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NAS CECIL FIELD  
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SAMPLING AND ANALYSIS REPORT FOR FACILITY 535 LOADING/ UNLOADING RAMP  
ZONE H AVIATION ORDNANCE AREA NAS CECIL FIELD FL  
6/1/1998  
HARDING LAWSON ASSOCIATES

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**SAMPLING AND ANALYSIS REPORT**  
**FACILITY 535, LOADING/UNLOADING RAMP**  
**BASE REALIGNMENT AND CLOSURE**  
**ZONE H, AVIATION ORDNANCE AREA**  
**NAVAL AIR STATION CECIL FIELD**  
**JACKSONVILLE, FLORIDA**

**Unit Identification No.: N60200**

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## GLOSSARY

ABB-ES	ABB Environmental Services, Inc
BCT	Base Realignment and Closure (BRAC) cleanup team
EBS	Environmental Baseline Survey
ELCR	excess lifetime cancer risk
FDEP	Florida Department of Environmental Protection
HLA	Harding Lawson Associates
HQ	hazard quotient
mg/kg	milligrams per kilogram
PCB	polychlorinated biphenyl
PRE	preliminary risk evaluation
RBC	risk-based concentration
SAO	Sampling and Analysis Outline
SCG	Soil Cleanup Goal
USEPA	U.S. Environmental Protection Agency

## 1.0 INTRODUCTION

Harding Lawson Associates (HLA) (formerly ABB Environmental Services, Inc. [ABB-ES]), under contract to the Southern Division, Naval Facilities Engineering Command has completed the Phase II Sampling and Analysis Program for Facility 535 at Naval Air Station Cecil Field. This report summarizes the related field operations, results, conclusions, and recommendations of the Phase II investigation.

Facility 535 is referred to as a Loading/Unloading Ramp in the Environmental Baseline Survey (EBS) Report (ABB-ES, 1994a). Two hydraulic lifts are part of the structure. Due to the age of the structure (1957 construction), it is possible that hydraulic fluid containing polychlorinated biphenyls (PCBs) may have been used in the lifts. ABB-ES (presently HLA) identified surface staining on the loading dock near the two hydraulic lifts as potential sources of PCB contamination. A Sampling and Analysis Outline (SAO) for the assessment of surface soil and sediment was prepared by ABB-ES (presently HLA) and approved by the Base Realignment and Closure cleanup team (BCT) (ABB-ES, 1996). The results of the sampling and analysis program are discussed below.

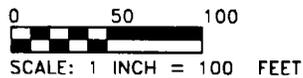
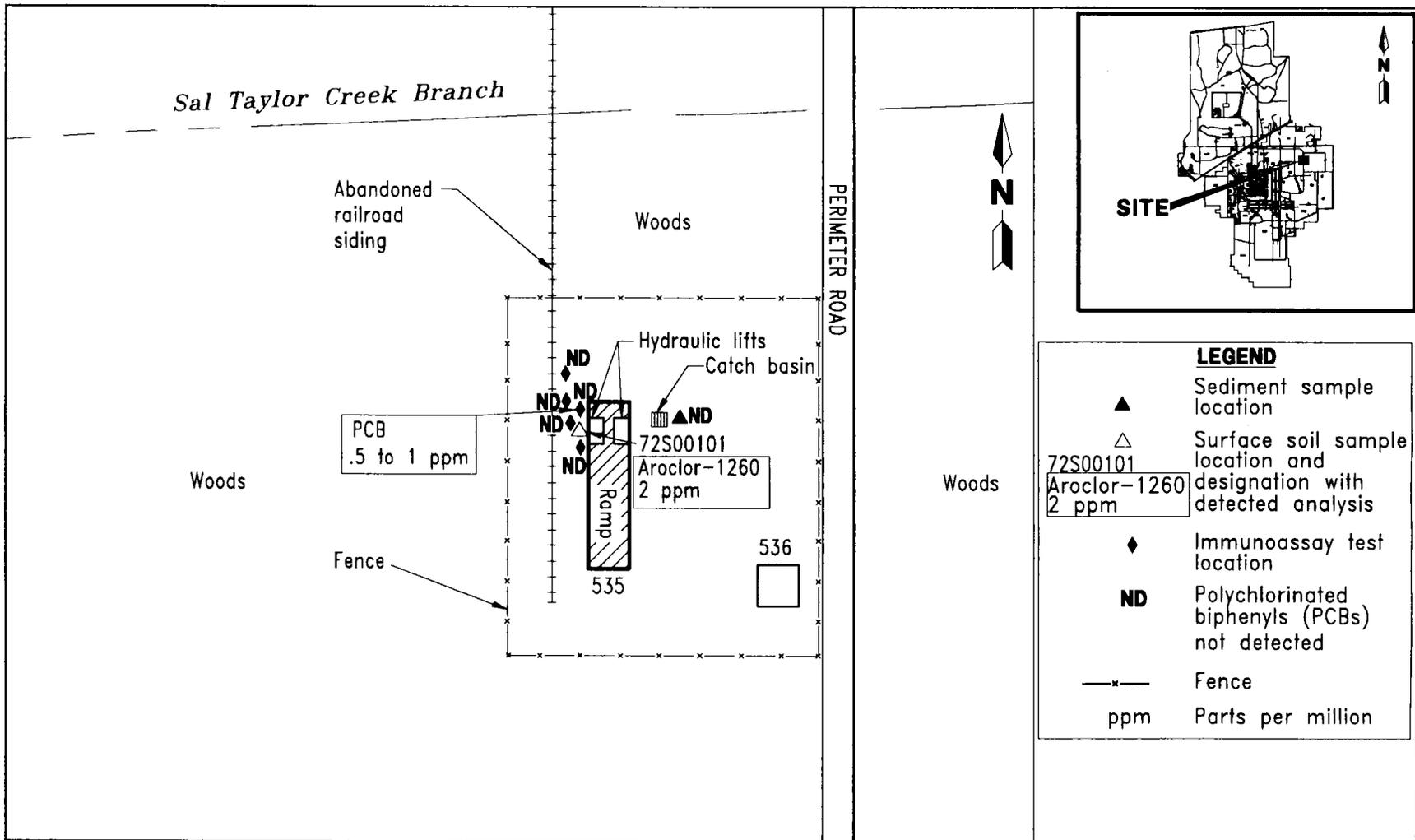
## 2.0 PHASE II INVESTIGATION

Field activities were undertaken in general conformance with the Project Operations Plan (ABB-ES, 1994b). The Phase II investigation included the collection of one surface soil sample and one sediment sample, and analysis for the full Contract Laboratory Program suite of target compound list PCBs. The surface soil sample was collected beneath the railway ballast near the hydraulic lift on the west side of the loading ramp. The sediment sample was collected from the catch basin downgradient from the hydraulic lift on the east side of the loading ramp. A general site plan indicating the sample locations is presented on Figure 1.

A supplemental field investigation was conducted on March 4, 1997. Six surface soil samples were collected during the supplemental investigation to determine whether or not PCBs detected during the initial field effort extended over a large area. Samples collected during the supplemental investigation were analyzed on site using immunoassay methods (D TECH PCB soil test Kit; Item #TK-1002-1) capable of detecting PCBs at concentrations of 0.5 parts per million or greater. Results are discussed in Section 3.

## 3.0 PRELIMINARY RISK EVALUATION

A preliminary risk evaluation (PRE) was conducted to assess potential risks to human and ecological receptors 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 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



**FIGURE 1**  
**FACILITY 535**  
**LOADING/UNLOADING RAMP**  
**SAMPLE LOCATIONS AND DETECTED COMPOUNDS**



**SAMPLING AND ANALYSIS REPORT**

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

# Building 535

## Site Background

Polychlorinated biphenyls (PCBs) were detected at concentrations in excess of the residential soil cleanup goal (0.9 mg/kg) in surface soil samples collected in the area to be excavated. The contaminants are likely present due to a release of oil from the adjacent hydraulically actuated lift platform on the rail dock. Analytical results were reviewed by the BCT (June 1997), and a decision was made to delineate the extent of contaminated surface soil. Additional site background information may be obtained through reference to the Sampling and Analysis Outline for Building 535 (ABB-ES, March 1996) and the Environmental Baseline Survey (ABB-ES, November, 1994).

## Guidance Notes

1. This information is provided for general guidance purposes only. The actual extent of the excavation will be defined by HLA with white spray-down paint (or equivalent), prior to the execution of the removal action.
2. The schedule and methods of excavation will be determined by the RAC.
3. All aspects of work-site health and safety will be the responsibility of the RAC.
4. Verification and avoidance of all aboveground and underground utilities or other manmade structures will be the responsibility of the RAC.
5. Except where necessary for avoidance of structures or utilities, or where otherwise specified by HLA, the depth of the excavation should extend to 1' below ground surface. If observations indicate contaminants may extend beyond the planned lateral or vertical limits of the excavation, the RAC should notify HLA.
6. Excavated soil should be stockpiled on, and covered with, heavy duty polyethylene sheeting at the site. This should be done in such a manner as to avoid the potential for contaminating surrounding soil or surface water. Alternatively, soils may be stockpiled in properly covered rolloff bins.
7. The BCT may approve stockpiling of materials from different sites, provided that similar types and concentrations of contaminants are involved, and contaminants were generated by similar processes.
8. Waste characterization, transport (both on and off site), and disposal of all excavated soils will be completed by the RAC.
9. Materials used to backfill the excavations should be from an uncontaminated source, and should be capable of supporting the same type of vegetation as the soils removed. Except where otherwise approved by the installation manager, the ground surface should be restored to a similar, or better condition, than that which existed prior to excavation.

Suitability to Lease (FOSL) (USEPA, 1994a), USEPA Region IV bulletins on ecological risk assessment (USEPA, 1995a, 1995b), 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 and SAO.

**3.1 PUBLIC HEALTH PRE.** One PCB compound was detected in the surface soil sample collected at Facility 535. The concentration was 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 USEPA Region III Risk-Based Concentrations (RBCs) (USEPA, 1996) and Soil Cleanup Goals (SCGs) for Florida (FDEP, 1995). Industrial and residential exposure scenarios were considered for Facility 535 because of the potential for future residential development.

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 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 (ELCR of  $1 \times 10^{-6}$  or hazard quotient [HQ] of 1).

Aroclor-1260 was detected in the surface soil sample at a concentration of 2 milligrams per kilogram (mg/kg). No other compounds were detected in surface soil at Facility 535. The FDEP SCG for Aroclor-1260 is 0.9 mg/kg, and the RBC is 0.083 mg/kg. An ELCR of  $2 \times 10^{-5}$  was calculated, based upon a residential exposure scenario. Six additional surface soil samples were collected from the surrounding area during a supplemental investigation, and analyzed on site using immunoassay test kits. PCBs were detected at one location at a concentration of less than 1 mg/kg during the supplemental investigation. No other PCBs were detected during the supplemental investigation.

**3.2 ECOLOGICAL PRE.** An ecological PRE was conducted to evaluate potential risks to ecological receptors in the vicinity of Facility 535. Exposure pathways and ecological habitats were characterized during a site walkover conducted by ABB-ES (presently HLA) ecological risk assessors in September 1995. The methods and assumptions used in derivation of ecological screening values applied in this evaluation are presented in the Project Operations Plan (ABB-ES, 1994b).

Ecological habitat at Facility 535 is limited to unmaintained grass, west of the loading ramp. Pathways of potential contaminant exposure at Facility 535 for wildlife receptors include direct contact, incidental ingestion of surface soil, and limited terrestrial food-web model exposure to contaminants in surface soil that may bioaccumulate.

The detected concentration of Aroclor-1260 was less than the terrestrial plant and wildlife toxicity screening criteria of 40 mg/kg and 18 mg/kg, respectively. No invertebrate toxicity screening criteria for Aroclor-1260 have been established for this project.

#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

One surface soil sample and one sediment sample were collected from each of two areas of potential contamination identified in the vicinity of Facility 535. The samples were analyzed to determine the concentration of PCB compounds. Aroclor-1260 was detected in excess of the SCG and RBC in a surface soil sample collected on the west side of Facility 535. No PCBs were detected in the sediment sample.

An ELCR of  $2 \times 10^{-5}$  was calculated based upon RBCs for residential surface soil exposure scenario. No ecological screening values were exceeded; therefore, no further ecological screening was required.

A plan to remove a 5-foot by 5-foot area of surface soil (0 to 1 foot below existing ground level) adjacent to the hydraulic lift on the west side of Facility 535 has been proposed. The BCT discussed and concurred with the proposed plan for soil removal, during a meeting on November 19, 1997. The boundaries of the area to be excavated are illustrated on Figure A-1 in Appendix A.

Based on the information obtained for this assessment, the concentrations of Aroclor-1260 detected in surface soil at Facility 535 may represent a hazard to human health. The contaminated soil is scheduled for removal. The color classification for Facility 535 should be changed to 5/Yellow to indicate that remedial action is in progress, and should not be changed until such remedial action has been completed.

## REFERENCES

- ABB Environmental Services, Inc. (ABB-ES). 1994a. *Base Realignment and Closure Environmental Baseline Survey Report, Naval Air Station Cecil Field, Jacksonville, Florida*. Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (November).
- ABB-ES, 1994b. *Project Operations Plan for Cecil Field and Health and Safety Plan*. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (December).
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- ABB-ES. 1996. *Sampling and Analysis Outline, Building 535, Base Realignment and Closure, Zone H, Aviation Ordnance Area, Group VII, Naval Air Station, Cecil Field, Jacksonville, Florida*. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (March).
- Florida Department of Environmental Protection (FDEP). 1995. *Soil Cleanup Goals for Florida*. Tallahassee, Florida (September 29).
- USEPA. 1995a. *Region IV Waste Management Division Preliminary Risk Evaluation, Ecological Risk Assessment, Supplemental Guidance to RAGS: Region IV Bulletin No. 1* (November).
- USEPA. 1995b. Region IV, Waste Management Division. *Chronic Fresh Water/Surface Water Screening Values for Hazardous Waste Sites, Supplemental Guidance to RAGS: Region IV Bulletin Number 2* (November).
- USEPA. 1996. *Region III Risk-Based Screening Table, Technical Guidance Manual. Risk Assessment*. EPA/903/R-93-001 (May).

**APPENDIX A**

**SOIL EXCAVATION SPECIFICATIONS**

Excavation size = 5 feet by 5 feet  
Excavation area = 25 sf  
Excavate to 1 foot bls  
Volume to be removed = 0.9 cy

**Warning:**  
Obtain full aboveground and  
belowground utility clearance  
before beginning work.

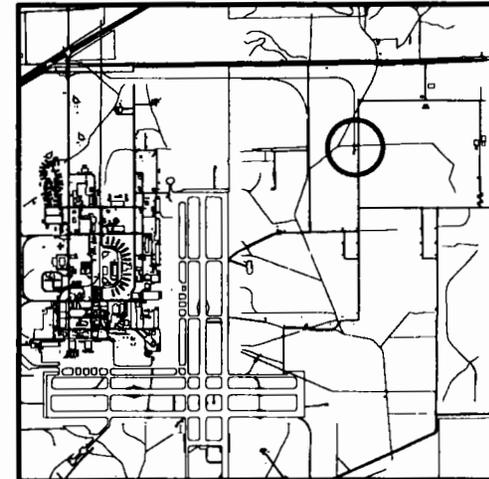
535

0 5 10  
SCALE: 1 INCH = 10 FEET

**LEGEND**

-  Area to be excavated
- sf Square feet
- cy Cubic yards
- bls Below land surface

**FIGURE A-1**  
**FACILITY 535**



**GENERAL LOCATION PLAN**

Scale: 1 inch = 6,000 feet

**NOTES:**

1. WARNING: Obtain utility clearance before excavating.
2. Extent of excavation to be marked by Harding Lawson Associates.
3. Contaminants of concern are polychlorinated biphenyls.
4. Waste characterization, transport, and disposal of all excavated soil is the responsibility of the remedial action contractor.
5. Return site to preexcavation conditions.
6. Remove railroad ties.



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