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NAS CECIL FIELD, FL  
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SAMPLING AND ANALYSIS REPORT FOR AREA OF INTEREST 28 BASE REALIGNMENT  
AND CLOSURE ZONE C ADMINISTRATION AND LIGHT INDUSTRIAL AREA GROUP 2 NAS  
CECIL FIELD FL  
6/1/1996  
ABB ENVIRONMENTAL SERVICES INC

**SAMPLING AND ANALYSIS REPORT**

**AREA OF INTEREST 28**

**BASE REALIGNMENT AND CLOSURE**

**ZONE C, ADMINISTRATION AND LIGHT INDUSTRIAL AREA  
GROUP II**

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

**Unit Identification Code N60200**

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## GLOSSARY

ABB-ES	ABB Environmental Services, Inc
AOI	area of interest
bls	below land surface
BRAC	Base Realignment and Closure
EBS	environmental baseline survey
FOSL	Finding of Suitability to Lease
FOST	Finding of Suitability to Transfer
$\mu\text{g}/\text{kg}$	micrograms per liter.
NAS	Naval Air Station
SAO	sampling and analysis outline

## 1.0 INTRODUCTION

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 Area of Interest (AOI) 28, at Naval Air Station (NAS) Cecil Field. This report summarizes the related field operations, observations, and findings undertaken in partial fulfillment of the requirements of the NAS Cecil Field Base Realignment and Closure (BRAC) program.

AOI 28 is an open, grassy area, approximately 15 feet by 30 feet, and is referred to as the North Temporary Collection Point Site in the Environmental Baseline Survey (EBS) (ABB-ES, 1994a). AOI 28 is located on Jet Road, east of Building 815 and north of Building 871. Additional site background information is available in relevant sections of the EBS (ABB-ES, 1994a).

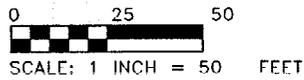
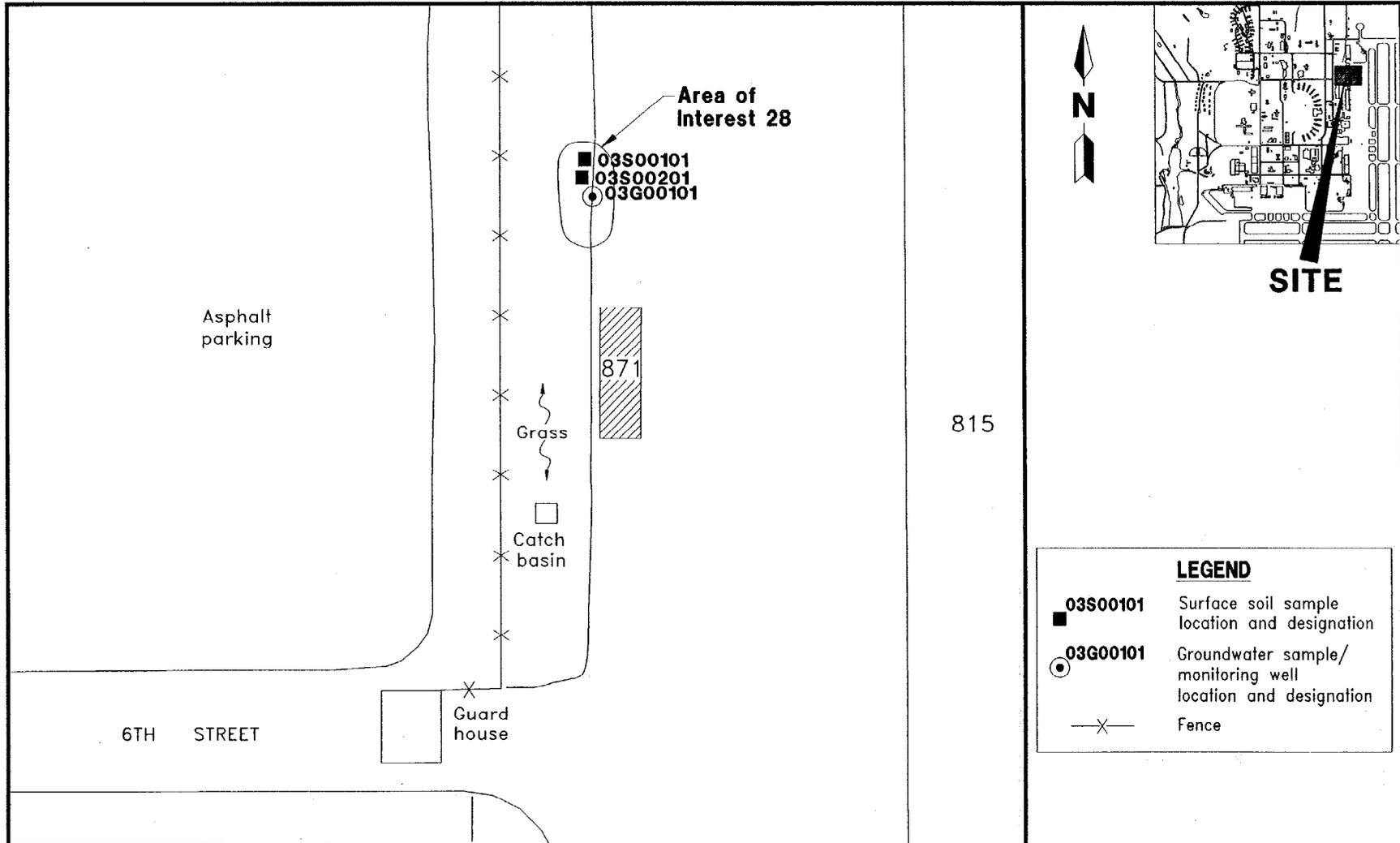
Potential environmental concerns identified during the EBS have precluded a Finding of Suitability to Lease (FOSL) or a Finding of Suitability to Transfer (FOST) for AOI 28. Due to its former use as a hazardous waste temporary collection point, and reports of an undocumented spill at this area, a Sampling and Analysis Outline (SAO) for assessment of surface soil, and groundwater was prepared by ABB-ES and approved by the BRAC Cleanup Team. The Phase II Sampling and Analysis program developed in the SAO is intended to augment existing information used to evaluate whether the site should be recommended for an FOSL or FOST.

## 2.0 PHASE II INVESTIGATION

This Phase II investigation included collection of two surface soil samples and one groundwater sample. A general site plan detailing monitoring well and sample locations is presented on Figure 1. Field activities, except where noted and described below, were undertaken in general conformance with the Project Operations Plan (ABB-ES, 1994b) to fulfill the objectives of the site-specific SAO.

2.1 SURFACE SOIL. Stainless-steel spoons were used to collect two surface soil samples within the former storage area. Surface soil samples were collected at a depth of 0 to 1 foot below land surface (bls).

2.2 GROUNDWATER. One groundwater monitoring well was installed at the downgradient (southeast) perimeter of AOI 28. The well was completed at a depth of 15 feet bls in a soil boring advanced with 6-1/4-inch inside diameter hollow-stem augers. Refer to Appendix A for soil boring logs. Groundwater was purged and sampled using low flow methods following the installation and development of the monitoring well.



**FIGURE 1**  
**AREA OF INTEREST 28**  
**SAMPLE LOCATION PLAN**



**PHASE II SAMPLING AND ANALYSIS  
REPORT**

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

### 3.0 ANALYTICAL DATA EVALUATION

Two surface soil samples and one groundwater sample were collected during the sampling program for AOI 28. Samples were submitted to CompuChem Analytical Laboratories, Inc. Field methods and laboratory protocols were specified to satisfy requirements for Level IV data quality. A summary of compounds detected in surface soil and groundwater samples is presented in Tables 1 and 2.

3.1 SURFACE SOIL. Human health screening criteria for lead, manganese, selenium and vanadium were exceeded in the surface soil sample collected at the north end of AOI 28. Ecological screening criteria for barium, cobalt, lead, manganese, nickel selenium, vanadium, and zinc were also exceeded in the surface soil sample collected at this location.

Aroclor-1240 was detected at a concentration of 85 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ) in the surface soil sample collected at the south end of AOI 28. This concentration is slightly higher than the human health risk-based screening criteria of 83  $\mu\text{g}/\text{kg}$  for Aroclor-1240.

3.2 GROUNDWATER. Human health screening criteria for aluminum, iron, and manganese were exceeded in the groundwater sample collected at AOI 28. These analytes are regulated as secondary water quality standards and do not pose a risk to human health at the concentrations detected in the study area. Water from the shallow surficial aquifer is not currently used as a potable supply.

### 4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the information obtained for this assessment, surface soil at the north end of the study area has likely been affected by a release contaminants as a result of past site activities. The surface soil in the affected area should be excavated and disposed of properly. Prior to implementation of the removal action, materials to be excavated should be sampled and submitted for toxicity characteristic leachate procedure analysis to determine the proper disposal method. Following the removal action, a confirmatory sampling program should be undertaken to document the removal of contaminants. Confirmatory analyses will either support a decision to return the site to original grade with acceptable materials or result in a requirement for further characterization.

Residual contaminants were detected at concentrations in excess of risk-based concentrations for human health and ecological screening criteria. A plan for remedial action has been proposed. Therefore, a reclassification of the color code for AOI 28, from Gray to Yellow, is recommended. A preliminary risk evaluation, based on the results of confirmatory sampling, will be required following remediation.

**Table 1**  
**Summary of Positive Detections In Surface Soil Samples**

Sampling and Analysis Report  
Area of Interest 28  
Base Realignment and Closure  
Zone D, Industrial and Flightline Area Group II  
NAS Cecil Field, Jacksonville, Florida

Parameter	Background Screening Concentration	Risk-Based Screening Concentration (Residential) <sup>1</sup>	Florida Cleanup Goals (Resident) <sup>2</sup>	Risk-Based Screening Concentration (Industrial) <sup>3</sup>	Florida Cleanup Goals (Industrial) <sup>2</sup>	03S00101	03S00201	Exceeds Residential Screening Concentration	Exceeds Industrial Screening Concentration
<b>Semivolatile Organics (µg/kg)</b>									
bis(2-Ethylhexyl)phthalate		46,000	45,000	410,000	100,000		160 J		
Butylbenzylphthalate		16,000,000	15,000,000	410,000,000	300,000,000		150 J		
<b>Pesticides/PCBs (µg/kg)</b>									
4,4'-DDE		1,900	2,900	17,000	9,900		0.23 J		
4,4'-DDT		1,900	3,100	17,000	12,000		0.66 J		
alpha-Chlordane		490	800	4,400	2,800		1.2 J		
Aroclor-1242		83	1,000	740	3,500		85 J	Yes	
Dieldrin		40	70	360	300	0.17 J	0.23 J		
Endosulfan sulfate						0.11 J			
gamma-Chlordane		490	800	4,400	2,800		1.6 J		
Heptachlor		140	200	1,300	400	0.056 J			
Heptachlor epoxide		70	100	630	300	0.13 J	1.4 J		
<b>Inorganics (mg/kg)</b>									
Aluminum	29,000	78,000	75,000	1,000,000		3,690 J	10500 J		
Barium	21	5,500	5,000	140,000	74,000	2,850	9.6 J		
Beryllium		0.15	0.1	1.3	0.2		0.06		
Cadmium		39	37	1,000	600		0.61 J		
Calcium		1,000,000				1,220 J	1870 J		
Chromium	31.2	390	150	10,000	220	16.4 J	10.9 J		
Cobalt		4,700	4,700	120,000	110,000	162	0.75 J		

See notes at end of table.

**Table 1 (Continued)**  
**Summary of Positive Detections In Surface Soil Samples**

Sampling and Analysis Report  
 Area of Interest 28  
 Base Realignment and Closure  
 Zone D, Industrial and Flightline Area Group II  
 NAS Cecil Field, Jacksonville, Florida

Parameter	Background Screening Concentration	Risk-Based Screening Concentration (Residential) <sup>1</sup>	Florida Cleanup Goals (Resident) <sup>2</sup>	Risk-Based Screening Concentration (Industrial) <sup>3</sup>	Florida Cleanup Goals (Industrial) <sup>2</sup>	03S00101	03S00201	Exceeds Residential Screening Concentration	Exceeds Industrial Screening Concentration
Copper		2,900	2,900	76,000	72,000		1.9 J		
Iron	8,060	47,824				555 J	1,600 J		
Lead	15.6	400	400		1,000	3320 J	11.9 J	Yes	
Magnesium	474	460,468				36500	212 J		
Manganese	17	390	10,000	10,000	170,000	1430	5.7 J	Yes	Yes
Nickel	7.2	1,600	1,500	41,000	11,000	716	3.4 J		
Potassium	310	1,000,000				353 J	134 J		
Selenium		390	390	10,000	9,900	636		Yes	
Sodium		1,000,000				38400			
Vanadium	34.2	550	480	14,000	4,800	1720	9.2 J	Yes	
Zinc		23,000	23,000	610,000	550,000	2,990 J	12.5		

**Table 2  
Summary of Positive Detections in Groundwater Sample**

Sampling and Analysis Report  
Area of Interest 28  
Base Realignment and Closure  
Zone D, Industrial and Flightline Area Group II  
NAS Cecil Field, Jacksonville, Florida

Parameters	Risk-Based Concentrations <sup>1</sup>	FDEP Groundwater Guidance Concentrations <sup>2</sup>	Federal MCL	Sample 03G00101	Exceeds Screening Concentrations
<b>Pesticides/PCBs (µg/l)</b>					
4,4'-DDT	0.2	0.1		0.0039 J	
<b>Inorganics (µg/l)</b>					
Aluminum	37,000	200	200	564	Yes
Arsenic	0.038	50	50		
Barium	2,600	2,000	2,000	11.6 J	
Beryllium	0.16	4	4		
Cadmium	180	5	5		
Calcium	1,055,398			5,410	
Chromium	180	100		1.2 J	
Cobalt	2,200				
Copper	1,400	1,000	100		
Iron	13,267	300	300	1,680	Yes
Lead	15	15	15	3.9	
Magnesium	118,000			851 J	
Manganese	180	50	50	67.3	Yes
Nickel	730	100	100		
Potassium	297,016			274 J	
Sodium	396,000	160,000	20,000	3,340 J	
Vanadium	260	49		1 J	

<sup>1</sup> Risk-based screening concentrations are from the USEPA Region III Risk-Based Concentrations tables dated January 31, 1995, and are based on a cancer risk of 10<sup>-6</sup> or a hazard quotient of 1. For the essential nutrient, the screening values were derived based on recommended daily allowances.

<sup>2</sup> Florida Department of Environmental Protection Groundwater Guidance Concentrations (June 1994).

Notes: AOI = Area of Interest.  
 NAS = Naval Air Station.  
 FDEP = Florida Department of Environmental Protection.  
 MCL = maximum contaminant level.  
 PCBs = polychlorinated biphenyls.  
 µg/l = micrograms per liter.  
 DDT = dichlorodiphenyltrichloroethane.  
 J = detected concentration was estimated.  
 [Shaded box] = Sample concentration exceeds screening value(s).  
 USEPA = U.S. Environmental Protection Agency.

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**APPENDIX A**

**SOIL BORING LOGS**