Engineering & Environment, *Inc.*

31 January 2006

Mr. Andrew Smith
Environmental Engineer
Environmental Management Division
Marine Corps Base, Camp Lejeune, North Carolina

Re: Data Report, Rapid Refueler Release Soil Sampling
Marine Corps Air Station, New River, North Carolina
Contract # N62470-04-D-1763, Contract Task Order 0003

Dear Mr. Smith:

Engineering & Environment, Inc. (EEI) is pleased to provide this data report summarizing soil sampling activities conducted at the Rapid Refueler site, Marine Corps Air Station, New River, North Carolina. Activities included collection of 11 soil samples from the base of an excavation and collection of two composite soil samples from excavated soil.

Following the release of JP5 fuel from an underground storage tank (UST) refueling operation, surface soils contacted by the fuel were excavated by others. Once excavation activities had been completed, an EEI representative mobilized to the Rapid Refueler site on 26 September 2005 and collected soil samples from the base of the shallow excavation and from the stockpiled excavated soil. Eleven samples were collected across the excavated area (Figure 1). Two composite samples were collected of the stockpiled excavated soils. A hand auger was used to collect samples from the excavation base to depths of approximately 0.3 foot to 0.5 foot below the base of the excavation. Soil material retrieved by the hand auger was placed in laboratory-supplied methanol-preserved containers for analysis for Gasoline Range Organics (GRO) and into laboratory-supplied unpreserved containers for analysis for Diesel Range Organics (DRO). The hand auger was decontaminated before first use and between each use by washing in a solution of Alconox soap and potable water, rinsing in potable water, and final rinsing with deionized water.

Two composite soil samples were collected from the stockpiled excavated soil. Each of the composite samples was collected by advancing a hand auger into the stockpiled soil mound at two locations, from which sample material was retrieved from three different depths. Soil material retrieved by the hand auger was placed in laboratory-supplied methanol-preserved containers for analysis for GRO and into laboratory-supplied unpreserved containers for analysis for DRO. Compositing of the material was conducted by the laboratory. The hand auger was decontaminated before first use and between each use by washing in a solution of Alconox soap and potable water, rinsing in potable water, and final rinsing with deionized water.

824 GUM BRANCH ROAD ♦ SUITE S ♦ JACKSONVILLE, NORTH CAROLINA 28540
PHONE: 910.989.3214 ♦ FAX: 910.989.3341

All samples were placed in an iced cooler and submitted under chain-of-custody via overnight commercial carrier to Paradigm Analytical Laboratories, Inc. The laboratory reports and chain-of-custody forms are attached.

Results of the excavation base soil sample analyses indicated few locations exhibited detectable concentrations of GRO or DRO (Table 1). Of the samples exhibiting detectable concentrations of GRO or DRO, one sample (RRFS-03-6, located adjacent to the south side of the UST; see Figure 1) exhibited a GRO concentration of 171 milligrams per kilogram (mg/kg) and a DRO concentration of 1,690 mg/kg. These concentrations are above initial clean-up levels of 10 mg/kg (for GRO) and 40 mg/kg (for DRO), as identified in the North Carolina Department of Environmental Resources, Division of Waste Management, Underground Storage Tank Section's, "Guidelines for Assessment and Corrective Action (1 July 2002, with August 2002 updates)." (The initial clean-up levels are applicable to in-situ soil samples at sites for which a Comprehensive Site Assessment was submitted prior to 2 January 1998 and therefore do not necessarily apply; the guidelines do not specify limits for GRO and DRO in stockpiled soils.) A second sample (RRFS-08-3, located approximately 45 feet south-southwest of the UST; see Figure 1) exhibited a DRO concentration of 57.2 mg/kg, slightly above the initial clean-up level of 40 mg/kg for DRO. No other soil samples collected from the base of the excavation exhibited GRO or DRO concentrations above initial clean-up levels.

The two composite samples collected from the stockpiled soils produced detectable concentrations of both GRO and DRO (Table 1). As noted above, the guidelines do not specify limits for GRO and DRO in stockpiled soils.

Engineering and Environment, Inc. appreciates the opportunity to work with the Navy on this project. Please direct and technical or contractual question regarding this report to me at (910) 989-3214 (bmorris@eeimail.com).

Sincerely,

ENGINEERING AND ENVIRONMENT, INC.

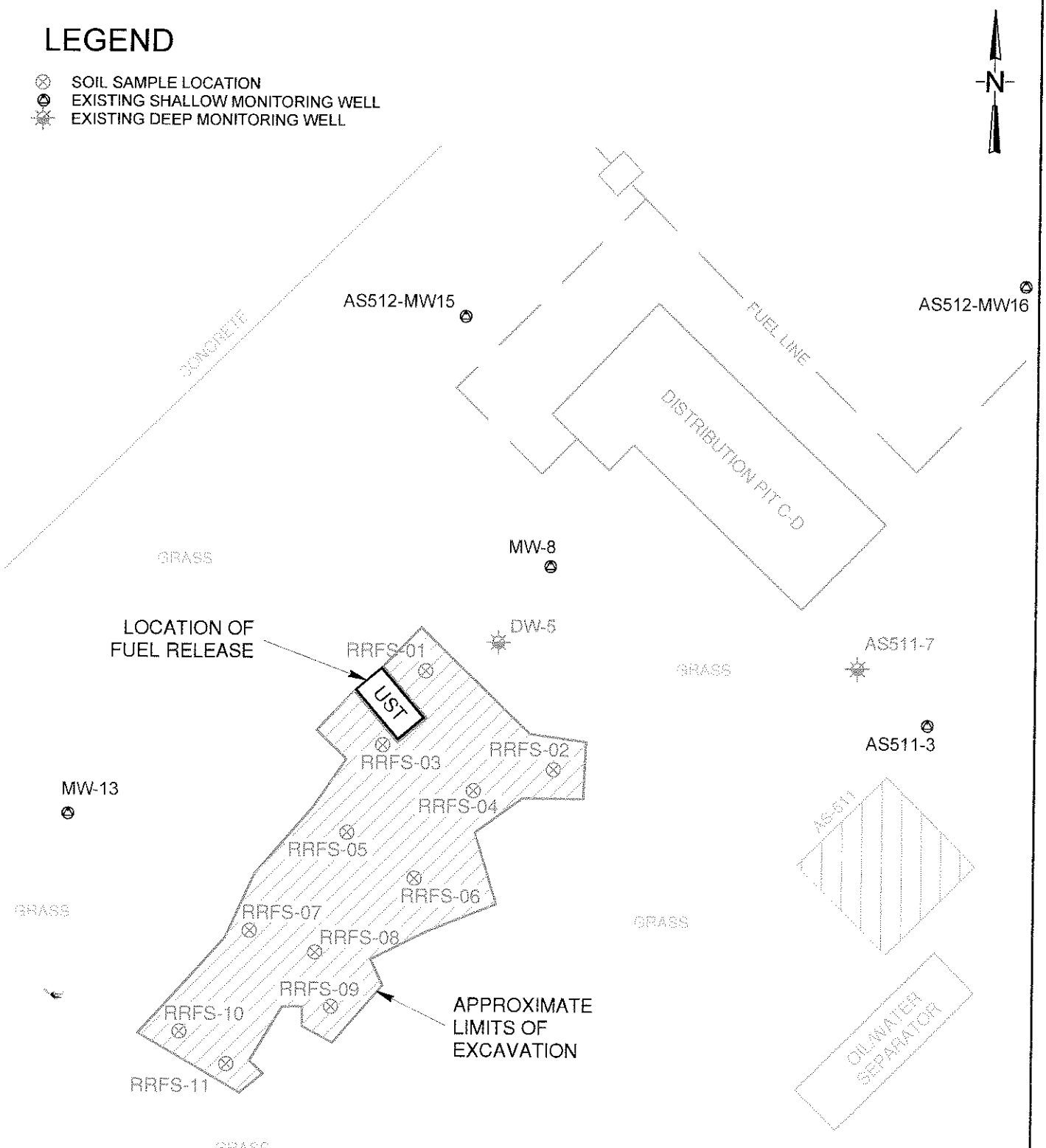
Mr. William C. Morris, P.G.
Project Manager

attachments

cc: Mr. Dave Cleland (Code: OPCEV4) / NAVFAC Lant

LEGEND

- SOIL SAMPLE LOCATION
- EXISTING SHALLOW MONITORING WELL
- EXISTING DEEP MONITORING WELL



SCALE (Feet)
15 0 15 30

Engineering & Environment, Inc.

FIGURE	1
DATE	10/12/05
REVISION	0
DRAWN BY	WCM
FILE	RR_Release_Base_Map

EXCAVATION LIMITS, SOIL SAMPLE LOCATIONS, AND EXSITING WELL LOCATIONS
RAPID REFUELER SITE
SOIL CONTAMINATION REPORT
MCAS NEW RIVER, NC

Table 1
Summary of Laboratory Analyses for Soil
Rapid Refueler
26 September 2005

Sample Identifdication	Approximate Sample Depth (ft bgs)	Gasoline Range Organics (mg/kg)	Diesel Range Organics (mg/kg)
RRFS-01-3	0.3	<5.84	<6.64
RRFS-02-6	0.5	<5.81	<6.99
RRFS-03-6	0.5	**171**	**1,690**
RRFS-04-3	0.3	<6.16	**8.9**
RRFS-05-3	0.3	<8.59	**7.83**
RRFS-06-6	0.5	<7.56	<6.62
RRFS-07-6	0.5	<6.24	**15.7**
RRFS-08-3	0.3	<6.09	**57.2**
RRFS-09-6	0.5	<7.98	<6.59
RRFS-10-3	0.3	<6.14	<6.5
RRFS-11-6	0.5	<5.72	**8.09**
RRCOMP-1 [1]	N/A	**1150**	**7880**
RRCOMP-2 [1]	N/A	**1160**	**9,260**
Initial Cleanup Level [2]		10	40

ft bgs: feet below ground surface (relative to excavated surface)
mg/kg: milligrams per kilogram

[1] Somposite sample collected from stockpiled soil; Initial Cleanup Level does not apply

[2] *Initial Cleanup Level* (Guidelines for Assesment and Corrective Actionm April 2001 [updated August 2003], North Carolina Department of Environment and Natural Resources, Division of Waste Management, UST Section; applicable to releases for which a Comprehsive Site Assesment was submitted prior to 2 January 1998)

Bold denotes detectable analyte concentration
Shading indicates sample concentration exceeds Action Level and Initial Cleanup Level

Mr. Bill Morris
Engineering & Environment, Inc.
824 Gum Branch Road
Jacksonville NC 28546

Report Number: G546-56

Client Project: RR Composit

Dear Mr. Morris:

Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call Paradigm at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
Paradigm Analytical Laboratories, Inc.

10/7/2005

Laboratory Director — Date
J. Patrick Weaver

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: Composite 2A and 2B
Client Project ID: RR Composit
Lab Sample ID: G546-56-14
Lab Project ID: G546-56
Report Basis: Dry Weight

Analyzed By: DCS
Date Collected: 9/26/05 0:00
Date Received: 9/28/05
Matrix: Soil
Solids 89.79

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	**1160**	134	5030	20	10/05/05
Diesel Range Organics	**9260**	661	3545	100	09/30/05

Reviewed By: _____

ARADIGM ANALYTICAL LABORATORIES, INC.
500 Business Drive, Wilmington, NC 28405
hone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 51535

Page 1 of 2

lient: Engineering + Environment Project ID: RR composit Date: 9/26/05 Report To: Bill Morris
ddress: 824 Gumbranch rd suite 5 Contact: Bill Morris Turnaround: 1 week
ddress: Jacksonville NC 28540 Phone: 910-989-3214 Job Number:
uote #: Fax: 910-989-3341 P.O. Number: Invoice To:

Sample ID	Date	Time	Matrix	Preservatives				Analyses										Comments: Please specify any special reporting requirements
				[redacted]	[redacted]	Methanol	None	GrO	DrO									6546-56
RCOMP-1A2	9/26/05	15:55	soil			X	X	2	1									composit
RCOMP-1A4	9/26/05	16:00	soil			X	X	2	1									
RCOMP-1AC	9/26/05	16:05	soil			X	X	2	1									
RCOMP-1B2	9/26/05	16:10	soil			X	X	2	1									
RCOMP-1B4	9/26/05	16:20	soil			X	X	2	1									
RCOMP-1B6	9/26/05	16:25	soil			X	X	2	1									End 1st composit
ACOMP-2B2	9/26/05	16:40	soil			X	X	2	1									composit
ACOMP-2B4	9/26/05	16:45	soil			X	X	2	1									
ACOMP-2B6	9/26/05	16:50	soil			X	X	2	1									
ACOMP-2A2	9/26/05	16:55	soil			X	X	2	1									

Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
Bob Sellers	9/27/05	13:40	John Johnson	9/28/05	1030	4.2°C	NC ____ SC ____ Other ____
							SEE REVERSE FOR TERMS AND CONDITIONS

Mr. Bill Morris
Engineering & Environment, Inc.
824 Gum Branch Road
Jacksonville NC 28546

Report Number: G546-57

Client Project: Rapid Refueler Fuel Spill

Dear Mr. Morris:

Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call Paradigm at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
Paradigm Analytical Laboratories, Inc.

10/7/2005

Laboratory Director Date
J. Patrick Weaver

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID:	RRFS-02-6	Analyzed By:	DCS
Client Project ID:	Rapid Refueler Fuel Spill	Date Collected:	9/26/05 13:30
Lab Sample ID:	G546-57-2	Date Received:	9/28/05
Lab Project ID:	G546-57	Matrix:	Soil
Report Basis:	Dry Weight	Solids	85.71

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.81	5035	1	09/30/05
Diesel Range Organics	BQL	6.99	3545	1	09/29/05

Comments:

Reviewed By: _____

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: RRFS-04-3
Client Project ID: Rapid Refueler Fuel Spill
Lab Sample ID: G546-57-4
Lab Project ID: G546-57
Report Basis: Dry Weight

Analyzed By: DCS
Date Collected: 9/26/05 13:40
Date Received: 9/28/05
Matrix: Soil
Solids 90.99

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.16	5035	1	09/30/05
Diesel Range Organics	**8.9**	6.62	3545	1	09/30/05

Comments:

Reviewed By:

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: RRFS-06-6
Client Project ID: Rapid Refueler Fuel Spill
Lab Sample ID: G546-57-6
Lab Project ID: G546-57
Report Basis: Dry Weight

Analyzed By: DCS
Date Collected: 9/26/05 13:55
Date Received: 9/28/05
Matrix: Soil
Solids 90.80

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.56	5035	1	09/30/05
Diesel Range Organics	BQL	6.62	3545	1	09/30/05

Comments:

Reviewed By: _____

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID:	RRFS-08-3	Analyzed By:	DCS
Client Project ID:	Rapid Refueler Fuel Spill	Date Collected:	9/26/05 14:20
Lab Sample ID:	G546-57-8	Date Received:	9/28/05
Lab Project ID:	G546-57	Matrix:	Soil
Report Basis:	Dry Weight	Solids	84.54

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.09	5035	1	09/30/05
Diesel Range Organics	**57.2**	6.88	3545	1	09/30/05

Comments:

Reviewed By: _____

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: RRFS-10-3
Client Project ID: Rapid Refueler Fuel Spill
Lab Sample ID: G546-57-10
Lab Project ID: G546-57
Report Basis: Dry Weight

Analyzed By: DCS
Date Collected: 9/26/05 14:35
Date Received: 9/28/05
Matrix: Soil
Solids 89.43

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.14	5035	1	10/01/05
Diesel Range Organics	BQL	6.5	3545	1	09/30/05

Comments:

Reviewed By: _____

List of Reporting Abbreviations and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit

DF = Dilution Factor

Dup = Duplicate

D = Detected, but RPD is > 40% between results in dual column method.

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL = Reporting Limit

RPD = Relative Percent Difference

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% soilds = Percent Solids

Special Notes:

1) Metals and mercury samples are digested with a hot block, see the standard operating procedure document for details.

2) Uncertainty for all reported data is less than or equal to 30 percent.

ARADIGM ANALYTICAL LABORATORIES, INC.
500 Business Drive, Wilmington, NC 28405
hone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 51520

Page 2 of 2

lient: Engineering Environment Project ID: RRFS Date: 9/27/05 Report To: _____
ddress: _____ Contact: _____ Turnaround: 1 week _____
ddress: _____ Phone: _____ Job Number: _____ _____
uote #: _____ Fax: _____ P.O. Number: _____ Invoice To: _____

Sample ID	Date	Time	Matrix	Preservatives: Methanol 1	Preservatives: non 2	Preservatives	Preservatives	Analyses: GRO	Analyses: PRO	Analyses	Analyses	Analyses	Analyses	Analyses	Analyses	Comments: Please specify any special reporting requirements
																5546-57
RFS-11-6	9/26/05	14:45	soil	X	X			2	1							
Trip Blank	9/27/05	13:15														

Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
Rob Sellers			Julie Johnson	9/28/05	1030	0.3°C	NC ____ SC ____ Other ____
							SEE REVERSE FOR TERMS AND CONDITIONS