

**Underground Storage Tank Closure Assessment  
Former Henry L. Corriher Property  
State Project 9.8091812 (U-2311)  
Clemmons, North Carolina**

**March 19, 1992**

**Prepared For**

**North Carolina Department of Transportation  
Geotechnical Unit  
Raleigh, North Carolina**

**Prepared By**

**Aquaterra, Inc.  
Greensboro, North Carolina**

**RECEIVED  
N.C. Dept. of EHN**

**MAR 30 1992**

**Winston-Salem  
Regional Office**

AQUATERRA





# AQUATERRA

*Environmental Consultants*

March 19, 1992

Mr. William L. Moore, III  
State Engineering Geologist  
North Carolina Department of Transportation  
Geotechnical Unit  
Post Office Box 25201  
Raleigh, North Carolina 27611-5201

Reference: Underground Storage Tank Closure Assessment  
Former Henry L. Corriher Property  
State Project 9.8091812 (U-2311)  
Clemmons, North Carolina  
Aquaterra Job No. G855

Dear Mr. Moore:

Aquaterra, Inc. has conducted an underground storage tank closure assessment at the former Henry L. Corriher property site located just north of the community of Clemmons, North Carolina. The assessment was conducted in an effort to satisfy the underground storage tank closure assessment requirements set forth in 40 CFR Part 280 Subpart G.

This report summarizes the field activities and laboratory analyses and provides our recommendations for the site. If you have any questions or comments, please contact us at (919) 273-5003.

Sincerely,

AQUATERRA, INC.

Thomas F. Haynes  
Environmental Technician

Susan Kite, P.G.  
Project Geologist/Project Manager

TFH/SK/lw  
GR35-92

**Corporate Office:**

P O Box 50328  
Raleigh, NC 27650  
(919) 859-9987  
FAX (919) 859-9930

**Charlotte Office:**

P O Box 668107  
Charlotte, NC 28266-8107  
(704) 525-8680  
FAX (704) 527-2792

**Greensboro Office:**

P O Box 16241  
Greensboro, NC 27416-0241  
(919) 273-5003  
FAX (919) 271-8138

**Underground Storage Tank Closure Assessment  
Former Henry L. Corriher Property  
State Project 9.8091812 (U-2311)  
Clemmons, North Carolina  
Aquaterra Job No. G855**

**1 Introduction**

Aquaterra, Inc. (Aquaterra) has conducted an underground storage tank (UST) closure assessment at the former Henry L. Corriher property (Corriher) site located just north of the community of Clemmons, North Carolina (see Figure 1). It was Aquaterra's understanding that two 1,000 gallon USTs believed to contain gasoline were located at the site. Aquaterra was to conduct the closure assessment in conjunction with the removal of these USTs. The USTs were excavated removed, and properly disposed of by Four Seasons Industrial Services, Inc. (Four Seasons).

The closure assessment included screening the in-situ and excavated soils with an organic vapor analyzer (OVA) for total volatilized organic compounds (VOCs) which may indicate petroleum hydrocarbon contamination. This involves filling a clean container approximately half-full with soil and sealing the container. The gases in the soils are allowed approximately 10 minutes to equilibrate with the gases in the container. The probe of the OVA is then inserted into the headspace of the container and a reading of total VOCs is recorded. Soil samples collected from the former UST excavation were analyzed for total petroleum hydrocarbons (TPH) by laboratory gas chromatograph (GC) according to SW-846 Extraction Methods 3550 and 5030. These analyses support the field OVA readings and document the closure assessment.

**2 Field Investigation**

On February 21, 1992, Aquaterra mobilized an environmental technician to the Corriher property to conduct a UST closure assessment (see Figure 2). The assessment was conducted in conjunction with the excavation and removal of two 1,000 gallon USTs. Both USTs were contained in the same pit. Prior to removal, the contents of the USTs were pumped to a tanker truck and transported to a permitted disposal facility. A copy of the waste manifest is included in Attachment A.

The soils on top of and around the USTs were excavated and the tanks were removed. The USTs were excavated, removed, and disposed of according to 40 CFR 280.71 (see Attachment B for Tank Disposal Manifests). The USTs, measuring approximately 3 feet 10 inches (D) x 12 feet (L), were visually inspected by the technician. The USTs did not exhibit any pitting or holes.

One in-situ soil sample was collected beneath each end of each UST at a depth of approximately 9 feet below the ground surface (see Figure 2). The soil samples were screened for emissions of total VOCs according to the methods previously described. OVA readings for the four soil samples (T-1E, T-1W, T-2E, and T-2W) were less than 1.0 part per million (ppm) (see Table 1). No free product or visible staining was observed in the excavation. No vapors were noted after the USTs were excavated. Ground water was not observed in the excavation bottom. The excavation was then backfilled with the excavated soils.

### 3 Laboratory Analytical Procedures and Results

The soil samples were immediately placed in laboratory provided glass containers and labeled with a tag indicating date, time, sample number, sampler's name, and analysis to be conducted. The samples were then placed in a cooler and chilled with ice to approximately 4° C. The samples were transported to the laboratory according to EPA approved chain-of-custody procedures to be analyzed for TPH by GC.

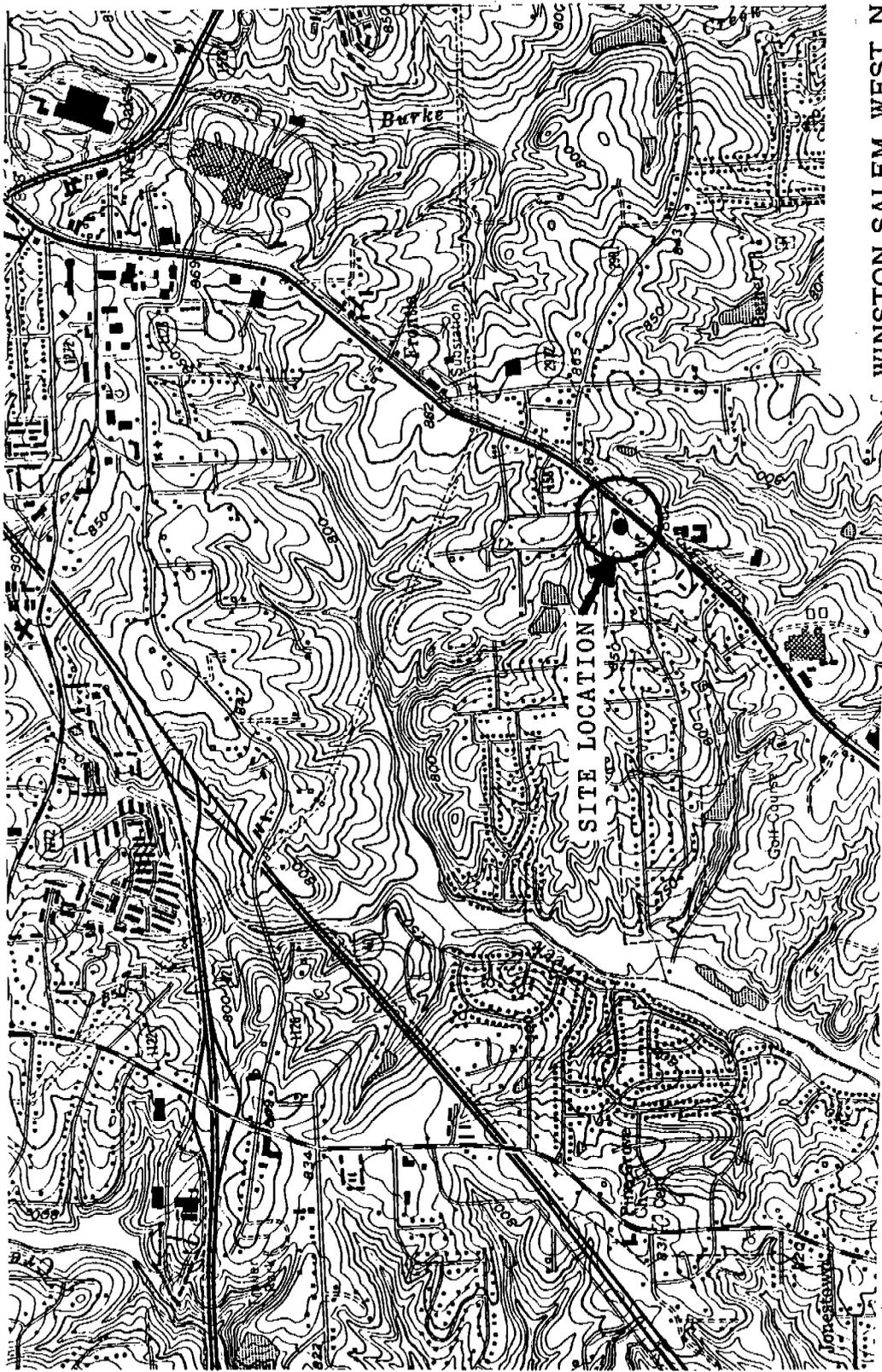
Laboratory analytical results of soil samples T-1E, T-1W, T-2E, and T-2W did not exhibit TPH levels above the laboratory method detection limit of 2.0 mg/kg (see Table 1 and Attachment C).

### 4 Conclusions and Recommendations

Laboratory analytical results of the soil samples collected from the UST excavations are below the North Carolina Department of Environment, Health, and Natural Resources (NCDEHNR), Division of Environmental Management (DEM) soil action level of 10 mg/kg for TPH. Aquaterra therefore recommends that these UST sites be considered for clean closure.

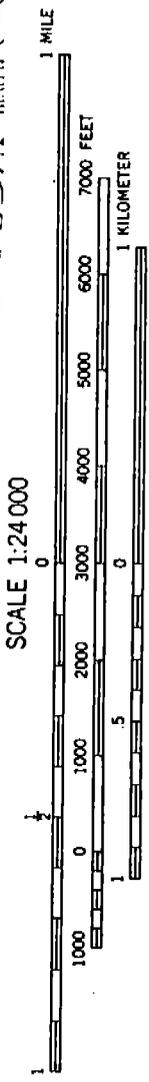
Aquaterra also recommends that a copy of this report be sent to the DEM at the following address:

NCDEHNR, DEM  
Winston-Salem Regional Office  
8025 North Point Boulevard  
Winston-Salem, North Carolina 27106



WINSTON-SALEM WEST, N. C.  
36080-A3-TF-024

1950  
PHOTOREVISED 1987  
DMA 4956 III SE - SERIES Y842



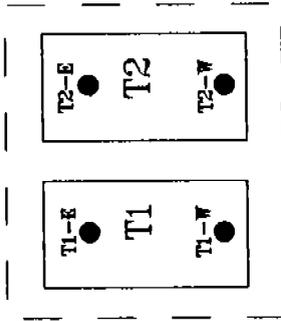
**AQUATERRA, INC.**  
RALEIGH, GREENSBORO, CHARLOTTE  
NORTH CAROLINA



Author SHP	Drawing Revision	Layers Figure 1	Date 3/13/92	Title Site Location Map
Job No. G855			Scale 1:24000	Project Former Henry L. Corriher Property Clemmons, North Carolina

Stratford Road

**Legend:**  
● soil sample location  
— excavation area



2624 Stratford Road  
Building



**AQUATERRA, INC.**  
RALEIGH, GREENSBORO, CHARLOTTE  
NORTH CAROLINA

Author	SHP	Drawing	G855-1	Layers		Date	3/13/92	Title	Soil Sample Location Map
Job No.	G855	Revision		Figure	2	Scale	1"=10'	Project	Former Henry L. Corriher Property Clemmons, North Carolina

**Table 1. OVA Readings and Laboratory Analytical Results for the Former Henry L. Corriher Property, State Project 9.8091812 (U-2311), Clemmons, North Carolina.**

Sample No.	Date	Depth (feet)	OVA (ppm)	TPH by GC	
				Method 3550 (mg/kg)	Method 5030 (mg/kg)
T-1E	2/21/92	9.0	<1.0	<2.0	<2.0
T-1W	2/21/92	9.0	<1.0	<2.0	<2.0
T-2E	2/21/92	9.0	<1.0	<2.0	<2.0
T-2W	2/21/92	9.0	<1.0	<2.0	<2.0

*Analytical Laboratory: Industrial & Environmental Analysts, Inc.  
Cary, North Carolina*

*Aquaterra Job No. G855  
GR35-92*



# FOUR SEASONS INDUSTRIAL SERVICES, INC.

Post Office Box 16590  
Greensboro, North Carolina 27416  
(919) 273-2718

N<sup>o</sup> 10969

## NON-HAZARDOUS WASTE MANIFEST

Manifest #

F.S.I.S. JOB #

Date: 2-21-92

Generator:

NC DOT  
WINSTON SALEM, N.C.  
AQUATERRA, INC.

Phone No.:

919-273-5003

EPA ID No.:

N/A

Contact:

ALAN BUREHELL

Process which generated waste:

I certify that the materials described below are properly described, classified, packaged, marked & labeled, and are in proper condition to be transported in commerce under the applicable regulations of the State, the Environmental Protection Agency and the Department of Transportation. I certify that the waste described below is non-hazardous. I certify that the specific waste was delivered to the carrier named below for legal treatment, storage, or disposal at the site indicated.

Date

2-21-92

Signature

Alan Burrehell

Description of waste	Circle Form Solid Liquid Gas Sludge	Quantity	Circle Units Gallons Cu. Yds. Pounds Tons	Container	
				No.	Type
<u>GAS WATER</u>	<u>Liquid</u>	<u>2,000</u>	<u>Gallons</u>	<u>T</u>	<u>T</u>

Transporter:

FOUR SEASONS IND. SERV.  
3107 S-ELM - EUGENE ST.  
GREENSBORO, N.C.

Unit Number(s)

P-5

Phone No.:

919-273-2718

EPA ID No.:

NC D991277732

Vehicle License Tag Number(s)

LT-1784

Container:

VAC. TRK.

I certify that the specified waste was transferred in a registered (licensed) vehicle to the disposal treatment, storage, or disposal facility named below and was accepted.

Pick-up Driver's Signature

Date

Delivering Driver's Signature

Date

Alan S. M... 2/21/92

Facility:

FOUR SEASONS IND. SERV.  
PATTON AV.  
GREENSBORO, N.C.

Phone No.

273-2718

Contact:

WAYMON

Handling Method:

PT5031

I certify that the transporter above delivered the specified material to this TSD facility and was accepted and properly handled in the above manner. We are authorized and qualified by the State of NC to handle this material.

Date

2-24-92

Signature:

Waymon H. ...



# FOUR SEASONS INDUSTRIAL SERVICES, INC.

Post Office Box 16590  
Greensboro, North Carolina 27416-0590  
(919)273-2718

## TANK DISPOSAL MANIFEST

1)	Tank Owner/Authorized Representative: Name and Mailing Address			
	NC DOT (AQUATERRA, INC.) WINSTON SALEM, N.C.			
2)	Tank Owner/Authorized Representative: Phone No. (919) 273-5003			
3)	Description of Tanks:			
	<u>Tank No.</u>	<u>Capacity</u>	<u>Previous Contents</u>	<u>Comments</u>
	#1	1,000	GAS	#67
4)	Tank Owner/Authorized Representative Certification: The undersigned certifies that the above listed storage tanks have been removed from the premises of the tank Owner.			
	Alan Birchell	<i>Alan Birchell</i>	2-21-92	
	Printed/Typed Name	Signature	Month Day Year	
5)	Transporter: The undersigned certifies that the above listed storage tanks have been transported to the Four Seasons Industrial Services facility at 519 Patton Ave. Greensboro, N.C.			
	Keith McCarter	<i>Keith McCarter</i>	2-21-92	
	Printed/Typed Name	Signature	Month Day Year	
6)	Decontamination Manager: The undersigned certifies that the above listed storage tanks have been cleaned and scrapped.			
	Waymon H. Astor, Jr.	<i>Waymon H. Astor, Jr.</i>	2-24-92	
	Printed/Typed Name	Signature	Month Day Year	
7)	Disposal Certification: The undersigned certifies that the above-named storage tank(s) have been cut into scrap pieces and accepted by the metal recycling facility.			
	Recycling Facility: <i>W. H. Shipper Wrecking Co.</i>			
	Robert Fields	<i>Robert Fields</i>	2-26-92	
	Printed/Typed Name	Signature	Month Day Year	



# FOUR SEASONS INDUSTRIAL SERVICES, INC.

Post Office Box 16590  
Greensboro, North Carolina 27416-0590  
(919)273-2718

## TANK DISPOSAL MANIFEST

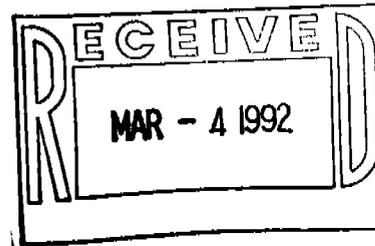
1)	Tank Owner/Authorized Representative: Name and Mailing Address			
	NC DOT (AQUATERRA, INC.) WINSTON SALEM, N.C.			
2)	Tank Owner/Authorized Representative: Phone No. 919, 273-5003			
3)	Description of Tanks:			
	<u>Tank No.</u>	<u>Capacity</u>	<u>Previous Contents</u>	<u>Comments</u>
	#2	1,000	GAS	#66
4)	Tank Owner/Authorized Representative Certification: The undersigned certifies that the above listed storage tanks have been removed from the premises of the tank Owner.			
	Alan Breckell	<i>Alan Breckell</i>		2-21-92
	Printed/Typed Name	Signature		Month Day Year
5)	Transporter: The undersigned certifies that the above listed storage tanks have been transported to the Four Seasons Industrial Services facility at 519 Patton Ave. Greensboro, N.C.			
	Keith McCarter	<i>Keith McCarter</i>		2-21-92
	Printed/Typed Name	Signature		Month Day Year
6)	Decontamination Manager: The undersigned certifies that the above listed storage tanks have been cleaned and scrapped.			
	Waymon H. Autry Jr.	<i>Waymon H. Autry Jr.</i>		2-24-92
	Printed/Typed Name	Signature		Month Day Year
7)	Disposal Certification: The undersigned certifies that the above-named storage tank(s) have been cut into scrap pieces and accepted by the metal recycling facility.			
	Recycling Facility: O.H. Griffin Wrecking Co.			
	Robert Fields	<i>Robert Fields</i>		2-26-92
	Printed/Typed Name	Signature		Month Day Year



an environmental testing company

P.O. Box 12846  
Research Triangle Park, North Carolina 27709  
(919) 677-0090  
FAX (919) 677-0427

March 4, 1992



Susan Kite  
Aquaterra, Inc.  
309 Concord St., Suite 204D  
Greensboro, NC 27406

IEA Project No.: 835595  
IEA Reference No.: W9202449  
Client Project I.D.: G855

Dear Ms. Kite,

Transmitted herewith are the results of analyses on four samples submitted to our laboratory including a diskette.

The samples were received chilled and intact.

To review the diskette, the files may be retrieved by denoting A:\\*.\* and getting a listing of filenames once you are in the lotus menu. Please note the following examples represent how the filenames will be listed.

595RPT.WK1(filename):

595RPT = Project ID 835595, RPT = Report

5951PHC.WK1(filename):

5951PHC = Project ID 835595, PHC = Total Petroleum Hydrocarbons

Analyses were performed according to approved methodologies and meet the requirements of the IEA Quality Assurance Program. Please see the enclosed reports for your results and a copy of the Chain of Custody documentation.



an environmental testing company

P.O. Box 12846  
Research Triangle Park, North Carolina 27709  
(919) 677-0090  
FAX (919) 677-0427

Please do not hesitate to call your Client Account Representative should you have any questions regarding this report.

Very truly yours,

IEA, Inc.

*Suzanne L. Hanger* for

Linda F. Mitchell  
Director, Technical Support Services

State Certification:

Alabama - #40210	Tennessee - #00296	South Carolina - #99021
Georgia - #816	Virginia - #00179	North Carolina - #37720
New Jersey - #67719		#84

Monroe,  
Connecticut  
203-261-4458

Miramar,  
Florida  
305-989-0928

Schaumburg,  
Illinois  
708-705-0740

N. Billerica,  
Massachusetts  
617-272-5212

Whippany,  
New Jersey  
201-428-8181

Essex Junction,  
Vermont  
802-878-5138



Total Petroleum Hydrocarbon Analysis

IEA Sample No:	835-595-1	Date Sampled:	02-21-92
Client Sample No:	T-1E	Date Received:	02-24-92
Client Project No:	G855	Date Extracted:	02-26-92

Extraction (SW 846 - 3550) / GC-FID analysis (for #2 fuel oil, kerosene, varsol)  
Date Analyzed: 03-01-92 Analyzed by: Joaquin

The sample does not contain a petroleum hydrocarbon blend in the distillation range referenced above. The quantitation limit is 2.0 mg/kg.

Comment:

-----  
Purge and Trap (SW 846 - 5030) / GC-FID analysis (for gasoline only)  
Date Analyzed: 02-29-92 Analyzed by: Joaquin

The sample does not contain a petroleum hydrocarbon blend with a distillation range similar to gasoline. The quantitation limit is 2.0 mg/kg.

Comment:

FAX



Total Petroleum Hydrocarbon Analysis

IEA Sample No: 835-595-2 Date Sampled: 02-21-92  
Client Sample No: T-1W Date Received: 02-24-92  
Client Project No: G855 Date Extracted: 02-26-92

Extraction (SW 846 - 3550) / GC-FID analysis (for #2 fuel oil, kerosene, varsol)  
Date Analyzed: 03-01-92 Analyzed by: Joaquin

The sample does not contain a petroleum hydrocarbon blend in the distillation range referenced above. The quantitation limit is 2.0 mg/kg.

Comment:

=====  
Purge and Trap (SW 846 - 5030) / GC-FID analysis (for gasoline only)  
Date Analyzed: 02-29-92 Analyzed by: Joaquin

The sample does not contain a petroleum hydrocarbon blend with a distillation range similar to gasoline. The quantitation limit is 2.0 mg/kg.

Comment:

FAX



Total Petroleum Hydrocarbon Analysis

IEA Sample No: 835-595-3 Date Sampled: 02-21-92  
Client Sample No: T-2E Date Received: 02-24-92  
Client Project No: G855 Date Extracted: 02-26-92

Extraction (SW 846 - 3550) / GC-FID analysis (for #2 fuel oil, kerosene, varsol)  
Date Analyzed: 03-01-92 Analyzed by: Joaquin

The sample does not contain a petroleum hydrocarbon blend in the distillation range referenced above. The quantitation limit is 2.0 mg/kg.

Comment:

=====  
Purge and Trap (SW 846 - 5030) / GC-FID analysis (for gasoline only)  
Date Analyzed: 02-29-92 Analyzed by: Joaquin

The sample does not contain a petroleum hydrocarbon blend with a distillation range similar to gasoline. The quantitation limit is 2.0 mg/kg.

Comment:

FAX



Total Petroleum Hydrocarbon Analysis

IEA Sample No: 835-595-4 Date Sampled: 02-21-92  
Client Sample No: T-2W Date Received: 02-24-92  
Client Project No: G855 Date Extracted: 02-26-92

Extraction (SW 846 - 3550) / GC-FID analysis (for #2 fuel oil, kerosene, varsol)  
Date Analyzed: 03-01-92 Analyzed by: Joaquin

The sample does not contain a petroleum hydrocarbon blend in the distillation range referenced above. The quantitation limit is 2.0 mg/kg.

Comment:

=====  
Purge and Trap (SW 846 - 5030) / GC-FID analysis (for gasoline only)  
Date Analyzed: 02-29-92 Analyzed by: Joaquin

The sample does not contain a petroleum hydrocarbon blend with a distillation range similar to gasoline. The quantitation limit is 2.0 mg/kg.

Comment:

FAX



Total Petroleum Hydrocarbon Analysis

IEA Sample No:	835-595	Date Sampled:	N/A
Client Sample No:	QC Blank	Date Received:	N/A
Client Project No:	G855	Date Extracted:	02-26-92

Extraction (SW 846 - 3550) / GC-FID analysis (for #2 fuel oil, kerosene, varsol)  
Date Analyzed: 02-29-92 Analyzed by: Joaquin

The sample does not contain a petroleum hydrocarbon blend in the distillation range referenced above. The quantitation limit is 2.0 mg/kg.

Comment:

N/A = Not Applicable

Corresponding Samples: 835-595-1 through 835-595-4

=====  
Purge and Trap (SW 846 - 5030) / GC-FID analysis (for gasoline only)  
Date Analyzed: 02-29-92 Analyzed by: Joaquin

The sample does not contain a petroleum hydrocarbon blend with a distillation range similar to gasoline. The quantitation limit is 2.0 mg/kg.

Comment:

N/A = Not Applicable

Corresponding Samples: 835-595-1 through 835-595-4

FAX

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	NO. OF CONTAINERS	REMARKS
0807	NC DOT - Stratford		
<p>SAMPLERS (Signature) <i>[Signature]</i></p>			
STATION	DATE	TIME	STATION LOCATION
T-1	2/24/92	9:36	9' pit bottom
T-2	2/24/92	9:36	9'
T-3	2/24/92	9:36	9'
T-4	2/24/92	9:36	9'
<p>THICK 250 500</p>			
<p>* Normal Turnover</p>			
<p>* Sand results to Greenboro</p>			
<p>1/2 SIM K. 10</p>			
<p>JEH 8 25 92</p>			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
<i>[Signature]</i>	2-24-92 9:36	Bob Spitzer	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time
		Jim Head	2/24/92 1340
Remarks			107# G/186