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LIMITED SCOPE REMEDIAL ACTION PLAN FOR CONTAMINATION ASSESSMENT AT SITE 119 NAS JACKSONVILLE FL

3/1/1997

ABB ENVIRONMENTAL

LIMITED-SCOPE REMEDIAL ACTION PLAN

SITE 119

NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

UNIT IDENTIFICATION CODE: N00207
CONTRACT NO.: N62467-89-D-0317/118

MARCH 1997

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
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CONTAMINATION ASSESSMENT PLAN

AUTO HOBBY SHOP

NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

Unit Identification Code: N00207

Contract No.: N62467-89-D-0317/138

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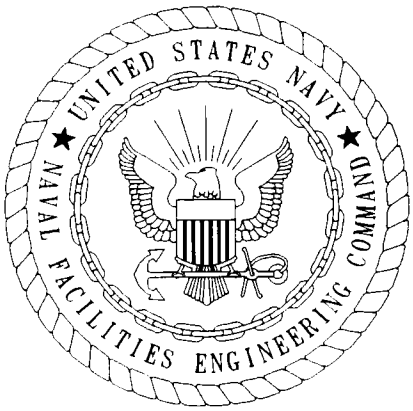
March 1997



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/138 are complete and accurate and comply with all requirements of this contract.

DATE: March 21, 1997

NAME AND TITLE OF CERTIFYING OFFICIAL: Phylissa Miller
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Michael J. Williams, P.G.
Project Technical Lead

(DFAR 252.227-7036)

FOREWORD

To meet its mission objectives, the U.S. Navy performs a variety of operations, some requiring the use, handling, storage, or disposal of hazardous materials. Through accidental spills and leaks and conventional methods of past disposal, hazardous materials may have entered the environment in ways unacceptable by today's standards. With growing knowledge of the long-term effects of hazardous materials on the environment, the Department of Defense (DOD) initiated various programs to investigate and remediate conditions related to suspected past releases of hazardous materials at their facilities.

One of these programs is the Comprehensive Long-Term Environmental Action, Navy (CLEAN) Underground Storage Tank (UST) program. This program complies with Subtitle I of the Resource Conservation and Recovery Act and the Hazardous and Solid Waste Amendment of 1984. In addition, the UST program complies with all appropriate State and local storage tank regulations as they pertain to each naval facility. The UST program includes the following activities:

- registration and management of Navy and Marine Corps storage tank systems,
- contamination assessment planning,
- site field investigations,
- preparation of contamination assessment reports,
- remedial (corrective) action planning,
- implementation of the remedial action plans, and
- tank and pipeline closures.

The Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) manages the Navy UST program and the Florida Department of Environmental Protection (FDEP, formerly Florida Department of Environmental Regulation) oversees the Navy UST program at Naval Air Station (NAS) Jacksonville. Questions regarding the UST program at NAS Jacksonville should be addressed to Mr. Bryan Kizer, SOUTHNAVFACENGCOM, Code 184PDC, at (803) 743-0896.

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
CA	contamination assessment
CAP	Contamination Assessment Plan
CAR	Contamination Assessment Report
CompQAP	Comprehensive Quality Assurance Plan
DTW	depth to water
°C	degrees Celsius
°F	degrees Fahrenheit
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FOL	Field Operations Leader
ID	inside diameter
IDW	investigation-derived waste
LZS	lower zone shallow
MOP	Monitoring Only Plan
msl	mean sea level
NAS	Naval Air Station
NFAP	No Further Action Plan
OVA	organic vapor analyzer
PVC	polyvinyl chloride
RAP	Remedial Action Plan
RESD	Regulatory and Environmental Services Department
SOP	standard operation procedure
SOUTHNAV-FACENGCOM	Southern Division, Naval Facilities Engineering Command
SPT	standard penetration test
TOC	top of casing
USCGS NAD'27	U.S. Coastal and Geodetic Survey, 1927 North American Datum
UST	underground storage tank
UZS	upper zone shallow

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), has been contracted by the Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to prepare a Contamination Assessment Plan (CAP) for the Auto Hobby Shop at the U.S. Naval Air Station (NAS) Jacksonville in Jacksonville, Florida. The CAP outlines a strategy for the field investigation and sampling program that will provide data to characterize and estimate the vertical and horizontal extent of soil and groundwater contamination at the Auto Hobby Shop.

A tank closure assessment was conducted in August 1995 at the Auto Hobby Shop at the time of the removal of a 1,000-gallon waste-oil underground storage tank (UST). Staining of the soil at one location during the excavation of the UST prompted the installation and sampling of a temporary piezometer in the UST pit. Five parameters, methylene chloride, toluene, cadmium, chromium, and lead, were detected at concentrations exceeding the published Florida Department of Environmental Protection (FDEP) Ground Water Guidance Concentrations. A Discharge Reporting Form was submitted by the U.S. Navy to the Regulatory and Environmental Services Department (RESD) in Jacksonville, Florida, and the FDEP on August 30, 1995. This CAP presents a site description, background information, a summary of the proposed investigation, and the schedule for completing the contamination assessment (CA).

2.0 BACKGROUND

2.1 SITE DESCRIPTION AND HISTORY. The Auto Hobby Shop is located at NAS Jacksonville, Duval County, Florida. NAS Jacksonville is located along the west shoreline of the St. Johns River, situated east of Highway 17 and north of Interstate 295 (Figure 2-1). The Auto Hobby Shop is located in Building 622 on the north side of Birmingham Avenue opposite Casa Linda Lake in the central region of NAS Jacksonville (see Figure 2-2 and 2-3). The area under investigation is expected to be confined to the immediate vicinity of where the UST was removed.

On August 29, 1995, a 1,000-gallon, double-walled, fiberglass UST, located approximately 60 feet to the west of the Auto Hobby Shop, was removed. The UST was reportedly used for waste-oil storage during normal site operations. According to the facility manager, the fiberglass UST was installed approximately 10 years earlier to replace a single-walled, steel tank also used for waste-oil storage. The installation date and condition of the steel tank at the time of removal are unknown.

During removal of the fiberglass tank, an area of petroleum-stained soil, approximately 3 feet square by 2 feet deep, was observed, excavated, and placed in a 55-gallon drum. In addition, a groundwater sample was collected and analyzed. Contaminants detected in the groundwater sample at concentrations exceeding the published FDEP Ground Water Guidance Concentrations included methylene chloride, chromium, toluene, cadmium, and lead.

A Discharge Reporting Form was submitted by the U.S. Navy to the RESD and the FDEP on August 30, 1995. The Tank Closure Assessment Report dated October 1995 (J.A. Jones, 1995) was prepared by J.A. Jones Environmental Services Company and is included as Appendix A.

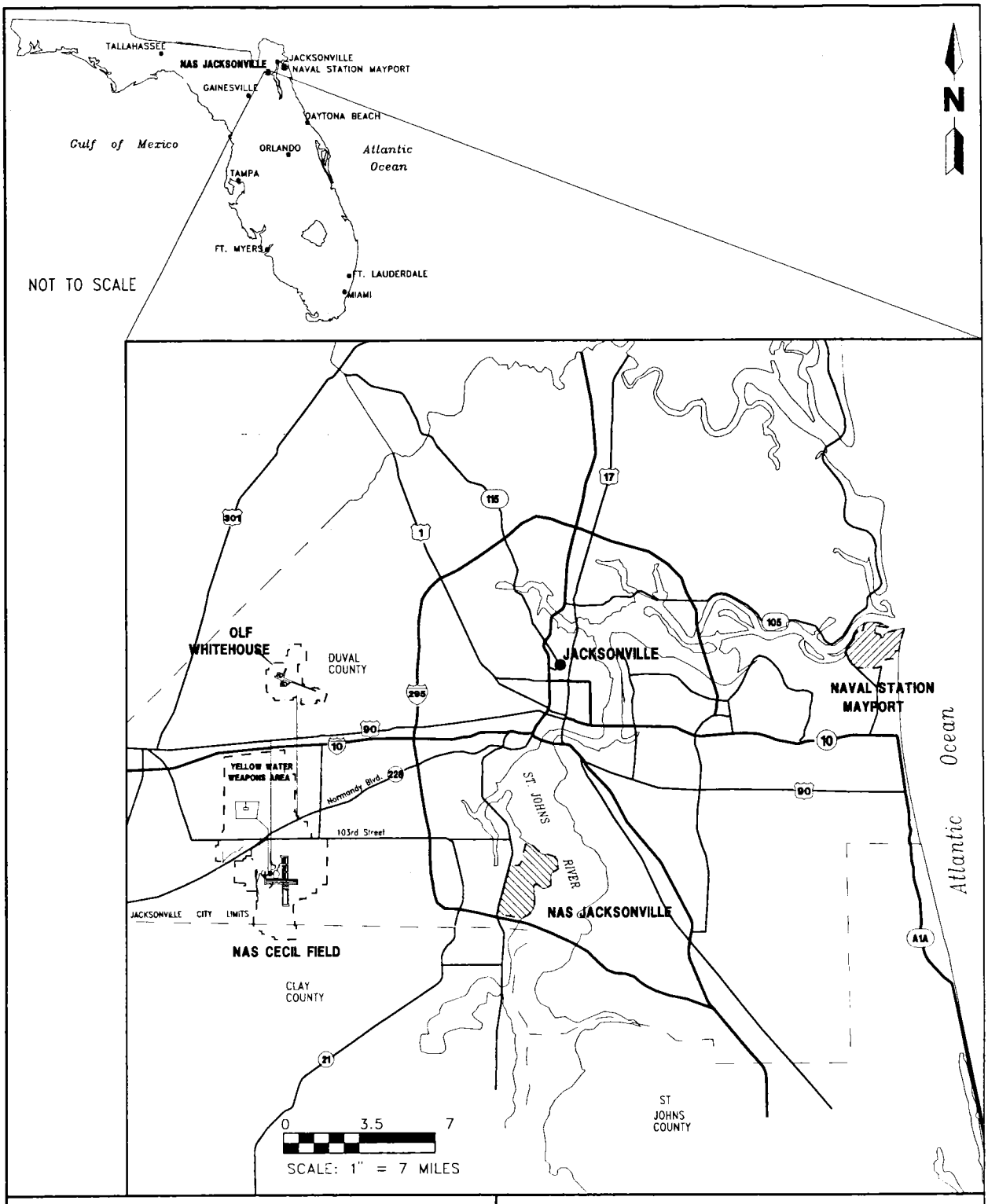

FIGURE 2-1
FACILITY LOCATION MAP

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CONTAMINATION ASSESSMENT PLAN
AUTO HOBBY SHOP

NAS JACKSONVILLE
JACKSONVILLE, FLORIDA

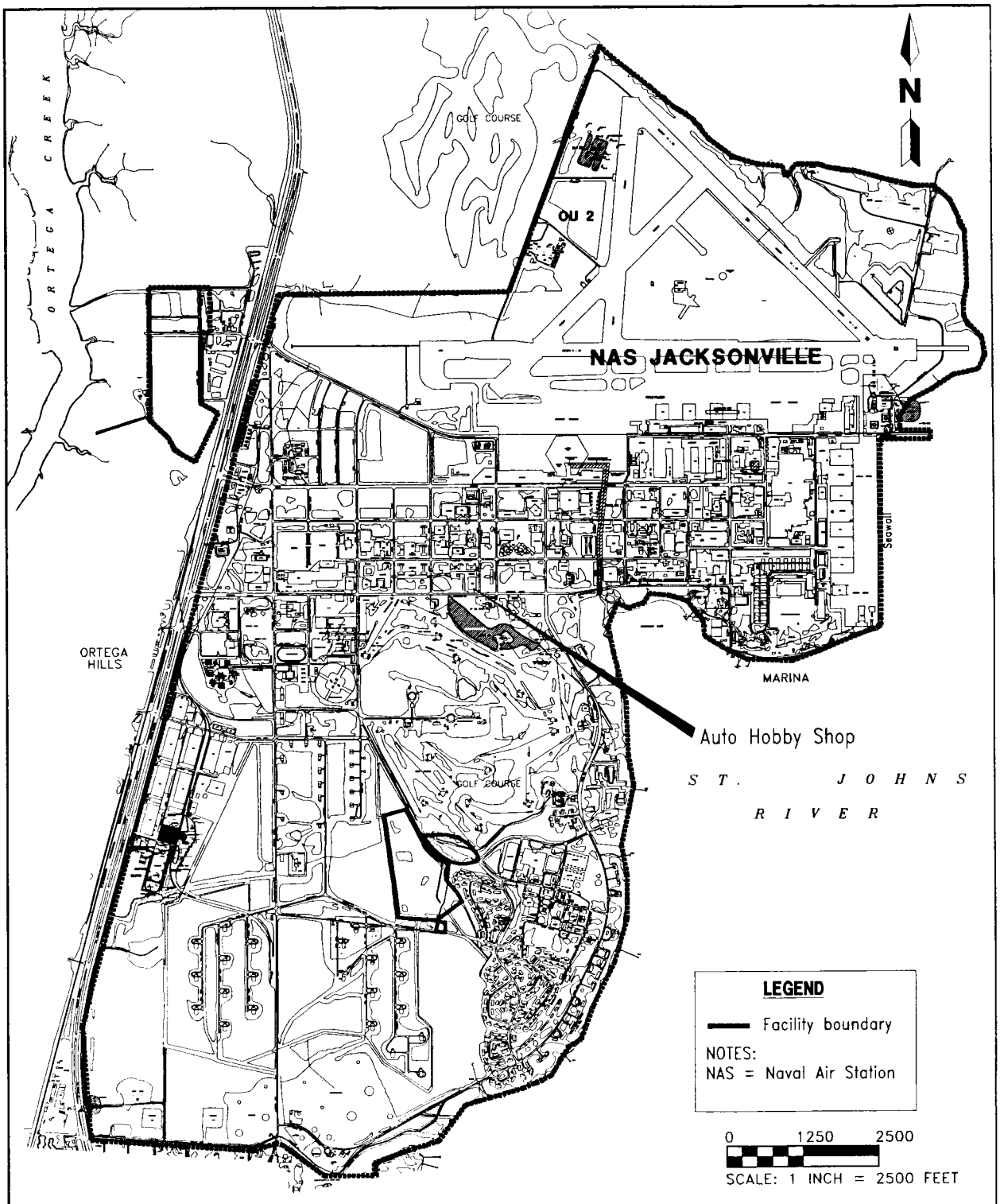

FIGURE 2-2
FACILITY MAP AND LOCATION OF AUTO HOBBY SHOP

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CONTAMINATION ASSESSMENT PLAN
AUTO HOBBY SHOP

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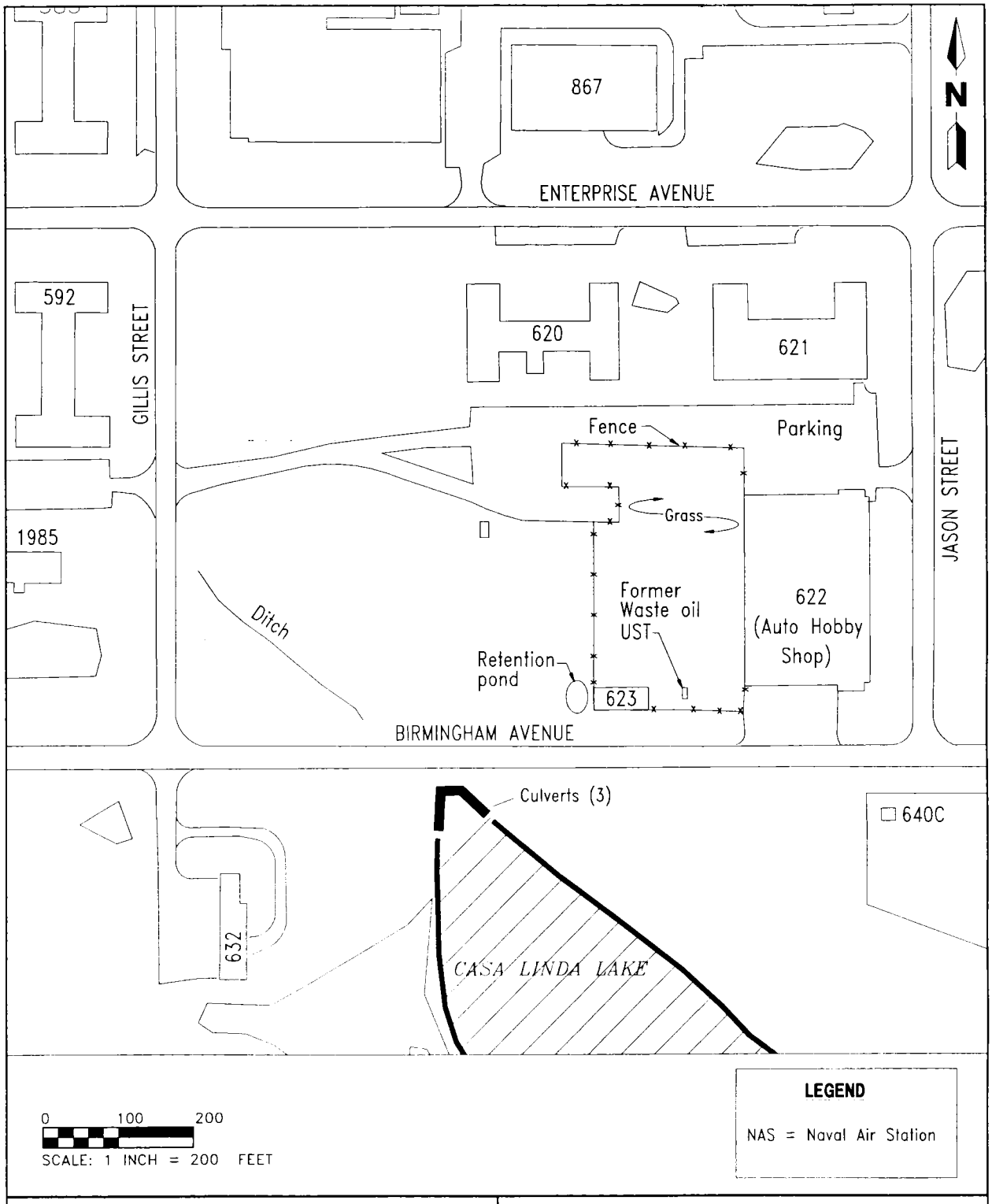

FIGURE 2-3
AUTO HOBBY SHOP
LOCATION MAP

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CONTAMINATION ASSESSMENT PLAN
AUTO HOBBY SHOP

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3.0 SITE CONDITIONS

3.1 REGIONAL PHYSIOGRAPHY. NAS Jacksonville is located in the Atlantic Coastal Lowlands physiographic province, which in northeast Florida encompasses a series of ancient marine terraces. These terraces mark the ocean bottom during the Pleistocene Epoch when the sea, having transgressed beyond the present shoreline, remained stationary for long periods as it regressed episodically. With each episode of sea regression, the former sea floor became exposed as a flat plain, and a low scarp and sand dune ridge along the landward edge marked the abandoned shoreline. Seven terraces are recognized in Duval County, but the flat plains and abandoned shorelines have been dissected and eroded by streams, leaving only remnants of the original terraces. NAS Jacksonville lies mostly on the Pamlico Terrace (10 to 25 feet above mean sea level [msl]), but traces of the lower Silver Bluff Terrace (0 to 10 feet above msl) exist along the St. Johns River.

3.2 SITE-SPECIFIC PHYSIOGRAPHY. The topography in the area of the site is relatively flat, sloping slightly to the southwest toward Casa Linda Lake located within 400 feet to the south. The elevation at the site is approximately 20 feet above msl. Surface drainage at the site is directed by grading and ditches to Casa Linda Lake. The groundwater flow direction is estimated to be south southwest toward Casa Linda Lake.

3.3 REGIONAL AND LOCAL HYDROGEOLOGY. Sedimentation in northeastern Florida was controlled by the Peninsular Arch and the southeastern Georgia Embayment where more than 1,500 feet of Eocene Age and younger sediments were deposited. The sediments generally consist of unconsolidated sand, silt, and clay deposits overlying a thick sequence of marine limestone. From these, three discernable hydrogeologic units are recognized. In descending order the units are (1) shallow aquifer, (2) intermediate artesian aquifer, and (3) Floridan aquifer system.

There are two zones within the shallow aquifer in the Duval County area. These zones are referred to as the upper zone of the shallow aquifer (UZS) and the lower zone of the shallow aquifer (LZS). The historical "rock" or "secondary artesian" aquifer zone within the intermediate artesian aquifer is referred to as the upper water-bearing zone of the Hawthorn Group.

3.3.1 Shallow Aquifer The shallow aquifer is situated within the unconsolidated surficial sediments of late Miocene to recent age. These sediments extend from surface to approximately 40 to 100 feet below land surface (bls) and can be divided into two general zones. The UZS consists of quartz sand, shelly sand, coquina, silt, clay, and shell beds. Iron-oxide hardpan layers are also common in this zone. The LZS consists of interbedded silty clay and clayey sand, sand, shell, and prevalent soft-friable limestone near the base. The contact between the LZS and the underlying Hawthorn Group of the intermediate artesian aquifer is identified by a coarse phosphatic sand-and-gravel bed (Leve, 1968). When the coarse phosphatic sand and gravel bed is absent, the contact is phosphatic sandy clay or clayey sand, dolostone, or a magnesium rich clay.

The shallow aquifer is recharged by precipitation, which in Duval County is approximately 52 to 54 inches annually. Of this, approximately 10 to 16 inches

is received as recharge to the aquifer (Fairchild, 1972). Groundwater within the shallow aquifer generally moves toward the southeast but locally moves toward points of discharge (e.g., streams and rivers). In Duval County, the depth to groundwater in the shallow aquifer is generally less than 10 feet.

3.3.2 Intermediate Artesian Aquifer The intermediate artesian aquifer encompasses the Hawthorn Group, which lithologically is quite variable but generally composed of olive-green, calcareous, phosphatic, sandy clay and clayey sand with thin discontinuous lenses of phosphatic sand, phosphatic sandy limestone, and dolostone. The limestone and dolostone lenses are thicker and more prevalent near the base of the Hawthorn. The Hawthorn Group sediments are middle Miocene in age and approximately 300 feet thick.

The Hawthorn Group is a confining unit that separates the overlying shallow aquifer from the underlying Floridan aquifer system; however, in Duval County, permeable sand and limestone layers within the Hawthorn's confining clay layers form the secondary or intermediate artesian aquifer or upper zone Hawthorn. Regional groundwater movement in these permeable layers is toward the east (Fairchild, 1972).

3.3.3 Floridan Aquifer System The Floridan aquifer system is greater than 1,000 feet thick and consists of a sequence of Eocene Age marine limestones. The limestone sequence is composed of the Ocala, Avon Park, Lake City, and Oldsmar limestones. These limestones range in lithology from soft, chalky, massive and fossiliferous limestone to hard, massive dolomite and granular, calcitic limestone.

The Floridan aquifer system is the principal source of freshwater in northeast Florida. Recharge to the Floridan aquifer system occurs through infiltration of rainfall along the Ocala Uplift where limestone of the aquifer outcrops at land surface. In northeast Florida, an area of recharge exists that is situated in western Clay and Putnam Counties and eastern Bradford and Alachua Counties where a permeable sand-and-gravel facies of the Hawthorn Group outcrops. The unit appears to be hydraulically connected to the Floridan aquifer system. The top of the Floridan in the vicinity of NAS Jacksonville occurs at depths ranging from 275 to 400 feet bls (Causey, 1975). Groundwater in the Floridan aquifer system, in the vicinity of NAS Jacksonville, moves northeastward toward a cone of depression in Jacksonville caused by the excess withdrawal of water from the aquifer (Leve, 1968).

3.4 SITE-SPECIFIC HYDROGEOLOGY. The principal aquifer of concern at the Auto Hobby Shop is the upper part of the shallow aquifer. A series of four shallow borings to the groundwater table, encountered at a depth of 2.5 feet bls, were conducted prior to the UST removal. The soils encountered are described as fine silty sand with abundant roots in the upper 1.5 feet and pea gravel to the boring termination depth. The total depth of the excavation during the UST removal ranged from 7 to 10 feet bls. However, physical descriptions of the sols encountered are not presented in the Tank Closure Assessment report (J.A. Jones, 1995). No other subsurface investigations have been conducted in the immediate vicinity of the study area; therefore, additional site-specific hydrogeology is not available at this time.

4.0 POTABLE WELL SURVEY

A potable well survey was conducted by J.A. Jones Environmental Services Company at the RESD in Jacksonville, Florida, to locate potable water sources that might be affected by petroleum constituents in soil and groundwater at the site. The well inventory indicated the presence of three wells within a 1/4 mile radius of the site. According to RESD records, the wells are owned by the U.S. Navy and are public potable supply wells completed in the Floridan Aquifer. Contaminants in the soil or groundwater associated with the former UST at the Auto Hobby Shop are not anticipated to impact these wells.

5.0 PROPOSED ASSESSMENT PLAN

All work performed and methodologies and equipment used during the course of this CA are in accordance with the ABB-ES, FDEP-approved Comprehensive Quality Assurance Plan (CompQAP) and applicable ABB-ES Standard Operating Procedures (SOPs) approved by the ABB-ES Board of Technical Directors. Applicable SOPs, including methodologies for sample collection (soil, groundwater, surface water, and surface water/sediment), water-level measurement, and slug testing will be available onsite throughout the duration of this CA.

5.1 PHASE I FIELD ACTIVITIES. The Phase I field activities will provide information needed to assess the horizontal and vertical extent of soil contamination and the geologic conditions in the vadose zone. The Phase I field activities will involve two general tasks: (1) a background review (Subsection 5.1.1) and (2) an assessment of soil contamination (Subsection 5.1.2).

5.1.1 Background Review Previous assessment activities were completed during removal of the UST in 1995. The current site conditions have been assessed through a facility inspection, a review of the Tank Closure Report, and interviews with knowledgeable base personnel.

5.1.2 Soil Assessment The CA at the Auto Hobby Shop site will build upon the soil and groundwater data gathered during the UST closure conducted by J. A. Jones Environmental Services Company in August 1995. Approximately 10 to 15 soil borings will be drilled and sampled using the TerraProbe℠ or a hand auger, depending upon the potential for encountering unidentified utilities, to assess the extent of soil contamination in the unsaturated zone in the vicinity of the UST. Soil samples will be collected at the surface and every 2 feet vertically thereafter until the water table is reached. The soil samples will be visually inspected for evidence of used-oil contamination and screened via standard headspace analyses using an organic vapor analyzer (OVA) equipped with an flame ionization detector. A description of the standard headspace analytical procedure is presented in Appendix B.

One soil sample will be collected from the most contaminated boring (based on visual inspection) and shipped to a certified analytical laboratory for Used Oil Group analysis. One soil sample will also be collected and analyzed for remedial action plan (RAP) parameters.

Following completion of the borings, the borings will be backfilled with the original soil in accordance with the investigation-derived waste (IDW) management plan outlined in Chapter 6.0 of this CAP. Soil boring logs will be completed for all of the borings to document organic vapor screening data and the shallow subsurface geologic conditions.

Proposed soil boring locations are shown on Figure 5-1. The proposed soil boring locations are conceptual only and intended to cover anticipated areas of concern. Proposed borings are at locations that should assess the lateral extent of soil contamination. The final soil boring locations will be determined in the field by the field operations leader (FOL). If site conditions vary from those anticipated, boring locations will be modified for the following reasons: (1)

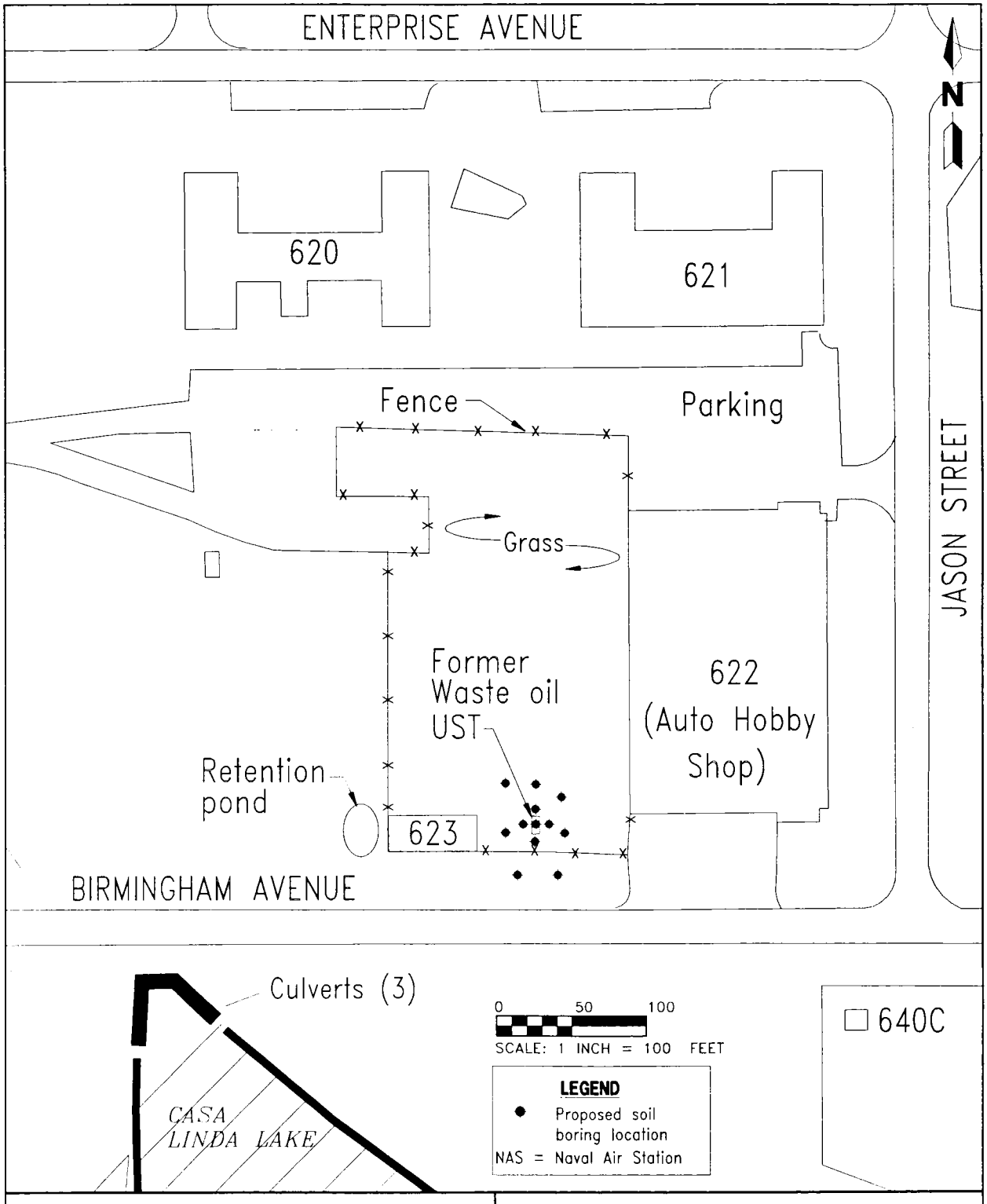

FIGURE 5-1
PROPOSED SOIL BORING
LOCATION MAP

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CONTAMINATION ASSESSMENT
PLAN
AUTO HOBBY SHOP

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site conditions warrant modification of soil boring locations to adequately assess the lateral extent of the soil contamination and (2) buried utilities or structures prevent the placement of soil borings in proposed locations. If significant modifications to the proposed soil assessment plan are deemed necessary, the FOL will promptly notify the task order manager, the SOUTHNAVFACENGCOM engineer in charge, the environmental coordinator at NAS Jacksonville, and the technical leader to discuss the modifications.

5.1.3 Groundwater Screening A groundwater sample will be collected from each boring at the water table using the TerraProbe℠. Based upon the Tank Closure Assessment (J.A. Jones, 1995), groundwater is estimated to be within 3 feet bls. Each sample will be analyzed using U.S. Environmental Protection Agency Methods 601 and 602 and total recoverable petroleum hydrocarbons by the FL-PRO Method. One-day turnaround time will be requested for all screening samples.

5.2 PHASE II FIELD ACTIVITIES. Prior to initiating Phase II field investigative activities, the soil vapor screening data will be evaluated and the groundwater screening data will be plotted and contoured on a site map to facilitate placement of groundwater monitoring wells.

The objectives of the Phase II field activities are to assess the horizontal and vertical extent of groundwater contamination, characterize the nature of the contamination, and evaluate the hydraulic parameters related to the movement and dispersal of contamination within the underlying aquifer. The installation and sampling of groundwater monitoring wells, measurement of groundwater levels, and performance of aquifer slug tests are proposed to obtain the data necessary to satisfy the CA objectives and complete the site assessment.

The monitoring well installation program will include construction of both shallow and deep monitoring wells. Shallow monitoring wells will be installed to assess the lateral extent of groundwater contamination and confirm the direction of groundwater flow. A deep monitoring well will be installed downgradient of the contaminant source area to assess the vertical extent of groundwater contamination.

5.2.1 Monitoring Well Installation Monitoring wells will be installed using a mobile drilling rig with hollow-stem auger and mud rotary drilling capabilities. Prior to well installation, soil samples will be collected from the well boreholes using a standard penetration test (SPT) split-spoon sampler. Soil samples will be collected continuously in the shallow monitoring well boreholes from the surface to approximately 15 feet bls. During construction of the deep well, split-spoon samples may not be collected in the upper 15 feet, depending upon the relative proximity of a shallow well. Soil samples will be collected continuously from the depth of the nearby shallow well to the boring termination depth of between 25 to 35 feet bls. Soil samples retrieved from the split spoons will be screened for organic vapors with an OVA. Sample lithology will be described using a Munsell Color Chart and the Unified Soil Classification System to evaluate color, grain size, grading, and other pertinent soil characteristics. A monitoring well boring and construction log will be completed for each of the wells.

The shallow monitoring wells proposed for this investigation will be constructed of 2-inch inside diameter (ID), Schedule 40 polyvinyl chloride (PVC) casing with

flush-threaded joints and 10 feet of 0.010-inch slotted, Schedule 40 PVC well screen. The deep well will be double cased and constructed of an outer 6-inch ID, Schedule 40 PVC surface casing and an inner 2-inch ID, Schedule 40 PVC riser with 5-feet of 0.010-inch slotted well screen set below the bottom of the outer 6-inch surface casing. A 20/30 grade silica sand filter pack will be installed around all of the well screens to a height of approximately 2 feet above the top of the well screen. A 2-foot thick, fine-grained sand (30/65) seal will be installed above the filter pack with the remainder of the well annulus grouted to land surface with a mixture of 5 percent bentonite and 95 percent neat cement. Monitoring wells will be completed with 2-foot by 2-foot by 3-inch concrete pads and steel well vaults. The well vault and pad will be mounted essentially flush with land surface but slightly above grade to allow drainage away from the well. Proposed monitoring well locations are shown on Figure 5-2. Figures 5-3 and 5-4 illustrate typical construction details for both the shallow and deep wells, respectively.

The monitoring wells will be developed by pumping, surging, or bailing or by a combination thereof until the well discharge is clear and relatively free of turbidity to ensure good hydraulic contact with the aquifer.

The horizontal locations and well top-of-casing (TOC) elevations for all of the monitoring wells will be surveyed by a State of Florida-registered professional surveyor. The survey data will be referenced to either the U.S. Coastal and Geodetic Survey 1927 North American Datum (USCGS NAD'27) or the base coordinate grid system, as appropriate.

5.2.2 **Groundwater-Level Measurements** Groundwater levels will be measured in all site wells using an electronic water-level indicator or an electronic oil-water interface probe with an accuracy to 0.01 foot. Groundwater elevations will be calculated by subtracting the depth to water measurements from the surveyed TOC elevations. The groundwater elevation data will be reported in tabular format, plotted on scaled site maps, and contoured to depict the piezometric surface and groundwater flow direction at the site.

5.2.3 **Groundwater Sampling** Groundwater samples will be collected from all site monitoring wells (excluding those containing free product) in accordance with ABB-ES' FDEP–approved CompQAP. Prior to sampling, the shallow wells will be purged using low-flow purging techniques with a peristaltic pump to reduce sample turbidity. A minimum of 3 well volumes will be purged from the wells with field parameters of conductivity, pH, dissolved oxygen, and temperature of the purge water monitored until the readings stabilize to within 10 percent of the final readings. After purging, groundwater samples will be collected from the wells using Teflon™ bailers, with one exception. The samples collected for lead analyses will be obtained with a peristaltic pump as recommended by FDEP. If a nonturbid sample for lead analysis cannot be collected using quiescent sampling techniques, then a filtered groundwater sample will be collected for laboratory analysis. Collection of filtered samples will be in accordance with the FDEP technical document *Determining Representative Ground Water Samples, Filtered or Unfiltered*, January 1994. All of the groundwater samples will be placed into the appropriate sample containers and preserved as required by the specific analytical method. The samples will be placed on ice and stored in coolers for shipment to the analytical laboratory within 24 hours of collection. All groundwater samples collected will be analyzed for Used Oil analytical group

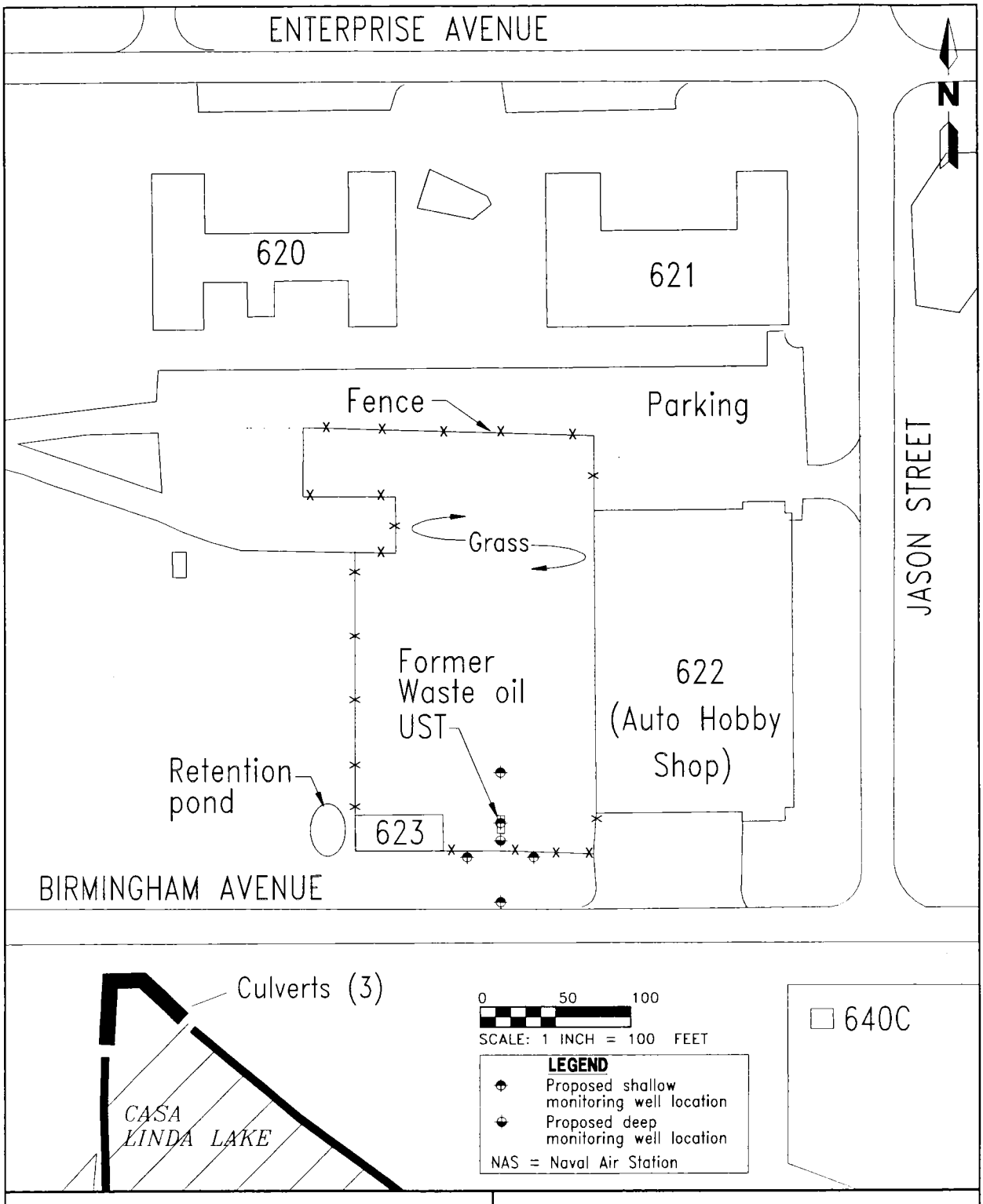

FIGURE 5-2
PROPOSED MONITORING WELL AND SURFACE WATER/SEDIMENT SAMPLE LOCATION PLAN

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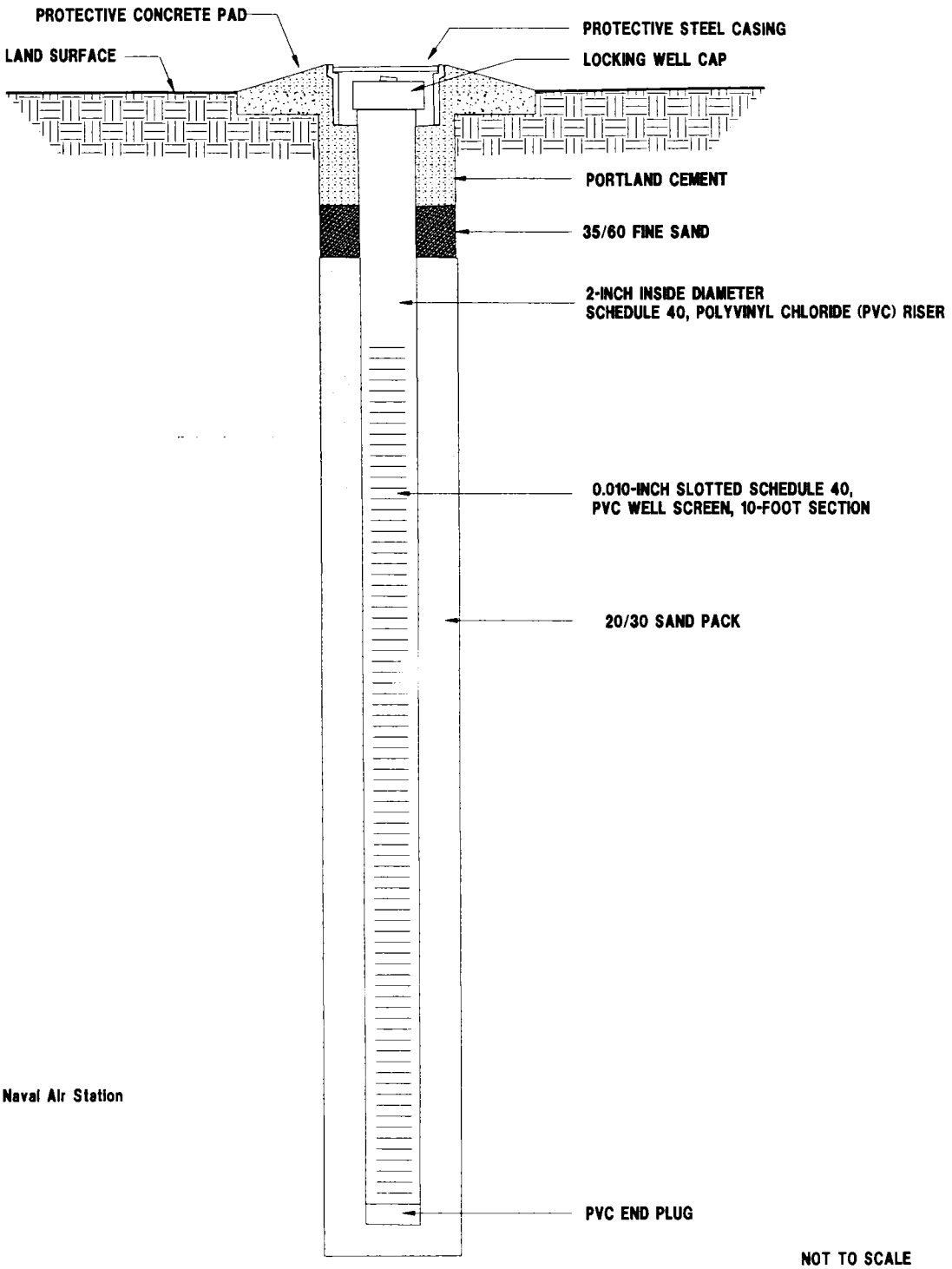

FIGURE 5-3
TYPICAL SHALLOW MONITORING WELL
INSTALLATION DETAIL

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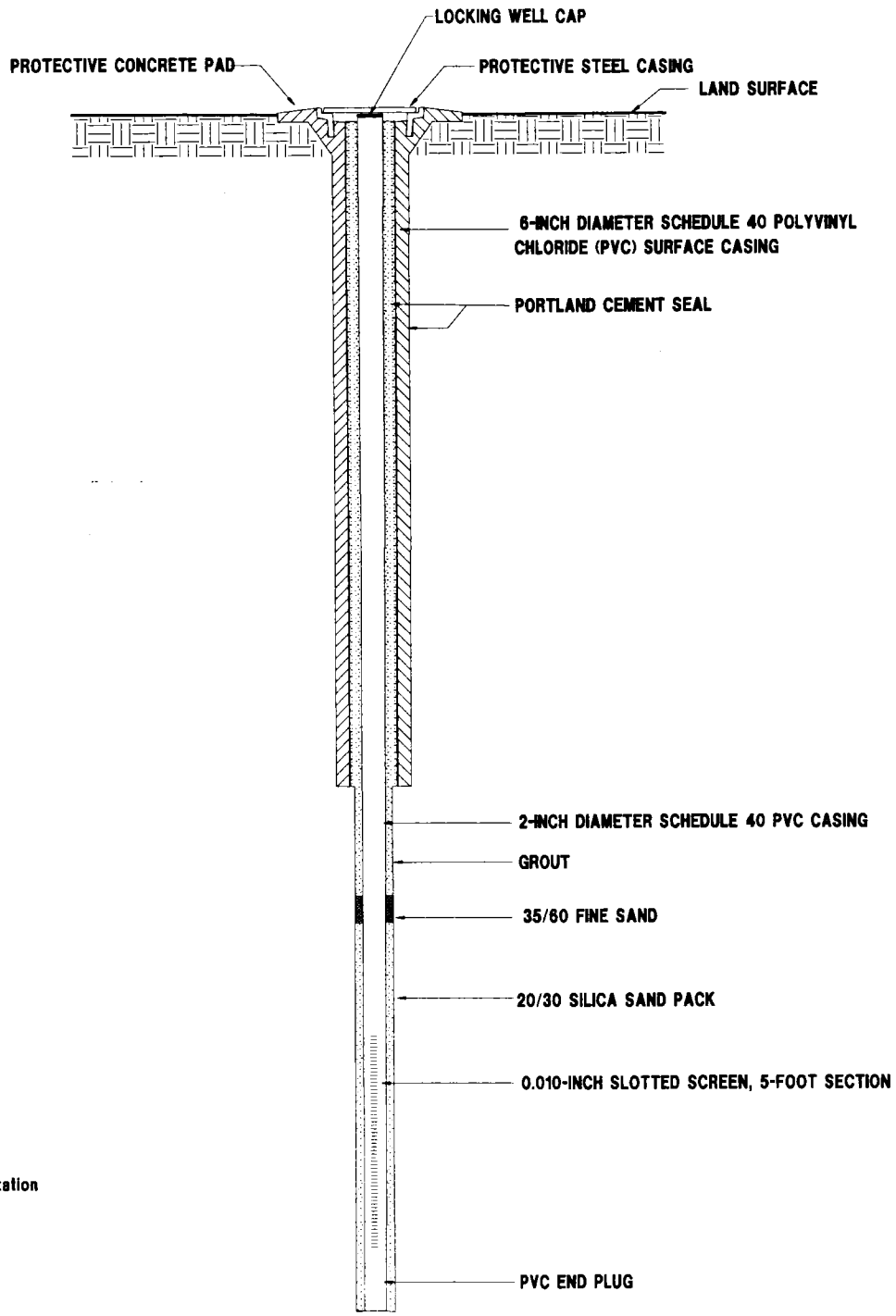

NAS = Naval Air Station

FIGURE 5-4
TYPICAL DEEP MONITORING WELL INSTALLATION DETAIL

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CONTAMINATION ASSESSMENT PLAN
AUTO HOBBY SHOP

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JACKSONVILLE, FLORIDA

compounds as defined in Chapter 62-770, Florida Administrative Code (FAC). One additional groundwater sample will be collected to develop RAP parameters.

Quality assurance and quality control samples will be collected and analyzed as prescribed in ABB-ES's FDEP-approved CompQAP.

5.2.4 **Surface Water and Sediment Sampling** A surface water and sediment sample may be collected in a shallow retention area located to the west of the site as shown on Figure 5-2. The surface water/sediment sampling will not be completed until the groundwater flow pattern is confirmed. If samples are collected, the surface water sample will be collected at approximately mid-depth in the water column. The sediment sample will be collected using either a Ponar™ dredge (clam shell) or a stainless-steel sludge sampling device. The surface water and sediment samples will be placed in the appropriate sample containers, preserved (as required), and placed on ice prior to shipment by overnight carrier to an FDEP-certified analytical laboratory. The surface water and sediment samples will be analyzed for Used Oil analytical group compounds as defined in Chapter 62-770, FAC.

5.2.5 **Aquifer Characteristics** Rising-head aquifer slug tests will be performed on three of the proposed shallow monitoring wells to evaluate hydraulic conductivity in the shallow aquifer. The slug test data will be reduced and the hydraulic conductivities calculated using the computer software program AQTESOLV™ (Geraghty & Miller, Inc., 1989), which employs the Bouwer and Rice (1976) methodology for slug test analyses.

Hydraulic gradients at the Auto Hobby Shop will be estimated from piezometric surface maps based on groundwater elevation measurements from the site monitoring wells. Two piezometric surface maps of the site will be prepared from groundwater elevation data collected on two separate occasions at least 1 month apart. The data and slug test results will be used to estimate average linear seepage velocity of groundwater flow.

6.0 IDW MANAGEMENT PLAN

Soil cuttings generated during soil boring and monitoring well drilling operations will be used as backfill for the borings or spread in the vicinity of the sampling location such that the IDW does not present a physical hazard or disrupt the day-to-day operations at the facility. Excessively contaminated soils will be placed in labeled, U.S. Department of Transportation-approved, 55-gallon drums to await characterization and disposal. The number of drums, identification numbers, and contents will be recorded in the project field logbook.

Fluids generated during monitoring well installation, development, and purging and sampling will be allowed to percolate into the ground. Decontamination of drilling and sampling equipment will be conducted onsite. Any fluids generated will be allowed to percolate into the ground. Solvents will not be used in the decontamination processes.

Personal protective clothing and miscellaneous plastic and paper wastes generated during the CA will be placed in plastic trash bags and disposed of in a dumpster at the facility.

7.0 PREPARATION OF REPORTS

Following completion of the field investigation and receipt of analytical laboratory results, a contamination assessment report (CAR) will be prepared for the site and presented to SOUTHNAVFACENGCOM for submittal to the FDEP for review and approval. The report will present site background information and existing conditions and the CA findings, conclusions, and recommendations. Site location maps, soil boring and monitoring well location maps, piezometric surface maps, and isoconcentration maps illustrating the distribution of contaminants at the site will be included in the report.

Based on the findings and conclusions of the CAR, a follow-up course of action for the site will be recommended. The recommended course of action will be one of the following: (1) a No Further Action Proposal, (2) a Monitoring Only Plan, or (3) an RAP.

8.0 SCHEDULE

The projected schedule to complete the field activities at the Auto Hobby Shop is approximately 4 weeks. This includes mobilization, drilling, sampling, surveying, aquifer testing, and demobilization. The field investigative work is scheduled to begin immediately following submittal of the CAP. Following demobilization from the field, approximately 3 weeks will be required for completion of the analytical work. A draft CAR will be prepared and submitted to SOUTHNAVFACENGCOM approximately 12 weeks after the completion of the field investigation.

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APPENDIX A

TANK CLOSURE ASSESSMENT REPORT

Tank Closure Assessment

U. S. Naval Air Station Jacksonville
Building 622
6500 Roosevelt Boulevard
Jacksonville, Florida
FDEP No. 168731736

Prepared for

U. S. Navy
Naval Air Station Jacksonville
6500 Roosevelt Boulevard
Jacksonville, Florida 32212-5000

October 1995

Prepared by

J.A. Jones Environmental Services Company
8936 Western Way, Suite 10
Jacksonville, Florida 32256

JAJESC Project No. 028-08011

CERTIFICATION

Tank Closure Assessment

U. S. Naval Air Station Jacksonville
Building 622
6500 Roosevelt Boulevard
Jacksonville, Florida 32212-5000

FDEP No. 168731736

This Tank Closure Assessment (TCA) for U. S. Naval Air Station Jacksonville, Building 622, 6500 Roosevelt Boulevard, Jacksonville, Florida 32212-5000, has been completed under the responsible charge of Mr. Mervin W. Dale, under the supervision of Mr. Robert F. Sloan, P.G., both of J.A. Jones Environmental Services Company (JAJESC), Jacksonville, Florida, and appears to comply with the current standards and practices in the field of geology in the State of Florida. Our professional services are performed using the degree of care and skill ordinarily exercised under similar circumstances by other registered professionals practicing in the field. All drawings, reports, plats, or other geologic information contained herein are prepared or approved by the undersigned professional geologist or a subordinate employee under his direction for delivery to the Florida Department of Environmental Protection (FDEP) for the public record within the State of Florida.

This certification of professional geologic work contained therein applies only to the original document and does not pertain to copies of this document or any portion thereof including mylars, linen, sepia, or other materials which can be changed by the entity with whom such document(s) are filed. No other warranty, expressed or implied, is made as to the professional advice in this report.

J.A. JONES ENVIRONMENTAL SERVICES COMPANY

Mervin W. Dale
Hydrogeologist

Robert F. Sloan, P.G.
Project Hydrogeologist
Florida Registration No. 1718

11/17/95
Date

ACRONYM LIST

CA	contamination assessment
CFR	Code of Federal Regulations
CompQAP	Comprehensive Quality Assurance Plan
cy	cubic yards
DRF	Discharge Reporting Form
DWS	Drinking Water Standards
ENCO	Environmental Conservation Laboratories
EPA	Environmental Protection Agency
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
ft bls	feet below land surface
JAJESC	J.A. Jones Environmental Services Company
MW	monitoring well
NAS	Naval Air Station
OVA-FID	organic vapor analyzer - flame ionization detector
ppm	parts per million
RESD	Regulatory and Environmental Services Department
SB	soil boring
SS	soil sample
TCA	Tank Closure Assessment
TRPH	total recoverable petroleum hydrocarbons
UST	underground storage tank
VOA	volatile organic aromatics
VOH	volatile organic halocarbons

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SECTION 1

INTRODUCTION

According to 40 Code of Federal Regulations (CFR), Section 280.72, *Assessing the Site at Closure*, and Section 62-761, Florida Administrative Code (FAC), *Underground Storage Tank Systems*, the owner or operator of an underground storage tank (UST) system must measure for a release of a regulated substance from the UST system into the soil or groundwater. A Tank Closure Assessment (TCA) is required to determine if a discharge of a regulated substance to the soil or groundwater has occurred.

On August 29, 1995, J.A. Jones Environmental Services Company (JAJESC) conducted a TCA at Naval Air Station (NAS) Jacksonville Building 622 (**Figure 1**). The TCA was conducted in accordance with the guidelines set forth in a Florida Department of Environmental Protection (FDEP) interoffice memorandum titled "*Pollutant Storage Tank Closure Assessment Requirements*", dated June 1994.

The tank closure consisted of the removal of one 1,000-gallon UST (Tank No. 622) and grouting in-place of the associated piping by JAJESC. JAJESC personnel drilled soil borings to determine lithology and to collect soil samples from around the tank pit, supervised the excavation, visually inspected soil samples from various locations and depths throughout the excavation pit for signs of petroleum hydrocarbon staining, collected a soil sample for laboratory analyses, installed a temporary piezometer in the UST pit, and collected a groundwater sample for laboratory analyses.

SECTION 2

SITE BACKGROUND

UST No. 622 was installed at this facility in 1991 in a UST pit located approximately 60 feet west of Building 622 (Figure 2). The double-walled fiberglass UST was used to store waste oil.

Building 622 is an autobody shop where federal employees can work on their own vehicles. Building 623 which is adjacent to the UST pit is the NAS recycling facility.

SECTION 3

TANK CLOSURE ASSESSMENT

The principal objective of a closure assessment is to identify existing contamination which may have originated from the storage tank system. Methods of identifying contamination at waste oil sites include: visual inspection of soils removed from the excavation for petroleum hydrocarbon staining, inspection of the UST's for signs of damage and/or corrosion, and collecting soil and groundwater samples for laboratory analyses.

Prior to removing the UST on August 29, 1995, JAJESC personnel drilled four soil borings around the UST in order to visually inspect the soils for evidence of contamination (**Figure 2**). Soil borings, SB-1 through SB-4, were drilled around the tank pit with a 3.5-inch diameter hand auger. Lithologic descriptions of the soils encountered in the borings were produced and enclosed in **Appendix A**. No visible signs of petroleum hydrocarbon staining or odors were noted during the soil boring activities. The groundwater table was encountered at a depth of approximately 3.0 feet below land surface (ft bls) during the soil borings activities.

A Foxboro Model 128, Organic Vapor Analyzer - Flame Ionization Detector (OVA-FID) was used to screen the soils for petroleum hydrocarbon vapors. However, it is understood that soils contaminated by waste oils generally do not readily emit vapors which are detectable by an OVA. **Table 1** presents the OVA data gathered from the soil boring activities.

On August 29, 1995, the 1,000-gallon UST was removed, and the associated piping was grouted in-place. The UST appeared to be intact with no apparent holes or damage. JAJESC personnel supervised the excavation, visually inspected the soils from various locations and depths throughout the excavation pit, and collected and screened soil samples for petroleum hydrocarbon vapors with an OVA-FID. **Table 2** is a summary of the OVA data gathered during the UST excavation activities.

The soil was visually inspected for evidence of petroleum hydrocarbon staining as specified in Chapter 62-770, FAC, and in the *Quality Assurance Standard Operating Procedures for Petroleum Storage System Closure Assessments*. **Figure 3** illustrates the location of the UST pit as well as the location of at which each soil sample was collected. An area of approximately 3 square feet by a depth of 2 feet around soil sample SS-1 was petroleum-hydrocarbon stained. This soil was removed from the excavation and containerized in a 55-gallon DOT 17-H drum.

The aerial extent of the excavation illustrated in **Figure 3** is approximately 270 square feet; and the depth of the excavation varied between 7 and 10 ft bls. The depth of the excavation was determined by the depth necessary for removal of the UST. Approximately 70 to 80 cubic yards of non-excessively contaminated soil was returned to the excavation following completion of the tank removal; and additional clean backfill was added to bring the excavation

up to grade. The area was compacted and sodded in accordance with the U. S. Navy's request.

On September 13, 1995, a pre-burn sample (PB-1) was collected from the 55-gallon drum containing the petroleum hydrocarbon-stained soil, and transported to Environmental Conservation Laboratories, Inc. (ENCO). ENCO has an approved Comprehensive Quality Assurance Plan (CompQAP), No. 910190-G, on file with the FDEP. The soil sample was analyzed for the following constituents: Volatile Organic Halocarbons (VOH) by EPA Method 8010; Volatile Organic Aromatics (VOA) by EPA Method 8020; Total Recoverable Petroleum Hydrocarbons (TRPH) by EPA Method 9073; arsenic, barium, cadmium, chromium, lead, selenium, and silver by EPA Method 6010; and mercury by EPA Method 7471. A copy of the analytical report is included in **Appendix B**.

The drum of petroleum hydrocarbon-stained soil was removed on September 25, 1995, by Bulldog Transport Company for delivery to Soil Remediation, Inc., Ray City, Georgia. Copies of the transportation manifest and certificate of thermal treatment are included in **Appendix C**. The transportation and disposal documentation indicated that a greater quantity of soil was removed from the site than was excavated. The reason being that there were two additional closure sites at NAS Jacksonville with contaminated soil piles. The contaminated soil from all three sites were manifested together for transportation and disposal.

The FDEP interoffice memorandum titled "*Pollutant Storage Tank Closure Assessment Requirements*", dated June 1994, states as follows: "When a used oil storage tank closure assessment has visual evidence of a discharge (i.e. staining around the fill port, discolored soil, etc.), a groundwater sample should be collected and analyzed in accordance with Chapter 17-770.600(8)(c), FAC. Since there was visual evidence of petroleum hydrocarbon staining, a groundwater sample, TW-1, was collected on August 29, 1995 (**Figure 3**). The groundwater sample was collected from a temporary piezometer which was installed in the UST pit.

The groundwater sample was transported to ENCO and analyzed for the following constituents: Volatile Organics by EPA Method 624; Semi-volatile Organics by EPA Method 625; TRPH by EPA Method 418.1; and arsenic, cadmium, chromium, and lead by EPA Method 200.7. The results of the laboratory analyses indicate that the groundwater sample was impacted by petroleum hydrocarbon constituents at concentrations which exceeded the Drinking Water Standards (DWS) in the FDEP's document titled "*Ground Water Guidance Concentrations*", dated June 1994. Methylene chloride at 42 micrograms per liter (µg/L) [Primary DWS (PDWS) = 5 µg/L]; toluene at 92 µg/L (Secondary DWS = 40 µg/L); cadmium at 0.065 milligrams per liter (mg/L); chromium at 1.30 mg/L (PDWS = 0.1 mg/L); and; lead at 10.8 mg/L (PDWS = 0.015 mg/L) were indicated in the groundwater sample, TW-1. A copy of the laboratory report is enclosed in **Appendix B**.

A well inventory within a 0.25-mile radius around the site was conducted at the Regulatory Environmental Services Department (RESD) in Jacksonville, Florida. The well inventory indicated the presence of three wells within the 0.25-mile radius of the site. According to RESD records, the wells are owned by the U. S. Navy, used to produce public supply water, and were installed in the Floridan aquifer.

Due to the presence of petroleum hydrocarbon stained soil within the UST pit, a Discharge Reporting Form (DRF) was submitted by the U. S. Navy to the RESD and to the FDEP Northeast District on August 30, 1995. A copy of the DRF, a completed TCA Form, and a Storage Tank Registration Form for this site are enclosed in **Appendix D**.

SECTION 4

CONCLUSIONS AND RECOMMENDATIONS

JAJESC conducted a TCA for the U. S. Navy at NAS Jacksonville, Building 622, on August 29, 1995. The TCA included: the removal of one 1,000-gallon waste oil UST and grouting of the associated piping; visual inspection and OVA-FID screening of the soil removed from the excavation for signs of petroleum hydrocarbon contamination; and collection of soil and groundwater samples for laboratory analyses.

Approximately six cubic feet of petroleum hydrocarbon-stained soil was encountered in the UST pit and removed. The laboratory analyses of the groundwater sample collected from within the UST pit indicated petroleum hydrocarbon constituents which exceeded the FDEP's DWS. Therefore, JAJESC recommends conducting a contamination assessment (CA) of the groundwater at the former site of UST 622.

SECTION 5

LIMITATIONS

JAJESC can offer no assurances and assumes no responsibility for site conditions or activities which were outside the scope of inquiry. In performing this investigation, JAJESC has used reasonable care and has performed its work in keeping with industry standards and standard industry procedures as appropriate. It should be noted that soil and groundwater samples collected at the site only represent a small amount of data. There can be no assurance, and JAJESC offers no assurance, that additional site conditions do not exist or could not exist in the future which were undetected and could lead to liability in connection with the property.

TABLE 1
SOIL BORING VAPOR ANALYSES
Naval Air Station, 6500 Roosevelt Boulevard, Jacksonville, Florida

Project Number: 028-08011					
Project Location: Jacksonville Naval Air Station Bldg. 622					
Sampler: Mervin W. Dale					
Date: 8/29/95					
Soil Boring Number	Sample Depth (ft bls)	Total Organic Vapors (ppm)	Total Methane Vapors (ppm)	Total Petroleum Hydrocarbon Vapors (ppm)	Comments
SB-1	1.5	52	28	24	
SB-1	2.0	0.2	0.4	IND	
SB-2	1.5	8	2	6	
SB-3	1.5	2	2	<0.2	
SB-4	1.5	<0.2	<0.2	<0.2	
SB-4	2.5	<0.2	<0.2	<0.2	Wet

Notes:

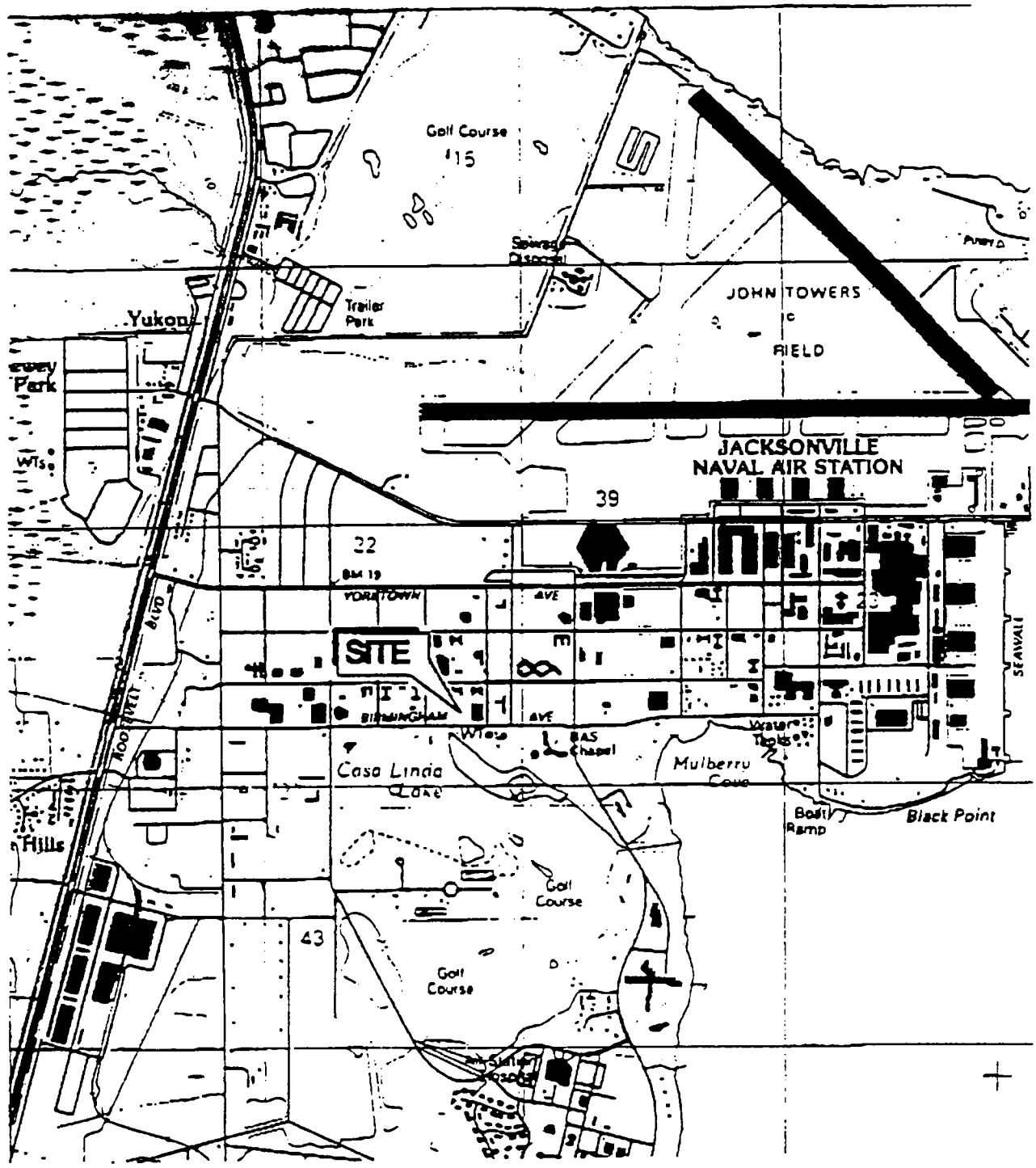
1. All vapor concentrations reported in parts per million (ppm).
2. Vapor concentrations determined by Foxboro Model OVA 128, Flame Ionization Detector.
3. IND = Indeterminate.
4. ft bls = feet below land surface

TABLE 2
SOIL SAMPLE VAPOR ANALYSES
Naval Air Station, 6500 Roosevelt Boulevard, Jacksonville, Florida

Project Number: 028-08011					
Project Location: Jacksonville Naval Air Station Bldg. 622					
Sampler: Mervin W. Dale					
Date: 8/29/95					
Soil Sample Number	Sample Depth (ft bls)	Total Organic Vapors (ppm)	Total Methane Vapors (ppm)	Total Petroleum Hydrocarbon Vapors (ppm)	Comments
SS-1	2	<0.2	<0.2	<0.2	Visual stain
SS-2	2	<0.2	<0.2	<0.2	
SS-3	2	<0.2	<0.2	<0.2	
SS-4	2	<0.2	<0.2	<0.2	
SS-4	5	<0.2	<0.2	<0.2	Wet
SS-4	8	<0.2	<0.2	<0.2	Wet
SS-5	2	<0.2	<0.2	<0.2	
SS-5	5	<0.2	<0.2	<0.2	Wet
SS-5	8	<0.2	<0.2	<0.2	Wet
SS-6	2	<0.2	<0.2	<0.2	
SS-6	5	<0.2	<0.2	<0.2	Wet
SS-7	2	<0.2	<0.2	<0.2	
SS-7	5	<0.2	<0.2	<0.2	Wet
SS-8	2	<0.2	<0.2	<0.2	
SS-8	5	<0.2	<0.2	<0.2	Wet
SS-9	2	<0.2	<0.2	<0.2	
SS-9	5	<0.2	<0.2	<0.2	Wet
SS-10	2	<0.2	<0.2	<0.2	
SS-10	5	<0.2	<0.2	<0.2	Wet
SS-10	7	<0.2	<0.2	<0.2	Wet
SS-11	2	<0.2	<0.2	<0.2	
SS-11	5	<0.2	<0.2	<0.2	Wet
SS-11	7	<0.2	<0.2	<0.2	Wet
SS-12	2	<0.2	<0.2	<0.2	
SS-12	5	<0.2	<0.2	<0.2	Wet
SS-12	7	<0.2	<0.2	<0.2	Wet
SS-13	2	<0.2	<0.2	<0.2	
SS-13	5	<0.2	<0.2	<0.2	Wet
SS-13	7	<0.2	<0.2	<0.2	Wet

Notes:

1. All vapor concentrations reported in parts per million (ppm).
2. Vapor concentrations determined by Foxboro Model OVA 128, Flame Ionization Detector
3. ft bls = feet below land surface



BASE MAP FROM USGS 7.5' QUADRANGLE MAP : ORANGE PARK, FLORIDA, PHOTOREVISED, 1993

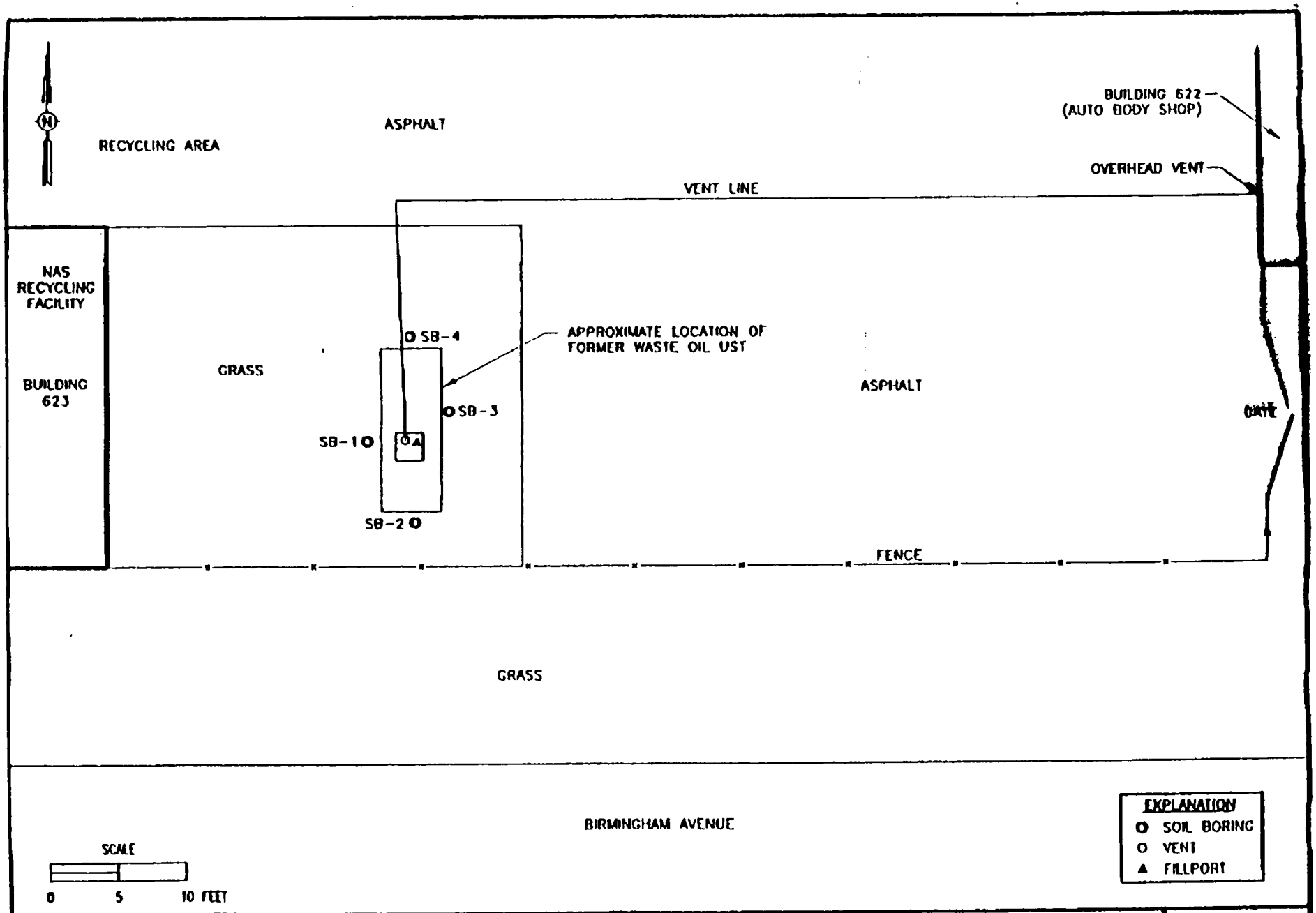
J.A. JONES ENVIRONMENTAL SERVICES

NAVAL AIR STATION, BUILDING 622
6500 ROOSEVELT BOULEVARD
JACKSONVILLE, FLORIDA

SITE LOCATION

FIGURE 1

PROJECT NO. 028-08011



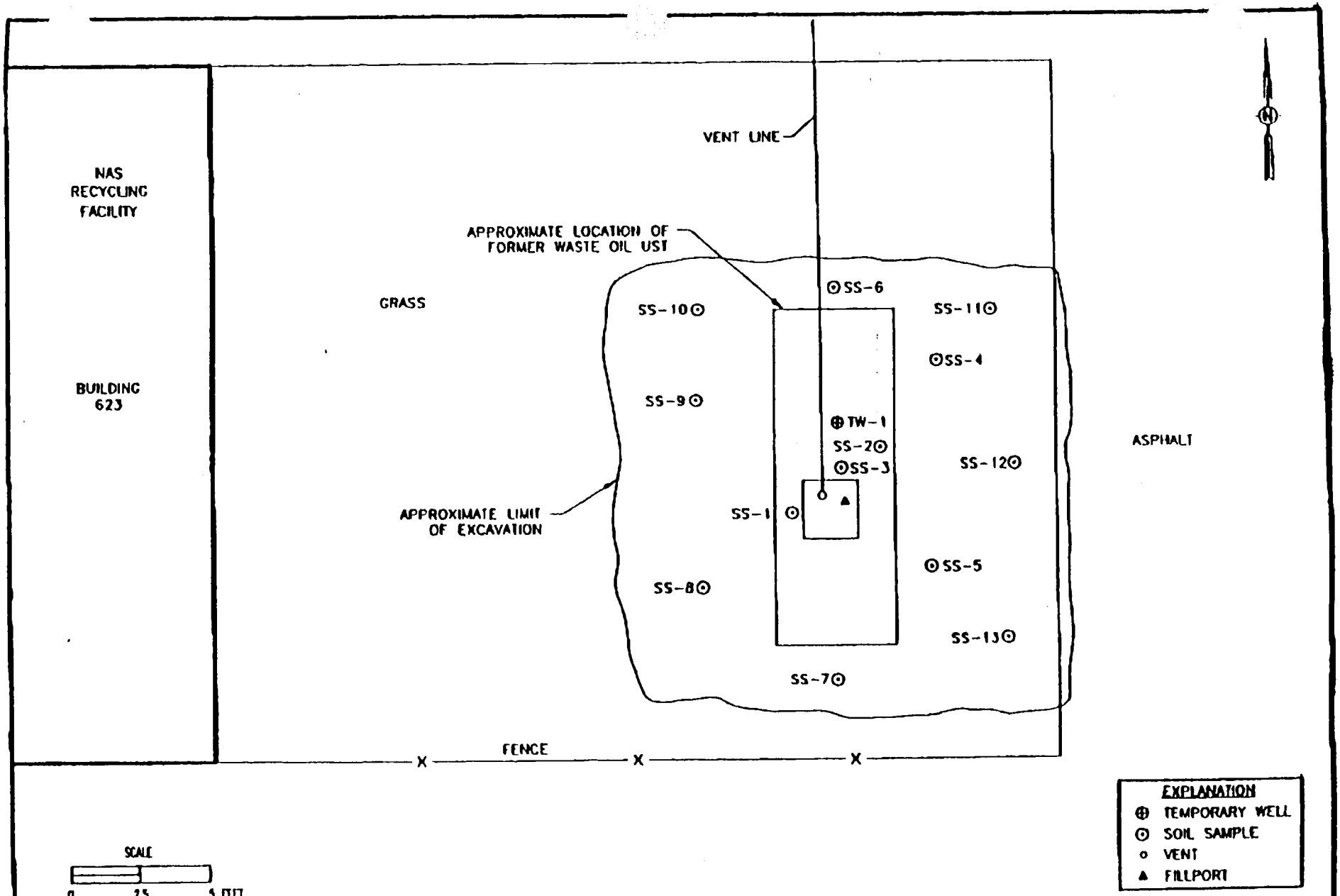
J.A. JONES ENVIRONMENTAL SERVICES

NAVAL AIR STATION, BUILDING 622
6500 ROOSEVELT BOULEVARD

JACKSONVILLE, FLORIDA

SOIL BORING AND UST LOCATIONS

FIGURE
2
PROJECT NO.
028-08011



J.A. JONES
ENVIRONMENTAL
SERVICES

NAVAL AIR STATION, BUILDING 622
6500 ROOSEVELT BOULEVARD

JACKSONVILLE, FLORIDA

SOIL SAMPLES AND TEMPORARY WELL LOCATIONS

FIGURE
3
PROJECT NO.
028-08011

APPENDIX A

BORING LOGS

SOIL BORING LITHOLOGIC DETAILS

PROJECT:	028-08011
SITE LOCATION:	Naval Air Station Jacksonville
BUILDING NUMBER:	622
BORING NUMBER:	SB-1
PROECT MANAGER:	Tripp Snelson
LOGGED BY:	Mervin W. Dale
DRILLING METHOD:	Hand Auger
BORING DEPTH:	2.5 feet
BOREHOLE DIAMETER:	3.5 inches
DEPTH TO GROUNDWATER:	2.5 feet
COMPLETION DATE:	8/29/95

DEPTH (FEET)	COLOR	LITHOLOGIC DESCRIPTION
0.0 - 1.5	Light grey	Fine, silty sand, some pebbles at about 5 %, dry, poorly graded, abundant roots.
1.5 - 2.5	Light brown	Pea gravel and coarse sand, wet at 2.5 feet, graded.

SOIL BORING LITHOLOGIC DETAILS

PROJECT:	028-08011
SITE LOCATION:	Naval Air Station Jacksonville
BUILDING NUMBER:	622
BORING NUMBER:	SB-2
PROECT MANAGER:	Tripp Snelson
LOGGED BY:	Mervin W. Dale
DRILLING METHOD:	Hand Auger
BORING DEPTH:	2.5 feet
BOREHOLE DIAMETER:	3.5 inches
DEPTH TO GROUNDWATER:	2.5 feet
COMPLETION DATE:	8/29/95

DEPTH (FEET)	COLOR	LITHOLOGIC DESCRIPTION
0.0 - 1.5	Light grey	Fine, silty sand, some pebbles at about 5 %, dry, poorly graded, abundant roots.
1.5 - 2.5	Light brown	Pea gravel and coarse sand, wet at 2.5 feet, graded.

SOIL BORING LITHOLOGIC DETAILS

PROJECT:	028-08011
SITE LOCATION:	Naval Air Station Jacksonville
BUILDING NUMBER:	622
BORING NUMBER:	SB-3
PROECT MANAGER:	Tripp Snelson
LOGGED BY:	Mervin W. Dale
DRILLING METHOD:	Hand Auger
BORING DEPTH:	2.5 feet
BOREHOLE DIAMETER:	3.5 inches
DEPTH TO GROUNDWATER:	2.5 feet
COMPLETION DATE:	8/29/95

DEPTH (FEET)	COLOR	LITHOLOGIC DESCRIPTION
0.0 - 1.5	Light grey	Fine, silty sand, some pebbles at about 5 %, dry, poorly graded, abundant roots.
1.5 - 2.5	Light brown	Pea gravel and coarse sand, wet at 2.5 feet, graded.

SOIL BORING LITHOLOGIC DETAILS

PROJECT:	028-08011
SITE LOCATION:	Naval Air Station Jacksonville
BUILDING NUMBER:	622
BORING NUMBER:	SB-4
PROECT MANAGER:	Tripp Snelson
LOGGED BY:	Mervin W. Dale
DRILLING METHOD:	Hand Auger
BORING DEPTH:	2.5 feet
BOREHOLE DIAMETER:	3.5 inches
DEPTH TO GROUNDWATER:	2.5 feet
COMPLETION DATE:	8/29/95

DEPTH (FEET)	COLOR	LITHOLOGIC DESCRIPTION
0.0 - 1.5	Light grey	Fine, silty sand, some pebbles at about 5 %, dry, poorly graded, abundant roots.
1.5 - 2.5	Light brown	Pea gravel and coarse sand, wet at 2.5 feet, graded.

APPENDIX B

LABORATORY ANALYSES

Environmental Conservation Laboratories
4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
904 / 296-3007
Fax 904 / 296-6210

ENCO Laboratories
DHRS Certification No. E82277, 82417

CLIENT : J.A. Jones Environmental Svcs.
ADDRESS: 8936 Western Way
Suite 10
Jacksonville, FL 32256

REPORT # : JR9492
DATE SUBMITTED: August 31, 1995
DATE REPORTED : September 8, 1995

ATTENTION: Tripp Snelson

SAMPLE IDENTIFICATION

Aqueous samples submitted and identified by client as:

PROJECT #: 028-0801

NAS JAX BLDG. 622

08/30/95

#1 - TW-1 @ 3:15 PM

PROJECT MANAGER Scott D. Martin
Scott D. Martin

ENCO LABORATORIES
REPORT # : JR9492
DATE REPORTED: September 8, 1995
REFERENCE : 028-0801
PROJECT NAME : NAS JAX BLDG. 622

RESULTS OF ANALYSIS

EPA METHOD 624 - VOLATILE ORGANICS	TW-1	LAB BLANK	UNITS
Chloromethane	1 U	1 U	µg/L
Vinyl Chloride	1 U	1 U	µg/L
Bromomethane	2 U	2 U	µg/L
Chloroethane	2 U	2 U	µg/L
1,1-Dichloroethene	1 U	1 U	µg/L
Trichlorofluoromethane	298 D2	1 U	µg/L
Methylene Chloride	42	2 U	µg/L
trans-1,2-Dichloroethene	1 U	1 U	µg/L
Methyl tert-butyl ether	6 U	6 U	µg/L
1,1-Dichloroethane	1 U	1 U	µg/
Chloroform	1 U	1 U	µg/L
1,1,1-Trichloroethane	1 U	1 U	µg/L
Carbon tetrachloride	1 U	1 U	µg/L
Benzene	1 U	1 U	µg/L
1,2-Dichloroethane	1 U	1 U	µg/L
Trichloroethene	1 U	1 U	µg/L
1,2-Dichloropropane	1 U	1 U	µg/L
Bromodichloromethane	1 U	1 U	µg/L
2-Chloroethyl vinyl ether	2 U	2 U	µg/L
cis-1,3-Dichloropropene	1 U	1 U	µg/L
Toluene	92	1 U	µg/L
trans-1,3-Dichloropropene	1 U	1 U	µg/L
1,1,2-Trichloroethane	1 U	1 U	µg/L
Tetrachloroethene	2 U	2 U	µg/L
Dibromochloromethane	1 U	1 U	µg/L

U = Compound was analyzed for but not detected

ENCO LABORATORIES
REPORT # : JR9492
DATE REPORTED: September 8, 1995
REFERENCE : 028-0801
PROJECT NAME : NAS JAX BLDG. 622

RESULTS OF ANALYSIS

(cont.)

EPA METHOD 624 - VOLATILE ORGANICS	TW-1	LAB BLANK	UNITS
Chlorobenzene	1 U	1 U	µg/L
Ethylbenzene	1 U	1 U	µg/L
m-Xylene & p-Xylene	1 U	1 U	µg/L
o-Xylene	1 U	1 U	µg/L
Styrene	1 U	1 U	µg/L
Bromoform	1 U	1 U	µg/L
1,1,2,2-Tetrachloroethane	1 U	1 U	µg/L
Total Xylenes	2 U	2 U	µg/L
Surrogate:	% REC	% REC	LIMITS
D4-1,2-Dichloroethane (surr)	114	110	75-12
D8-Toluene (surr)	96	98	80-12
Bromofluorobenzene (surr)	92	96	82-12
Date Analyzed	09/05/95	09/05/95	

U = Compound was analyzed for but not detected

ENCO LABORATORIES
REPORT # : JR9492
DATE REPORTED: September 8, 1995
REFERENCE : 028-0801
PROJECT NAME : NAS JAX BLDG. 622

RESULTS OF ANALYSIS

EPA METHOD 625 - SEMIVOLATILE ORGANICS	TW-1	LAB BLANK	UNITS
Acenaphthene	10 U	10 U	µg/L
Acenaphthylene	10 U	10 U	µg/L
Anthracene	10 U	10 U	µg/L
p-(dimethylamino)azobenzene	10 U	10 U	µg/L
Benzidine	10 U	10 U	µg/L
Benzo(a)anthracene	10 U	10 U	µg/L
Benzo(b)fluoranthene	10 U	10 U	µg/L
Benzo(k)fluoranthene	10 U	10 U	µg/L
Benzo(g,h,i)perylene	10 U	10 U	µg/L
Benzo(a)pyrene	10 U	10 U	µg/L
Benzylbutyl phthalate	10 U	10 U	µg/L
Bis(2-chloroethoxy)methane	10 U	10 U	µg/L
Bis(2-chloroethyl)ether	10 U	10 U	µg/L
Bis(2-chloroisopropyl)ether	10 U	10 U	µg/L
Bis(2-ethylhexyl)phthalate	10 U	10 U	µg/L
4-Bromophenylphenyl ether	10 U	10 U	µg/L
2-Chloronaphthalene	10 U	10 U	µg/L
4-Chlorophenyl phenyl ether	10 U	10 U	µg/L
Chrysene	10 U	10 U	µg/L
Dibenzo(a,h)anthracene	10 U	10 U	µg/L
1,2-Dichlorobenzene	10 U	10 U	µg/L
1,3-Dichlorobenzene	10 U	10 U	µg/L
1,4-Dichlorobenzene	10 U	10 U	µg/L
3,3'-Dichlorobenzidine	30 U	30 U	µg/L
Diethyl phthalate	10 U	10 U	µg/L
Dimethyl phthalate	398 D5	10 U	µg/L
Di-n-butyl phthalate	10 U	10 U	µg/L
Di-n-octyl phthalate	10 U	10 U	µg/L
2,4-Dinitrotoluene	10 U	10 U	µg/L
2,6-Dinitrotoluene	10 U	10 U	µg/L
Fluoranthene	10 U	10 U	µg/L
Fluorene	10 U	10 U	µg/L

U = Compound was analyzed for but not detected

REFERENCE : 028-0801
PROJECT NAME : NAS JAX BLDG. 622

RESULTS OF ANALYSIS

(cont.)

EPA METHOD 625 - SEMIVOLATILE ORGANICS	TW-1	LAB BLANK	UNITS
Hexachlorobenzene	10 U	10 U	µg/L
Hexachlorobutadiene	10 U	10 U	µg/L
Hexachlorocyclopentadiene	10 U	10 U	µg/L
Hexachloroethane	10 U	10 U	µg/L
Indeno(1,2,3-cd)pyrene	10 U	10 U	µg/L
Isophorone	10 U	10 U	µg/L
1-Methylnaphthalene	10 U	10 U	µg/L
2-Methylnaphthalene	10 U	10 U	µg/L
Naphthalene	10 U	10 U	µg/L
Nitrobenzene	10 U	10 U	µg/L
N-Nitrosodimethylamine	10 U	10 U	µg/L
N-Nitrosodi-n-propylamine	10 U	10 U	µg/L
N-Nitrosodiphenylamine	10 U	10 U	µg/L
Phenanthrene	10 U	10 U	µg/L
Pyrene	10 U	10 U	µg/L
1,2,4-Trichlorobenzene	10 U	10 U	µg/L
4-Chloro-3-methylphenol	10 U	10 U	µg/L
2-Chlorophenol	10 U	10 U	µg/L
2,4-Dichlorophenol	10 U	10 U	µg/L
2,4-Dimethylphenol	10 U	10 U	µg/L
2,4-Dinitrophenol	50 U	50 U	µg/L
2-Methyl-4,6-dinitrophenol	30 U	30 U	µg/L
2-Nitrophenol	10 U	10 U	µg/L
4-Nitrophenol	10 U	10 U	µg/L
Pentachlorophenol	10 U	10 U	µg/L
Phenol	10 U	10 U	µg/L
2,4,6-Trichlorophenol	10 U	10 U	µg/L

Surrogate:	% REC	% REC	LIMIT
Nitrobenzene -D5 (surr)	106	88	30-10
2-Fluorobiphenyl (surr)	92	80	38-10
Terphenyl -D14 (surr)	86	104	29-13
Phenol -D5 (surr)	63	43	12-87
2-Fluorophenol (surr)	74	59	19-11
2,4,6-Tribromophenol (surr)	115	89	43-12
Date Analyzed	09/08/95	09/07/95	

U = Compound was analyzed for but not detected

ENCO LABORATORIES
REPORT # : JR9492
DATE REPORTED: September 8, 1995
REFERENCE : 028-0801
PROJECT NAME : NAS JAX BLDG. 622

RESULTS OF ANALYSIS

EPA METHOD 418.1 - TOTAL PETROLEUM HYDROCARBONS	TW-1	LAB BLANK	UNITS
Total Petroleum Hydrocarbons	308	1 U	mg/L
Date Analyzed	09/06/95	08/31/95	

TOTAL METALS	METHOD	TW-1	LAB BLANK	UNITS
Arsenic	200.7	0.010 U	0.010 U	mg/L
Date Analyzed		09/01/95	09/01/95	
Cadmium	200.7	0.065	0.001 U	mg/L
Date Analyzed		09/01/95	09/01/95	
Chromium	200.7	1.30	0.010 U	mg/L
Date Analyzed		09/01/95	09/01/95	
Lead	200.7	10.8	0.005 U	mg/L
Date Analyzed		09/01/95	09/01/95	

U = Compound was analyzed for but not detected

ENCO LABORATORIES
REPORT # : JR9492
DATE REPORTED: September 8, 1995
REFERENCE : 028-0801
PROJECT NAME : NAS JAX BLDG. 622

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
EPA Method 624				
1,1-Dichloroethene	90/100/ 90	62-163	10	28
Benzene	105/115/110	75-130	9	21
Trichloroethene	110/115/110	81-131	4	18
Toluene	100/105/100	79-126	5	23
Chlorobenzene	100/110/105	83-132	10	18
EPA Method 625				
Phenol	46/ 46/ 40	19-86	<1	22
1,2-Dichlorobenzene	84/ 82/ 75	17-122	2	33
Isophorone	90/ 90/ 86	45-114	<1	22
2,4,6-Trichlorophenol	96/ 98/ 89	49-132	2	15
Diethyl phthalate	56/ 57/ 51	9-130	2	21
2-Methyl-4,6-dinitrophenol	81/ 84/ 72	22-147	4	25
Pentachlorophenol	97/ 99/ 77	14-176	2	37
Fluoranthene	107/107/101	26-137	<1	29
Pyrene	103/101/ 94	52-115	2	15
EPA Method 418.1				
TRPH	104/109/104	62-120	5	15
TOTAL METALS				
Arsenic, 200.7	99/101/101	69-125	2	11
Cadmium, 200.7	99/103/ 99	69-117	4	14
Chromium, 200.7	103/104/104	76-118	<1	11
Lead, 200.7	84/ 79/ 97	69-119	6	20

Environmental Conservation Laboratories Comprehensive QA Plan #910190G

< = Less Than
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference

ENCO Laboratories

4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
Ph. (904) 296-3007 · Fax (904) 296-6210

10207 General Drive
Orlando, Florida 32824
Ph. (407) 826-5314 · Fax (407) 850-6945

CHAIN OF CUSTODY RECORD

CLIENT NAME: NAS JAX TA JONES
PROJECT MANAGER: TRIPP SNELSON
PROJECT NUMBER: 02Y-0801
PROJECT NAME: NAS JAX BLDG. 612
SAMPLER'S SIGNATURE: M. W Dale

STATION NO.	DATE	TIME	COMPOSITE	GRAB	STATION LOCATION	NO. OF CONTAINERS	624/625	418.1	AS CA Cr Pb	REMARKS
TW-1	8/30/95	3:15PM		✓		4				TO # 387-277

EMPTY BOTTLES

RELINQUISHED BY	DATE/TIME	RECEIVED BY	RELINQUISHED BY	DATE/TIME	REMARKS
SAMPLE KIT PREPARED BY: ☐ ORLANDO ☐ JACKSONVILLE	DATE/TIME	RECEIVED BY	RECEIVED FOR LABORATORY BY:	DATE/TIME	JR 9492
RELINQUISHED BY	DATE/TIME	RECEIVED BY			

☐ ORL ☐ JAX

12/03/96 10:59

NO. 744 P030

Environmental Conservation Laboratories
4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
904 / 296-3007
Fax 904 / 296-6210

ENCO Laboratories
DHRS Certification No. E82277, E82417

CLIENT : J.A. Jones Environmental Services
ADDRESS: 8936 Western Way
Suite 10
Jacksonville, FL 32256

REPORT # : JR9582
DATE SUBMITTED: September 14, 199
DATE REPORTED : September 21, 199

ATTENTION: Tripp Snelson

SAMPLE IDENTIFICATION

Soil sample submitted and identified by client as:

PROJECT #: 028-0801

NAS JAX BLDG 622

09/13/95

#1 - PB-1 - COMPOSITE @ 16:00

PROJECT MANAGER

Scott D. Martin

ENCO LABORATORIES
REPORT # : JR9582
DATE REPORTED: September 21, 1995
REFERENCE : 028-0801
PROJECT NAME : NAS JAX BLDG 622

RESULTS OF ANALYSIS

EPA METHOD 8010A - VOLATILE HALOCARBONS	FB-1	LAB BLANK	UNITS
Dichlorodifluoromethane	5 U	5 U	µg/Kg
Chloromethane	10 U	10 U	µg/Kg
Vinyl Chloride	5 U	5 U	µg/Kg
Bromomethane	5 U	5 U	µg/Kg
Chloroethane	10 U	10 U	µg/Kg
Trichlorofluoromethane	10 U	10 U	µg/Kg
1,1-Dichloroethene	5 U	5 U	µg/Kg
Methylene Chloride	10 U	10 U	µg/Kg
t-1,2-Dichloroethene	5 U	5 U	µg/
1,1-Dichloroethane	5 U	5 U	µg/Kg
Chloroform	5 U	5 U	µg/Kg
1,1,1-Trichloroethane	5 U	5 U	µg/Kg
Carbon Tetrachloride	5 U	5 U	µg/Kg
1,2-Dichloroethane	5 U	5 U	µg/Kg
Trichloroethene	5 U	5 U	µg/Kg
1,2-Dichloropropane	5 U	5 U	µg/Kg
Bromodichloromethane	5 U	5 U	µg/Kg
c-1,3-Dichloropropene	5 U	5 U	µg/Kg
t-1,3-Dichloropropene	5 U	5 U	µg/Kg
1,1,2-Trichloroethane	5 U	5 U	µg/Kg
Tetrachloroethene	5 U	5 U	µg/Kg
Dibromochloromethane	5 U	5 U	µg/Kg
Chlorobenzene	5 U	5 U	µg/Kg
Bromoform	5 U	5 U	µg/Kg
1,1,2,2-Tetrachloroethane	5 U	5 U	µg/Kg
1,3-Dichlorobenzene	5 U	5 U	µg/Kg
1,4-Dichlorobenzene	5 U	5 U	µg/Kg
1,2-Dichlorobenzene	5 U	5 U	µg/Kg
Surrogate:	**% REC**	**% REC**	**LIMIT**
Bromofluorobenzene (surr)	110	104	25-15
Date Analyzed	09/14/95	09/14/95	

U = Compound was analyzed for but not detected

ENCO LABORATORIES
REPORT # : JR9582
DATE REPORTED: September 21, 1995
REFERENCE : 028-0801
PROJECT NAME : NAS JAX BLDG 622

RESULTS OF ANALYSIS

EPA METHOD 8020A - VOLATILE AROMATICS	PB-1	LAB BLANK	UNITS
Methyl tert-butyl ether	10 U	10 U	µg/Kg
Benzene	5 U	5 U	µg/Kg
Toluene	5 U	5 U	µg/Kg
Chlorobenzene	5 U	5 U	µg/Kg
Ethylbenzene	5 U	5 U	µg/Kg
m-Xylene & p-Xylene	5	5 U	µg/Kg
o-Xylene	5 U	5 U	µg/Kg
1,3-Dichlorobenzene	5 U	5 U	µg/Kg
,4-Dichlorobenzene	5 U	5 U	µg/K
1,2-Dichlorobenzene	5 U	5 U	µg/K
Total Xylenes	10 U	10 U	µg/Kg
Surrogate:	% REC	% REC	LIMIT
Bromofluorobenzene (surr)	84	84	44-12
Date Analyzed	09/14/95	09/14/95	

EPA METHOD 9073 - TOTAL PETROLEUM HYDROCARBONS	PB-1	LAB BLANK	UNITS
Total Petroleum Hydrocarbons	14	5 U	mg/Kg
Date Analyzed	09/15/95	09/15/95	

U = Compound was analyzed for but not detected

ENCO LABORATORIES
REPORT # : JR9582
DATE REPORTED: September 21, 1995
REFERENCE : 028-0801
PROJECT NAME : NAS JAX BLDG 622

RESULTS OF ANALYSIS

TOTAL METALS	METHOD	PB-1	LAB BLANK	UNITS
Arsenic	6010	2 U	2 U	mg/Kg
Date Analyzed		09/14/95	09/14/95	
Barium	6010	20 U	20 U	mg/Kg
Date Analyzed		09/14/95	09/14/95	
Cadmium	6010	1 U	1 U	mg/Kg
Date Analyzed		09/14/95	09/14/95	
Chromium	6010	5.0	1 U	mg/
Date Analyzed		09/14/95	09/14/95	
Lead	6010	16.2	1 U	mg/Kg
Date Analyzed		09/14/95	09/14/95	
Mercury	7471	0.01 U	0.01 U	mg/Kg
Date Analyzed		09/14/95	09/14/95	
Selenium	6010	2 U	2 U	mg/Kg
Date Analyzed		09/14/95	09/14/95	
Silver	6010	2 U	2 U	mg/Kg
Date Analyzed		09/14/95	09/14/95	

U = Compound was analyzed for but not detected

ENCO LABORATORIES
REPORT # : JR9582
DATE REPORTED: September 21, 1995
REFERENCE : 028-0801
PROJECT NAME : NAS JAX BLDG 622

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
EPA Method 8010A				
Methylene Chloride	116/110/ 84	25-162	5	28
Chloroform	104/ 98/ 88	49-133	6	15
Carbon Tetrachloride	140/132/112	43-143	6	16
Trichloroethene	116/106/102	35-146	9	20
Tetrachloroethene	104/100/ 96	47-160	4	19
Chlorobenzene	98/ 95/ 99	50-145	3	21
EPA Method 8020A				
Benzene	116/114/112	53-152	2	20
Toluene	96/104/102	50-145	8	14
Ethylbenzene	74/ 76/ 88	46-135	3	14
m-Xylene & p-Xylene	82/ 89/118	62-132	8	10
EPA Method 9073				
Total Petroleum Hydrocarbons	110/118/107	63-128	7	23
Total Metals				
Arsenic, 6010	98/ 99/100	68-116	1	14
Barium, 6010	101/102/102	66-120	<1	20
Cadmium, 6010	98/100/101	66-118	2	15
Chromium, 6010	98/ 99/ 99	73-121	1	22
Lead, 6010	102/105/103	51-135	3	38
Mercury, 7471	106/103/108	74-129	3	13
Selenium, 6010	102/104/108	56-122	2	15
Silver, 6010	72/ 73/ 74	70-114	1	11

Environmental Conservation Laboratories Comprehensive QA Plan #910190G

< = Less Than
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference

ENCO Laboratories

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Orlando, Florida 32824
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Page 1

CHAIN OF CUSTODY RECORD

12/03/96 11:00

CLIENT NAME: U.A. JONES
PROJECT MANAGER: TRIP NELSON / JON KUCERA
PROJECT NUMBER: 021-0801
PROJECT NAME: NAS TAX PLUG 622
SAMPLER'S SIGNATURE: Melvin W. Dale

STATION NO.	DATE	TIME	COMPOSITE	GRAB	STATION LOCATION	NO. OF CONTAINERS	BTEX, TRPH	5010 8020	REMARKS
PB-1	9/13/95	1600	✓		~~FAEBURN~~	2	1	1	FT. BENNING

RELINQUISHED BY: EMPTY BOTTLES
DATE/TIME: 09/21/95 0945
RECEIVED BY: Melvin W. Dale

RELINQUISHED BY: Melvin W. Dale
DATE/TIME: 9/14/95 0810
REMARKS: JE 9582

SAMPLE KIT PREPARED BY: ☐ ORLANDO ☒ JACKSONVILLE
DATE/TIME:
RECEIVED BY:

RECEIVED FOR LABORATORY BY: ☐ ORL ☐ JAX

RELINQUISHED BY:
DATE/TIME:
RECEIVED BY: Heed & Hart
DATE/TIME: 9/14/95 0815

NO. 744 P036

APPENDIX C

TRANSPORTATION MANIFEST

CERTIFICATE OF THERMAL TREATMENT

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. FL.6.1.7.0.0.2.4.4.1.2
Manifest Document No.
2. Page 1 of 1

3. Generator's Name and Mailing Address: Facilities & Environmental Dept. NAS-Jacksonville P.O. Box 5 Jacksonville, FL 32212-5000
4. Generator's Phone (904) 772-2717

5. Transporter 1 Company Name: Bulldog Transport Co.
6. US EPA ID Number: N/A

7. Transporter 2 Company Name:
8. US EPA ID Number:

9. Designated Facility Name and Site Address: Soil Remediation Inc. County Rd. 329 Ray City, GA 31645
10. US EPA ID Number: N/A

A. Transporter's Phone:
B. Transporter's Phone:
C. Facility's Phone: (912) 455-2300

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Petroleum Contaminated Soil	1	Bulk	8 CY	TONS 6
b.	1	D.P	12.42	T
c.				
d.				

D. Additional Descriptions for Materials Listed Above:

E. Handling Codes for Wastes Listed Above:

15. Special Handling Instructions and Additional Information:

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.
Printed/Typed Name: E. DAVID FORD JR
Signature: E. David Ford Jr.
Month 12 Day 9 Year 95

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Donald Parsons
Signature: Donald Parsons
Month 12 Day 9 Year 95

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Month Day Year

19. Discrepancy Indication Space:

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Mike Fletcher
Signature:
Month 12 Day 15 Year 95

ORIGINAL - RETURN TO GENERATOR

SOIL REMEDIATION INC.

County Road 329 • Roy City, GA 31645
Plant: 912-455-2300 • Fax: 912-455-2301

Certificate of Recycling

Soil Remediation, Inc. hereby certifies that 12.64 tons of contaminated soil generated by:

FACILITIES AND ENVIRONMENTAL DEPARTMENT
NAS JACKSONVILLE, P.O. Box 5
JACKSONVILLE, FL 32212-5000

and originating at the site address:

FACILITIES AND ENVIRONMENTAL DEPARTMENT
NAS JACKSONVILLE, P.O. Box 5
JACKSONVILLE, FL 32212-5000
BUILDING NUMBERS 127, 602, & 5900

has been thermally processed in compliance with all applicable rules and regulations set forth by Local, State and Federal authorities and strictly in accordance with Air Quality Permits, numbers 2951-010-10886 and 2951-010-11353.

SOIL REMEDIATION, INC.

Jerome Chambless — 10/23/95

Jerome Chambless
President

Date

APPENDIX D

CLOSURE ASSESSMENT FORM

STORAGE TANK REGISTRATION FORM

DISCHARGE REPORTING FORM

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Closure Assessment Form

Owners of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a storage system closure assessment was performed in accordance with Rule 17-761 or 17-762, Florida Administrative Code. Eligible Early Detection Incentive (EDI) and Reimbursement Program sites do not have to perform a closure assessment.

Please Print or Type
Complete All Applicable Blanks

1. Date: 10/17/95
2. DER Facility ID Number: 168731736
3. County: Duval
4. Facility Name: Naval Air Station Jacksonville
5. Facility Owner: U.S. Navy
6. Facility Address: Building 622, 6500 Roosevelt Blvd., Jacksonville, FL 32212
7. Mailing Address: Same as above
8. Telephone Number: (904) 772-2717
9. Facility Operator: U.S. Navy

Are the Storage Tank(s): (Circle one or both) A. Aboveground or B. Underground

11. Type of Product(s) Stored: Waste Oil
12. Were the Tank(s): (Circle one) A. Replaced B. Removed C. Closed in Place D. Upgraded (aboveground tanks only)
13. Number of Tanks Closed: One
14. Age of Tanks: 5 years old

Tank number 622

Facility Assessment Information

Yes	No	Not Applicable	
☐	☒		1. Is the facility participating in the Florida Petroleum Liability Insurance and Restoration Program (FPLIRP)?
☒	☐		2. Was a Discharge Reporting Form submitted to the Department? If yes, When: September 14, 1995 Where: FDEP Northeast District
☒	☐		3. Is the depth to ground water less than 20 feet?
☐	☒	☐	4. Are monitoring wells present around the storage system? If yes, specify type: ☐ Water monitoring ☐ Vapor monitoring
☐	☐	☒	5. Is there free product present in the monitoring wells or within the excavation?
☐	☐	☒	6. Were the petroleum hydrocarbon vapor levels in the soils greater than 500 parts per million for gasoline? Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
☐	☐	☒	7. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kerosene? Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
☒	☐	☐	8. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target levels? (See target levels on reverse side of this form and supply laboratory data sheets)
☒	☐	☐	9. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release?
☒	☐		10. Are any potable wells located within ¼ of a mile radius of the facility?
☒	☐		11. Is there a surface water body within ¼ mile radius of the site? If yes, indicate distance: About 1/16 mile

12. A detailed drawing or sketch of the facility that includes the storage system location, monitoring wells, buildings, storm drains, sample locations and dispenser locations must accompany this form.
3. If a facility has a pollutant storage tank system that has both gasoline and kerosene/diesel stored on site, both EPA Method 602 and EPA Method 610 must be performed on the ground water samples obtained.
4. Amount of soils removed and receipt of proper disposal.
5. If yes is answered to any one of questions 5-8, a Discharge Reporting Form 17-761.900(1) indicating a suspected release shall be submitted to the Department within one working day.
16. A copy of this form and any attachments must be submitted to the Department's district office in your area and to the locally administered program office under contract with the Department within 60 days of completion of tank removal or filling a tank with an inert material.

Signature of Owner — Date: 12/8/95

Signature of Person Performing Assessment — Date: 11/3/95

Hydrogeologist

Title of Person Performing Assessment

State Ground Water Target Levels That Affect A Pollutant Storage Tank System Closure Assessment

State ground water target levels are as follows:

1. For gasoline (EPA Method 602):
   a. Benzene — 1 ug/l
   b. Total VOA — 50 ug/l
      - Benzene
      - Toluene
      - Total Xylenes
      - Ethylbenzene
   c. Methyl Test-Butyl Ether (MTBE) — 50 ug/l

2. For kerosene/diesel (EPA Method 610):
   a. Polynuclear Aromatic Hydrocarbons (PAHS) (Best achievable detection limit, 10 ug/l maximum)

Florida Department of Environmental Regulation

Storage Tank Registration Form

Please Print or Type • Review Instructions Before Completing Form

1. DER Facility ID Number: 168731736
2. Facility Type: Federal Government
3. New Registration ___ New Owner Date ___ Facility Revision ___ Tank(s) Revision X
4. County and Code of Tank(s) Location: Duval 16
5. Facility Name: Naval Air Station Jacksonville
   Tank(s) Address: Building 622, 6500 Roosevelt Blvd.
   City/State/Zip: Jacksonville, FL 32212
   Contact Person: Mr. David Ford Telephone: (904) 772-2717
6. Financial Responsibility Mech: None
7a. Tank(s) Owner: U.S. Navy
   Owner Mailing Address: 6500 Roosevelt Blvd.
   City/State/Zip: Jacksonville, FL 32212
   Contact Person: Mr. David Ford Telephone: (904) 772-2717
7b. New Owner Signature/Change Date: N/A
8. Location (required) Latitude: ___°___'___" Longitude: ___°___'___" Section 39 Township 3S Range 26E

Complete One Line For Each Tank At This Facility (Use Codes - See Instructions)

Codes: 9 - 16 for tanks in use; 9 - 19 for tanks out of use

9	10	11	12	13	14	15	16	17	18	19
622	1.000	L	1991	U	E.I	B	None	B	N/A	08/29/95

Contact Consultant: J.A. Jones Environmental Services DPR#: PC CA 56555 (Department of Professional Regulation License Number)

*For new tank installation or tank upgrade

I the best of my knowledge and belief all information submitted on this form is true, accurate and complete.

Print name & title of owner or authorized person ___ Signature ___ Date ___

(#1) FACILITY TYPE CODES

A. Retail/fuel seller
B. Residence
C. Non-retail/fuel user not seller
D. Inland bulk petroleum storage
E. Industrial plant
F. Federal government
G. State government
H. Local, city government
I. County government
J. Collection station
K. Bulk chemical storage
L. Chemical user facility
M. Agricultural facility
N. Indian land
T. Bulk product facility
V. Marine fueling facility
Z. Other: _____

(4) County code
(5) Facility information

(#6) FINANCIAL RESPONSIBILITY CODES

A. State Program - Third Party Liability/State contractor (FPLIPA/AIG)
B. State Program - Third Party Liability/Self insurance with other carrier; other federal financial responsibility mechanism.
C. Other coverage meeting federal financial responsibility requirements.
D. None

(7) Owner information
(8) Tank site information
(9) Tank number
(10) Tank size

(#11) CONTENT CODES

A. Leaded gasoline
B. Unleaded gasoline
C. Gasohol
D. Vehicular diesel
E. Aviation gasoline
F. Jet fuel
G. Diesel; emergency generator
H. Diesel; generator or pump
K. Kerosene
L. Waste oil
M. Fuel oil; on site heating
N. Fuel oil; distribution
O. New/lube oil
Q. Pesticide
R. Ammonia compound
S. Chlorine compound
T. Hazardous substance
U. Mineral acid
V. Bunker 'C' residual oil
W. Petroleum additive (pollutant)
Y. Unknown
Z. Other: _____

(12) Tank installation date
(13) Tank placement (U or A)

(#14) TANK CONSTRUCTION CODES

A. Overfill protection - ball check valve
B. Interior lined or lined bottom steel
C. Bare, painted, or asphalted steel
D. Unknown
E. Fiberglass
F. Fiberglass-clad steel, composite
G. Cathodically protected & coated steel, sacrificial anode
H. Cathodically protected & coated steel, impressed current
I. Double-walled
J. Secondary containment, synthetic liner
K. Secondary containment, concrete
L. Compartmented
M. Spill containment
N. Overfill protection - flow shut off
O. Overfill protection - tight fill
P. Impervious berm
Q. Earth berm
R. Impervious base
S. Earth base
T. Small use tank
U. Field erected tank
W. Tank built on supports
X. Concrete
Y. Other: _____
Z. Department approved alternate

(#15) PIPING CONSTRUCTION CODES

A. Aboveground, not in contact with soil
B. Galvanized or unprotected metal
C. Fiberglass
E. Cathodically protected steel
F. Double-walled
G. Secondary containment
H. Airport hydrant piping
I. Suction piping system
J. Pressurized piping system
K. Dispenser liners
L. Bulk product transfer lines
Y. Unknown
Z. Department approved alternate

(#16) LEAK DETECTION METHODS

A. Vapor monitoring
B. Groundwater monitoring
E. Interstitial monitoring, tank liners
F. Interstitial monitoring, double-walled tank
G. Piping/in-line leak detectors with automatic shut-off
H. Piping/in-line flow restrictors
I. Not required, see rule for exemptions
J. Interstitial monitoring, piping liners
K. Interstitial monitoring, double-walled piping
L. Automatic tank gauging system
M. Manual tank gauging system
Y. Unknown
Z. Department approved alternate

(#17) TANK STATUS/DISPOSAL CODES

*A. Properly closed in place: underground tank filled with sand or concrete; aboveground tank properly closed
*B. Removed from the site . . *A or B: Closure Assessment required
F. Unmaintained storage tank - tank not in use and not properly disposed; or tank discovered abandoned
T. Temporary out-of-service
U. In-service

(18) Gallons left
(19) Status date
(20) Specialty Contractor

[illegible] REGISTRATION INSTRUCTIONS

[illegible] TO MODIFY IF SUBMITTING A REVISION.

(1) FILL IN [illegible]: Leave (1) blank; Identification number is assigned by DER after initial [illegible] has been completed.
(2) Facility type: choose the most appropriate code from list #2.
(3) Check whether you are submitting a NEW, FIRST-TIME REGISTRATION or REVISIONS to information on a previously registered facility.
(4) County name & proper code: indicate tanks location by county (see list #4).
(5) Facility name & address: provide complete information of the tank(s) location; supply the name of a contact person at the facility and a telephone number.
(6) Financial responsibility type: fill in applicable code (list #6); only choose A or B if State Restoration Coverage Notice of Eligibility has been issued.
(7a) Owner name & address: provide complete mailing address and telephone number. Also provide the name of a contact person for the owner/company.
(7b) WHEN THE FACILITY CHANGES OWNERSHIP: complete #5 above with the new facility name (if applicable), complete (7a) with new owner name and address information and (7b) with new owner signature & ownership transfer date.
(8) Complete site location information if available.

Complete (9)-(19) on the data chart for all tanks you are registering.
(9) Number tanks sequentially or provide tank numbers recorded by your facility.
(10) Tank size: provide capacity in gallons.
(11) Tank contents: provide content code from list #11.
Content (T) & (U): provide also the substance name or Chemical Abstract Number (CAS#) from the CERCLA Hazardous Substance List.
(12) Tank installation date: month/year format.
(13) Tank placement: write in U (underground tank) or A (aboveground tank).
(14) Tank construction: preview list #14 & fill in all applicable codes. Provide size and content information for each section of a compartmented tank.
(15) Piping construction: preview list #15 & fill in all applicable codes.
(16) Leak detection methods: preview list #16 & fill in all applicable codes.
(17) Tank status/disposal method: choose one code from list #17.
(18) Gallons left: complete for out-of-service tanks.
(19) Status date: date tank(s) properly closed in place, removed from site, or placed in temporary out-of-service status.
(20) Provide name & DPR (Department of Professional Regulation) license number of Certified Contractor (Pollutant Storage System Specialty Contractor) who performed tank installation or removal for owner.

Registration forms are received in the Tallahassee office at the rate of 300-600 per week. Please allow 4-6 weeks for processing. If you are in need of assistance, please call the district program office or (904) 487-7077.

(#4) COUNTY CODES

Alachua	01	Flagler	18	Lake	35	Pinellas	52
Baker	02	Franklin	19	Lee	36	Polk	53
Bay	03	Gadsden	20	Leon	37	Putnam	54
Bradford	04	Gilchrist	21	Levy	38	St. Johns	55
Brevard	05	Glades	22	Liberty	39	St. Lucie	56
Broward	06	Gulf	23	Madison	40	Santa Rosa	57
Calhoun	07	Hamilton	24	Manatee	41	Sarasota	58
Charlotte	08	Hardee	25	Marion	42	Seminole	59
Citrus	09	Hendry	26	Martin	43	Sumter	60
Clay	10	Hernando	27	Monroe	44	Suwannee	61
Collier	11	Highlands	28	Nassau	45	Taylor	62
Columbia	12	Hillsborough	29	Okaloosa	46	Union	63
Dade	13	Holmes	30	Okeechobee	47	Volusia	64
De Soto	14	Indian River	31	Orange	48	Wakulla	65
Dixie	15	Jackson	32	Osceola	49	Walton	66
Duval	16	Jefferson	33	Palm Beach	50	Washington	67
Escambia	17	Lafayette	34	Pasco	51		

STORAGE TANK REGISTRATION INSTRUCTIONS FOR DER FORM 17-761.900(2)

The attached Storage Tank Registration Form shall be filled out by owners of non-residential storage tanks to comply with the Federal Notification and State Storage Tank Registration Program requirements.

REGULATED TANKS are 1) underground storage tanks with capacities of greater than 110 gallons or 2) stationary aboveground tanks with capacities of greater than 550 gallons that store pollutants (defined as petroleum-based products, ammonia, chlorine, pesticides, and derivatives thereof). Regulated tanks will also include underground storage tanks with capacities of greater than 110 gallons that contain hazardous substances, effective 7/1/91; and aboveground storage tanks with capacities greater of than 110 gallons that contain mineral acids (defined as hydrobromic, hydrochloric, hydrofluoric, sulfuric, and phosphoric acid), effective 7/1/91. Storage tanks located at residential facilities, and tanks containing fuel used to generate on-site heating are exempt.

REGISTRATION FEES are assessed on regulated petroleum and hazardous substance tanks which are: 1) In-service, 2) Out-of-service, 3) Abandoned & unmaintained. Fees are no longer assessed only when a tank has been properly closed in place or has been removed from the site. Registration fees are assessed as follows:

1) Initial ($50.00/tank) 2) Renewal ($25.00/tank/year)
3) Replacement ($25.00/tank) 4) Penalty ($20.00/tank/year)

Aboveground tanks located at bulk product facilities (terminals) will be assessed fees in accordance with the schedule outlined in Ch.17-762, F.A.C. beginning 10/91.

REGISTRATION INSTRUCTIONS ***Preview the Registration Checklist, and the Registration Codes List carefully. Determine the codes that apply to each tank at your individual facility before completing the registration form. Call & obtain a list of CERCLA Hazardous Substance CAS Numbers if registering hazardous substance tanks. Maintain a copy of each completed form submitted to DER for your files. Submit with your registration a sketch of the tank(s) location in reference to a street or stationary structure on the property.

A NINE-DIGIT DER IDENTIFICATION NUMBER is assigned to each facility after initial registration. It will appear on all billing statements and registration placards. Please reference this number on all correspondence and payments sent to DER - Storage Tank Regulation Section. Questions can be quickly resolved if we can locate your file by this ID number. Submit data revisions or tank removals on a new form or on a copy of the most recently submitted registration form with all corrections marked clearly. Include the facility ID number, sign and date.

DEPARTMENT RULES REQUIRE at least a ten day advance notice (verbal or written) of tank removals, replacements, or upgrades. Notice should be made to the District program office and verification sent to Tallahassee on Form 17-761.900(2). When tank ownership changes, the Department must be notified within ten days of the final transaction. Notice shall include the new owner's name, address, and telephone information, as well as the date of ownership transfer and the new owner's signature on a revised registration form, a letter of acceptance, or a bill of sale. Once a facility has been assigned a DER identification number, the ID stays with the facility regardless of ownership. Proper and timely notification of these changes helps us from billing you unnecessarily or for incorrect amounts.

Mail all registration forms to: DER/Storage Tank Regulation Section
2600 Blair Stone Road
Tallahassee, FL 32399-2400 Phone: (904) 487-7077

DISTRICT CONTACTS

CENTRAL DISTRICT	(407)894-7555	SOUTH DISTRICT	(813)332-6975
NORTHEAST DISTRICT	(904)448-4320	SOUTHEAST DISTRICT	(407)433-2650
NORTHWEST DISTRICT	(904)436-8300	SOUTHWEST DISTRICT	(813)623-5561

5090.16
Code 184DF

1 : SEP 1995

Mr. Herbert Wilson
Storage Tank Section
Regulatory and Environmental
Services Department
421 West Church Street, Suite 412
Jacksonville, FL 32202-4111

RE: U.S. NAVAL AIR STATION, JACKSONVILLE, DEP FACILITY ID NO. 168731736

Dear Mr. Wilson:

Reference is made to our letter of May 17, 1995 to the Florida Department of Environmental Protection. Soil contamination was discovered during the removal of underground storage tanks 622 and 101-15. In accordance with Chapter 62-761, F.A.C., enclosed are DEP Forms 62-761.900(1), Discharge Reporting Forms.

Tank 622 was a used oil storage tank which was removed on August 30 by J. A. Jones Environmental, Inc. Visual oil contamination was observed near the clean out port. One 55-gallon drum of soil was containerized for disposal.

Tank 101-15 supplied calibration fluid to a jet engine test stand. During tank closure, a small amount of pink-colored soil was discovered and removed. This tank is located on a CERCLA site and is being abandoned in place.

Organic vapor analysis was below 50 ppm at each site. Groundwater samples have been collected from each site. The closure assessment reports will be forwarded upon completion.

If you have questions, please contact Mr. David Ford, Facilities and Environmental Department, at (904) 772-2717, ext. 121.

Sincerely,

KEVIN H. GARTLAND
GM-13, Environmental Division Director
By direction of the Commanding Officer

Enclosures

Copy to:
FDEP NE District
FDEP Tallahassee (Mr. Jorge Caspary)
bcc:
SOUTHNAVFACENGCOM (Code 1842)
ROICC JAXA (R17)
MWR JAX
bbcc:
111(2) 181CP(2) 184DL ✓184DF 184 184S

14 SEP 95 FED FORD/elm

APPENDIX B

STANDARD HEADSPACE ANALYTICAL PROCEDURE

STANDARD HEADSPACE ANALYTICAL PROCEDURE

1. Prior to collecting soil screening samples, monitor soil temperatures from the target sample depth intervals by collecting soil blanks. Based on ambient air temperatures, evaluate the time required for samples to reach a temperature between 68 degrees Fahrenheit (°F) and 90 °F (20 degrees Celsius [°C] and 32 °C). Periodically repeat process during the day to account for heating effects as daily temperatures rise.

2. Auger to target depth interval and collect soil sample.

3. Remove soil sample from the auger bucket (or sampling device) with clean, stainless-steel spoon and place sample into a 16-ounce mason jar.

4. Cap soil jar with aluminum foil and seal with threaded, open top ring.

5. Label top of aluminum foil with sample number using a Sharpie™ or other permanent marker.

6. Place sealed jar in a shaded area and allow sample to reach a temperature between 68 °F (20 °C) and 90 °F (32 °C) (see step number 1).

7. After 5 minutes, puncture aluminum foil cover with the organic vapor analyzer (OVA) probe tip and measure vapor reading. The maximum or peak vapor reading should be observed and recorded on the soil boring log as the unfiltered OVA value.

8. Cover jar with new sheet of aluminum foil and place charcoal filter on OVA probe tip.

9. After 5 minutes, puncture aluminum foil cover with charcoal filter tipped probe and measure vapor reading. The maximum or peak vapor reading should be observed and recorded on the soil boring log as the filtered OVA value.

10. Subtract the filtered reading from the unfiltered reading and record the value for the soil boring as the actual OVA value.