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ENVIRONMENTAL SCIENCE
AND ENGINEERING, INC.

March 17, 1986

ESE No. 85 275 1000

Ms. Cheryl Barnett
Department of the Navy
Atlantic Division, Code 1143
Naval Facilities Engineering Command
Building IIA, Gilbert Street
Norfolk, Virginia 23511

RE: Contract No. N62740-85-B-7972, Confirmation Study, U.S. Naval Complex,
Puerto Rico

Dear Ms. Barnett:

Enclosed is the progress report for the period of February 16, 1986
through March 15, 1986.

Please do not hesitate to call me if you have any questions regarding
this report.

Sincerely,



Russell V. Bowen, P.E.
Project Manager

RVB/njb

enclosure

cc: Lou Bilello, ESE
Lisa Bare, ESE
Bill Coulombe, ESE

MONTHLY PROGRESS REPORT

PERIOD 2/16/86 THROUGH 3/15/86

U.S. NAVAL COMPLEX, PUERTO RICO
CONFIRMATION STUDY

WORK ACCOMPLISHED

1. Completed laboratory analyses as shown in Table 1, and continued analyses of remaining samples. A brief discussion of the analytical data is presented in Attachment 1.
2. Installed the ground water monitor wells at Site 1 (NAF Vieques), and Site 7 at NSGA Sabana Seca to complete all monitor well installation.
3. Collected ground water samples from the monitor wells and potable wells shown in Table 2.
4. Resampled the sample locations identified in the QA/QC Progress Report for January 1986 (at no cost to the Government).
5. Continued preparation of Performance Work Statement (PWS) for drum and gas cylinder removal operations at Sites 6, 7 (NAVSTA Roosevelt Roads), 10, 11, and 16 at NAVSTA Roosevelt Roads.

PROBLEMS ENCOUNTERED

Hexavalent chromium analyses. See QA/QC Progress Report for February 1986.

PERCENTAGE OF WORK COMPLETED

Approximately 81 percent.

PLANS FOR FOLLOWING MONTH

1. Collect the remaining ground water samples from the monitor wells at Site 7 (NSGA Sabana Seca), and wells 1 GW01 and 3 PW01 on NAF Vieques.
2. Complete surveying of all monitor wells.
3. Continue laboratory analyses of samples.
4. Complete PWS for the drum and gas cylinder removal operations and forward the PWS to the EIC.

CONFIRMATION OF ANY CLARIFICATIONS OR TECHNICAL GUIDANCE

None

Table 1. Confirmation Study - U.S. Naval Complex, Puerto Rico -
Laboratory Analyses Completed as of 3/03/86

<u>Site</u>	<u>Type of Sample*</u>	<u>#</u>	<u>Completed Analyses</u>
<u>NAF Vieques</u>			
1	SE, S	9	percent moisture, pH, oil and grease, VOA, xylene, MEK, MIBK, EDB, total chromium, lead
2	SW	5	pH, total chromium, lead, VOA, xylene, MEK, MIBK
	SE	2	pH, percent moisture, lead, total chromium
	S	8	pH, percent moisture, lead, total chromium, and 88 percent (7 of 8 samples) of VOA, xylene, MEK, and MIBK
<u>NAVSTA Roosevelt Roads</u>			
5	SW	5	pH, mercury, Priority Pollutant scan (except for thallium), xylene, MEK, MIBK
	SE	5	percent moisture, pH, xylene, MEK, MIBK, EDB, volatile and metal fractions of Priority Pollutant scan
6	SW	3	pH, Priority Pollutant scan (except for thallium), xylene, MEK, MIBK
	SE	3	pH, percent moisture, volatile and metal fractions of Priority Pollutant scan, xylene, MEK, MIBK, EDB
	S	15	pH, percent moisture, complete metal fraction and 72 percent of organic fraction of Priority Pollutant scan for all soil samples collected
7	S	2	percent moisture, oil and grease, EDB, and 50 percent of MEK, MIBK, and VOA (1 of 2 soil samples collected)
8	SW, SE, S	3	percent moisture, oil and grease, lead, VOA, xylene, MEK, MIBK, EDB

9	SE	30	percent moisture, and 97 percent of PCBs
	SW	4	PCB
10	GW	2	pH, complete metal fraction and 47 percent of organic fraction of Priority Pollutant scan, xylene, MEK, MIBK, EDB
12	SW	1	pH, EDB, oil and grease, lead
	SE	1	pH, VOA, EDB, xylene, oil and grease, lead
	S	1	EP toxicity test metals
13	SW		pH, VOA, lead, oil and grease, EDB, xylene
14	SW	12	pH, oil and grease, EDB, lead, and 42 percent of VOA, xylene, MEK, and MIBK (5 out of 12 samples)
	SE	12	pH, percent moisture, oil and grease, lead, EDB, and 33 percent of VOA, xylene, MEK and MIBK (4 out of 12 samples)
15	S	15	percent moisture, PCBs
16	S	9	percent moisture, oil and grease, lead, EDB, PCBs, and 33 percent of VOA, MEK, and MIBK (3 out of 9 samples)
18	SW	0	pesticides
	SE	2	percent moisture, pesticides
	S	5	percent moisture, 85 percent of pesticides

NSGA Sabana Seca

6	SE	percent moisture
	S	percent moisture
7	SW	pH, Priority Pollutant scan (except for volatile fraction)
	SE	pH, percent moisture, metals fraction of Priority Pollutant scan

*SW = surface water
SE = sediment
S = soil
GW = ground water

Table 2. Monitor and Potable Wells Sampled During the Period of
2/16/86 Through 3/15/86

<u>Installation</u>	<u>Site</u>	<u>Well Identification Number</u>
NAF Vieques	1	1GW01, 1GW03
NAVSTA Roosevelt Roads	5 13	5GW01 - 5GW05 13GW01 - 13GW11
NSGA Sabana Seca	7	7PW01, 7PW02

ATTACHMENT 1

PRELIMINARY EVALUATION OF DATA AVAILABLE AS OF 3/03/86

CONFIRMATION STUDY, U.S. NAVAL COMPLEX, PUERTO RICO

NAF VIEQUES

SITE 1 QUEBRADA DISPOSAL SITE

No significant contamination was detected in any of the soil and sediment samples collected at Site 1.

SITE 2, MANGROVE DISPOSAL SITE, VIEQUES

No contamination was detected in any of the surface water samples collected at Site 2; no violations of EPA water quality criteria were indicated. In addition, the concentrations of lead and total chromium in the sediment and soil samples collected at this site do not indicate significant contamination. Furthermore, the available data base for the soil samples shows that no volatile organic compounds, xylene, MEK, or MIBK were detected.

NAVSTA ROOSEVELT ROADS

SITE 5, ARMY CREMATOR DISPOSAL AREA

The available data base for the surface water samples collected at Site 5 indicates that BIS (2-ETH' HEX') PHTH and DI-N-OCTYL PHTHALATE were the only organic Priority Pollutants detected. BIS (2-ETH' HEX') PHTH was found in samples 5SW1 through 5SW3, and 5SW5 in concentrations ranging from 1 to 2 ug/L, which is far below the EPA water quality criterion of 15 mg/L for this compound, and the DI-N-OCTYL PHTHALATE concentrations ranged from 1 to 7 ug/L. In addition, the compounds MEK, MIBK, and xylene were not detected in any of the surface water samples. With regard to metals, the arsenic concentrations in the five samples collected at this site (96.0 to 105 ug/L) exceeded the EPA water quality criterion of 0.0022 ug/L, and the nickel concentration for sample 5SW5 (33.6 ug/L) exceeded the EPA water quality criterion of 13.4 ug/L for nickel.

The available data base for the sediment samples collected at Site 5 does not indicate the presence of any significant contamination.

SITE 6, LANGLEY DRIVE DISPOSAL SITE

The available data base for the surface water samples collected at Site 6 indicates that BIS (2-ETH' HEX') PHTH and DI-N-OCTYL PHTHALATE were

the only organic Priority Pollutants detected, and only traces of these compounds were found (1 to 2 ug/L). BIS (2-ETH' HEX') PHTH was found in two samples (R6SW1 and R6SW2) at a concentration of 1 ug/L, well below the 15 mg/L EPA water quality criterion for this compound. In addition, the compounds xylene, MEK, and MIBK were not detected in any of the surface water samples. With regard to metals, the available data base indicates that the concentrations of beryllium, chromium, lead, mercury, nickel, and selenium exceed the respective EPA water quality criteria for these metals.

The available data base for the sediment samples collected at Site 6 does not indicate the presence of any contamination, and although the available data base for the soil samples shows the presence of several organic and inorganic Priority Pollutants, the concentrations of these pollutants indicate only a slight level of contamination.

SITE 7, STATION LANDFILL

The oil and grease data for the soil samples collected at Site 7 indicates only a slight level of contamination (80 to 198 ug/g, dry weight basis), and the available data base for volatile organic compounds, xylene, MEK, and MIBK does not indicate the presence of any contamination. In addition, EDB was not detected in either of the two soil samples collected at Site 7.

SITE 8, DRONE WASHDOWN

Although two of the surface water samples collected at Site 8 (8SW2 and 8SW3) showed a significant level of oil and grease contamination (98 to 102 mg/L), other analytes (volatile organic compounds, xylene, MEK, MIBK, and lead) were not detected in any of the surface water samples. Likewise, the data for the sediment samples collected at this site indicate a significant level of oil and grease contamination, with concentrations ranging from 787 to 4,740 ug/g, dry weight basis (787 to 4,740 ppm). However, no volatile organic compounds, xylene, MEK, MIBK, or EDB were detected in the sediment samples, and although lead was detected in two of the samples (8SE1 and 8SE3), the concentrations were not significant (28.8 and 43.4 ug/g, dry).

SITE 9, PCB DISPOSAL, DRY DOCK AREA

PCBs were not detected in the four surface water samples and thirty sediment samples collected at Site 9.

SITE 10, BUILDING 25 STORAGE AREA

The available data base for the ground water samples collected at Site 10 indicates that no organic Priority Pollutants as well as MIBK, xylene, and EDB, were detected. MEK was detected in one ground water sample (10GW4) at a concentration of 9 ug/L. With regard to metals, concentrations of antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, and thallium in the downgradient ground water samples

exceeded the respective EPA water quality criteria. However, the concentration of all of these metals, with the exception of antimony, copper, and lead, in the background ground water sample (10GW1) also exceeded the respective EPA water quality criteria.

SITE 12, TWO WAY ROAD FUEL FARM

Lead and EDB were not detected in the surface water sample collected at Site 12, and only a slight oil and grease concentration (0.4 mg/L) was detected in this sample. Similarly, oil and grease was detected in the sediment sample collected at this site at a concentration of 3,340 ug/g, dry weight basis, but all other analytes (VOA, EDB, xylene, and lead) were not detected.

SITE 13, TANKS 210 TO 217

Volatile organic compounds, xylene, EDB, and lead were not detected in the surface water samples collected at Site 13, and only a slight level of oil and grease contamination (less than 1 mg/L) was detected in two of the six samples. However, significant oil and grease contamination was detected in the six sediment samples collected at this site, with concentrations ranging from 1,730 to 52,300 ug/g, dry weight basis. Although a moderate level of lead (400 ug/g, dry) was detected in one sediment sample (13SE1), lead was not found in appreciable concentrations in the other five samples, and EDB was not detected in any of the sediment samples.

SITE 14, ENSENADA HONDA SHORELINE AND MANGROVES

Although eight of the twelve surface water samples collected at Site 14 had low levels of oil and grease (0.3 to 2.0 mg/L), EDB and lead were not detected in any of the surface water samples. Furthermore, the available data base for volatile organic compounds, xylene, MEK, and MIBK shows that none of these analytes were detected.

Although moderate to high levels of oil and grease were found in several of the sediment samples collected at Site 14, EDB and lead were not detected in any of the sediment samples. In addition, the available data base for volatile organic compounds, xylene, and MIBK shows that these compounds were not detected. MEK was detected in only one sample (14SE1) at a very low concentration (0.008 ug/g, dry).

SITE 15, SUBSTATION 2

PCBs were detected in seven of the eight discrete surficial soil samples (15S1A through 15S6A, and 15S8A) collected adjacent to Substation 2 in concentrations ranging from 2.38 to 308 ug/g, dry weight basis. No PCBs were detected in any of the soil samples collected in the storage yard located across the street from Substation 2.

SITE 16, OLD POWER PLANT, BUILDING 38

Moderate to high levels of oil and grease contamination (221 to 6,348 ug/g, dry weight basis) were found in the nine soil samples collected at Site 16, and significant lead concentrations were found in two of the samples (16S3A and 16S4A). EDB was not detected in any of the soil samples; however, PCBs were detected in seven of the nine soil samples (16S2A through 16S7A, and 16S9A), and the concentrations ranged from 3.39 to 404 ug/g, dry weight basis (3.39 to 404 ppm).

The available data base for volatile organic compounds, MIBK, and xylene indicates the absence of contamination relative to these analytes, and although MEK was detected in two samples (16S4A and 16S9A), the MEK concentration in both samples was only 1 ug/g, dry weight basis.

SITE 18, PEST CONTROL SHOP

Chlordane was the only pesticide detected in both surface water samples collected at this site. Although both concentrations were less than 1/ug/L, they both exceeded the EPA water quality criterion of 0.00046 ug/L. In the two sediment samples collected at this site; DDE, PP'; dieldrin; endosulfan, A; and endosulfan, B were detected but at low concentrations (less than 8 ug/g, dry).

The available data base for the five discrete and 10 composite surficial soil samples collected at this site show that no pesticides were detected in the drainage ditch located to the west of the former pest control shop (Samples 18S1A, 18S2A, and 18S3A). However, low levels (less than 5 ug/g, dry weight basis) of DDE, PP'; dieldrin; and endosulfan sulfate were found in the drainage ditch located east of the former pest control shop (Samples 18S4A and 18S5A). In addition, low levels (less than or equal to 4 ug/g, dry weight basis) of numerous pesticides (aldrin; DDD, PP'; DDE, PP'; dieldrin; endosulfan, A; endosulfan sulfate; endrin; heptachlor; and neptachlor epoxide) were found in the ten composite soil samples collected in the area surrounding the former pest control shop, except for sample 18S14C which had a DDT, PP' concentration of 167 ug/g, dry weight.

NSGA SABANA SECA

SITE 7, LEACHATE PONDING AREA

The available data for the Priority Pollutant scan of the surface water sample collected at Site 7 shows that chromium, cadmium, nickel, zinc, BIS (2-ETH' HEX') PHTH, DI-N-OCTYL PHTHALATE, and BHC-D were detected. However, for the metals, only the nickel concentration (48.9 ug/L) exceeds the EPA water quality criterion of 13.4 ug/L for nickel. BIS (2-ETH' HEX') PHTH was found at a concentration of 9 ug/L, which is far below the EPA water quality criterion of 15 mg/L for this compound, and the DI-N-OCTYL PHTHALATE was only 0.7 ug/L. The concentration of BHC-D was 0.016 ug/L which slightly exceeds the EPA water quality criterion of 0.0092 ug/L for this compound.

The metals analyses for the sediment sample collected from this site do not indicate significant contamination.