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SAMPLING AND ANALYSIS OUTLINE REPORT MAIN BASE AREA 5 ZONE D INDUSTRIAL FLIGHTLINE AREA NAS CECIL FIELD FL

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HARDING LAWSON ASSOCIATES

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SAMPLING AND ANALYSIS OUTLINE REPORT

MAIN BASE AREA 5

BASE REALIGNMENT AND CLOSURE

ZONE D, INDUSTRIAL FLIGHTLINE AREA

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc
EBS	environmental baseline survey
ELCR	excess lifetime cancer risk
FDEP	Florida Department of Environmental Protection
HLA	Harding Lawson Associates
HI	hazard index
HQ	hazard quotient
NAS	Naval Air Station
PRE	Preliminary Risk Evaluation
RBC	risk-based concentration
SCTL	Soil Cleanup Target Levels
USEPA	U.S. Environmental Protection Agency

1.0 INTRODUCTION

Main Base Area 5 is the site designation assigned to an area of undeveloped open area in the northeast quadrant of the Main Base Area at Naval Air Station (NAS) Cecil Field, Jacksonville, Florida. The perimeter of MB5 is formed by the perimeter road fence to the north, Runway 27R to the south, Runway 18L to the west and to the road that makes the western boundary of the high explosives magazine area. Naval use of this area began in 1942. This open area has a number of facilities and activities within it, including a storage facility for high explosives weaponry, a pistol range, a directional aircraft radar tracking facility, guided missile maintenance areas, and high explosive weapon bunkers and magazines. Hazardous material storage lockers and security buildings were also observed within MB5. Buildings located within the area have been independently surveyed and are not included in this report. Paved roads, an abandoned railway line, and overgrown roads were observed in the MB5 area.

The Environmental Baseline Survey (EBS) Report (ABB Environmental Services, Inc. [ABB-ES], 1994a) documents the presence of petroleum odors, stressed vegetation and stained soil along the man-made drainage ditches and natural channels that lead to Sal Taylor Creek. Sal Taylor Creek was evaluated separately under the petroleum program, following a large jet fuel release from the North Fuel Farm. Two old transformers were observed during the EBS directly north of runway 18L. The PCB concentrations of the dielectric fluids in those transformers was not available. Metal debris and 55-gallon drums were observed in the southwestern section of MB5, near the intersection of runways 18L and 27R.

The EBS Report recommended a 6/Red color classification for the drainage ditches adjacent to runway 18L, 7/Grey for the areas containing the two transformers and metal debris, and 1/White color classification for the remainder of MB5.

An additional site walkover of MB5 was conducted by Harding Lawson Associates (then ABB-ES) in December 1997, confirming most of the observations documented in the EBS Report. Potential environmental concerns noted during the site walkover included 4 to 8 foot diameter depressions and an area of stained soil. The depressions are approximately 3 feet deep. No debris or waste was observed at the bottom of the depressions. The area of stained soil was approximately 5 feet in diameter and appeared to be contaminated with a petroleum product. Small charred pieces of wood were also noted at the area of stained soil. Scattered debris, consisting of empty 1-gallon and 5-gallon plastic buckets and containers (labeled as lubricating oil or hydraulic oil), scrap metal, wood, rusted pieces of drums, sections of portable roadways, a battery, light bulbs, large plastic tubes, radio transmitter with a battery, a freon tank, and concrete rubble piles were also noted during the site walkover. None of the buckets or containers were observed to contain original fluids.

Sorbent booms were noted in the drainage ditches. No apparent petroleum odors or visible signs of petroleum were observed at the two locations along drainage ditches where evidence of petroleum contamination was noted during the EBS. The other areas of concern identified in the EBS were reexamined. The drums at two locations noted in the EBS could not be located, although scattered metal and other demolition debris was observed in the vicinity of the area paralleling the north-south runway. The other drum location, where a peculiar chemical odor was noted during the EBS, was not located either. There was no evidence of the

electrical transformers north of runway 18L. It is assumed the units have been removed and disposed. Drainage ditches leading from stormwater outfalls adjacent to the north-south runway are likely to contain inorganic contaminants and pesticides, as determined during sampling and analysis for Main Base Open Area 18 (HLA, 1999). These stormwater outfalls have been designated Potential Source of Contamination (PSC) 39, and will be evaluated separately.

2.0 SAMPLING AND ANALYSIS OUTLINE

Sampling and analysis requirements for MB5 were discussed during the Base Realignment and Closure cleanup team meeting on July 16, 1997. The field program comprised of collection and analysis of two surface soil samples from MB5. One surface soil sample was collected from the 0- to 1-foot interval below land surface at one of the depressed areas. The second sample was collected at the area of stained soil near Facility 278. Analysis for the full suite of target analyte list (TAL) and target compound list (TCL) analytes for all samples was specified. Sample collection techniques, quality assurance objectives, quality control requirements, and sample handling and shipping procedures are outlined in the Base Realignment and Closure Project Operations Plan (ABB-ES, 1994b).

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 surface soil. 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 Evaluation (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, 1995b). Site background information and rationale for sample collection and analysis are detailed in the Environmental Baseline Survey Report (ABB-ES, 1994a) and the Sampling and Analysis Outline Report (ABB-ES, 1995a).

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 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 surface soil. Risk-based screening values were obtained from USEPA Region III Risk-Based Concentrations (RBCs) (USEPA, 1998) and FDEP Soil Cleanup Target Levels (SCTLs) (FDEP, 1998). Most

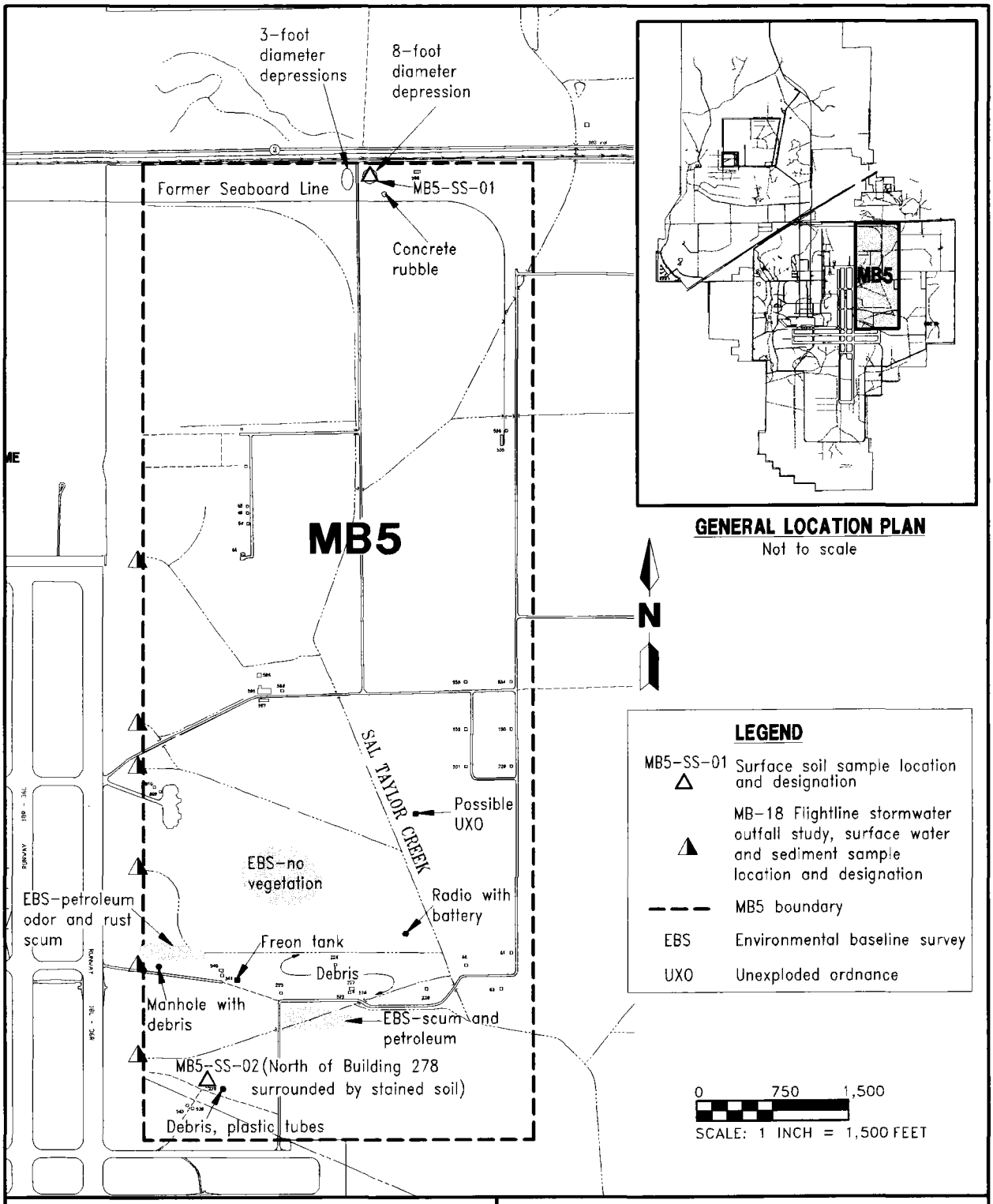

FIGURE 1
MAIN BASE AREA 5 (MB5)
SAMPLE LOCATION PLAN

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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).

Nine inorganic analytes and TRPH were detected in the surface soil samples collected and analyzed for MB5. A comparison between concentrations of detected analytes in surface soil, USEPA RBCs, and FDEP SCTLs is presented in Appendix A. No analytes were detected at concentrations in excess of NAS Cecil Field inorganic background data set values. TRPH, detected at 6000 milligrams per kilogram in sample MB5-SS-02 exceeded the Florida SCTL. There are no risk criteria for TRPH. Therefore, no HI or ELCR was calculated in association with a potential soil exposure scenario.

3.2 ECOLOGICAL PRE. Potential exposure pathways and ecological habitat associated with MB5 were identified. MB5 is in a remote, and largely undeveloped open area with smaller areas of planted pines. Pathways of potential contaminant exposure 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. Pathways for soil invertebrates include direct contact and incidental ingestion of surface soil. Pathways for terrestrial plants include direct contact with surface soil. Protected species indigenous to the area are likely to utilize suitable habitat at MB5.

A comparison between concentrations of detected analytes in surface soil, and terrestrial ecological screening criteria is presented in Appendix A. No compounds or analytes were detected at concentrations in excess of NAS Cecil Field inorganic background data set values and terrestrial ecological screening criteria. Therefore, no further ecological risk evaluation was conducted.

4.0 CONCLUSIONS AND RECOMMENDATIONS

All identified environmental concerns for the open area designated MB5, have been evaluated. Additional investigation at soil sample location MB5-SS-02, completed by TetraTech NUS, did not indicate a potential environmental concern.

Surface water and sediment in the drainage ditches leading from the stormwater outfalls adjacent to the north-south runway, are likely to contain inorganic contaminants and pesticides, as determined in the Sampling and Analysis of MB18 (HLA, 1999). The Base Realignment and Closure cleanup team has designated the contaminated outfalls PSC 39. Information pertinent to subsequent evaluation of contaminants in the drainage system will be presented in Technical Memoranda for PSC 39. PSC 39 should be classified 5/yellow, pending further evaluation.

The color classification for the remainder of the undeveloped area of MB5 should be classified 1/White, in accordance with the recommendations of the EBS Report.

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