

Geophex, Ltd
605 Mercury Street
Raleigh, North Carolina 27603
(919) 839-8515

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Winston-Salem
Regional Office

April 3, 1991

Mr. W. L. Moore
State Engineering Geologist
North Carolina Department of Transportation
P. O. Box 25201
Raleigh, NC 27611-5201

Subject: Underground Storage Tank Removal and Closure at the I-85/NC 119
Interchange, Alamance County, NC.

Ref: NCDOT Project 8.1500301 (I-304C)

Dear Mr. Moore:

In accordance with your request dated January 31, 1991, we conducted underground storage tank (UST) closures on two 8,000-gallon gasoline tanks located on NCDOT property near Mebane, NC (Figures 1 & 2). The USTs are located at the Alfred J. Spitzner Station (Parcel 24) in the northeast quadrant of the I-85 & NC 119 interchange (Figure 3). Mr. Vance Faulk, a former owner of the station, informed Geophex personnel that both tanks were installed in 1968.

Prior to tank closure Geophex contacted ULOCO (utility locating company in Greensboro, NC) to delineate utility lines at the site. No underground gas or electric lines crossed the station site. However, there are an old water supply well, sanitary sewer line, and overhead power lines (Figure 3).

On March 11, 1991, a magnetic survey was conducted to investigate the possibility that additional USTs may be present at the site. Contoured magnetic data, shown in Figure 4, did not indicate any anomalous areas other than the known USTs. A ground-penetrating radar (GPR) survey was conducted on March 13, over the known USTs to verify their exact positions (A'-A in Figure 4). The tops of the two large USTs are visible as a series of reflectors with parabolic curvatures in the GPR profile.

The USTs were defueled on March 13 using a vacuum truck and removed on March 14 after purging the volatile vapors from the empty tanks with dry ice. Both tanks appeared to be in sound condition with no evidence of punctures or significant corrosion. The two tanks were removed from the site and disposed of according to North Carolina Division of Environmental Management (NCDEM) UST regulations. Documentation for the removal and disposal of the tanks and their contents are enclosed in Appendix A.

Table 1 describes the two tanks removed:

Table 1. Characteristics of Two USTs at the Alfred J. Spitzner Station.

<i>Tank ID.</i>	<i>Capacity (gal)</i>	<i>Construction</i>	<i>Age(yrs)</i>	<i>Contents</i>
T1	8,200	Steel	23	0.2 - 0.3 ft - gasoline/water mix
T2	7,000	Steel	23	0.2 - 0.3 ft - gasoline/water mix

Following tank removal, a total of four soil samples, one from beneath either end of each tank, were collected from the site and submitted for certified laboratory analysis of TPH (Total Petroleum Hydrocarbons: SW-846 Methods 3550 and 5030). Figure 5 shows the locations of the four soil samples designated T1F, T1V, T2F, and T2V. These four samples were also field tested with a photoionization detector (PID). Results of are summarized in Table 2. Original laboratory reports are contained in Appendix B.

Table 2. Results of Laboratory Analyses of Soil Samples Collected during the removal of USTs at the Alfred J. Spitzner Station.

<i>Sample No.</i>	<i>Type</i>	<i>PID (ppm)</i>	<i>Total Petroleum Hydrocarbons: SW-846</i>	
			<i>Method 3550 (mg/l)</i>	<i>Method 5030 (mg/l)</i>
T1F	Soil	2.3	<2.0	<2.0
T1V	Soil	2.0	<2.0	<2.0
T2F	Soil	4.0	<2.0	<2.0
T2V	Soil	4.0	<2.0	<2.0

Soils within the excavated tank pit area consist of red to orange silty fine sand. An additional six soil samples tested with a PID during the excavation were all found to be below 5 ppm. The excavated area was backfilled with the native material unearthed during removal of the tanks. Borrow-fill material was trucked in to replace that volume once occupied by the tanks. Figure 6 displays several photographs taken during removal operations.

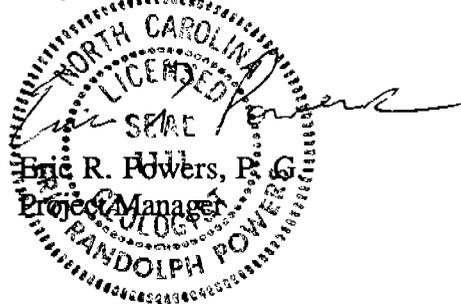
From these data we conclude the following:

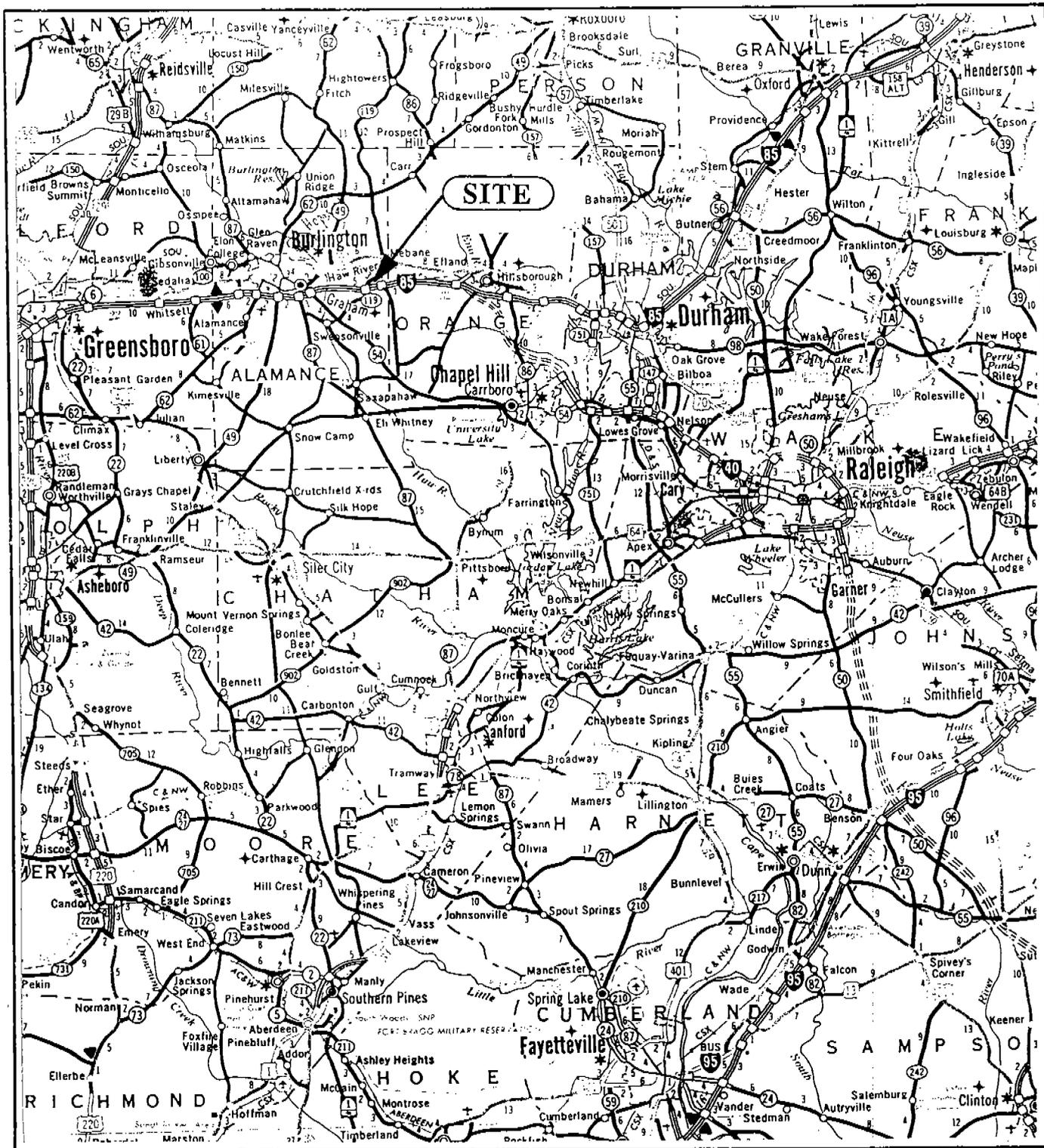
1. No other USTs are located on NCDOT property.
2. The two USTs were structurally sound and exhibited no evidence of product release.
3. No petroleum contamination was detected in the soils beneath the tanks. We, therefore, conclude the two USTs have not caused any groundwater contamination.
4. No further actions are necessary.

Prepared and submitted by,



George R. A. Fields
Project Geologist





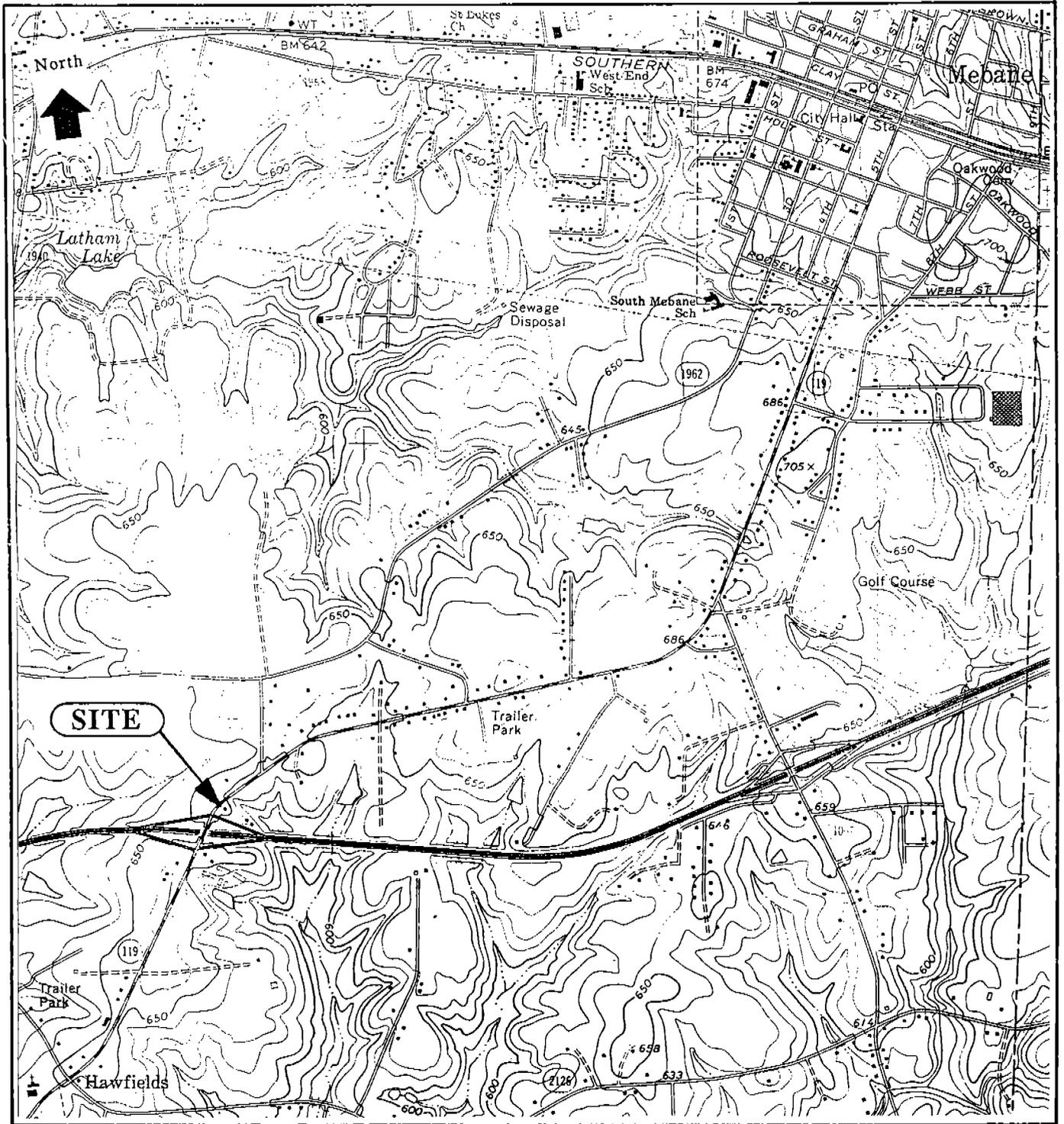
North.



SCALE OF MILES ONE INCH EQUALS APPROX. 13 MILES
 SCALE OF KILOMETERS ONE INCH EQUALS APPROX. 21 KILOMETERS
 1 MILE IS EQUAL TO 1.609 KILOMETERS



Figure 1. Site Location (Source: N.C. State Highway Map).

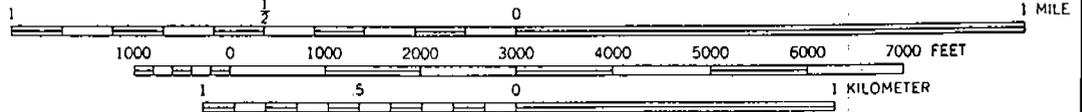


SITE



QUADRANGLE LOCATION

SCALE 1:24 000

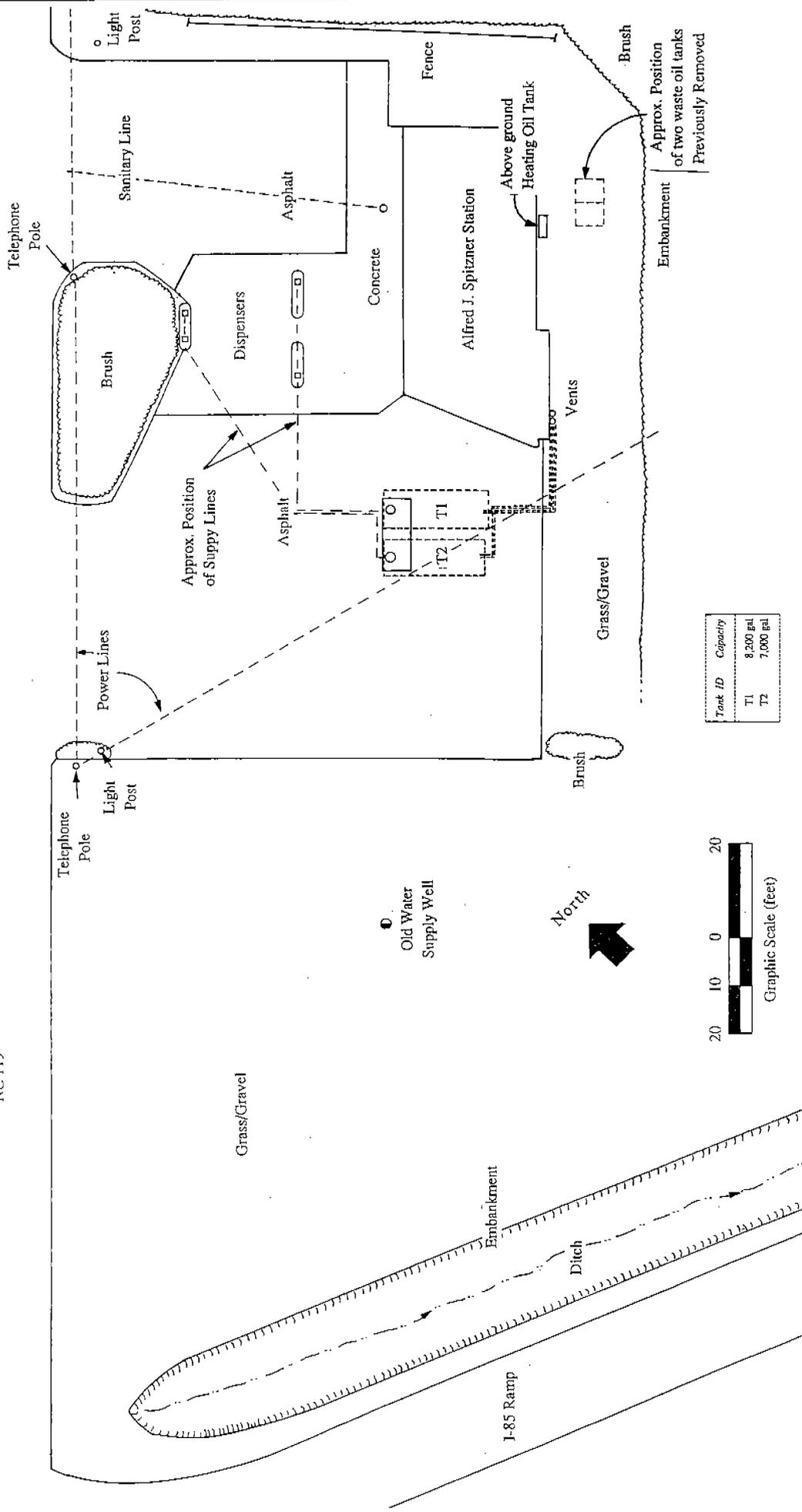


CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



Figure 2. Site Location on the USGS 7.5 minute Mebane Quadrangle Map

NC 119



Tank ID	Capacity
T1	8,200 gal
T2	7,000 gal

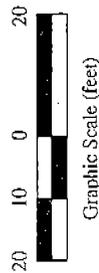
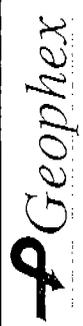


Figure 3. Site details: the former UST locations and surface conditions.



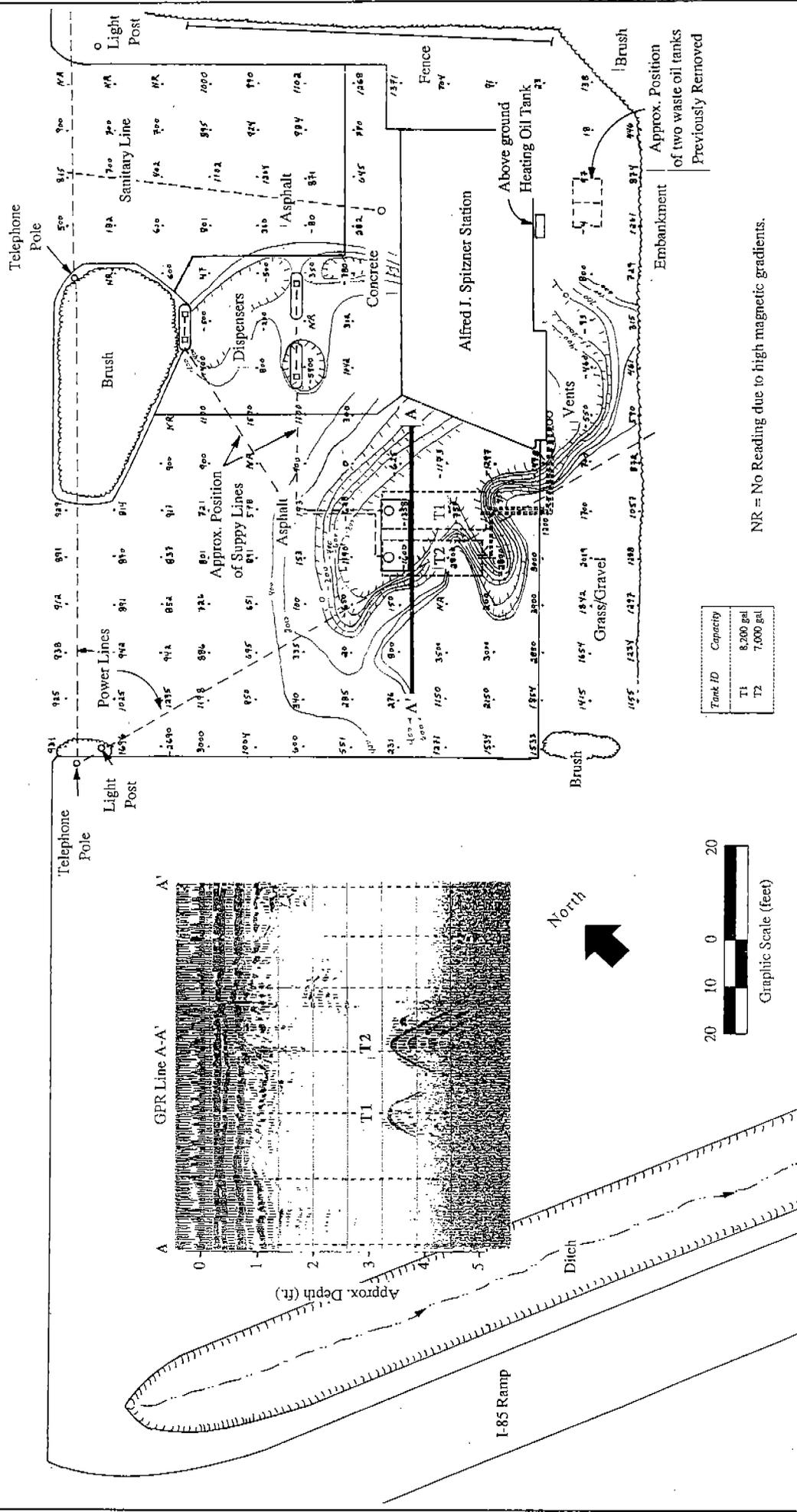


Figure 4. Partially contoured total magnetic field data. Background field is 52,000 gammas. GPR profile collected over known USTs (Profile A-A').

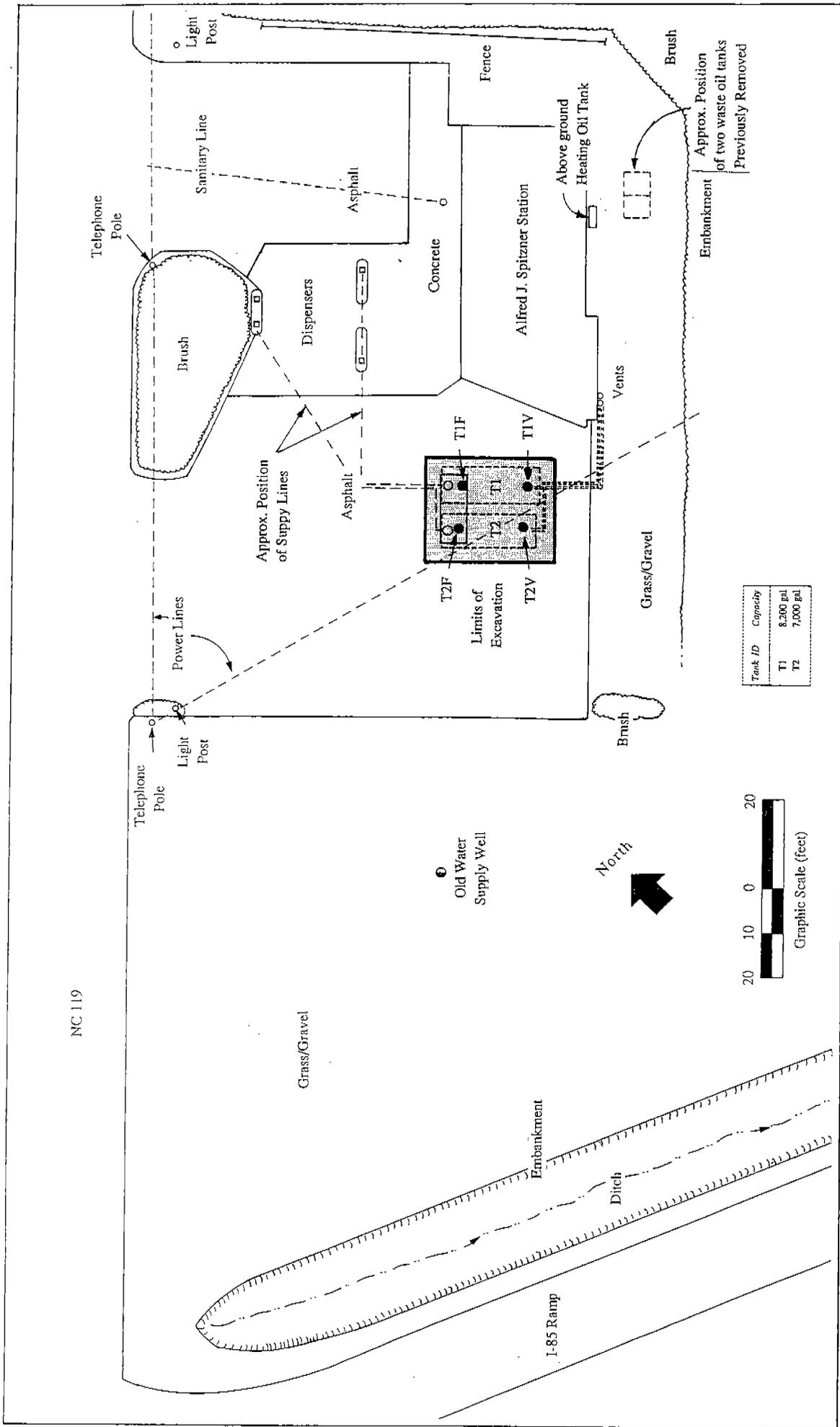
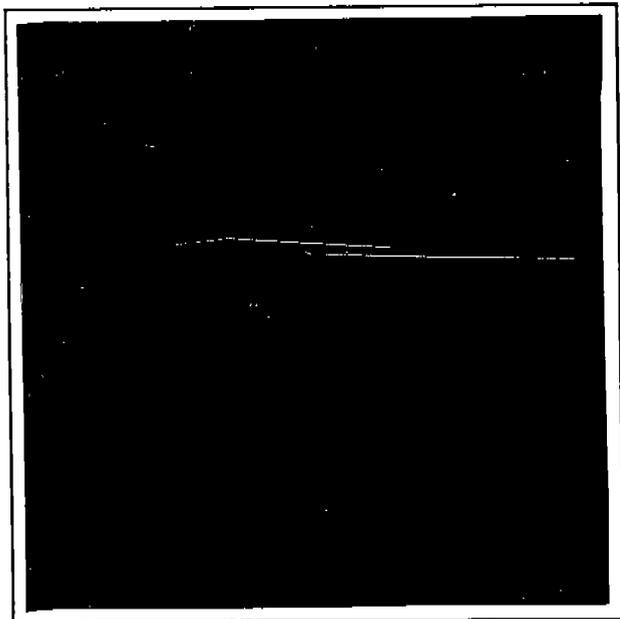


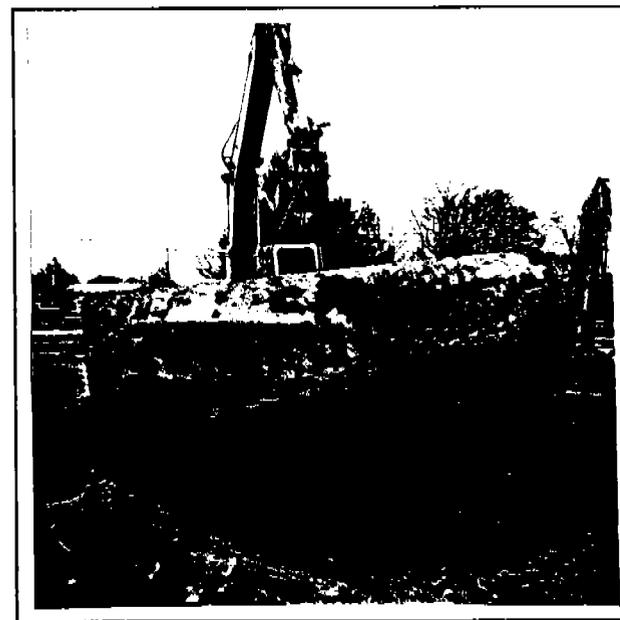
Figure 5. Sample locations, collected at both ends of each tank at a depth of 12 feet, and limits of excavation.



6a. Service station building looking east. USTs are under concrete (right-center) in photograph on 3-13-91.



6b. Removing UST T1 3-14-91. T1 measures 22' x 8'.



6c. Removing UST T2 3-14-91. T2 measures 21.3' x 7.5'.



6d. Preparing to load T2 for disposal.



Figure 6. Selected photographs of the site during tank removal operations.

Appendix A:
Petroleum Waste
and
UST Disposal Manifest Records



FOUR SEASONS INDUSTRIAL SERVICES, INC.

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

No 11525

NON-HAZARDOUS WASTE MANIFEST

91-50051

Manifest # 11525

F.S.I.S. JOB #

Date: 3-13-91

Generator: NC DOT (GEOPHEX)

Phone No.: NA

1-85 Rt 119 EXIT

EPA ID No.: NA

MERANE N.C.

Contact: GEORGE FIELDS

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 3-13-91 Signature George D. Fields for NC DOT

Description of waste	Circle Form Solid Liquid Gas Sludge	Quantity	Circle Units Gallons Cu. Yds. Pounds Tons	Container	
				No.	Type
<u>GASOLINE WATER</u>	<u>Liquid</u>	<u>170</u>	<u>Gallons</u>	<u>1</u>	<u>T</u>

Transporter: Four Seasons Industrial Services Unit Number(s) P-5

3107 S. Elm-Eugene Street Phone No.: (919) 273-2718

Greensboro, N.C. 27406 EPA ID No.: NCD991277732

Vehicle License Tag Number(s) LH 6181 Container: guy

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 Eddie Selke Date 3-13-91 Delivering Driver's Signature Eddie Selke Date 3-13-91

Facility: Four Seasons Industrial Services Phone No. (919) 273-2718

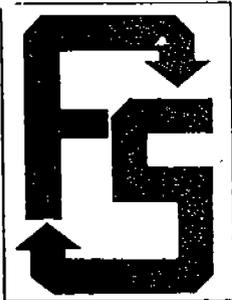
519 Patton Avenue

Greensboro, n.c. 27406 Contact: Eric McManus

Handling Method: fuel blending program

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 3-13-91 Signature: William H. Carter



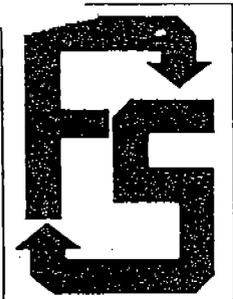
FOUR SEASONS INDUSTRIAL SERVICES, INC.

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

91-50051

TANK DISPOSAL MANIFEST

1)	Tank Owner/Authorized Representative: Name and Mailing Address _____ NC DOT (GEOPHEX) I-85 RT 119 EXIT			
2)	Tank Owner/Authorized Representative: Phone No. (919) 839-8515			
3)	Description of Tanks:			
	<u>Tank No.</u>	<u>Capacity</u>	<u>Previous Contents</u>	<u>Comments</u>
	GDM-2	8000	GASOLINE	PURGED WITH DEY ICE
			# 48	
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.			
	<u>GEORGE R.A. FIELDS</u>	<u>George R.A. Fields</u>	<u>Geopex Ltd.</u> <u>for NCDOT</u>	<u>3-14-91</u>
	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.			
	<u>Jerry Hartz</u>	<u>Jerry Hartz</u>		<u>3-14-91</u>
	Printed/Typed Name	Signature		Month Day Year
6)	Decontamination Manager: The undersigned certifies that the above listed storage tanks have been cleaned and scrapped.			
	<u>Waymon H. Arvey, Jr.</u>	<u>Waymon H. Arvey, Jr.</u>		<u>3-14-91</u>
	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: _____			
	<u>Robert Fields</u>	<u>Robert Fields</u>		<u>3-15-91</u>
	Printed/Typed Name	Signature		Month Day Year



FOUR SEASONS INDUSTRIAL SERVICES, INC.

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

91-50051

TANK DISPOSAL MANIFEST

1) Tank Owner/Authorized Representative: Name and Mailing Address _____ <u>NC DOT (GEOPHEX)</u> <u>1-85 RT 119 EXIT MEBANE NC</u>												
2) Tank Owner/Authorized Representative: Phone No. <u>(919) 839-8515</u>												
3) Description of Tanks: <table border="1"><thead><tr><th>Tank No.</th><th>Capacity</th><th>Previous Contents</th><th>Comments</th></tr></thead><tbody><tr><td><u>GDM-1</u></td><td><u>8000</u></td><td><u>GASOLINE</u></td><td><u>PURGED WITH DRY ICE</u></td></tr><tr><td></td><td></td><td><u># 49</u></td><td></td></tr></tbody></table>	Tank No.	Capacity	Previous Contents	Comments	<u>GDM-1</u>	<u>8000</u>	<u>GASOLINE</u>	<u>PURGED WITH DRY ICE</u>			<u># 49</u>	
Tank No.	Capacity	Previous Contents	Comments									
<u>GDM-1</u>	<u>8000</u>	<u>GASOLINE</u>	<u>PURGED WITH DRY ICE</u>									
		<u># 49</u>										
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. <u>GEORGE R.A. Fields</u> <u>George R.A. Fields</u> <u>Geopex Ltd for NC DOT</u> <u>3-14-91</u> 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. <u>Jerry H. York</u> <u>Jerry York</u> <u>3-14-91</u> Printed/Typed Name Signature Month Day Year												
6) Decontamination Manager: The undersigned certifies that the above listed storage tanks have been cleaned and scrapped. <u>Waymon H. Autrey Jr</u> <u>Waymon H. Autrey Jr</u> <u>3-14-91</u> Printed/Typed Name Signature Month Day Year												
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Appendix B:
Laboratory Analytical Results and
Chain-of-Custody Records



Total Petroleum Hydrocarbon Analysis

IEA Sample No: 646-024-1 Date Received: 03-18-91
Client Sample No: T1F Date Extracted: 03-20-91
Client Project No: 212

Extraction (SW 846 - 3550) / GC-FID analysis (for #2 fuel oil, kerosene, varsol)
Date Analyzed: 03-22-91

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: 03-24-91

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:



Total Petroleum Hydrocarbon Analysis

IEA Sample No: 646-024-2 Date Received: 03-18-91
Client Sample No: T1V Date Extracted: 03-20-91
Client Project No: 212

Extraction (SW 846 - 3550) / GC-FID analysis (for #2 fuel oil, kerosene, varsol)
Date Analyzed: 03-22-91

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: 03-24-91

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:



Total Petroleum Hydrocarbon Analysis

IEA Sample No: 646-024-3

Date Received: 03-18-91

Client Sample No: T2F

Date Extracted: 03-20-91

Client Project No: 212

Extraction (SW 846 - 3550) / GC-FID analysis (for #2 fuel oil, kerosene, varsol)
Date Analyzed: 03-22-91

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: 03-24-91

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:



Total Petroleum Hydrocarbon Analysis

IEA Sample No: 646-024-4

Date Received: 03-18-91

Client Sample No: T2V

Date Extracted: 03-20-91

Client Project No: 212

Extraction (SW 846 - 3550) / GC-FID analysis (for #2 fuel oil, kerosene, varsol)
Date Analyzed: 03-22-91

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: 03-24-91

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: