

N60200.AR.001082  
NAS CECIL FIELD, FL  
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SAMPLING AND ANALYSIS REPORT FOR BUILDING 829 BASE REALIGNMENT AND  
CLOSURE ZONE G UNDEVELOPED SOUTHERN AREA GROUP 7 DRAFT ACTING AS  
FINAL NAS CECIL FIELD FL  
9/1/1997  
ABB ENVIRONMENTAL SERVICES INC

DRAFT - Pending BCT Approval.

**SAMPLING AND ANALYSIS REPORT**  
**BUILDING 829**  
**BASE REALIGNMENT AND CLOSURE**  
**ZONE G, UNDEVELOPED SOUTHERN AREA**  
**GROUP VII**  
**NAVAL AIR STATION CECIL FIELD**  
**JACKSONVILLE, FLORIDA**

**Unit Identification Code: N60200**

**Contract No.: N62467-89-D-0317/090**

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**September 1997**

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc
BCT	Base Realignment and Closure cleanup team
EBS	environmental baseline survey
ELCR	excess lifetime cancer risk
FDEP	Florida Department of Environmental Protection
HI	hazard index
HQ	hazard quotient
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

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 Building 829, at Naval Air Station (NAS) Cecil Field. This report summarizes the related field operations, results, conclusions, and recommendations of the Phase II investigation.

Building 829 is a radar equipment building, located southwest of the intersection of runway 27R and the north-south taxiway. Potential environmental concerns identified for the facility include the presence of two septic systems, located to the north and west of the building. The Base Realignment and Closure cleanup team (BCT) regards septic tank and leachfield systems as potential pathways for contaminants to enter the groundwater. Stained soil was described in the environmental baseline survey (EBS) as being located near a 3-gallon day tank for a diesel powered generator (ABB-ES, 1994b). The area described was visually evaluated on October 24, 1996, during an ABB-ES site walkover in support of the tank management plan. No day tank or stained soil was identified during the walkover.

A Sampling and Analysis Outline (SAO) for the assessment of groundwater downgradient of the septic systems at Building 829 was prepared by ABB-ES and approved by the BCT (ABB-ES, 1996). The results of the Phase II Sampling and Analysis program developed in the SAO are discussed below.

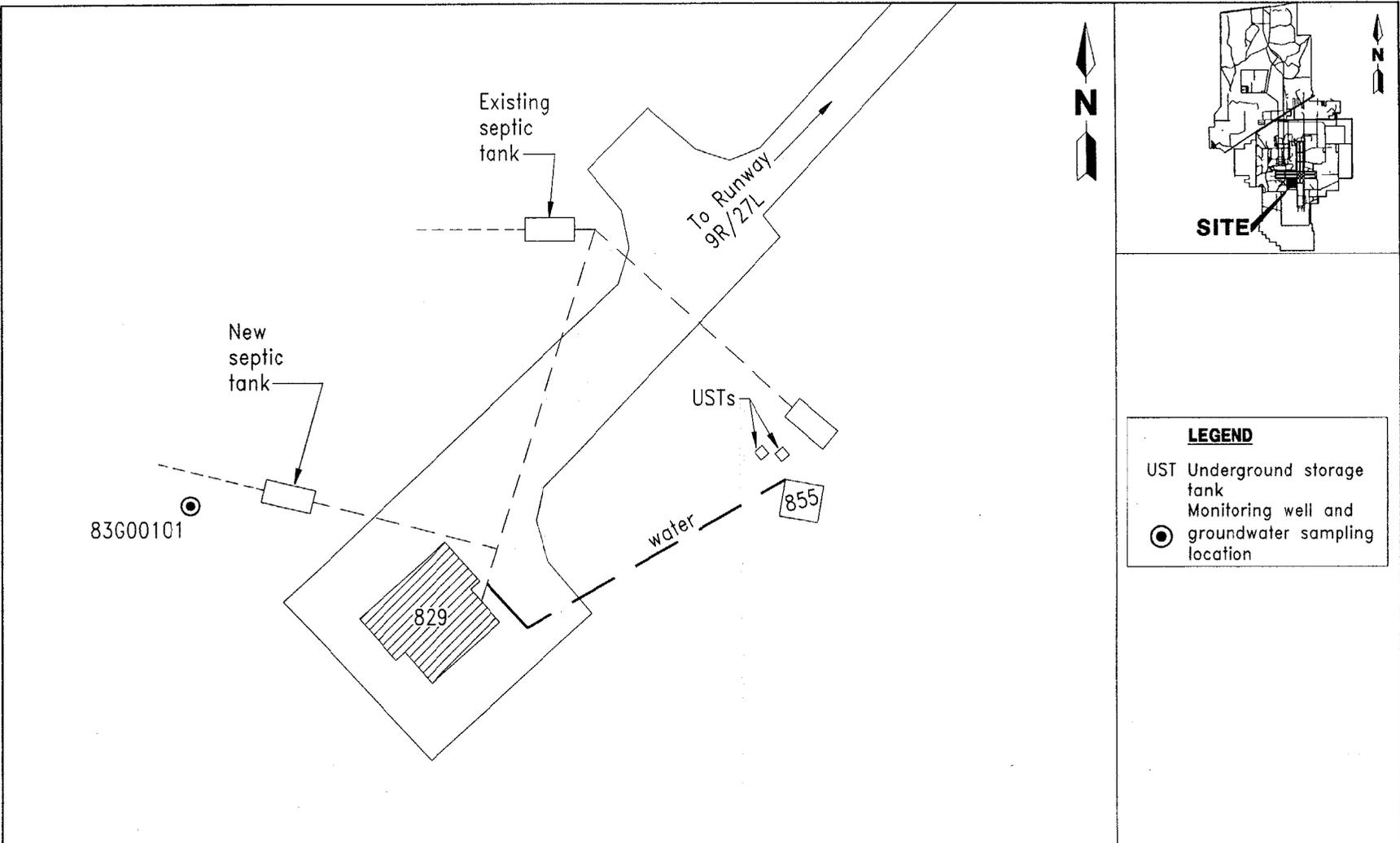
## 2.0 PHASE II INVESTIGATION

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, 1994a).

The groundwater monitoring well was installed downgradient (southwest) of the septic leach fields associated with Building 829 to a depth of 13 feet below land surface. 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.

## 3.0 PRELIMINARY RISK EVALUATION (PRE)

A PRE was conducted to assess potential risks to human and ecological receptors posed by contaminants in groundwater. Primary exposure pathways were evaluated to determine which 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 "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, 1995). Site background information and rationale for sample collection and analysis are detailed in the EBS Report (ABB-ES, 1994b) and the SAO (ABB-ES, 1996).



**LEGEND**

- UST Underground storage tank
- Monitoring well and groundwater sampling location



**FIGURE 1**  
**BUILDING 829**  
**RADAR EQUIPMENT BUILDING**  
**SAMPLE LOCATION PLAN**



**PHASE II SAMPLING AND ANALYSIS REPORT**

**NAS CECIL FIELD**  
**JACKSONVILLE, FLORIDA**

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**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 (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  $1 \times 10^{-6}$ . 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 HQ of 1, respectively. For noncarcinogens, the HQs are summed to determine the cumulative noncancer risk or hazard index [HI]).

Nine inorganic analytes were detected in the groundwater sample collected in the study area. A comparison between concentrations of detected analytes in groundwater and RBCs for tap water and FDEP groundwater guidance concentrations, is included in Appendix A. Aluminum and iron were detected at concentrations exceeding FDEP guidance concentrations, but below their respective RBCs for tap water. In each case, the groundwater screening criteria exceeded is a secondary water quality standard. The cumulative noncancer risk or HI calculated for all detected analytes is 0.2 based upon RBCs for tap water. No carcinogenic analytes were detected; therefore, an ELCR was not calculated.

**3.2 ECOLOGICAL PRE.** Potential exposure pathways and ecological habitat associated with Building 829 were characterized by ABB-ES ecological risk assessors in June 1996. Building 829 is located on the edge of the flightline and is surrounded by mowed grass. Surface water may discharge to a drainage ditch located approximately 250 feet to the south-southwest. However, 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

A cumulative HI of 0.2 was calculated for all detected analytes in groundwater. All of the detected analytes were present at concentrations below their respective RBCs. No complete exposure pathways to ecological receptors have been identified for groundwater in the study area. The 3-gallon diesel fuel day tank and stained soil noted in the EBS were not present at the time subsequent site walkovers undertaken in support of the tank management plan.

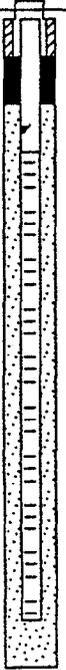
Based upon the information obtained for this assessment, the concentrations of analytes detected in groundwater at Building 829 do not represent a hazard to human health or the environment. Environmental concerns associated with a 3-gallon diesel fuel day tank formerly located on the site have been visually evaluated and do not appear to represent a hazard to human health or the environment. The color classification for Building 829 should be changed from Gray to Blue in order to reflect the incidental petroleum release reported in the EBS (ABB-ES, 1994b).

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. 1995. Minutes of September 25, 1995, conference call to discuss preliminary risk evaluations.
- ABB-ES. 1996. *Building 829, Base Realignment and Closure, Zone G, Undeveloped Southern Area, Group VII, Naval Air Station, Cecil Field, Jacksonville, Florida*. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (March).
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- 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, Region III, Technical Guidance Manual*. Risk Assessment. EPA/903/R-93-001 (May).

**APPENDIX A**  
**SOIL BORING LOGS AND TABLE**

TITLE: NAS Cecll Field BRAC		LOG of WELL: CEF-829-1S	BORING NO. CEF-829-1S
CLIENT: SOUTHDIYNAVACENGCOM			PROJECT NO: 08520-85
CONTRACTOR: Alliance Environmental, Inc.		DATE STARTED: 12-18-85	COMPLTD: 12-18-85
METHOD: Auger	CASE SIZE: 2 in.	SCR. INT.: 3 - 13 ft.	PROTECTION LEVEL: D
TOC ELEV.: ft.	MONITOR INST.: PID	TOT DPTH: 14.0ft.	DPTH TO $\nabla$ 5.0 ft.
LOGGED BY: R. Holloway	WELL DEVELOPMENT DATE:		SITE: 83 - Radar Equip. Bldg.

DEPTH F.T.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0				SILTY SAND (SM): 100%, dark yellowish brown, quartz, fine- to medium-grained, subrounded to subangular, poorly sorted, silty.		SM	posthole	
0							posthole	
5							4,6,7,5	
15								
20								
25								
30								

**BRAC Preliminary Risk Evaluation Table for Analytes Detected in Groundwater  
Building 829, Naval Air Station Cecil Field**

Analyte	Sample 83G00101	Screening Values		Calculated Risk Values	
		FDEPGGC	RBC(T)	ELCR	HQ
<b>Inorganic Analytes</b>					
Aluminum	274	200 s *	37000 n		0.0074
Barium	13.1	2000 p	2600 n		0.0050
Calcium	1930				
Iron	1760	300 s *	11000 n		0.16
Magnesium	803				
Manganese	32.8	50 s	840 n		0.039
Potassium	359				
Sodium	1670	180000 p			
Vanadium	1.9	49 st	260 n		0.0073
			Sum-		0.2

**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 II, May 1988

c - carcinogenic risk

n - non-carcinogenic risk

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

HQ - calculated Hazard Quotient for non-carcinogenic analytes (HQ = detected concentration/RBC(T))