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NAS CECIL FIELD
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FINAL WORK PLAN FOR CONTAMINATION ASSESSMENT INVESTIGATIONS AT FIVE SITES NAS CECIL FIELD FL

11/1/1990

E.C. JORDAN COMPANY

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FINAL WORK PLAN
CONTAMINATION ASSESSMENT INVESTIGATIONS
AT FIVE SITES

FOR

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PREPARED FOR

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND

PROJECT NO. 7502-01

CONTRACT NO. N62467-87-D-0263

PREPARED BY

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1.0 INTRODUCTION

E.C. Jordan Company (Jordan) was authorized on September 21, 1990, by Southern Division (SouthDIV) Naval Facilities Engineering Command (NAVFACENGCOM) to conduct contamination assessment investigations and prepare Contamination Assessment Reports (CARs) and Preliminary Remedial Action Plans (PRAPs) at several sites at Naval Air Station (NAS) Cecil Field, Jacksonville, Florida (see Figure 1).

1.1 PURPOSE. The purpose of this investigation is to determine the extent of contamination from various fuel spills at five locations on NAS Cecil Field and to determine if further action is required to remediate the site. The location of these sites is presented on Figure 2. Two of the sites, the Transportation Motor Pool and the Jet Engine Test Cell, require preliminary contamination assessment investigations and reports to determine if any petroleum contamination exists at the sites. Three sites, the North Fuel Farm, Day Tank 293-DT, and the South Fuel Farm require contamination assessment investigations and reports in accordance with the Florida Department of Environmental Regulations (FDER), Chapter 17-770, Florida Administrative Code (FAC) State Underground Petroleum Environmental Response Rule. Contamination assessments will be conducted at these three sites in accordance with Chapter 17-770, FAC requirements and, if the investigation concludes that further action is required, PRAPs may be prepared at SouthDiv's option. A no-further-action or a monitoring only plan may be developed if the investigation concludes that no remedial actions at the sites are warranted.

2.0 SITE BACKGROUND

Contamination assessment investigations will be conducted at five areas at NAS Cecil Field (see Figure 2). These sites are: the Transportation Motor Pool, the Jet Engine Test Cell, the North Fuel Farm, Day Tank 293-DT, and the South Fuel Farm. Various spills were reported to have occurred at each of these sites prior to 1986. A site description and spill history of each site is presented below.

2.1 TRANSPORTATION MOTOR POOL. The Transportation Motor Pool is located at Building 80 on the corner of 9th Street and D Avenue. A site map of the Transportation Motor Pool facility is presented on Figure 3. There are two underground storage tanks (USTs) located at this facility. Tank 80-R is 10,000 gallons and tank 80-UL is 5,000 gallons. Both tanks are interior lined, asphalt coated steel that were installed in 1953. Tank 80-R was last reported to contain leaded gasoline and tank 80-UL contains unleaded gasoline. The associated piping is constructed of corrosion resistant coated steel.

During the Release Detection Program for NAS Cecil Field in October 1989, tank 80-R was precision tested by AcuTest. Although the tank was determined to be tight, it failed the full system test which included the associated tank piping. The test results concluded that "the tank system has a piping leak located between 33 inches and 50 inches above the tank top" (Jordan, 1990).

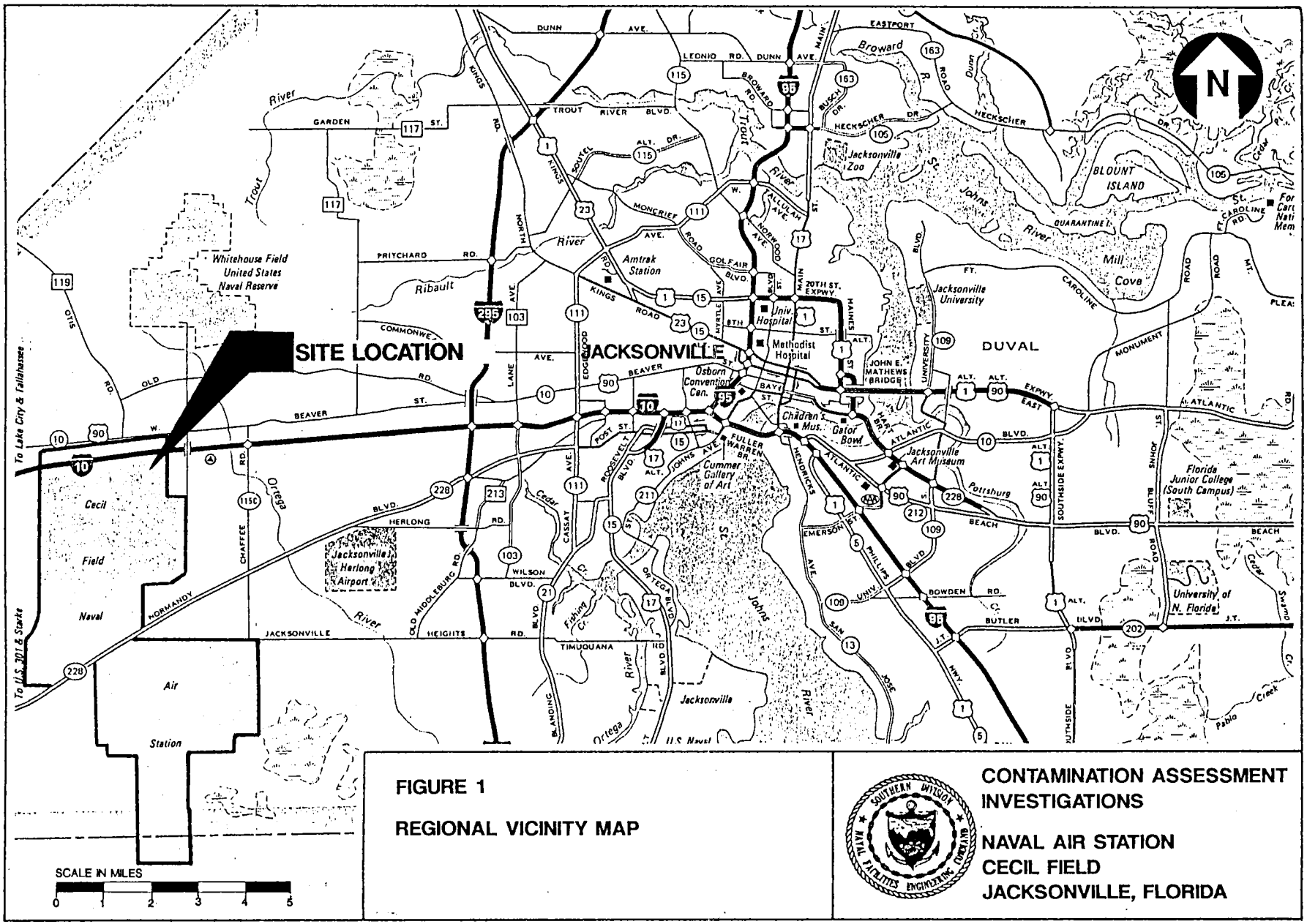

FIGURE 1

REGIONAL VICINITY MAP

CONTAMINATION ASSESSMENT INVESTIGATIONS

NAVAL AIR STATION
CECIL FIELD
JACKSONVILLE, FLORIDA

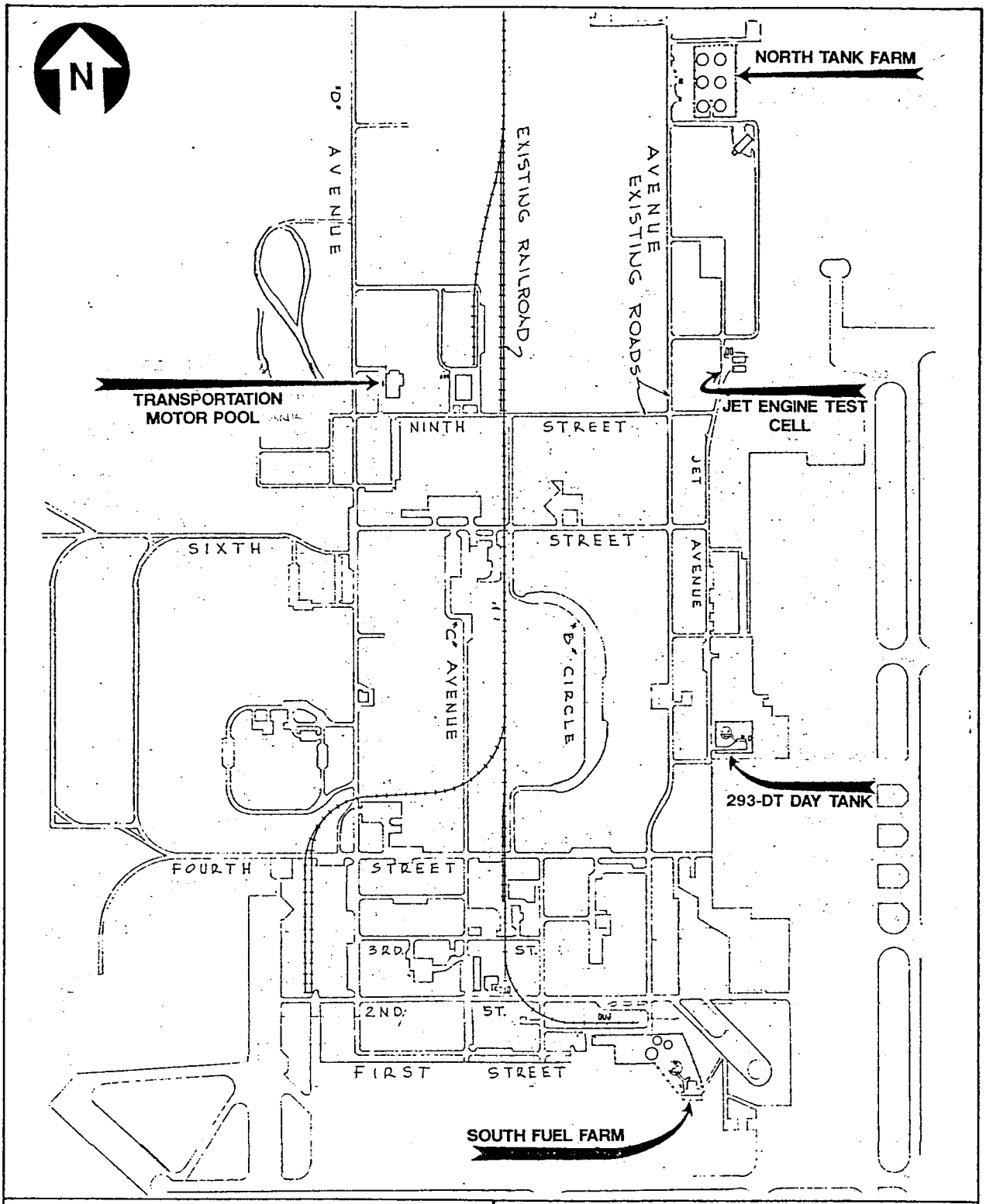

FIGURE 2

LOCATIONS OF ASSESSMENT SITES AT NAS CECIL FIELD

CONTAMINATION ASSESSMENT INVESTIGATIONS

NAVAL AIR STATION
CECIL FIELD
JACKSONVILLE, FLORIDA

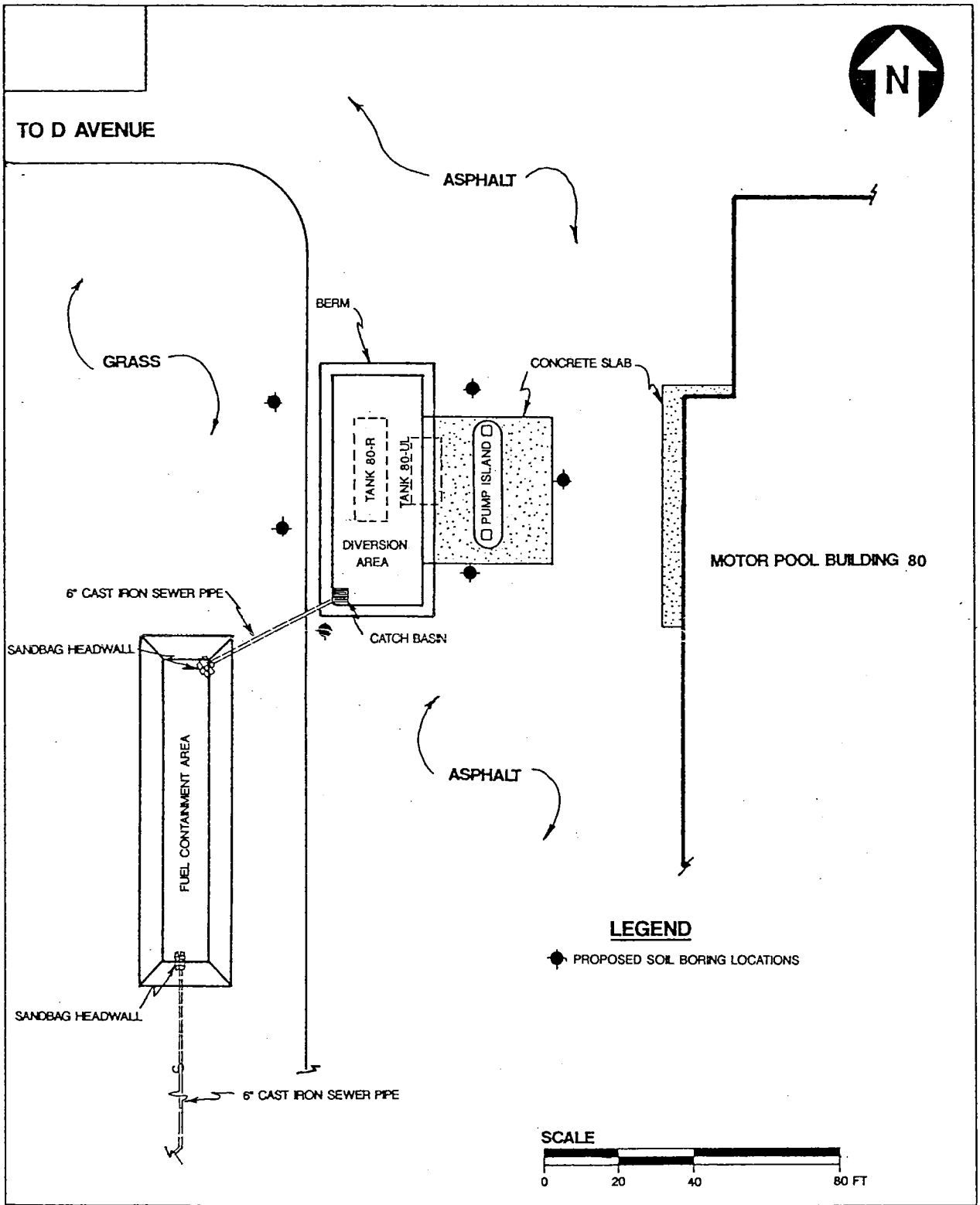

FIGURE 3

TRANSPORTATION MOTOR POOL
FACILITY 80
SITE MAP

CONTAMINATION ASSESSMENT
INVESTIGATIONS

NAVAL AIR STATION
CECIL FIELD
JACKSONVILLE, FLORIDA

2.2 JET ENGINE TEST CELL. The Jet Engine Test Cell is located at Building 339, just west of Hanger 1845 near the corner of Jet Road and 9th Street. A site map of the Jet Engine Test Cell facility is presented on Figure 4. Tanks 339-TC1 and 339-TC2 are 20,000 gallon, asphalt coated steel, underground tanks installed in 1953 that contain JP-5. The facility also contains a third storage tank. Tank 339-TC3 is a 5,000 gallon above ground tank constructed of stainless steel that is supported above the soil. Tank 339-TC3 was installed in 1970 and rests on a gravel base with impervious dikes. The associated piping for tank 339-TC3 has no parts in contact with the soil. Tanks 339-TC1 and 339-TC2 have corrosion resistant coated metal piping with cathodic protection. All the tanks are reported to be gauged daily.

In October 1989, an attempt was made to precision test tanks 339-TC1 and 339-TC2 as part of the base Release Detection Program, however, leaks occurring because of inadequate seals between manway covers and the tank walls precluded the test. Several other spills from these tanks have occurred in the past due to overfilling the tanks. The facility currently has a work order request to repair the seals between the manway covers and the tank walls.

2.3 NORTH FUEL FARM. The North Fuel Farm is located on A Avenue north of 10th Street. A site map of the North Fuel Farm facility is presented on Figure 5. The fuel farm consists of six 595,000 gallon, interior lined, asphalt coated steel, mounded tanks that contain JP-5. The tanks are numbered Tank 76 through Tank 76-E. Tanks 76 and 76-A were installed in 1952 while the remainder of the tanks were installed in 1954. The associated piping is corrosion resistant coated steel and is cathodically protected. In 1987 each tank was relined, and overfill protection (high level alarms) were installed. Each tank has impressed current type corrosion protection. Also, tank 76 is equipped with an automatic shut-off system. The tanks are gauged daily.

According to Fuel Department personnel, numerous spills have occurred in the past. The most recent spill occurred on August 3rd, 1987 when an estimated 22,772 gallons of JP-5 was spilled. The fuel flowed toward A Avenue and into a storm catch basin leading to a pond north of the fuel farm. Trenches were dug to channel the fuel to the truck loading stand containment pond. As a result, some fuel entered the pond north of the fuel farm. Petroleum from other previous spills at the North Fuel Farm also flowed toward A Avenue to a storm drain and then to a secondary containment pond in the wooded area north of the fuel farm. A 1987 investigation concluded that soil contamination existed in isolated areas. Two groundwater monitoring wells were installed near fuel separator tank 285-ST at the fuel farm facility in 1989 by E.C. Jordan Co. (Jordan, 1990). In January 1990, one of the monitoring wells contained 9 1/2 inches of free petroleum product.

2.4 DAY TANK 293-DT. Tank 293-DT is a 200,000 gallon, interior lined, asphalted coated steel, mounded tank installed in 1956 that contains JP-5. The associated piping is corrosion resistant coated steel which is cathodically protected. The facility is located near Jet Road. A site map of the Day Tank facility is presented on Figure 6.

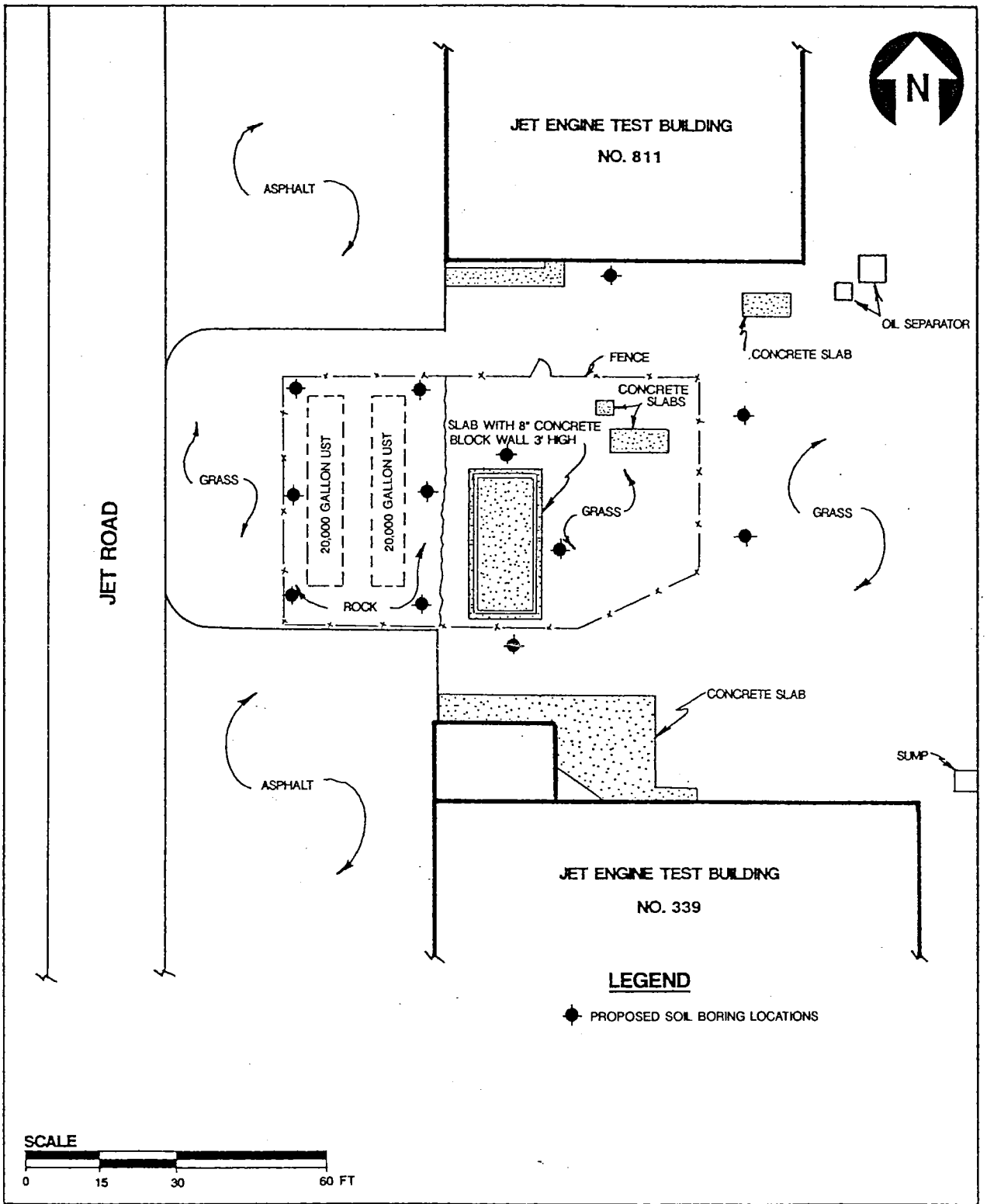

FIGURE 4

JET ENGINE TEST CELL
FACILITY 339
SITE MAP

CONTAMINATION ASSESSMENT INVESTIGATIONS

NAVAL AIR STATION
CECIL FIELD
JACKSONVILLE, FLORIDA

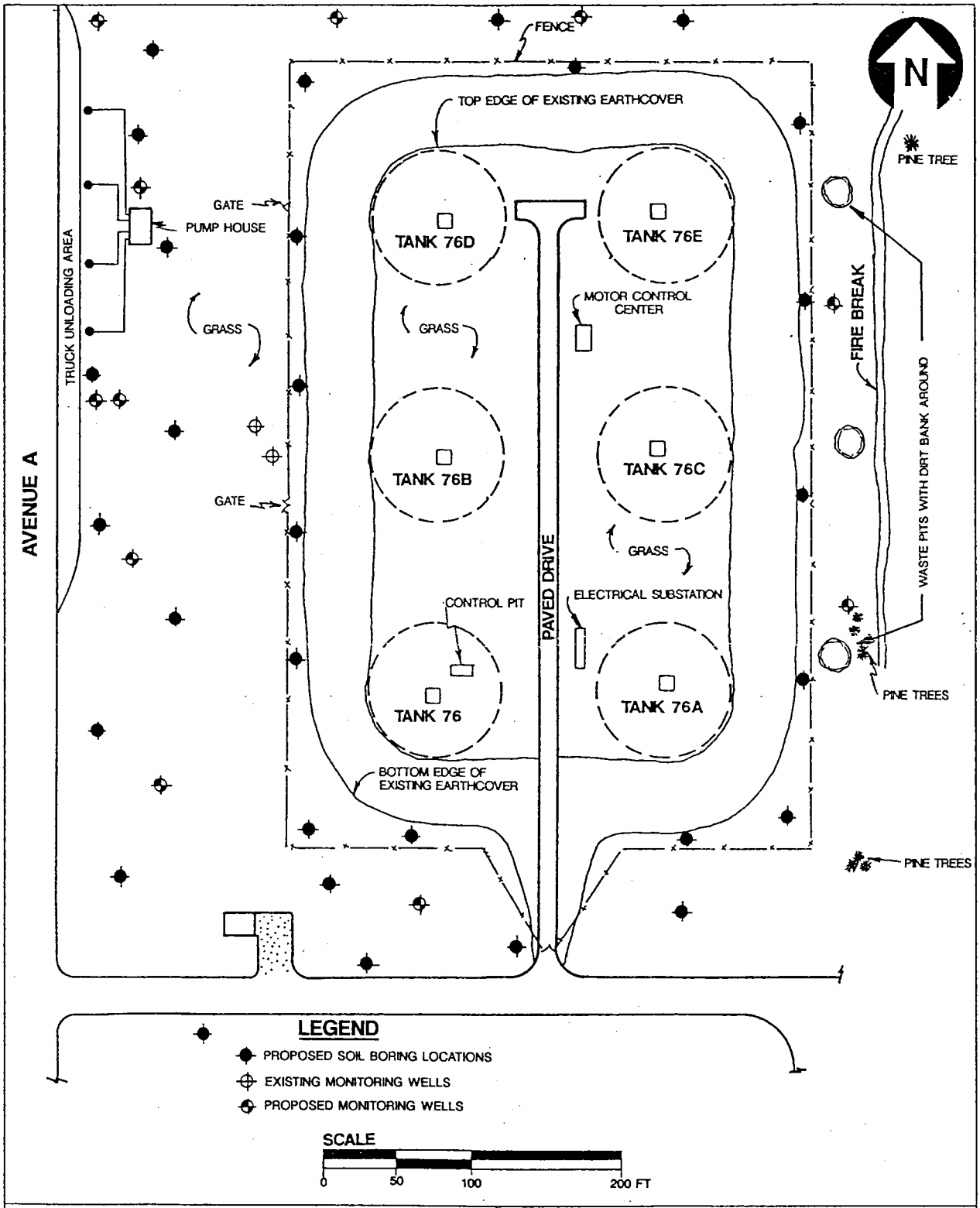

FIGURE 5

NORTH FUEL FARM
FACILITY 76
SITE MAP

CONTAMINATION ASSESSMENT INVESTIGATIONS

NAVAL AIR STATION
CECIL FIELD
JACKSONVILLE, FLORIDA

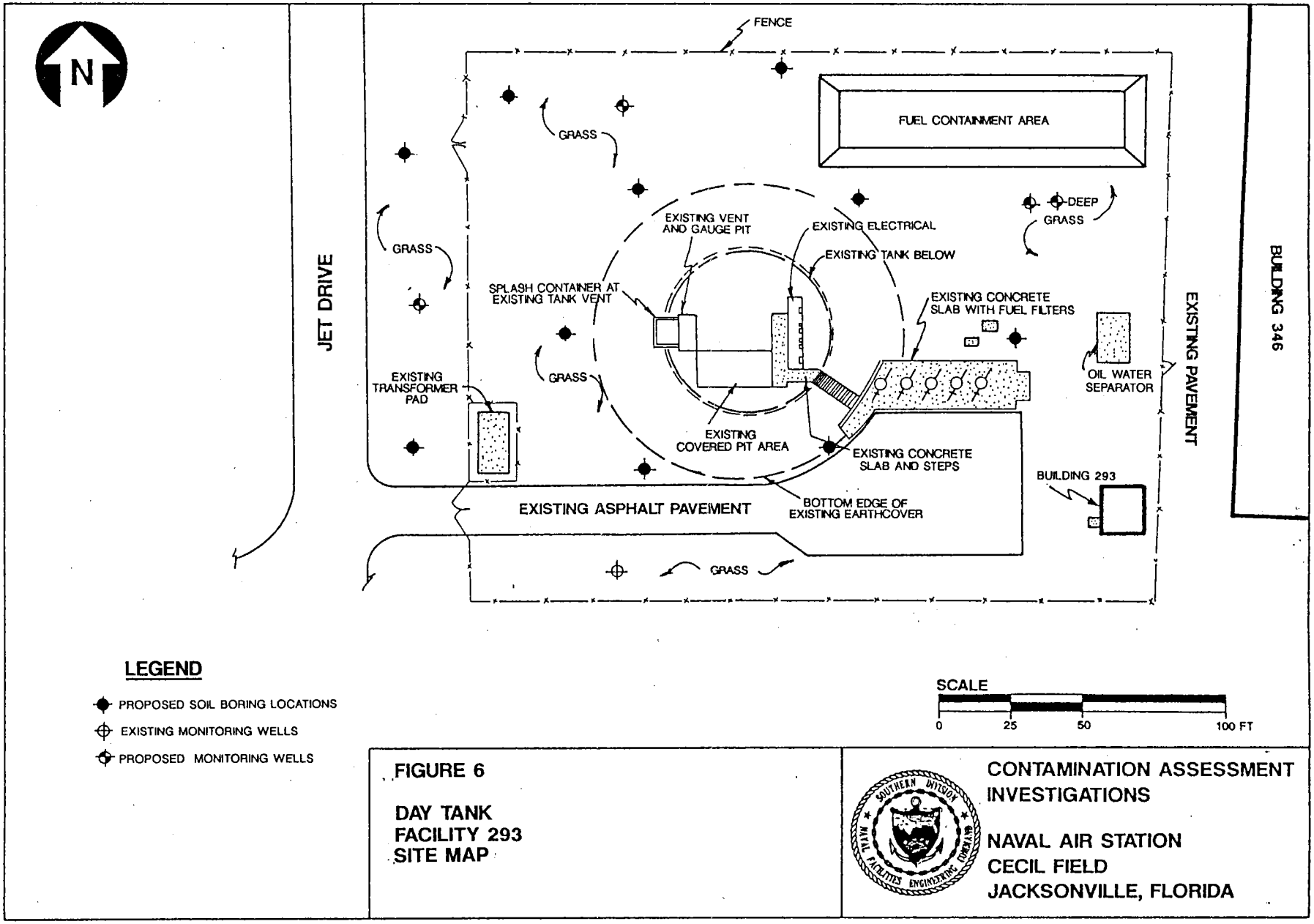

FIGURE 6

DAY TANK
FACILITY 293
SITE MAP

CONTAMINATION ASSESSMENT INVESTIGATIONS

NAVAL AIR STATION
CECIL FIELD
JACKSONVILLE, FLORIDA

In 1981 an approximately 497,000 gallons overfill spill of JP-5 took place at the Day Tank facility. The spill was a result of an unauthorized activation of the fuel pumps which caused the overfilling and rupturing of the tank. Recovery activities were able to recover over one-half of the spilled fuel. A preliminary contamination assessment was conducted at the facility in 1981. Numerous soil borings and three monitoring wells were installed. The assessment concluded that the JP-5 fuel was present only in the unsaturated soils and had not penetrated to the surficial groundwater table. The report concluded that the fuel would naturally degrade over time, and fertilizer was added to the soil throughout the spill area to promote the breakdown of the fuel.

2.5 SOUTH FUEL FARM. The South Fuel Farm is located near the corner of 1st Street and A Avenue. A site map of the South Fuel Farm facility is presented on Figure 7. The facility originally contained 7 USTs, numbered Tank 43-B through H, that were installed in 1943, and 3 above ground tanks, numbered Tank 43-J, 43-K, and 43-L, that were installed in 1944. Tanks 43-J, 43-K, and 43-L were 15,000 gallon, corrosion resistant coated steel tanks which contained diesel fuel but were removed in 1985. Tanks 43-B through H are of varying construction and content and are presented as follows:

- 43-B: 100,000 gallon, interior epoxy-lined concrete UST containing unleaded gasoline;
- 43-C: 50,000 gallon, interior epoxy-lined concrete UST containing aviation gasoline;
- 43-D: 250,000 gallon, interior epoxy-lined concrete UST containing diesel fuel;
- 43-E: 26,000 gallon, asphalt coated steel UST containing water;
- 43-F: 26,000 gallon, asphalt coated steel UST containing water;
- 43-G: 26,00 gallon, asphalt coated steel UST containing waste oil;
- 43-H: 26,00 gallon, asphalt coated steel UST containing waste oil.

The associated piping for tanks 43-B through H is constructed of corrosion resistant coated steel. The two steel tanks (43-E and 43-F) are not cathodically protected and are currently not in service. All of the tanks are included in the base SPCC plan.

In addition to the No. 43 tanks, Tank 342-DT is a day tank located at the South Fuel Farm. This tank is a 200,000 gallon, interior lined, asphalt coated steel, earth mounded tank, installed in 1957, that contains JP-5. The tank has overfill protection and has impressed current type corrosion

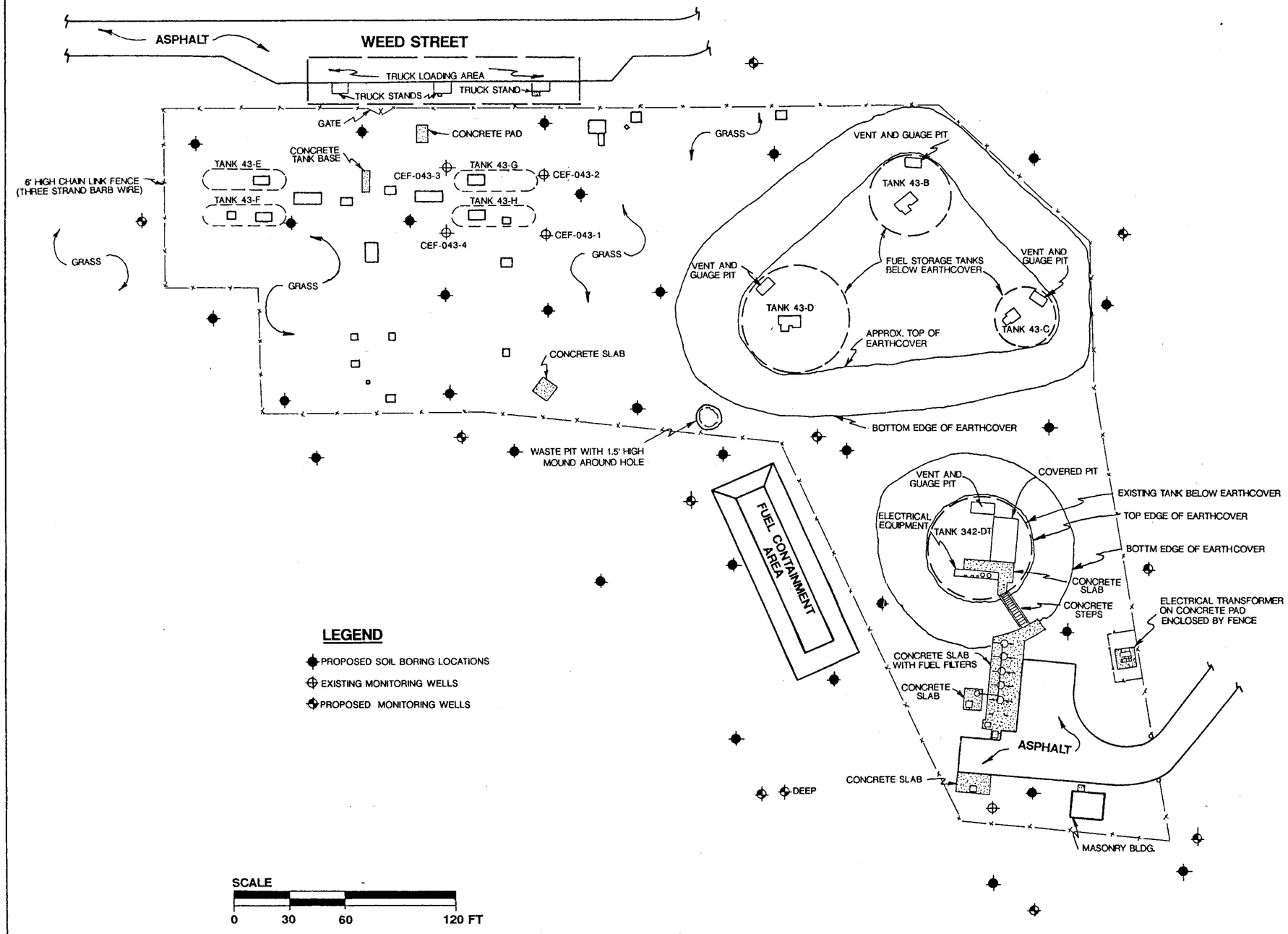

FIGURE 7

SOUTH FUEL FARM
FACILITY 43
SITE MAP

CONTAMINATION ASSESSMENT INVESTIGATIONS

NAVAL AIR STATION
CECIL FIELD
JACKSONVILLE, FLORIDA

protection. The associated piping is corrosion resistant coated steel and is cathodically protected. The tank has one monitoring well associated with it located at the southern end of the site.

Recently, petroleum contaminated soil was discovered during excavation for a spill containment pond near the South Fuel Farm. Several inches of free petroleum product have also been identified in monitoring wells installed by E.C. Jordan Co. in 1989 during the base Release Detection Program (Jordan, 1990). The contamination is believed to be the result of several (or continuous) spills prior to 1986. Four groundwater monitoring wells have been installed around waste oil tanks 43-G and 43-H under the Release Detection Program. In January 1990, two of the four wells had a sheen of oil on the water surface, however, the other two wells had no trace of oil.

3.0 HYDROGEOLOGY

NAS Cecil Field is underlain by three water-bearing units. These include the surficial aquifer, the shallow rock aquifer, and the Floridan aquifer.

The surficial aquifer extends to a depth of approximately 45 feet below land surface (bls) (Geraghty and Miller, 1983). It is comprised of unconsolidated deposits of sands and clay with a hardpan layer of iron oxide (Fairchild, 1972). The surficial aquifer is recharged by local rainfall and discharges to area streams. The depth to the surficial aquifer water table at NAS Cecil Field is approximately 5 feet bls.

The shallow rock aquifer consists of shell, limestone, and sand deposits and is situated between the surficial aquifer and the underlying Hawthorn Formation (Fairchild, 1972). In the NAS Cecil Field area, the limestone layer is approximately 20 to 25 feet thick and occurs at a depth of 60 to 120 feet bls (Geraghty and Miller, 1983). Groundwater flow in the shallow rock aquifer is to the east (Fairchild, 1972). Most small domestic supplies are obtained from this aquifer.

The Floridan aquifer system is the principal source of freshwater in northeast Florida. It is comprised of the Oldsmar, Lake City, and Avon Park Limestones, the Ocala Group, and a few discontinuous thin water-bearing zones in the lower part of the Hawthorn Formation, some of which are not present in all areas.

The Ocala Group is a homogeneous sequence of permeable, hydraulically connected, marine limestones containing a few hard, less transmissive dolomite or limestone beds that restrict the vertical movement of water. The Avon Park Limestone consists almost entirely of hard, relatively impermeable, dolomite confining beds and soft permeable limestone and dolomite water-bearing zones.

The top of the Floridan aquifer occurs at a depth of about 500 feet bls at NAS Cecil Field. Geraghty and Miller (1983) report that the transmissivity of the Floridan aquifer a few miles east of the base is 190,000 gallons per day per foot (gpd/ft.).

Leve (1966) and Geraghty and Miller (1983) report that groundwater within the Floridan aquifer flows east-northeast in the vicinity of NAS Cecil Field. There is a downward gradient between the shallow rock aquifer and the Floridan aquifer in the area of NAS Cecil Field (Leve, 1966).

4.0 PRELIMINARY CONTAMINATION ASSESSMENT INVESTIGATIONS

Preliminary contamination assessments will be conducted at the Transportation Motor Pool (Bldg. 80) and the Jet Engine Test Cell (Bldg. 339) to determine if petroleum contamination exists in the soils beneath the sites. The level of effort will include performing shallow soil borings at the two sites. The soil borings will be conducted using a manual soil auger. Soil samples will be collected immediately above the water table and analyzed using an Organic Vapor Analyzer (OVA) by a Head Space Method described in FDER Chapter 17-770.200 (2), FAC. The most contaminated samples identified in the field will be sent to Savannah Laboratory in Tallahassee, Florida and analyzed for gasoline or kerosene constituents as described in Chapter 17-770, FAC.

4.1 TRANSPORTATION MOTOR POOL - TANKS 80. Six shallow soil borings will be collected at the Transportation Motor Pool to determine if petroleum contamination exists in the soils beneath the site. Two soil samples will be sent to an analytical laboratory for analysis of gasoline constituents. Preliminary locations for the soil borings at the Motor Pool facility are shown on Figure 3. The locations are based on the site layout and downgradient of the tanks, piping, and any reported spill area based on topography. The locations of these soil borings may change somewhat during the course of the assessment field investigation because of site conditions. Changes in the locations of the soil borings will be made by the chief site investigator and rationale will be discussed in the site reports.

In the event that petroleum contamination is encountered at the site, the SouthDIV Engineer-In-Charge (EIC) will be notified immediately and the project

scope will be modified in order to complete a contamination assessment investigation and Contamination Assessment Report (CAR) in accordance with FDER Chapter 17-770, FAC.

4.2 JET ENGINE TEST CELL - TANKS 339-TC. Twelve shallow soil borings will be collected at the Jet Engine Test Cell to determine if petroleum contamination from leaks at the 339-TC tanks exists in the soils beneath the site. Four of the most contaminated soil samples will be sent to an analytical laboratory for analysis of kerosene constituents. The preliminary locations for the soil borings at the Jet Engine Test Cell are shown on Figure 4. The locations are based on the site layout and downgradient of the tanks, piping, and any reported spill area based on topography. The locations of these soil borings may change somewhat during the course of the assessment field investigation because of site conditions. Changes in the locations of the soil borings will be made by the chief site investigator and rationale will be discussed in the site reports.

In the event that petroleum contamination is encountered at the site, the SouthDIV Engineer-In-Charge (EIC) will be notified immediately and the project scope will be modified in order to complete a contamination assessment investigation and Contamination Assessment Report (CAR) in accordance with FDER Chapter 17-770, FAC.

5.0 CONTAMINATION ASSESSMENT INVESTIGATIONS

Contamination assessments will be conducted at the North Fuel Farm, the 293-DT Day Tank, and the South Fuel Farm to define the nature and assess the vertical and horizontal extent of the petroleum contamination beneath the sites. The investigation and submitted reports will follow FDER guidelines, as outlines in FDER Chapter 17-770, FAC, and the SouthDIV report format guidance manual. The level of effort will include performing shallow soil borings, collection and analysis of soil samples, installing groundwater monitoring wells, collection and analysis of groundwater samples, performing aquifer testing on several of the wells to determine aquifer characteristics, and surveying of the monitoring wells for elevations and monitoring well locations on the base grid system by a state certified surveyor. In addition, with the help of the base Environmental Coordinator, a survey of all potable water wells within a 1/4 mile radius of the sites will be conducted.

The proposed locations for the soil borings and monitoring wells at the North Fuel Farm, 293-DT Day Tank, and the South Fuel Farm are shown on Figures 5, 6, and 7, respectively. The locations are based on the site layouts and are downgradient of the tanks, piping, and any reported spill areas based on topography. The locations of the soil borings and monitoring wells at each of the sites may change somewhat during the course of the assessment field investigation because of site conditions. Changes in the locations of the soil borings and monitoring wells will be made by the chief site investigator and rationale will be discussed in the CARs.

5.1 SOIL INVESTIGATIONS. Soil samples will be collected at each of the sites to delineate the horizontal extent of the soil contamination, obtain information on the horizontal extent of the groundwater contamination, and to help in locating the proper locations for the groundwater monitoring wells. The soil samples will be collected immediately above the water table and analyzed using an Organic Vapor Analyzer (OVA) by a Head Space Method described in FDER Chapter 17-770.200 (2), FAC. In addition, the soil samples will be analyzed for benzene, ethylbenzene, toluene, and xylenes (BETX) standards using a portable gas-chromatograph (GC). The most contaminated soil samples from each site will be sent to Savannah Laboratory in Tallahassee, Florida to be analyzed for kerosene constituents as described in FDER Chapter 17-770, FAC. In addition to the groundwater samples collected from the monitoring wells, Quality Assurance/Quality Control (QA/QC) samples will be collected for trip blanks, a field blank, equipment blanks, and 1 duplicate sample for every 10 samples collected.

5.2 GROUNDWATER INVESTIGATIONS. The shallow groundwater monitoring wells will be installed using a hollow stem auger drilling technique to a depth of approximately 15 feet bls. The shallow wells will be constructed using 2-inch diameter, schedule 40, flush-threaded, poly-vinyl chloride (PVC) with 10 feet of 0.010-inch slotted well screen. At least 2 feet of screen will be placed above the water table to accommodate seasonal fluctuations of the water table and to allow any encountered free petroleum product to enter the well. The well screens will be filter packed with No. 6-12 graded silica sand or an acceptable equivalent to a level several feet above the top of the well screen. A one to two foot bentonite pellet seal will be placed immediately above the filter pack. The remainder of the annular well space will be grouted to the surface with a neat cement. The wells will be finished below grade with a locking well cap and traffic bearing subsurface vaults. Construction details of a typical groundwater monitoring well are presented on Figure 8.

The deep monitoring wells will be installed using a rotary wash drilling technique to a depth below the vertical extent of the petroleum contamination at each site. The deep monitoring wells are not expected to exceed 60 feet in depth. The deep wells will be constructed using 4-inch diameter, schedule 40, flush-threaded, PVC with 5 feet of 0.010-inch slotted well screen. The well screens will be filter packed with No. 6-12 graded silica sand or an acceptable equivalent to a level several feet above the top of the well screen. A one to two foot bentonite pellet seal will be placed immediately above the filter pack. The remainder of the annular well space will be grouted to the surface with a neat cement. The wells will be finished below grade with a locking well cap and traffic bearing subsurface vaults.

Subsequent to installation, the monitoring wells will be developed by pumping or bailing until the purged water is clear and relatively sand free to assure a good hydraulic connection with the surrounding aquifer.

Groundwater samples will be collected with teflon bailers. Groundwater samples will be collected and shipped to Savannah Laboratory in Tallahassee, Florida following Jordan Standard Operating and QA/QC procedures. The samples will be analyzed for kerosene constituents as described in FDER Chapter 17-770, FAC. In addition to the groundwater samples collected from the monitoring wells, QA/QC samples will be collected for trip blanks, a field blank, equipment blanks, and 1 duplicate sample for every 10 samples collected.

The base Environmental Coordinator will coordinate the necessary actions to perform a buried utility survey at each of these sites prior to the initiation of field activities.

5.3 NORTH FUEL FARM - TANKS 76. Thirty shallow soil borings are scheduled to be conducted at the North Fuel Farm facility. Of the 30 soil samples that will be collected, 11 will be sent to the analytical laboratory for analysis.

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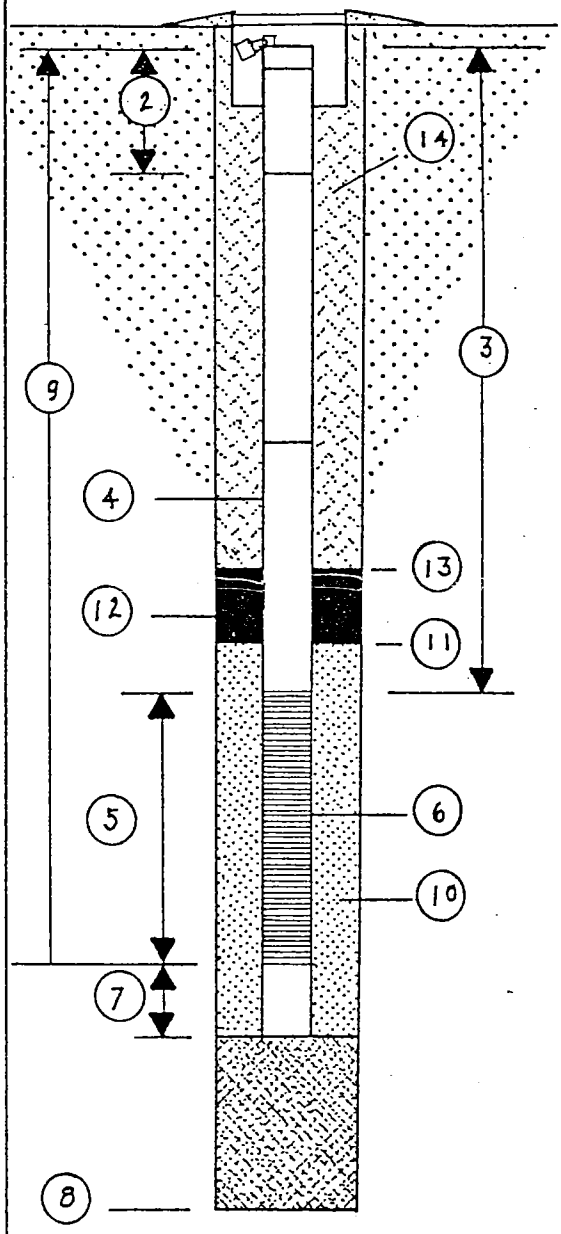
WELL CONSTRUCTION DETAILS



1. Depth of Casing below ground 3 TO 5 INCHES
2. Depth of first Coupling 3 TO 5 FEET
   Coupling Interval Depths 10 FEET
3. Total Length of Blank Pipe 3 TO 5 FEET
4. Type of Blank Pipe 2" SCH. 40 PVC
5. Length of Screen 10 FEET
6. Type of Screen 2"SCH. 40 PVC, 0.010" SLOT
7. Length of Sump 4"
8. Total Depth of Boring 14 TO 17' Hole Diameter 8"
9. Depth to bottom of Screen 13 TO 15 FEET
10. Type of Screen Filter 20/30 SAND PACK
    Quantity Used _____ Size _____ U/C ____
11. Depth to Top of Filter 2 TO 4 FEET
12. Type of Seal BENTONITE PELLETS
    Quantity Used 1/4 TO 3/4 BUCKET
13. Depth to Top of Seal 1 TO 2 FEET
14. Type of Grout PORTLAND CEMENT/2% BENTONITE
    Grout Mixture _____
    Method of Placement TREMIE

FIGURE 8

CONSTRUCTION OF A TYPICAL MONITORING WELL

CONTAMINATION ASSESSMENT INVESTIGATION

NAVL AIR STATION
CECIL FIELD
JACKSONVILLE, FLORIDA

In addition to the soil borings, 10 shallow groundwater monitoring wells and one deep monitoring well are proposed at the site. Four existing shallow monitoring wells are reported to be at the site. The preliminary locations for the soil borings and monitoring wells at the North Fuel Farm are shown on Figure 5.

5.4 DAY TANK 293-DT. Ten shallow soil borings are scheduled to be conducted at the Day Tank facility. Four of the most contaminated soil samples will be sent to the analytical laboratory for analysis. Three shallow monitoring wells and one deep monitoring well is proposed for construction at the site. It has been reported that two shallow monitoring wells currently exist at the site. The preliminary locations for the soil borings and monitoring wells at the 293-DT Day Tank are shown on Figure 6.

5.5 SOUTH FUEL FARM. Thirty shallow soil borings are scheduled to be conducted at the South Fuel Farm facility. Eleven of the most contaminated soil samples will be sent to the analytical laboratory for analysis. Ten shallow groundwater monitoring wells and one deep monitoring well are proposed at the site. Six existing shallow monitoring wells are reported to be at the site. The preliminary locations for the soil borings and monitoring wells at the South Fuel Farm are shown on Figure 7.

6.0 DRAFT AND FINAL CONTAMINATION ASSESSMENT REPORTS

Upon the completion of the field investigations, the data collected in the field along with the analyses of the soil and groundwater samples will be evaluated and the findings and recommendations of the investigations will be presented in Draft Preliminary Contamination Assessment Reports (PCARs) for the Transportation Motor Pool and Jet Engine Test Cell and in Draft Contamination Assessment Reports for the North Fuel Farm, the 293-DT Day Tank, and the South Fuel Farm. The CARs will be prepared in accordance with FDER Chapter 17-770, FAC, guidelines. Recommendations will be made as to the need for a Preliminary Remedial Action Plan (PRAP), no further action (NFA), or a monitoring only plan (MOP). The PCARs and CARs will be prepared and sent to SouthDIV and NAS Cecil Field for reviews. Upon discussing any necessary changes, final PCARs and CARs for the sites will be submitted. If further site action is required, a draft PRAP, NFA, or MOP report will be submitted with the final CAR. Upon review by SouthDIV and NAS Cecil Field personnel, final PRAP, NFA, or MOP reports will be submitted.

7.0 DRAFT AND FINAL PRELIMINARY REMEDIAL ACTION PLANS

If remedial action is warranted at one or more of the sites, Preliminary Remedial Action Plans will be developed for each site to be included with the final CARs. The PRAPs will include the following items:

- summary sheet of the Contamination Assessment Report,

- general discussion of the technical and economic feasibility of the selected remedial system and why it was chosen over other remedial options,
- general discussion of the rational of the selected system,
- comparison of contaminant levels found with existing state and EPA cleanup criteria in table format,
- disposition and expected contamination concentrations in any effluent from the proposed cleanup method,
- costs estimates and schedules for the design phase, construction/startup phase and the operation phase,
- designation of monitoring wells and proposed methodology for verifying accomplishment of PRAP goals (cleanup levels),
- general discussion of the treatment of contaminated soils, and
- recommendations for conducting pilot studies and obtaining additional information.

The PRAPs, as outlined herein, are not intended to fulfill the FDER Remedial Action Plan (RAP) requirements of Chapter 17-770, FAC or to provide all the information necessary to develop performance specifications for construction. The PRAPs will compare from two to four remedial technologies for cleanup of both groundwater and soil and the selected technology will be justified based on technical and economic feasibility. A conceptual design and rational for the design will be provided for the selected remedial technology.

If remedial action is not warranted, recommendations for either NFA or a MOP will be justified. PRAPs, NFAs, and MOPs will be submitted to SouthDIV and NAS Cecil Field in both a draft and final form. The NFAs and MOPs will be in accordance with Chapter 17-770, FAC guidelines.

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