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NAS CECIL FIELD, FL  
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SAMPLING AND ANALYSIS REPORT FOR FACILITY 190 BASE REALIGNMENT AND  
CLOSURE ZONE C DEVELOPED NON-INDUSTRIAL AREA REVISION 1 NAS CECIL FIELD  
FL  
11/1/1999  
HARDING LAWSON ASSOCIATES

**SAMPLING AND ANALYSIS REPORT**  
**FACILITY 190**  
**BASE REALIGNMENT AND CLOSURE**  
**ZONE C, DEVELOPED NONINDUSTRIAL AREA**

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

**Unit Identification Code: N60200**

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## 1.0 INTRODUCTION

Harding Lawson Associates (HLA), under contract to the Southern Division, Naval Facilities Engineering Command, has completed the Phase II Sampling and Analysis program for Facility 190 at Naval Air Station (NAS) Cecil Field. This report summarizes the related field operations, results, conclusions, and recommendations of the Phase II investigation.

Facility 190 is referred to as the Telephone Exchange Building in the Environmental Baseline Survey (EBS) Report (ABB Environmental Services, Inc. [ABB-ES], 1994a). Potential environmental concerns identified for the facility in the EBS relate to an abandoned 1,000-gallon underground storage tank (UST) for fuel oil. In addition, two abandoned septic systems were identified on the west side of Building 190 during a records review conducted in 1997, and as-built drawings indicate a 5,000 gallon UST may have been installed near the south end of the building (ABB-ES, 1997a).

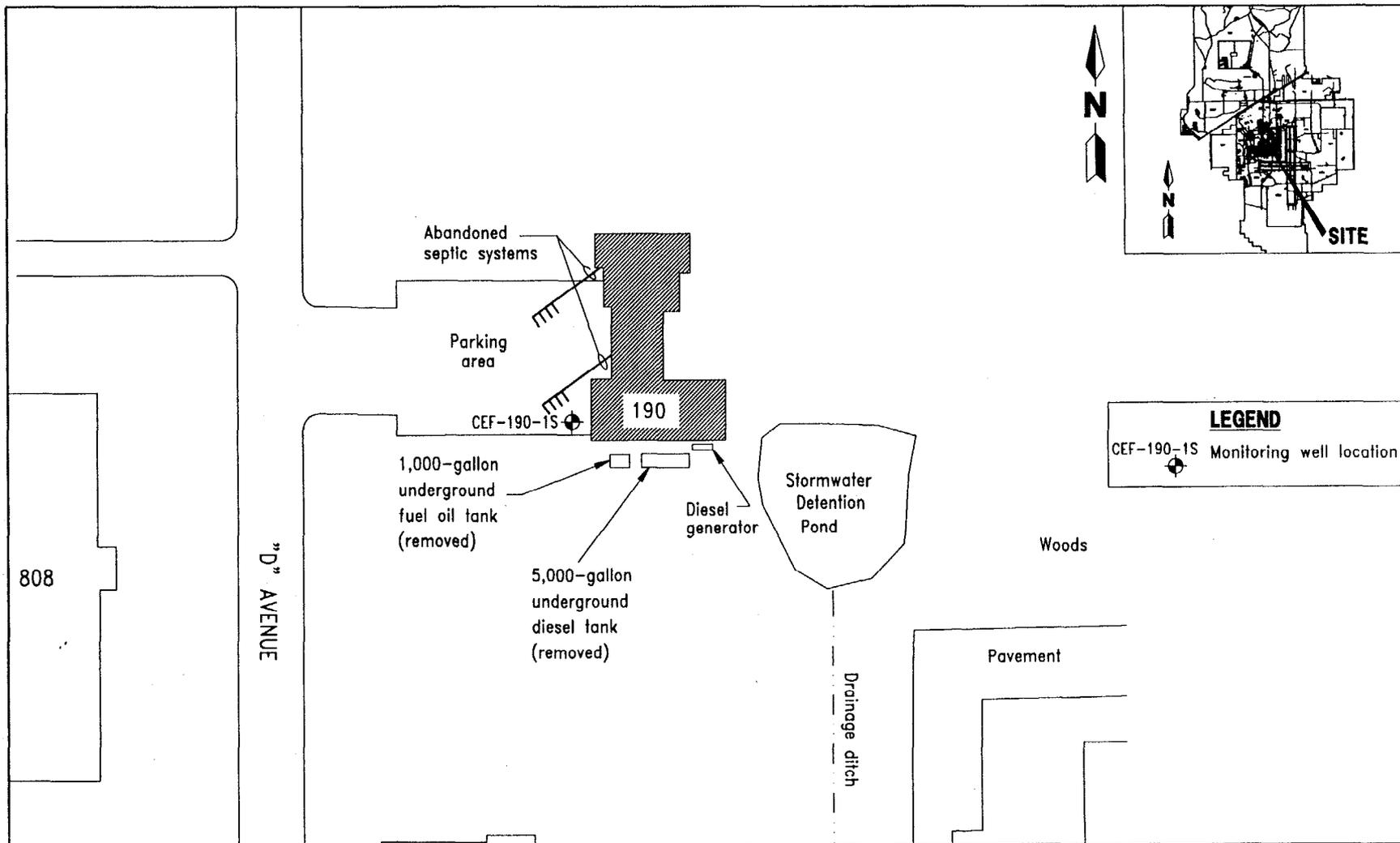
The 1,000 gallon UST was removed from the site in 1995. Excessively contaminated soil was detected during confirmatory sampling at this site (ABB-ES, 1997a). Additional samples were collected to delineate the extent of petroleum-contaminated soil and the BCT has concurred with a proposed remedial action to excavate and remove petroleum-contaminated soil from the site of the former UST.

The Base Realignment and Closure cleanup team (BCT) regards septic tank and leachfield systems as potential pathways for contaminants to enter the groundwater. Therefore, a sampling and analysis outline (SAO) for the assessment of groundwater downgradient of the septic systems at Facility 190 was prepared by HLA (then ABB-ES) and approved by the BCT (ABB-ES, 1997b). The results of the Phase II Sampling and Analysis program developed in the SAO are discussed below.

## 2.0 PHASE II INVESTIGATION

The Phase II investigation included the installation of one shallow groundwater monitoring well and collection and analysis of one groundwater sample. Field activities were undertaken in general conformance with the Project Operations Plan (ABB-ES, 1994b).

A groundwater monitoring well was installed downgradient (south) of the septic leachfields to a depth of 13 feet below land surface. The groundwater flow direction in this area is likely to be south-southwest based on the groundwater flow model produced for NAS Cecil Field by the U.S. Geological Survey. One groundwater sample was collected and analyzed for the full Contract Laboratory Program suite of target compound list organics and target analyte list inorganics. A general site plan indicating the location of the monitoring well is presented on Figure 1. The soil boring log is included in Appendix A.



**LEGEND**  
 CEF-190-1S Monitoring well location

0 50 100  
 SCALE: 1 INCH = 100 FEET

**FIGURE 1**  
**FACILITY 190**  
**TELEPHONE SERVICE BUILDING**  
**SAMPLE LOCATION PLAN**



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### 3.0 PRELIMINARY RISK EVALUATION

A preliminary risk evaluation (PRE) was conducted to assess potential risks to human and ecological receptors posed by contaminants in groundwater. Primary exposure pathways were evaluated to determine those pathways that potentially contribute to human health and ecological risks. The evaluation was conducted in general conformance with methodology provided in the U.S. Environmental Protection Agency (USEPA) Region IV memorandum entitled "Amended Guidance on Preliminary Risk Evaluations (PREs) for the Purpose of Reaching a Finding of Suitability to Lease (FOSL)" (USEPA, 1994), USEPA Region IV bulletins on ecological risk assessment (USEPA, 1995), and minutes of meetings with the USEPA and the Florida Department of Environmental Protection (FDEP) concerning PREs (ABB-ES, 1995). Site background information and rationale for sample collection and analysis are detailed in the EBS Report (ABB-ES, 1994a) and the SAO (ABB-ES, 1997b).

Inorganic analytes were compared to NAS Cecil Field screening criteria for inorganics established by the NAS Cecil Field partnering team. The NAS Cecil Field screening criteria were determined by using the nonparametric upper-outside value cutoffs as described in *Understanding Robust and Exploratory Data Analysis* (Hoaglin et al., 1983). These screening values were developed from data collected throughout NAS Cecil Field. No risk evaluation is conducted for inorganic analytes detected below NAS Cecil Field screening criteria for inorganics.

3.1 PUBLIC HEALTH PRELIMINARY RISK EVALUATION. All 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 groundwater. Risk-based screening values were obtained from USEPA Region III Risk-Based Concentrations (RBCs) (USEPA, 1998) and FDEP Soil and Groundwater Cleanup Target Levels (Florida Administrative Code, 1998). 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  $1 \times 10^{-6}$ . Cancer and noncancer risks associated with industrial and residential land use are estimated by dividing the maximum detected analyte concentration by the corresponding USEPA Region III RBC value at the designated level of risk (HQ of 1 or ELCR of  $1 \times 10^{-6}$ ). For noncarcinogens, the HQs are summed to determine the cumulative noncancer risk or hazard index (HI).

Six inorganic analytes were detected in the groundwater sample collected in the study area. The detected concentrations do not exceed NAS Cecil Field screening criteria for inorganics. Therefore, no ELCR or HI were calculated in association with a potential groundwater exposure scenario. Concentrations of detected analytes in groundwater have been compared with RBCs for tap water and groundwater cleanup target levels (see Appendix A).

3.2 ECOLOGICAL PRELIMINARY RISK EVALUATION. Potential exposure pathways and ecological habitat associated with Facility 190 were characterized by HLA ecological risk assessors in June 1996. Facility 190 is located in a developed area surrounded by maintained grass and pavement. No complete exposure pathways to groundwater were confirmed within the immediate study area. Therefore, no further ecological risk evaluation was conducted.

#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the information obtained for this assessment, the concentrations of analytes detected in groundwater sampled downgradient of abandoned septic systems at Facility 190 do not represent a hazard to human health or the environment. Excessively contaminated soil associated with a UST formerly located near the south end of Facility 190 has been delineated, and remedial action is pending. No other outstanding environmental issues have been identified for this facility. Therefore, the color classification for Facility 190 should be changed from Gray to 2/Blue (Yellow).

## REFERENCES

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