Effective Resources Consulting

E.R.C. Engineering, Inc.

Form 6220/12
Photos
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TANK REMOVAL REPORT
MARINE CORPS BASE
BUILDING AS-142
CAMP LEJEUNE, NORTH CAROLINA
NAVFAC CONSTR. CONTR. NO. N62470-92-C-8262

DECEMBER 29, 1994

The project activities outlined in this document have been performed under the direct guidance and supervision of Ernest H. Major, P.E., an Engineer licensed by the State of North Carolina to perform professional engineering activities.

E H Major, P.E. 2/23/95
Professional Engineer Date

NORTH CAROLINA PROFESSIONAL SEAL 19776 ENGINEER ERNEST H. MAJOR 2/23/95

Prepared for:

Mr. Drew Tyo
Jones & Frank Co.
622 Maywood Avenue
Raleigh, NC 27603

ERC Engineering, Inc.

Brad Skipper
Senior Environmental Consultant

1100 Logger Court, Ste. F-103 • Raleigh, NC 27609
Phone: (919) 981-0022 • Fax: (919) 981-0024

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1.0 INTRODUCTION

At the request of Jones & Frank (J&F), ERC Engineering, Inc. (ERCE) 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 AS-142, pursuant to NAVFAC construction contract No. N62470-92-C-8262.

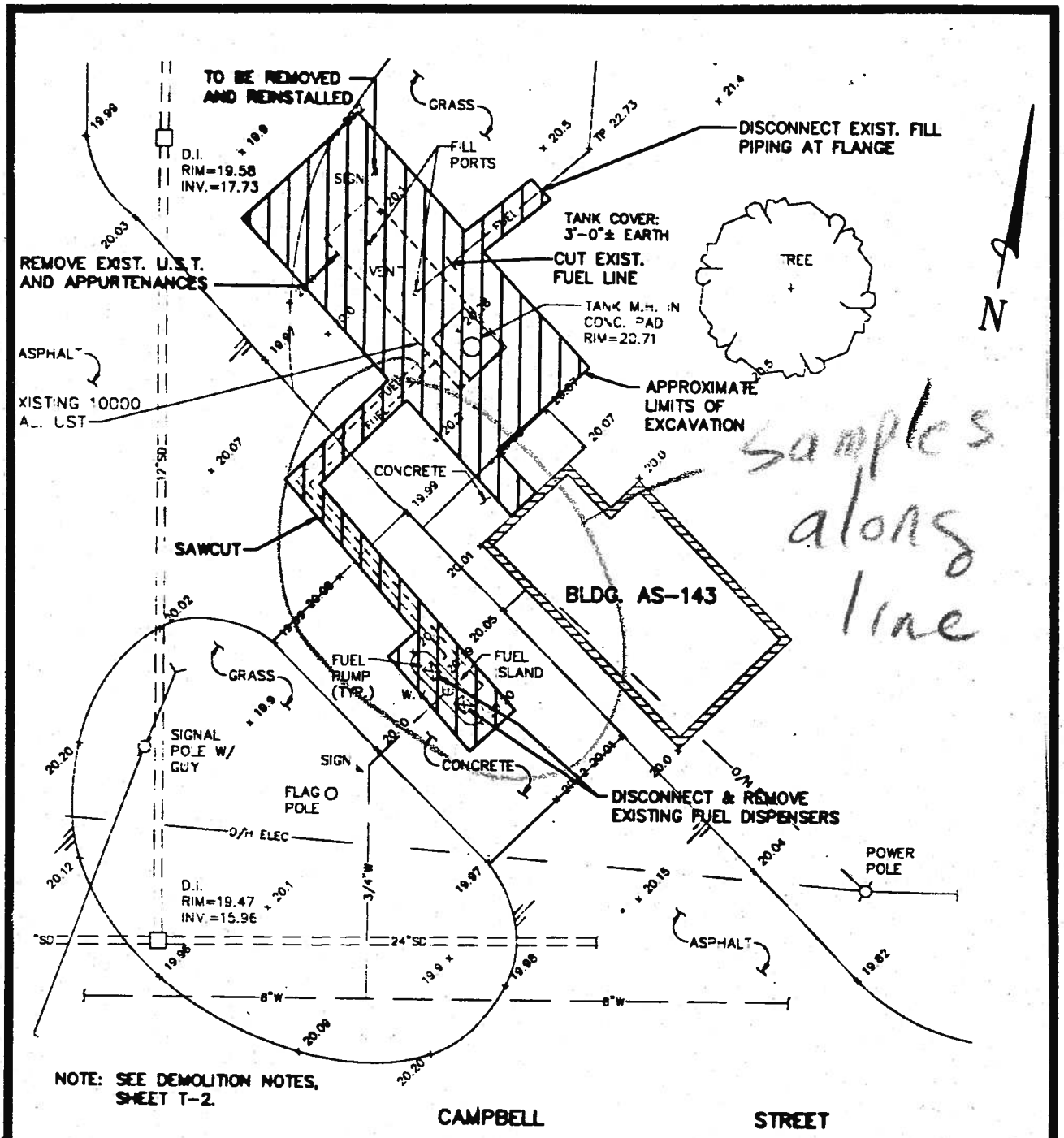
Subsequent to the removal of the UST, ERCE was presented with data compiled by J&F during abandonment activities and documentation of samples submitted for testing of the presence or absence of petroleum hydrocarbons in the soils in proximity to the UST areas.

2.0 TANK ABANDONMENT PROCEDURES

On 28 October 1994 one 10,000-gallon gasoline UST was properly removed from the subsurface at Building AS-142, Marine Corps Base, Camp Lejeune, North Carolina. Prior to its removal, 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 returned to the excavation.

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. On 28 October 1994 a total of three hand auger borings were conducted to a depth believed to be at least 2.0 feet beneath the base of the UST targeted for removal. The soil samples collected from the base of each boring were field screened for volatile vapor content utilizing a Flame Ionization Detector (FID). Results of field screening activities indicated the presence of volatile vapors in excess of 10.0 ppm for all samples (S-1, S-2, and S-3). The vapor values were 150 ppm, 200 ppm, and 400 ppm respectively. The samples were submitted to the analytical laboratory for analysis for Total Petroleum Hydrocarbons (TPH) by *EPA Method 5030*. 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 AS-142

SCALE: 1" = 10'

Figure 1
Site Map
Building AS-142
Camp Lejune, North Carolina
NAVFAC Constuction Contract
No. N62470-92-C-8262

4.0 ANALYTICAL RESULTS

Analytical results for the soil samples collected from the UST area were analyzed by *EPA Method 5030*. The analytical results did not indicate the presence of target constituents above the method detection limit. Analytical results are presented as an attachment in Appendix I.

5.0 CONCLUSIONS

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

- Field screening of soil samples S-1, S-2, and S-3 indicated the presence of volatile vapors at levels above 10 ppm. The values were: 150 ppm, 200 ppm, and 400 ppm respectively.
- Analytical results for soil samples analyzed for targeted constituents by *EPA Method 5030* did not indicate the presence of TPH at levels above the method detection limit.

C:\ERC\JONESFR\LEJUNE94\BLDG142.RPT

6.0 DISCLAIMER

The author of this report, ERC Engineering, Inc. (ERCE) of Raleigh, Wake County, North Carolina, hereby gives notice that any statement or opinion contained in this report prepared by ERCE 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 ERCE regarding such property, the character, quality, or value thereof. ERCE 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. ERCE 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 ERC Engineering, Inc. and not the direct observations of ERCE 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

November 4, 1994

Mr. Brad Skipper
ERC, Inc.
1100 Logger Ct. St. F103
Raleigh, NC 27609

Reference: **AS-142**
8262
GCI# 9410-097

Dear Mr. Brad Skipper:

This is the analytical report for the above referenced project. On October 31, 1994 we received three 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. All soil values are calculated using dry weights.

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#9410-097 1 Site Name AS-142

LAB ID.	3783	3784	3785
DATE SAMPLED	10/28/94	10/28/94	10/28/94
DATE ANALYZED	10/31/94	10/31/94	10/31/94
FIELD ID.	S-1	S-2	S-3

METHOD

ANALYTE	mg/kg	pql	mg/kg	pql	mg/kg	pql
TPH/gas	BQL	1.0	BDL	1.0	BQL	1.0

	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.

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

GeoChem, Incorporated

Environmental Laboratories

QUALITY CONTROL RESULTS

METHOD	RECOVERY	METHOD DETECTION LIMIT
TPH/gas	88 %	1.0 ppm

REVIEWED BY

Kevin Baker

REVIEWED BY

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

Report To:
ERC Inc.
Jones & Frank

GeoChem, Incorporated

Environmental Laboratories

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

Bill To:
Jones & Frank

Chain of Custody Record

1102

Page 1 of ____

PROJECT SITE NUMBER	PO#	NO. OF CONTAINERS PER LOCATION	ANALYSES: 5030	GEOCHEM PROJECT #
8262				9410-097
SITE NAME: AS 142				DATE DUE: 11-4-94
COLLECTED BY (Signature): R.A. Parks				VERBAL/FAX/HARDCOPY

FIELD SAMPLE ID	TURNAROUND IN DAYS	SAMPLE MATRIX	DATE AND TIME COLLECTED	NO. OF CONTAINERS PER LOCATION	5030	REMARKS	LAB ID NO. (for lab use only)
S-1	5	soil	10-28-94 2:30 P.M	1			3783
S-2	5	soil	10-28-94 2:30 P.M	1			3784
S-3	5	soil	10-28-94 2:30 P.M	1			3785

REMARKS

RELINQUISHED BY: | DATE | TIME

RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME
FedEx	10/31/94	2:35	R.A. Parks	10-31-94	11:33	K Burd	10/31/94	11:33			

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

UST CHECKLIST

CONTRACT NO.: N62470-92-C-8262
TECHNICIAN: R. PARKS
SITE LOCATION: AS-142

FIELD EQUIPMENT

1. 8oz. GLASS SAMPLE BOTTLES (5030, 3550, 9071) - 3
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 - 3
11. COC/COOLER - 1

PROJECT DATA

UST NO.	CAPACITY (GAL)	DIMENSIONS	CONTENTS	ANALYSIS TYPE	REM/AIP
1	10,000	30' X 8'	GASOLINE	SOIL	REM

SOIL ANALYZED BY: GEOCHEM INCORPORATED

SOIL TYPE: SAND

DISPOSITION OF TANK: STORED ON SITE PENDING REMOVAL/DISPOSAL
DATE: OCTOBER 28, 1994
DISPOSITION OF SOIL: STORED AT LAYDOWN AREA
DATE: OCTOBER 28, 1994
ESTIMATED AMOUNT OF SOIL: 250 YDS

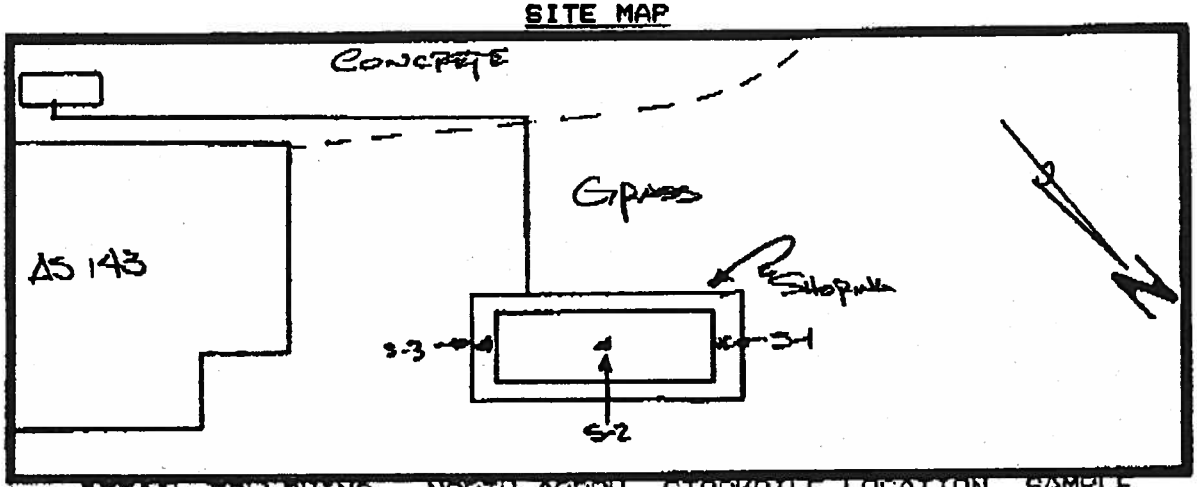
Pioneer Manifest

COMMENTS: SUBJECT EXCAVATION LIMITED TO SHORING REQUIREMENTS OF 36' X 14'X 14' AS SUBMITTED AND APPROVED.

PID DATA (PPM)

SAMPLE DATA	SAMPLE DEPTH	PID RESULTS	SAMPLE DATA	SAMPLE DEPTH	PID RESULTS
S-1	14'	150			
S-2	14'	200			
S-3	14'	400			

SITE MAP



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

EXCAVATION DIMENSIONS: 36'X 14'X 14'

VOLUME OF STOCKPILED SOIL: AS DETAILED

SOIL COMPACTION TESTS: N/A

TANK DISPOSAL CERTIFICATE NUMBER: FORTHCOMING
DATE:

CONTAMINATED SOILS DISPOSAL MANIFEST #: FORTHCOMING
DATE:

LIQUID PRODUCT/WASTE DISPOSAL MANIFEST: ALL LIQUID WASTE HANDLED AND DISPOSED OF BY MILITARY.

CHAIN OF CUSTODY FORMS ATTACHED: YESS
CKOAS142

GW/UST-2 Site Investigation Report For Permanent Closure or Change-in-Service of U.S.T.

FOR TANKS IN **NC**

Return Completed Form To:
The appropriate DEM Regional Office according to the county of the facility's location. [SEE MAP ON REVERSE SIDE OF OWNER'S COPY (PINK) FOR REGIONAL OFFICE ADDRESS].

State Use Only
I.D. Number _____
Date Received _____

INSTRUCTIONS

Complete and return within (30) days following completion of site investigation.

I. Ownership of Tank(s)

Owner Name: Commanding General
Corporation, Individual, Public Agency, or Other Entity)
Street Address: Marine Corps Base, Camp Lejeune PSC Box 20004
County: Onslow
City: Camp Lejeune State: NC Zip Code: 28542-0004
Telephone Number: (910) 451-5063
(Area Code)

II. Location of Tank(s)

Facility Name: Camp Lejeune
(or Company)
Facility ID # (if available):
Street Address Building AS-142
(or State Road)
County: Onslow City: Jacksonville Zip Code:
Telephone Number: ( )
(Area Code)

III. Contact Person

Name: Andrew Tyo Job Title: Tel. No.: (919)231-199
Closure Contractor: Jones & Frank Inc Address 4720-110 Old Poole Rd. Raleigh, NC 27610 Tel. No.: (919)231-199
Primary Consultant: E.R.C. Engineering Inc. Address 1100 Logger Ct.,Ste. F-103, Ra Tel. No.: (919)981-002
Lab: GeoChem, Inc. Address 2500 Gateway Centre Blvd. Morrisville Tel. No. (919)460-8093

IV. U.S.T. Information

Tank No.	Size in Gallons	Tank Dimensions	Last Contents
	10,000	30'x 8'	Gasoline

V. Excavation Condition

Water In Excavation		Free Product		Notable Odor or Visible Soil Contamination	
Yes	No	Yes	No	Yes	No
x			x	x	

VI. Additional Information Required

See reverse side of pink copy (owner's copy) for additional information required by N.C. - DEM in the written report and sketch.

NOTE: The site assessment portion of the tank closure must be conducted under the supervision of a Professional Engineer or Licensed Geologist. After Jan.1, 1994, all closure site assessment reports must be signed and sealed by a P.E. or L.G.

VII. Check List (Check the activities completed)

PERMANENT CLOSURE (For Removing or Abandoning-in-place)

- [X] Contact local fire marshal.
- [X] Notify DEM Regional Office before abandonment.
- [X] Drain & flush piping into tank.
- [X] Remove all product and residuals from tank.
- [X] Excavate down to tank.
- [X] Clean and inspect tank.
- [X] Remove drop tube, fill pipe, gauge pipe, vapor recovery tank connections, submersible pumps and other tank fixtures.
- [X] Cap or plug all lines except the vent and fill lines.
- [X] Purge tank of all product & flammable vapors.
- [X] Cut one or more large holes in the tanks.
- [X] Backfill the area.

Date Tank(s) Permanently closed: October 28, 1994
Date of Change-in-Service: _____

ABANDONMENT IN PLACE

- [ ] Fill tank until material overflows tank opening.
- [ ] Plug or cap all openings.
- [ ] Disconnect and cap or remove vent line.
- [ ] Solid inert material used - specify: _____

REMOVAL

- [X] Create vent hole.
- [X] Label tank.
- [X] Dispose of tank in approved manner.

Final tank destination: Stored at laydown area pending disposal

VIII. Certification (Read and Sign)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Print name and official title of owner or owner's authorized representative	Signature	Date Signed
VANN MARSHBURN SAFETY CC	VMarshburn	2/21/96

GW/UST-2 Site Investigation Report For Permanent Closure or Change-in-Service of U.S.T.

FOR TANKS IN **NC**

Return Completed Form To:
The appropriate DEM Regional Office according to the county of the facility's location. [SEE MAP ON REVERSE SIDE OF OWNER'S COPY (PINK) FOR REGIONAL OFFICE ADDRESS].

State Use Only
I.D. Number _____
Date Received _____

INSTRUCTIONS

Complete and return within (30) days following completion of site investigation.

I. Ownership of Tank(s)

Owner Name: U. S. Marine Corps
(Corporation, Individual, Public Agency, or Other Entity)
Street Address:
County:
City: Washington State: DC Zip Code:
Telephone Number: ( ) (Area Code)

II. Location of Tank(s)

Facility Name: Camp Lejeune
(or Company)
Facility ID # (if available):
Street Address (or State Road): Building AS-142
County: Onslow City: Jacksonville Zip Code:
Telephone Number: ( ) (Area Code)

III. Contact Person

Name: Andrew Tyo Job Title: Tel. No. (919) 231-1998
Closure Contractor: Jones & Frank, Inc. Address: 4720-110 Old Poole Rd. Raleigh, NC 27610 Tel. No. (919) 231-1998
Primary Consultant: E.R.C. Engineering, Inc Address: 1100 Logger Ct., Ste. F-103, Ral Tel. No. (919) 981-0022
Lab: GeoChem, Inc. Address: 2500 Gateway Centre Blvd. Morrisville Tel. No. (919) 460-8093

IV. U.S.T. Information

Tank No.	Size in Gallons	Tank Dimensions	Last Contents
1	10,000	30' X 8'	Gasoline

V. Excavation Condition

Water In Excavation		Free Product		Notable Odor or Visible Soil Contamination	
Yes	No	Yes	No	Yes	No
X			X	X	

VI. Additional Information Required

See reverse side of pink copy (owner's copy) for additional information required by N.C. - DEM in the written report and sketch.

NOTE: The site assessment portion of the tank closure must be conducted under the supervision of a Professional Engineer or Licensed Geologist. After Jan.1, 1994, all closure site assessment reports must be signed and sealed by a P.E. or L.G.

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- [X] Excavate down to tank.
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- [X] Cap or plug all lines except the vent and fill lines.
- [X] Purge tank of all product & flammable vapors.
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- [X] Backfill the area.

Date Tank(s) Permanently closed: October 28, 1994
Date of Change-in-Service: _____

ABANDONMENT IN PLACE

- [ ] Fill tank until material overflows tank opening.
- [ ] Plug or cap all openings.
- [ ] Disconnect and cap or remove vent line.
- [ ] Solid inert material used - specify: _____

REMOVAL

- [X] Create vent hole.
- [X] Label tank.
- [X] Dispose of tank in approved manner.

Final tank destination: ~~Stored at laydown area~~ pending disposal

VIII. Certification (Read and Sign)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Print name and official title of owner or owner's authorized representative	Signature	Date Signed
Robert A. Parks Superintendent	Robert A. Parks	4-19-95

GeoChem, Incorporated

Environmental Laboratories

November 4, 1994

Mr. Brad Skipper
ERC, Inc.
1100 Logger Ct. St. F103
Raleigh, NC 27609

Reference: AS-142
8262

Dear Mr. Brad Skipper:

This is the analytical report for the above referenced project. On October 31, 1994 we received three 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. All soil values are calculated using dry weights.

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#9410-097 1 Site Name AS-142

LAB ID.	3763	3764	3765
DATE SAMPLED	10/28/94	10/28/94	10/28/94
DATE ANALYZED	10/31/94	10/31/94	10/31/94
FIELD ID.	S-1	S-2	S-3

METHOD

ANALYTE	mg/kg	pql	mg/kg	pql	mg/kg	pql
TPH/gas	BQL	1.0	BDL	1.0	BQL	1.0

	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.

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

GeoChem, Incorporated

Environmental Laboratories

QUALITY CONTROL RESULTS

METHOD	RECOVERY	METHOD DETECTION LIMIT
TPH/gas	88 %	1.0 ppm

REVIEWED BY

Kevin Baker

REVIEWED BY

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

Report To:
ERC Inc.
Jones & Frank

GeoChem, Incorporated

Environmental Laboratories

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

Bill To:
Jones & Frank

Chain of Custody Record

1102

Page 1 of ____

PROJECT SITE NUMBER: 8262
PO#:
SITE NAME: AS 142
COLLECTED BY (Signature): R.A. Parks
GEOCHEM PROJECT #: 9410-097
DATE DUE: 11-4-94
VERBAL/FAX/HARDCOPY:

ANALYSES: 5040

FIELD SAMPLE ID	TURNAROUND IN DAYS	SAMPLE MATRIX	DATE AND TIME COLLECTED	NO. OF CONTAINERS PER LOCATION	REMARKS	LAB ID NO. (for lab use only)
S-1	5	soil	10-28-94 2:30 P.M	1		3783
S-2	5	soil	10-28-94 2:30 P.M	1		3784
S-3	5	soil	10-28-94 2:30 P.M	1		3785

REMARKS

RELINQUISHED BY: | DATE | TIME

RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME
Robin Dodd	10/31/94	2:35	R.A. Parks	10-31-94	11:33	K Gard	10/31/94	11:33			

This Chain of Custody is considered a written contract for ...