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DEPARTMENT OF THE NAVY
OFFICER IN CHARGE OF CONSTRUCTION
RESIDENT OFFICER IN CHARGE OF CONSTRUCTION
Long Beach Area
SOUTHWEST DIVISION, NAVAL FACILITIES ENGINEERING COMMAND
Long Beach, California 90822-5080

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NAVSTA LONG BEACH
SSIC #5090.3

IN REPLY REFER TO:

4280
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16 March 1994

From: Resident Officer in Charge of Construction, Long Beach Area, Long Beach, Ca 90822-5080
To: Southwest Division, Naval Facilities Engineering Command, 1220 Pacific Highway, San Diego, Ca 92132-5111 (Attn: Code 1832.JJ/Joseph Joyce)

Subj: CONTRACT N68711-92-D-6173, 0136, D.R.M.O. RELOCATIONS AT THE NAVAL STATION, LONG BEACH, CA - PW# 45018

1. As agreed in the March 4 1994 meeting the enclosed results of the Soil Samples at Site 12 are forwarded to you.
2. If you have any questions please contact Ens. Machele Vieux at (310) 547-6875.

Thank You

Teresa Fitzpatrick
TERESA FITZPATRICK
By direction

Copy to:
Code 105.31AU
Susan Livenick

M&T AGRA, Inc.

(formerly Moore & Taber)

Geotechnical & Environmental Services

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FAX TRANSMITTAL LETTER

Job Number: 894-017

Date: 3-15-94

Time: 4:27 pm.

WE ARE TRANSMITTING THE FOLLOWING:

Total number of pages (including cover page): - 011 -

TO: Name: DAN OGNA NOVICH

Company: BROWN & ROOT

FAX No: (910) 437-8026

FROM: BOB GTO

COMMENTS: _____

> Preliminary Report

> Final Lab. Results still pending.

If you do not receive all the pages or have any other problem with this transmission, please call the sender as soon as possible at (714) 779-2591.

Operator _____

March 15, 1994

Job No. 894-017

Brown & Root
P.O. Box 32208
Long Beach, California 90832

Attention: Mr. Bert Nintemann

PRELIMINARY

**PRELIMINARY SOIL INVESTIGATION
DRMO SCRAPYARD RELOCATION
SITE 12 - LOT X
LONG BEACH NAVAL SHIPYARD
LONG BEACH, CALIFORNIA**

INTRODUCTION

This letter report summarizes the procedures and analytical results of a recently completed soil sampling and testing program at the DRMO scrapyards relocation area of the Long Beach Naval Shipyard. The objective of this program was to collect soil samples, analyze the samples for selected organic and inorganic constituents, and report the findings. Sample collection and testing procedures were conducted in general accordance with currently accepted environmental engineering practices and protocols. It is M&T AGRA's understanding that this work was performed in response to hazardous waste concerns expressed by representatives of the U.S. Navy.

SITE DESCRIPTION

The study area is a vacant lot identified as Site 12 - Lot X. It has an area of approximately 120,000 square feet (2.75 acres). The surface of the ground is covered with a mixed layer of gravel and soil. There is a fence bounding the northern, eastern, and southern sides of the site. The southern side of the site extends along the northern edge of an asphalt-paved parking area. A site plan of the study area showing boring locations is presented in Figure 1.

PRELIMINARY
PROGRAM

At the request of Brown & Root, soil samples were collected by M&T AGRA personnel on March 2, 1994. The field work was performed using Level D protective equipment, including nitrile gloves during sample collection.

Brown & Root selected the soil boring locations and depths of sample collection at the time of the field work. The subset of samples to be analyzed by the laboratory were also chosen by Brown & Root. It is our understanding that the U. S. Navy environmental group selected the suite of laboratory analyses to be run on the selected samples.

Soil borings were advanced using a hand auger at eight selected locations within the study area, as shown in Figure 1. A total of 25 soil samples were obtained by hand driving a six-inch long, 2.0-inch diameter brass tube into the ground. Each sample was retrieved and immediately sealed with teflon, capped, labeled, and stored on ice. Two to four samples were collected from each boring. The samples were labeled with the boring number and the nominal depth of collection. For example, the sample collected from a depth of 6 inches from boring B1 was labeled as B1-6". Soil samples were handled following standard chain-of-custody procedures. A description of the sample materials is included as Attachment A.

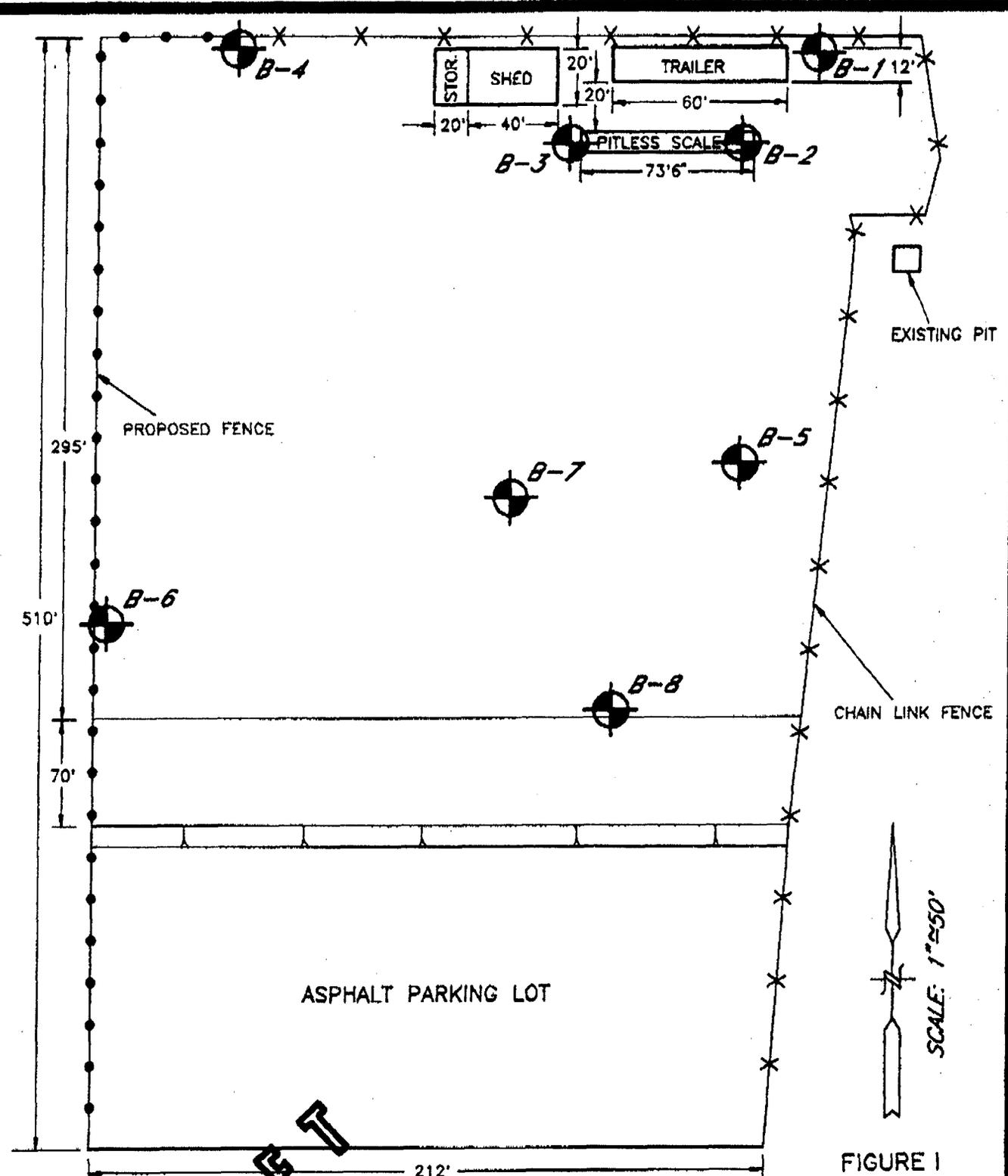


FIGURE 1

DRAFT

LONG BEACH NAVAL SHIPYARD DRMO RELOCATION CN 45018-HAZ. TEST				
BORING LOCATIONS				
M&T AGRA, Inc. <i>Geotechnical and Environmental Services</i>				
FIELD	DRAFT	APPROV.	DATE	JOB No.
--	JM		3-4-94	894-017

LABORATORY RESULTS

All 25 of the soil samples collected were submitted to a California State certified laboratory. The six samples designated by Brown & Root for laboratory testing were analyzed for volatile organic compounds (EPA Method 8240), semi-volatile organic compounds (EPA method 8270), total concentrations of 17 selected metals, organochlorine pesticides and PCBs (EPA method 8080), cyanide, and total recoverable petroleum hydrocarbons (EPA Method 418.1). The remaining 19 samples were archived by the laboratory for potential future analysis.

Table 1 presents a summary of the total metal concentrations in the selected soil samples. Table 2 presents a summary of the Total Recoverable Petroleum Hydrocarbons (TRPH), volatile organic compounds (VOCs) and cyanide results. At this time, the analyses for semivolatiles, pesticides, and PCBs are being completed by the laboratory.

This letter report summarizes our sampling and testing program conducted at the DRMO scrapyard relocation area of the Long Beach Naval Shipyard in Long Beach, California. This report has been prepared in accordance with generally accepted environmental practices. This report may not be suitable for purposes other than those specifically outlined above.

TABLE 1

**TOTAL METAL CONCENTRATIONS IN SOIL SAMPLES
DRMO SCRAPYARD RELOCATION, SITE 12 - LOT X
LONG BEACH NAVAL SHIPYARD**

Metals (mg/kg)	Sample Identification							Regulatory Level
	Detection Limit	B1-6"	B2- 24"	B3- 12"	B4- 48"	B6- 12"	B7-6"	TTLIC mg/kg (1)
Antimony	5.0	ND	ND	ND	ND	ND	ND	500
Arsenic	5.0	11	18	8.8	ND	52	6.0	500
Barium	5.0	430	560	410	57	440	180	10,000
Beryllium	0.5	ND	ND	ND	ND	ND	ND	75
Cadmium	0.5	ND	ND	ND	ND	ND	ND	100
Chromium	5.0	68	42	92	11	51	41	2,500
Cobalt	5.0	29	30	26	ND	5.3	15	8,000
Copper	5.0	1300	1000	1.2	23	75	650	2,500
Lead	5.0	81	210	93	130	ND	120	1,000
Mercury	0.2	0.72	ND	ND	2.1	ND	ND	20
Molybdenum	5.0	ND	ND	ND	ND	ND	ND	3,500
Nickel	5.0	28	19	22	22	15	16	2,000
Selenium	0.2	ND	ND	ND	ND	ND	ND	100
Silver	5.0	ND	ND	ND	ND	ND	ND	500
Thallium	5.0	ND	ND	ND	ND	ND	ND	700
Vanadium	5.0	43	11	52	17	27	26	2,400
Zinc	10	260	44	520	140	51	180	5,000

ND = Not detected

(1) = Total Threshold Limit Concentration (TTLIC). Source is California Code of Regulations, Title 22, Chapter 11, Article 3.

TABLE 2

TRPH, VOCS, AND CYANIDE CONCENTRATIONS IN SOIL SAMPLES
 DRMO SCRAPYARD RELOCATION SITE 12 - LOT X
 LONG BEACH NAVAL SHIPYARD

Constituent	Sample Identification					
	B1-6"	B2-24"	B3-12"	B4-48"	B6-12"	B7-6"
TRPH (mg/kg)	510	5500 0	2800	ND	4000	110
Cyanide (mg/kg)	ND	ND	ND	ND	ND	ND
Acetone (µg/kg)	ND	110	ND	ND	ND	29
Benzene (µg/kg)	ND	14	ND	ND	ND	ND
2-Butanone (µg/kg)	ND	24	ND	ND	ND	ND
Ethylbenzene (µg/kg)	ND	25	ND	ND	ND	ND
Toluene (µg/kg)	ND	80	ND	ND	ND	ND
Xylenes (µg/kg)	ND	96	37	ND	ND	ND

ND = Not detected

Brown & Root
Attention: Mr. Bert Nintemann

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We hope this information is useful in addressing the concerns of the U.S. Navy environmental group. Should you require additional information, please do not hesitate to contact one of the undersigned.

M&T AGRA, Inc.

Douglas A. Harriman
Environmental Project Manager
DAH/REC/ljo

Rodolfo E. Coto
Environmental Services Manager

PRELIMINARY

Attachments: Table 1 (T-1)
Attachment A - Description of Sample Materials (A-1 to A-2)

Distribution: (2) Addressee
Attention: Mr. Bert Nintemann

ATTACHMENT

PRELIMINARY

DRAFT

**DESCRIPTION OF SAMPLE MATERIALS
DRMO RELOCATION
CN 45018 - HAZ. TEST**

Boring I.D.	Depth (inches)	Description
B-1	0 - 4	Brown SILTY SAND with 3/4 inch rock
	4 - 5	Orange-brown clayey medium to coarse SAND
	5 - 22	Emulsion - oil mixed into fine to medium SAND
	22 - 30	Emulsion - with black SANDY CLAY mix
	30 - 53	Light gray SANDY SILT
	53 - 66+	Gray CLAYEY SILT with trace of reddish-brown SAND
B-2	0 - 20	Brown SILTY SAND with 3/4-inch rock
	20 - 30	Emulsion - oil mixed with fine to medium SAND
B-3	0 - 7	Yellowish-brown SILTY SAND with 3/4-inch rock
	7 - 24	Emulsion - oil mixed with fine to medium SAND with traces of wood and trash
B-4	0 - 10	Emulsion - oil mixed with fine to medium SAND
	10 - 48	Light gray SANDY SILTY SAND with traces of seashell fragments
B-5	0 - 7	Yellow-brown SILTY SAND WITH 3/4-inch rock
	7 - 8	Orange-brown medium to coarse SAND with CLAY
	8 - 12	Emulsion - oil mixed with fine to medium SAND
	12 - 13	Black SILTY CLAY
	13 - 30+	Gray SANDY SILT

**DESCRIPTION OF SAMPLE MATERIALS
DRMO RELOCATION
CN 45018 - HAZ. TEST**

(Continued)

Boring I.D.	Depth (inches)	Description
B-6	0 - 4	Brown SILTY SAND with some 3/4-inch rock
	4 - 6	Orange-brown medium to coarse SAND with CLAY
	6 - 10	Brown SILTY SAND with 3/4-inch rock, mostly SAND
	10 - 12	Brown SANDY CLAY with GRAVEL
	12 - 18	Brown SILTY SAND with 3/4-inch rock
	18 - 24+	Light gray SANDY SILT
B-7	0 - 7	Brown SILTY SAND with some 3/4-inch rock
	7 - 8	Orange-brown CLAYEY medium to coarse SAND
	8 - 13	Brown SILTY SAND with some 3/4-inch rock
	13 - 15+	Light gray SANDY SILT
B-8	0 - 6	Brown SILTY SAND with some 3/4-inch rock
	6 - 11	Brown SILTY fine SAND with orange-brown CLAYEY medium to coarse SAND and GRAVEL
	11 - 13+	Light gray SANDY SILT