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SAMPLING AND ANALYSIS REPORT FOR FACILITY 823LS AIRCRAFT WASHRACK BASE
REALIGNMENT AND CLOSURE ZONE D INDUSTRIAL AND FLIGHT LINE AREA REVISION 1
NAS CECIL FIELD FL
9/8/1998
HARDING LAWSON ASSOCIATES

SAMPLING AND ANALYSIS REPORT
FACILITY 823LS
BASE REALIGNMENT AND CLOSURE
ZONE D, INDUSTRIAL AND FLIGHT LINE AREA

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

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Revision 1.0

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc
BCT	Base Realignment and Closure cleanup team
ELCR	excess lifetime cancer risk
FDEP	Florida Department of Environmental Protection
GGC	groundwater guidance concentration
HI	hazard index
HLA	Harding Lawson Associates
HQ	hazard quotient
$\mu\text{g}/\ell$	micrograms per liter
NAS	Naval Air Station
PRE	preliminary risk evaluation
RBC	risk-based concentration
SAO	sampling and analysis outline
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 823LS, at Naval Air Station (NAS) Cecil Field. This report summarizes the related field operations, results, conclusions, and recommendations of the Phase II investigation.

Facility 823LS is a lift station, located southeast of Building 823. Building 823 is a Fuel Operations Test Facility. The Base Realignment and Closure cleanup team (BCT) regards lift stations as potential pathways for wastewater contaminants to enter the groundwater. A Sampling and Analysis Outline (SAO) for the assessment of groundwater in the vicinity of Lift Station 823LS was prepared by ABB-ES and approved by the BCT (ABB-ES, 1995b).

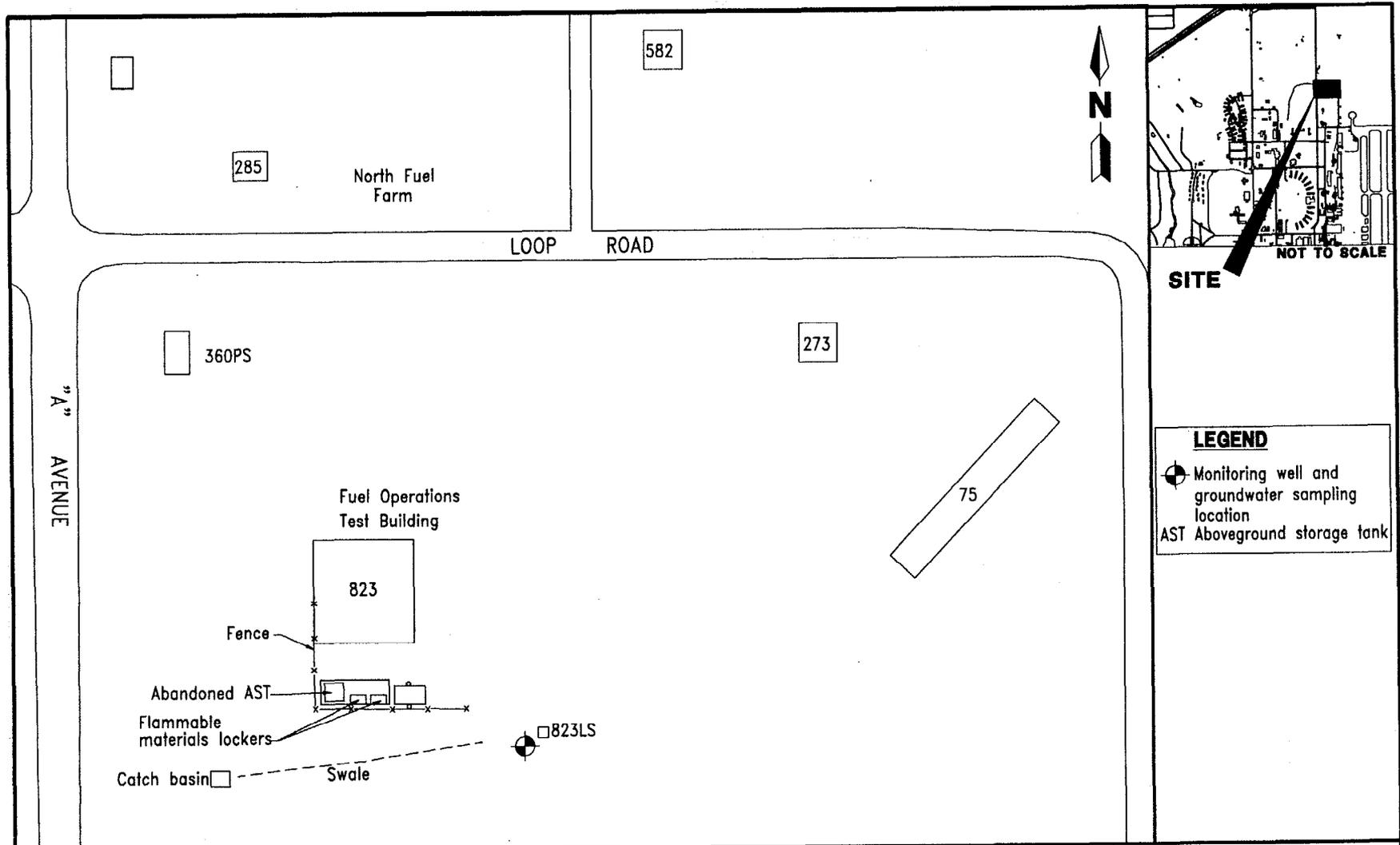
2.0 PHASE II INVESTIGATION

This 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, 1994a).

The groundwater monitoring well was installed southeast of Facility 823LS to a depth of 13 feet below land surface. The groundwater flow direction in this area is likely to be southeast, based on the groundwater flow model produced by the U.S. Geological Survey. One groundwater sample was collected and analyzed for volatile organic compounds (U.S. Environmental Protection Agency [USEPA] Method 601/602), polynuclear aromatic hydrocarbons (USEPA Method 610), total petroleum hydrocarbons (USEPA Method 418.1), and lead (USEPA Method 239.2). A site plan indicating the location of the monitoring well is presented on Figure 1. The soil boring log is included in Appendix A.

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 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 bulletin 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, 1995a). Site background information and rationale for sample collection and analysis are detailed in the Environmental Baseline Survey Report (ABB-ES, 1994b) and the SAO (ABB-ES, 1995b).



0 50 100
SCALE: 1 INCH = 100 FEET

FIGURE 1
BUILDING 823 LS
LIFT STATION



SAMPLING AND ANALYSIS REPORT

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

3.1 PUBLIC HEALTH PRE. 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, 1996) and FDEP Groundwater Guidance Concentrations (GGCs) (FDEP, 1994).

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 USEPA Region III RBC value at the designated level of risk (HQ of 1 or ELCR of 1×10^{-6}). For noncarcinogens, the HQs are summed to determine the cumulative noncancer risk or hazard index (HI).

The only compound detected in the groundwater sample collected in the study area is 1,4-Dichlorobenzene, at 3.4 micrograms per liter ($\mu\text{g}/\ell$). A comparison between concentrations of detected analytes in groundwater, and RBCs for tap water and FDEP GGCs, is presented in Appendix A. A cumulative noncancer risk or HI of less than 1 and an ELCR of 8×10^{-6} were calculated based upon RBCs for tap water. The GGC for 1,4-dichlorobenzene is 75 $\mu\text{g}/\ell$.

3.2 ECOLOGICAL PRE. Potential exposure pathways and ecological habitat associated with Facility 823LS were characterized by ABB-ES (presented HLA) ecological risk assessors in June 1996. No complete exposure pathways to groundwater were identified within the study area. Therefore, no further ecological risk evaluation was conducted.

4.0 CONCLUSIONS AND RECOMMENDATIONS

One groundwater sample from the shallow surficial aquifer was collected at Facility 823LS and analyzed to determine the concentrations of petroleum compounds. Concentrations of detected compounds were compared to human health screening criteria. A cumulative noncancer risk or HI of less than 1 and an ELCR of 8×10^{-6} were calculated based upon RBCs for tap water.

There is no potable water supply associated with Facility 823LS; therefore, a groundwater to receptor pathway does not currently exist. No complete exposure pathways to ecological receptors were identified for groundwater in the study area. Therefore, no further ecological risk evaluation was conducted.

Based upon the information obtained for this assessment, the concentrations of analytes detected in groundwater at Facility 823LS do not represent a hazard to human health or the environment. Therefore, the color classification for Facility 823LS should be changed from Gray to Light Green. No further action is recommended for this site.

REFERENCES

- ABB Environmental Services, Inc. (ABB-ES). 1994a. *Project Operations Plan for Cecil Field and Health and Safety Plan*. Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (December).
- ABB-ES. 1994b. *Base Realignment and Closure Environmental Baseline Survey Report, Naval Air Station, Cecil Field, Jacksonville, Florida*. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (November).
- ABB-ES. 1995a. Minutes of September 25, 1995, conference call to discuss preliminary risk evaluations.
- ABB-ES. 1995b. *Sampling and Analysis Outline, Building 823LS, Base Realignment and Closure, Zone D, Industrial and Flightline Area, Group III, Naval Air Station, Cecil Field, Jacksonville, Florida*. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (February).
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- U.S. Environmental Protection Agency (USEPA). 1994. Memorandum from USEPA Region IV. Subject: Amended Guidance on Preliminary Risk Evaluations (PREs) for the Purpose of Reaching a Finding of Suitability to Lease (FOSL). Atlanta, Georgia (December 20).
- USEPA. 1995. *Region IV Waste Management Division Preliminary Risk Evaluation, Ecological Risk Assessment, Supplemental Guidance to RAGS*. Region IV Bulletin No. 1 (November).
- USEPA. 1996. *Region III Risk-Based Screening Table, Technical Guidance Manual*. Risk Assessment. EPA/903/R-93-001 (May).

APPENDIX A

SOIL BORING LOG AND PRELIMINARY RISK EVALUATION TABLE

TITLE: NAS Cecil Field BRAC		LOG of WELL: CEF-823LS-1S		BORING NO. CEF-823LS-1S	
AGENT: SOUTHDIYNAVAFACENGCOM				PROJECT NO: 08520-85	
CONTRACTOR: Alliance Environmental, Inc.			DATE STARTED: 11-30-85		COMPLTD: 11-30-85
METHOD: Auger		CASE SIZE: 2 in.	SCR. INT.: 2 - 12 ft.	PROTECTION LEVEL: 0	
TOC ELEV.: ft.		MONITOR INST.: PID	TOT DPTH: 13.0ft.	DPTH TO ∇ 3.5 ft.	
LOGGED BY: R. Holloway		WELL DEVELOPMENT DATE:			SITE: 24 - 823LS Lift Station

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
12				SILTY SAND (SM): 100%, very dark brown, quartz, fine- to very fine-grained, subrounded to subangular, well sorted.		SM	posthole	
18							posthole	
5								
15								
20								
25								
30								

**BRAC Preliminary Risk Evaluation Table for Analytes Detected in Groundwater
Building 823LS, Naval Air Station Cecil Field**

Analyte	Sample 24G00101	Screening Values		Calculated Risk Values	
		FDEPGGC	RBC(T)	ELCR	HI
Semi-Volatile Organic Compounds					
1,4-Dichlorobenzene	3.4	75 p	0.41 c	8 E-6	
			Sum =	8 E-6	

Notes:

All Analytes are reported in ug/l

Sample Suffixes indicate the following: F= filtered sample, DL= laboratory diluted sample, RE= laboratory re-extracted, D= field duplicate

FDEPGGC = FDEP Groundwater Guidance Concentration, June 1994

* = values that exceed FDEPGGC

p = primary standard (MCL)

st = systemic toxicant

t = organoleptic standard

s = secondary standard (related to taste, odor, color, or other non-aesthetic effects)

RBC(T) = Risk-based Concentration (Tap Water), USEPA Region III, May 1996

c = carcinogenic risk

n = non-carcinogenic risk

ELCR = calculated excess lifetime cancer risk, based on RBC(T) values. (ELCR = detected concentration/RBC(T) * 10E-06)