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NAS WHITING FIELD
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LETTER REPORT SUMMARIZING ANALYTICAL RESULTS FOR SEDIMENT SAMPLES AT
CLEAR CREEK FLOODPLAIN INVESTIGATION NAS WHITING FIELD FL
8/24/1993
ABB ENVIRONMENTAL



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August 24, 1993

Commanding Officer
Attn: Kim Queen, Code 1859
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, SC 29418

**SUBJECT: Letter Report Summarizing Analytical Results for Sediment Sample WHF-CCF-SD-14
Clear Creek Floodplain Investigation
Naval Air Station Whiting Field, Milton, Florida
Contract Task Order 084, Contract N62467-89-D-0317**

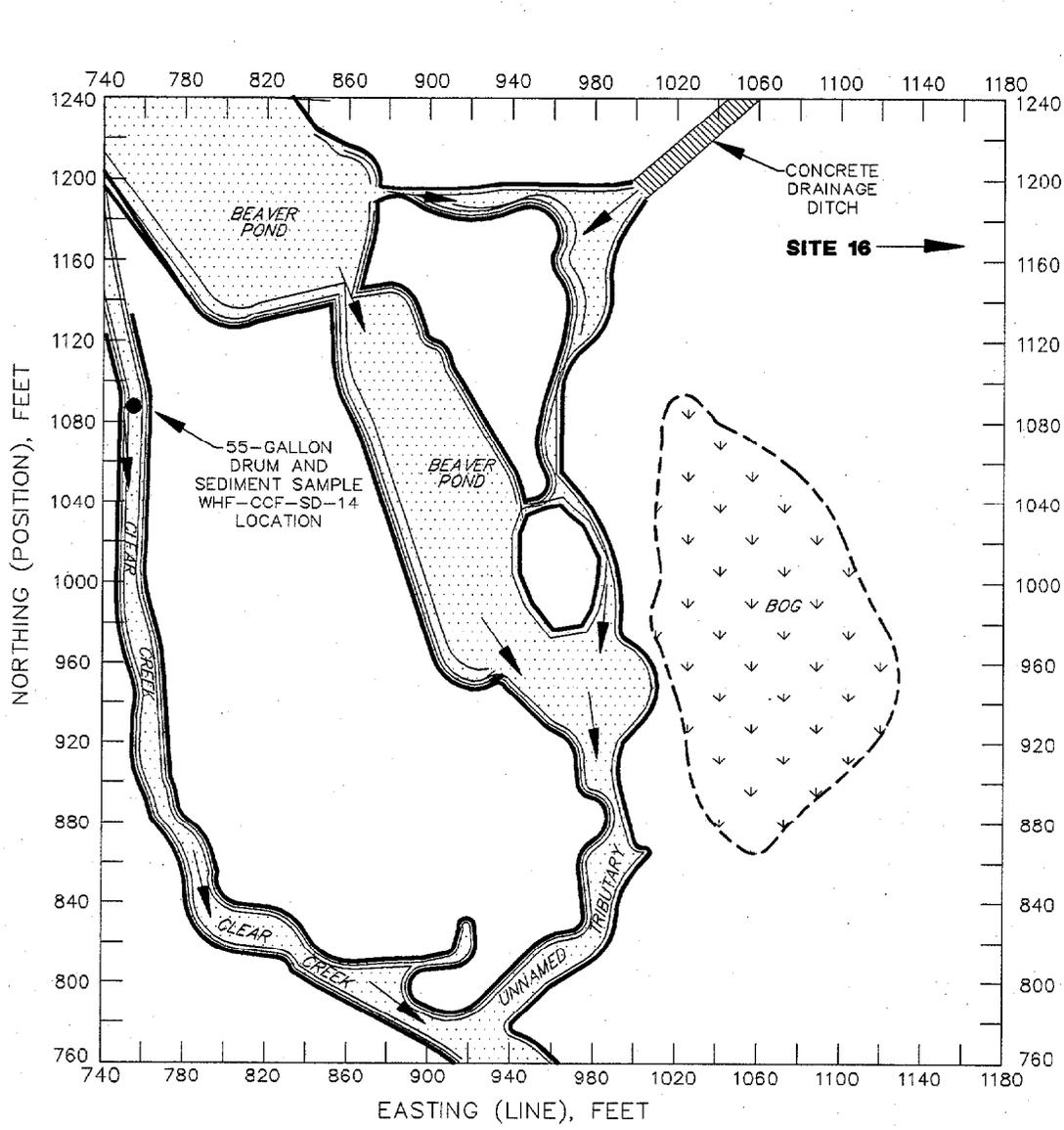
Dear Kim:

This memorandum summarizes the analytical results of the sediment sample collected from the location that formerly was beneath a 55-gallon drum located in Clear Creek at Naval Air Station (NAS) Whiting Field, Milton, Florida. The sediment sample was collected at the request of Florida Department of Environmental Protection (FDEP), Pensacola, Florida, to assess potential sediment contamination resulting from the presence of the drum in Clear Creek (Figure 1). The drum was removed from Clear Creek prior to the collection of the sediment sample on April 21, 1993. No apparent evidence of contamination was observed in the sediments below the drum. The drum was found to contain only creek water and a small (1 millimeter thick) accumulation of sediments on the inside drum walls.

SAMPLE COLLECTION

The sediment sample consisted of medium-grained orange sand. No evidence of contamination was apparent in the sediments during the collection of the sample. The sample (WHF-CCF-SD-14) was collected in accordance with U.S. Environmental Protection Agency (USEPA) Region IV Standard Operating Procedures (SOPs). The sample was sent to CH2M Hill's Redding, CA, laboratory and was analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), TCL semivolatile organic compounds (SVOCs), TCL pesticides and polychlorinated biphenyls (PCBs), Target Analyte List (TAL) metals, and total cyanide.

ABB Environmental Services, Inc.



LEGEND

- 55-GALLON DRUM AND SEDIMENT SAMPLE LOCATION

0 10 20
 SCALE: 1" = 20'

FIGURE 1
55-GALLON DRUM AND SEDIMENT
SAMPLE LOCATION



SEDIMENT SAMPLE WHF-CCF-SD-14
LETTER REPORT
CLEAR CREEK FLOODPLAIN
INVESTIGATION
NAS WHITING FIELD
MILTON, FLORIDA

ANALYTICAL RESULTS

The results of the TCL/TAL analysis are summarized as follows. The complete set of analytical results (Form I Format) are attached to this memorandum.

TCL VOCs	No VOCs were detected above the contract required detection limit (CRDL).
TCL SVOCs	No SVOCs were detected above the CRDL.
TCL Pesticides and PCBs	No pesticides or PCBs were detected above the CRDL.
TAL Metals	Aluminum, chromium, iron, lead, and mercury were detected above the CRDL. Aluminum (7,760 milligram per kilogram [mg/kg]) exceeded the background sediment concentration (as presented in Phase IIA Remedial Investigation (RI) Technical Memorandum No. 1, Surface Water and Sediment Assessment) of 1,150 mg/kg. Chromium (16.3 mg/kg) exceeded the background concentration (2 mg/kg) by approximately eight times. Iron (554 mg/kg) was reported just below the background concentration of 569 mg/kg. Lead (7.3 mg/kg) exceeded the background lead concentration (1.9 mg/kg) by slightly more than three times. Mercury (0.36 mg/kg) was detected at less than two times the background concentration (0.25 mg/kg).

SEDIMENT APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS EVALUATION

The sediment sample results were compared to the following Applicable or Relevant and Appropriate Requirements (ARARs) and exceedances of these requirements were identified. The sediment ARARs are presented in Table 1.

- National Oceanic and Atmospheric Administration (NOAA) Effects Range Low (ER-L) for sediments
- USEPA sediment quality criteria

USEPA sediment quality criteria are dependent on total organic carbon (TOC) and, because no sediment TOC data are available for the sediments within Clear Creek, the guidelines have been normalized to an approximated concentration of 1 percent. No NOAA or USEPA sediment ARARs are available for VOCs.

No NOAA or USEPA sediment ARARs were exceeded for SVOCs, pesticides, or PCBs. Mercury was the only inorganic analyte that exceeded the NOAA guidelines. There are no USEPA inorganic guidelines for sediments. Mercury was detected at a concentration of 0.36 mg/kg, which exceeds the NOAA guideline of 0.15 mg/kg. However, as noted before, the upstream background sediment sample concentration was 0.25 mg/kg, which also exceeds the NOAA guideline for mercury.

Table 1
Chemical-Specific Guidance for Sediments

Sediment Sample WHF-CCF-SD-14 Letter Report
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Chemical Name	NOAA Sediment ER-L Guidelines ¹ ($\mu\text{g}/\text{kg}$)	USEPA Sediment Quality Criteria ² ($\mu\text{g}/\text{gC}$)	Normalized USEPA Sediment Quality Criteria ³ ($\mu\text{g}/\text{kg}$)
Semivolatile Organics			
Acenaphthene	150	732	7,320
Anthracene	85	--	--
Benzo(a)anthracene	230	1,317	13,170
Benzo(a)pyrene	400	1,063	10,630
Chrysene	400	--	--
Dibenzo(a,h)anthracene	60	--	--
Fluoranthene	600	1,883	18,830
Fluorene	35	--	--
2-Methylnaphthalene	65	--	--
Naphthalene	340	--	--
Phenanthrene	225	139	1,390
Pyrene	350	1,311	13,110
Pesticides and PCBs			
4,4-DDD	2	--	--
4,4-DDE	2	--	--
4,4-DDT	1	.828	8.28
Dieldrin	0.02	.13	1.30
Endrin	0.02	.0532	0.532
Heptachlor	--	.11	1.1
Lindane	--	.157	1.57
PCBs	50	19.5	1.95
See notes at end of table.			

Table 1 (Continued)
Chemical-Specific Guidance for Sediments

Sediment Sample WHF-CCF-SD-14 Letter Report
Clear Creek Floodplain Investigation
NAS Whiting Field, Milton, Florida

Chemical Name	NOAA Sediment ER-L Guidelines ¹ ($\mu\text{g}/\text{kg}$)	USEPA Sediment Quality Criteria ² ($\mu\text{g}/\text{kg}$)	Normalized USEPA Sediment Quality Criteria ³
Inorganics			
Antimony	2,000	--	--
Arsenic	33,000	--	--
Cadmium	6,000	--	--
Chromium	80,000	--	--
Copper	70,000	--	--
Lead	35,000	--	--
Mercury	150	--	--
Nickel	30,000	--	--
Silver	1,000	--	--
Zinc	120,000	--	--

¹ NOAA, Technical Memorandum No. 5 OMA 52, *The Potential for Biological Effects of Sediment-Sorbed Contaminants tested in the National Status and Trends Program*, March 1990, Edward R. Long and Lee G. Morgan, Seattle, WA.

² USEPA, *Interim Sediment Criteria Values for Nonpolar Hydrophobic Organic Contaminants*, Office of Water Regulations and Standards, SCD No. 17, Washington, DC, 1988.

³ Normalized for total organic carbon (TOC) concentration of 1.0 percent.

Notes: NOAA = National Oceanic and Atmospheric Administration. $\mu\text{g}/\text{kg}$ = micrograms per kilogram.
ER-L = Effects Range Low. DDD = dichlorophenyl dichloroethane.
 $\mu\text{g}/\text{gC}$ = micrograms per gram Carbon. DDT = dichlorophenyl trichloroethane.
USEPA = U.S. Environmental Protection Agency. PCBs = polychlorinated biphenyls.
-- = not available. DDE = dichlorophenyl dichloroethane.

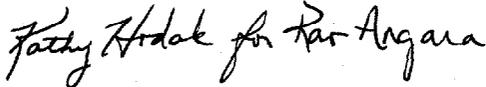
CONCLUSIONS

Based on the analytical results of sediment sample number WHF-CCF-SD-14, no contamination can be attributed to the 55-gallon drum that formerly occupied the location where this sediment sample was collected. The only sediment ARAR that was exceeded was the NOAA guideline for mercury. The upstream background sediment sample also exceeded the NOAA guideline for mercury indicating that naturally occurring concentrations of mercury in Clear Creek exist above the NOAA sediment guideline. Other inorganic analytes, although present at concentrations below the NOAA guidelines, exceeded background concentrations by more than two times. This variability in the inorganic concentrations in the creek sediments can most likely be attributed to the nonhomogeneity of these sediments.

If you have any questions, please call me or Eric Blomberg at 904-656-1293.

Very truly yours,

ABB ENVIRONMENTAL SERVICES, INC.



Rao V.R. Angara
Task Order Manager



Eric A. Blomberg
Technical Leader

cc: Jeff Adams, Southern Division
Robert Pope, U.S. Environmental Protection Agency
David Clowes, Florida Department of Environmental Protection
Jim Holland, NAS Whiting Field
File (7594-XX)