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PRELIMINARY CONTAMINATION ASSESSMENT PLAN NORTH FUEL FARM NAS CECIL FIELD FL

9/1/1994

ABB ENVIRONMENTAL

PRELIMINARY CONTAMINATION ASSESSMENT PLAN
NORTH FUEL FARM
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT TASK ORDER (CTO): 105

CONTRACT NUMBER: N62467-89-D-0317

Prepared by:

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Prepared for:

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Southern Division
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Bryan Kizer, Engineer-In-Charge

September 1994

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Jacksonville, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
CA	contamination assessment
CAR	Contamination Assessment Report
CARA	Contamination Assessment Report Addendum
CTO	contract task order
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
GC	gas chromatograph
gpd/ft	gallons per day per foot
gpm	gallons per minute
msl	mean sea level
NAS	Naval Air Station
NFF	North Fuel Farm
NFFA	North Fuel Farm Area
PCA	preliminary contamination assessment
PCAP	Preliminary Contamination Assessment Plan
ppb	parts per billion
ppm	parts per million
PVC	polyvinyl chloride
RAP	Remedial Action Plan
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
SPT	standard penetration test
TRPH	total recoverable petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
VOA	volatile organic aromatic

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), has been contracted by the Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to prepare a Preliminary Contamination Assessment Plan (PCAP) for the North Fuel Farm (NFF) site at the U.S. Naval Air Station (NAS) Cecil Field, Jacksonville, Florida. The base is located in southwestern Duval County at the junction of Highway 228 (Normandy Boulevard) and 103rd Street (Figure 1-1). The PCAP outlines a strategy for the preliminary contamination assessment (PCA) field investigation and sampling program that will provide screening data to characterize and estimate the vertical and horizontal extent of groundwater contamination at the NFF site. Data from the PCA will be used to recommend locations and screen intervals for monitoring wells to be installed at the site. The PCA data will be summarized and presented in a Technical Memorandum for submittal to the Navy. The Technical Memorandum will outline the procedures necessary to assess the site so that a contamination assessment (CA) can be conducted in accordance with Chapter 17-770, Florida Administrative Code (FAC). A contamination assessment report addendum (CARA) summarizing the results, conclusions, and recommendations of the CA will be submitted to the Florida Department of Environmental Protection (FDEP) so that a Remedial Action Plan (RAP) can be prepared. The following PCAP includes a site description, background information, discussion of investigation methodologies, and a schedule for implementing the PCA.

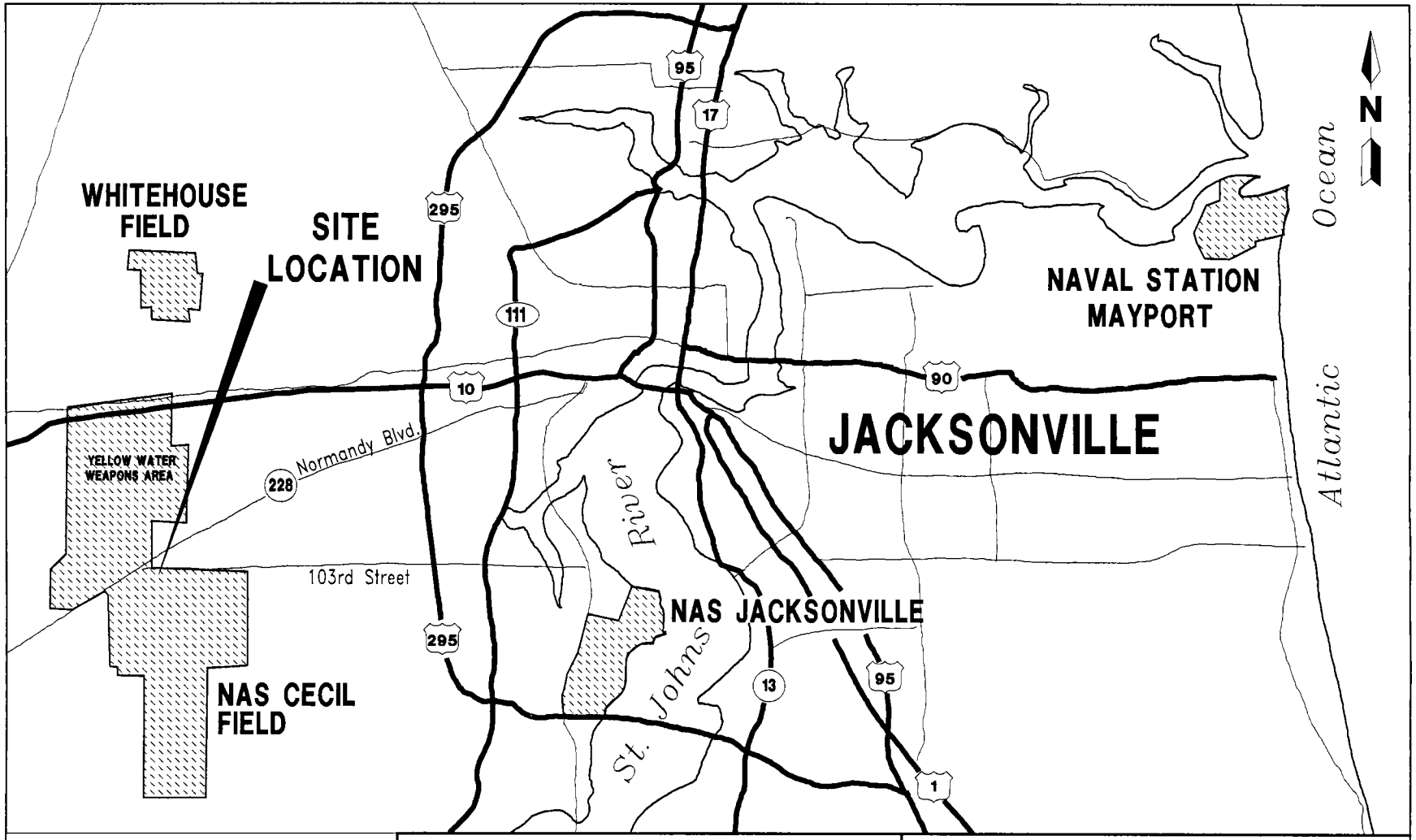

FIGURE 1-1
FACILITY LOCATION MAP

PRELIMINARY CONTAMINATION ASSESSMENT PLAN
NORTH FUEL FARM SITE

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

2.0 BACKGROUND

The North Fuel Farm Area (NFFA) is located at the northeast corner of "A" Avenue and Loop Road at NAS Cecil Field (Figure 2-1) and includes the NFF site, the Truck Stand site, the JP-5 spill site, and the seven dam and pond sites along Sal Taylor Creek. During the time the NFF has been in operation, several releases of jet fuel (JP-5) have been reported. The most recent major release occurred on February 9 and 10, 1991, when an estimated 960,000 gallons of JP-5 jet fuel was released from Tank 76E and entered Sal Taylor Creek. JP-5 was observed at seven locations along Sal Taylor Creek where the released fuel pooled at dams and ponds.

The Truck Stand, Facility 372, is located directly southeast of the NFF. Soil and groundwater contamination at the Truck Stand site is associated with fuel releases that occurred during tanker truck refueling operations. Site investigations were conducted and Contamination Assessment Reports (CARs) were submitted for the NFF and Truck Stand sites in 1991. The FDEP requested additional soil and groundwater data be acquired at the NFF and Truck Stand sites and reported as addenda to the CARs. FDEP also requested that the JP-5 spill site be assessed and that the CARs for the JP-5 spill site and the affected sites along Sal Taylor Creek be submitted together with the CAR addenda for the NFF and Truck Stand sites. The CAR and CARA for the NFFA sites were submitted to the FDEP in July, 1994.

During the supplemental field investigation at the NFF site, groundwater analytical data indicated that petroleum contamination in the existing vertical extent monitoring well (CEF-076-28D) exceeded the FDEP target cleanup level for benzene. (As a convenience, monitoring well prefix "CEF-076" will be replaced with "MW" in text, tables, and figures in this PCAP.) Additional deep and intermediate depth monitoring wells installed near and downgradient to well MW-28D (wells MW-39 through MW-41D) indicated that the petroleum contamination was extensive and migrating at depths ranging from approximately 35 feet to 100 feet below land surface (bls). Analytical results of groundwater samples from shallow monitoring wells (15 feet bls) in this area were below detection limits.

Tank maintenance and repair records that were made available to ABB-ES during the supplemental investigation indicated that holes in three of the NFF tanks had been discovered and repaired approximately 1 or 2 years after the tanks had been put into service. Based on this information and aquifer test data, ABB-ES estimated that large quantities of fuel had leaked from these tanks 35 to 40 years ago and migrated approximately 500 feet to 800 feet downgradient from the NFF.

After discussing the circumstances at the NFF site with the FDEP, it was agreed that the CAR and the RAP for the NFF site should be submitted separately from the other NFFA sites.

This PCAP presents the site location, summarizes previous investigations, and describes the proposed field investigation to be implemented at the NFF site.

2.1 SITE DESCRIPTION AND HISTORY. The NFF site is located at the northeast corner of "A" Avenue and Loop Road. A site plan map of the NFF facility is

presented in Figure 2-2. The fuel farm consists of six 595,000-gallon, interior-lined, asphalt-coated, steel, earth-mounded tanks, which contain JP-5 jet fuel. The tanks are numbered Tanks 76 and 76A through Tank 76E. Tanks 76 and 76A were installed in 1952; 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) was installed. Each tank has impressed-current-type corrosion protection. In addition, Tank 76 is equipped with an automatic shut-off system. The tanks are gauged daily.

The JP-5 spill area is located adjacent to Tank 76E on the northeast corner of the NFF (Figure 2-2). On February 10, 1991, approximately 960,000 gallons of JP-5 jet fuel overflowed from Tank 76E. The fuel flowed down the slope on the west side of the tank into a small drainage ditch that discharges into Sal Taylor Creek. The main area affected by the JP-5 release is that area where the fuel spread along the ground surface between Tank 76E and the drainage ditch. The JP-5 Spill Area site also includes a low-lying area northeast of Tank 76E where the fuel accumulated after it backed up in the drainage ditch and overflowed the bank.

ABB-ES was contracted by SOUTHNAVFACENGCOM in 1991 to conduct a CA to characterize and assess the vertical and horizontal extent of contamination at the NFF and to submit a CAR to the FDEP. Thirty-seven soil borings, 26 shallow monitoring wells, and 4 deep monitoring wells were installed at the site. Soil and groundwater samples were collected and analyzed for petroleum constituents of the kerosene analytical group as defined in Chapter 17-770, FAC. In June 1992 ABB-ES submitted a CAR for the NFF to the FDEP. The NFF CAR stated the following.

- Free product was observed in seven of the monitoring wells at the North Fuel Farm. The maximum free product thickness was 6.0 feet. Contamination detected in water samples exceeded Chapter 17-770, FAC, regulatory standards for total volatile organic aromatics (VOA), benzene, total naphthalenes, and total recoverable petroleum hydrocarbons (TRPH).

- Excessively contaminated soil was detected in the area between the tank farm and A Avenue. Excessively contaminated soil was detected at depths ranging from 0 to 5.5 feet bls.

- There are two potable wells on the base within a ¼-mile radius of the site. Neither well is expected to be impacted by petroleum contamination from the site.

- The sources of the contamination appear to be leaks and spills from the tanks and the overflow from an oil/water separator (which is currently being used as a containment tank) at the North Fuel Farm.

- Groundwater and soil contamination at the North Fuel Farm exceeds Chapter 17-770, FAC, regulatory levels.

- The contaminant plume, based on free product measurement and laboratory analytical results for total VOA, is entirely on Navy property. The vertical extent of the contamination exceeds 89 feet bls. The contaminant plume has migrated downgradient (radially) from the source area (the North Fuel Farm).

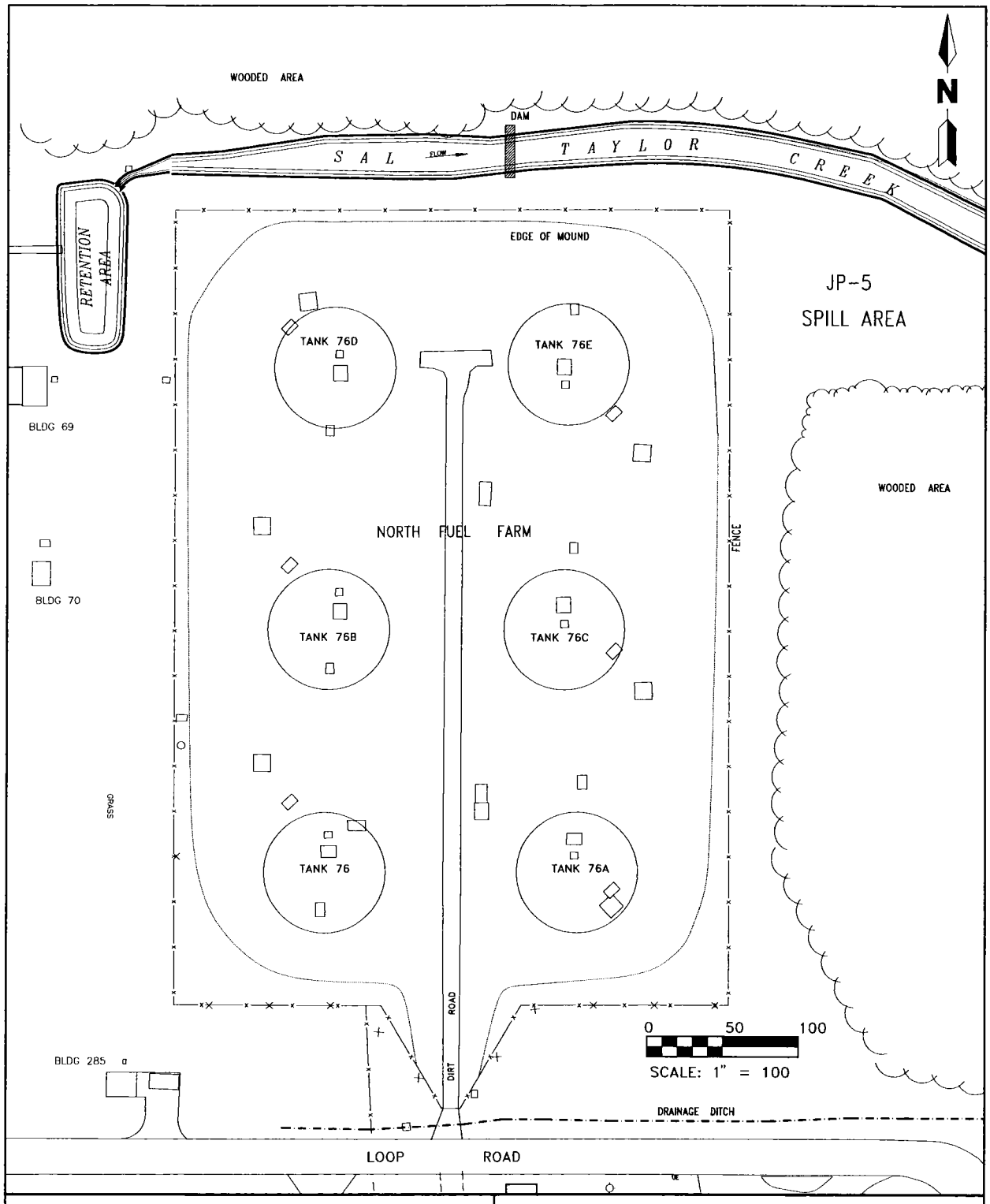

FIGURE 2-2
NORTH FUEL FARM SITE MAP

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PRELIMINARY CONTAMINATION ASSESSMENT PLAN
NORTH FUEL FARM AREA SITE

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

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Based on the North Fuel Farm CA results, ABB-ES recommended that a RAP be prepared to address the petroleum contamination at the site. FDEP reviewed the NFF CAR and recommended that additional soil borings and monitoring wells be installed and sampled to better delineate the extent of soil contamination and free product at the site. FDEP also recommended that the 960,000-gallon JP-5 fuel spill at the NFF be assessed and that the comments to the NFF CAR be incorporated into the CAR for the 960,000-gallon release. A copy of the FDEP comments for the NFF CAR is included in Appendix A, FDEP Correspondence.

ABB-ES field personnel returned to the NFF in January 1994 and installed three shallow monitoring wells (MW-31, MW-32, and MW-34) and one two-stage deep monitoring well (MW-33D). The additional monitoring wells were installed at the request of the FDEP (see the September 1992 CAR comments letter [Appendix A]).

ABB-ES field personnel returned to the NFF in May 1994 to further delineate the extent of free petroleum product west of the tank farm and east of "A" Avenue and to address the vertical extent of groundwater contamination detected in deep monitoring well MW-28D. Five shallow monitoring wells (MW-35 through MW-38 and MW-42) were installed west of the tank farm and east of "A" Avenue. No free petroleum product was detected in any of the five free product delineation wells.

The concentration of benzene in monitoring well MW-28D was 750 parts per billion (ppb) in February 1994. The well was resampled on May 5, 1994, because it was determined that contamination from above the screen interval (80 feet to 90 feet bls) was drawn into the well during purging. Well MW-28D was purged at a lower flow rate to reduce the possibility of contamination being drawn into the screen from above. The concentration of benzene following the second sampling event was 43 ppb. Two intermediate double-cased wells (MW-39D and MW-40D) and one double-cased deep well (MW-41D) were installed to obtain additional data on the extent of groundwater contamination downgradient from well MW-28D. Wells MW-39D and MW-40D were advanced to 65 feet bls and 55 feet bls, respectively. Deep well MW-41D was advanced to 118.5 feet bls. Six-inch polyvinyl chloride (PVC) surface casing was set in intermediate monitoring wells MW-39D and MW-40D and deep well MW-41D at depths of 30 feet bls and 105 feet bls, respectively. Monitoring wells MW-39D, MW-40D, and MW-41D were installed with 10 feet of 10-slot PVC screen.

Following installation of wells MW-39D, MW-40D, and MW-41D, groundwater samples were collected from all accessible monitoring wells associated with the NFF site. A total of 33 groundwater samples were collected in February and May 1994 and analyzed using U.S. Environmental Protection Agency (USEPA) Methods for kerosene analytical compounds as defined in the Chapter 17-770, FAC.

Groundwater samples were not collected from monitoring wells MW-02, MW-15, MW-16, MW-17, and MW-23 because free product was present in those wells at the time of sample collection. At the request of FDEP, however, groundwater samples were collected from shallow monitoring wells MW-01 and MW-04 that contained free product. The groundwater samples were collected below the free petroleum product-groundwater interface using a sampling method recommended by the FDEP.

The following is a brief summary of the extent of petroleum contamination at the NFF site. Free product was observed and measured in seven of the monitoring wells at the NFF site. The maximum free product thickness was 5.03 feet. The greatest concentrations of contaminants detected in groundwater samples from wells not containing free product are as follows: total VOA concentrations were

12,900 ppb, benzene was 7,400 ppb, total naphthalenes were 1,260 ppb, and TRPH were 15.2 parts per million (ppm). Chapter 17-770, FAC, regulatory standards for total VOA, benzene, total naphthalenes, and TRPH are 50 ppb, 1 ppb, 100 ppb, and 5 ppm, respectively.

Sources of contamination at the site are believed to be leaks and spills from the tanks and overflow from a former oil-water separator that is currently used as an overflow containment tank for Day Tank 1.

Groundwater and soil contamination at NAS Cecil Field NFF exceeds Chapter 17-770, FAC, regulatory levels.

3.0 SITE CONDITIONS

3.1 REGIONAL PHYSIOGRAPHY. Duval County lies within the northern, or proximal zone, geomorphic province. It is characterized by continuous high ground forming a broad upland that extends eastward to the Eastern Valley and westward continuously into the Western Highland of Florida (Scott, 1978). NAS Cecil Field is situated on the Duval upland, which is essentially a relict marine terrace. Elevations range from 20 to 30 feet above mean sea level (msl) at the toe to greater than 70 feet above msl at the crest of the upland scarp. Elevations continue to increase westward across the upland becoming greater than 100 feet above msl at its western limit, the base of the Trail Ridge (White, 1970).

3.2 SITE-SPECIFIC PHYSIOGRAPHY. Topography at the NFF has been altered greatly due to the mounding of earth around the storage tanks. Elevations range from approximately 76 to 98 feet above msl. Sediments of the area consist typically of sand and clayey sand (Scott, 1978; Leve, 1966). Because of the presence of the earth-mounded tanks, surface drainage is radially away from fuel farm. General surface drainage in the surrounding area of the fuel farm is to the east.

3.3 REGIONAL HYDROGEOLOGY. In northeastern Florida, the distribution of sediments is controlled by the Peninsular Arch and the Southeast Georgia Embayment. More than 1,500 feet of Eocene Age and younger sediments were deposited in the region.

The underlying unconsolidated geologic sequence consists of flat-lying deposits of sand, silt, and clay overlying a thick sequence of marine carbonates. The three discernible underlying geologic units in the region are: (1) the surficial deposits, which form a unit approximately 40 to 100 feet thick and are of Late Miocene to Recent Age; (2) the Hawthorn Group, which is approximately 300 feet thick and of middle Miocene Age; and (3) the marine carbonate sequences of the Floridan aquifer system, which are of Eocene Age and comprise a unit greater than 1,000-feet thick.

The Ocala Group is composed of Eocene Age limestone formations, which are the principal consolidated formations near NAS Cecil Field. The Eocene Age limestone formations in Duval County slope northeastward and form an irregular trough or basin, which extends from south-central Duval County northeastward into northeastern Nassau County.

3.3.1 Shallow Aquifer The surficial deposits consist of sediments of upper Miocene Age and younger, and comprise the shallow aquifer. Surficial deposits can be divided into undifferentiated sediments of Pleistocene and Recent Age and sediments of upper Miocene and Pliocene Age. These sediments were deposited in lagoon and estuarine environments. The Pleistocene and Recent Age sediments extend from the surface to about 40 feet below land surface (bls). These highly variable sediments include quartz sand, shelly sand, coquina, silt, clay, and shell beds. Iron oxide-cemented (rusty red color hardpan) fine-grained sand sediments are common in the upper part of the surficial deposits. Upper Miocene and Pliocene sediments consist of interbedded silty clay and clayey sand; sand; shell; and soft friable limestone prevalent at the base of these deposits. The contact between the upper Miocene and Pliocene deposits and the underlying

Hawthorn Group is an unconformity identified by a coarse phosphatic sand and gravel bed (Leve, 1968). When coarse-grained phosphatic sand and gravel are not present, the contact is phosphatic sandy clay or clayey sand, dolostone, or a magnesium-rich clay.

The shallow aquifer beneath central and eastern Duval County is composed of a series of permeable zones separated by confining or semi-confining beds. The groundwater flow direction in the water table zone tends to reflect the surface topography of the area. Groundwater in this zone generally flows from higher to lower topographic areas or discharge areas (e.g., springs or streams that intersect the water table). Throughout much of NAS Cecil Field, the water table zone generally flows southeast toward the St. Johns River.

The shallow aquifer is recharged by local precipitation. The average annual precipitation for Duval County is 52 to 54 inches. Water level hydrography indicates that 10 to 16 inches of rainfall recharges the shallow aquifer annually (Fairchild, 1972). Recharge was estimated by Hendry using a porosity of 20 percent. Discharge of the shallow aquifer occurs by evapotranspiration, seepage into surface water bodies, downward leakage into the underlying Hawthorn Group (intermediate artesian aquifer), and well pumpage.

3.3.2 Intermediate Artesian Aquifer The Hawthorn Group lies unconformably above the Crystal River Formation within the Ocala Group. Lithologically, the Hawthorn Group is quite variable and consists of calcareous, phosphatic sandy clay, and clayey sand interbedded with thin discontinuous lenses of phosphatic sand, phosphatic sandy limestone, limestone, and dolostone. The limestone and dolostone lenses are thicker and more prevalent near the base of the Hawthorn.

Phosphate is present throughout Hawthorn Group sediments, comprising one of the primary lithologic constituents. The most common carbonate components of the Hawthorn Group are dolomite and dolosilt. Clay minerals associated with the Hawthorn Group sediments are smectite, illite, palygorskite, and kaolinite.

The Hawthorn Group serves as a confining layer that separates the 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. Water levels indicate that groundwater flow in the intermediate artesian aquifer in the NAS Cecil Field area is towards the east (Fairchild, 1972).

3.3.3 Floridan Aquifer System The marine carbonate sequences that make up the Floridan aquifer system beneath NAS Cecil Field consist of the following formations in descending order:

- the Ocala Group, which consists of the Crystal River Formation, the Williston Formation, and the Inglis Formation;
- the Avon Park Limestone;
- the Lake City Limestone; and
- the Oldsmar Limestone.

These formations range in age from the Late Eocene Crystal River Formation to the Early Eocene Oldsmar Limestone.

The Crystal River Formation is a white to cream, chalky, massive fossiliferous limestone and is the youngest Eocene formation underlying NAS Cecil Field. The Williston Formation, which lies conformably between the overlying Crystal River Formation and the underlying Inglis Formation, is a tan to buff granular limestone. The Inglis Formation, of late Eocene Age, is a tan to buff calcitic limestone very similar in appearance and composition to the Williston Formation (Leve, 1968).

The Avon Park Limestone, of middle Eocene Age, unconformably underlies the Ocala Group. It consists of alternating beds of tan, hard, massive dolomite, and brown to cream, granular, calcitic limestone. The Lake City Limestone unconformably underlies the Avon Park Limestone and is also Eocene in age. Lithologically, it consists of alternating beds of white to brown, chalky to granular limestone with lignite bands, and gray to tan dolomite. Below the Lake City Limestone is the Oldsmar Limestone of early Eocene Age. It consists of a cream to brown, soft, granular limestone and cherty, glauconitic, massive to finely crystalline dolomite (Leve, 1968).

The Floridan aquifer system is the principal source of freshwater in northeast Florida. Recharge to the Floridan aquifer system is predominantly by direct rainfall along the Ocala Uplift where the limestone of the aquifer outcrops at land surface. In northeast Florida, there is an area of recharge that encompasses western Clay and Putnam Counties and eastern Bradford and Alachua Counties, as close as 30 miles southwest of NAS Cecil Field. Permeable sand and gravel facies of the Hawthorn Group outcrop in this area, which appears to be hydraulically connected to the Floridan aquifer system. The top of the Floridan aquifer system in the vicinity of NAS Cecil Field occurs at a depth ranging from 275 to 400 feet bls (Causey, 1978). The groundwater in the Floridan aquifer system in this vicinity is moving northeastward toward the cone of depression in Jacksonville caused by heavy pumpage (Leve, 1968).

3.4 SITE-SPECIFIC HYDROGEOLOGY. The Holocene to Pliocene undifferentiated deposits that contain the surficial aquifer are of variable thickness at NAS Cecil Field. At the NFF, these deposits are approximately 90 feet thick. The sediments generally constitute a coarsening-upward sequence. From land surface to approximately 50 feet bls, the sediments are typically fine- to very fine-grained, brown to tan, quartz sand and silt. From 50 to approximately 90 feet bls the sediments become silty to clayey, gray to green, quartz sands with intermittent, olive green clay stringers, beginning at 60 feet bls. At approximately 90 feet bls, the deposits are characteristically gray to green sand with shell fragments. It is likely these latter deposits constitute the base of Pliocene Age deposits or the uppermost parts of the Miocene Age Coosawhatchie Formation.

Measured depth to water varied across the site from 2 to 4 feet bls in the shallow wells and from 4 to 8 feet bls in the deep wells. It is likely that the coarsening-upward sequence and the deeper clay stringers act as a semi-confining unit, separating the surficial aquifer into upper and lower parts; thus, the difference of water level depths between the shallow and the deep wells. The water table surface approximately parallels topography; thus, groundwater flow

direction in the shallow wells is radial around the tank farm. The groundwater flow direction in the lower part of the surficial aquifer was not estimated because only four deep wells, screened at various intervals, were installed.

4.0 POTABLE WELL SURVEY

A potable well survey was conducted to identify potable water sources within a ¼-mile radius of the NFF site. NAS Cecil Field currently uses five onsite wells for all potable water. These wells are numbered PS-1 through PS-5. Table 4-1 lists the construction and operation information for these wells.

Table 4-1
Potable Well Data

Contamination Assessment Plan
North Fuel Farm
NAS Cecil Field, Jacksonville, Florida

Well	Date Installed	Depth (feet)	Static Level (feet)	Drawdown (feet)	Yield (gpm)
PS-1	1941	887	30	8	450
PS-2	1945	907	33	13	525
PS-3	1950	950	33	11	500
PS-4	1956	1,303	34	15	1,000
PS-5	1956	1,350	35	15	1,000

Source: Geraghty & Miller, 1986

Note: gpm = gallons per minute.

Potable water wells PS-4 and PS-5 are located within ¼ mile and downgradient of the NFF. These wells have total depths of 1,303 and 1,350 feet, respectively. Both wells produce from the Floridan aquifer system.

No surface water bodies in the area are used as potable water sources (Envirodyne Engineers, 1985).

No private potable wells are within 1 mile of this site (Geraghty & Miller, 1983).

5.0 PROPOSED ASSESSMENT PLAN

5.1 FIELD INVESTIGATION. To assess the horizontal and vertical extent of groundwater contamination, the preliminary investigation will consist of collecting groundwater samples from approximately 20 locations using a Hydropunch™ or similar equipment. Soil samples will be collected in the upper water-bearing zone to assess the general lithology.

The Hydropunch™ will be used in conjunction with conventional hollow-stem auger drilling techniques. The drilling rig will be placed on the proposed sampling locations (Figure 5-1) and drilling will begin using hollow-stem augers to the desired sampling depth. Soil samples will be collected at depth intervals of 5 feet using standard penetration tests (SPT) with steel split-spoon samplers. Groundwater samples will be collected at depth intervals of 20 feet using the Hydropunch™ or similar equipment. Before soil sample collection, the Hydropunch™ will be driven past the bottom of the hollow-stem augers into the desired sampling zone. This will allow a sample to be collected from the undisturbed material below the drill bit.

The strategy for delineating the vertical and horizontal extent of contaminated groundwater using the Hydropunch™ will be to initially start at a location near the west bank of Sal Taylor Creek, approximately 400 feet east of Tanks 76A and 76E. Subsequent locations will be spaced at 150- to 200-foot intervals in a radial pattern from areas where contamination is detected. The proposed Hydropunch™ sampling locations are shown in Figure 5-1. Hydropunch™ locations are numbered in the order in which the samples would be collected for an average to worst case contaminant plume. During the CA at the JP-5 spill site, benzene was detected in deep double-cased monitoring well MW-17D. The concentration of benzene in the groundwater sample from MW-17D was 47 ppb in May 1994. It is possible that the contaminant plume from Tanks 76A and 76C may have migrated as far as the JP-5 spill site. Therefore, a Hydropunch™ location (No. 4) is proposed adjacent to MW-17D at the JP-5 spill site. Subsequent Hydropunch™ locations No. 8 and No. 13 are proposed to assess downgradient and side gradient contaminant migration.

5.2 SAMPLE COLLECTION AND ANALYSIS. Soil and groundwater samples will be collected from each of the 20 proposed Hydropunch™ sampling locations. Twenty soil samples will be collected at each of the 20 sampling locations using split spoons every 5 feet from land surface to approximately 100 feet bls. An estimated total of 400 split-spoon soil samples will be collected during the preliminary investigation at the NFF site.

Five groundwater samples will be collected from each sampling location using the Hydropunch™ or similar equipment. These samples will be collected at vertical depth intervals of 20 feet bls to an approximate depth of 100 feet bls. An estimated total of 100 groundwater samples will be collected.

Groundwater samples will be analyzed in the field for petroleum-related hydrocarbon constituents using a purge-and-trap gas chromatograph (GC). In addition, 10 of the 100 groundwater samples will be split with an FDEP-approved laboratory to verify the validity of the GC screening data and to assure quality

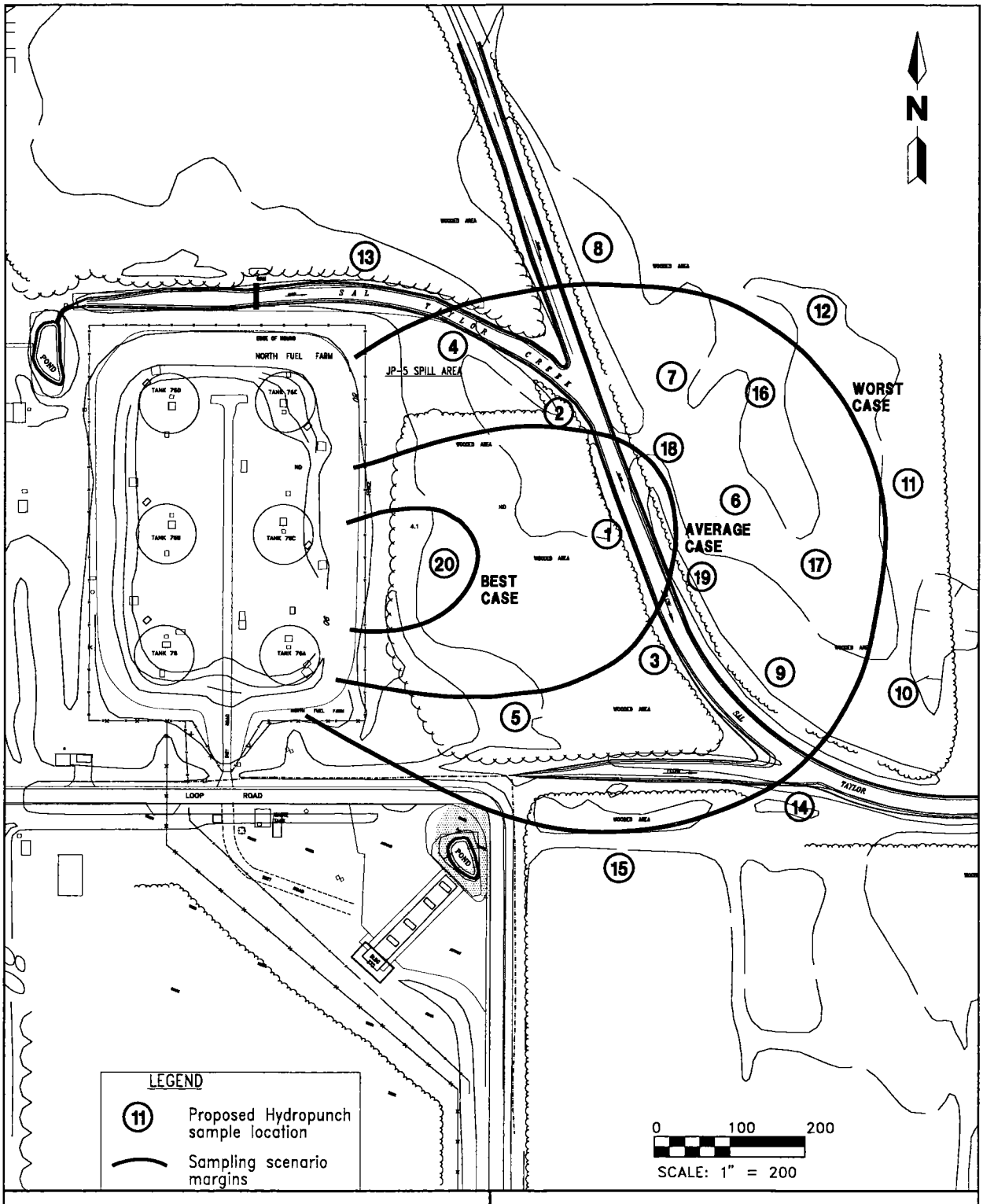

FIGURE 5-1
PROPOSED HYDROPUNCH SAMPLING LOCATIONS MAP

CECIL\NORTHDAM\KGP\09/12/94

PRELIMINARY CONTAMINATION ASSESSMENT PLAN
NORTH FUEL FARM SITE

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

control. The locations and depth of the groundwater samples for laboratory analysis will be determined by the onsite Field Operations Leader and Technical Lead.

5.3 **TECHNICAL MEMORANDUM PREPARATION**. A Technical Memorandum addressing deep petroleum contamination at the NFF site will be prepared and submitted to SOUTHNAVFACENGCOM and NAS Cecil Field subsequent to completion of the preliminary field investigation. Site location maps, locations of borings, and contaminant isoconcentration maps will also be included in the Technical Memorandum. Recommendations will be made for additional investigation, if needed, to complete the CARA for the site. The Technical Memorandum will serve as a basis for the anticipated Statement of Work to complete the CARA.

6.0 REFERENCES

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APPENDIX A

FDEP Correspondence

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

September 17, 1992

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Carl Loop
Code 18237
Department of the Navy
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
Post Office Box 10068
Charleston, South Carolina 26411-0068

Dear Mr. Loop:

Department personnel have completed the technical review of the Final Draft Contamination Assessment Report for the North Fuel Farm Facility 76, NAS Cecil Field. I have enclosed a memorandum addressed to me from Mr. Mark Canfield. It documents our comments on the referenced report.

If I can be of any further assistance with this matter, please contact me at 904/488-0190.

Sincerely,

Craig F. Feeny For

Eric S. Nuzie
Federal Facilities Coordinator

ESN/bb

Enclosure

cc: Mark Canfield
Brian Cheary
Lynn Griffin
John Mitchell
Jerry Young
Allison Drew
John Dingwall
Basit Ghori

For Routing To Other Than The Addressee
To: Location:
To: Location:
To: Location:
From: Date:

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

TO: Eric S. Nuzie, Federal Facilities Coordinator
Bureau of Waste Cleanup

THROUGH: Dr. James J. Crane, Environmental Administrator
Technical Review Section
Bureau of Waste Cleanup

Tim J. Bahr, Technical Review Section
Bureau of Waste Cleanup

FROM: Mark A. Canfield, Technical Review Section
Bureau of Waste Cleanup

DATE: September 8, 1992

SUBJECT: Final Draft, CAR dated June 1992
North Fuel Farm Facility 76
Cecil Field, Naval Air Station

In my phone conversation, August 28, 1992, with Mr. Carl Loop of the Navy's Southern Division we discussed the North Fuel Farm (Facility 76) and the 900,000 gallon JP-5 Fuel Spill at this location. In our discussion we agreed that the comments generated by the FDER after reviewing the CAR listed above would be incorporated into the Contamination Assessment Report (CAR) for the 900,000 gallon site. In the future documentation for these sites will be combined and the sites approached as one.

After reviewing the above listed document I find that in order to meet the requirements of Chapter 17-770, Florida Administrative Code (F.A.C.), the following comments need to be addressed:

1. Additional detail is needed on Figure 2-3 indicating the location of the nearby stream in relation to the North Fuel Farm and also the area covered by the 900,000 JP-5 fuel spill.

2. Free product recovery should be implemented in accordance with Rule 17-770.300(1), F.A.C., if measurable amounts are detected at any monitoring well. Additionally, an update of the recovery efforts conducted, particularly on free product thicknesses measured and volumes recovered to date, should be provided.

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3. The method for ensuring the structural integrity of the existing product storage/distribution system should be indicated. What, if anything, is done besides gauging the tanks?

4. Soil assessment should be redone, in accordance with Rule 17-770.200(2), F.A.C., and the Department's May 1992 "Guidelines for Assessment and Remediation of Petroleum Contaminated Soils", and performed in the locations indicated below to establish the horizontal and vertical extent of soil contamination in the unsaturated zone following the February 1991 spill. The locations should include:

   a. Within the fenced area of the North Fuel Farm east of SB-28 and SB-10.
   b. Those areas affected by the 900,000 gallon JP-5 spill of February 1991 and not covered in the Contamination Assessment for that spill.

   The OVA values should be summarized in a table, and the approximate extent of soil contamination should be represented in graphic form. Please note, performing the supplemental soil assessment in conjunction with soil IRA (excavation/treatment/disposal) is acceptable, if planned.

5. Additional, permanent monitoring wells should be installed to define the horizontal and vertical extent of the groundwater contamination. Wells should be installed in the following locations:

   a. One shallow monitoring well should be installed west of CEF-076-23.
   b. One shallow monitoring well should be installed in the vicinity of Building 70.
   c. One deep well, screened between 30-35 feet, should be installed in the immediate vicinity of CEF-076-04. The well should be constructed so as not to allow contamination to migrate along the borehole.

   Note. A table summarizing the construction details (particularly the screened interval) of all monitoring wells should be provided.

6. Following installation of the supplemental monitoring wells (and following performance of soil IRA, if planned), a complete round of sampling and analysis for EPA Methods 602 (including MTBE) and 610 should be performed, so that this

review can be completed and a Remedial Action Plan (RAP) prepared based on current data and water quality condi tions subsequent to soil remediation. Note, additional monitoring wells should be installed if significant contaminant concentrations are detected at perimeter monitoring wells of any affected stratum or at the vertical extent well.

7. The complete round of sampling and analyses, requested above, should also include selecting two representative monitoring wells containing free product and sampling the groundwater below the free product for EPA Methods 602 (including MTBE) and 610.

8. Following installation of the supplemental monitoring wells, and concurrent with the sampling event, a complete set of water level measurements must be obtained to verify the direction of groundwater flow and to estimate fluctuations in the water table. These data must be provided in tabular form (including top of casing elevations, depths to water, and corresponding water level elevations) and in graphic form showing their interpretation of the groundwater flow direction.

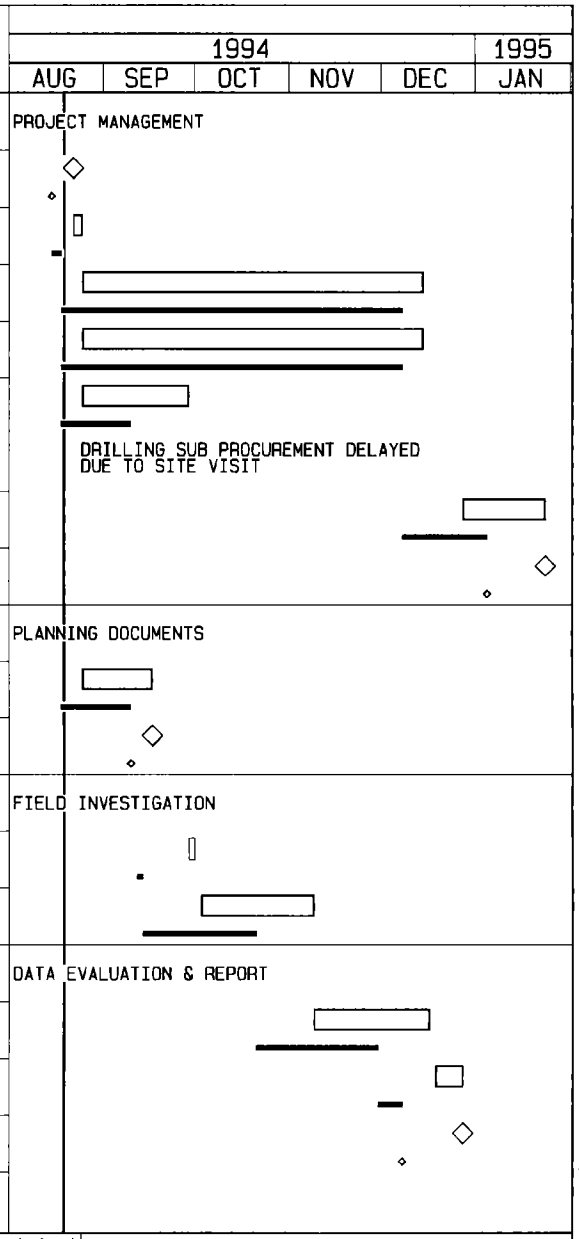
9. Please have the results of the supplemental assessment provided to me within sixty (60) days of receipt of this request. If additional time is needed, a time extension request should be submitted, in accordance with Rule 17-770.800(6), F.A.C. If Navy personnel should have any questions concerning this review, please have them contact you or me at (904) 488-0190.

10. Please note, all supplemental contamination assessment related documents should be signed and sealed by a registered professional in accordance with Rule 17-770.500, F.A.C. The certification should be made by a registered professional who is able to demonstrate competence in the subject area(s) addressed within the sealed document.

APPENDIX B

Project Schedule

ACTIVITY DESCRIPTION	Planned Start	Planned Finish	EARLY START	EARLY FINISH	ORIG DUR	REM DUR
MOD 3 NOTICE TO PROCEED	15AUG94		22AUG94		0	0
MOD 3 JOB START-UP	15AUG94	17AUG94	22AUG94	24AUG94	3	3
MOD 3 PROJECT MANAGEMENT	18AUG94	7DEC94	25AUG94	14DEC94	77	77
MOD 3 TFMR ACTIVITIES	18AUG94	7DEC94	25AUG94	14DEC94	77	77
SUBCONTRACTOR PROCUREMENT	18AUG94	9SEP94	25AUG94	28SEP94	16	24
MOD 3 JOB CLOSEOUT	8DEC94	4JAN95	28DEC94	23JAN95	18	18
MOD 3 JOB COMPLETE		4JAN95		23JAN95	0	0
DEVELOP PCAP AND HASP (NFF)	18AUG94	9SEP94	25AUG94	16SEP94	16	16
SUBMIT REVISED PCAP & HASP (NFF)		9SEP94		16SEP94	0	0
FLD INVESTIG. MOBILIZATION (NFF)	12SEP94	13SEP94	29SEP94	30SEP94	2	2
FIELD INVESTIGATION (NFF)	14SEP94	20OCT94	30CT94	8NOV94	27	27
PREPARE TECH MEMO (TM) (NFF)	21OCT94	29NOV94	9NOV94	16DEC94	26	26
TECH REVIEW OF TM (NFF)	30NOV94	7DEC94	19DEC94	27DEC94	6	6
SUBMIT TECH MEMO (NFF)		7DEC94		27DEC94	0	0



Target Date 6SEP90
Plot Date 15SEP94
Data Date 19AUG94
Project Start 20SEP93
Project Finish 20OCT95

Activity Bar/Early Dates
Critical Activity
Progress Bar
Target Dates
Milestone/Flag Activity

R022 A105

Sheet 1 of 1

CTO NO. 105 NAS CECIL FLD UST/CA, DEEP PLUME EXTENT CURRENT PROJECT SCHEDULE

ABB-ES, INC. / NAVY CLEAN PROGRAM

Date	Revision	Checked	Approved