ENVIRONMENTAL & REGULATORY CONSULTANTS, INC.

TANK REMOVAL REPORT
MARINE CORPS BASE
BUILDING G-480
CAMP LEJEUNE, NORTH CAROLINA
NAVFAC CONSTR. CONTR. NO. N62470-92-C-8258

FEBRUARY 8, 1994

Prepared for:

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Jones & Frank Co.
622 Maywood Avenue
Raleigh, NC 27611

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

At the request of Jones & Frank (J&F), Environmental & Regulatory Consultants, Inc. (ERC) was retained to compile, report and evaluate field and analytical data associated with the removal of underground storage tanks (USTs) located at the Marine Corps Base, Camp Lejeune, North Carolina and generate reports of those activities. This report addresses the removal of one UST located at Building G-480 (Figure 1), under NAVFAC construction contract No. N62470-92-C-8258.

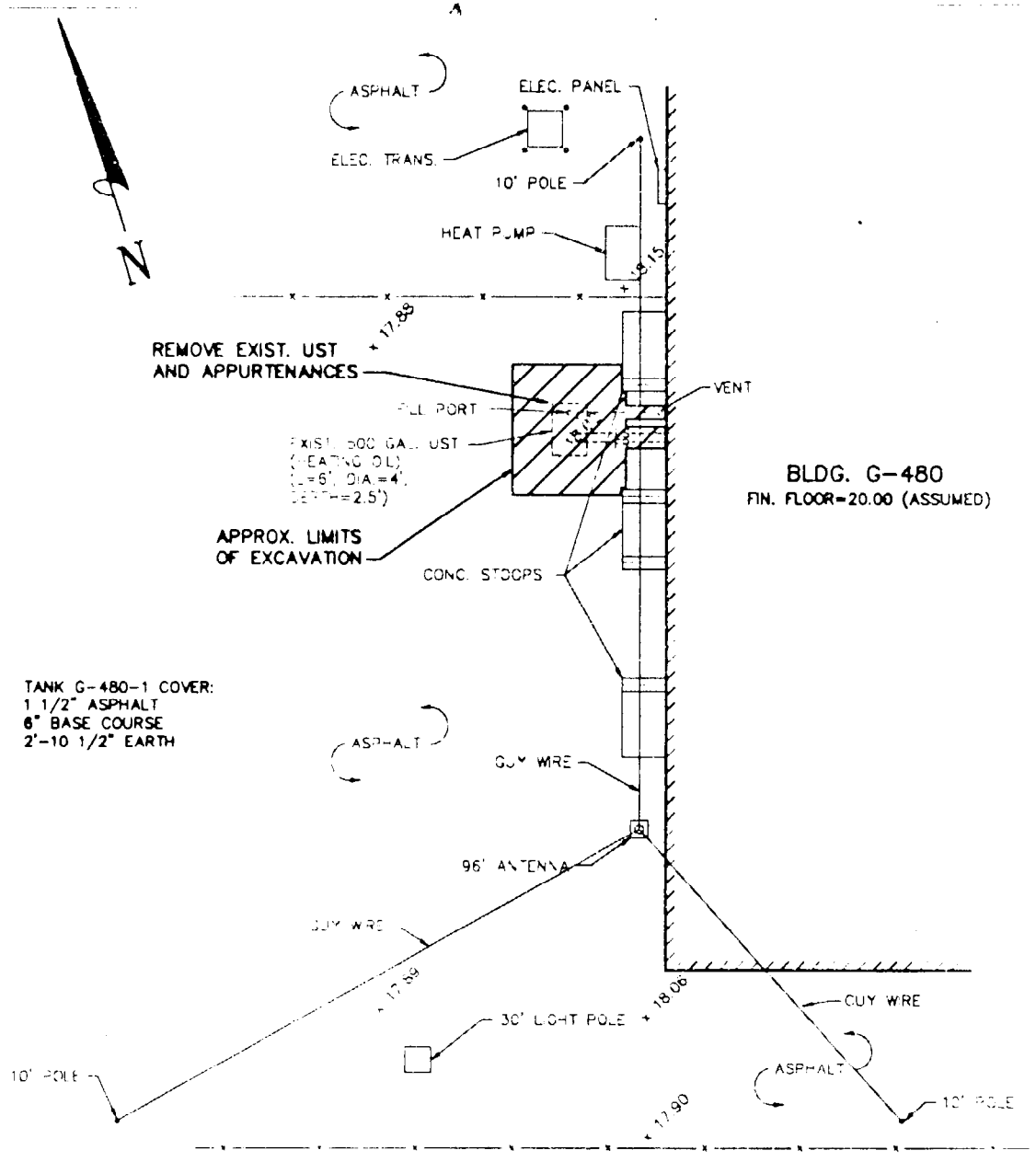
Subsequent to the removal of the UST, ERC was presented with data compiled by J&F during abandonment activities and documentation of samples submitted for testing of the presence or absence of petroleum hydrocarbons in the soils in proximity to the UST area.

2.0 TANK ABANDONMENT PROCEDURES

On 19 January 1994, one 500-gallon diesel UST was properly removed from the subsurface at Building G-480, Marine Corps Base, Camp Lejeune, North Carolina. Prior to the removal of the UST, all residual product was removed from the UST via high-pressure vacuum and contained for disposal in a tanker truck on-site. The UST was steam cleaned for at least one-half hour. The residuals generated by the steam cleaning process were also pumped from the UST into the tanker truck. The delivery and vent lines servicing the UST were disconnected and capped. The UST was transported to the laydown area for later disposition and the excavated soil was removed and temporarily stored at the office area.

3.0 SOIL REMOVAL AND/OR SOIL SAMPLE COLLECTION

Soil samples representative of the subsurface were collected with a 4.25-inch diameter stainless steel hand auger. A total of two hand auger borings were conducted to a depth believed to be at least 2.0 feet beneath the base of the UST cited for removal. The soil samples collected from the base of each boring (S-1 and S-2) were field screened for volatile vapor content (utilizing a Flame Ionization Detector or FID). Results of field screening activities indicated the presence of volatile vapors in excess of 1,000.0 ppm. The samples were submitted to the analytical laboratory for analysis for Total Petroleum Hydrocarbons (TPH) by EPA Methods 5030 and 3550. The samples were properly labeled, packaged, placed on ice in a cooler and delivered to the laboratory along with the appropriate chain of custody documentation. Analytical results are presented as an attachment in Appendix I. Hand auger locations are shown on the "UST Removal Data Sheet", presented in Appendix II.



DEMOLITION PLAN G-480-1

SCALE: 1" = 10'

Figure 1
Site Map
Building G-480
Camp Lejeune, North Carolina
NAVFAC Construction Contract
No. N62470-92-C-8258
January 19, 1994

recycled paper

4.0 ANALYTICAL RESULTS

Analytical results for the soil samples (S-1 and S-2) collected from the UST area and screened for Total Petroleum Hydrocarbons (TPH) as gasoline by EPA Method 5030 did not indicate the presence of targeted constituents above the method quantitation limit. Analytical results are presented as an attachment in Appendix I.

Analytical results for the soil samples (S-1 and S-2) collected from the UST area and screened for TPH (as diesel/kerosene) by EPA Method 3550 indicated the presence of TPH as kerosene in concentrations of 630.0 ppm and 830.0 ppm, respectively. These levels are above the minimum Reportable Concentration (RC) of 40.0 ppm established by Groundwater Section Guidelines For The Investigation And Remediation Of Soils And Groundwater, March 1993 (with June 1993 Revisions Incorporated). Analytical results are presented as an attachment in Appendix I.

5.0 CONCLUSIONS

Based on the findings outlined in this report, ERC offers the following conclusions:

- Field screening of the soil samples (S-1 and S-2) with an FID indicated the presence of volatile vapors above 1,000.0 ppm.
- Analytical results for the soil samples (S-1 and S-2) and screened for targeted constituents by EPA Method 5030 did not indicate the presence of TPH (as gasoline) at levels above the method quantitation limit.
- Analytical results for the soil samples (S-1 and S-2) and screened for targeted constituents by EPA Method 3550 indicated the presence of TPH (as kerosene) at concentrations of 630.0 ppm and 830.0 ppm, respectively. These levels are above the minimum Reportable Concentration (RC) of 40.0 ppm established by applicable Groundwater Section Guidelines.

6.0 DISCLAIMER

The author of this report, Environmental & Regulatory Consultants, Inc. (ERC) of Raleigh, Wake County, North Carolina, hereby gives notice that any statement or opinion contained in this report prepared by ERC shall not be construed to create any warranty or representation that the real property on which the investigation was conducted is free of pollution or complies with any or all applicable regulatory or statutory requirements, or that the property is fit for any particular purpose. Unless otherwise indicated in this report, no attempt was made to check on the compliance of present or past owners of the site with federal, state, or local laws and regulations. The conclusions presented in this report were based upon the services described, and not on scientific tasks or procedures beyond the scope of described services or the time and budgetary constraints imposed by the client. Any person or entity considering the use, acquisition or other involvement or activity concerning the property which is the subject of this report should enter into any use, occupation, acquisition or the like on sole reliance of its own judgement and on its own personal investigation of such property, and not in reliance upon any representation by ERC regarding such property, the character, quality, or value thereof. ERC has developed this report in a professional manner using that degree of skill and care exercised for similar projects under similar conditions by reputable and competent environmental consultants. ERC shall not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld or not fully disclosed at the time this report was prepared. Additionally, any comments or observations pertaining to field conditions or operations are based on recommendations presented in the Technical Closure Plan prepared by Environmental Solutions, Inc. and not the direct observations of ERC personnel. The procedures outlined in the Technical Closure Plan are an overview of the activities associated with the excavation and removal of UST to assist in the collection of data presented in this report.

APPENDIX I
ANALYTICAL RESULTS

GeoChem, Incorporated

Environmental Laboratories

February 1, 1994

Mr. James King
ERC, Inc.
1100 Logger Ct. F-103
Raleigh, NC 27609

Reference: **G-480 (weekly summary 01/23/94-01/29/94)**
8258
GCI# 9401-019M

Dear Mr. James King:

This is the analytical report for the above referenced project. On January 21, 1994 we received two soil samples for analysis. The analytical and quality control results are presented in separate tables for your convenience. Brief summaries of analytical methods employed are as follows. GeoChem analytical reports contain information based strictly on the analysis requested on the chain of custody (COC) accompanying this report. Non-target compounds are not identified or quantified.

TPH

Samples are analyzed by following the California U.S.T. manual. This methodology incorporates EPA purge and trap (meth. 5030) techniques for analysis of volatile fuels such as gasoline. Less volatile fuels such as diesel fuel and kerosene must be extracted using solvents prior to analysis (soils are sonicated, meth. 3550). A standard calibration curve is created from the pure fuel of interest. The standards serve two functions; they create a "finger print" pattern for comparisons and they allow the chemist to calculate the concentration of that fuel analyzed for.

If there are any technical questions please feel free to call me at 919-460-8093. Thank you for allowing GEOCHEM to serve your analytical needs.

Sincerely,

Dean Gokel
President

2500 Gate Way Centre Blvd., Suite 300 • Morrisville, NC 27560
Telephone: 919-460-8093 • FAX: 919-460-0167

GeoChem, Incorporated

Environmental Laboratories

Geochem (NC #336/SC #99008)
Project mobile summary 1 Site Name G-480

LAB ID.	065	066
DATE SAMPLED	01/19/94	01/19/94
DATE ANALYZED	01/29/94	01/29/94
FIELD ID.	S-1	S-2

METHOD

ANALYTE	mg/kg	pql	mg/kg	pql
TPH/gas	BQL	2.0	BQL	1.3

LAB ID.	065	066
DATE SAMPLED	01/19/94	01/19/94
DATE EXTRACTED	01/21/94	01/21/94
FIELD ID.	S-1	S-2

METHOD

ANALYTE	mg/kg	pql	mg/kg	pql
TPH/kerosene	630	50	830	50

	soil	*water*
parts per million	*mg/kg*	*mg/l*
parts per billion	*ug/kg*	*ug/l*

pql = practical quantitation limit due to matrix effects.
bdl = below method detection limit.
bql = below quantitation limit.

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GeoChem, Incorporated

Environmental Laboratories

QUALITY CONTROL RESULTS

METHOD	RECOVERY	METHOD DETECTION LIMIT
TPH/gas	99 %	1.0 ppm
TPH/diesel	86 %	5.0 ppm

REVIEWED BY

Laura Ingleman

REVIEWED BY

Valeri G. Rees

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Report To:

ERC INC

GeoChem, Incorporated

Environmental Laboratories

2500 Gate Way Centre Blvd., Suite 300
Morrisville, NC 27560

Bill To:

Chain of Custody Record

PROJECT SITE NUMBER: G-480
PO#:
SITE NAME: Contract # 92-B-8258
COLLECTED BY (Signature): Michael Winn
GEOCHEM PROJECT #: 9401-019m
DATE DUE: 1/24/94
VERBAL/FAX/HARDCOPY:

FIELD SAMPLE ID	TURNAROUND IN DAYS	SAMPLE MATRIX	DATE AND TIME COLLECTED	NO. OF CONTAINERS PER LOCATION	ANALYSES: 5030	ANALYSES: 3550	REMARKS	LAB ID NO. (for lab use only)
S-1	Normal	Soil	1/19/94 4:45	1	X	X		065
S-2	Normal	Soil	1/19/94 4:45	1	X	X		066

REMARKS:

RELINQUISHED BY:	DATE	TIME
Michael Winn	1/21/94	10:40A

RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME
Lucy Jackson	1/21/94	10Y)			

RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME

This Chain of Custody is considered a written contract to perform the services requested in the analyses section of this document.

APPENDIX II
UST REMOVAL DATA SHEET

JONES & FRANK

UST CHECKLIST

CONTRACT NO.: N62470-92-C-8258
TECHNICIAN: MICHAEL WISE
SITE LOCATION: G-480

FIELD EQUIPMENT

1. 8oz. GLASS SAMPLE BOTTLES (5030, 3550, 9071) - 2
2. 40ml. GLASS VOA (8021, 8080, 8240) - N/A
3. 250ml. PLASTIC BOTTLES - N/A
4. LOG BOOK - 1
5. COMPASS - 1
6. MEASURING TAPE/WHEEL - 1
7. PID (OVA METER) - 1 HOUR
8. GLOVES - 1
9. CAMERA - N/A
10. SAMPLE BAGGIES - 2
11. COC/COOLER - 1

PROJECT DATA

UST NO.	CAPACITY (GAL)	DIMENSIONS	CONTENTS	ANALYSIS TYPE	REM/AIP
1	500	65"X 48"	DIESEL	SOIL	REM

SOIL ANALYZED BY: GEOCHEM INCORPORATED

SOIL TYPE: SAND BACKFILL

DISPOSITION OF TANK: TEMPORARILY STORED AT LAYDOWN AREA PENDING TRANSPORTATION AND DISPOSAL JAN. 20, 1994.
DATE: JAN. 19, 1994
DISPOSITION OF SOIL: REMOVED AND TEMPORARILY STORED AT OFFICE AREA
DATE: JAN. 19, 1994
ESTIMATED AMOUNT OF SOIL: 4 TON

COMMENTS:

JONES & FRANK CORPORATION
622 MAYWOOD AVE.
RALEIGH, NC 27603
(919) 832-3081

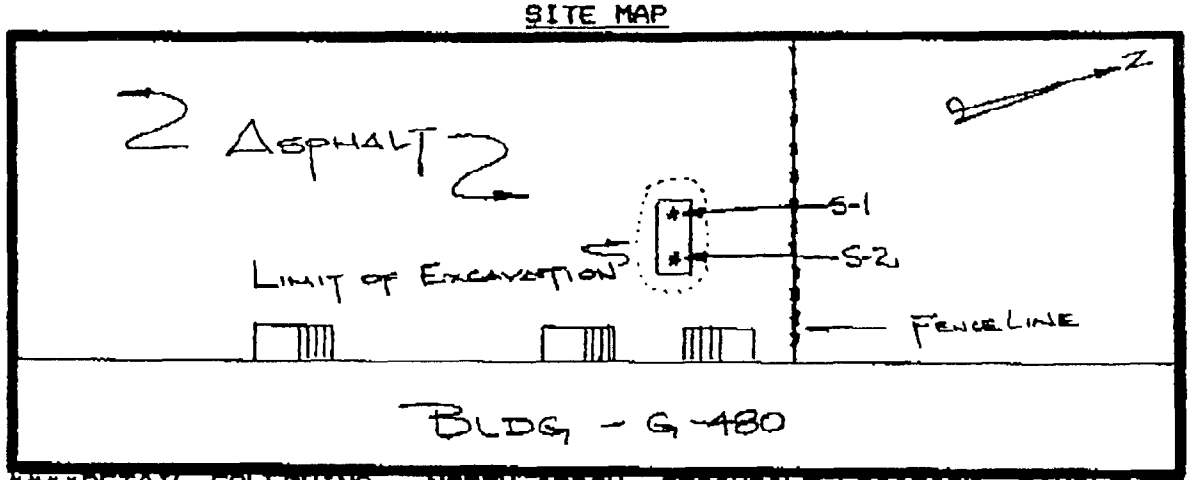
VIRGINIA Norfolk Hampton Richmond Winchester NORTH CAROLINA Raleigh Charlotte Kernersville SOUTH CAROLINA Columbia Greenville

JONES & FRANK

PID DATA (PPM)

SAMPLE DATA	SAMPLE DEPTH	PID RESULTS	SAMPLE DATA	SAMPLE DEPTH	PID RESULTS
S-1	8'	>1000	S-2	8'	>1000

SITE MAP



****DETAIL FOLLOWING: NORTH ARROW, STOCKPILE LOCATION, SAMPLE LOCATIONS, SAMPLE DEPTHS, MAIN STRUCTURES, UST LOCATION AND ORIENTATION, PRODUCT LINE LOCATIONS.

EXCAVATION DIMENSIONS: 10'L X 6'W X 8'D

VOLUME OF STOCKPILED SOIL: 4 TONS

SOIL COMPACTION TESTS: N/A

TANK DISPOSAL CERTIFICATE NUMBER: FORTHCOMING
DATE:

CONTAMINATED SOILS DISPOSAL MANIFEST #: FORTHCOMING
DATE:

LIQUID PRODUCT/WASTE DISPOSAL MANIFEST: N/A
DATE:

CHAIN OF CUSTODY FORMS ATTACHED: YES

CKOOG480

JONES & FRANK CORPORATION
622 MAYWOOD AVE.
RALEIGH, NC 27603
(919) 832-3081

VIRGINIA Norfolk Hampton Richmond Winchester NORTH CAROLINA Raleigh Charlotte Kernersville SOUTH CAROLINA Columbia Greenville

SITE CHECK REQUEST FORM

date: 22 Feb 94

From: EMD Planning (Division)

Greg F (Point of contact)

5063 ext 430 (Phone number)

To: Installation Restoration Division

Subj: NEED FOR SITE CHECK AT SUSPECTED LEAKING UST SITE

1. UST EG&G ID Number: G-480

2. Nearest building number: same

3. Date regulator was notified: 22 Feb 94

4. How regulator was notified: Phone
(Closure report, Phone)

5. Why is release suspected?

a. Initial tank test
b. Annual tank test
c. Soil Analysis
d. Monthly monitoring
e. Visual Free Product (not a sheen)

Should be transferred to IR site #35: comingling plumes per Kate Landman

backup data: testing results, site
type of petroleum product,
e most - closure report to follow

tion is the result of a past event,
de relevant information
, nature of event, size of spill) in

Please include any other information on the suspected release that will be useful.

tested tight 10/92 per Lantdiv request to help define extent of another plume.

Site Sensitivity Evaluation (SSE)

Site Characteristics Evaluation (Step 1)

G-480

Characteristic	Condition	Rating	
Grain Size*	Medium Gravel	150	
	Coarse Sand/Fine Gravel	125	
	Medium Sand	100	
	Fine Sand/Clayey Sand	75	
	(Silt)	(50)	
	Sandy Clay	25	
	Clay	0	50
Are relict structures, sedimentary structures, and/or textures present in the zone of contamination and underlying "soils"?	Present and intersecting the water table.	10	
	Present but not intersecting the water table.	5	
	(None present.)	(0)	0
Distance from location of deepest contaminated soil** to water table.	~~0 - 5 feet~~	(20)	
	(C, D & E sites only)	20	
	5 - 10 feet	10	
	>10 - 40 feet	0	
	> 40 feet		20
Is the top of bedrock or transmissive indurated sediments located above the water table?	Yes	20	
	(No)	(0)	0
Artificial conduits present within the zone of contamination.	Present and intersecting the water table.	10	
	(Present but not intersecting the water table.)	(5)	
	Not present.	0	5

Total Site Characteristics Score: 75

* Predominant grain size based on Unified Soil Classification System or U.S. Dept. of Agriculture Soil Classification Method

** < 10 ppm TPEH by Method 5030, > 40 ppm TPEH by Method 8015 or > 250 ppm OSC by Method 9071)

Table 2

Site Sensitivity Evaluation (SSE)

Initial Cleanup Level (Step 2) — Final Cleanup Level (Step 3)

Low Boiling Point Hydrocarbons

Total Site Characteristics Score	**Initial** Cleanup Level TPFH (ppm) EPA Method 5030
>150	≤10
121-150	20
91-120	40
61-90	60
31-60	80
0-30	100

Select Site Category*

Final Cleanup Level				
Category A & B (Multiply initial cleanup level by 1)	1	x ____	= ____	ppm
Category C & D (Multiply initial cleanup level by 2)	2	x ____	= ____	ppm
Category E (Multiply initial cleanup level by 3)	3	x ____	= ____	ppm

KEROSENE

Medium Boiling Point Hydrocarbons

Total Site Characteristics Score	**Initial** Cleanup Level TPFH (ppm) EPA Method 3550
>150	≤40
121-150	80
91-120	160
(61-90)	240
31-60	320
0-30	400

Select Site Category*

Final Cleanup Level				
Category A & B (Multiply initial cleanup level by 1)	1	x ____	= ____	ppm
Category C & D (Multiply initial cleanup level by 2)	2	x ____	= ____	ppm
Category (E) (Multiply initial cleanup level by 3)	3	x 240	= 720	ppm

Oil & Grease (O&G)

Total Site Characteristics Score	**Initial** Cleanup Level O&G (ppm) EPA Method 9071
>150	≤250
121-150	400
91-120	550
61-90	700
31-60	850
0-30	1000

Select Site Category*

Final Cleanup Level				
Category A & B (Multiply initial cleanup level by 1)	1	x ____	= ____	ppm
Category C & D (Multiply initial cleanup level by 2)	2	x ____	= ____	ppm
Category E (Multiply initial cleanup level by 3)	3	x ____	= ____	ppm

* See Site Category Descriptions

8258 UST Tracking Chart

Site	User POC	Phone #	Tank Type/ Capacity	State Notification	Scheduled Removal	Date Removed	Qty Pumped	Soil Removed	Soil Location	Sched Install.	Paperwork Required	Samples Received	Contam. Level	Tank Manifest	Soil Manifest	Backfilled	Closure Report	Forward to EMD
BA-130	CWO Marker	8047	550 Diesel	10/27/93	27-Dec					28-Dec								
BB-46-1	Fitz	5063	525 Gasoline	10/27/93	26-Jan	Removed. Water hit & contaminated.				27-Jan				2/17/94			2/21/94	
BB-71-2	Mr. Cushman	5519	500 #2 Fuel Oil	10/27/93	27-Dec					28-Dec								
BB-71-3	Mr. Cushman	5519	500 #2 Fuel Oil	10/27/93	28-Dec					29-Dec								
BB-71-4	Mr. Cushman	5519	500 #2 Fuel Oil	10/27/93	4-Jan					N/A								
BB-71-5	Mr. Cushman	5519	500 #2 Fuel Oil	10/27/93	5-Jan					N/A								
BB-101-1	Gysgt Klugy	7268	500 Gasoline	10/27/93	3-Jan					4-Jan								
BB-1-1-2	Gysgt Klugy	7268	2500 Diesel	10/27/93	5-Jan					6-Jan								
BB-190	Mack Frazelle	5988	550 #2 Fuel Oil	10/27/93	4-Jan			No testing req'd.		5-Jan		N/A	N/A					
CG-1-1	Sgt Underwood	2520	500 Used Oil	10/27/93	18-Jan	Removed. 29/3300 ppm. Removing more soil.												
G-480	CWO Marker	8047	550 Diesel	10/27/93	20-Jan	Unregulated UST removed. 630/830 ppm. Removing more soil.						N/A	N/A	2/17/94			2/21/94	
LCH-4025	Fitz	5063	1000 Sand	10/27/93	5-Dec	Removed.				N/A				2/17/94			2/21/94	
M-612	Fitz	5063	500 Kerosene	10/27/93	6-Dec	Removed.		No testing req'd.		N/A		N/A	N/A				2/21/94	
TT-2465	Linda Sunday	2135	300 Concrete	10/27/93	8-Dec			No testing req'd.		N/A		N/A	N/A					
M-90-1	Mac Perrow	5478	1000 Used Oil	10/27/93	1-Feb					2-Feb								
M-90-2	Mac Perrow	5478	550 Anti-Freeze	10/27/93	3-Feb					4-Feb								
RR-15-2	Mr. Taylor	1460	1000 Diesel	10/27/93	10-Jan					11-Jan								
RR-72-2	Fitz	5063	5000 Gasoline	10/27/93	13-Dec	Removed. Water hit & contaminated.				N/A				2/17/94			2/21/94	
RR-72-3	Fitz	5063	5000 Gasoline	10/27/93	14-Dec	Removed. Water hit & contaminated.				N/A				2/17/94			2/21/94	
RR-85	Fitz	5063	(2) 500 sand	10/27/93	Deleted from contract. One UST Still feeds Boiler.					N/A								
SRR-84-1	Mr. Taylor	1460	10000 diesel	10/27/93	24-Jan	Removed. Water hiot & clean.				25-Jan				2/17/94				
SRR-84-2	Mr. Taylor	1460	N/A	10/27/93	10-Jan					11-Jan								
TC-1251	Mack Frazelle	5988	500 Diesel	10/27/93	12-Jan	Removed. Water hit & contaminated.				13-Jan								
TC-1255	Mack Frazelle	5988	500 Diesel	10/27/93	14-Jan	Removed. 510/1500 ppm. Plan on removing more soil.											2/21/94	
TT-35	Mack Frazelle	5988	6000 #2 Fuel Oil	10/27/93	7-Jan			No testing req'd.		8-Jan		N/A	N/A					
TT-44	Linda Sunday	2135	1000 #2 Fuel Oil	10/27/93	5-Jan			No testing req'd.		6-Jan								
STC-567	Mack Frazelle	5988	500 #2 Fuel Oil	10/27/93	13-Jan			No testing req'd.		14-Jan								
TC-647	Mack Frazelle	5988	500 #2 Fuel Oil	10/27/93	18-Jan			No testing req'd.		19-Jan								

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 1

To Brent Rowse	From Steve Challeen
Co.	Co.
Dept.	Phone # 2583
Fax # 1787	Fax #