

N60200.AR.002617
NAS CECIL FIELD, FL
5090.3a

SAMPLING AND ANALYSIS REPORT FOR FACILITY 616 REVISION 3 BASE REALIGNMENT
AND CLOSURE NAS CECIL FIELD FL
8/21/2000
TETRA TECH NUS INC

Rev. 3.0
08/21/00

Sampling and Analysis Report
for
Facility 616
Revision 3.0
Base Realignment and Closure

Naval Air Station Cecil Field
Jacksonville, Florida



Southern Division
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order 0078

August 2000

**SAMPLING AND ANALYSIS REPORT
FOR
FACILITY 616
REVISION 3.0
BASE REALIGNMENT AND CLOSURE**

**NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA**

**COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT N62467-89-D-0088**

**Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406**

**Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220**

**CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0078**

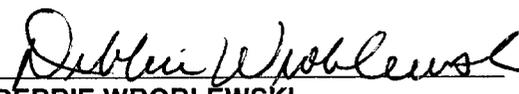
AUGUST 2000

PREPARED UNDER THE SUPERVISION OF:

APPROVED FOR SUBMITTAL BY:



**MARK SPERANZA, P.E.
TASK ORDER MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA**



**DEBBIE WROBLEWSKI
PROGRAM MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA**



CERTIFICATION OF TECHNICAL
DATA CONFORMITY

The Contractor, Tetra Tech NUS, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-94-D-0888 are complete and accurate and comply with all requirements of this contract.

DATE: August 21, 2000

NAME AND TITLE OF CERTIFYING OFFICIAL:

Mark Speranza, P.E.
Task Order Manager



The professional opinions rendered in this decision document identified as Sampling and Analysis Report for Facility 616, Naval Air Station Cecil Field, Jacksonville, Florida were developed in accordance with commonly accepted procedures consistent with applicable standards of practice. Decision documents are based on information obtained from others and under the supervision of the signing engineer. If conditions are determined to exist differently than those described in this document, then the undersigned professional engineer should be notified to evaluate the effects of any additional information on this project described in this report.

Mark Speranza

Mark Speranza, P.E.
Professional Engineer No. PE0050304

Date: 8/21/00

Mark Speranza

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE NO.</u>
CERTIFICATION OF TECHNICAL DATA CONFORMITY	ii
PROFESSIONAL ENGINEER AUTHORIZATION	iii
ACRONYMS.....	v
1.0 INTRODUCTION.....	1-1
2.0 FIELD INVESTIGATIONS.....	2-1
3.0 DATA EVALUATION AND REMOVAL ACTION	3-1
3.1 HUMAN HEALTH PRELIMINARY RISK EVALUATION	3-1
3.2 ECOLOGICAL PRELIMINARY RISK EVALUATION	3-4
3.3 REMOVAL ACTION	3-6
4.0 CONCLUSIONS AND RECOMMENDATION.....	4-1
REFERENCES	R-1

TABLES

<u>NUMBER</u>	<u>PAGE NO.</u>
3-1 Preliminary Human Health Risk Evaluation Table for Analytes Detected in Soil.....	3-2
3-2 Preliminary Ecological Risk Evaluation Table for Analytes Detected in Soil.....	3-5

FIGURES

<u>NUMBER</u>	<u>PAGE NO.</u>
1-1 General Location Map	1-3
1-2 Site Location Map.....	1-4
2-1 Sample Location Map.....	2-2
3-1 Sample Location and Exceedance Map.....	3-3
3-2 Soil Excavation Limits.....	3-7

ACRONYMS

ABB-ES	ABB Environmental Services, Inc.
BCT	BRAC Cleanup Team
bgs	below ground surface
BRAC	Base Realignment and Closure
CLEAN	Comprehensive Long-Term Environmental Action Navy
CTO	Contract Task Order
EBS	Environmental Baseline Survey
ELCR	Excess Lifetime Cancer Risk
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
HLA	Harding Lawson and Associates
HQ	Hazard Quotient
IBDS	Inorganic Background Data Set
mg/kg	milligram per kilogram
NAS	Naval Air Station
PCB	Polychlorinated Biphenyl
ppm	parts per million
PRE	Preliminary Risk Evaluation
RBC	risk-based concentration
SAO	Sampling and Analysis Outline
SAR	Sampling and Analysis Report
SCTL	Soil Cleanup Target Level
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
TAL	Target Analyte List
TRPH	Total Recoverable Petroleum Hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
U.S. EPA	U.S. Environmental Protection Agency
UST	Underground storage tank

1.0 INTRODUCTION

This Sampling and Analysis Report (SAR) for Facility 616 (Revision 2.0) has been prepared by Tetra Tech NUS, Inc. (TtNUS) for the Department of the Navy Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM). This document presents new information and conclusions, and therefore has been designated Revision 2.0. This document replaces the previous SAR (Revision 1.0). The work was conducted under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Program, Contract Number N62467-94-D-088, Contract Task Order (CTO) 0078.

Facility 616 is located at the northwestern corner of the intersection of East Perimeter Road and Warehouse Road, in the Yellow Water Weapons Area, as shown on Figures 1-1 and 1-2. Facility 616, referred to as a Standby Generator Building [ABB Environmental Services, Inc. (ABB-ES), 1994a], had a 5,000-gallon diesel fuel underground storage tank (UST) G616 that was installed in 1960 and removed by Bechtel Environmental, Inc. on April 15, 1997. A Closure Report was prepared for UST G616 and submitted to the Florida Department of Environmental Protection (FDEP). Environmental concerns associated with the UST are being addressed separately under the Cecil Field Petroleum Tank Program (ABB-ES, 1998).

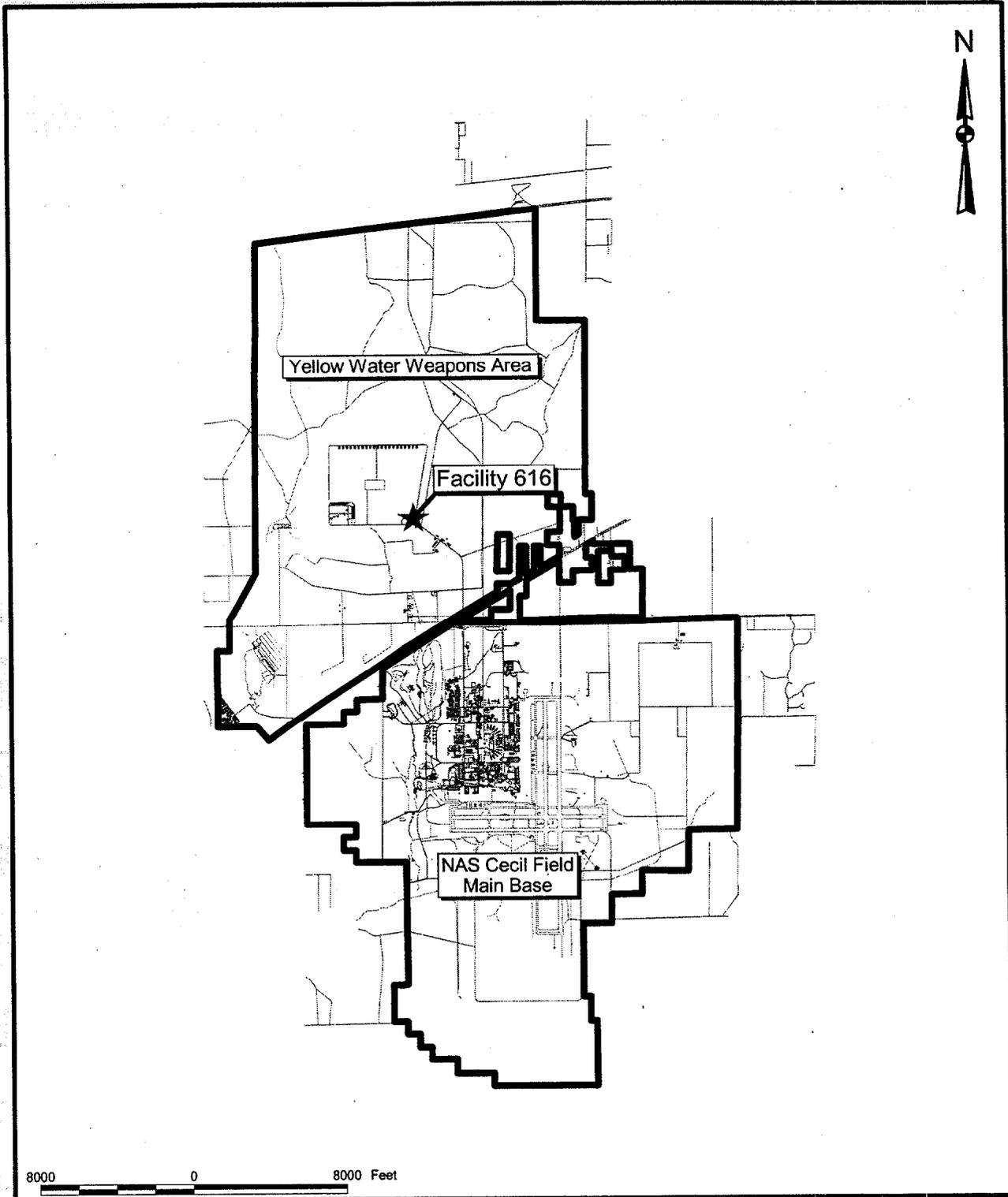
Facility 616 was color-coded Grey in the Environmental Baseline Survey (EBS) Report (ABB-ES, 1994a) due to the presence of a pad-mounted electrical transformer, friable asbestos material within the building, and the UST. A 1993 inventory determined that the dielectric fluid in the pad-mounted transformer contains 10 parts per million (ppm) of polychlorinated biphenyls (PCBs). The inventory also identified a PCB-contaminated pole-mounted transformer (210 ppm) located southwest of Building 616. No visible indications of dielectric fluid leakage were noted during the EBS or subsequent site walkovers. Management of PCB-contaminated electrical equipment was coordinated through NAS Cecil Field Environmental Department. The Asbestos Management Plan indicates that asbestos-containing materials in Facility 616 are in fair condition and may be adequately managed through implementation of an operations and maintenance program [Harding Lawson Associates (HLA), 1999].

An additional concern identified during a site reconnaissance walkover, conducted by HLA in August 1995, involved stained soil and stressed vegetation observed beneath a pipe protruding from the north wall of the building. This pipe is connected to the oil pans of diesel engines within the building and is likely used for engine maintenance. A Sampling and Analysis Outline (SAO), prepared by ABB-ES and approved by the BRAC Cleanup Team (BCT) (ABB-ES, 1996), included a plan for assessment of surface soil in the area of stained soil and stressed vegetation near the oil service pipe protruding from the north wall of Facility 616.

A sampling and Analysis Report (SAR) Revision 1.0 was issued by HLA in June 1999. The SAR concluded that the TRPH concentration associated with the oil-service pipe protruding from the north wall of the

building decreased significantly with increasing distance from the pipe and also concluded that the TRPH concentration had been delineated. HLA provided a specification for removal of contaminated soil in the Appendix of the SAR (HLA, 1999). A source removal was conducted for the petroleum-contaminated soil in this area on December 29 and 30, 1999.

This SAR (Revision 2.0) presents information from the previous investigations and summarizes the activities related to the removal action as described in the Source Removal Report for Excavation of Petroleum-Contaminated Soil at Facility 616 (CH2MHill, 2000). The results of the investigation and removal action indicate that no further action is needed at this site.



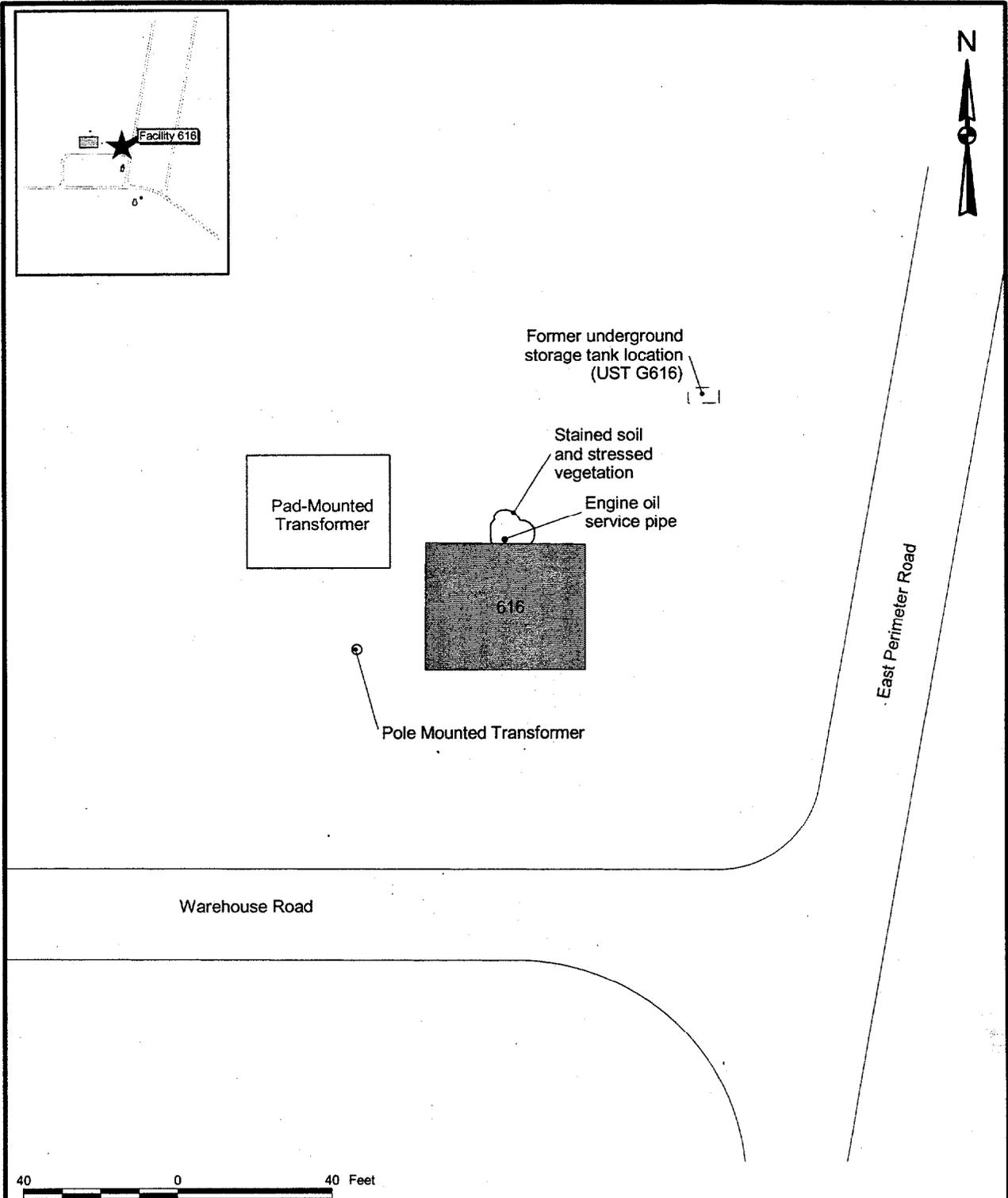
DRAWN BY MJJ	DATE 20Apr00
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE AS NOTED	



GENERAL LOCATION MAP
FACILITY 616
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NUMBER 0039	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 1-1	REV 0

P:\GIS\CECIL\bbkg0618.apr 15May00 MJJ Layout 1-1



40 0 40 Feet

DRAWN BY MJJ	DATE 07Apr00
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE AS NOTED	



SITE LOCATION MAP
FACILITY 616
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NUMBER 0039	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 1-2	REV 0

P:\GIS\CECIL\blt\0616.apr 30May00 MJJ Layout 1-2

2.0 FIELD INVESTIGATIONS

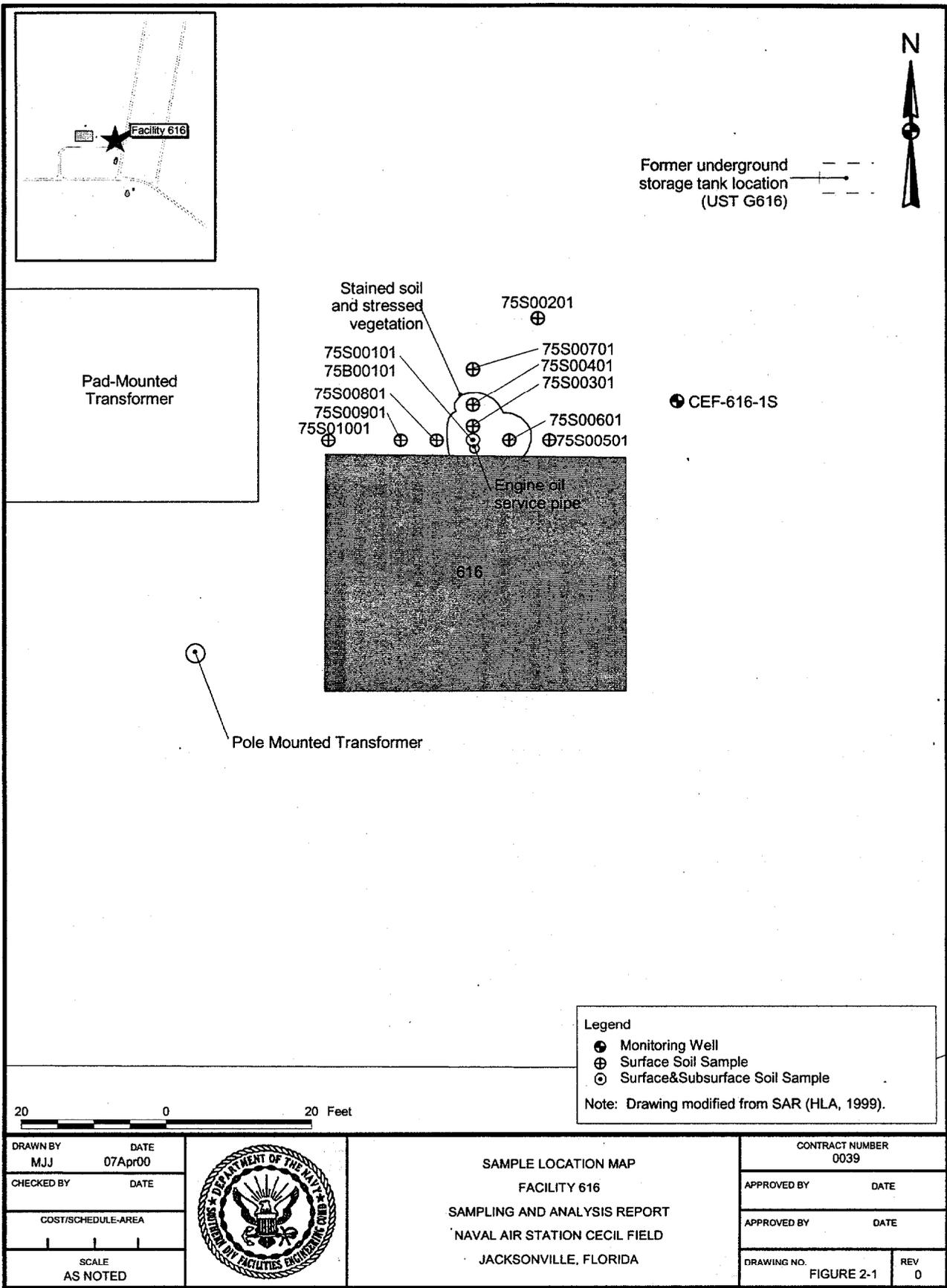
Previous field investigations at Facility 616 and the area surrounding UST G616 were conducted by ABB-ES and HLA. The results of the investigations are presented in the Confirmatory Sampling Report for Tank G616 (ABB-ES, 1998) and the Sampling and Analysis Report for Facility 616 (HLA, 1999).

The initial Phase II investigation, which took place on February 6, 1996, included the collection of one surface soil sample from the area beneath the oil-service pipe on the north side of Building 616 (75S00101) and one sample of surface soil outside the visibly affected area (75S00201). The soil samples were analyzed for total recoverable petroleum hydrocarbons (TRPH) and Target Analyte List (TAL) inorganics.

Following a preliminary review of analytical data, the BCT identified a requirement for additional samples to determine the extent of TRPH contamination. On January 29, 1998, one subsurface soil sample was collected from the center of the area of stressed vegetation, approximately 1 foot north of the building (75B00101). The sample was collected from an interval 3 to 4 feet below ground surface (bgs), just above the groundwater table. A third surface soil sample was also collected at this time, approximately 3 feet north of the oil service pipe (75S00301). These two additional soil samples were analyzed for TRPH (HLA, 1999).

All field activities were undertaken in general conformance with the Project Operations Plan (ABB-ES, 1994b). A site plan indicating the sample locations is presented on Figure 2-1 (HLA, 1999).

A supplemental field investigation was conducted by HLA on August 31, 1998 to delineate the extent of elevated TRPH concentrations detected during the initial stages of the investigation. Six additional surface soil samples (75S00401, 75S00501, 75S00601, 75S00701, 75S00801, and 75S00901) were collected in the vicinity of the stressed vegetation area (see Figure 2-1) and analyzed for TRPH. One surface soil sample (75S01001) was collected by HLA on December 12, 1998 to further delineate the extent of TRPH contamination along the north wall of Building 616, west of the oil-service pipe.



Legend
 ⊕ Monitoring Well
 ⊕ Surface Soil Sample
 ⊕ Surface&Subsurface Soil Sample
 Note: Drawing modified from SAR (HLA, 1999).

20 0 20 Feet

DRAWN BY MJJ	DATE 07Apr00
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE AS NOTED	



SAMPLE LOCATION MAP
FACILITY 616
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NUMBER 0039	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 2-1	REV 0

P:\GIS\CECIL\bidg0616.apr 30May00 MJJ Layout 2-1

3.0 DATA EVALUATION AND REMOVAL ACTION

A preliminary risk evaluation (PRE) was conducted by ABB-ES to assess potential risks to human and ecological receptors posed by contaminants in environmental media. Primary exposure pathways were evaluated to determine those pathways that potentially contribute to human health and ecological risks. The evaluation was conducted in conformance with methodology provided in the U.S. Environmental Protection Agency (U.S. EPA) Region IV memorandum entitled Amended Guidance on Preliminary Risk Evaluations for the Purpose of Reaching a Finding of Suitability to Lease, U.S. EPA Region IV bulletins on ecological risk assessment, and minutes of meetings between U.S. EPA and the FDEP concerning PREs. Site background information and rationale for sample collection and analysis are detailed in the EBS Report (ABB-ES, 1994a) and the SAO (ABB-ES, 1996).

The concentrations of individual samples are compared to the NAS Cecil Field site-specific inorganic Background Data Set (IBDS) referred to as hi-cut concentrations (HLA, 1998). The hi-cut concentration is used because the greater of the FDEP residential Soil Cleanup Target Level (SCTL), as proposed in Florida Administrative Code (FAC) 62-777, and the background should be used as the goal for remediation. The hi-cut concentrations, shown in Table 3-1, were developed from data collected throughout NAS Cecil Field. No risk evaluation was conducted for inorganic analytes detected below the hi-cut concentrations.

Table 3-1 presents a summary of analytical results and Figure 3-1 shows the action level exceedances for the Facility 616 TRPH analyses.

3.1 HUMAN HEALTH PRELIMINARY RISK EVALUATION

The detected analytes were compared to readily available risk-based screening values to assess the likelihood of adverse human health effects associated with potential exposure to surface soil. Risk-based screening values were obtained from U.S. EPA Region III Risk-Based Concentrations (RBCs) (U.S. EPA, 1998) and FDEP Soil Cleanup Target Levels (SCTLs) (FDEP, 1999). Most screening values published in the references listed above are based on toxicity constants and standard human exposure scenarios and correspond to fixed levels of risk. The designated level of risk for noncarcinogenic chemicals is based on a hazard quotient (HQ) of 1. The level of risk for carcinogenic chemicals is based on an excess lifetime cancer risk (ELCR) of 1×10^{-6} . Cancer and noncancer risks associated with industrial and residential land use are estimated by dividing the maximum detected analyte concentration by the corresponding U.S. EPA Region III RBC value at the designated level of risk (ELCR of 1×10^{-6} or HQ of 1, respectively). For noncarcinogens, the HQs are summed to determine the cumulative noncancer risk or hazard index (HLA, 1999).

TABLE 3-1

PRELIMINARY HUMAN HEALTH RISK EVALUATION TABLE FOR ANALYTES DETECTED IN SOIL
FACILITY 616
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Analysis	75S00101	75S00201	75S00301	75S00401	75S00501	75S00601	75S00701	75S00801	75S00901	75S01001	75B00101	Hi-cut ⁽¹⁾ Conc.	FDEP ⁽²⁾ SCTL	USEPA ⁽³⁾ RBC(R)
Inorganic Analytes, mg/kg														
Aluminum	1190	1190	NA	4430	72,000	78,000								
Antimony	ND	0.58	NA	9.44	5.0	31								
Barium	30.2	7.5	NA	14.4	110	5500								
Calcium	642	1150	NA	9.44	NC	NC								
Chromium	7.0	2.6	NA	7.75	38	230								
Copper	13.5	5.0	NA	5.97	110	3100								
Iron	285	1490	NA	1490	23,000	23,000								
Lead	11.8	4.8	NA	197	400	NC								
Magnesium	26.8	48.1	NA	329	NC	NC								
Manganese	2.0	3.5	NA	22	1600	1600								
Nickel	3.1	0.67	NA	3.89	110	1600								
Sodium	157	143	NA	343	NC	NC								
Vanadium	1.1	2.8	NA	6.3	15	550								
Zinc	15.1	7.5	NA	37	6000	23,000								
Petroleum Hydrocarbons, mg/kg														
TRPH	7000	13	660	39	ND	1900	63	13,000	3800	47	88	NC	340	NC

NOTES:

Only detected analytes are reported.

All data and RBC values taken from SAR for Facility 616- Revision 1.0 (HLA, 1999).

Shaded values indicate concentrations in excess of criteria.

NA - Not Analyzed

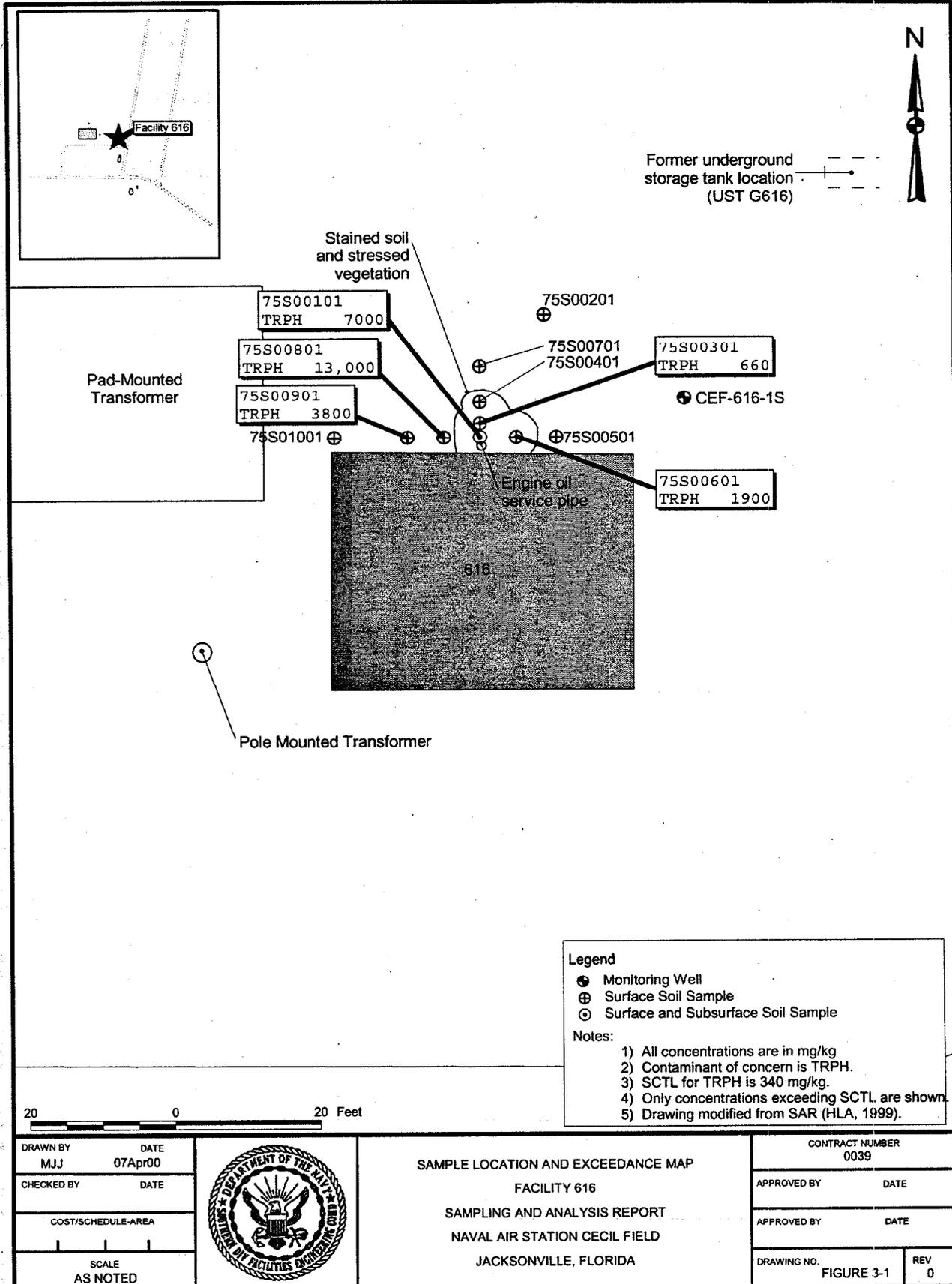
NC - No criteria

ND - Not Detected

1 Background - NAS Cecil Field Inorganic Background Data Set (hi-cut concentrations) (HLA, 1998)

2 SCTL - Florida Soil Cleanup Target Level, FAC Chapter 62-777 (FDEP, 1999) - Represents the most-stringent of residential exposure or leachability to groundwater criteria

3 RBC(R) - Residential Risk-Based Concentration (U.S. EPA Region III, 1998)



Legend

- ⊕ Monitoring Well
- ⊗ Surface Soil Sample
- ⊙ Surface and Subsurface Soil Sample

Notes:

- 1) All concentrations are in mg/kg
- 2) Contaminant of concern is TRPH.
- 3) SCTL for TRPH is 340 mg/kg.
- 4) Only concentrations exceeding SCTL are shown.
- 5) Drawing modified from SAR (HLA, 1999).

20 0 20 Feet

DRAWN BY MJJ	DATE 07Apr00
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE AS NOTED	



SAMPLE LOCATION AND EXCEEDANCE MAP
FACILITY 616
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NUMBER 0039	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3-1	REV 0

P:\GIS\CECIL\big0616.apr 30May00 MJJ Layout 3-1

Fourteen inorganic analytes were detected in surface samples collected in the study area. Barium, calcium, and copper were detected at concentrations in excess of the hi-cut concentrations; however, no FDEP SCTLs were exceeded. TRPH was detected at concentrations in excess of the FDEP SCTL in five surface soil samples. There is no RBC value or hi-cut concentration for TRPH. Table 3-1 shows a comparison of TRPH and inorganic analyte data to FDEP SCTLs, RBCs, and hi-cut concentrations (HLA, 1999).

3.2 ECOLOGICAL PRELIMINARY RISK EVALUATION

Potential exposure pathways and ecological habitat associated with Facility 616 were characterized by HLA ecological risk assessors in June 1996. The methods and assumptions used in the derivation of ecological screening values applied in the evaluation conducted in 1996 are presented in the Project Operations Plan (ABB-ES, 1994b).

Concentrations of aluminum, chromium, and iron exceeded Region IV ecological screening values for surface soil in two samples, while vanadium exceeded its ecological screening value in one sample (Table 3-2). The screening value for chromium (0.4 mg/kg) is based on hexavalent chromium (Efroymson, 1997), while the chromium data for samples at Facility 616 are total chromium. The maximum concentration of total chromium at Facility 616 was less than ecological screening guidelines for trivalent chromium (10 mg/kg; Efroymson, et al, 1997) and was considerably less than the ecological screening guidelines for total chromium (64 mg/kg; CCME, 1997). In addition, the maximum concentration of chromium was less than the NAS Cecil Inorganic Background Data Set (IBDS) value (Table 3-2). Thus, chromium concentrations in these two samples are not attributed to site-related activities.

Maximum concentrations of aluminum and vanadium were less than their respective NAS Cecil IBDS values, while the maximum concentration of iron equaled (but did not exceed) its hi-cut value (Table 3-2). Thus, concentrations of these analytes are not attributed to site-related activities. In summary, concentrations of all metals were either less than Region IV ecological screening values, or did not exceed NAS Cecil IBDS values. Therefore, potential ecological risks from metals are negligible.

Facility 616 is located in an area of graveled lots, buildings, and other structures. Ecological habitat in the vicinity of Facility 616 is limited to regularly mowed grass. The nearest natural habitats (other than mowed grass) are wooded areas approximately 500 feet to the north and west of the site.

Ecological receptors that might occasionally use the study area are likely limited to terrestrial species that are tolerant of human and industrial activity. Small passerines, such as the American robin, could

TABLE 3-2

**PRELIMINARY ECOLOGICAL RISK EVALUATION TABLE FOR ANALYTES DETECTED IN SOIL
FACILITY 616
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA**

Analysis	75S00101	75S00201	75S00301	75S00401	75S00501	75S00601	75S00701	75S00801	75S00901	75S01001	75B00101	Hi-cut ⁽¹⁾ Conc.	Region IV Ecological Soil Screening Value ⁽²⁾
Inorganic Analytes, mg/kg													
Aluminum	1190	1190	NA	4430	50								
Antimony	ND	0.58	NA	9.44	3.5								
Barium	30.2	7.5	NA	14.4	165								
Calcium	642	1150	NA	9.44	NC								
Chromium	7.0	2.6	NA	7.75	0.4								
Copper	13.5	5.0	NA	5.96	40								
Iron	285	1490	NA	1490	200								
Lead	11.8	4.8	NA	197	50								
Magnesium	26.8	48.1	NA	329	NC								
Manganese	2.0	3.5	NA	22	100								
Nickel	3.1	0.67	NA	3.89	30								
Sodium	157	143	NA	343	NC								
Vanadium	1.1	2.8	NA	6.3	2								
Zinc	15.1	7.5	NA	37	50								
Petroleum Hydrocarbons, mg/kg													
TRPH	7000	13	660	39	ND	1900	63	13,000	3800	47	88	NC	NC

NOTES:

Only detected analytes are reported.

All data taken from SAR-Revision 1.0 (HLA, 1999)

NA - Not Analyzed

NC - No criteria

ND - Not Detected

1 Background - NAS Cecil Field Inorganic Background Data Set (hi-cut concentrations) (HLA, 1998)

2 U.S. EPA Region IV Ecological Soil Screening Values

Shaded values indicate concentrations in excess of Region IV ecological screening values.

such as the cotton mouse, could potentially feed on grasses and seeds in the grassy areas of the site. Soil invertebrates, such as the earthworm, are likely to be present in the grassy areas (HLA, 1999).

The contaminant source (petroleum-contaminated soil) has been excavated and removed. The only surface soil samples from outside the excavated area are samples 75S00201 and 75S00701 (Figure 3-2). Although an ecological screening value is not available for TRPH, concentrations of TRPH in these two samples were relatively low (Table 3-2).

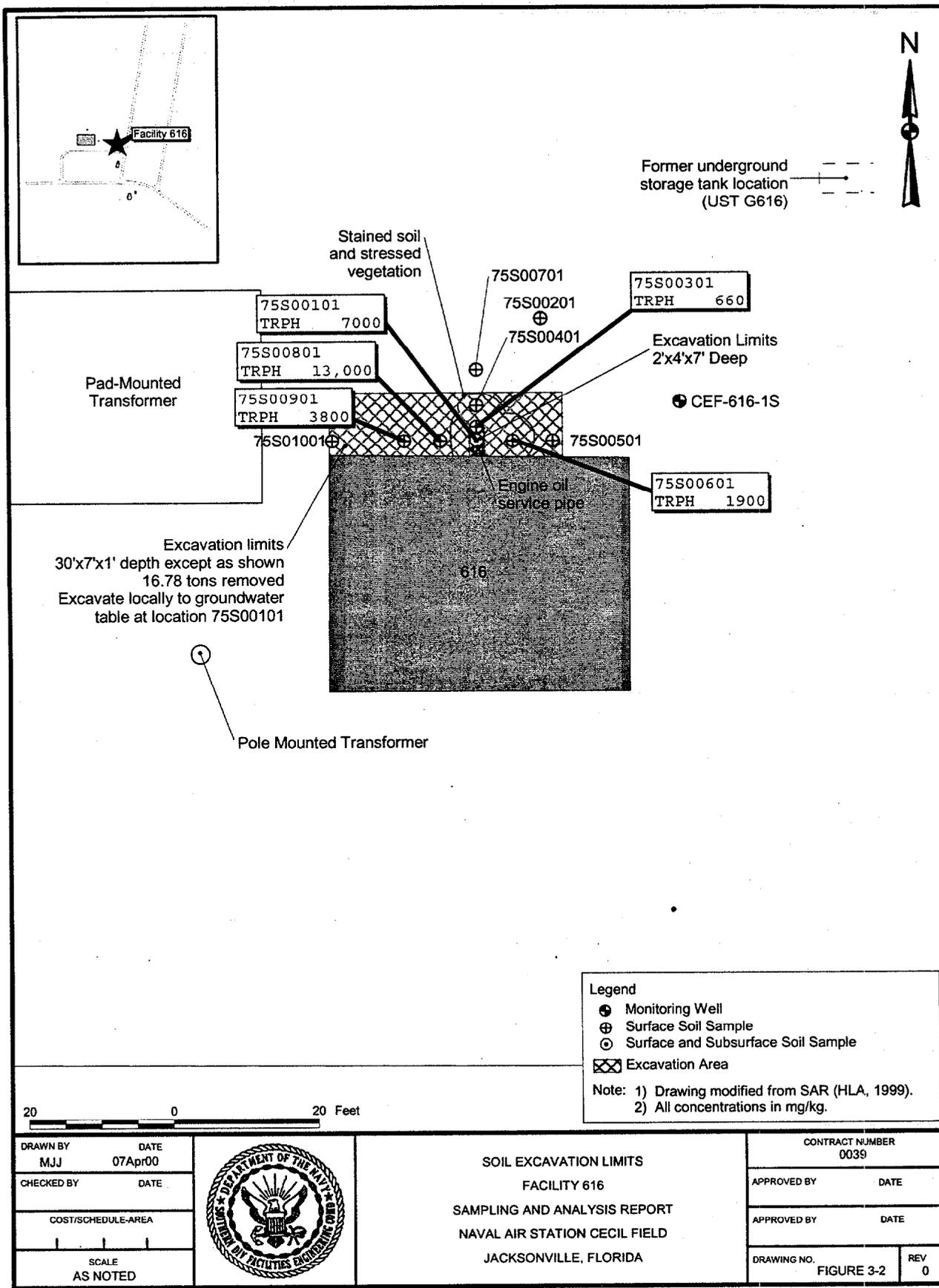
In conclusion, the source of contamination has been removed and habitats at the site are minimal. Thus, potential exposure pathways do not exist. In addition, concentrations of analytes at the site indicate negligible risks to ecological receptors. Therefore, potential risks to ecological receptors from direct contact as well as risks to upper level receptors via the food chain are negligible.

3.3 REMOVAL ACTION

The SAR (HLA, 1999) indicated that the asbestos-containing materials and the PCB-contaminated transformer, both identified in the EBS as potential environmental concerns at Facility 616, do not presently pose a hazard to human health or the environment as long as they are properly managed and maintained. Petroleum contamination associated with the former UST was addressed separately under the Cecil Field Petroleum Tank Program. The SAR also indicated that TRPH contamination associated with the oil-service pipe protruding from the north side of Building 616 has been delineated and that the top foot of soil, over an area of 30 feet by 7 feet, adjacent to the north wall of the building, should be removed.

A source removal was conducted at Facility 616 on December 29 and 30, 1999, with a total of 16.78 tons of petroleum-contaminated soil excavated. The excavated soil was transported and disposed off site on December 30, 1999. Figure 3-2 shows the horizontal excavation limits (CH2MHill, 2000) where the soil was removed in accordance with the specifications in the SAR (HLA, 1999). The soil was excavated to a depth of 1 foot bgs except for an area 2 feet wide by 4 feet long in the vicinity of Sample Point 75S00101, which was excavated to groundwater (7 feet bgs). The soil was excavated using a mini-excavator, and was stockpiled, bermed, and covered before it was loaded into a truck for transportation and disposal. The excavated soil was transported by Pritchett Trucking to the Chesser Island Road Landfill, a Subtitle D solid waste disposal facility in Folkston, Georgia. Clark Environmental, Inc. coordinated transportation and disposal of the petroleum-contaminated soil (CH2MHill, 2000).

Clean fill material from the Dallas Harts Borrow Pit in Jacksonville, Florida was used to backfill the excavation. The site was graded and seeded with a mixture of rye and bahia grass. No confirmatory soil sampling was performed, based on the SAR (HLA, 1999).



P:\GIS\CECIL\bdg0616.apr 30May00 MJJ Layout 3-2

Detailed information on the remedial activities, including photographs, copies of the soil manifests, certificate of disposal, and certificate of clean fill, are also provided in the Source Removal Report (CH2M Hill, 2000).

4.0 CONCLUSIONS AND RECOMMENDATION

Field investigations determined that petroleum contamination had occurred at Facility 616 and that an estimated 17 tons of soil (10 cubic yards) contained TRPH at concentrations greater than FDEP SCTLs.

A removal action was performed at Facility 616 to excavate and dispose off site the soil contaminated with TRPH above the SCTL. The removal action occurred on December 29 and 30, 1999. Since the removal action, the soil at Facility 616 no longer represents a risk to human health or the environment.

Based upon these conclusions, the recommendation for Facility 616 is No Further Action. It is also recommended that the color code for Facility 616 should be reclassified to Dark Green to denote that releases of hazardous substances have occurred, and remedial actions to protect human health and the environment have been taken. Residual TRPH concentrations in soil at the site no longer represent a hazard to human health or the environment.

REFERENCES

ABB-ES (ABB Environmental Services, Inc.), 1994a. Base Realignment and Closure Environmental Baseline Survey Report, Naval Air Station (NAS), Cecil Field, Jacksonville, FL, November.

ABB-ES, 1994b. Project Operations Plan for Cecil Field and Health and Safety Plan, NAS, Cecil Field, Jacksonville, FL, December.

ABB-ES, 1996. Sampling and Analysis Outline, Facility 616. NAS Cecil Field, Jacksonville, FL. March.

ABB-ES, 1998. Confirmatory Sampling Report, Building 616, Tank G616. NAS Cecil Field, Jacksonville, FL. April.

CCME (Canadian Council of Ministers of the Environment). 1997. Recommended Canadian Soil Quality Guidelines. Winnipeg, Manitoba.

CH2MHill, 2000. Source Removal Report, Excavation of Petroleum-Contaminated Soil at Facility 616. NAS Cecil Field, Jacksonville, FL. Prepared for SOUTHNAVFACENCOM, Charleston, SC, February.

Efroymsen, R.A., M. E. Will, and G. W. Suter, 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Soil Litter Invertebrates and Heterotrophic Processes, 1997 Revision, ES/ER/TM-126-R2, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

FDEP, 1999. Contaminant Target Levels Rule, Soil, Groundwater and Surface Water Target Cleanup Levels, FAC Chapter 62-777, August.

HLA (Harding Lawson associates), 1998. Inorganic Background Data Set.

HLA, 1999. Sampling and Analysis Report, Facility 616, Standby Generator Building (Rev. 1.0). NAS Cecil Field, Jacksonville, FL, June.

TtNUS (Tetra Tech NUS, Inc.), 1998. Base-wide Generic Work Plan at NAS, Cecil Field, Jacksonville, FL. Prepared for SOUTHNAVFACENCOM, Charleston, SC, October.

U.S. EPA (United States Environmental Protection Agency), 1990. Code of Federal Regulations (CFR) Title 40 Part 300, "National Oil and Hazardous Substances Pollution Contingency Plan," Federal Register, March 8.

U.S. EPA Region III, 1998. Risk-Based Concentration Table. Philadelphia, PA.