. The fuel is supplied to ships via tanker trucks, barges, and the Fuel Distribution Pipelines (AOC A). Two types of fuel are provided to ships through two parallel Fuel

Distribution Pipelines, diesel fuel marine (DFM) for the ships, and JP-5 for aircraft. The DFM pipelines originate at the DFM storage tanks (Tanks 203, 204) and continue to the Basin area to the east and to the NSC Fuel Farm pier to the west. The DFM pipelines encircle Mayport Basin and provide DFM to ships at all five piers. The JP-5 pipelines originate at the JP-5 storage tanks (Tanks 201, 202) and continue to the Basin area to the east and to the NSC Fuel Farm pier to the west. The JP-5 pipelines serve only Bravo and Charlie piers, the northernmost and the northwestern piers. The fuels are pumped to the ships through risers located on the piers (References 76, 101, 103).

The Fuel Distribution Pipelines were installed in approximately 1960 except the Echo pier lines (easternmost pier), which were added later (References 17, 103, 107). None of the Fuel Distribution Pipelines are cathodically protected, but they are periodically pressure tested (References 107, 103). The piping is constructed of corrosion-resistant coated steel (Reference 17). Suspected leaks from the Fuel Distribution Pipelines have been reported in the past (References 107, 108, 109), and Reference 107 indicates that in the fall of 1988 steps were being taken to investigate pipeline test methods.

Since all the Fuel Distribution Pipelines are connected to petroleum product storage tanks, the pipelines will be subject to the requirements of the RCRA Subtitle I Underground Storage Tank regulations as "ancillary equipment," when they are implemented in the State of Florida. In addition, the tanks are considered transportation tanks which are currently regulated under FDER's stationary storage tank control program. Mayport's Storage Systems Management Plan (Reference 17) proposes interim compliance measures for these tank systems including continued maintenance every three years, and recommends that tank upgrades to be completed by December 1994 include installation of cathodic protection systems to the tanks and associated piping (Reference 17).

Since the fuel distribution pipelines will be addressed under these tank management programs, no further action is suggested under the RCRA corrective action program other than continued periodic pressure testing and implementation of other testing methods if available.

B: Underground Product Storage Tanks

There are numerous Underground Product Storage Tanks (AOC B) located at Mayport including the NSC Fuel Farm tanks and gasoline tanks in several locations. Since underground storage tanks are being addressed and regulated under the RCRA Subtitle I Underground Storage program, and in Florida under FDER's stationary tank regulatory program (with two exceptions) no further action for these tanks is suggested at this time under the RCRA corrective action program. The two exceptions are the gasoline tanks located at the NEX Service Station and at the PWD Service Station. According to facility personnel, shortly before the VSI was conducted, shallow soil borings at these two locations showed indications of product fuel leaks. Free product was encountered in both locations (Reference 103). It is thus suggested that if these releases are not being addressed under other programs, that interim measures be implemented to remove continuing sources of contamination.

V. RECOMMENDATIONS

Fifty-six SWMUs and two areas of concern (AOCs) at Mayport, eighteen of which require an RFI (Table IV-1). Sixteen of the eighteen have been included in the RFI work plan (Reference 47), which is currently under revision by the Navy to update the information to respond to EPA review comments (Reference 21). An RFI work plan for the remaining two units should be submitted to EPA for review.

Hazardous constituents have been detected at levels above the U.S. EPA water quality criteria for chronic exposure in marine environments in the vicinity of several SWMUs, including SWMUs 1, 2, 3, 4, 5, 6, and 14 (Reference 34). These units are included in the RFI work plan.

Twenty-three SWMUs require further investigation to verify if a release has occurred (Table IV-3). Specific recommendations for each of the units are discussed in Section IV. If the facility cannot substantiate that the twenty-three units do not require an RFI, then an RFI Work Plan for the units should be submitted to EPA for review.

Two Areas of Concern (AOCs) were identified at Mayport. Both are product management units. However, ongoing releases are suspected from two of the product gasoline underground storage tanks (AOC B). It is suggested that further assessment to verify the presence of product in the soils be conducted, and that if products is determined to be leaking into the soil, that interim measures be implemented for these tanks.

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108. Memo from Robert Strickland, EN1, ODD Mayport Naval Station to Environmental Department with additional note to file from Michael Davenport, Environmental, PWD, August 23, 1988.

109. Initial Report of an Oil Spill; Completed Form; Building 36 Parking Lot, August 23, 1988.

110. Memorandum from Michael Davenport, Environmental Division, PWD, Naval Station Mayport to the Oil Spill File; Subject: DFM Spill at Building 1430 Carbonaceous Fuel Boiler on May 5, 1988, Thursday; June, 3, 1988.

ATTACHMENT A

VISUAL SITE INSPECTION SUMMARY
AND
PHOTOGRAPH LOG

APPENDIX A
VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPH LOG

The visual site inspection (VSI) summary and photograph log documents the activities and observations of representatives of A.T. Kearney and the Florida Department of Environmental Regulation during the June 26-29, 1989 VSI of the Mayport Naval Station/Naval Air Station facility located near Mayport, Florida. Observations and findings from the VSI have been incorporated into the main body of this report and provide a basis for the suggested further actions.

VISUAL SITE INSPECTION SUMMARY

Prior to the VSI, a proposed RCRA Visual Site Inspection Agenda was prepared by A.T. Kearney based on a file review. This agenda was provided to all interested parties.

The following persons participated in the VSI:

Michael Davenport	Naval Station Mayport, Florida, PWD
Steve Stouter	Naval Station Mayport, Florida, PWD
James Reed	Southern Division, NAVFAC ENGCOM
Phebe Davol	A.T. Kearney, Inc.
Charlotte Mooney	A.T. Kearney, Inc.
John Griffith	FDER

The FDER and Kearney inspection team and Mayport representatives assembled in a conference room at the facility at 9:30 a.m. on June 26, 1989 to discuss the VSI agenda and information needs. At the Day 1 opening meeting, facility representatives described the history of operations at the site, current facility layout and operations, and future plans for Naval operations at Mayport. Participants at the opening meeting that did not attend the remainder of the VSI included Tim Taylor, Public Affairs Officer, Mayport NS/NAS, Dave Gebert, Public

Works Officer, Mayport NS/NAS, and Jim Veal, Director, Engineering Division, PWD. The facility provided site maps and additional information regarding waste management practices. At the Day 2, 3, and 4 opening meetings, the facility representatives answered specific questions about waste management practices, SWMUs, and other areas of concern (AOCs).

On Day 1, after the Mayport and FDER representative attended a meeting with the Mayport Commanding Officer, the visual inspection began at 12:00 p.m. and continued until 4:30 p.m., covering the primary areas identified in the agenda. On Day 2, the visual inspection began at 7:30 a.m. and ended at approximately 4:30 p.m. On Day 3, the inspection began at 7:30 a.m. and ended at approximately 4:30 p.m. On day 4, the inspection began at approximately 7:30 a.m., was briefly interrupted when the facility representative was called to respond to a hazardous material spill at 11:30 a.m., resumed at 2:30 p.m., and ended at approximately 5:00 p.m. In a closing meeting on Day 4, with J.S. Veal, Director, Engineering Division, Public Works Department, arrangements for obtaining additional technical information and clarifications were discussed and the Kearney representatives answered questions about the RFA process. The inspectors departed the site at approximately 5:30 p.m.

The weather on all four days was mostly clear, hot, and humid, with temperatures in the 90s °F. Phebe Davol took photographs of the SWMUs and AOCs with a Canon Sure Shot 35mm camera, using Kodak ASA 100 color print film with no special filters or lenses.

PHOTOGRAPH LOG

The photographs on the following pages document the observations made during the VSI. The photographs are identified by a number or letter which corresponds to a corresponding SWMU or AOC identifier. In instances where several photographs are provided for one unit, a decimal and sequential number was used to denote the photograph sequence (i.e., 1.1, 1.2, and 1.3 denotes three photographs associated with SWMU 1).

Likewise, where several photographs are provided of an area of concern, a decimal and number follows the letter identifier to denote the sequence (i.e., A.1 and A.2 denote two photographs associated with AOC A). Multiple identifiers are used when a photograph shows more than one SWMU or AOC.

14.2 View of the concrete pond in the Mercury/Oily Water Spill Area (FTC-Old Firefighting Training Area) (SWMU 14), facing west. The pond receives runoff generated during firefighting activities. The black tank in the background is for simulating a water fire.

14.3 View facing southwest towards the bunker used for firefighting practice at the FTC-Old Firefighting Training Area (Mercury/Oily Water Spill Area) (SWMU 14). The grate in the foreground covers the runoff collection pipes.

14.4 View facing northeast at the concrete pond drainage system, located east of the FTC-Old Firefighting Training Area (Mercury/Oily Water Spill Area) (SWMU 14). Note the Saint Johns River in the background, beyond the palm trees.

14.5 View facing southwest along the edge of the old apron for the FTC-Old Firefighting Training Area (Mercury/Oily Water Spill Area) (SWMU 14). Note the concrete is stained and some soil staining is evident.

14.6 Overview of the old apron at the FTC-Old Firefighting Training Area (Mercury/Oily Water Spill Area) (SWMU 14), facing east. Note the black soot and stains draining towards the grate to the middle right. Observe cracked concrete.

14.7 Close-up view of the cracked concrete on the old apron of the FTC-Old Firefighting Training Area (Mercury/Oily Water Spill Area) (SWMU 14), facing northeast. The building corner is the bunker used for firefighting activities.

14.8 Overview of firefighting tank to the right and the bunker to the left background located on the old apron at the FTC-Old Firefighting Training Area (Mercury/Oily Water Spill Area) (SWMU 14), facing south. Note the cracked concrete around the base of the tank.

14.9 View of mock helicopter used for firefighting practice, located on the old apron of the FTC-Old Firefighting Training Area (Mercury/Oily Water Spill Area) (SWMU 14), facing west. Note the black soot on the concrete surrounding the helicopter. The FTC New Firefighting Training Area is in the background.

14.10 View of the plume generated from firefighting activities at the FTC-Old Firefighting Training Area (Mercury/Oily Water Spill Area) (SWMU 14), facing northeast. The photograph was taken from the extreme west side of the base, approximately two miles away.

14.11 View of propane-fueled flame for the FTC New Firefighting Training Area (Mercury/Oily Water Spill Area) (SWMU 14), facing south. Note the smoke emitted to the right of the flame is generated by heated fuel oil.

14.12 Close-up of simulated smoke generated at the FTC - New Firefighting Training Area (Mercury/Oily Water Spill Area) (SWMU 14). Note the area is self-contained.

14.13 View of the stack located to the east of the two previous photographs, facing south. The stack is located at the FTC - New Firefighting Training Area (Mercury/Oily Water Spill Area) (SWMU 14).

14.14 View of the FTC Equalization Tanks (Mercury/Oily Water Spill Area) (SWMU 14), facing west. The tanks to the left appear to be in good condition.

14.15 View of the pipe system for the FTC Equalization Tanks (Mercury/Oily Water Spill Area) (SWMU 14), facing southwest. The pipes are above ground along the top of the tanks.

14.16 View of the sump for the FTC Equalization Tanks (Mercury/Oily Water Spill Area) (SWMU 14), facing north. Facility operators adjust the pH and add defoaming agents prior to discharge to the Sewer Pipelines (SWMU 53).

31.1 View of the FTC OBA Accumulation Area (SWMU 31), facing southwest. The green canisters on the table are placed in 55-gallon drums for off-site disposal.

32.1 View of the FTC Mercuric Waste Accumulation Area (SWMU 32), facing north. Note the waste is stored inside the building.

18.1 Overview of the FTC Diesel Generator Sump (SWMU 18), facing north. Note the sump drains to the soil. Note the absence of vegetation in the drainage pathway from the drain.

18.2 View of the accumulated oily liquid in the FTC Diesel Generator Sump (SWMU 18), facing west. Note the drain valve in the middle lower portion of the photograph.

14.17 Overview of the FTC Retention Pond East (Mercury/Oily Water Spill Area) (SWMU 14), facing southeast. The pond receives runoff from the FTC Old Firefighting Training Area and from the FTC Diesel Generator Sump (SWMU 18) discharge point.

14.18 Close-up view of the back of the FTC Retention Pond East (Mercury/Oily Water Spill Area) (SWMU 14), facing east. Note the dark oily staining along the bank.

14.19 View of oily rags and oil staining to the east of the FTC Retention Pond East (Mercury/Oily Water Spill Area) (SWMU 14), facing west. The monitoring well to the left monitors groundwater in the area.

14.20 View of former discharge point for the FTC Retention Pond East (Mercury/Oily Water Spill Area) (SWMU 14), facing west. Note the Saint Johns River is to the right.

14.21 View of the FTC Retention Pond West (Mercury/Oily Water Spill Area) (SWMU 14), facing southeast. Note the FTC New Firefighting Training Area is in the background.

14.22 View of the drainage ditch and FTC Retention Pond (Mercury/Oily Water Spill Area) (SWMU 14), facing south. Note runoff from the FTC New Firefighting Training Area.

30.1 View inside NEX Battery Corral (SWMU 30), facing east. There is an empty 55-gallon drum in the lower right-hand corner of the photograph. Note the batteries are staged on cardboard.

33.1 Overview of the SIMA Accumulation Area (SWMU 33), facing northwest. Note the area is curbed and underlain by concrete. One of the Oil/Water Separators (SWMU 54) is visible in the right foreground. Note there is a drain in front of the waste storage shed (indicated by an arrow).

33.2 View inside the SIMA Accumulation Area (SWMU 33), facing southwest. Note the drums are staged on the metal floor of the building.

46.1 Overview of the SIMA Engine Drain Sump (SWMU 46), facing northwest. Note the grate on the floor covers the sump.

46.2 Close-up view of the SIMA Engine Drain Sump (SWMU 46), facing northwest. The drain discharges to the pipe and ultimately to a holding tank. Note area around the drain appears oily and has a metallic sheen.

46.3 Possible clean-out port for the possible holding tank associated with the SIMA Engine Drain Sump (SWMU 46), facing northwest. Facility operators were not clear as to the exact location of this unit.

34.1 Overview of the Hobby Shop Accumulation Area (SWMU 34), facing southwest. Note the lack of curbing and the drums staged directly on the concrete pad. The dark oily staining in the right corner of the photograph is from vehicular traffic to and from the maintenance shed adjacent to the Hobby Shop Drain (SWMU 20).

43.1 View of waste oil tank located north of STP Clarifiers 1 and 2 (SWMU 44), facing west. The Wastewater Treatment Facility (SWMU 43) tanks are visible in the background from left to right. To the foreground are Aeration Tanks Nos. 1, 2, and 3, Clarifier No. 6, and Clarifier No. 5.

43.2 Overview of Clarifier No. 4, one of the Wastewater Treatment Facility (SWMU 43) tanks, facing southeast. Note the waste oil tank (SWMU 51-V) and STP Clarifiers 1 and 2 (SWMU 44) to the left background.

43.3 View facing east of the Wastewater Treatment Facility (SWMU 43) tanks. Aerator No. 3 is in the foreground and Aerator No. 1 is in the background.

43.4 View of the chlorine contact tank, a part of the Wastewater Treatment Facility (SWMU 43), facing north. From this tank, effluent discharges to the Saint Johns River.

44.1 Influent pipe to WWTF Clarifiers 1 and 2 (SWMU 44), facing southeast. Note the rainbow-colored oily sheen on the water surface.

44.2 Overview of WWTF Clarifiers 1 and 2 (SWMU 44), facing south. Note the walls of the tanks are stained with dark material.

44.3 View of the outside wall of WWTF Clarifiers 1 and 2 (SWMU 44), facing south. Note the dark staining on the wall in areas of cracks. The cinder block berm to the right surrounds the waste oil tank (SWMU 51-V).

45.1 Overview of the WWTF Sludge Drying Beds (SWMU 45), facing northeast. Note the Saint Johns River to the left, beyond the palm trees.

45.2 View of the wood slats along one side of the WWTF Sludge Drying Beds (SWMU 45), facing east. Note the beds are unlined and some sludge has spilled outside the concrete and wood slats in the foreground.

53.1 Overview of grates covering the Sewer Pipelines (SWMU 53), facing west. This pipeline flows from the FTC-Old Firefighting Training Area and through an Oil/Water Separator (SWMU 54) to WWTF Clarifiers 1 and 2 (SWMU 44).

53.2 Close-up view of a Sewer Pipeline (SWMU 53), facing southeast. Note the oily buildup around the opening of the pipe.

53.3 View of a drain for a Sewer Pipeline (SWMU 53), located adjacent to an above-ground waste oil bowser at the hobby shop, facing southwest. Note the oily stained concrete.

9.1 View of the influent tank for lime addition to the rapid mix tank of the Oily Waste Treatment Plant (SWMU 9), facing north. The analytical lab is in the background.

9.2 View of the discharge point to the clarifier from the rapid mix tank at the Oily Waste Treatment Plant (SWMU 9), facing west. Note the viscous consistency of the liquid.

9.3 View of the clarifier at the Oily Waste Treatment Plant (SWMU 9), facing west. Note one of the OWTP Sludge Drying Beds (SWMU 7) in the background.

9.4 Close-up view of the acid neutralization tank of the Oily Waste Treatment Plant (SWMU 9), facing northwest. The freshly poured concrete in the background is for the new Dissolved Air Flotation (DAF) tank. The clarifier is to the right background and one of the OWTP Sludge Drying Beds (SWMU 7) is to the left background.

7.1 View facing east at one of the OWTP Sludge Drying Beds (SWMU 7). Note that the sluice gate connected this bed with the far bed where the cement mixer is located. The structure in the far left background is the current Hazardous Waste Storage Area (SWMU 10).

7.2 View of Pond 3, one of the OWTP Sludge Drying Beds (SWMU 7), facing southeast. The sludge discharges through the pipe and originates from the clarifier of the Oily Waste Treatment Plant (SWMU 9). Note that the sludge is still in liquid form.

7.3 View of Pond 3 of the OWTP Sludge Drying Beds (SWMU 7), facing northeast. Note the oily residue along the bank in the foreground.

7.4 Overview of Pond 4 of the OWTP Sludge Drying Beds (SWMU 7), facing west. Note that NIRP Site No. 8, the Waste Oil Pit (SWMU 6), is in the same location.

8.1 Overview of the OWTP Percolation Pond (SWMU 8), facing south. Note the Hazardous Waste Storage Area (SWMU 10) to the background; the basin is the low area with trees along the bank.

8.2 Close-up of the OWTP Percolation Pond (SWMU 8), facing southeast. Note the influent pipe in the right foreground; the effluent pipe to the NPDES sampling point is the pipe in the upper left-hand corner near the trees.

35.1 View of the NADEP Accumulation Area (SWMU 35), facing northwest. Note the collection tray at the end of the open metal building. The accumulated liquid is pumped to a drum and transferred to the Oily Waste Treatment Plant (SWMU 9).

35.2 Waste paint, solvents and oily rags are generated in this area from the spray painting of aircraft parts. The wastes are drummed and placed in the NADEP Accumulation Area (SWMU 35). Note the grate covering a pipe connected to the Storm Sewer System (SWMU 55).

19.1 Close-up view of the Black Beauty abrasive on the ground around the rack used as the NADEP Blasting Area (SWMU 19), facing northwest. Note the proximity of the area to the Saint Johns River.

19.2 The Coast Guard pier and the Saint Johns River are in the background as seen from the NADEP Blasting Area (SWMU 19), facing northwest. Note the blasting rack and Black Beauty abrasive to the left in the photograph.

36.1, 37.1, 38.1 Close-up view of the Harbor OPS accumulation area, one of the Carrier Pier Accumulation Areas (SWMUs 36-38), facing north. Note that there was only one drum stored on a pallet during the site visit.

36.2, 37.2, 38.2 Overview of area used as one of the Carrier Pier Accumulation Areas (SWMUs 36-38), facing northwest. Note the area is sloped towards the pier adjacent to the Mayport Basin.

39.1 View of wood fence surrounding the Paint Shop Accumulation Area (SWMU 39), facing north.

40.1 Overview of the 1343 Accumulation Area (SWMU 40), facing northeast. Note that the area is concrete with three-inch-high curbing. The steel door covers one of the Station Oil/Water Separators (SWMU 54).

40.2 View within the 1343 Accumulation Area (SWMU 40), facing south. Note the drain to the left discharges to the Station Oil/Water Separator (SWMU 54) shown in the previous photograph.

40.3 Close-up view of the condition of the concrete pad at the 1343 Accumulation Area (SWMU 40), facing east. Note the crack beneath the wooden pallet. The drums contain waste JP-5 jet fuel.

17.1 View inside the solid waste sorting area for the Carbonaceous Fuel Boiler (SWMU 17), facing northeast. Note the crane bucket transfers solid waste to the combustion chamber.

17.2 View inside the quench tank for the Carbonaceous Fuel Boiler (SWMU 17), facing south. The liquid is water from quenching the smoldering waste.

17.3 View of the ash collection system for the Carbonaceous Fuel Boiler (SWMU 17), facing southeast. Collected ash discharges from the hopper to the drum below the chute.

17.4 View of the roll-off for ash collected from combustion of solid waste in the Carbonaceous Fuel Boiler (SWMU 17), facing southeast. Note the roll-off is covered with a tarp.

17.5 View of the ash collection drum for ash collected from combustion of solid waste in the Carbonaceous Fuel Boiler (SWMU 17), facing south. Note the drum is connected to the chute by an enclosed chute.

20.1 Overview of the vehicle maintenance area and gravel-topped driveway, facing northwest. The Hobby Shop Drain (SWMU 20) is to the left of the sloped concrete ramp.

20.2 Close-up of the Hobby Shop Drain (SWMU 20), facing north. Note dark oily staining around the edge of the concrete. A screen-covered drain discharges to an underground pipe (indicated by arrow).

20.3 View of the discharge point for the Hobby Shop Drain (SWMU 20), facing south. Note the dark oily staining on the asphalt.

20.4 View of the drainage pathway from the Hobby Shop Drain (SWMU 20), facing southeast. Note the pavement slopes towards the foreground.

20.5 View of the ditch to the northwest of the Hobby Shop which receives runoff from the Hobby Shop Drain (SWMU 20), facing west. Note the dark oily sediment in the foreground.

21.1 Overview of the Hobby Shop Scrap Storage Area (SWMU 21), facing north. Note the area contains discarded engines with oily residues and a refrigerator.

21.2 Close-up of scrap at the Hobby Shop Scrap Storage Area (SWMU 21), facing southwest. Note the discarded lead-acid battery and oily staining adjacent to the drums.

56.1 View of Building 1552 Accumulation Area (SWMU 56), facing northwest. Note the stained area and lack of vegetation indicating a possible spill may have occurred.

49.1 Overview of the Flight Line Retention Pond (SWMU 49) facing south from the helicopter wash rack.

49.2 View inside the Storm Sewer System (SWMU 55) which may discharge to the Flight Line Retention Pond (SWMU 49). According to the facility, releases of AFFF from the HSL 40 hangar discharge to the ponds via this pipe system.

49.3 View of a dead fish (indicated by arrow) in the Flight Line Retention Pond (SWMU 49), facing northeast. The pond receives runoff from the flight line and the helicopter wash rack area.

22.1 Inside view of the Building 1600 Blasting Area (SWMU 22), facing east. The drums in the background contain Black Beauty blasting abrasive.

22.2 View of Black Beauty blasting abrasive around the dust collector for the Building 1600 Blasting Area (SWMU 22), facing northeast.

22.3 Overview of the Building 1600 Blasting Area (SWMU 22), facing east. According to the facility, the concrete area to the right of the building in the background was covered with spent Black Beauty abrasive in February 1988 but was cleaned up.

41.1 View of the Building 1600 Accumulation Area (SWMU 41), facing southwest. No drums were present during the time of the VSI. Note the minor staining on the asphalt.

50.1 View of the Dredge Spoil Disposal Areas (SWMU 50) in the background,
50.2 facing south.

23.1 View of waste oil drums at the Jacksonville Shipyard (SWMU 23), facing south. Note some drums are positioned on the ground and some are on wooden pallets. Note the soil is stained.

23.2 View of an above-ground diesel tank located on the west side of the main Jacksonville Shipyard (SWMU 23), facing north. Note the dark staining around the base of the tank.

23.3 Overview of Painting area and Black Beauty blasting area at the Jacksonville Shipyard (SWMU 23), facing northwest. Note the paint on the asphalt in the foreground.

23.4 View of recently painted anchor chain on the asphalt at the Jacksonville Shipyard (SWMU 23), facing northeast.

24.1 View of drums containing unknown wastes at the North Florida Shipyard (SWMU 24), facing northwest.

24.2 View of stained soil and dead vegetation around the waste drums at the North Florida Shipyard (SWMU 24), facing north. Note the drums are positioned on the ground.

25.1 View of the oil/water separator at the Atlantic Marine, Inc. (SWMU 25) facility, facing southwest. Note the unit is constructed of steel.

25.2 View of the waste storage area at the Atlantic Marine, Inc. (SWMU 25) facility, facing northeast. Note the dark staining to the left of drums and lighter staining in the foreground.

25.3 Close-up view of dark oily staining around the waste storage area at the Atlantic Marine, Inc. (SWMU 25) facility, facing northwest.

25.4 View of the Black Beauty blasting area at the Atlantic Marine, Inc. (SWMU 25) facility, facing north. The drums in the background contain lubricating oil.

52.1 View of the PWD Service Station Storage Area (SWMU 52) oil bowser, facing northeast. Note the ground staining around the bowser.

52.2 View of the drum with unknown waste at the PWD Service Station Storage Area (SWMU 52), facing northwest. Note that the drain to the left discharges to the Building 25 Oil/Water Separator (SWMU 54-D)

54.1 View of the AIMD Oil/Water Separator (SWMU 54-J), facing southeast. The AIMD Underground Waste Oil Tank (SWMU 51-T) is to the right.

54.2 View of the Hobby Shop Oil/Water Separator (SWMU 54-H), facing north. An old lift station associated with the Sewer Pipelines (SWMU 53) is in the background.

54.3 View of the Building 25 Oil/Water Separator (SWMU 54-D), facing northeast. The manholes cover the oil/water separator clean-out ports.

54.4 View of the Building 1417 Oil/Water Separator (SWMU 54-C), facing northeast. Note the unit is to the left of the 1343 Accumulation Area (SWMU 40).

54.5 View inside the Building 1417 Oil/Water Separator (SWMU 54-C), facing northeast. Note the dark oily staining on the concrete walls and oil sheen on the water surface.

54.6 View of the SIMA Oil/Water Separator (SWMU 54-E or F), facing south. The separated water line from the unit is beneath the manhole to the right and routes water to the Sewer Pipeline (SWMU 53) ultimately discharging to the STP Wastewater Treatment Facility (SWMU 43).

55.1 View of the Helicopter Wash Rock which discharges to the Storm Sewer System (SWMU 55), facing east. A division valve routes storm and wash water either to the Sewer Pipeline (SWMU 53) or to the Flight Line Retention Pond (SWMU 49).

55.2 View of the Flight Line Retention Pond (SWMU 49), which is part of the Storm Sewer System (SWMU 55). Water discharges through drainage-ways into the Saint Johns River.

51.1 View facing west of Waste Oil Tanks (SWMU 51), Number 99 is to the left. Note the Saint Johns River is in the background.

51.2 View looking into the manhole cover for Tank Number 99, a Waste Oil Tank (SWMU 51), facing south.

51.3 Overview of fill and vent pipe covers for Waste Oil Tanks (SWMU 51)
51.4 Numbers 100 and 101, facing east. Note the Saint Johns River is to the left.

51.5 View of the NEX Underground Waste Oil Tank (SWMU 51-K), facing southeast. Note the dark material around the pumpout pipe is asphalt.

51.6 View of the oil funnel that discharges to the AIMD Underground Waste Oil Tank (SWMU 51-T), facing northeast.

51.7 View of the AIMD Underground Waste Oil Tank (SWMU 51-T), facing northwest. Note the tank is within adequate secondary containment.

42.1 View of the Building 1553 Accumulation Area (AIMD) (SWMU 42), facing west. Note the dark stains in the middle of the photograph.

42.2 Overview of the Building 1553 Accumulation Area (AIMD) (SWMU 42), facing west. Note some drums are in direct contact with the pavement.

10.1 View inside the Hazardous Waste Storage Area (SWMU 10), facing northwest.

10.2 View of the southern bay of the Hazardous Waste Storage Area (SWMU 10), facing west. Note the concrete curbing and good condition of the concrete.

10.3 View inside the Hazardous Waste Storage Area (SWMU 10), facing north.

10.4 View of the Hazardous Waste Storage Area (SWMU 10), facing northeast.

10.5 View of the south bay for oxidizers and caustics waste in the Hazardous Waste Storage Area (SWMU 10), facing west. Note the concrete curbing and good condition of the concrete.

10.6 View of the Hazardous Waste Accumulation Area (SWMU 10), facing north. The Oily Waste Treatment Plant (SWMU 9) is in the left background. Note the drums are on pallets on the gravel-covered ground.

10.7 View of the Hazardous Waste Accumulation Area (SWMU 10), facing west. These drums are TSCA-regulated PCB-contaminated sorbents. This area is located to the west of the Hazardous Waste Storage Building.

10.8 View of the Hazardous Waste Accumulation Area (SWMU 10), facing east. Note the drum with the hazardous waste label is in direct contact with the soil.

10.9 View of a possible location of a former monitoring well located at the Hazardous Waste Accumulation Area (SWMU 10), facing north.

1.1 View of the northwest edge of Landfill A-NIRP Site No. 1 (SWMU 1), facing west. The unit probably extends to the bank of the Saint Johns River.

1.2 View of excavated fill material from Landfill A-NIRP Site No. 1 (SWMU 1), facing southeast. The fill was excavated during construction activities for the new clarifiers at the Wastewater Treatment Facility.

1.3 View of the southern perimeter of Landfill A-NIRP Site No. 1 (SWMU 1), facing southeast. Jacksonville Shipyards (SWMU 23) is in the background.

1.4 View of a downgradient monitoring well (MPT 1-3) for Landfill A-NIRP Site No. 1 - (SWMU 1), facing northwest. The tank to the right is the Sewage Treatment Plant (SWMU 43) Digester No. 2.

2.1 Overview of Landfill B-NIRP Site No. 2 (SWMU 2), facing south. The area is beyond the chain-link fence beneath the asphalt pad.

26.1 Overview of Landfill C-NIRP Site No. 3 (SWMU 26), facing southeast. The area extends beyond the trees in the foreground.

3.1 View looking over Landfill E-NIRP Site No. 5 (SWMU 4) towards Landfill
4.1 D-NIRP Site No. 3 (SWMU 3). The unit (indicated by arrow) is north of the recent grading and application of roadbase material.

4.1 Overview of Public Works laydown area located on Landfill E-NIRP Site No. 5 (SWMU 4), facing northeast. The material is intended for reuse.

4.2 Drums located on the cover of Landfill E-NIRP Site No. 5 (SWMU 4), facing southeast. The drums are empty.

4.3 View of transformers intended for reuse located on Landfill E-NIRP Site No. 5 (SWMU 4), facing east. The dike in the background surrounds one of the Dredge Spoil Disposal Areas (SWMU 50).

4.4 View of metal scrap stored on Landfill E-NIRP Site No. 5 (SWMU 4), facing north. Note the sandy consistency of the soil.

5.1 Overview of Landfill F-NIRP Site No. 6 (SWMU 5), facing north. Note the bermed area in the background that surrounds one of the Dredge Spoil Disposal Areas (SWMU 50).

27.1 View of the Former Hazardous Waste Storage Area - NIRP Site No. 7 (SWMU 27), facing from north to northeast. This unit was a former runway. Note the asphalt is cracked and vegetation is growing through the cracks.

6.1 View of Waste Oil Pit - NIRP Site No. 8 (SWMU 6), facing west. The OWTP Sludge Drying Beds (SWMU 7) are to the left of the photograph.

11.1 Overview of Fuel Spill Area - NIRP Site No. 9 (SWMU 11), facing north. Contamination was found where the new above-ground fuel tanks are located.

28.1 View of the DRMO Yard - NIRP Site No. 10 (SWMU 28), facing north. The unit is beyond the chain-linked fence where vehicles and a tank are located.

28.2 View of the DRMO Yard - NIRP Site No. 10 (SWMU 28), facing northeast. Unit is located beyond the chain-linked fence where the vehicles are parked.

12.1 Former location for the Neutralization Basin - NIRP Site No. 11 (SWMU 12), facing northwest. The current boiler water neutralization basins are now on the location of the former unit and are retrofitted with a flexible membrane liner.

12.2 View of the flush-mounted monitoring well for the Site No. 11 Neutralization Basin (SWMU 12), facing west. Note that the location of the former unit is behind the chain-link fence.

29.1 View of area where the Oily Waste Pipeline Break (SWMU 29) occurred - NIRP Site 12. The leak was discovered when oils seeped into the Mayport Basin via the Storm Sewer System (SWMU 55). The grate in the upper right-hand corner covers the stormwater pipe system.

13.1 Overview of former location for the Old Firefighting Training Area -
13.2 NIRP Site 13 (SWMU 13), facing northeast. Note one of the ground-water monitoring wells is in the right background (indicated by an arrow).

14.1 Location of the Mercury/Oily Waste Spill Site - NIRP 14 (SWMU 14), facing northeast. Mercury wastes were stored to the left of the bleachers. The Saint Johns River is beyond the sand dunes in the background.

15.1 View of Old Pesticide Area - NIRP Site 15 (SWMU 15), facing west. The unit is located in the foreground, possibly in the area of the rubble from a building foundation.

16.1 View of the Transformer Storage Yard - NIRP Site 16 (SWMU 16), facing east. The transformers were stored on the old asphalt runway.

A.1 Location of the site where a leak occurred at the Fuel Distribution Pipeline (AOC A) on Alpha-Bravo Pier intersection, facing northwest. Note the depression in the asphalt to the right of the stormwater drain where-excavation of the soil for remediation occurred.

A.2 Close-up view inside fill pipe for the Fuel Distribution Pipeline (AOC A) along Delta Pier, facing north.

B.1 View of a gasoline Product Underground Storage Tank (AOC B), at the Jacksonville Shipyard (SWMU 23), facing northwest.

B.2 Close-up view of the fill pipe for the gasoline Product Underground Storage Tank (AOC B), at the Jacksonville Shipyard (SWMU 23), facing north. Note the dead vegetation around the fill pipe.

B.3 View of the Product Underground Storage Tanks (AOC B) at the NEX Service Station, facing southeast.

B.4 Former location of the Product Underground Storage Tanks (AOC B), at the Jacksonville Shipyard (SWMU 23), facing northwest. This tank was removed due to the discovery of a leak.

B.5 Overview of the location for the Product Underground Storage Tanks (AOC B), at the Building 25 PWD Transportation Department Service Station. Borings and OVA readings indicate soil contamination from tank leakage.


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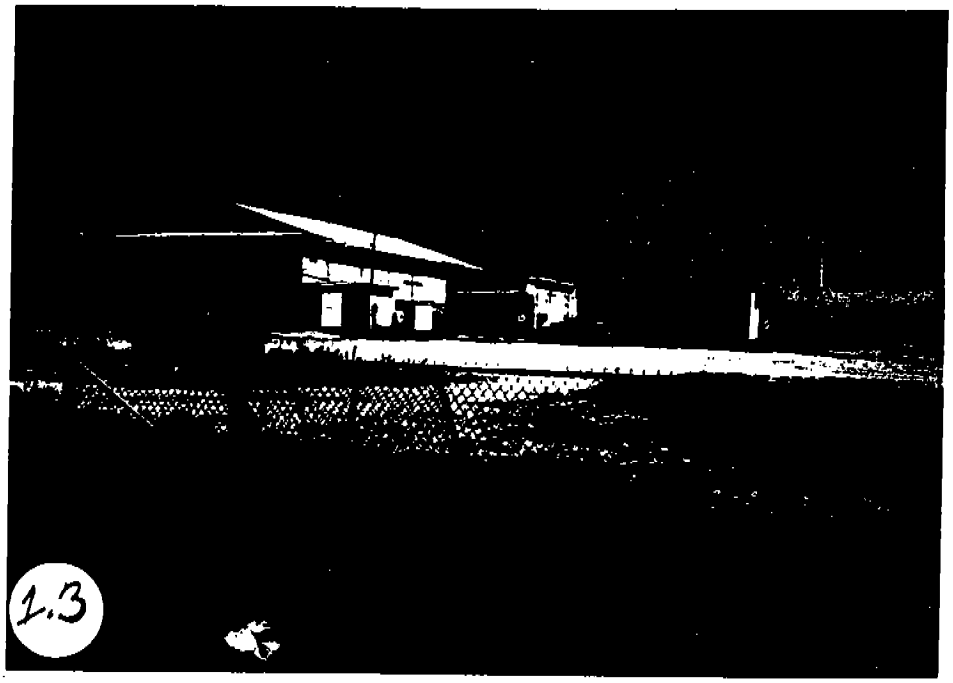
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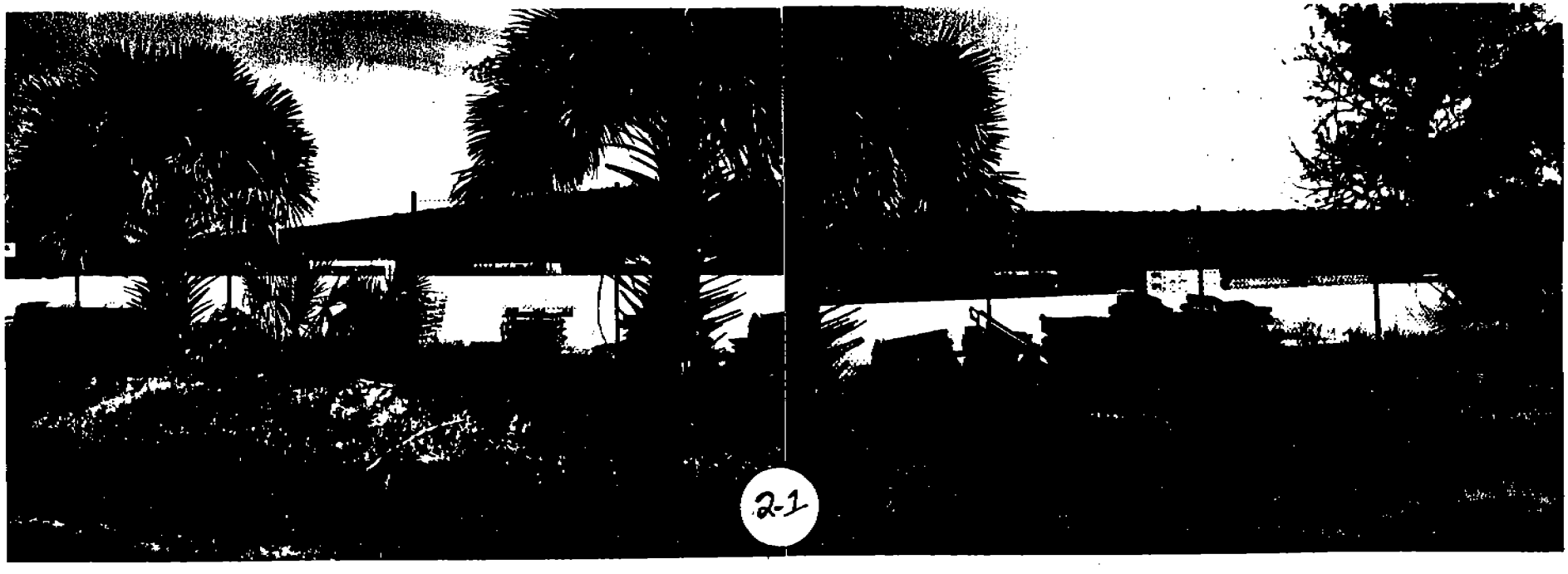
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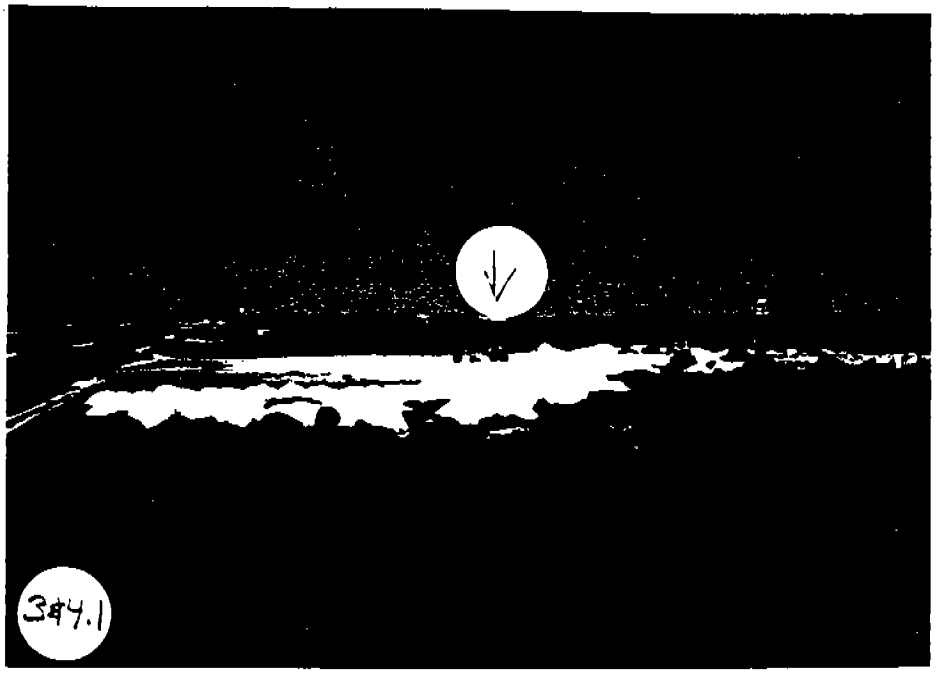
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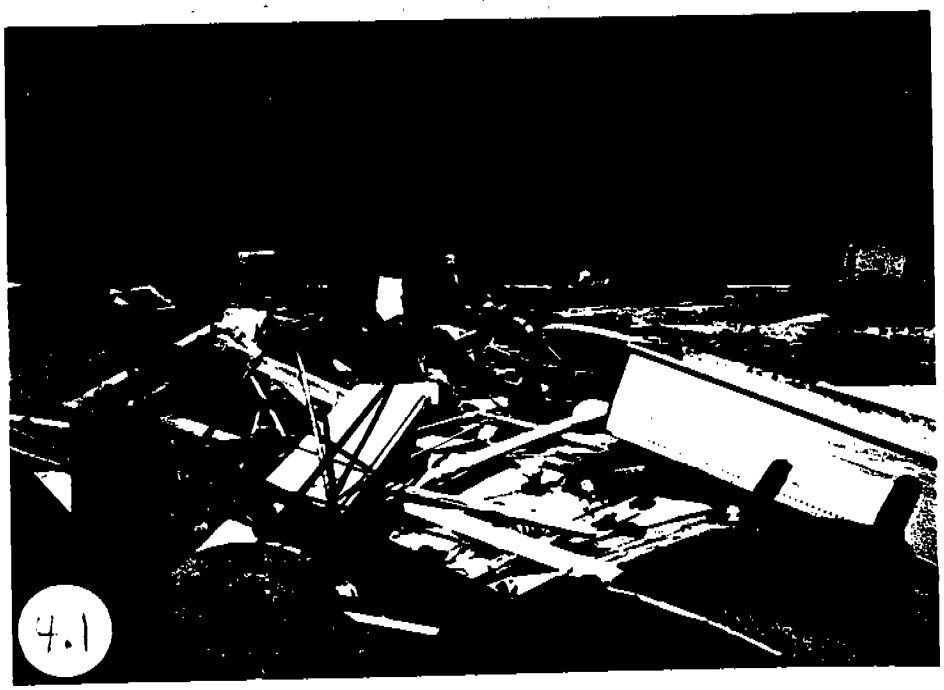
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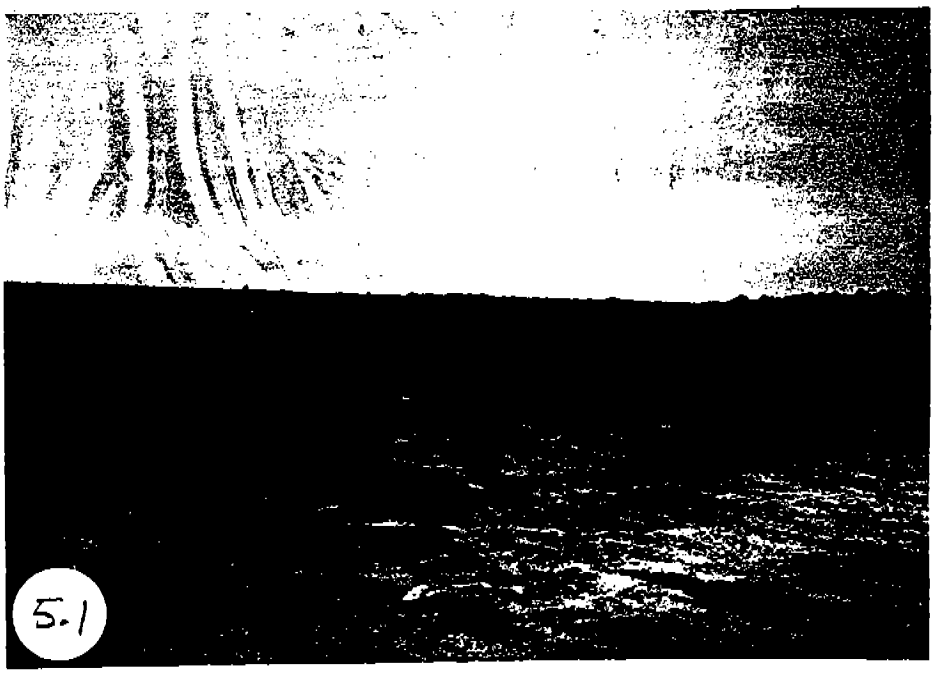
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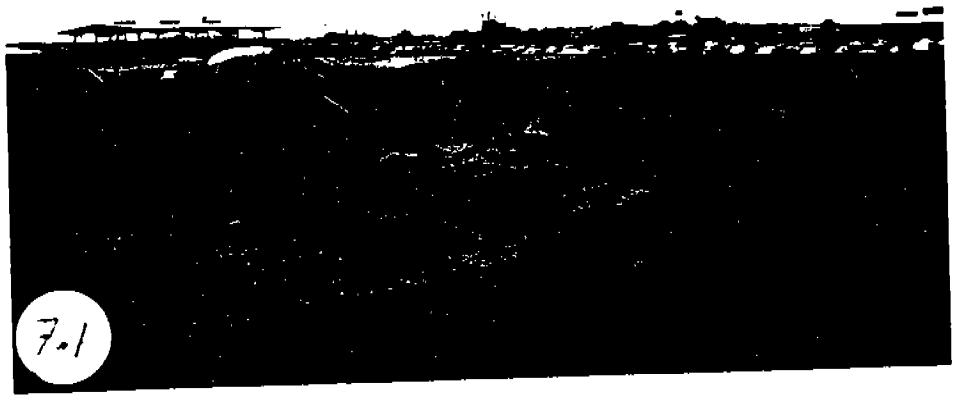
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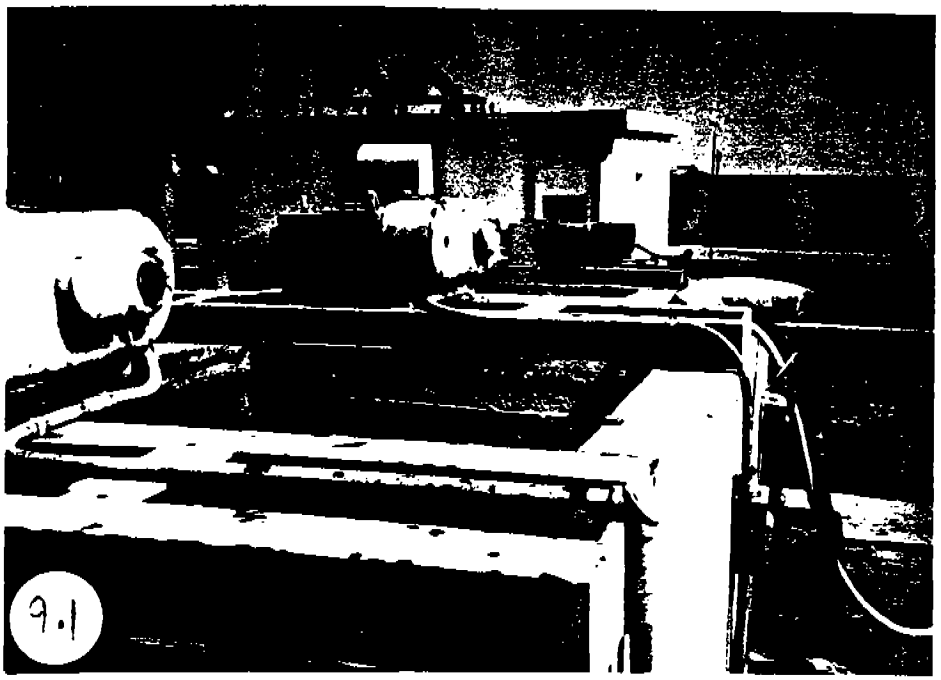
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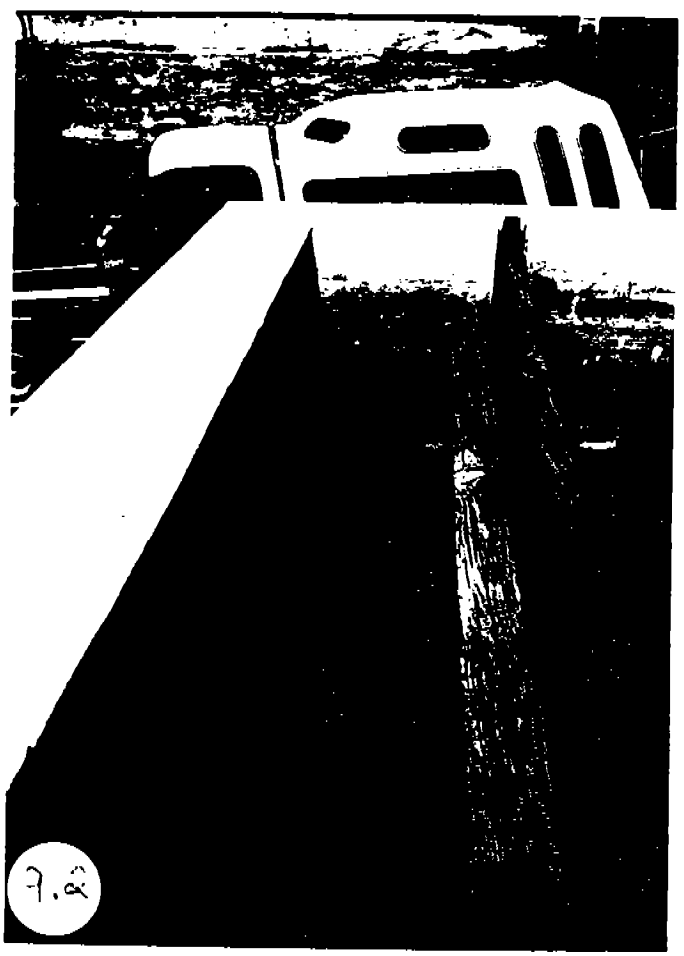
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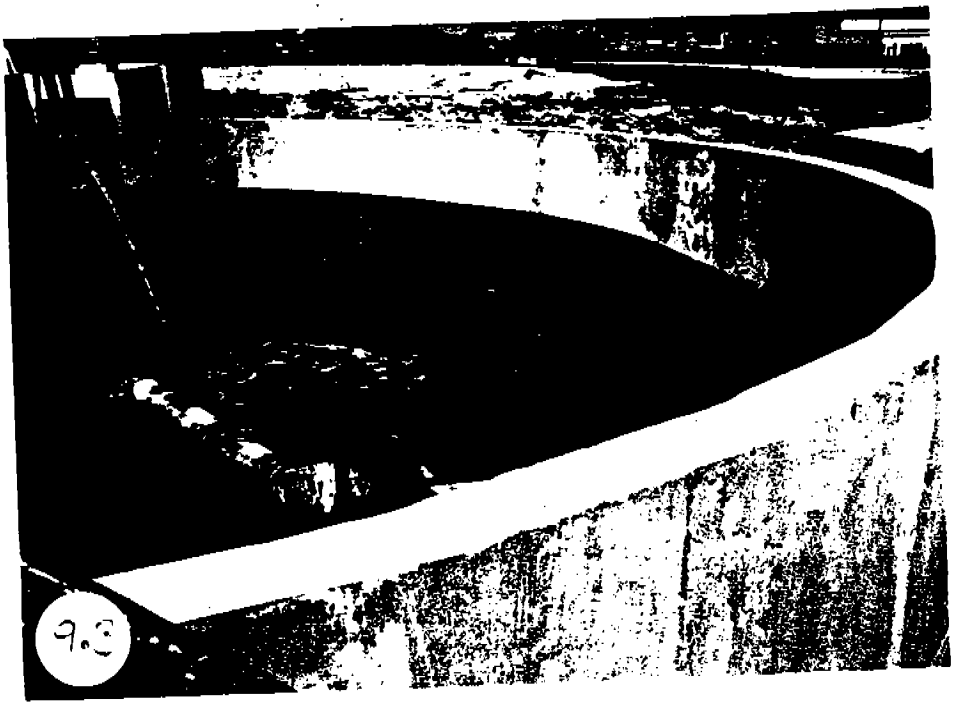

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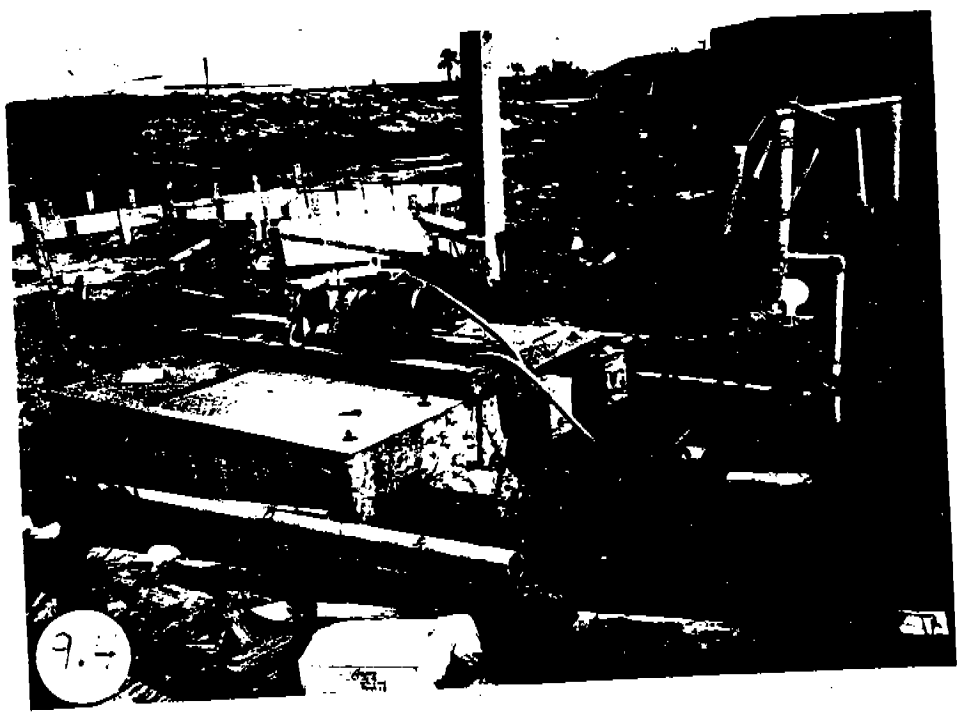

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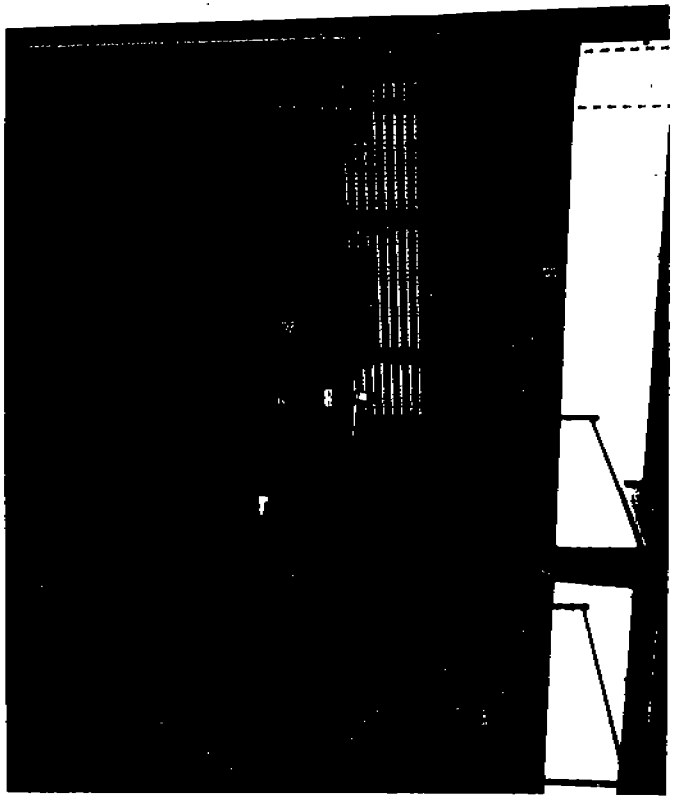

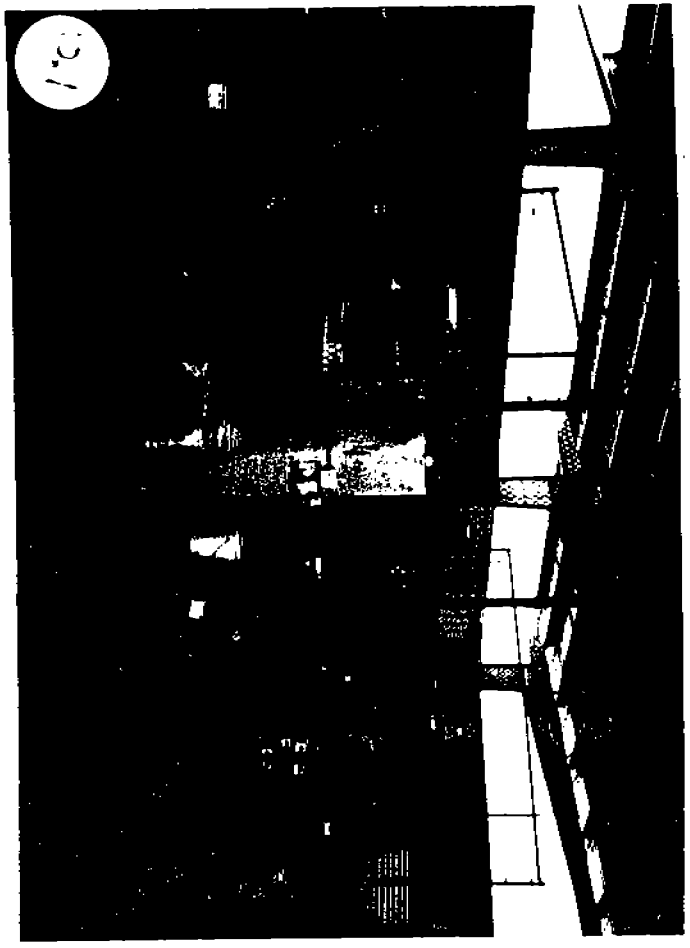

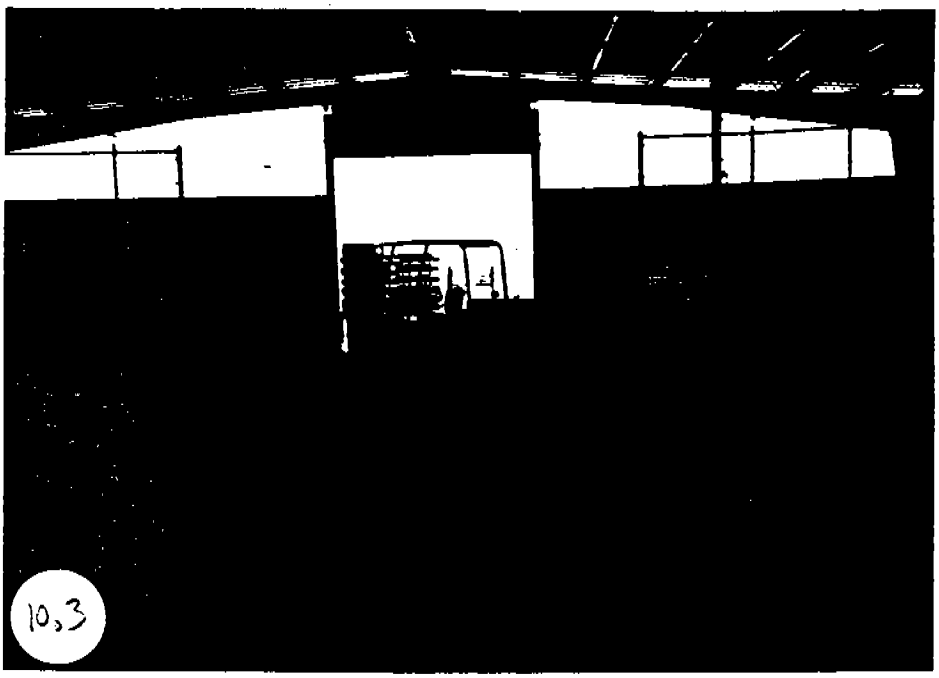
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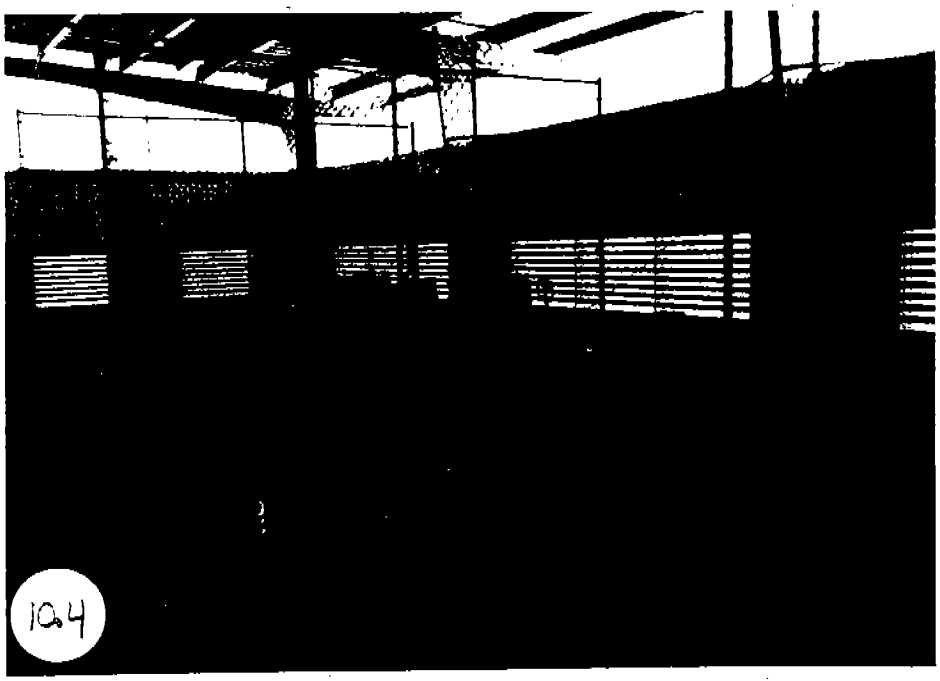
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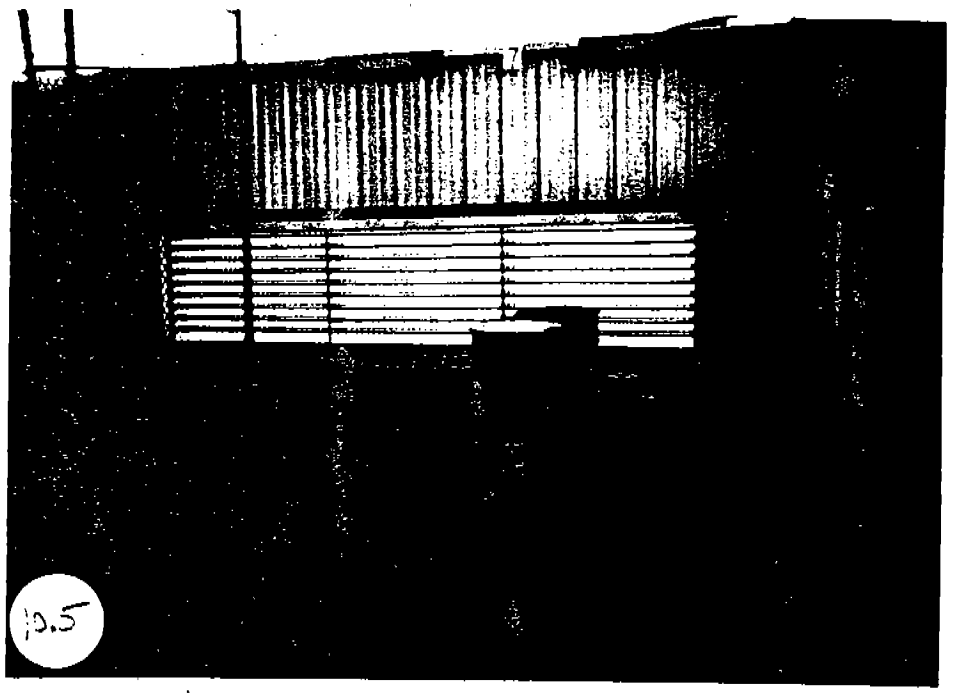
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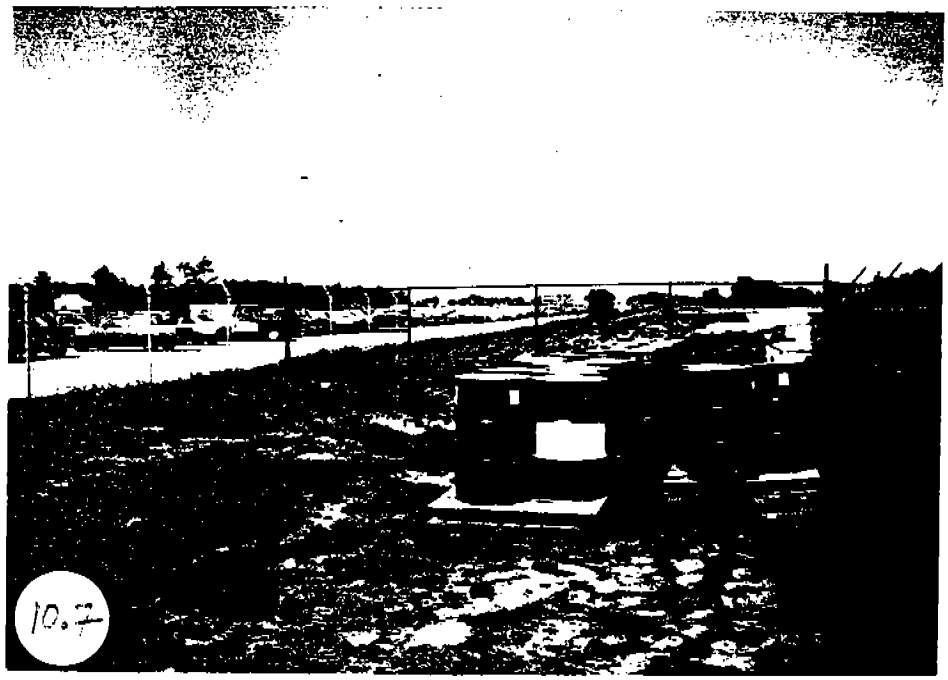
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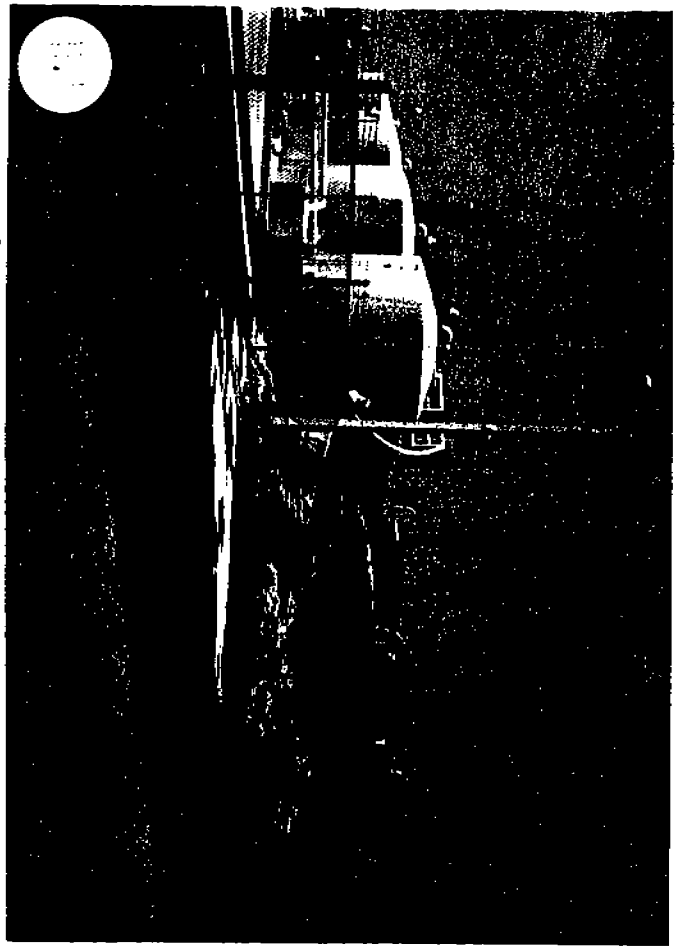

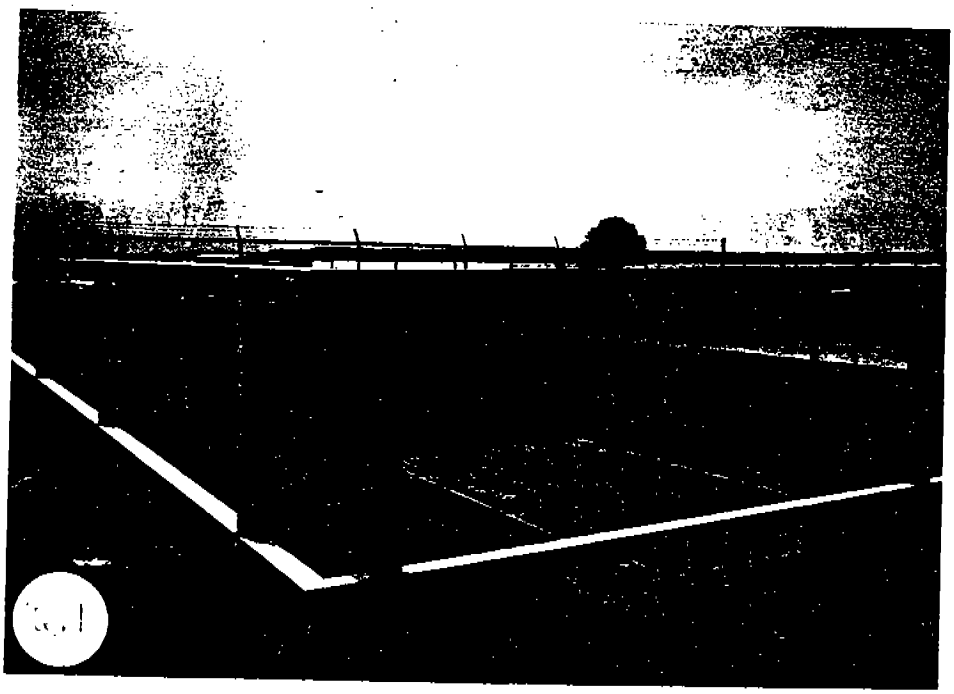

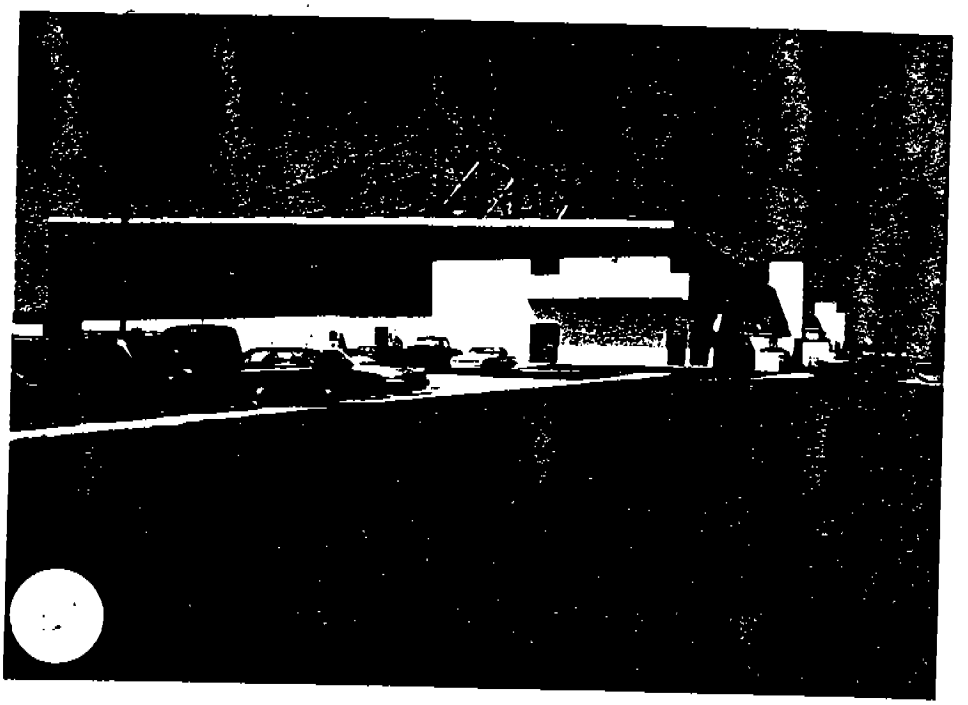

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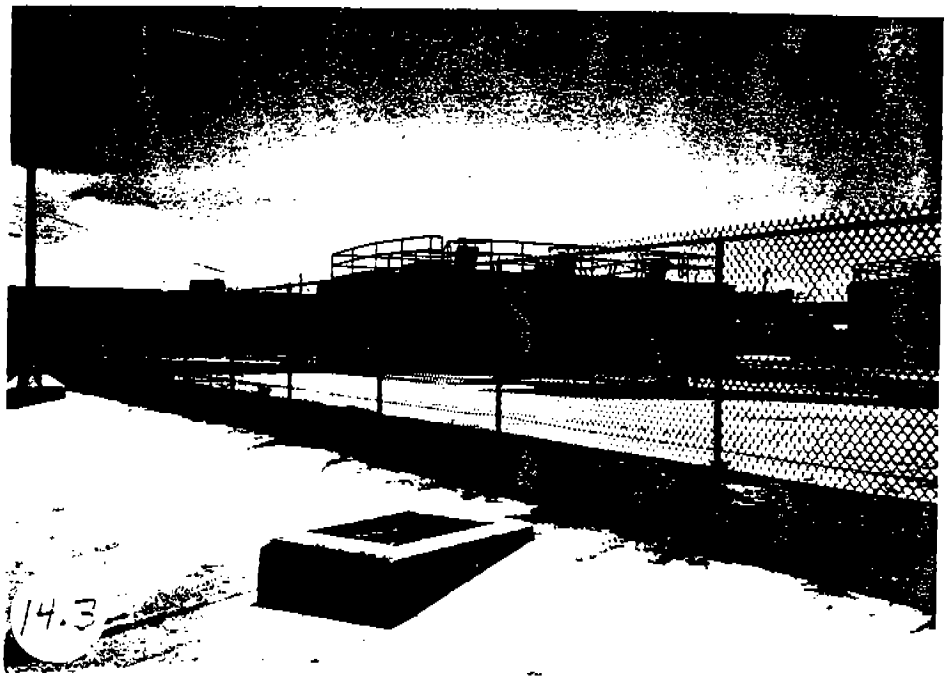
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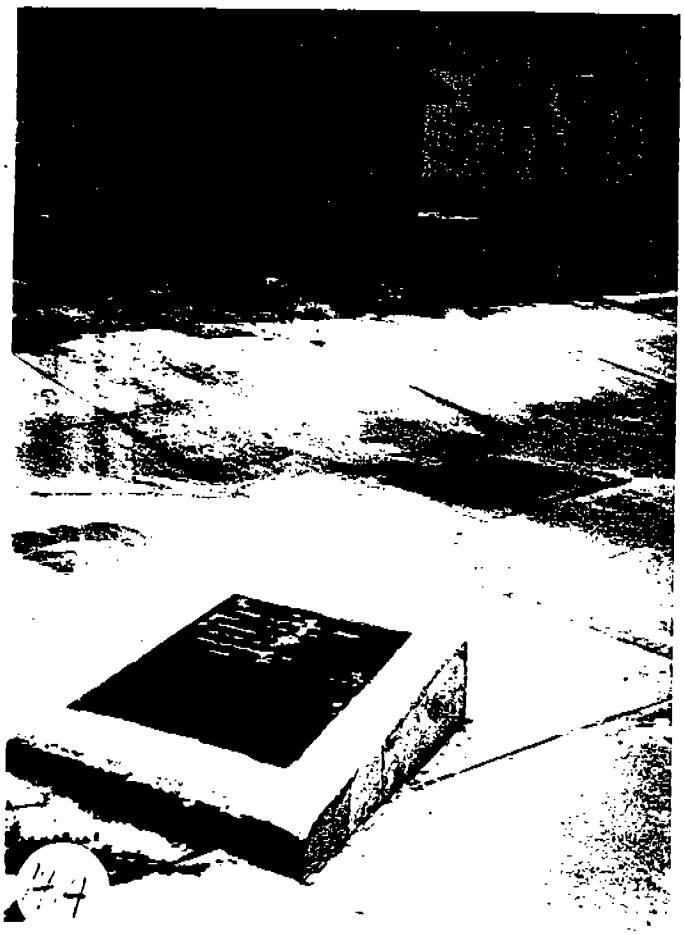
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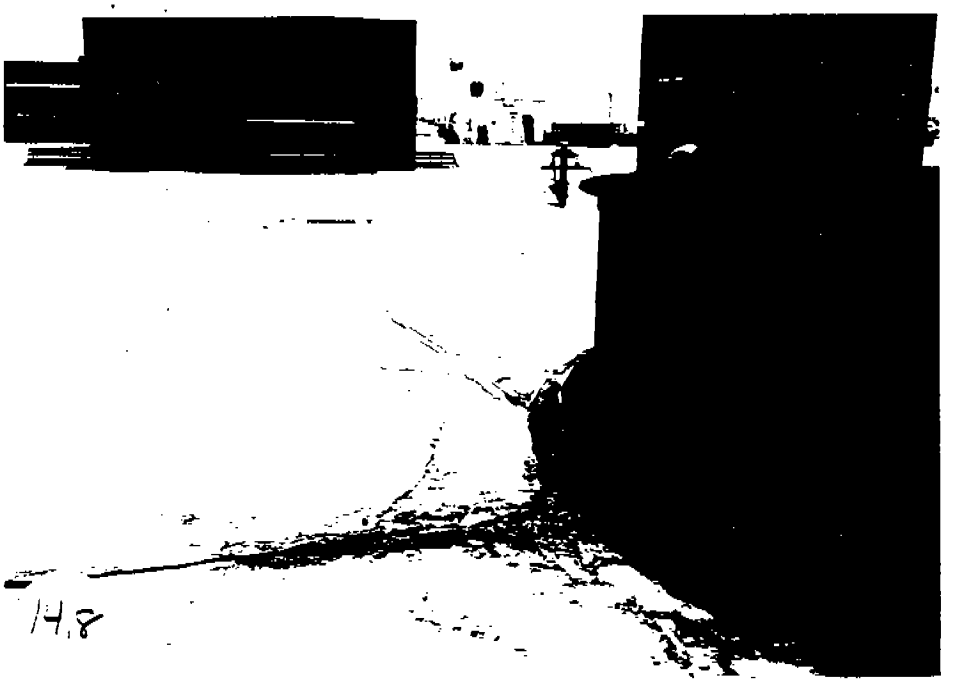
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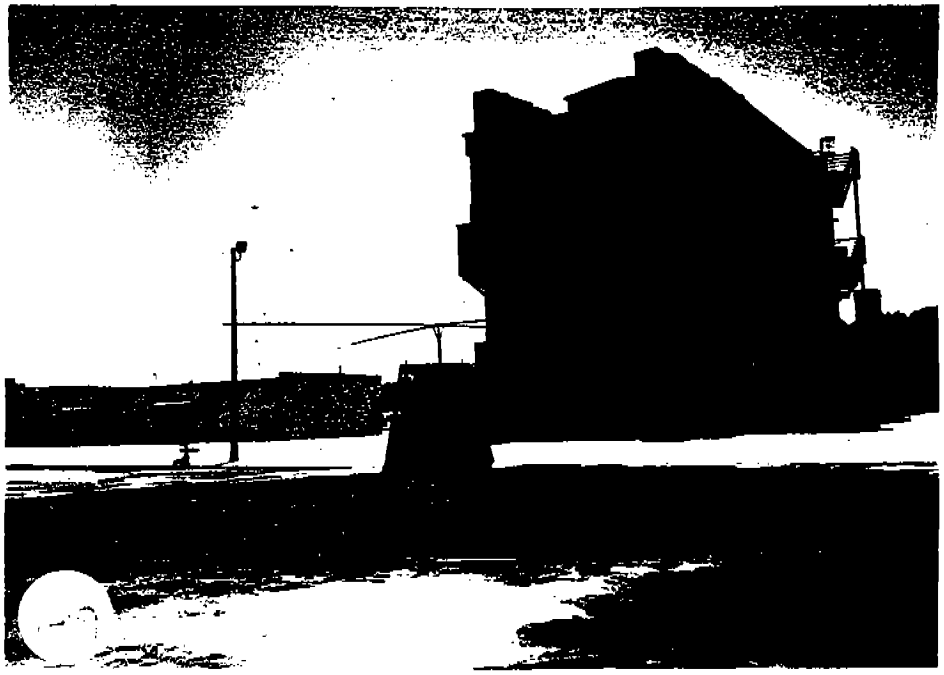

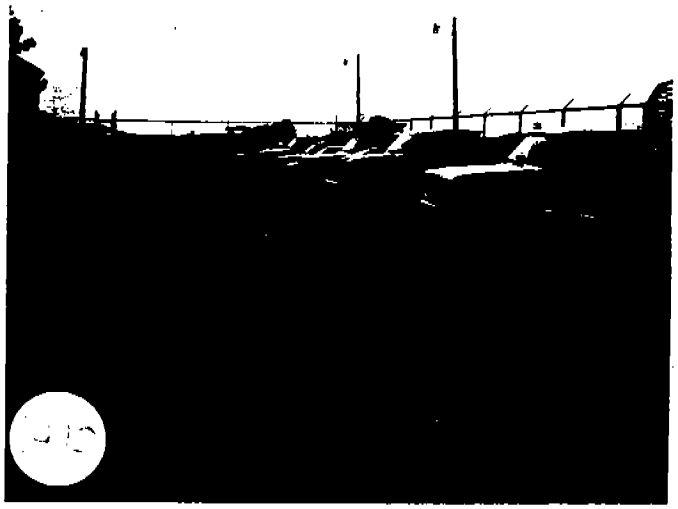

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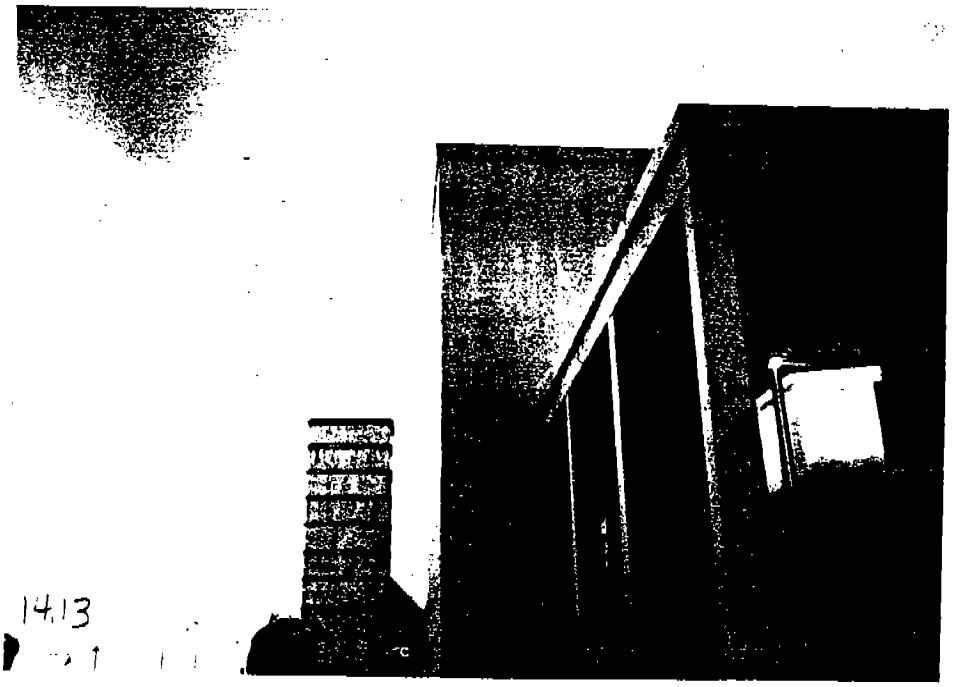

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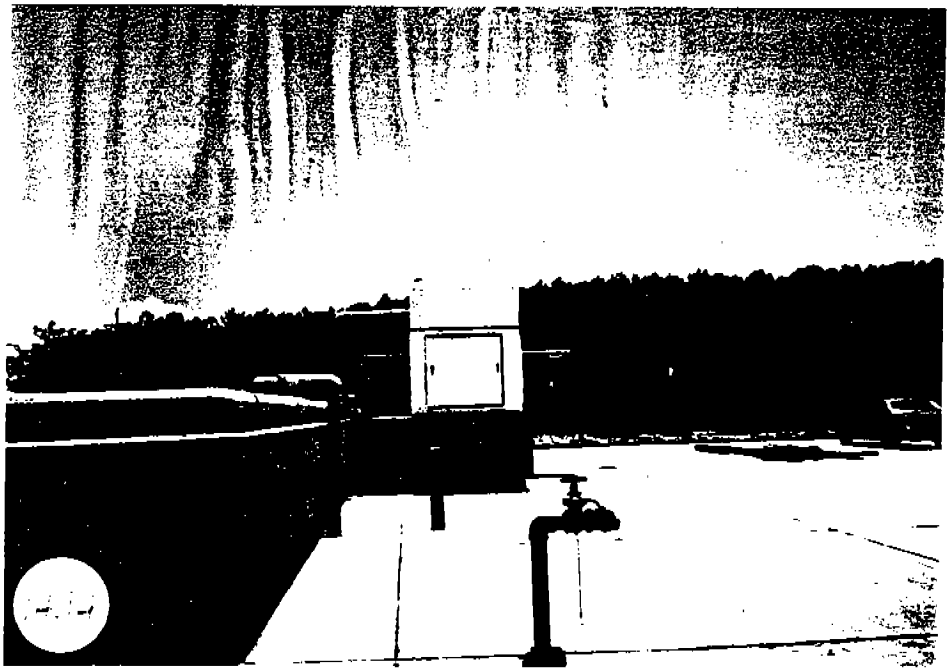

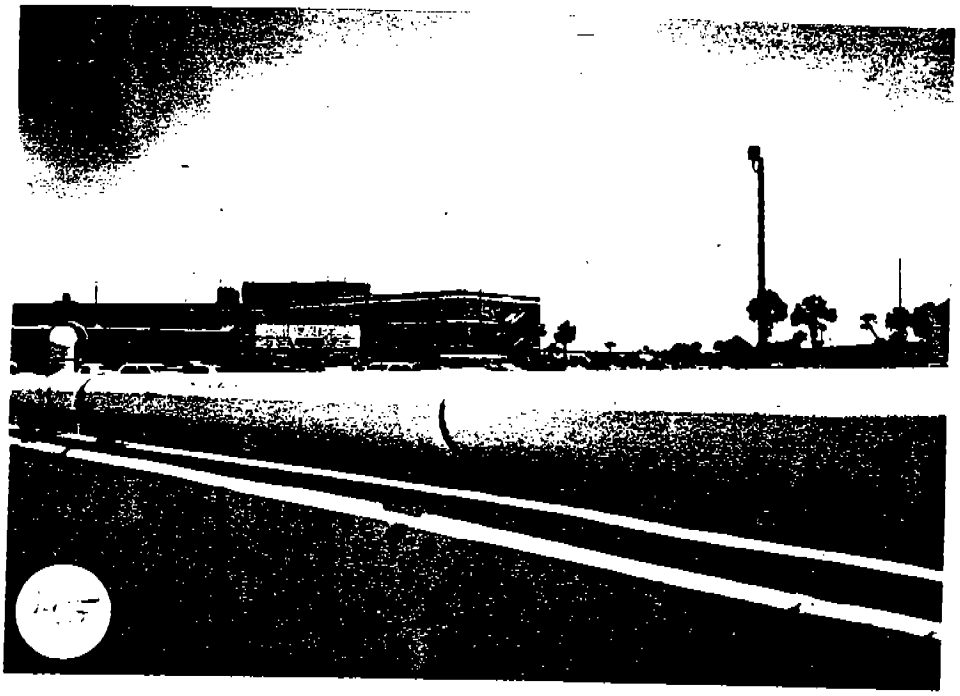

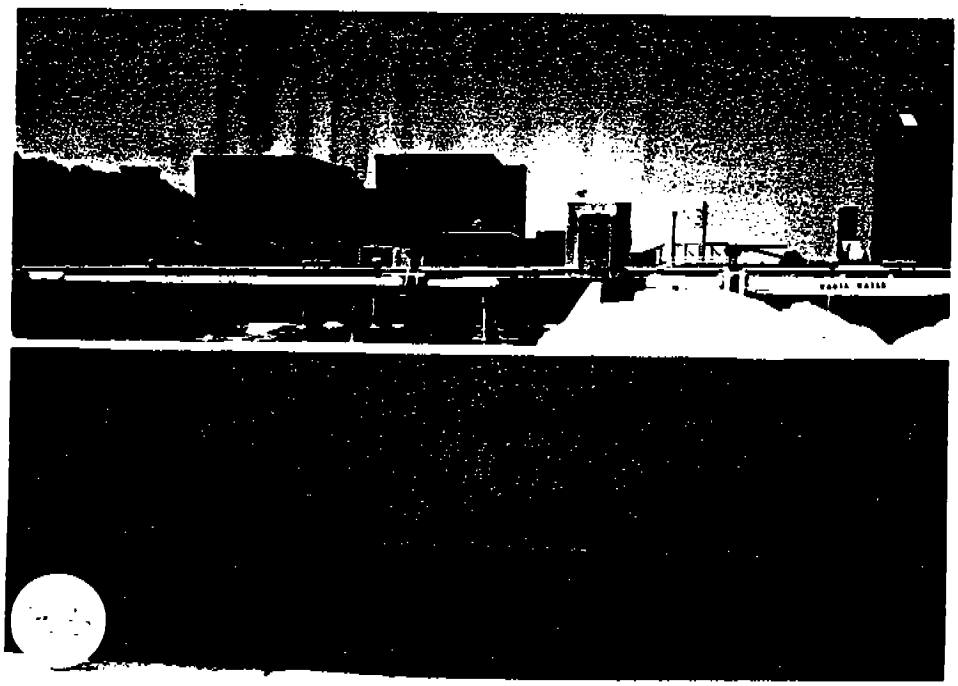


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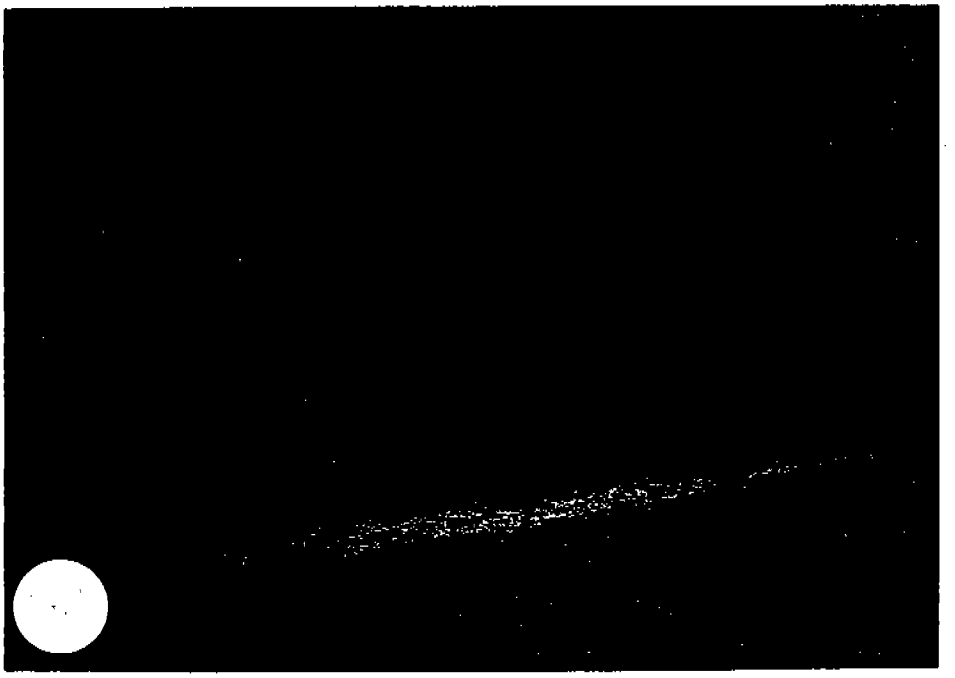


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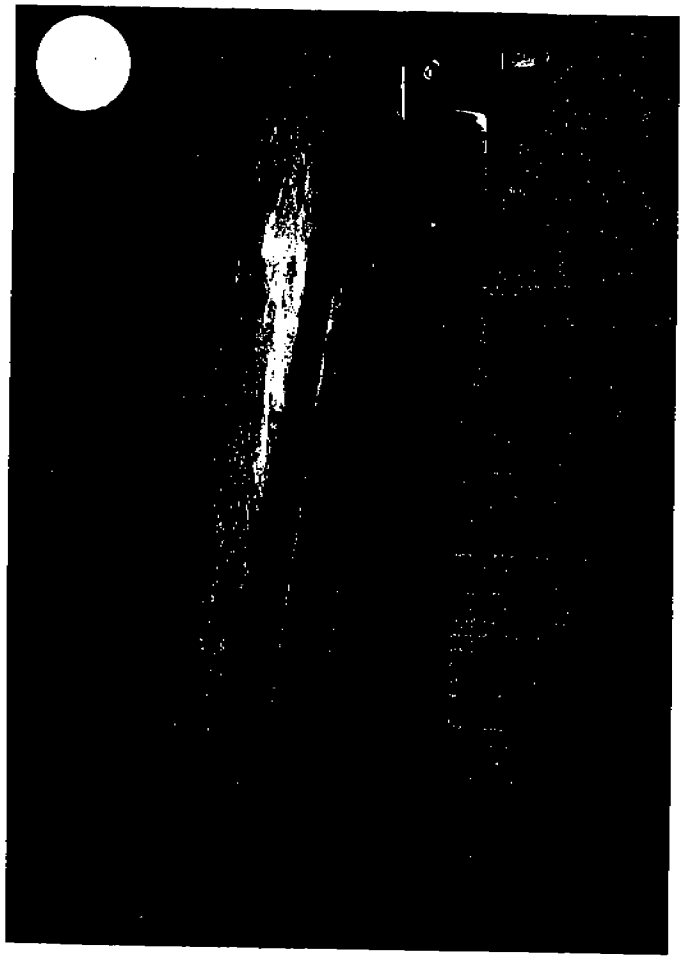

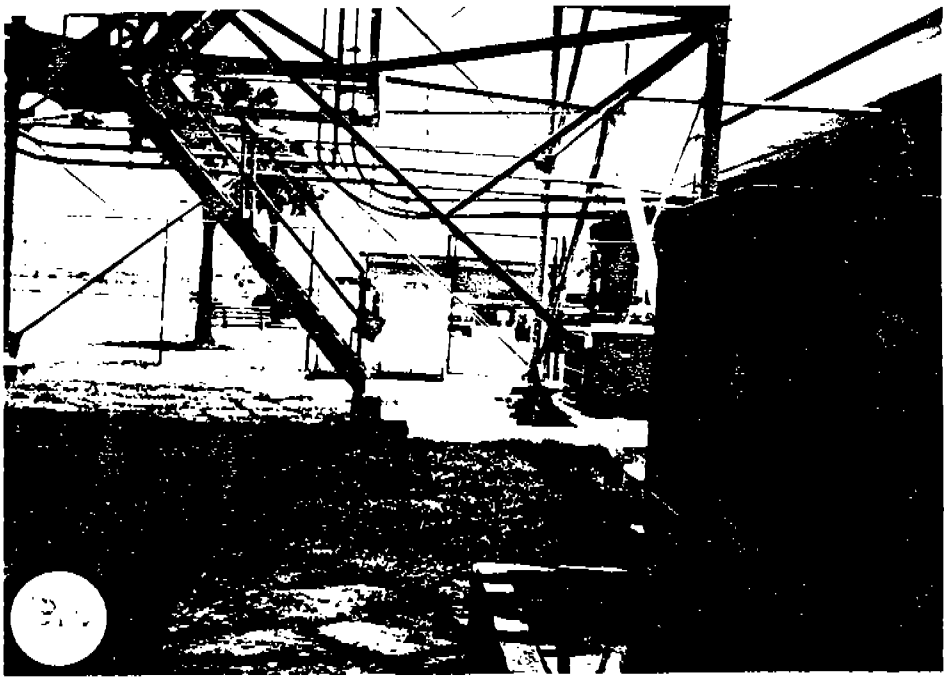


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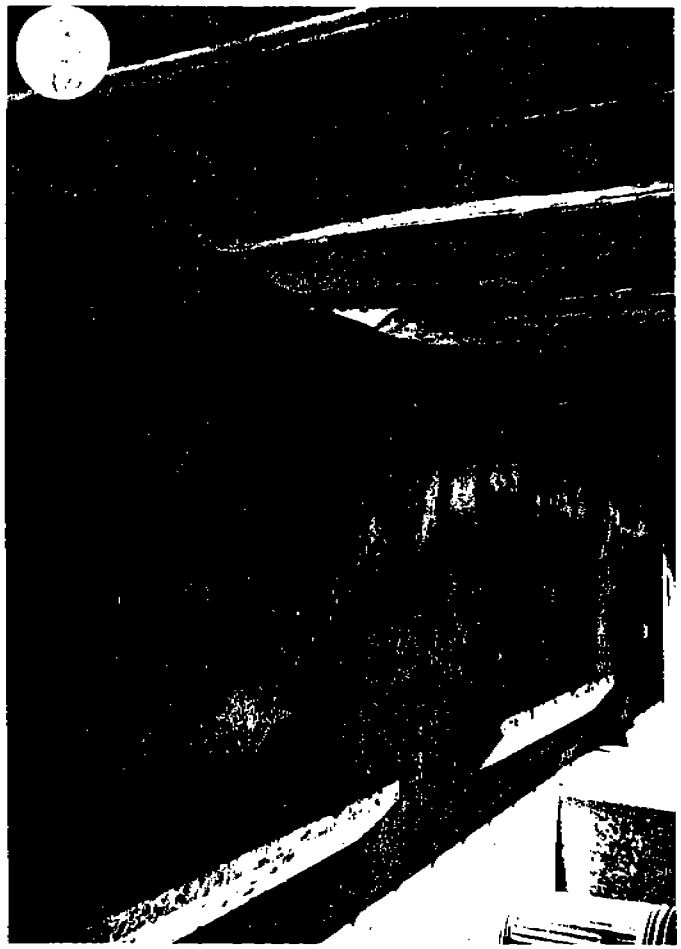

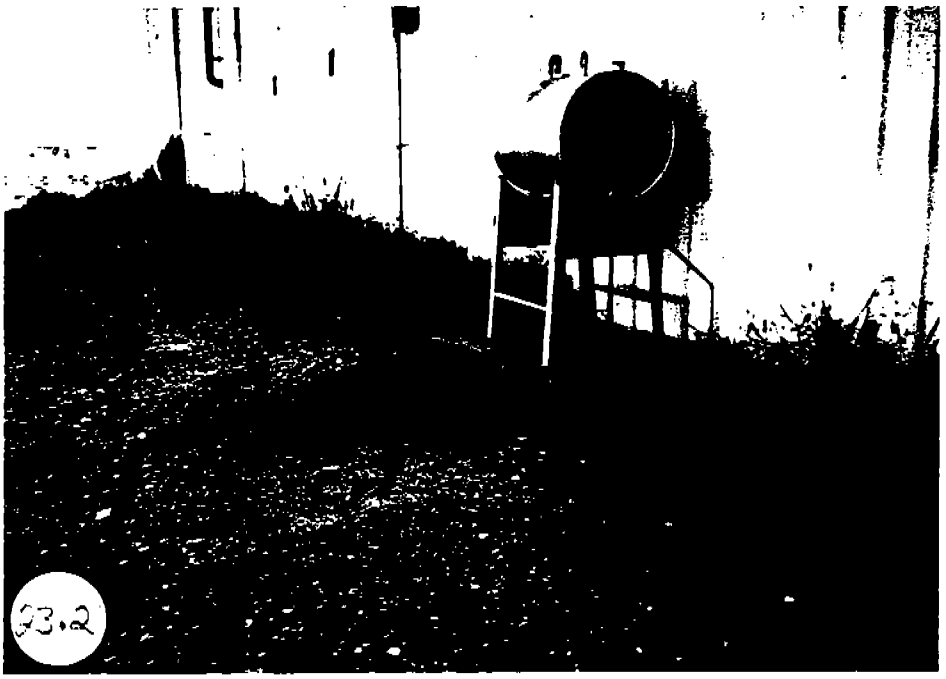
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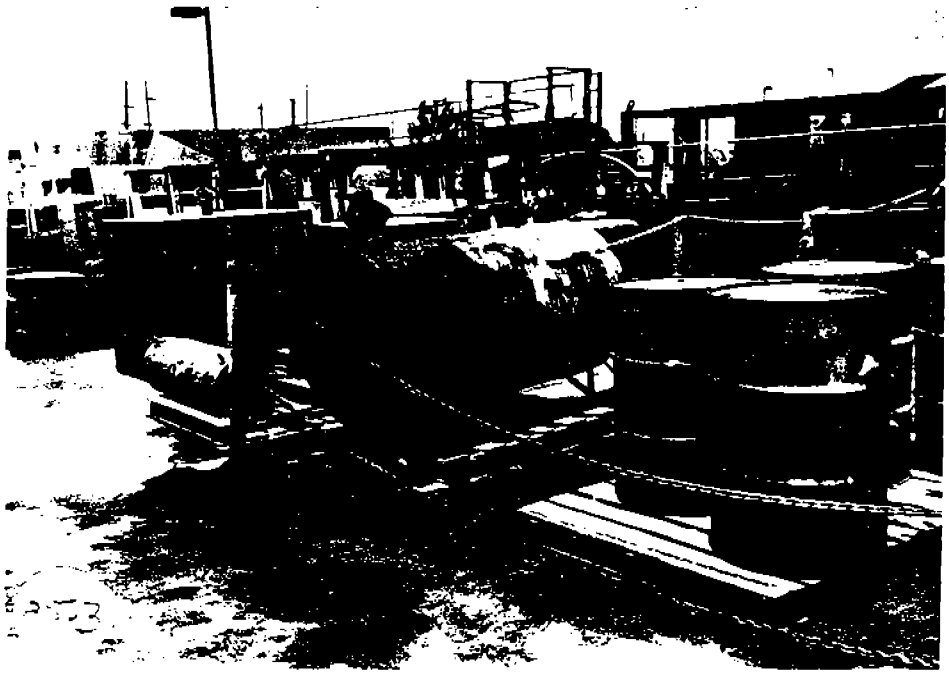

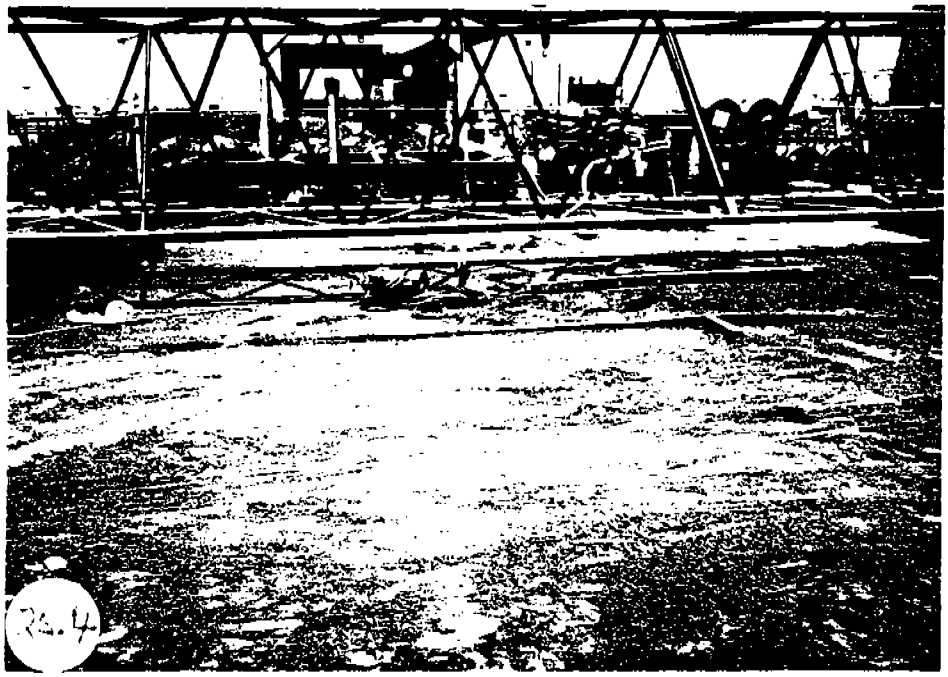
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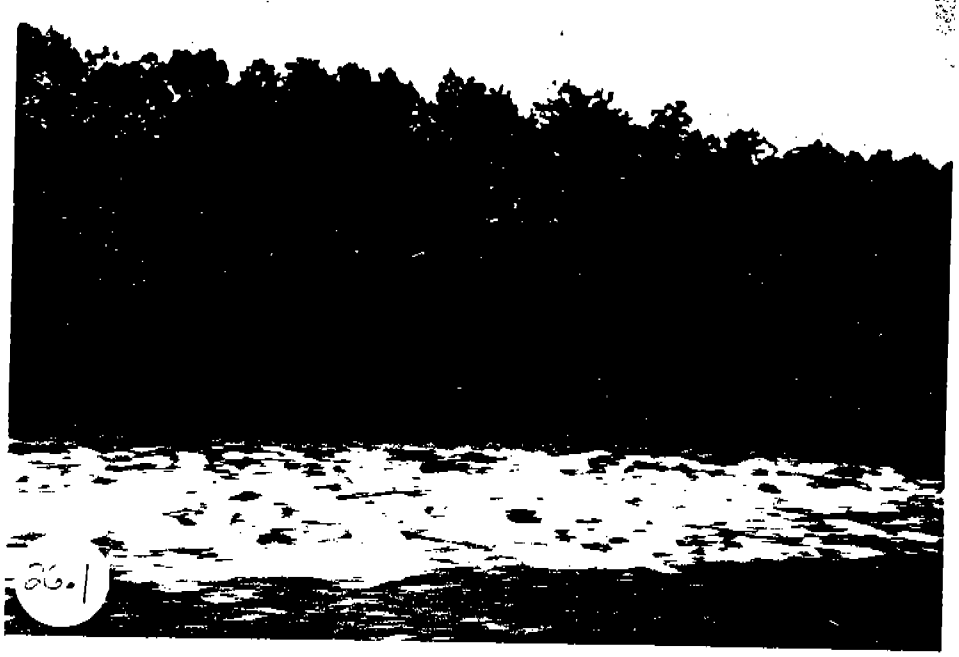
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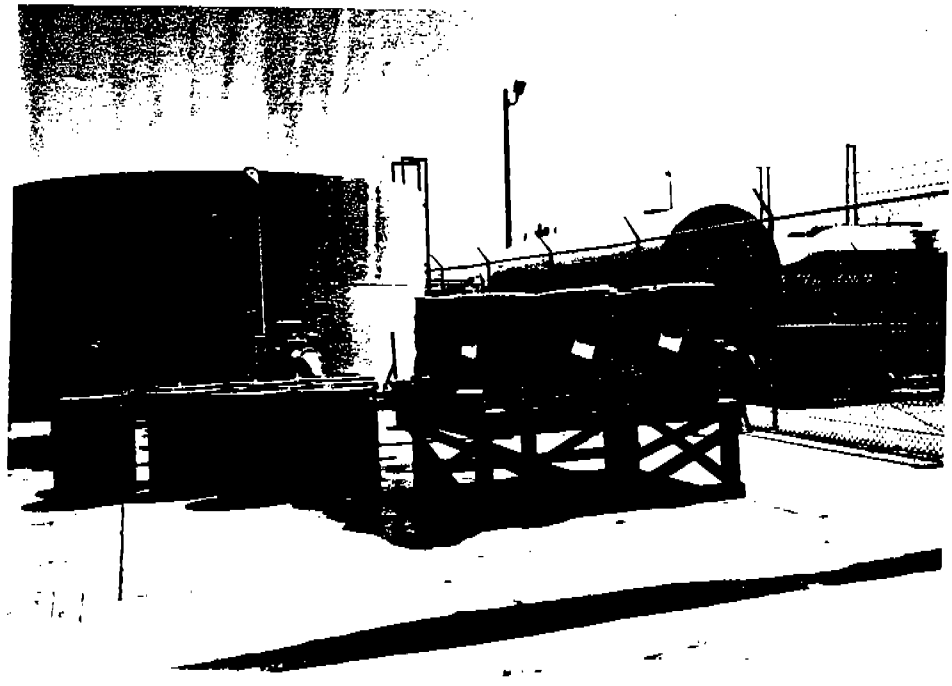

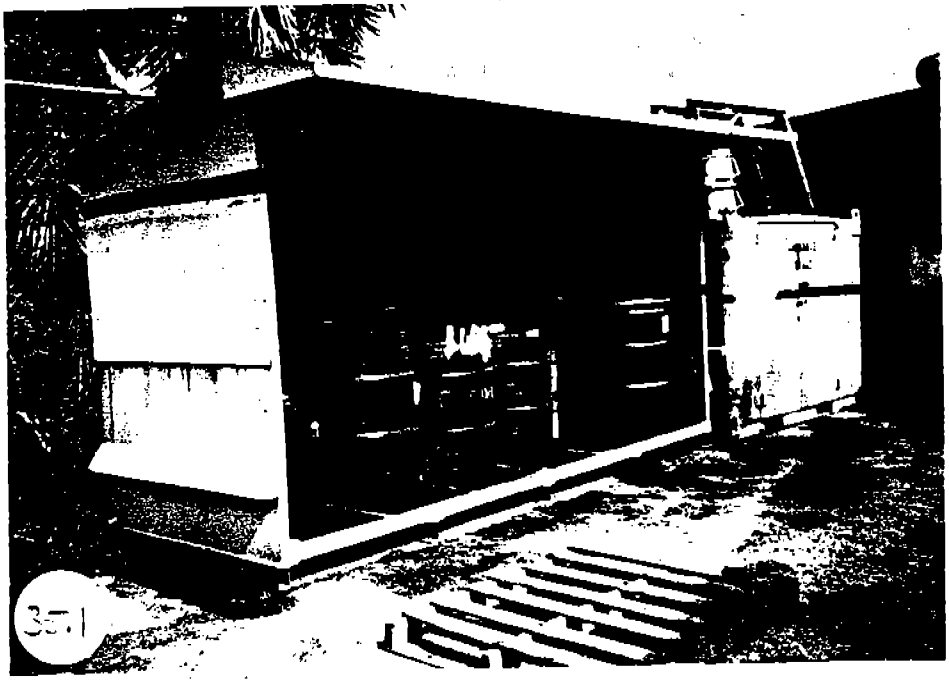

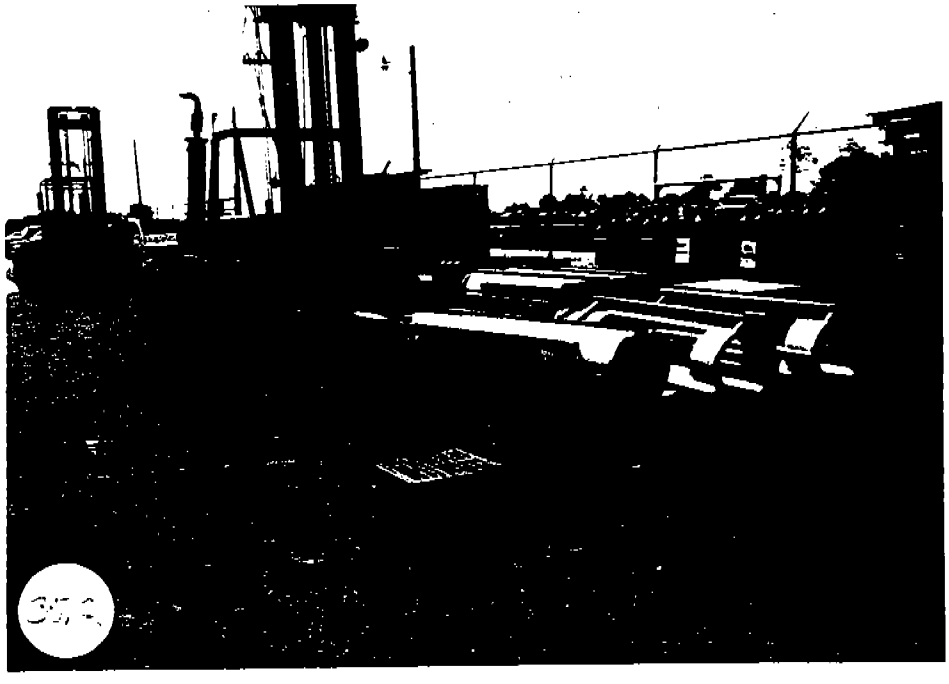

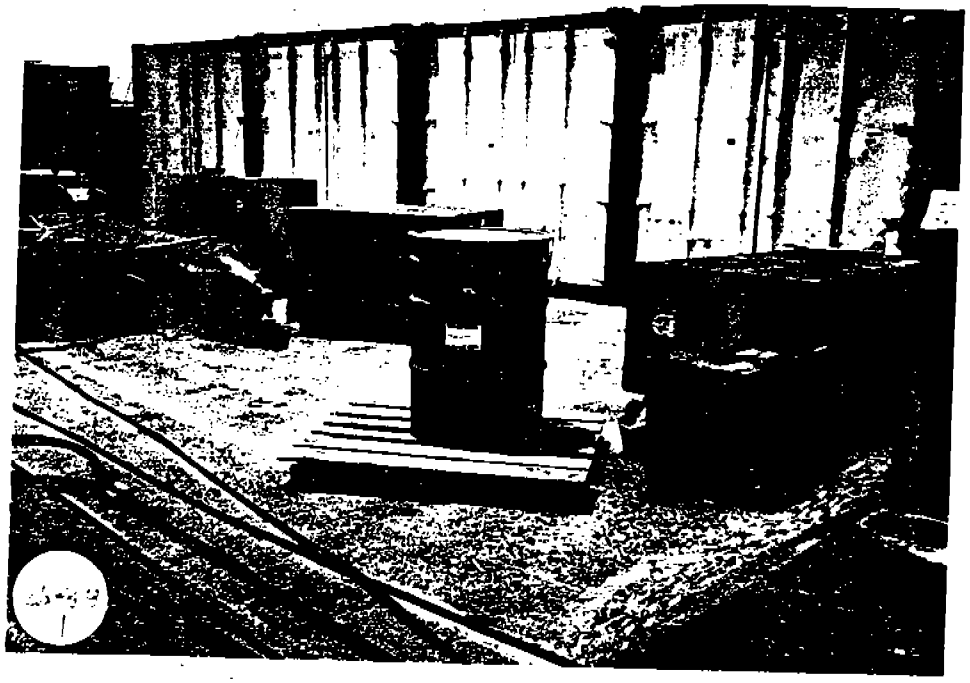

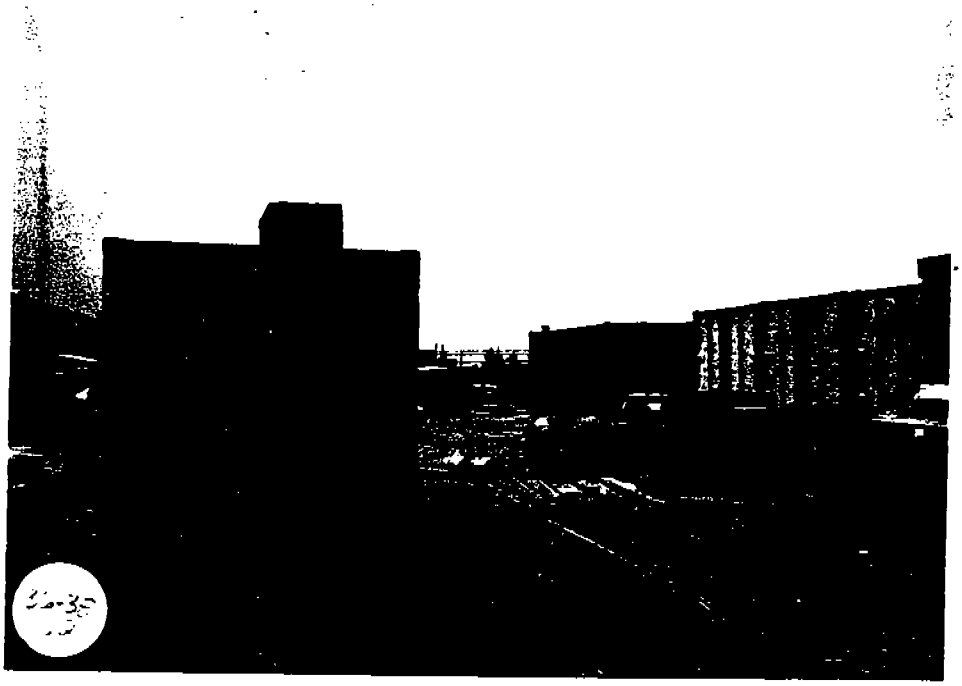

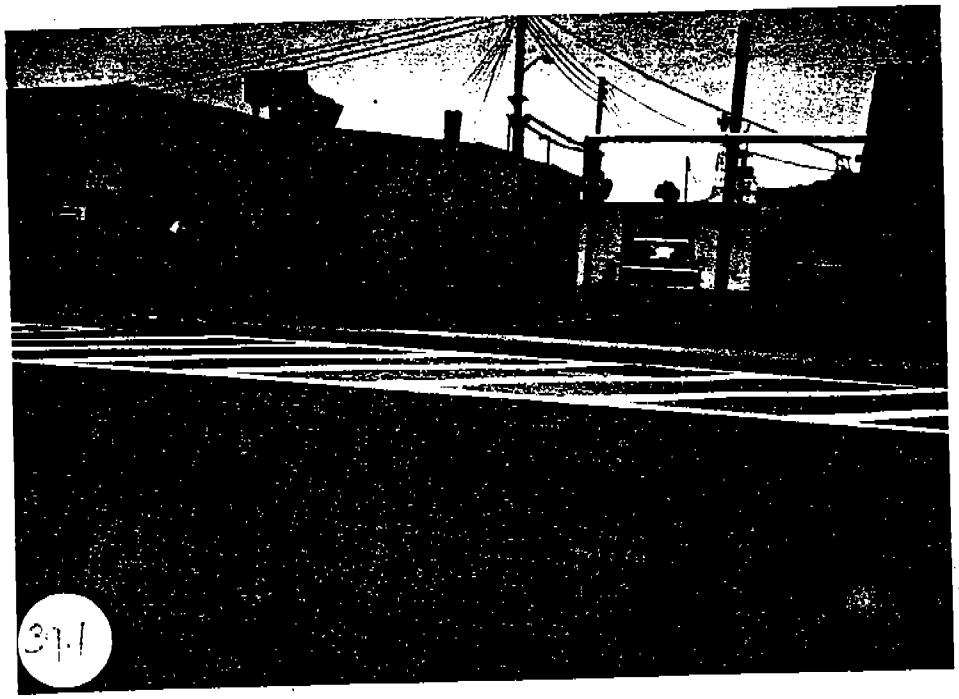
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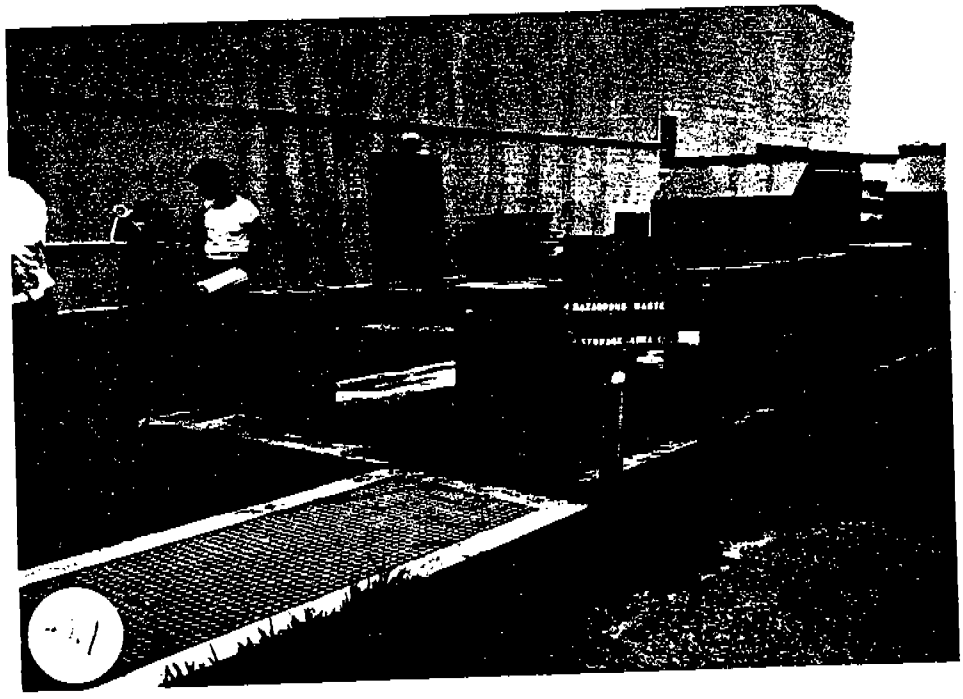
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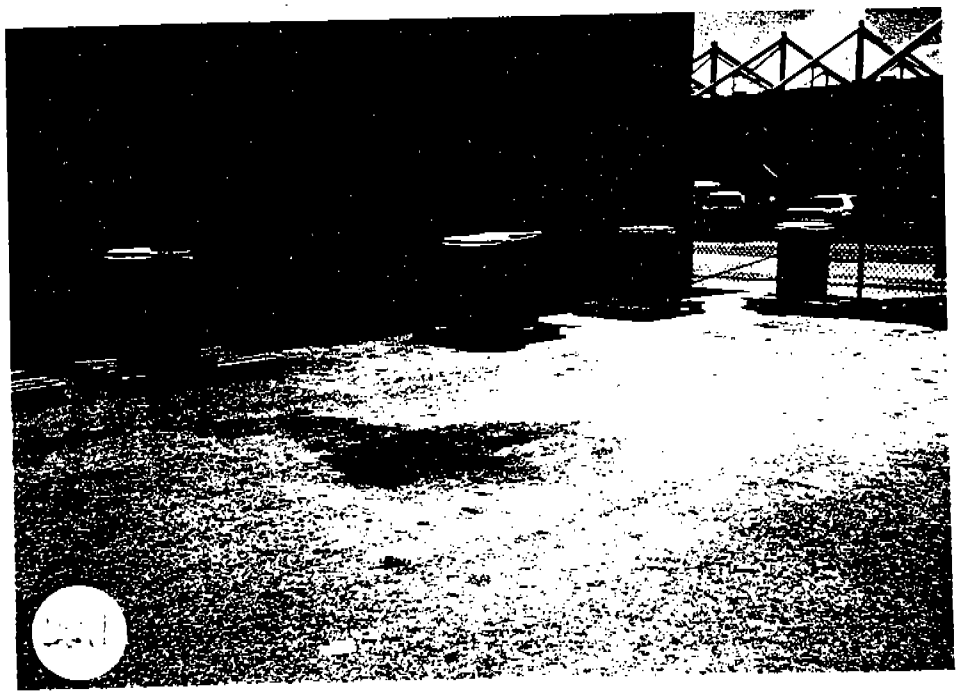

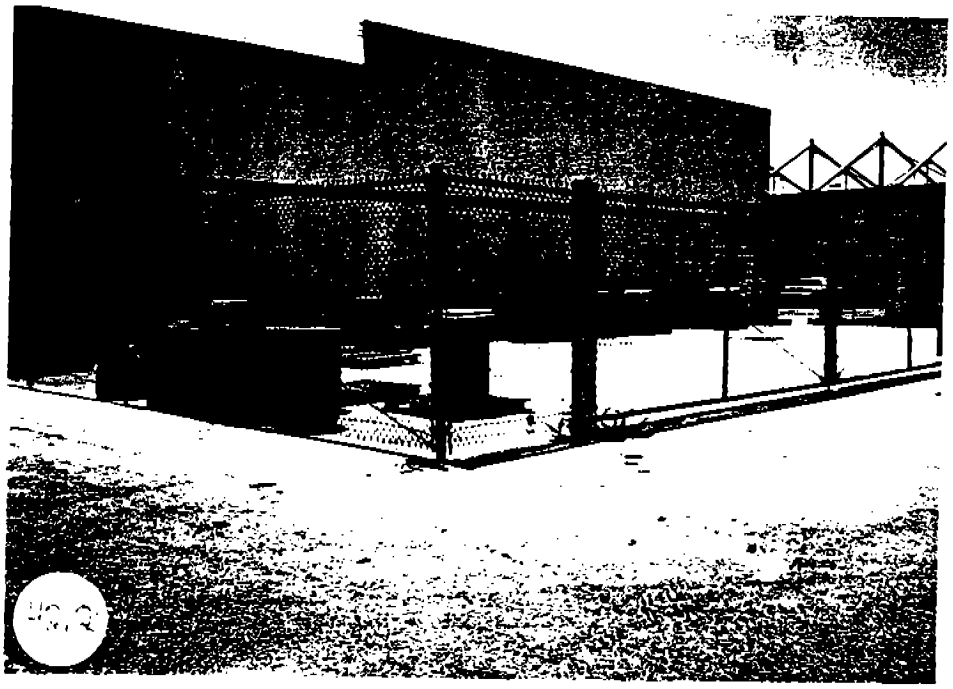

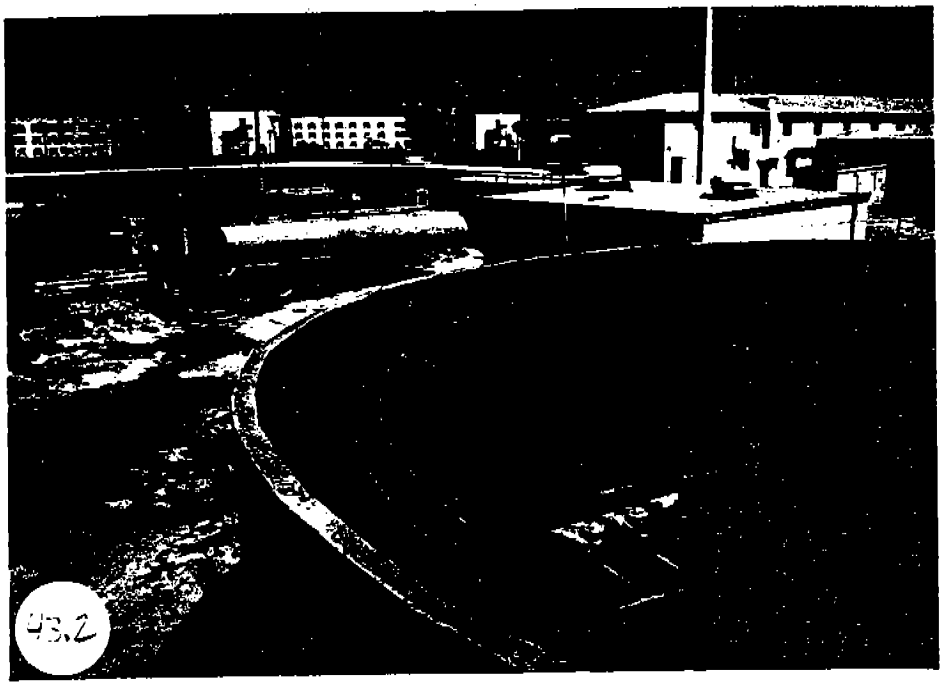
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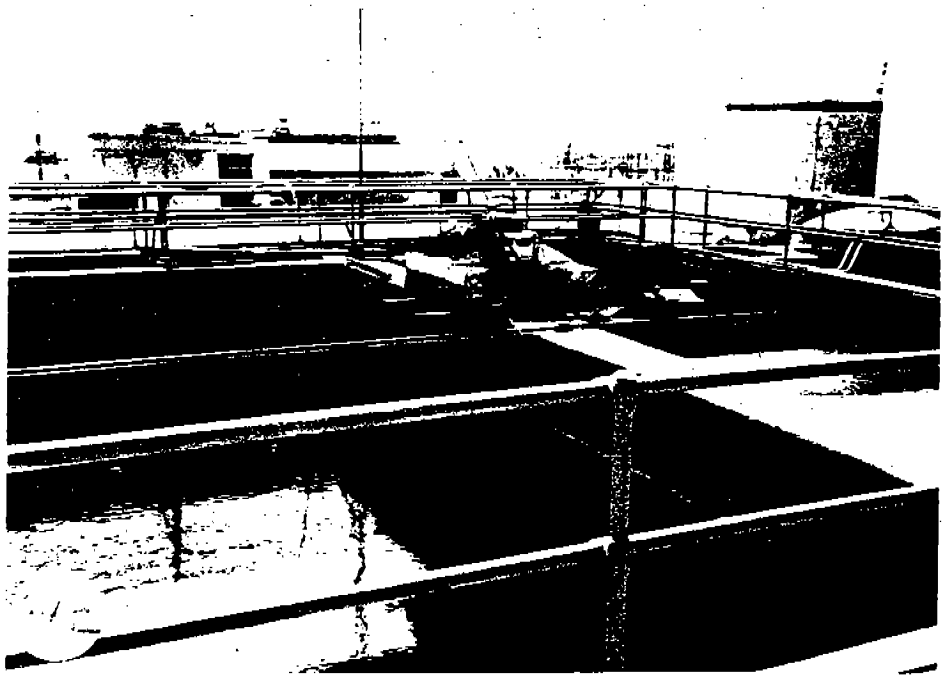

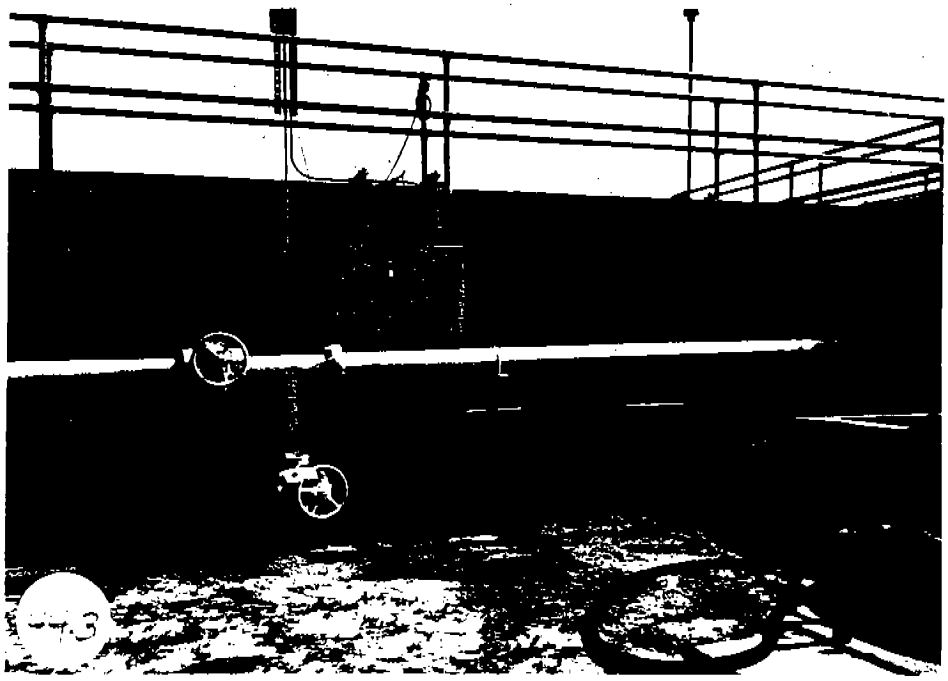

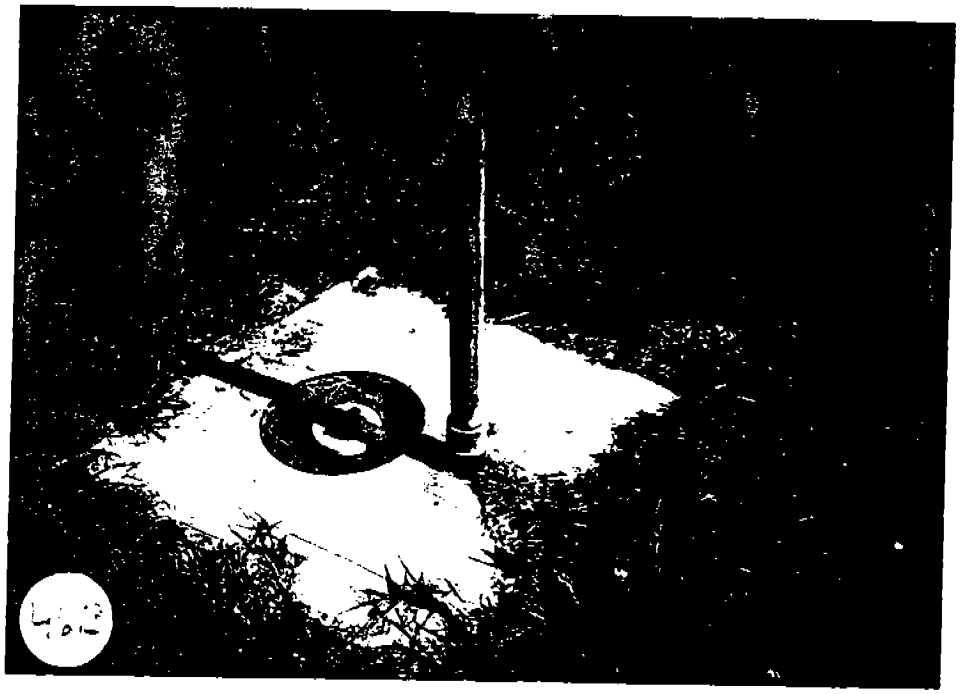
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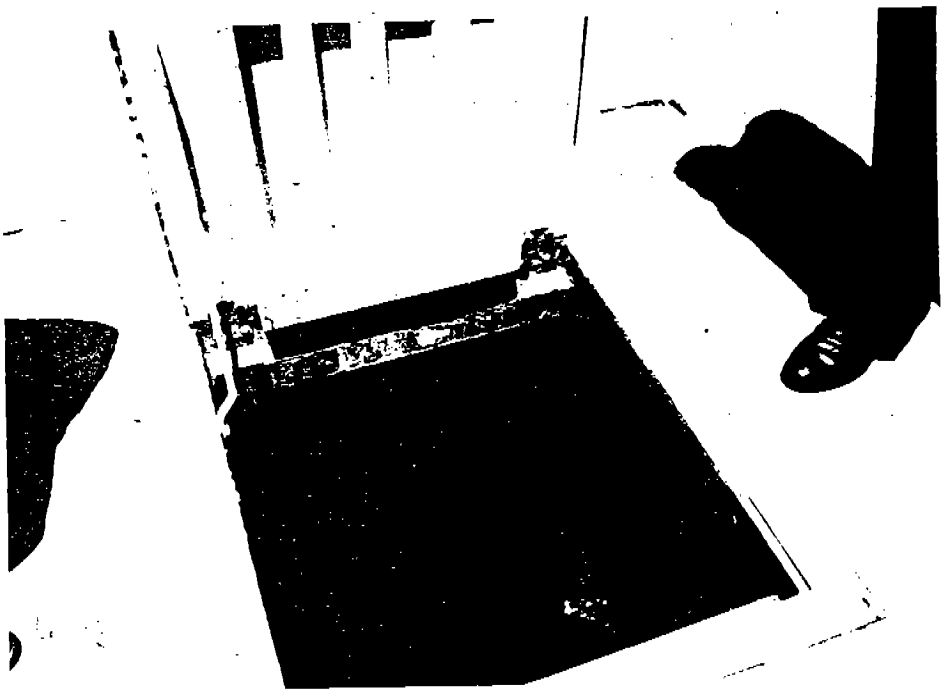

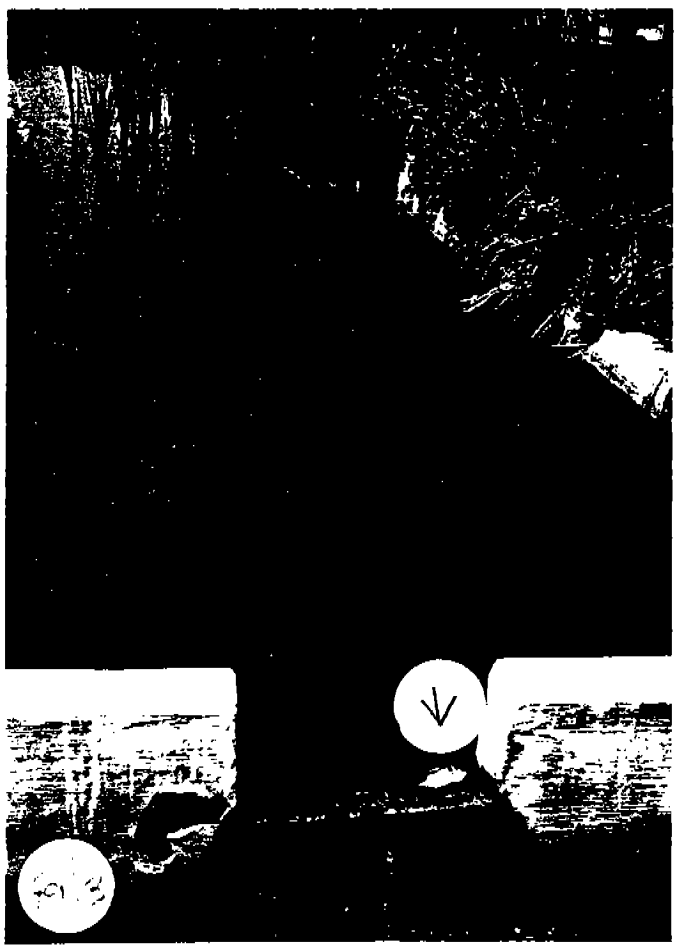

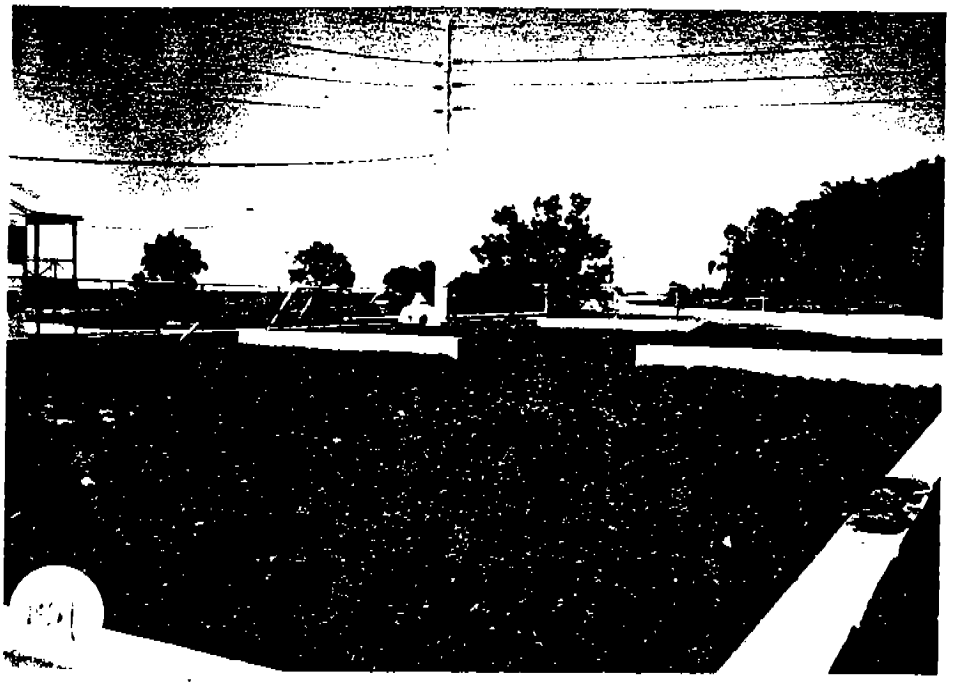

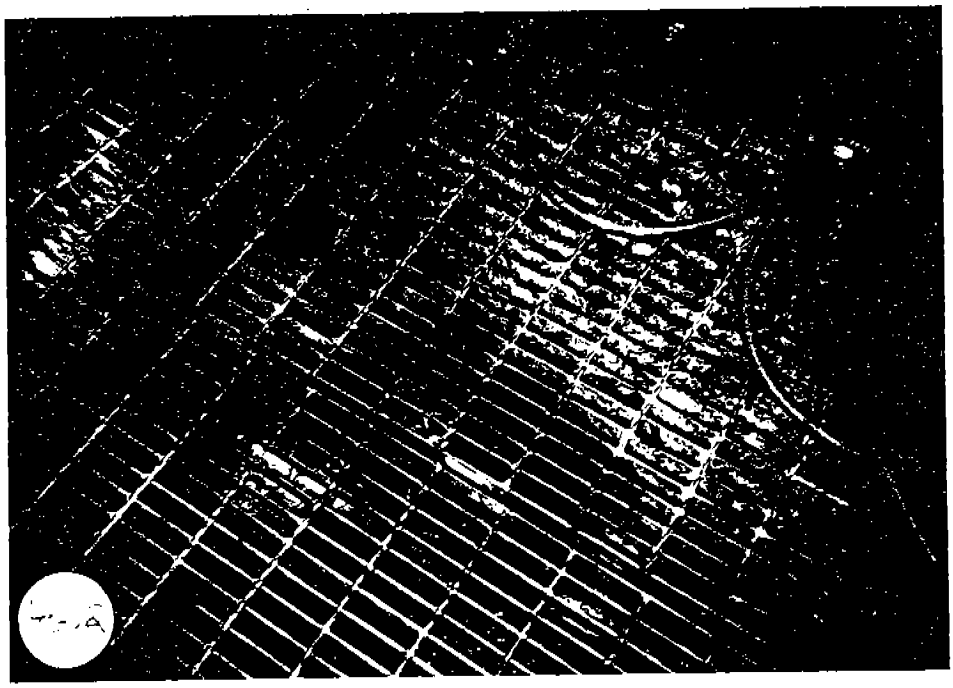


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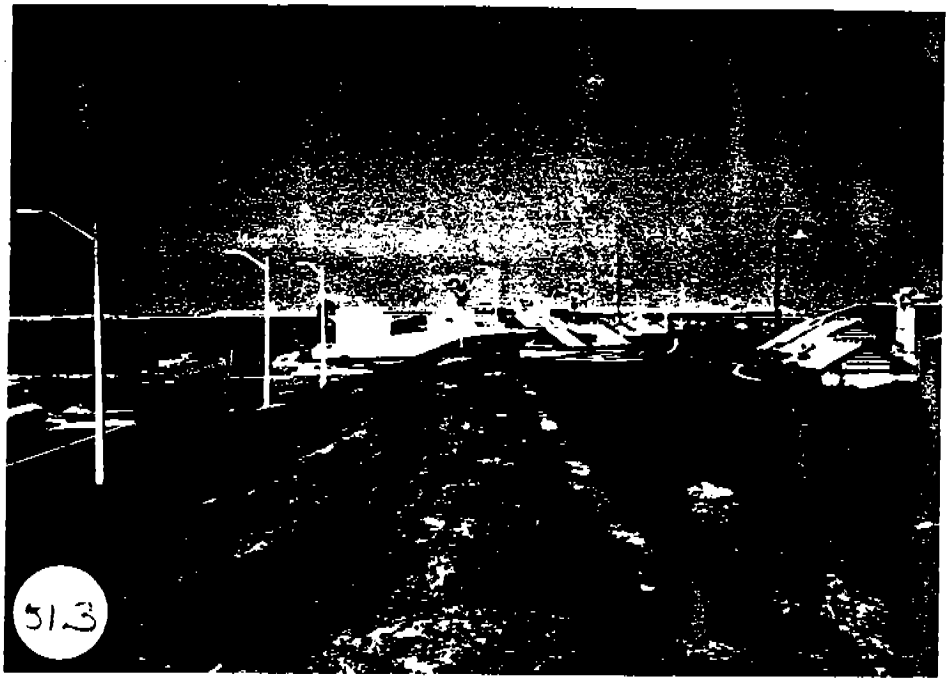
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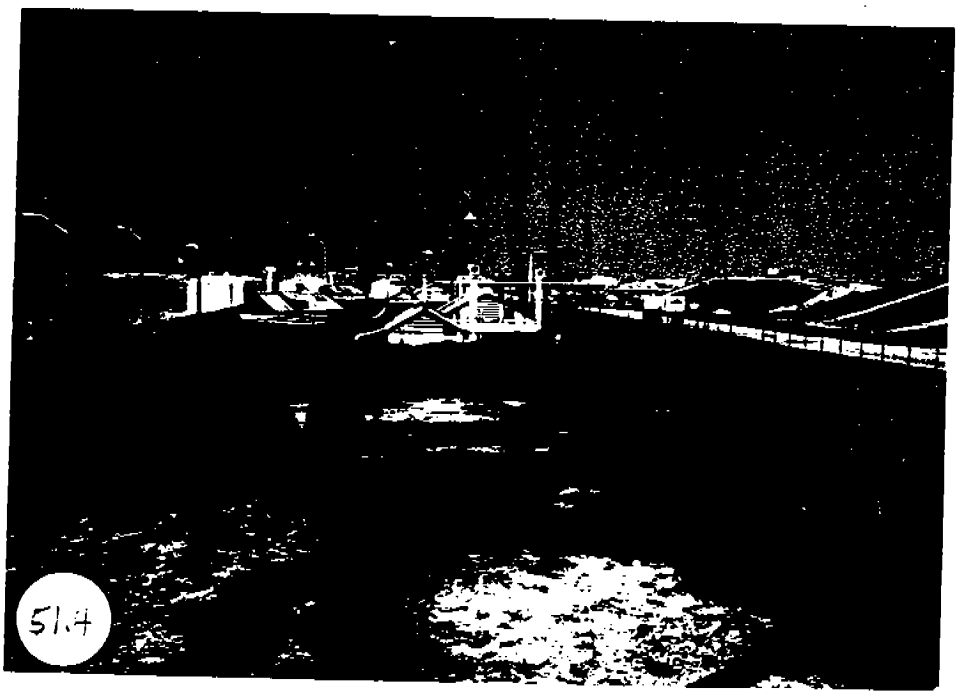
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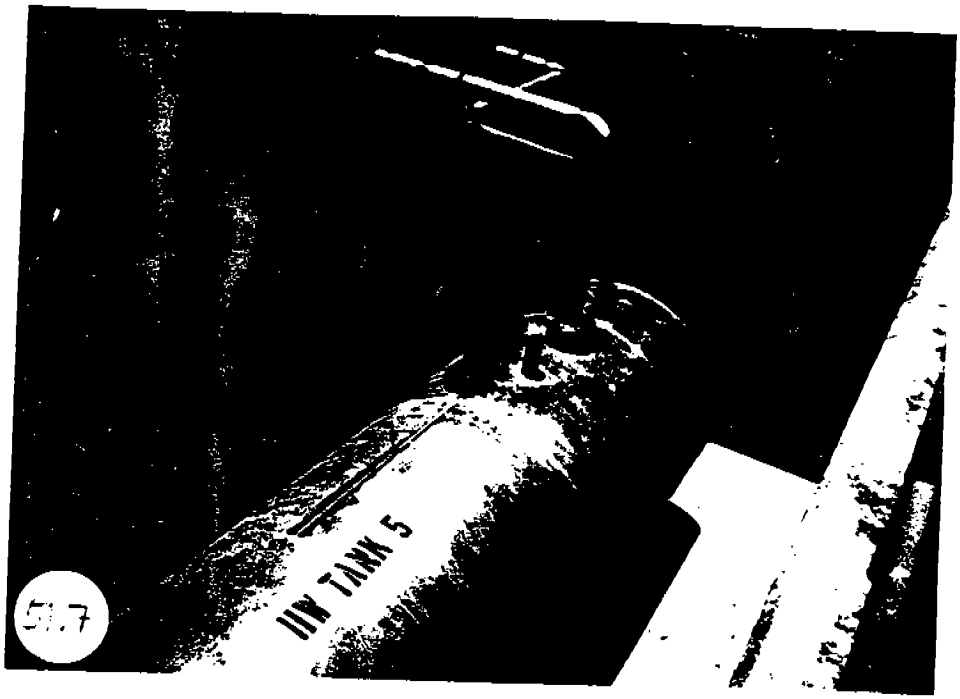
51.5


51.6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IIW TANK 5


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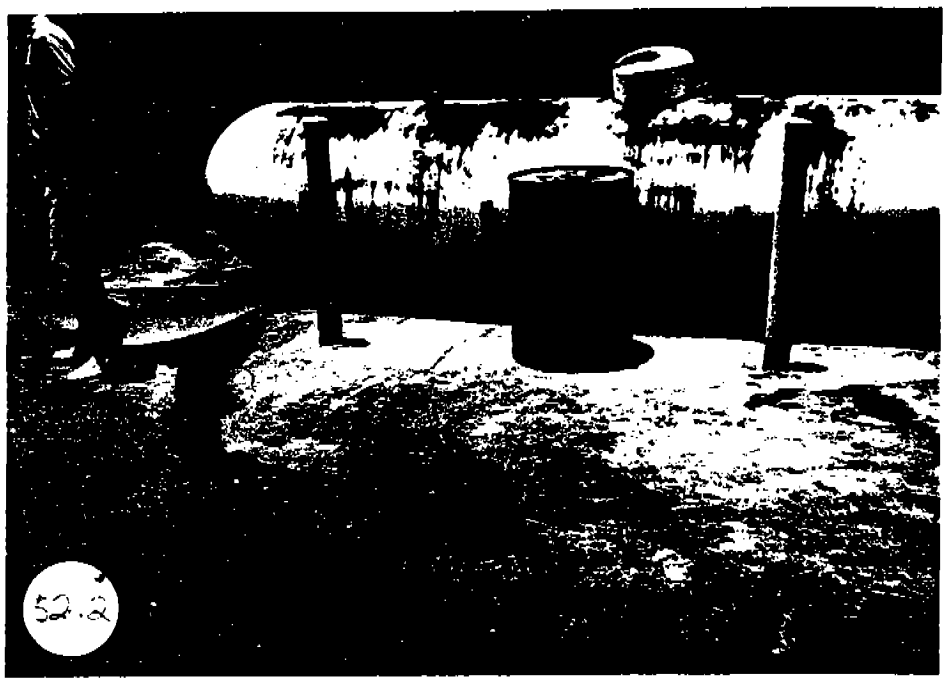
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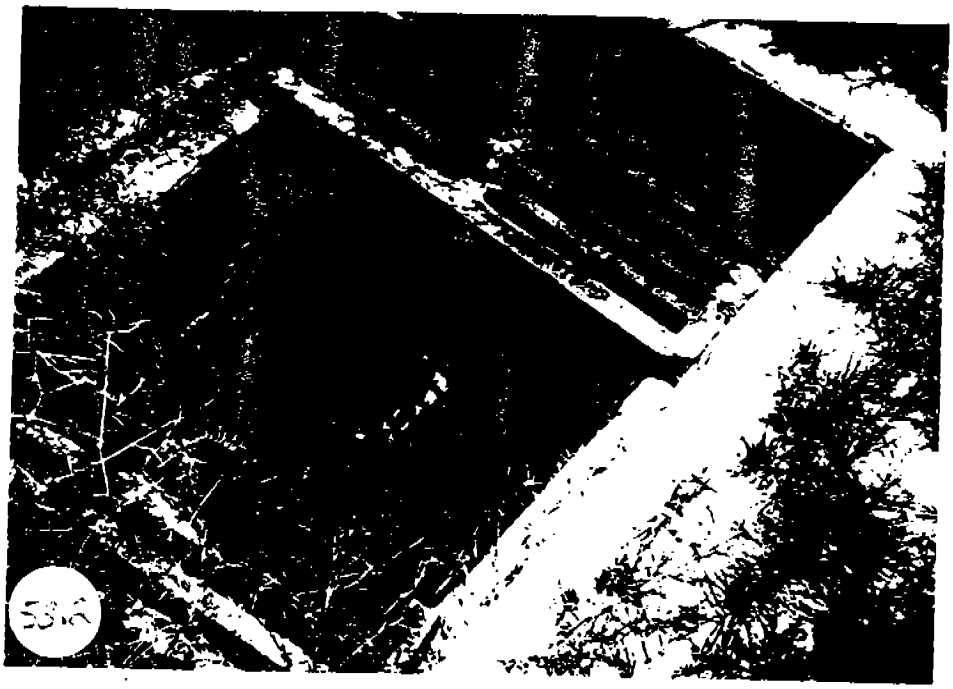
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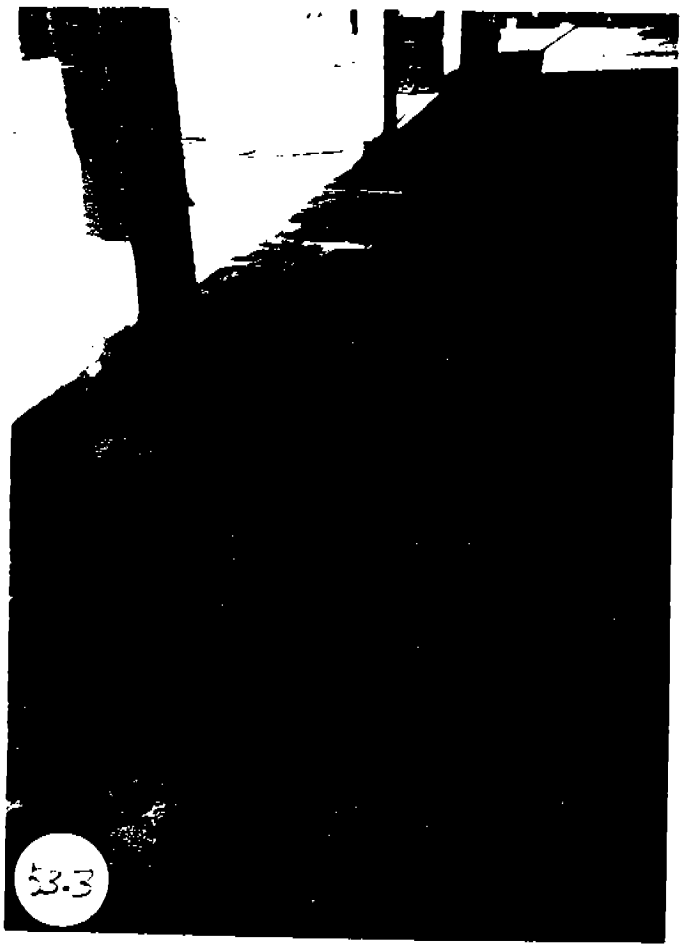
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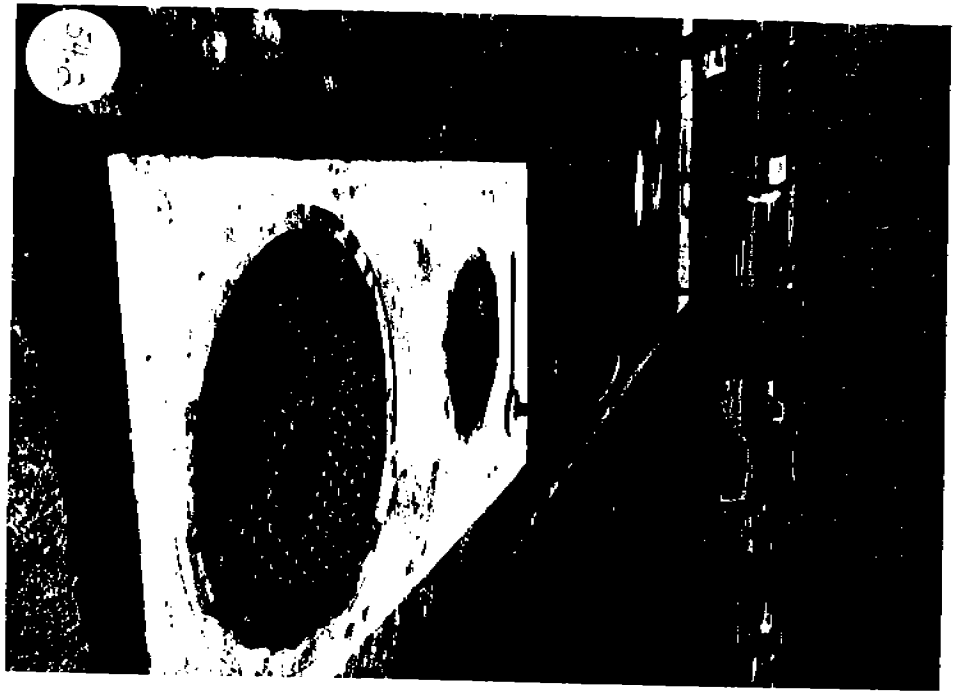


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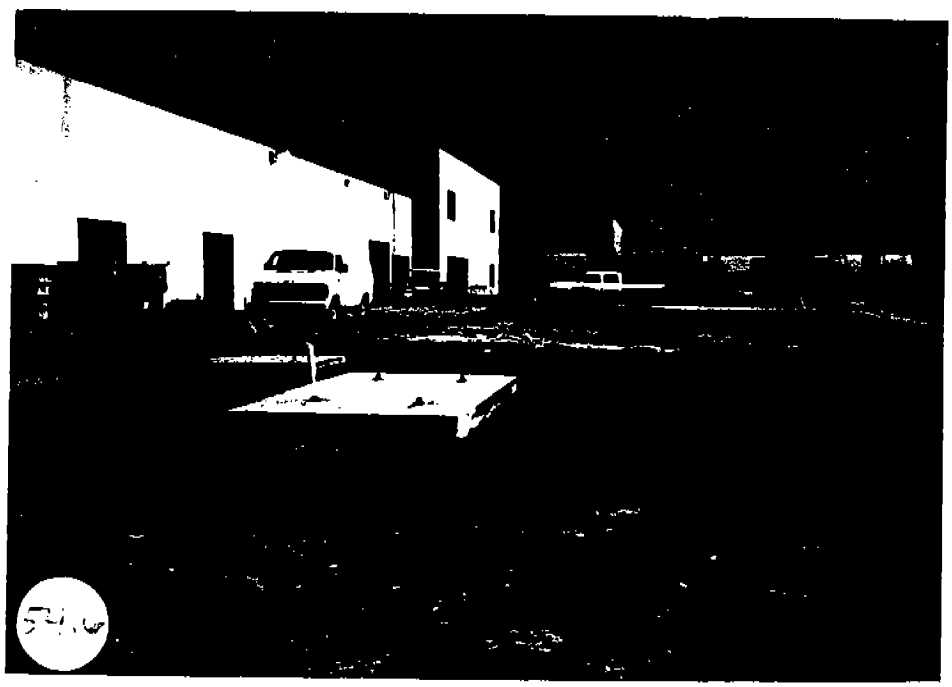

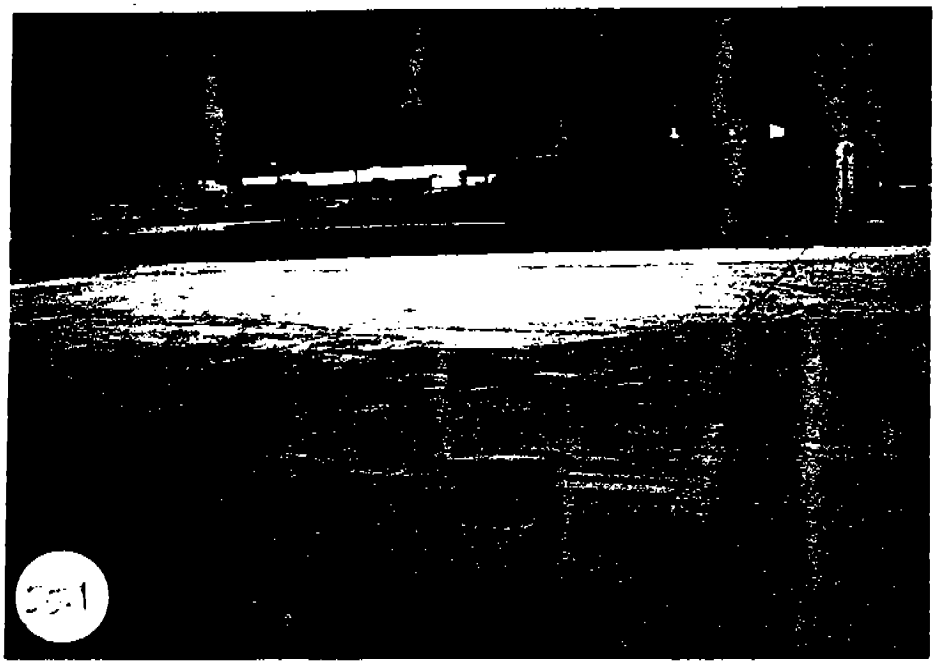


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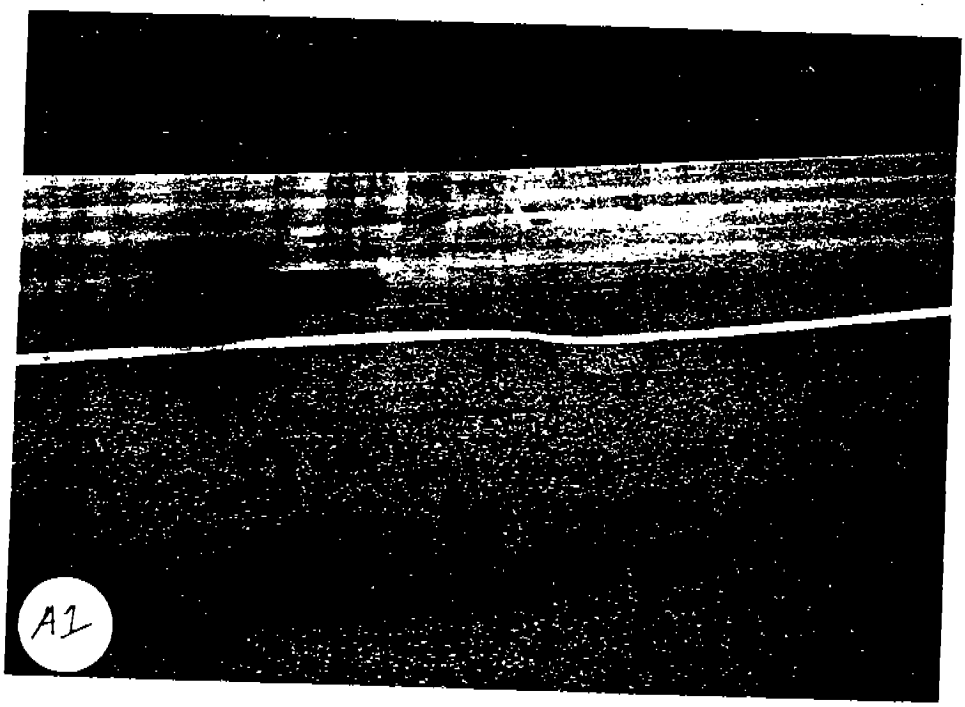
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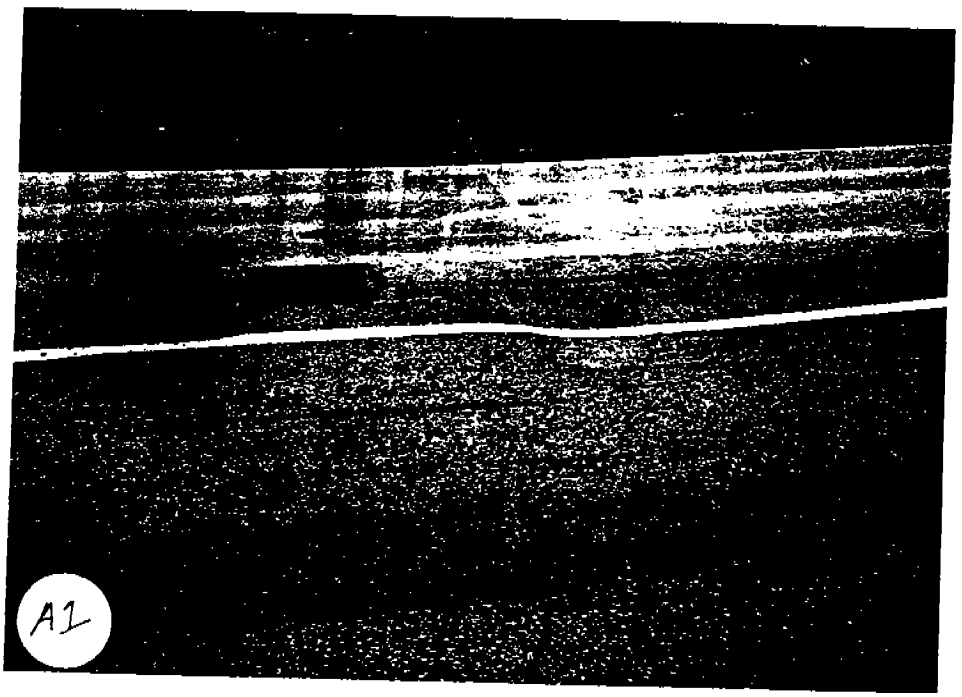
56.1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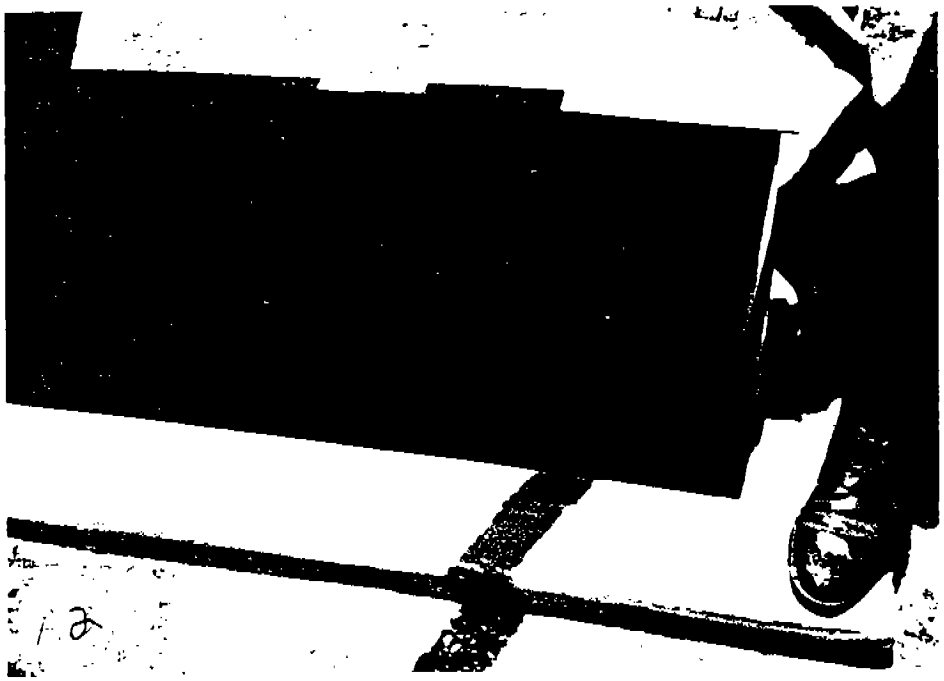

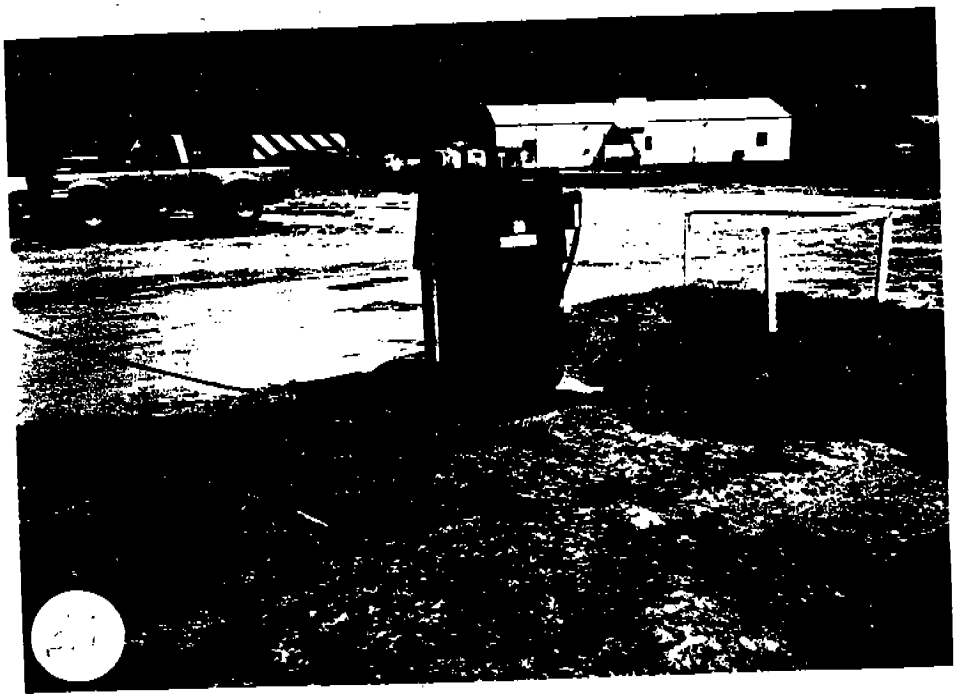

NIIN	Material Description	Unit of Issue*	Maximum Quantity Stored
000055305	CLEANER COMP AIRCRAFT SURFACE	CN	70
000064205	ETHYLENE GLYCO TECH LIQUID	GL	4
000087198	SEALING COMP SYN RUBBER 16 HR DRY	KT	0
000087307	SEALING COMP SYN RUB BRUSH OR DIP	KT	0
000338851	CLEANING COMP SOLVENT 5 GL	CN	4
000456312	WAX REMOVER FLOOR 5 GAL	CN	216
000456323	WAX REMOVER FLOOR 1 GAL	GL	84
000618303	ADHESIVE EPOXY RESIN KIT	KT	24
000626950	CORR PREVENT COMP HARD FILM DRY 4 HR	QT	24
000662333	CORR PREVENT RUST 5 GAL	CN	0
000793752	PAINT BLACK SPRAY 16OZ GLOSS	PT	152
000793754	PAINT DK GRAY SPRAY 16OZ	PT	32
000793762	PAINT WHITE SPRAY 16OZ	PT	184
000812328	SEALANT METAL PURPLE 50CC	BT	24
000812338	SEALANT METAL RED 50CC	BT	100
000812339	SEALING COMP GRADE A RED LIQUID	BT	0
000822146	CLEANER HAND CREAM NONANTIMIC	LB	210
000822450	PAINT PIGMENTED EPOXY RESIN	KT	0
000878630	ANTISEIZE COMP A/C SPARK PLUGS	LB	4
001053084	CLEANING COMPOUND	CN	24
001092491	ADHESIVE BONDS TO MET/RUB/GLA/WOOD	TU	0
001104498	DRY CLEAN SOLVENT 1 PT	PT	68
001178791	OIL LUBRICATING	PT	96
001182695	ADHESIVE SIL RUBBER PASTE 3 OZ	TU	10
001335501	PAINT GREEN SPRAY 16OZ GLOSS	PT	80
001412950	PAINT LT YELLOW SPRAY 16 OZ	PT	74
001412951	PAINT DK GREEN SPRAY 16OZ	PT	32
001412952	PAINT RED SPRAY 16OZ	PT	68
001412958	PAINT GRAY SPRAY 16 OZ	PT	4
001415868	WAX FLOOR WATER EMUL 5 GAL	CN	74
001416770	GREASE A/C BALL & ROLLER 1.75 LB.	CN	2
001417842	WALKWAY COMPOUND NONSLIP LG GULL GRA	GL	0
001429193	ADHESIVE S.P. LIQ 1 OZ	OZ	378
001429372	CORR PREVENT BRUSH ON CHEM TRE ALUM	PT	0
001449774	ADHESIVE RTV SILICONE RUBBER PASTE	CA	0
001449818	CLEAN COMP WATER EMUL A/C 5 GL	CN	0
001450020	ADHESIVE ELEC GRAY RUBBER PASTE	TU	16
001450161	GREASE A/C INST 8 OZ	TU	10
001450868	GREASE A/C GP 5 LB	CN	12
001491593	GREASE BALL AND ROLLER	LB	58
001497432	HYD FLUID A/C HYDROCARBON 8 5	GL	76
001594991	SORBUTAN MONOLEATE	CN	0
001595013	SOLVENT 2-ETHYLBUTANOL LQ	CN	0
001605787	THINNER DOPE AND LACQUER	GL	24
001605788	THINNER DOPE AND LACQUER 5 GAL	CN	16
001605856	VARNISH ASPHALT JET BLACK	CN	2
001617419	PRIMER COAT ZINC CHROMATE	GL	30
001654430	PAINT STAIN BLUE-GRAY OIL FLG DECK	CN	2
001658111	PAINT LAQ CLEAR FOR SPRAYING	GL	0

NIIN	Material Description	Unit of Issue*	Maximum Quantity Stored
001658557	PRIMER COAT ZINC CHROMATE	CN	8
001658574	PRIMER COAT RED LEAD F116	CN	32
001658577	COATING COMP PRETREAT FORM 117	KT	14
001658614	ADHESIVE RUBBER TO SLEET LQ	QT	2
001661682	VARNISH INSULATING ELEC 3300V	CN	0
001682000	LUBE SOLID FILM	CN	24
001686889	LUBE OIL AIRCRAFT	QT	0
001688810	VARNISH OIL SPAR ALK-RESIN	GL	18
001775243	DETERGENT G P SPRAY WIPE GALLON	GL	60
001806069	INSECTICIDE 1% BAYGON SOLUT	GL	0
001806201	SEALING COMP MED CURE PASTE WHITE	KT	0
001806339	CALKING COMPOUND CLEAR SILCONE	CA	24
001806381	GREASE G P BEARING 1 3/4 LB	CN	48
001806382	GREASE G P BEARING 6 1/2 LB	CN	12
001806383	GREASE G P BEARING 35 LB	CN	0
001817594	CLEAN COMP ENG GAS PATH	CN	6
001817791	PAINT GRAY SPRAY 16 OZ	PT	48
001817929	ANTIFREEZE PERM TYPE 6	GL	24
001817933	ANTIFREEZE PERM TYPE 5	CN	20
001818229	LUBE OIL DIESEL 9250 5 GL	CN	4
001818372	PRIMER SEALING COMP YEL/GREEN 6 OZ S	CN	0
001849423	CLEANER GLASS TY 1 REG	GL	36
001896727	LUBE OIL NATO DE 10-0-176	QT	48
001900904	GREASE AUTO CORR PREVENT 1 3/4 LB	CN	0
002133279	CORR PREVENT COMP SPRAY NONSLICK	GL	0
002210611	OIL LINSEED RAW 6 GL	GL	10
002234004	GREASE MOLY DISULFIDE 6 1/2 LB.	CN	8
002234116	LUBE OIL GEAR LT 0-153	CN	0
002234129	LUBE OIL INST OAI A/C	QT	8
002246657	CLEAN COMP RIFLE BORE 8 OZ	CN	4
002246734	INK MARKING STENCIL BLACK	PT	12
002258563	CLEANER HAND CREAM 5 OZ	TU	240
002270410	ALCOHOL ISOPROPYL TECH	GL	0
002280598	SOAP TOILET	GL	36
002316661	OIL LUBRICATING PETROLEUM	QT	0
002316689	OIL WATER DISP LOW TEMP	QT	24
002319045	LUBE OIL G P MISC EQUIP	GL	0
002319062	OIL WATER DISP LOW TEMP	CN	0
002319071	FLUID BRAKE AUTO	GL	0
002355555	GREASE G P HIGH TEMP 7 1/2 LB	CN	24
002355581	LUBE OIL COLL GRAPH	GL	0
002359061	LUBE OIL STEAM TURBINE	CN	36
002402235	LUBE OIL GEAR MED O 155	PT	48
002422089	THINNER PAINT MINERAL SPIRIT	GL	40
002433285	ANTISEIZE COMPOUND	TU	20
002441031	NEATS FOOT OIL QT	QT	8
002441297	CORR PREVENT COMP SOFT FILM	GL	0
002441299	CORR PREVENT COMP HARD FILM	CN	0
002445791	PAINT OIL RED LEAD	GL	2
002445792	PAINT OIL READ LEAD 5 GL	CN	0
002466438	DEODORANT CAKE FOR URINALS	CO	48
002500926	PETROLATUM TECH 1 3/4 LB	CN	48

NIIN	Material Description	Unit of Issue*	Maximum Quantity Stored
002513980	ANTISEIZE COMP PIPE HT	LB	32
002523391	SEALING COMP GASK NONHARD	TU	122
002526173	LUBE OIL LGT MISC EQUIP	CN	8
002575449	OIL LUBRICATING	CN	10
002617899	PENETRATING OIL 16 OZ	PT	96
002618287	GREASE PLUG VALVE STICK	BX	0
002618295	GREASE PLUG VALVE STICK	BX	0
002618317	HYDRAULIC FLUID ORRD TRZNS	CN	42
002629011	ADHESIVE AROMATIC FUEL OIL WAT REST	PT	0
002633490	LUBE OIL GP GEAR LT	QT	48
002643888	SEALING COMP BOILER PASTE 5 LB	CN	0
002646573	DESSICANT BAG #2 150 PER PL	CN	10
002667425	ADHESIVE TILE CUT BACK ASPH F/DRY	GL	0
002667429	ADHESIVE RUBBER CEMENT	PT	2
002674928	WAX GP SOLVENT PASTE	CN	24
002698255	GREASE A/C PNEU SYS	CN	48
002708150	ADHESIVE CELLU LIQ 1 3/4 OZ	TU	2
002728530	COMPOUND GUNSLUSHING	CN	0
002738708	ADHESIVE THERMAL INSULATION	GL	0
002738716	ADHESIVE BONDS VUL SYN RUBBER PARTS	CN	0
002738717	ADHESIVE RUBBER TO STL NONSTRU	PT	6
002745421	SOLVENT DRY CLEAN CLEAR	CN	72
002812014	ACID CITRIC MONOHYD GRAN	LB	0
002813267	WAX AUTO SILICONE PASTE	LB	12
002829414	PRIMER COAT WHITE EXTERIOR	GL	4
002854868	PAINT MACH GRAY SEMI GLOSS	GL	16
002854869	PAINT MACH GRAY SEMI GLOSS 5 GL	CN	16
002854908	PAINT BROWN SEMI-GLOSS	GL	22
002858294	PAINT BLACK FLAT EXT SGL	CN	20
002862285	TOULENE METHYL ISOBUTYL	GL	2
002863783	BATTERY WATER	GL	0
002865435	ALCOHOL ISOPROPYL TECH	GL	22
002867744	PAINT WHITE SEMI GLOSS	GL	46
002867745	PAINT WHITE SEMI GLOSS 5GL	CN	100
002867758	PAINT YELLOW GLOSS #13538	QT	0
002869080	PAINT BOOT TOP BLACK 5 GAL	CN	44
002869083	PAINT GRAY SEMI GLOSS 5 GL	CN	88
002906983	PAINT LAQ WHITE SPRAY 16 OZ	PT	260
002906984	PAINT LAQ BLACK SPRAY 16 OZ	PT	250
002918625	ADHESIVE PHOTO RUBBER	JR	2
002921102	ANTISEIZE COMP ZINC DUST 8 OZ	TU	22
002921813	PAINT ENAM TERRA COTTA 5 GAL	CN	42
002929657	LUBE OIL REFRIG COMP R-12	GL	0
002970585	PAINT YELLOW SEMI GLOSS	GL	2
002970593	PRIMER COAT ZINC CHROMATE YELLOW	PT	120
002982296	PAINT ENAM GREEN	GL	26
003190834	CLEAN COMP SOLV 99.8% PURE	CN	0
003556377	CARTRIDGE ENGINE STARTER	EA	0
003929751	CLEAN COMP OPTICAL LENS	BT	8
004108452	COATING KIT EPOXY GREEN	KT	34
004108460	COATING KIT EPOXY GRAY	KT	0
004108463	COATING KIT EPOXY BLACK	KT	0

NIIN	Material Description	Unit of Issue*	Maximum Quantity Stored
004334065	ADHESIVE RUBBER HIGH STR	QT	4
004376757	COATING KIT EPOXY GREEN	KT	10
004549351	JOINT COMP PUT FRM FINE FINISH 5 GL	CN	0
004580075	OIL WATER DISPLACE SPRAY	CN	24
004592247	CLEAN COMP OVEN SPRAY	DZ	48
005152246	ADHESIVE COATED OR TREATED FABRICS	KT	0
005152477	DETERGENT G P HD LIQ	GL	48
005152487	PAINT LAQ CLEAR SPRAY 16 OZ	PT	30
005272045	PAINT ENAM YELLOW FORM 13538	GL	54
005272050	PAINT ENAM BLACK FORM 17038	GL	86
005273200	PAINT ENAM INT ORANGE 12197	GL	4
005279942	CLEANER HAND LOTION REG PINT	PT	42
005297518	PENETRATING OIL TYPE 2	CN	24
005305559	PAINT PURPLE	GL	10
005306814	GREASE WIRE ROPE EXP GEAR	CN	10
005308067	DETERGENT G P LIQ NONABR	GL	48
005319715	DETERGENT G P OIL SOLUB	GL	48
005420531	TORCH KIT SOLDERING	EA	4
005423362	REPAIR KIT METALLIC PIPE	KT	2
005437170	ADHESIVE THERMO PLAS/RUB	PT	2
005437415	ALCOHOL DENATURED ETHYL	GL	6
005510128	PIGMENT OIL BASE IRON BLUE 2 OZ	TU	0
005587026	THINNER PAINT PET SPIRITS 5 GAL	CN	122
005587027	THINNER PAINT ENAMEL 5 GAL	CN	22
005599481	CLEAN COMP TOILET BOWL	CO	48
005731502	ADHESIVE PIPE REPARE LIGHT GRAY	PT	0
005774735	PAINT ENAM PAST GREEN #125	CN	10
005774737	PAINT EPOXY KIT	CN	20
005774739	PAINT ENAM SOFST WHT #124	CN	28
005798453	SEALING COMP HIGH ADHESION	KT	0
005824596	RESILLENT DECK COVERING	GL	22
005825382	PAINT LAQ ACRYLIC BLACK	PT	112
005843041	GAS PROPANE 14 OZ DISP CYL	EA	16
005843081	PAINT ENAM YELLOW #13578	GL	2
005843129	DISINFECTANT PINE OIL SOAP GALLON	GL	32
005843150	PAINT LAQ FLAT WHT INSIG	PT	18
005844070	XYLENE TECH GRADE B 5 GL	CN	0
005923283	CLEAN OPTICAL LENS	DZ	0
005975367	ANTISEIZE COMP 2 1/2 LB CN	CN	0
005977856	VARNISH OIL PHENOLIC-RESIN	GL	20
005978234	REMOVER PAINT SHIPBOARD	GL	40
005982911	LUBE OIL REFRIG-COMPRESS	QT	60
005987326	DETERGENT G P LIQ DISINFECT	GL	10
006167486	PAINT ENAM RED #11105	GL	24
006169020	GREASE A/C BEARING 1 3/4 LB	CN	0
006169143	PAINT ENAM BLACK SPRAY	PT	166
006169181	PRIMER COAT ALK RESIN SPRAY	PT	14
006199575	RINSE ADDITIVE	GL	60
006211819	LEAK DETECTION COMPOUND	BT	8
006410427	WALKWAY COMPOUND NSLP ROUGH BLACK	GL	0
006561426	SEALING COMP NON-HARD LIQUID	PT	48
006640387	TRICHLORETHANE TECH III	GL	24

NIIN	Material Description	Unit of Issue*	Maximum Quantity Stored
006641914	PAINT LAQ CAMOUFLAGE SPRAY	PT	0
006644761	PAINT ENAM WHITE NO. 17875	GL	4
006644954	SEALING COMP RED BUNA-N SYN RUB BASE	QT	0
006708556	SEALING COMP METAL/HULL 4 LB KT	KT	0
006850913	INSULATING OIL ELEC ASTM	CN	0
006874241	LUBE OIL SEMI-FLUID	QT	24
007019546	ADHESIVE CLR SILICONE PASTE	TU	144
007024297	SILICONE COMP NON-HARD 8 OZ	TU	48
007219743	PAINT LAQ RED SPRAY NO 11105	PT	58
007219744	PAINT LAQ YELLOW SPRAY NO 13538	PT	92
007219745	PAINT LAQ YELLOW	PT	6
007219746	PAINT LAQ LT BLUE SPRY NO 15102	PT	40
007219747	PAINT LAQ MED BLUE SPRAY NO 15080	PT	42
007219749	PAINT LAQ GRAY SPRY NO 16187	PT	48
007219750	PAINT LAQ GRAY SPRY NO 16307	PT	220
007219752	PAINT LAQ GOLD SPRAY NO 17043	PT	42
007232746	SEALING COMP SYN RUBBER	KT	0
007235343	SEALING COMP BRUSH APP 2 HR 1 PT	KT	2
007529343	CHEMICAL DRY FIRE EXT 50LB	CN	6
007534797	DISINFECTANT GERM CONC 1 OZ POUCH	OZ	24
007534993	ALCOHOL ISOPROPYL TECH 8 OZ	CN	16
007535004	SEALING COMP SYN RUB 1/2 HR APP TIME	KT	0
007535006	SEALING COMP HIGH ADHESION	KT	0
007535008	SEALING COMP SYN RUBBER BRUSH APPL	KT	0
007535009	SEALING COMP HIGH ADHESION	KT	0
007535060	LUBE OIL PISTON A/C 5 GAL	CN	0
007542595	GREASE MOLY DISULFIDE	CN	48
007542685	ADHESIVE CONTACT FORMICA	GL	4
007770631	ADHESIVE EPOXY PATCH KIT	KT	40
007823509	CLEANER HAND 7 LB	CN	84
008152692	PAINT ALUMINUM HEAT RESISTANT	GL	30
008237860	LUBE COMPOUND SLYDE	CN	24
008237861	FUEL ENGINE PRIMER TYPE II *	CN	0
008237908	GREASE ORDNANCE EXTREME PRESSURE	LB	48
008239818	NEVER DULL	CN	464
008368641	LUBE OIL GP LIGHT MACH	DZ	10
008377969	THINNER PAINT MINERAL SPIRIT	GL	8
008430802	ADHESIVE SEALER BOND PASTE	TU	96
008433461	ADHESIVE CLEAR BOND RUBBER	GL	2
008447355	INSECTICIDE DIAZINON	GL	0
008515525	PAINT ENAM YELLOW SEMI-GLOSS	PT	84
008529033	PAINT ENAM YELLOW SEMI-GLOS	PT	60
008529034	PAINT ENAM GRAY SPRAY	PT	76
008531859	PAINT ENAM BLUE #15123	GL	44
008572450	FLIGHT DECK COMP WHT ROLL-ON	KT	4
008807007	CLEAN/LUBE COMP ELEC 2 OZ	BT	0
008807616	SILICONE COMP NON-HARD 8 OZ	TU	322
008897345	PAINT ENAM RED NO. 11105	QT	30
008998825	PRIMER COAT GREEN SPRAY	PT	118
009023871	ADHESIVE SEAL PASTE RED	TU	96
009030931	CORR PREVENT COMP TRANS NON TACKY	PT	0
009172256	PAINT ENAM GRAY SEMI-GLOSS	CN	158

NIIN	Material Description	Unit of Issue*	Maximum Quantity Stored
009265171	POLISH METAL G P SPRAY	CN	290
009269174	COATING POLY AROMATIC CLEAR	CN	0
009353794	POLISH PLASTIC PINT *	BX	2
009355810	DESSICANT ACT IMP MED	LB	0
009356609	PAINT LAQ WHITE SPRAY 16 OZ	PT	224
009357064	PAINT LAQ RED SPRAY 16 OZ	PT	162
009357075	PAINT LAQ GRAY SPRAY 16 OZ	PT	72
009357079	PAINT LAQ BLK SPRAY 16 OZ	PT	362
009381947	CORR PREVENT FOR METAL 1 QT SPRAY CN	CN	72
009448953	GREASE WHEEL AICRAFT	LB	96
009618995	GREASE VALVE PLUG 8 OZ	TU	96
009623335	VARNISH INSULATING 15 OZ	CN	16
009635402	SILICONE COMP SWITCH CONTACT	TU	6
009652109	CLEANER HAND CREAM	LB	88
009652303	LUBE OIL A/C PISTON	CN	0
009652359	CLEAN COMP SOLVENT BILGE	CN	4
009652391	PAINT GRAY SEMI GLOSS SPRAY	PT	78
009733122	CLEAN/LUBE COMP ELEC 6 OZ	CN	10
009739091	PENETRATING FLUID SPRAY	CN	48
009815864	ELECTROLITE-KIT FILLING 16 PC	EA	0
009838551	ALCOHOL ISOPROPYL TECH	QT	22
009845853	CLEAN COMP SOLV-SAFETY 5 GAL	CN	12
009856911	DETERGENT G P WATER SOL 5 GAL	CN	10
009857099	LUBE OIL TURBO SHAFT ENG	QT	58
009857231	HYDRAULIC FLD ANTI-CORR NO. 2075	QT	48
009857232	HYDRAULIC FLD ANTI-CORR NO. 2075T	CN	0
009857236	HYDRAULIC FLD ANTI-CORR NO. 2135T-H	QT	48
009857237	HYDRAULIC FLD ANTI-CORR NO. 2135T-H	CN	36
009857244	GREASE A/C INST/GEAR 4 OZ	TU	24
009857245	GREASE A/C INST/GEAR 8 OZ	TU	96
009857246	GREASE A/C INST/GEAR 1-3/4 LB	CN	14
009857247	GREASE A/C INST/GEAR 6.5 LB	CN	8
009857316	GREASE G P HIGH TEMP 1 3/4 LB	CN	96
009996313	SEALING COMP LEAK-LOCK	TU	2
010046519	LIQUID STEEL	TU	0
010355393	LUBE OIL GEAR 80 90W 5 GL	CN	8
010411596	CORR PREVENT CLEAR 16 OZ SPRAY CN	CN	10
010432295	SEALING COMP TANK AND CHANNEL SEALAN	CA	0
010457929	CLEAN COMP A/C FOAM GEN	CN	0
010527378	STRIPPER	GL	4
010532646	COATING KIT EPOXY GRAY 2 QT POLY	KT	0
010532648	COATING EPOXY BLUE INS #15044	KT	0
010536688	LUBE OIL CLEANER	GL	4
010546453	CLEANER LUBE & PRESERVATIVE	PT	60
010606461	PAINT ENAM BR GREEN #14260	PT	16
010789283	FLIGHT DECK COMP	CN	48
010805961	HYDRAULIC FLUID	GL	0
010809652	GREASE SILICONE	CA	10
010889075	ROACH BAIT 1/2 OZ	BX	0
011013866	ADHESIVE THER INSU FIRE RES 5 GAL	CN	0
011172928	GREASE BEAR ROLLER 5 LB	CN	24
011838585	WAX FLOOR NONBUFFING	CN	288

NIIN	Material Description	Unit of Issue*	Maximum Quantity Stored
LL0072551	DRAIN OPENER ACTION	BT	30
LL0074108	PERMA SEAL POLYACRYLATE UNDERCOAT	GL	30
LLL020010	CAULKING COMP ACRYLIC LATEX IN/EXT	EA	0
LLL040172	ARMORALL PROTECTANT 16 OZ SPRAY	CN	312
LLL040175	ARMORALL PROTECTANT 32 OZ BT	EA	60
LLL040224	CLEANER BATHROOM BOWL	CN	330

*Abbreviations:
CN - Can
GL - Gallons
KT - Kit
QT - Quart
PT - Pint
LB - Pounds
TU - Tube
OZ - Ounce
CA - Case
CO - Container
BX - Box
BT - Bottle
JR - Jar
DZ - Dozen
EA - Each

Source: NSC, Mayport