Technical Report
Volume 5
Underground Storage Tank Closure
UST Nos. 0025, 0026 & 0028
Fort Devens, Massachusetts

ATEC File: 37.07.91.00451
Contract No. DAKF31-91-D-00015

Prepared for:

United States Army
Directorate of Contracting
Building 227
Fort Devens, Massachusetts

UST 93/24 ATEC

Attn: Mr. Steven Dijack,
Contracting Officer

December 7, 1993

December 7, 1993

Mr. Steven Dijack, Contracting Officer
United States Army
Directorate of Contracting
Building 227
Fort Devens, Massachusetts 01433-5340

RE: Technical Report, Volume 5
Underground Storage Tank Closure
UST Nos. 0025, 0026 & 0028
Fort Devens, Massachusetts
ATEC File: 37.07.91.00451

Mr. Dijack:

Attached is a Technical Report (Volume 5) by ATEC Associates, Inc. (ATEC), detailing the closure of three underground storage tanks (UST) referenced as UST Nos. 0025, 0026 and 0028, located at Fort Devens, Massachusetts (the site). The Technical Report covers work conducted under Contract No. DAKF31-91-D-00015 as part of Removal of Underground Storage Tanks in the New England Area, US Army Project No. EQ-19027-9P.

ATEC appreciates the opportunity to be of service in this matter. If you have any questions or comments, please do not hesitate to contact our office.

Sincerely,

ATEC Associates, Inc.

Matthew M. Sonne
Environmental Scientist I

James B. O' Brien
Division Manager

Ronald Lawson
Officer and District Manager

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UNDERGROUND STORAGE TANK INDEX

UST No.	SIZE (gal)	PRODUCT	LOCATION
0025	1,000	Number 2 Fuel Oil	Building 1605, Fort Devens, MA
0026	1,000	Number 2 Fuel Oil	Building 1666, Fort Devens, MA
0028	1,000	Number 2 Fuel Oil	Building 2290, Fort Devens, MA

TECHNICAL REPORT

Volume 5

UST Nos. 0025, 0026 & 0028

United States Army

Fort Devens, Massachusetts

ATEC Project No. 37.07.91.00451

1.0 INTRODUCTION

This volume (Volume 5) of the Technical Report details the removal of three underground storage tank (USTs) referenced as UST Nos. 0025, 0026, and 0028 at various buildings located at Fort Devens, Massachusetts (the site). The Technical Report covers work conducted under Contract No. DAKF31-91-D-00015 as part of Removal of Underground Storage Tanks in the New England Area, US Army Project No. EQ-19027-9P.

The basic Project Work Scope of Contract No. DAKF31-91-D-00015 included:

- Excavation and removal of sixty-nine USTs at various buildings located at various locations in New England.
- Remedial excavation and disposal of contaminated soil, if required.
- Hydrogeological services to include installation of monitoring wells, sampling and analysis of soil/ground water, and determination of groundwater flow direction, if required.
- Backfilling and surface restoration of excavations.
- Preparation of a Technical Report, to include assimilation of information gathered, major findings and conclusions.

2.0 UST No. 0025

2.1 POST REMOVAL REPORT

2.1.1 Introduction

This Post-Removal Report details the results of the closure of one 1,000-gallon, single wall, steel, underground storage tank (UST) referenced as UST No. 0025, located at property known as Building 1605, Fort Devens, Massachusetts. The purpose of the closure was to excavate the UST, evaluate the potential for the presence of oil and hazardous material at the site. The closure of this UST was conducted on January 9, and 10, 1992.

The basic Project Work Scope included:

- Procurement/administration of all federal, state and local permits, manifests, regulations, etc., associated with UST system closure.
- Excavating, venting, cleaning, transporting, and disposing of one 1,000-gallon UST by appropriately licensed contractors/facilities.
- Disposal of residual UST materials at a licensed facility.
- Field screening and analysis of soil from the excavation by Photoionization Detector (PID) and field analyzed with a portable Non-Dispersive Infrared (NDIR) analyzer, to identify a potential release of oil and hazardous materials from the UST, if any.
- Laboratory analysis of soil sampled from the UST excavation by a USEPA certified laboratory for Total Petroleum Hydrocarbons (TPH) (USEPA Method 418.1).
- Preparation of a Technical Report, to include assimilation of information gathered, major findings and conclusions.

2.1.2 Subsurface Storage Tank Excavation and Removal

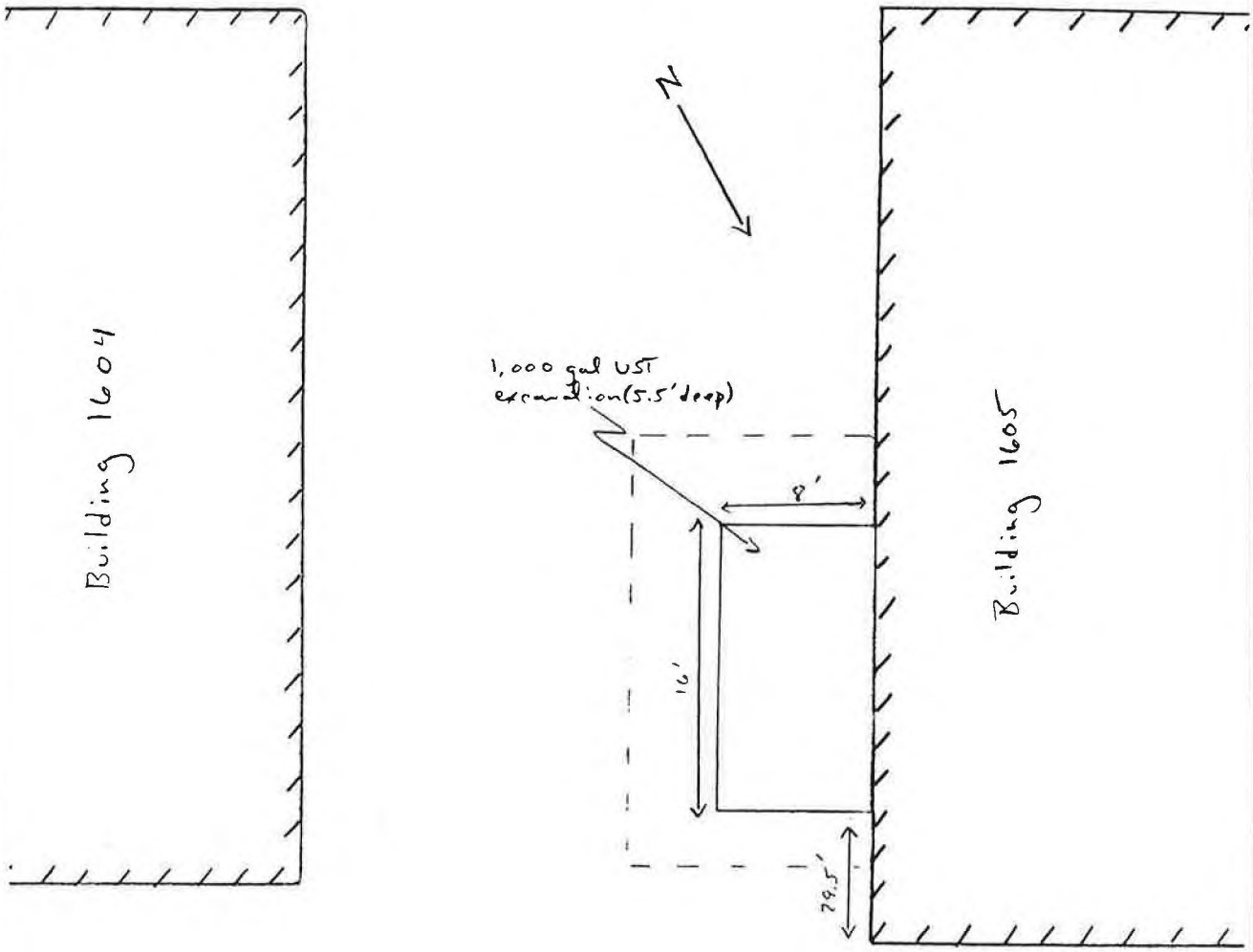
On January 9, and 10, 1992, one 1,000-gallon, subsurface, number 2 fuel oil, storage tank was excavated and removed from the site. The UST was located adjacent to the northeast side of Building 1605. Site topography is level.

Soils in the excavation consisted primarily of light brown to tan, fine sand with trace fine to coarse gravel, cobbles, and boulders. The tank was covered by approximately 2 feet of soil. The bottom of the excavation was approximately 6 feet below grade. Groundwater was not encountered. Soil within the excavation did not appear contaminated.

The associated piping was drained, and tank connections were removed. UST No. 0025 was estimated to contain 24 gallons of number 2 fuel oil. Approximately 14 gallons of fuel oil was removed on January 6, 1992, and transported to a licensed Treatment Storage Disposal Facility (T.S.D.F.) (Beede Waste Oil Corporation, Plaistow, New Hampshire).

Tank openings were then capped, and the tank was removed from the excavation. The tank was observed to be in good condition with no perforations, punctures, or severe corrosion. Following venting of the tank, an access way was cut in the end of the tank to allow entry for cleaning. The tank was then entered and vacuumed/wiped clean of any residual materials. Approximately 10 gallons residual materials were drummed on January 9, 1992 for transportation at a later date. Drummed material was transported to Beede Waste Oil Corporation on February 25, 1992. See Section 2.10 for copies of the appropriate Hazardous Waste Manifests.

The scrap tank was removed from the site on January 10, 1992 and transported to the Contractor's yard, located on Lake George Street, Fort Devens for temporary storage. The tank was disposed at Tombarello & Sons, a licensed Massachusetts tank yard, located in Lawrence, MA. The disposal receipt is included in Section 2.13.



UST LOCATION PLAN

1,000 gallon UST relative to:
Building 1605
Fort Devens, Massachusetts

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 2.1

ATEC

2.1.3 Sampling and Analysis Plan

Ten soil samples were obtained from the excavation for field screening with a Photoionizing Detector (PID) and field analyzed with a Non-Dispersive Infrared (NDIR) analyzer. The PID field screening for Total Organic Vapors (TOVs) was conducted with an HNu photoionizer utilizing the jar headspace screening procedures outlined in the Hazardous Materials Containment Plan. The NDIR field screening for Total Petroleum Hydrocarbons (TPH) was conducted with a Horiba OCMA 220, utilizing the procedures outlined in the Hazardous Materials Containment Plan.

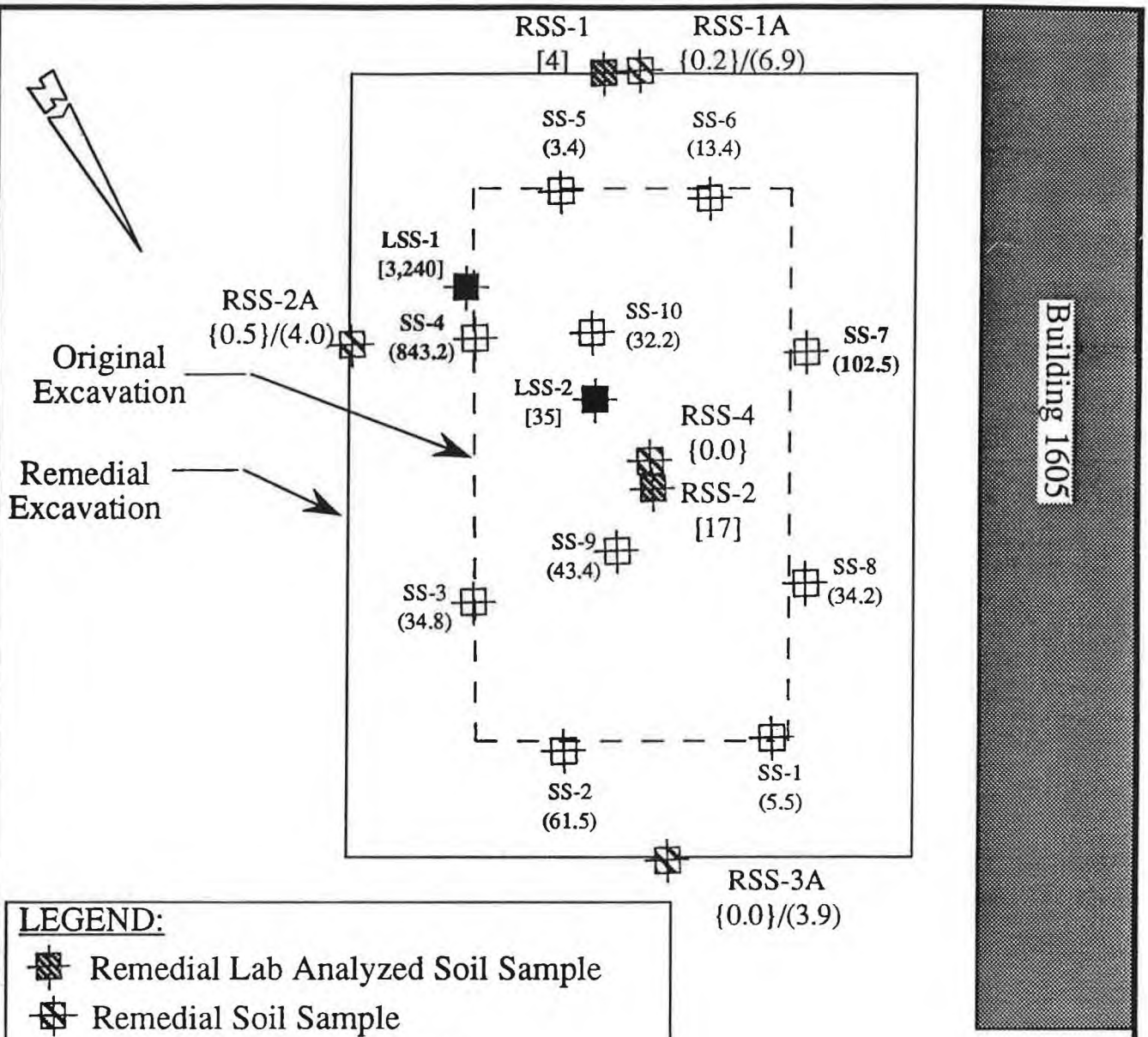
Eight of the samples (SS-1 to SS-8) were obtained from the excavation walls at a depth of approximately 2 to 3 feet below grade. Two of the samples (SS-9 and SS-10) were obtained from the bottom of the excavation at a depth of approximately 5 feet below grade. Two composite soil samples (Stock-1 and Stock-2) were obtained from stockpiled soils for PID and NDIR field screening.

Two soil samples (LSS-1 and LSS-2) were obtained from the excavation for laboratory analysis. Soil Sample LSS-1 was obtained from the southeast wall of the excavation. Soil sample LSS-2 was obtained from the bottom of the excavation. One composite soil sample (LSS-3) was obtained from stockpiled soils required to free the tank. These samples were analyzed for TPH utilizing USEPA Method 418.1.

Sampling locations for the excavation are depicted on the Sampling Schematic, attached as Figure 2.2. The appropriate chain of custody forms are included in Section 2.9, Chain of Custody Forms.

2.1.4 Analytical Results

The results from analysis with the Photoionization Detector (PID) and the Non-Dispersive



LEGEND:

- Remedial Lab Analyzed Soil Sample
- Remedial Soil Sample
- Field Screened Soil Sample
- Lab Analyzed Soil Sample
- ( ) NDIR Results in ppm
- [ ] Lab Analysis Results in ppm
- { } PID Analysis Results in ppm

Results in bold denote levels in excess of MA DEP Remedial Goal Level (100 ppm)

SAMPLING SCHEMATIC

1,000 gallon UST excavation at:
Building 1605
Fort Devens, Massachusetts

PROJECT: 37.07.451

NOT TO SCALE

FIGURE 2.2 UST-25

ATEC

Infrared (NDIR) analyzer of the ten samples obtained from the excavation, and the two samples obtained from stockpiled soils are as follows:

TABLE 2.1 - PID AND NDIR RESULTS

SAMPLE NUMBER	PID (ppm TOVs)	NDIR (ppm TPH)
SS-1	0.2	5.5
SS-2	0.4	61.5
SS-3	0.2	34.8
SS-4	42.0	843.2
SS-5	0.4	3.4
SS-6	0.2	13.4
SS-7	3.6	102.5
SS-8	1.6	34.2
SS-9	0.2	43.4
SS-10	3.2	32.2
Stock-1	6.8	262.9
Stock-2	4.4	72.7

Laboratory analytical results of the two soil samples obtained from the excavation revealed a TPH concentration of 3,240.0 ppm for LSS-1, and 35.0 ppm for LSS-2. Laboratory analysis of the one soil sample obtained from the stockpiled soils revealed a TPH concentration of 135.0 ppm for LSS-3. (See Section 2.8, Laboratory Analytical Results).

2.1.5 Conclusions and Recommendations

As noted in ATEC's post removal report dated January 28, 1992, ATEC's conclusions are as follows:

Upon excavation and removal, the tank was observed to be in good condition with no

signs of perforations, punctures, or severe corrosion.

Groundwater was not encountered within the excavation.

Soil within the excavation did not appear contaminated.

Ten soil samples were obtained from the excavation for field screening and field analysis utilizing a PID and NDIR analysis, respectively. PID readings revealed TOV concentrations ranging from 0.2 to 42 ppm. NDIR results revealed TPH concentrations ranging from 3.4 to 843.2 ppm.

Two soil samples were obtained from the excavation for laboratory analysis for TPH. Analytical results for LSS-1 obtained from the southeast wall of the excavation revealed a TPH concentration of 3,240 ppm. Analytical results for LSS-2 obtained from the bottom of the excavation revealed a TPH concentration of 35 ppm.

One composite, soil sample (LSS-3) was obtained from stockpiled soils for laboratory analysis. Analytical results for LSS-3 revealed a TPH concentration of 135 ppm.

2.2 SITE REMEDIATION AND CONTAMINATED SOIL DISPOSAL

2.2.1 Site Remediation

Following initial PID screening, additional excavation to remove contaminated soil and reach background levels by PID (<1 ppm) was conducted per order the Contracting Officer's Representative and David Salvadore of the Massachusetts Department of Environmental Protection (DEP). Approximately 15.90 tons of contaminated soil were removed from the excavation floor and all sidewalls during remedial excavation on July 20, 1992. The estimated volume of soil removed was calculated from field drawings

produced during the removal and remediation of UST No. 0025 (see Remedial Excavation Plan, Figure 2.3).

Four soil samples (RSS-1 through RSS-4) were obtained from the post-remedial excavation for PID field screening. RSS-1 through RSS-3 were obtained from the sidewalls at a depth of approximately 4 feet below grade. One soil sample (RSS-4) was obtained from the bottom of the excavation at a depth of 5.5 feet. Final PID results ranged from 0.0 to 0.5 ppm (See Table 2.2 and Figure 2.4).

TABLE 2.2 - PID SCREENING RESULTS

SAMPLE NUMBER	PID (ppm TOVs)	LOCATION
RSS-1	0.2	north sidewall (4' depth)
RSS-2	0.5	east sidewall (4' depth)
RSS-3	0.0	south sidewall (4' depth)
RSS-4	0.0	bottom (5.5' depth)

RSS = Remediation Soil Sample
B.G. = Below Grade

Two soil samples (RSS-1 and RSS-2) were obtained for laboratory analysis for TPH (USEPA Method 418.1).

TABLE 2.3 - LABORATORY ANALYSIS

SAMPLE NUMBER	TPH (ppm)	LOCATION
RSS-1	N.D.	north sidewall (4' depth)
RSS-2	17.0	east sidewall (4' depth)

ND = Not Detected above Method Reporting Limit (MRL)

2.2.2 Soil Stratigraphy

The soil stratigraphy of the excavation consisted of an initial 4 inches of top soil followed by 5 feet of light brown to tan, fine to coarse sand (see Figure 2.4 - Soil Stratigraphy).

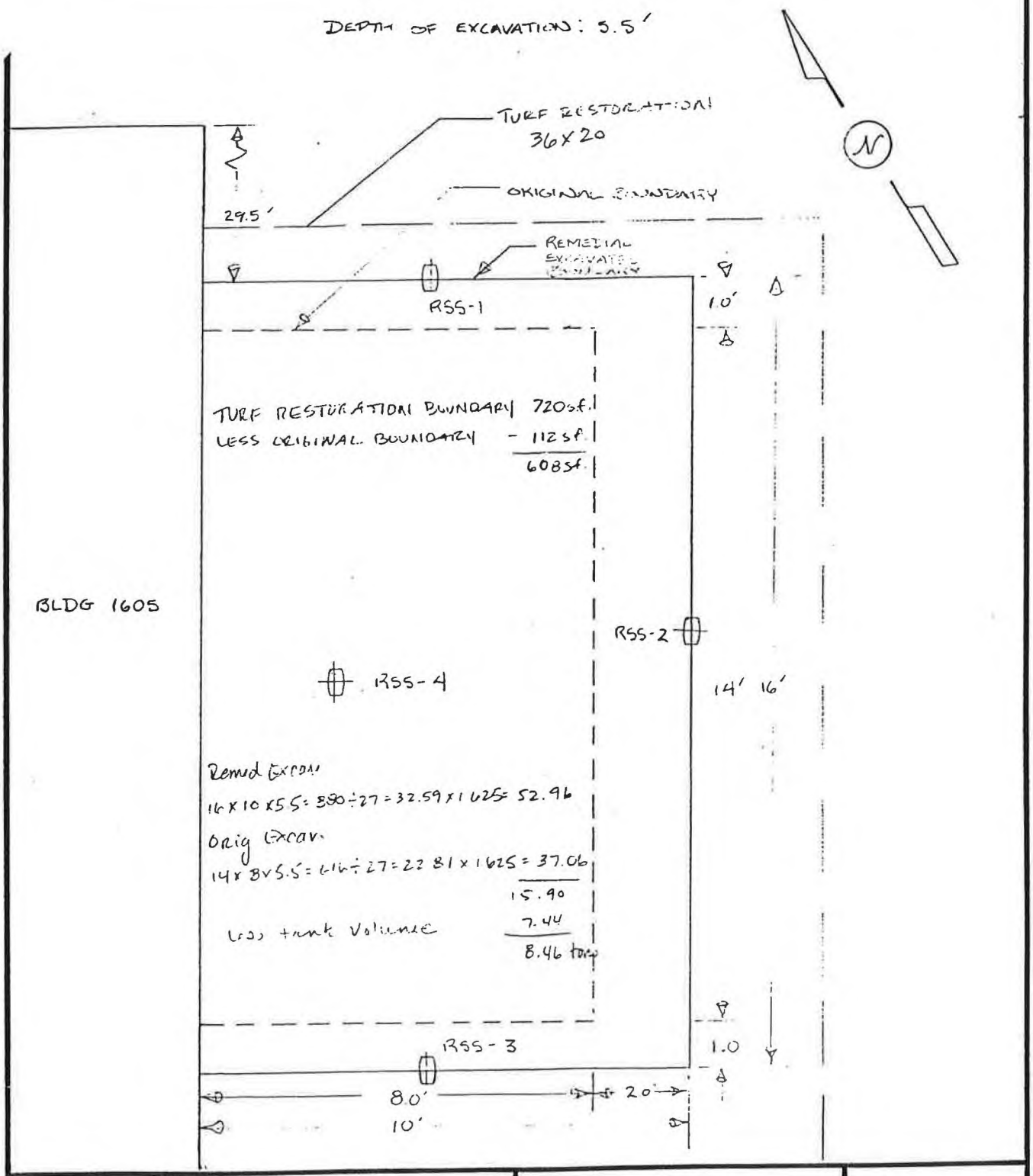
2.2.3 Contaminated Soil Disposal

Prior to disposal, contaminated soil was laboratory analyzed for disposal classification purposes. One soil sample (Stock-25) was obtained from the stockpiled soil. Laboratory analyses were performed for Volatile Organic Compounds (VOCs) (USEPA Method 8240), Semi-volatile Organic Compounds (USEPA Method 8270), Flashpoint (USEPA Method 1010), Polychlorinated Biphenyls (PCBs) (USEPA Method 8080), Reactive Sulfide and Reactive Cyanide (USEPA Methods 7.3.4.1 and 7.3.3.2), 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP) (USEPA Method 1311) and Corrosivity (pH) (USEPA Method 9045). Laboratory analytical results revealed 4.7 standard units (S.U.) Corrosivity, 0.05 ppm Copper, 0.78 ppm Zinc, 0.2 ppm Lead. All other analytical results were below the MRL. (See Section 2.8 Laboratory Analytical Results). Soil sample LSS-3 was also collected and analyzed for TPH (USEPA Method 418.1). Analytical results revealed a TPH concentration of 135 ppm.

Approximately 9.78 cubic yards (15.90 tons) of number 2 fuel oil contaminated soil was removed and stockpiled during remediation of the excavation, as estimated through field drawings (see Figure 2.3 - Remedial Excavation Plan). Contaminated soil was transported to Trimount Bituminous Products Company, Shrewsbury, Massachusetts.

2.3 HYDROGEOLOGICAL SERVICES

Hydrogeological services were not performed relative to UST No. 0025.



REMEDIAL EXCAVATION PLAN

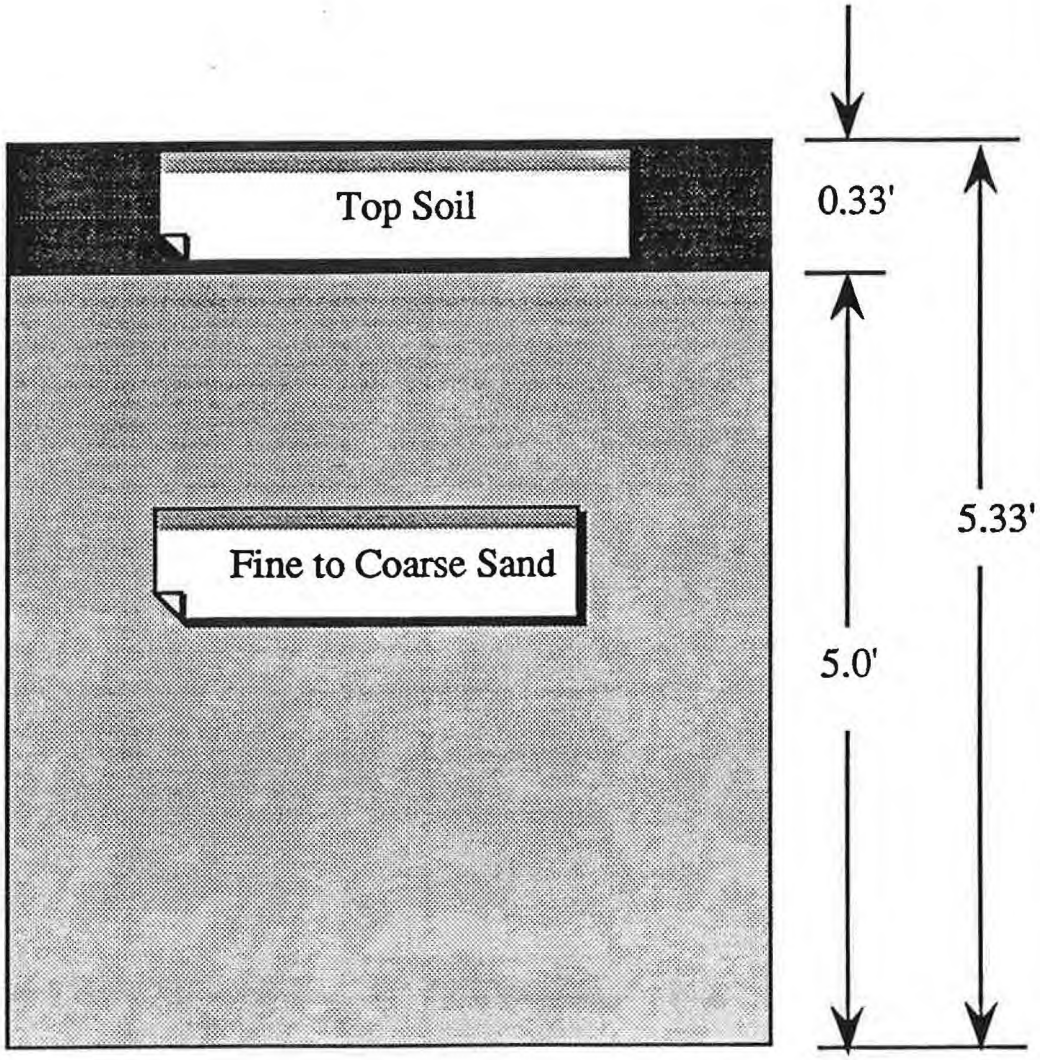
1,000 Gallon UST
Building 1605
Ft. Devens, Massachusetts

PROJECT: 37.07.91.07451

NOT TO SCALE

FIGURE: 2.3

ATEC



SOIL STRATIGRAPHY

1,000 gallon UST excavation at:
Building 1605
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

UST 25

FIGURE: 2.4

ĀTEC

2.4 BACKFILL

The excavation was lined with polyethylene plastic sheeting and backfilled with approximately 32.6 cubic yards of uncontaminated fill material on July 29, 1992. Backfilling was conducted with the approval of the Contracting Officer's Representative.

2.5 SITE RESTORATION

Following backfill of the excavation, approximately 32.0 square feet of loam was distributed over the excavated area. Grass seed was then distributed over the loam.

2.6 PHOTOGRAPH DOCUMENTATION

The following photographs are of the removed UST, the excavation and a post-remedial view of the excavation.

A-1 One side of removed tank.

A-2 Opposite view of removed tank.

A-3 Excavation as viewed from north, facing south.

A-4 Excavation as viewed from south, facing north.

A-5 Post-remedial view of the excavation from the north, facing south.

A-6 Post-remedial view of the excavation from the south, facing north.

A-1

A-2

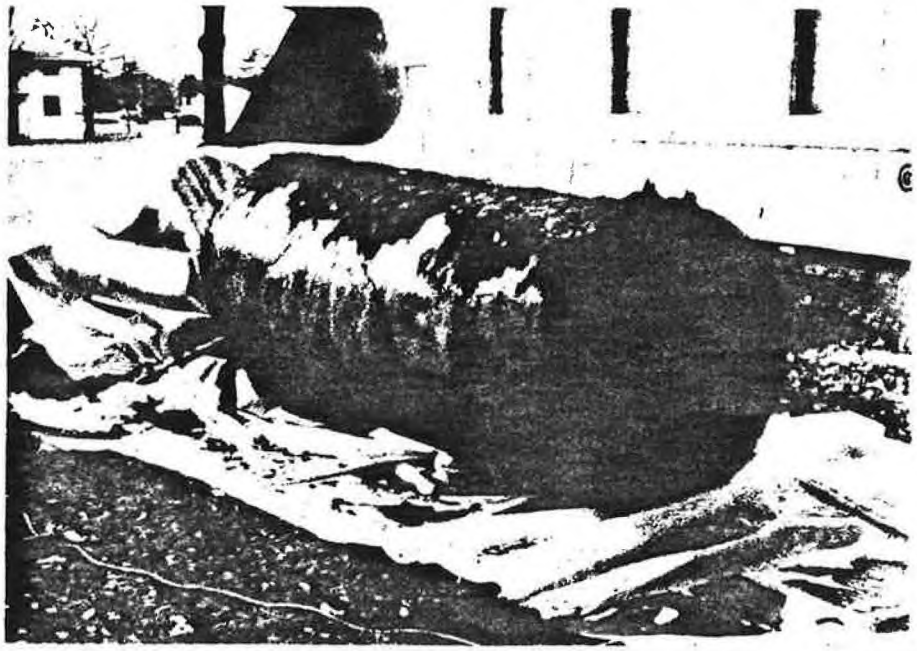
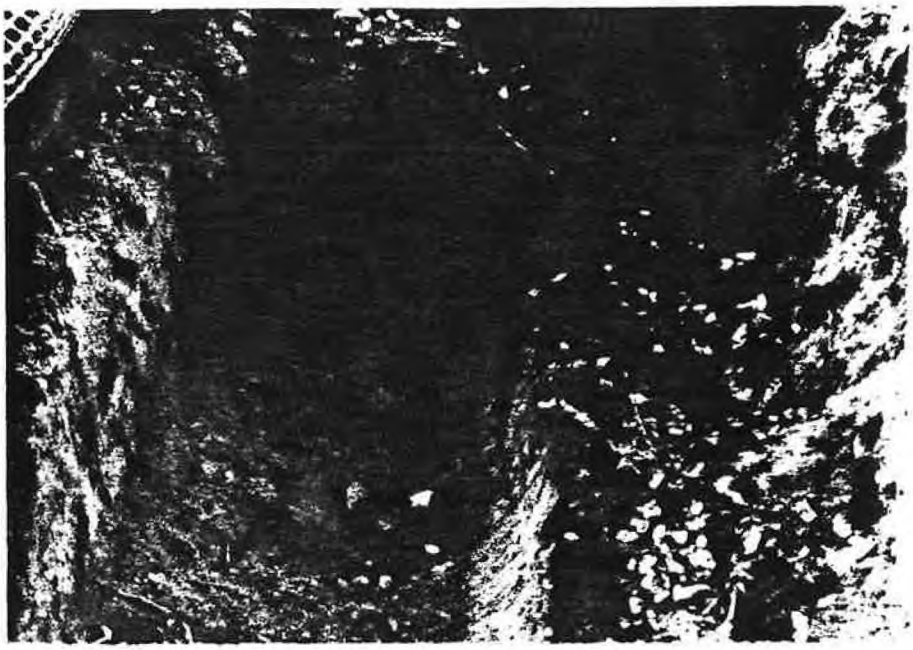


PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 1605 Fort Devens, Massachusetts	PROJECT: 37.07.91.00451	ĀTEC

A-3



A-4

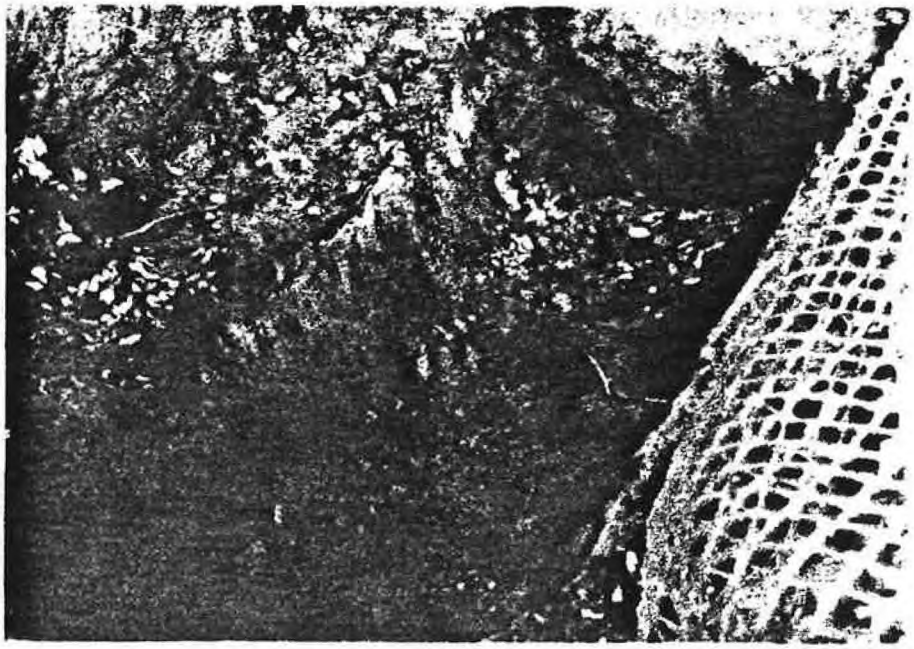
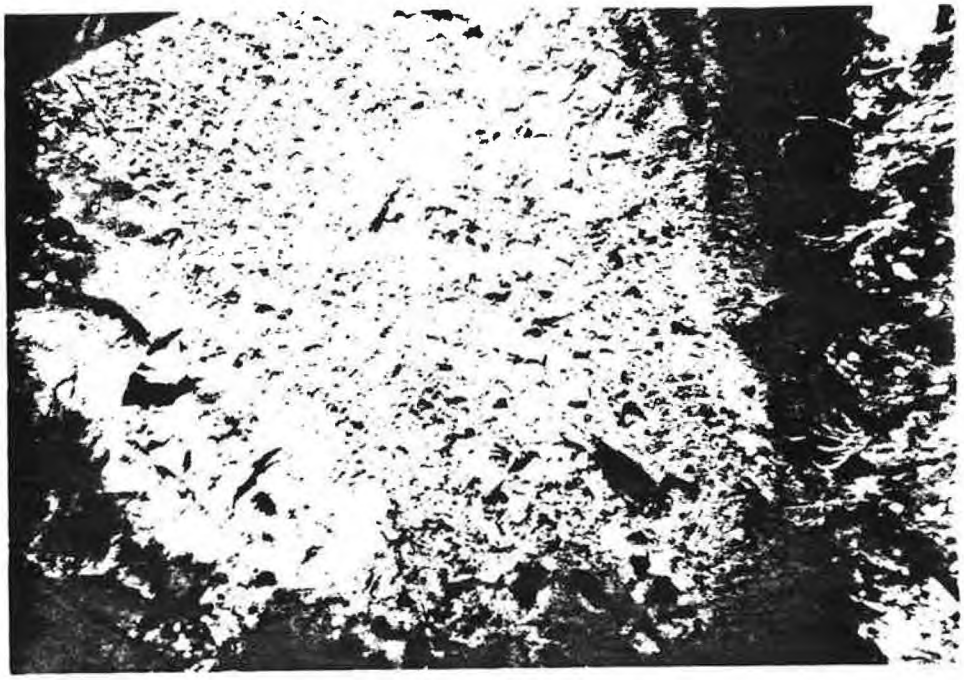


PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 1605 Fort Devens, Massachusetts	PROJECT: 37.07.91.00451	ĀTEC

A-5



A-6

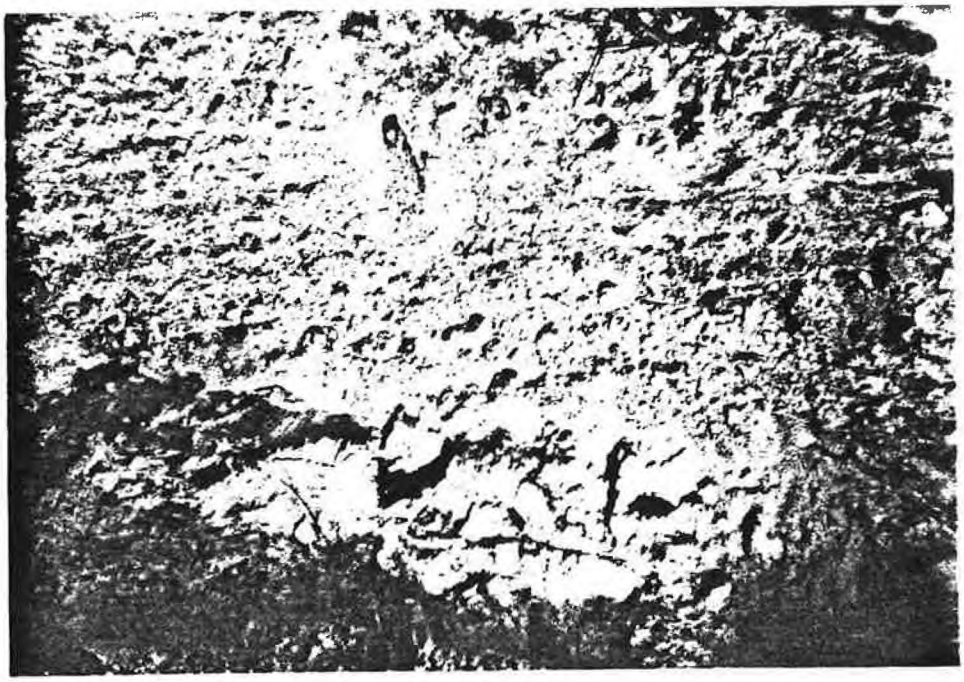


PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 1605 Fort Devens, Massachusetts	PROJECT: 37.07.91.00451	ĀTEC

2.7 OCMA 220 DATA SHEETS

The following information was organized from the data collected from the Non-Dispersive Infrared analyzer.

- SS-1 to SS-10, Stock-1 and Stock-2: Soil samples obtained from original excavation.

- RSS-1 to RSS-3: Soil samples obtained from remedial excavation.

OCMA Data Sheet

Operator Name: [illegible] Date: 13 Jan 92 EBI Project Number: 3709.451

TIC # 25

Calibration

	First Reading		Second Reading		Third Reading	
	Initial	Final	Initial	Final	Initial	Final
Zero Calibration	0.4	0.0	-0.3	0.0	0.1	0.0
Span Calibration						
Zero Calibration						

Span Check: 31.0

Testing

Sample ID#	Weight Gross	Weight Tare	First Approach F-113	First Approach Sample	Second Approach F-113	Second Approach Sample	Readings First	Readings Second	Readings Third	
STOCK	81.8	75.9		3 ml			7.8	7.7	—	262.9
STOCK	79.3	73.1					1.9	2.2	2.2	72.7
1	81.8	74.3					.2	.2	—	5.5
2	80.5	75.5					1.0	1.5	1.5	61.5
3	80.8	75.5					1.0	.9	—	34.8
4	79.9	74.7					71.7	71.4	—	843.2
5	79.7	73.7					.1	.1	—	3.4
6	79.7	73.6					.4	.4		13.4
7	80.0	74.6					2.5	2.7	2.7	102.5
8	80.8	74.2					1.1	1.1		34.2
9	79.9	73.5		1 ml			.2	.5	.5	43.4
10	81.8	74.9					.4	.4		32.2

TPH SOIL ANALYSES BY NON-DISPERSIVE INFRARED ANALYZER - MODIFIED EPA STANDARD TEST METHOD 418.1

PROJECT NAME, NUMBER, TANK: U.S. ARMY - FORT DEVENS 37.07.91.451 UST 0025

DATE: Jul 24, 1992

OPERATOR: Charles Langenhagen

CALIBRATION DATA

TYPE CALIBRATION	FIRST READING INITIAL	FIRST READING FINAL	SECOND READING INITIAL	SECOND READING FINAL	THIRD READING INITIAL	THIRD READING FINAL	SPAN CHECK
ZERO:	-5.7	0.0	-1.1	0.0	-0.4	0.0	27.6
SPAN:	34.2	40.0	45.8	40.0	40.9	40.0	
ZERO:	6.1	0.0	-7.0	0.0	-0.2	0.0	

ANALYTICAL DATA

SAMPLE NUMBER	WEIGHT (g) GROSS	WEIGHT (g) TARE	1st DILUTION RATIO (ml) F-113	1st DILUTION RATIO (ml) SAMPLE	2nd DILUTION RATIO (ml) F-113	2nd DILUTION RATIO (ml) SAMPLE	INSTRUMENT RESULTS (ppm) 1st	INSTRUMENT RESULTS (ppm) 2nd	INSTRUMENT RESULTS (ppm) 3rd	CONCENTRATION mg/l
RSS-1	80.7	74.8	17.5	3.0	----	----	0.4	0.2	--	6.9
RSS-2	80.0	74.9	17.5	3.0	--	--	0.3	0.1	--	4.0
RSS-3	80.1	74.9	17.5	3.0	--	--	0.1	0.1	--	3.9

2.8 LABORATORY ANALYTICAL REPORTS

The following laboratory analytical reports were organized and provided by Environmental Science Services Inc (ESS).

- LSS-1, LSS-2, and LSS-3: Soil samples obtained from original excavation. Laboratory analyzed for TPH.

- RSS-1 and RSS-2: Soil samples obtained from the post-remedial excavation. Laboratory analyzed for TPH.

- Stock-25: Soil sample obtained from stockpiled soil for disposal classification. Laboratory analyzed for VOCs, Semi-volatiles, Flashpoint, Reactive Cyanide, Reactive Sulfide, PCBs, Corrosivity (pH), and 13 TCLP Metals.

RECEIVED JAN 2 1 1992

In Response To The Future

CERTIFICATE OF ANALYSIS

Date: 1/17/92 Job: 100
Account: 95659
Received: 1/13/92

TO: ATEC ENVIRONMENTAL CO.
62 Accord Park Drive
Norwell, MA 02061

Project: TANK 25

Attn: Mr. Mark Baldi

Sample Number	Method Number	Parameter	Result	Unit	Sample Description
92010001	EPA-160.3	Total Solids	88	%	LSS-1
	EPA-418.1	TPH/IR (Dry Wt.)	3250	mg/kg	
92010002	EPA-160.3	Total Solids	85	%	LSS-2
	EPA-418.1	TPH/IR (Dry Wt.)	35	mg/kg	
92010003	EPA-160.3	Total Solids	90	%	LSS-3
	EPA-418.1	TPH/IR (Dry Wt.)	135	mg/kg	

David Dickinson
Laboratory Manager

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax (401) 421-5731

In Response To Reference

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens Remediation ESS Project ID: 921907

Client Sample ID: RSS-1 (25) ESS Sample ID: 921907-05

Date Sample Received: 7/24/92 Date Reported: 8/6/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	ND	mg/Kg	11	418.1

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 6 Aug 92

David Dickinson
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens Remediation ESS Project ID: 921907

Client Sample ID: RSS-2 (25) ESS Sample ID: 921907-06

Date Sample Received: 7/24/92 Date Reported: 8/6/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	17	mg/Kg	11	418.1

MRL = Method Reporting Limit

Approved by: _____ Date: 6 Aug 92

David Dickinson
Laboratory Director

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens
ESS Project ID: 921516

Client Sample ID: Stock-25
ESS Sample ID: 921516-05

Date Sample Received: 6/10/92
Date Reported: 6/26/92

Parameter	Results	Units	MRL	Method
pH (Corrosivity)	4.7	S.U.	N/A	9045
Flashpoint	No Flash	°F	200	1010
Polychlorinated Biphenyls	ND	mg/Kg	Attached	8080
Reactive Cyanide	ND	mg/Kg	2	7.3.3.2
Reactive Sulfide	ND	mg/Kg	2	7.3.4.1
Semivolatile Organics	ND	ug/Kg	Attached	8270
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Lead	0.2	mg/L	Attached	6010
Copper	0.05	mg/L	Attached	6010
Zinc	0.78	mg/L	Attached	6010

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____
David Dickinson
Laboratory Director

Date: 26 June 92

029

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax (401) 421-5731
191 Post Road West, Westport, Connecticut 06880 (203) 221-2753 Fax (203) 454-4975

In Response To The Future

CERTIFICATE OF ANALYSIS

POLYCHLORINATED BIPHENYLS
Method 8080

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens — ESS Project ID: 921516

Client Sample ID: Stock-25 — ESS Sample ID: 921516-05

Date Sample Received: 6/10/92 — Date Reported: 6/26/92

Parameter	Result (mg/Kg)	MRL
Arochlor 1016	ND	1
Arochlor 1221	ND	1
Arochlor 1232	ND	1
Arochlor 1242	ND	1
Arochlor 1248	ND	1
Arochlor 1254	ND	1
Arochlor 1260	ND	1

ND = Not Detected above Method Reporting Limit (MRL)

Surrogate Recovery Data	% Recovery	QC Limit
Dibutylchlorendate	82%	50 - 150%

Approved by: _____ Date: 26 June 92
David Dickinson
Laboratory Director

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101 Park Road West, Westport, Connecticut 06880 (203) 221-2553 Fax (203) 454-4970

In Response To The Future

CERTIFICATE OF ANALYSIS

ACID EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens
ESS Project ID: 921516

Client Sample ID: Stock-25
ESS Sample ID: 921516-05

Date Sample Received: 6/10/92
Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL
2-Chlorophenol	ND	330
2-Nitrophenol	ND	330
Phenol	ND	330
2,4-Dimethylphenol	ND	330
2,4-Dichlorophenol	ND	330
2,4-Dinitrophenol	ND	1,650
Pentachlorophenol	ND	1,650
4-Nitrophenol	ND	1,650
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	1,650
2-Methylphenol	ND	330
4-Methylphenol	ND	330
4-Chloro-3-Methylphenol	ND	330
4,6-Dinitro-2-Methylphenol	ND	1,650

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 26 June 92
David Dickinson
Laboratory Director

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532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax: (401) 421-5731
101 Rando Drive, Wallingford, Connecticut 06492 (203) 284-0850 Fax: (203) 284-0870

In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens — ESS Project ID: 921516

Client Sample ID: Stock-25 — ESS Sample ID: 921516-05

Date Sample Received: 6/10/92 — Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL
Acenaphthylene	ND	330
1,2,4-Trichlorobenzene	ND	330
Hexachlorobenzene	ND	330
Bis(2-chloroethyl)ether	ND	330
2-Chloronaphthalene	ND	330
1,2-Dichlorobenzene	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
3,3-Dichlorobenzidine	ND	660
2,4-Dinitrotoluene	ND	330
2,6-Dinitrotoluene	ND	330
Fluoranthene	ND	330
4-Chlorophenyl phenyl ether	ND	330
Bis(2-chloroisopropyl) ether	ND	330
Bis(2-chloroethoxy) methane	ND	330
Hexachlorobutadiene	ND	330
Hexachlorocyclopentadiene	ND	330
Isophorone	ND	330
Naphthalene	ND	330
Nitrobenzene	ND	330
N-nitrosodiphenylamine	ND	330
N-nitrosodi-n-propylamine	ND	330
Bis(2-ethylhexyl)phthalate	ND	330
Di-n-butylphthalate	ND	330
Di-n-octylphthalate	ND	330
Diethyl phthalate	ND	330
Dimethyl phthalate	ND	330
Benzo(a)anthracene	ND	330

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 26 June 92
David Dickinson
Laboratory Director

032

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax (401) 421-5731
101 Real Road, West Wareham, Connecticut 06488 (203) 221-2553 Fax (203) 454-4970

In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES cont.
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens **ESS Project ID:** 921516

Client Sample ID: Stock-25 **ESS Sample ID:** 921516-05

Date Sample Received: 6/10/92 **Date Reported:** 6/26/92

Parameter	Result (ug/Kg)	MRL
Benzo(a)pyrene	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(k)fluoranthene	ND	330
Chrysene	ND	330
Acenaphthene	ND	330
Anthracene	ND	330
Benzo(ghi)perylene	ND	330
Fluorene	ND	330
Phenanthrene	ND	330
Dibenzo(a,h)anthracene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Pyrene	ND	330
Hexachloroethane	ND	330
4-Bromophenyl-phenylether	ND	330
Benzyl Alcohol	ND	330
Benzoic Acid	ND	1,650
Bis(2-Chloroethoxy)methane	ND	330
4-Chloroaniline	ND	330
2-Methylnaphthalene	ND	330
2-Nitroaniline	ND	1,650
3-Nitroaniline	ND	330
Dibenzofuran	ND	330
4-Nitroaniline	ND	1,650
Butylbenzylphthalate	ND	330

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 26 June 92
David Dickinson
Laboratory Director

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax: (401) 421-5731

In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens — ESS Project ID: 921516

Client Sample ID: Stock-25 — ESS Sample ID: 921516-05

Date Sample Received: 6/10/92 — Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL
Methylene Chloride	ND	1,000
1,1-Dichloroethane	ND	1,000
Chloroform	ND	1,000
Carbon Tetrachloride	ND	1,000
1,2-Dichloropropane	ND	1,000
Dibromochloromethane	ND	1,000
1,1,2-Trichloroethane	ND	1,000
Tetrachloroethene	ND	1,000
Chlorobenzene	ND	1,000
1,2-Dichloroethane	ND	1,000
1,1,1-Trichloroethane	ND	1,000
Bromodichloromethane	ND	1,000
Trans-1,3-Dichloropropene	ND	1,000
Bromoform	ND	1,000
1,1,2,2-Tetrachloroethane	ND	1,000
Benzene	ND	1,000
Toluene	ND	1,000
Ethyl Benzene	ND	1,000
Chloromethane	ND	1,000
Bromomethane	ND	1,000
Vinyl Chloride	ND	1,000
Chloroethane	ND	1,000
1,1-Dichloroethene	ND	1,000
1,2-Dichloroethene (Total)	ND	1,000
Trichloroethene	ND	1,000
Acetone	ND	1,000
Carbon Disulfide	ND	1,000
2-Butanone	ND	1,000
Cis-1,3-Dichloropropene	ND	1,000
4-Methyl-2-Pentanone	ND	1,000
2-Hexanone	ND	1,000
Styrene	ND	1,000
Xylenes (Total)	ND	1,000

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 26 June 92

David Dickinson
Laboratory Director

034

Environmental Science Services

532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax (401) 421-5731

101 Post Road West, Westport, Connecticut 06880 (203) 221-2753 Fax (203) 454-4970

In Response To The Future

CERTIFICATE OF ANALYSIS

BASE-NEUTRAL SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens

Date Sample Analyzed: 6/18/92

ESS Project ID: 921516

SAMPLE ID	NITROBENZENE-D5 (35-115%)*	2-FLUOROBIPHENYL (43-115%)*	P-TERPHENYL-D14 (33-141%)*
921516-01	97%	97%	79%
921516-02	88	94	69
921516-03	81	90	65
921516-04	81	70	77
921516-05	70	63	48
921516-06	69	81	58

* Acceptance criteria.

Approved by: _____ Date: 26 June 92

David Dickinson
Laboratory Director

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0358 Fax (401) 421-5731

In Response To The Future

CERTIFICATE OF ANALYSIS

VOA SOIL SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army -Ft. Devens

Date Sample Analyzed: 6/19/92

ESS Project ID: 921516

SAMPLE ID	1,2 DICHLOROETHANE-D4 (70-121%)*	TOLUENE-D8 (81-117%)*	BFB (74-121%)*
VS0619B1	107%	102%	106%
921516-01	93	108	112
921516-02	108	110	128
921516-03	110	104	100
921516-04	96	101	106
921516-05	111	102	100
921516-06	106	115	86

* Acceptance criteria

Approved by: _____ Date: 21 June 92

David Dickinson
Laboratory Director

046

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax: (401) 421-5731

In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens — ESS Project ID: 921516

Client Sample ID: Method Blank — ESS Sample ID: VS0619B1

Date Sample Received: 6/10/92 — Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL
Methylene Chloride	ND	1,000
1,1-Dichloroethane	ND	1,000
Chloroform	ND	1,000
Carbon Tetrachloride	ND	1,000
1,2-Dichloropropane	ND	1,000
Dibromochloromethane	ND	1,000
1,1,2-Trichloroethane	ND	1,000
Tetrachloroethene	ND	1,000
Chlorobenzene	ND	1,000
1,2-Dichloroethane	ND	1,000
1,1,1-Trichloroethane	ND	1,000
Bromodichloromethane	ND	1,000
Trans-1,3-Dichloropropene	ND	1,000
Bromoform	ND	1,000
1,1,2,2-Tetrachloroethane	ND	1,000
Benzene	ND	1,000
Toluene	ND	1,000
Ethyl Benzene	ND	1,000
Chloromethane	ND	1,000
Bromomethane	ND	1,000
Vinyl Chloride	ND	1,000
Chloroethane	ND	1,000
1,1-Dichloroethene	ND	1,000
1,2-Dichloroethene (Total)	ND	1,000
Trichloroethene	ND	1,000
Acetone	ND	1,000
Carbon Disulfide	ND	1,000
2-Butanone	ND	1,000
Cis-1,3-Dichloropropene	ND	1,000
4-Methyl-2-Pentanone	ND	1,000
2-Hexanone	ND	1,000
Styrene	ND	1,000
Xylenes (Total)	ND	1,000

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 26 June 92

David Dickinson
Laboratory Director

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax (401) 421-5731

In Response To The Future

CERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

MATRIX SPIKE ANALYSIS SUMMARY

EPA METHOD 1311

Client: ATEC Environmental Consultants Matrix: Solid

TCLP Batch ID: 151606 Concentration in: mg/L

Target Analyte	Sample Result	Spike Added	Spiked Sample Result	Percent Recovery
Antimony	ND	*	ND	83%
Arsenic	ND	2.00	2.13	107
Cadmium	ND	0.5	0.535	107
Chromium	ND	1.0	1.12	112
Lead	0.24	1.0	1.132	89
Mercury	ND	0.002	0.00165	83
Selenium	ND	2.00	2.57	126
Silver	ND	1.0	1.03	103
Copper	0.05	1.0	1.05	100
Nickel	ND	1.0	1.03	103
Zinc	0.37	1.0	1.199	83
Beryllium	ND	*	ND	83
Thallium	ND	*	ND	83

This matrix spike analysis summary applies to the following samples: 921516-01, -02, -03, -04, -05, -06

ND = Not Detected above Method Reporting Limit (MRL)

* Matrix Spike Recovery based on the lowest spike recovery of the spiked compounds.

Approved by: _____ Date: 26 June 92

David Dickinson
Laboratory Director

048

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax: (401) 421-5731

2.9 CHAIN OF CUSTODY FORMS

The following chain of custody forms were produced for the soil samples which were laboratory analyzed. Please refer to laboratory report for time and date analyzed.

CHAIN OF CUSTODY RECORD

PROJ. NO. 07.451 | PROJECT NAME Tank 25 | CLIENT PO 19409 | LAB PROJ. NO.

SAMPLERS: (Signature) Mark E Zaller

SAMPLING METHOD grab

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS (IR)	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
LSS1	1/14/92					X						1				X						
LSS2	1/10/92					X						1				X						
LSS3	1/10/92		X			X						1				X						

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Mark E Zaller	1/10/92				

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Project Manager / Phone #:

ATEC Environmental Consultants
Division of ATEC Associates, Inc.
62 Accord Park Drive
Norwell, MA 02061
(617) 878-6200

P.O# 37.01.72008

CHAIN OF CUSTODY RECORD

PROJ. NO. 37.07.451

PROJECT NAME / CLIENT: U.S. Army - Ft. Devens

LAB PROJ. NO.

SAMPLERS: (Signature) Charles Langenhagen

SAMPLING METHOD: Grab

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS - 8240	~~BTEX~~ 5 - VOA - 8270	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	~~TOTAL METALS~~ 13 TCLP	IGNITABILITY	pH	Cyanide / Sulfide reactivity	SAMPLE LOCATION / REMARKS
STOCK-19	6/8/92	10:30A	X	X		X				X		3		X	X	X	X		X	X	X	X	Build 0631
STOCK-22		10:45A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg. 1427
STOCK-23		11:00A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg. 1429
STOCK-24		11:15A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg. 1435
STOCK-25		11:30A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg 1605
STOCK-26		11:45A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg. 1666

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Norwell, MA 02061
(617) 878-6200

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Charles Langenhagen	6/9	6/10			
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Project Manager / Phone #:	

040

P.O# 37.07.72358

CHAIN OF CUSTODY RECORD

PROJ. NO. 37.07.45(

PROJECT NAME / CLIENT U.S. Army - Ft. Devens

LAB PROJ. NO.

SAMPLERS: (Signature) Charles Langenhagen

SAMPLING METHOD: Grab

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS - 8240	BTEX 5-VOA-8270	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8) 13	IGNITABILITY	TCLP pH	Cyanide/Sulfide react	SAMPLE LOCATION / REMARKS
STOCK-19	6/9/92	10:30A	X	X		X				X		3		X	X	X	X		X	X	X	X	Build 0631
STOCK-22		10:45A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg. 1427
STOCK-23		11:00A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg. 1429
STOCK-24		11:15A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg. 1435
STOCK-25		11:30A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg. 1605
STOCK-26		11:45A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg. 1666

ATEC Environmental Consultants
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Norwell, MA 02061
(617) 878-5200

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Charles Langenhagen	6/9				
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Project Manager / Phone #:	
04					

P.O. 72453

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	LAB PROJ. NO.
37.07.451	FT. DEVENS - REMEDIATION CLIENT UST # 13, 24, 25, 26, 56, 58	

SAMPLERS: *(Signature)* Craig D. Trombly

SAMPLE I.D. NO.	DATE	TIME	SAMPLING METHOD: COMPOSITE	GRAB	WATER	SOIL	FILTERED	ACIDIFIED	ICED	NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS	PCB'S 5. VOA	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY	13 TCLP	SAMPLE LOCATION / REMARKS
RSS-1 (13)	7-23-92			X		X			X	4		X		X	X				X	BLDG. 264
RSS-2 (13)	"			X		X			X	4		X		X	X				X	"
RSS-1 (24)	7-23-92			X		X			X	4			X	X					X	BLDG. 1435
RSS-2 (24)	"			X		X			X	4			X	X					X	"
RSS-1 (25)	7-20-92			X		X			X	1				X						BLDG. 1505
RSS-2 (25)	"			X		X			X	1				X						"
RSS-1 (26)	7-21-92			X		X			X	2				X						BLDG. 1666
RSS-2 (26)	"			X		X			X	2				X						"
RSS-1 (56)	7-21-92			X		X			X	4		X		X	X				X	BLDG. 3587
RSS-2 (56)	"			X		X			X	4		X		X	X				X	"
RSS-1 (58)	7-22-92			X		X			X	4		X		X	X				X	BLDG. 3713
RSS-2 (58)	7-22-92			X		X			X	4		X		X	X				X	"

ATEC Environmental Consultants
Division of ATEC Associates, Inc.
62 Accord Park Drive
Norwell, MA 02061
(617) 878-6200

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Craig D. Trombly	7-23-92 4:30	Nick Couve			
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Project Manager / Phone #:	

2.10 HAZARDOUS WASTE MANIFESTS

UST No. 0025 was estimated to contain 24 gallons of number 2 fuel oil. Approximately 14 gallons of fuel oil was removed on January 6, 1992, and transported to a licensed Treatment Storage Disposal Facility (T.S.D.F.) (Beede Waste Oil Corporation, Plaistow, New Hampshire). Approximately 10 gallons residual materials were drummed on January 9, 1992 for transportation at a later date. Drummed material was transported to Beede Waste Oil Corporation on February 25, 1992.

The following Hazardous Waste Manifest were generated from the residual tank material. The manifest dated January 6, 1992 is associated with vacuuming product from several USTs. Therefore, the total quantity (2,200 gallons) is much greater than the 14 gallons which was removed from UST 0025. The manifest dated February 25, 1992 is associated with the drummed material from several USTs. Therefore, the total quantity (495 gallons) is much greater than the 10 gallons which was removed from UST 0025.

DEP

One Winter Street
Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator US EPA ID No. MA7210025154 — Manifest Document No. FD6378

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Dept. of The ARMY, Headquarters Ft. Devens Box 19, Attn: Mark Boser

4. Generator's Phone 508-796-3002 AFZD-~~DEQEM~~

5. Transporter 1 Company Name: Beede Waste Oil Corp. — US EPA ID Number: NHD018958140

6. Transporter 2 Company Name — US EPA ID Number

7. Designated Facility Name and Site Address: Beede Waste Oil Corp., Keely RD. PO Box 127, Plastow NH 03865 — US EPA ID Number: NHDO18958140

A. State Manifest Document Number: MA F291211

B. State Gen. ID: N/A

C. State Trans. ID: N/A NHMA6134

D. Transporter's Phone: 603 382-5761

E. State Trans. ID

F. Transporter's Phone ( )

G. State Facility's ID: Not Required

H. Facility's Phone: 603 382-5761

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Waste Petroleum Oils N.O.S. Combustable liquid NA 1270	009	DM	00495	G	MA01
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)

a. c.

b. d.

K. Handling Codes for Wastes Listed Above

a. c.

b. d.

15. Special Handling Instructions and Additional Information

To Be Recycled #2 Fuel With SI=Sludge

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR — Printed/Typed Name: Mark Boser — Signature: Mark Boser — Date: Month 02 Day 25 Year 92

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials — Printed/Typed Name: Brian Ginivan — Signature: Brian Ginivan — Date: Month 02 Day 25 Year 92

18. Transporter 2 Acknowledgement of Receipt of Materials — Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. — Printed/Typed Name: Jo-Anne Collins — Signature: Jo-Anne Collins — Date: Month 02 Day 25 Year 92

Form Approved OMB No. 2050-0039, Expires 9-30-91

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

COPY>3: FACILITY MAILS TO GENERATOR

MA F291211 COPY>3: FACILITY MAILS TO GENERATOR

PRESS HARD - YOU ARE WRITING THROUGH EIGHT COPIES. SEE REVERSE SIDE FOR DIRECTIONS

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE
One Winter Street
Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator US EPA ID No.: MA 7 2 1 0 0 2 5 1 5 4 — Manifest Document No.: 0 0 0 0 1
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: HQS Fort Devens FD600
AFZD-DEQ Box 10
Fort Devens, MA 01433

4. Generator's Phone: (508) 796-3002 24HR 508-796-2711

5. Transporter 1 Company Name: Beede Waste Oil Corp.
6. US EPA ID Number: N H D 0 1 8 9 5 8 1 4 0

7. Transporter 2 Company Name:
8. US EPA ID Number:

9. Designated Facility Name and Site Address: Beede Waste Oil Corp.
Kelley Road PO Box 127
Plaistow, NH 03865
10. US EPA ID Number: N H D 0 1 8 9 5 8 1 4 0

A. State Manifest Document Number: MA F353630
B. State Gen. ID:
C. State Trans. ID:
D. Transporter's Phone: 603-382-5620
E. State Trans. ID:
F. Transporter's Phone:
G. State Facility: Not Required
H. Facility's Phone: 603-382-5620

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
a. WASTE PETROLEUM OILS, N.O.S. COMBUSTIBLE LIQUID NA1270	1	TT	12290	G	MA01
b.					
c.					
d.					

GENERATOR

J. Additional Descriptions for Materials Listed Above
K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
To be Recycled — Recycle

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
Mark Boser	Mark Boser	01 06 92

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Robert D. Murphy Jr.	Robert D. Murphy Jr.	01 01 4 92

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)

MA F353630 COPY>1: FACILITY MAILS TO DESTINATION STATE

2.11 WEIGHT RECEIPTS AND BILLS OF LADING

The following weight receipts the disposal of contaminated soil associated with UST 0025. Bills of Lading for UST 0025 are not available.

TRIMOUNT BITUMINOUS PRODUCTS CO.

MAIN OFFICE:
DANVERS 750-4200

5 CHERRY [illegible] DRIVE
P.O. BO[illegible]9
DANVERS, MA 01923-5089

SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

TIME
FMN
ARRIVED JOB
LEFT JOB

Cash ☐ C.O.D. ☐ Charge ☐
CHECKED BY
CHECK #
CARRIER

TICKET #R 71824

Customer # ATE001
ATEC ASSOC.
62 ACCORD PARK DRIVE
NORWELL, MA 02061
617-878-6200

Job # BLDG1605
US ARMY
BLDG 1605 TANK 26
FORT DEVENS, MA 01433
PO# 37.04.72003

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
2:13:38	29600	41400	71000	20.70

Cost/Ton	Percent Tax	Load Cost	Amount Tax	Dest Charge	Total Cost

Load#	Job Total	Time & Date	Fob/Del
2	20.70	2:13:38 pm Jul 20, 1992	F

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY TRUCKS DELIVERING MATERIAL BEYOND STREET PAVEMENT.

RECEIVED BY

2.12 PERMITS AND CERTIFICATIONS

The following permit was obtained for the proper closure of an underground storage tank. Following the permit there is a disposal receipt for the steel UST.

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC SAFETY—DIVISION OF FIRE PREVENTION

PERMIT

FOR REMOVAL AND TRANSPORTATION TO APPROVED TANK YARD

C.62 S.46 M.G.L.
DIG SAFE NUMBER
920205 05
Start Date 1/9/92

In accordance with the provisions of Chapter 148, G.L. as provided in Section 38A this permit is granted to

Name: Atec Environmental Associates Inc.
Full name of person, firm or Corporation

To transport underground steel storage tank(s) to Approved tank yard# 14901

State clearly type of inert gas used in steel storage tank — steel tank: Dry ice
method

FDID# 17919 N/A
Fee paid $ _____

Name and address of contractor disposing tank ATEC Associates, 62 Record Park Dr, Norwell
Location to which tank will be transported

14901
Approved tank yard#

This permit will expire 31 Jan 1992

Thomas R Orrell Fire Chief
Signature of official granting permit (TITLE)
(Head of Fire Dept.)

Tank 25
Bldg 1605

RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK

NAME AND ADDRESS OF APPROVED TANK YARD: JOHN C. TOMBARELLO & SONS, 207 MARSTON ST., LAWRENCE, MASS. 01841

APPROVED TANK YARD NO. 1 4 9 0 1

Tank Yard Ledger 502 CMR 3.03(4) Number: 92 00 09 8

I certify under penalty of law I have personally examined the underground steel storage tank delivered to this "approved tank yard" by firm, corporation or partnership ATEC Env. and accepted same in conformance with Massachusetts Fire Prevention Regulation 502 CMR 3.00 Provisions for Approving Underground Steel Storage Tank dismantling yards.
A valid permit was issued by LOCAL Head of Fire Department FDID# L2919 to transport this tank to this yard.
Name and official title of approved tank yard owner or owners authorized representative:

SIGNATURE	TITLE	DATE SIGNED
[signature]	CPW	1-24-92

This signed receipt of disposal must be returned to the local head of the fire department FDID# L2919 pursuant to 502 CMR 3:00. (EACH TANK MUST HAVE A RECEIPT OF DISPOSAL)

FORM F.P. 291 (rev. 9/88) (OVER) MASSACHUSETTS STATE FIRE MARSHAL'S OFFICE

DIMENSIONS

	Width (feet)		Length (feet)
Tank 1	48	X	10
Tank 2	-----	X	-----
Tank 3	-----	X	-----
Tank 4	-----	X	-----
Tank 5	-----	X	-----

Tank Removed From
Building 1605
(no. street)
Fort Devens MA
(city or town)

Fire Department Permit # ----------
(if applicable)

2.13 UST CLOSURE CHECKLIST

The following UST closure checklist was produced by ATEC Associates Inc., to ensure quality control of the proper abandonment of an underground storage tank.

UST-CLOSURE O/C CHECK LIST	Tank 2.5	RA4 1605	Fort Devens	
1000 gal No 2 Fuel				
DEFINABLE FEATURE	**DATE**	**TIME**	**MEASUREMENTS**	**NOTES**
Calibrate PID & LEL/O2 meters	1/10/92	9:00		Site Topography: level
Drain & flush piping & pumps	1/9/92	12:30		
Excavate to top of tank	1/9/92	12:45		Depth to tank: 1.5'
Vent tank note LEL/O2 levels & times	1/10/92		LEL O2	
		T1: 7:1[illegible]	0 [illegible] 20.3	
		T2: 7:30	0-7% 20.0	
		T3: 7:40	0-7% 20.3	
		T4: 7:66	0-9% 20.0	
		T5:		
		T6:		
		T7:		
		T8:		
		T9:		
		T10:		
		T11:		
		T12:		
Pump & clean tank:	1/6/92		___ gal. liquid + 10 gal	Tank Dimensions: 4' x 10.5'
Note quantities liquid (gal) & sludge (lbs)	1/10/92	2:00	___ lbs. sludge	[illegible]
Remove all tank connections, and cap openings	1/10/92	7:25		
Excavate soils to free tank	1/9/92	2:00		
Segregate stained soils: Note PID readings	1/9/92		PID (ppm) NDIR (ppm)	[illegible]
(if >10 ppm NDIR also)			6.8	Stock-1
			4.4	Stock-2

UST-CLOSURE O/C CHECK LIST				
DEFINABLE FEATURE	**DATE**	**TIME**	**MEASUREMENTS**	**NOTES**
Remove tank, piping, pumps, and hardware.	1/10/92	2:55	Photographic Descriptions:	Soil Description:
Photograph excavation; note descriptions.			Photo 1: Tank 4	
Sketch Schematic			Photo 2: tank 5	
			Photo 3: excav 5, face N	
			Photo 4: excav N, face S	
			Photo 5:	Depth to Groundwater/Conditions:
			Photo 6:	
...ce tank at safe distance from excavation	1/10/92	2:30		Depth of Excavation: 5.5'
Secure tanks transport off-site	1/10/92	2:30		
Obtain 10 soil samples from	1/10/92	2:30	PID (ppm) NDIR (ppm)	Sample locations:
excavation walls/bottom: Note PID/NDIR			SS1: 0.7	
readings and sample locations.			SS2: 0.4	
			SS3: 0.7	
			SS4: 1.2	
			SS5: 0.4	
			SS6: 0.7	
			SS7: 3.6	
			SS8: 1.6	
			SS9: 0.2	
			SS10: 3.2	
Obtain 2 soil samples & 1 water samples	1/10/92	2:30		Sample Locations:
for laboratory analysis. Note sample locations.				LSS1: [illegible]
				LSS2: [illegible]
				LWS1:
				LSS1: [illegible]

UST CLOSURE Q/C CHECK LIST				
DEFINABLE FEATURE	**DATE**	**TIME**	**MEASUREMENTS**	**NOTES**
				____ tons of backfill
Backfill excavation (if clean):				Backfill description:
Note amount & type of backfill				
Close open excavation (if applicable)				
ore surface and rope off				
Remove rubbish/debris				
Transport hazardous material off-site:				Amount Classification
Note amount/classification				
Make copies of manifests, permits,				
and disposal receipts.				

2.14 INSTALLATION

The installation of a replacement UST No. 0025 was not performed.

3.0 UST No. 0026

3.1 POST REMOVAL REPORT

3.1.1 Introduction

This Post-Removal Report details the results of the closure of one 1,000-gallon, single wall, steel, underground storage tank (UST) referenced as UST No. 0026, located at property known as Building 1666, Fort Devens, Massachusetts (the site). The purpose of the closure was to excavate the UST and evaluate the potential for the presence of oil and hazardous material at the site. The closure of this UST was conducted on January 9, and 13, 1992.

The basic Project Work Scope included:

- Procurement/administration of all federal, state and local permits, manifests, regulations, etc., associated with UST system closure.
- Excavating, venting, cleaning, transporting, and disposing of one 1,000-gallon UST by appropriately licensed contractors/facilities.
- Disposal of residual UST materials at a licensed facility.
- Field screening and analysis of soil in the excavations by Photoionization Detector (PID) and field analyzed with a portable Non-Dispersive Infrared (NDIR) analyzer, to identify evidence of the release of oil and hazardous materials from the UST, if any.
- Laboratory analysis of soil sampled from the UST excavation by a USEPA certified laboratory for Total Petroleum Hydrocarbons (TPH).
- Preparation of a Technical Report, to include assimilation of information gathered, major findings, and conclusions.

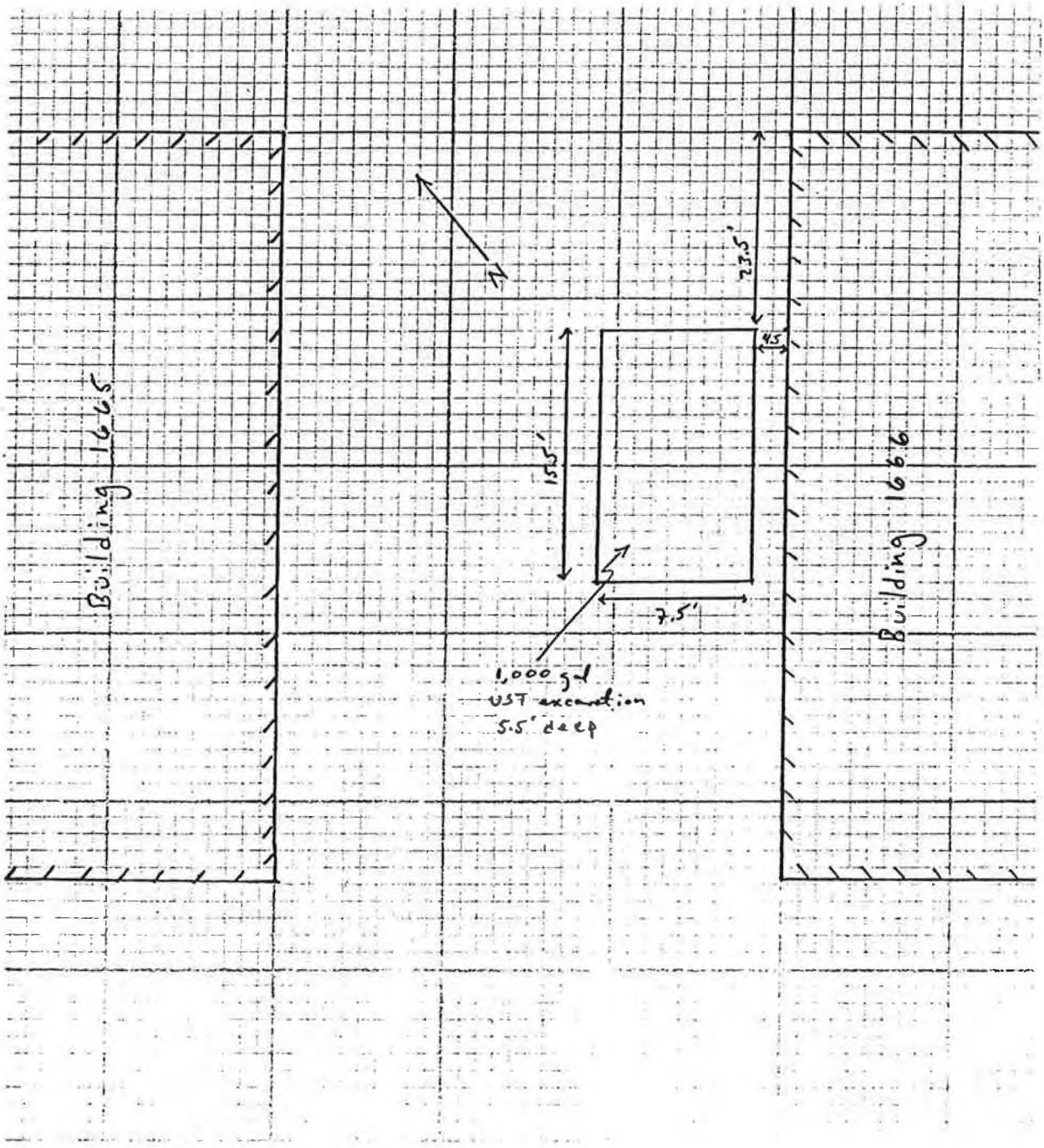
3.1.2 Subsurface Storage Tank Excavation and Removal

On January 9, and 13, 1992, one 1,000-gallon, subsurface, number 2 fuel oil, storage tank was excavated and removed from the site. The UST was located adjacent to the northwest side of the Building 1666 (see Figure 3.1 - UST Location Plan). Site topography is level.

Soils in the excavation consisted primarily of light to medium-brown, fine sand with little fine to coarse gravel. The tank was covered by approximately 1.5 feet of soil. The bottom of the excavation was approximately 5.5 feet below grade. Groundwater was not encountered. Soil within the excavation appeared uncontaminated. However, fragments of the tank's asphalt coating were evident within the soil matrix of the walls and bottom of the excavation.

The associated piping was drained and tank connections were removed. UST No. 0026 was estimated to contain 945 gallons of number 2 fuel oil and residuals. Approximately 935 gallons of fuel oil were removed on January 6, 1992, and transported to a licensed Treatment Storage Disposal Facility (T.S.D.F.) (Beede Waste Oil Corporation, Plaistow, New Hampshire).

Tank openings were then capped, and the tank was removed from the excavation. The tank was observed to be in good condition with no perforations, punctures, or severe corrosion. Following venting of the tank, an access way was cut in the end of the tank to allow entry for cleaning. The tank was then entered and vacuumed/wiped clean of any residual materials. Approximately 10 gallons of residual tank materials were removed and drummed on January 9, 1992 for transportation at a later date. Drummed material was transported to Beede Waste Oil Corporation on February 25, 1992. See Section 3.10 for copies of the appropriate Hazardous Waste Manifests.



UST LOCATION PLAN

1,000 gallon UST relative to:
Building 1666
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

NOT TO SCALE

FIGURE: 3.1

ĀTEC

The scrap tank was removed from the site on January 13, 1992 and transported to the Contractor's yard, located on Lake George Street, Fort Devens for temporary storage. The tank was disposed of at Tombarello & Sons, a licensed Massachusetts tank yard, located in Lawrence, MA, on January 24, 1992. A copy of the disposal receipt is included in Section 3.11, Permits and Certifications.

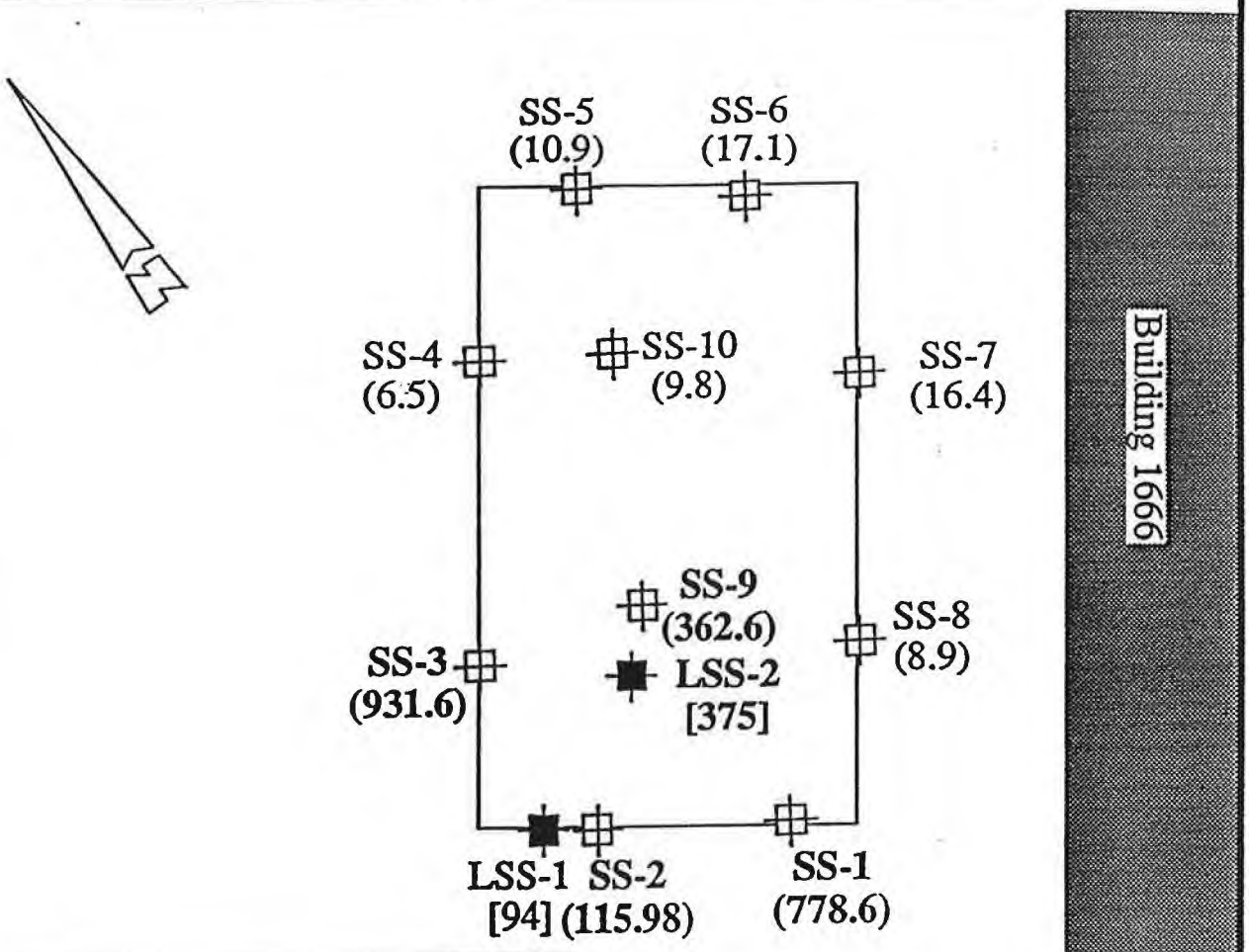
3.1.3 Sampling and Analysis Plan

Ten soil samples were obtained from the excavation for field screening with a Photoionizing Detector (PID) and field analyzed with a Non-Dispersive Infrared (NDIR) Analyzer. The PID field screening for Total Organic Vapors (TOVs) was conducted with an HNu photoionizer utilizing the jar headspace screening protocol outlined in the Hazardous Materials Containment Plan. The NDIR field analysis for Total Petroleum Hydrocarbons (TPH) was conducted with a Horiba OCMA 220, utilizing the procedures outlined in the Hazardous Materials Containment Plan.

Eight of the samples (SS-1 to SS-8) were obtained from the excavation walls at a depth of approximately 2.5 to 3.5 feet below grade. Two of the samples (SS-9 and SS-10) were obtained from the bottom of the excavation at a depth of approximately 5.5 feet below grade. Two composite soil samples (Stock-1 and Stock-2) were obtained from stockpiled soils for PID and NDIR field screening.

Two soil samples (LSS-1 and LSS-2) were obtained from the excavation for laboratory analysis. Soil Sample LSS-1 was obtained from the southwest wall of the excavation. Soil sample LSS-2 was obtained from the bottom of the excavation. One composite, soil sample (LSS-3) was obtained from stockpiled soils required to free the tank. These samples were analyzed for TPH (USEPA Method 418.1).

Sampling locations are depicted on the Sampling Schematic attached as Figure 3.2. The appropriate chain of custody forms are included in Section 2.9, Chain of Custody Forms.



LEGEND:

Field Screened Soil Sample

Lab Analyzed Soil Sample

( ) NDIR Results in ppm

[ ] Lab Analysis Results in ppm

Results in bold denote levels in excess of MA DEP Remedial Goal Level (100 ppm)

SAMPLING SCHEMATIC

1,000 gallon UST excavation at:
Building 1666
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

NOT TO SCALE

FIGURE: 3.2

ATEC

3.1.4 Analytical Results

The results from analysis with the PID and the NDIR analyzer of the ten samples obtained from the excavation are as follows:

TABLE 2.1 - PID AND NDIR RESULTS

SAMPLE NUMBER	PID (ppm TOVs)	NDIR (ppm TPH)
SS-1	1.2	778.62
SS-2	4.5	115.98
SS-3	1.7	931.60
SS-4	0.0	6.50
SS-5	0.1	10.90
SS-6	0.2	17.10
SS-7	0.0	16.40
SS-8	0.1	8.90
SS-9	0.4	362.60
SS-10	5.8	9.80
Stock-1	0.1	25.60
Stock-2	0.2	70.40

Laboratory analytical results of the two soil samples obtained from the excavation revealed a TPH concentration of 94 ppm for LSS-1, and 375 ppm for LSS-2. Laboratory analysis of the one soil sample obtained from the stockpiled soils revealed a TPH concentration of 60 ppm for LSS-3. (See Section 3.8, Laboratory Analytical Results.)

3.1.5 Conclusions and Recommendations

As noted in ATEC's Post Removal Report dated February 14, 1992, ATEC's conclusions are as follows:

Upon excavation and removal, the tank was observed to be in good condition with no signs of perforations, punctures, or severe corrosion.

Groundwater was not encountered within the excavation.

Excavated soils appeared to be uncontaminated. However, fragments of the tank's asphalt coating were evident within the soil matrix of the walls and bottom of the excavation.

Ten soil samples were obtained from the excavation for field screening and field analysis utilizing a PID and NDIR analysis, respectively. PID readings revealed TOV concentrations ranging from 0.0 to 5.8 ppm. NDIR results revealed TPH concentrations ranging from 6.5 to 931.6 ppm.

Two soil samples were obtained from the excavation for laboratory analysis for TPH. Analytical results for LSS-1 obtained from the southwest wall of the excavation revealed a TPH concentration of 94 ppm. Analytical results for LSS-2 obtained from the bottom of the excavation revealed a TPH concentration of 375 ppm.

One composite, soil sample (LSS-3) was obtained from stockpiled soils for laboratory analysis. Analytical results for LSS-3 revealed a TPH concentration of 60 ppm.

The following were recommended and implemented by ATEC subsequent to the submittal of the Post Removal Report.

Remedial excavation of the south end and the bottom of the excavation was conducted until laboratory analysis of soil samples showed a TPH concentration of <100 ppm. Field screening of soil was conducted during excavation utilizing a Photoionization Detector until background levels of <1 ppm were attained prior to obtaining samples for laboratory analysis.

Soils excavated during the tank removal and remediation were disposed at a licensed T.S.D.F.

3.2 SITE REMEDIATION AND CONTAMINATED SOIL DISPOSAL

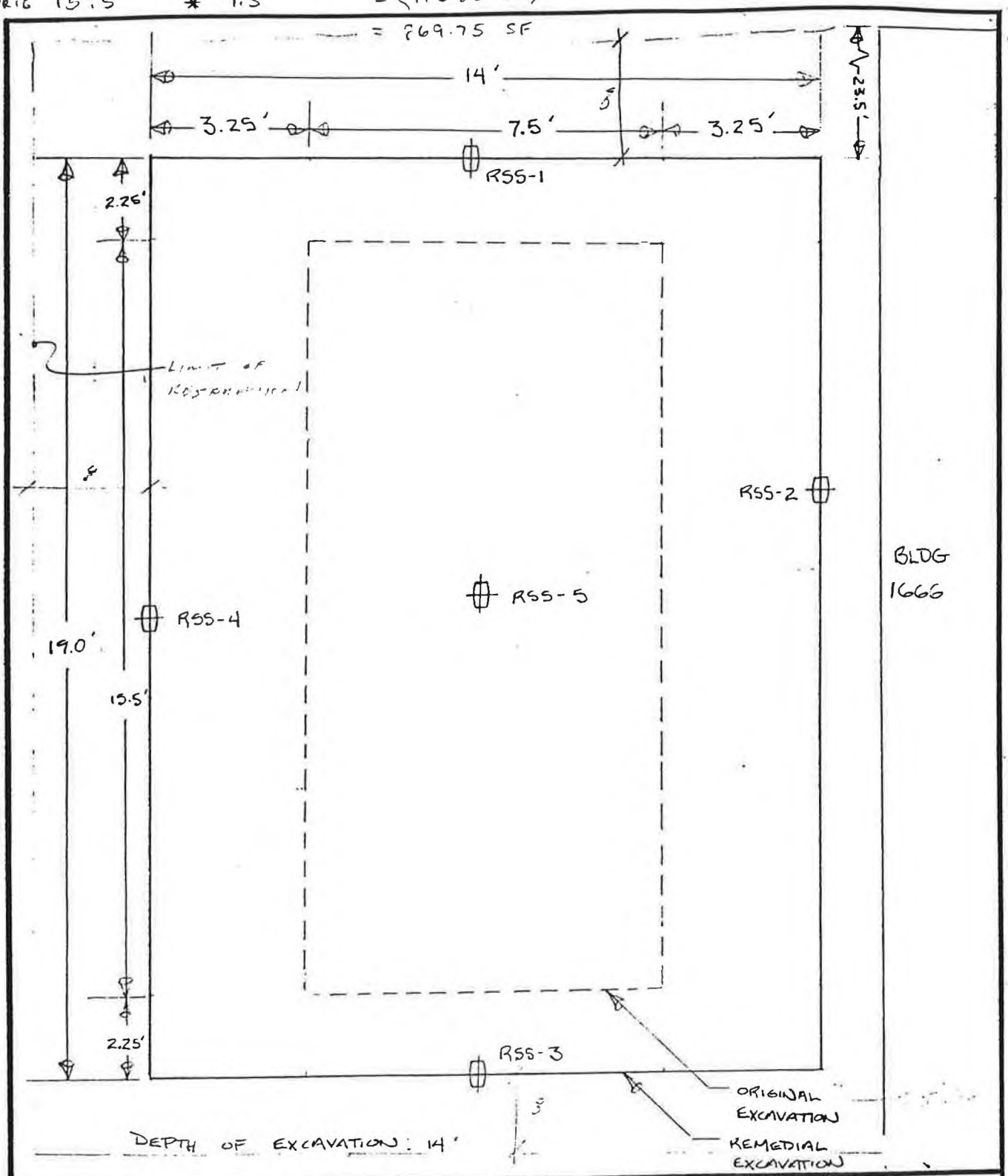
3.2.1 Site Remediation

Following initial PID screening, additional excavation to remove contaminated soil and reach background levels (<1 ppm TOVs by PID) was conducted per order of the Contracting Officer's Representative and David Salvadore of the Massachusetts Department of Environmental Protection (DEP). Approximately 189 tons of contaminated soil were removed from excavation floor and all side walls during remedial excavation on July 21, 1992. The estimated volume of removed soil was calculated from field drawings produced during the removal and remediation of UST No. 0026 (See Figure 3.3, Remedial Excavation Plan).

Eight soil samples (RSS-1 through RSS-5A, 5B, 5C, 5D) were obtained during remedial excavation for PID field screening. RSS-1 through RSS-4 were obtained from the sidewalls at a depth of approximately 7 feet below grade. RSS-5A was obtained from the bottom of the excavation at a depth of approximately 8 feet below grade. All PID readings for TOVs of the soil samples were below 1.0 ppm with the exception of RSS-5A (60 ppm). Therefore, an additional 2 feet of soil was excavated from the bottom of the excavation per direction of the Contracting Officer's Representative (COR).

Soil 19 * 14 * 1 = 3724 / 27 140 * 1.625 = 227.5
13.5 * 7.5 * 5.5 = 6 / 27 = 33.7 * 1.625 35.5
189 (Rem)

7 UKF
Rem 34 (19'+15) * 29 (14'+15) = 986 SF
Orig 15.5 * 7.5 = <116.25 SF>



REMEDIAL EXCAVATION PLAN

1,000 gallon UST
Building
Ft. Devens

PROJECT: 37.07.91.07451

NOT TO SCALE

FIGURE: 3.3

ATEC

A second sample (RSS-5B) was then obtained from the bottom of the excavation at a depth of 10 feet for PID screening. PID screening for TOVs revealed 70 ppm.

A third sample (RSS-5C) was obtained from the bottom of the excavation at a depth of 12 feet. PID screening for TOVs revealed 80 ppm.

Further excavation from the bottom of the pit was conducted to a depth of approximately 14 feet below grade (RSS-5D). The final PID screening revealed 95 ppm for RSS-5D (See Table 3.2). Further excavation from the bottom of the excavation was not conducted per order of the Contracting Officer's Representative.

TABLE 3.2 - PID SCREENING RESULTS

SAMPLE NUMBER	PID (ppm TOVs)	LOCATION
RSS-1	0.2	north sidewall (7' depth)
RSS-2	0.0	east sidewall (7' depth)
RSS-3	0.2	south sidewall (7' depth)
RSS-4	5.0	west sidewall (7' depth)
RSS-5A	60.0	bottom (8' depth)
RSS-5B	70.0	bottom (10 ' depth)
RSS-5C	80.0	bottom (12' depth)
RSS-5D	95.0	bottom (14' depth)

RSS = Remediation Soil Sample

Two soil samples (RSS-1 to RSS-2) were obtained for laboratory analysis for TPH (USEPA Method 418.1). RSS-1 was obtained from the north sidewall at a depth of approximately 12 feet below grade. RSS-2 was obtained from the east sidewall at a depth of approximately 12 feet below grade. The following table presents levels revealed by laboratory analysis:

TABLE 3.3 - LABORATORY ANALYSIS

SAMPLE NUMBER	TPH (ppm)	LOCATION
RSS-1	514.0	north sidewall (12' depth)
RSS-2	3,630.0	east sidewall (12' depth)

See Section 3.8 - Laboratory Analytical Results.

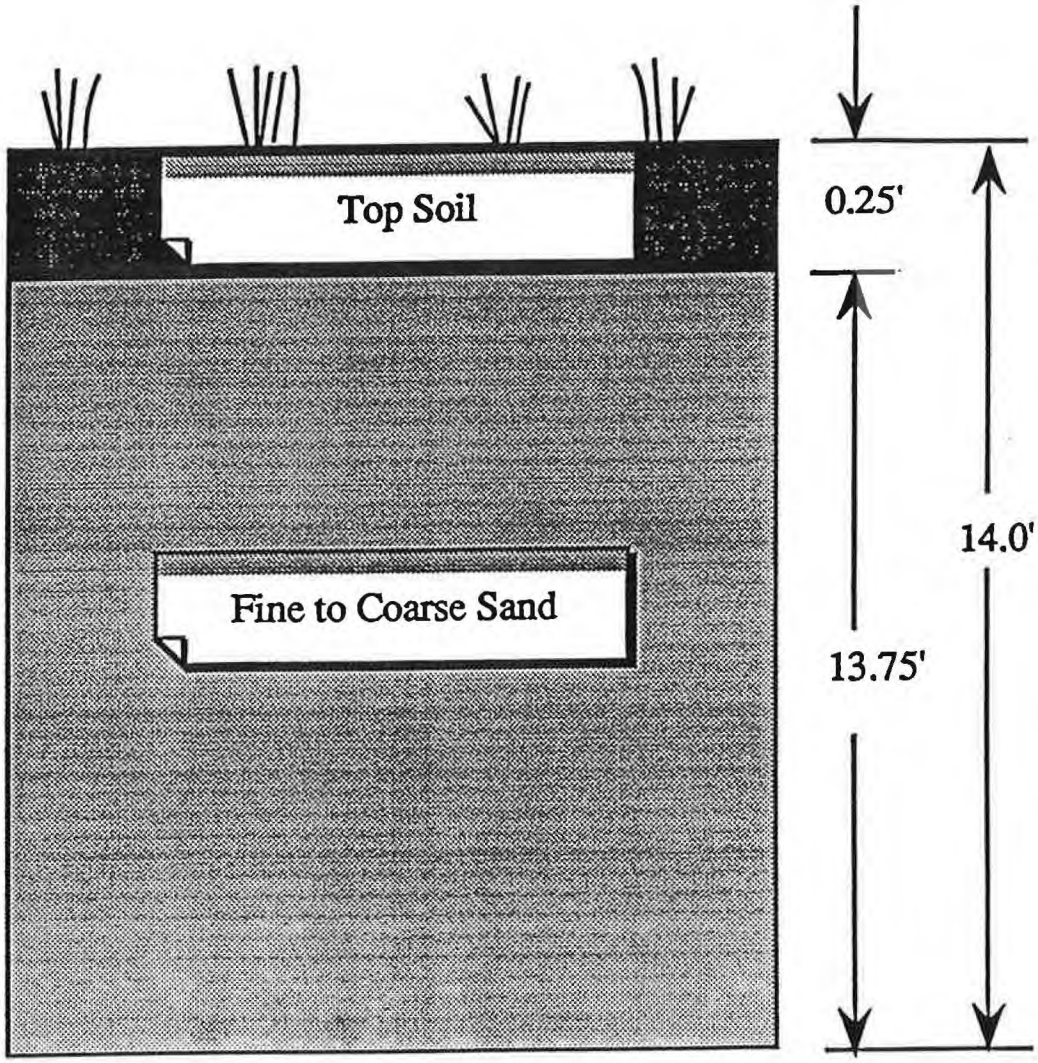
3.2.2 Soil Stratigraphy

Soil stratigraphy for the excavation consisted of unstratified light to medium brown, fine to coarse sand (see Soil Stratigraphy - Figure 3.4).

3.2.3 Contaminated Soil Disposal

Prior to disposal, contaminated soil was laboratory analyzed for disposal classification purposes. One soil sample (Stock-26) was obtained from stockpiled soil. Laboratory analyses were performed for Volatile Organic Compounds (VOCs) (USEPA Method 8240), Semi-volatile Organic Compounds (USEPA Method 8270), Flashpoint (USEPA Method 1010), Polychlorinated Biphenyls (PCBs) (USEPA Method 8080), Reactive Sulfide and Reactive Cyanide (USEPA Method 7.3.4.1 and 7.3.3.2), 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP) (USEPA Method 1311), and Corrosivity (pH) (USEPA Method 9045). Laboratory analytical results revealed 5.5 standard units (S.U.) Corrosivity, 0.05 ppm Copper, 0.40 ppm Zinc, 0.3 ppm Lead. All other analytical results were below the Method Reporting Limits (MRL). (see Section 3.8 Laboratory Analytical Results).

Approximately 116.30 cubic yards (189 tons) of number 2 fuel oil contaminated soil was removed and stockpiled during the remediation of the excavation, as estimated through field drawings (See Figure 3.3 - Remedial Excavation Plan). Contaminated soil was



SOIL STRATIGRAPHY

1,000 gallon UST excavation at:
Building 1666
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

UST-26

FIGURE: 3.4

ĀTEC

disposed for recycling at Trimount Bituminous Products Company, Shrewsbury, Massachusetts.

3.3 HYDROGEOLOGICAL SERVICES

Hydrogeological services were not performed relative to UST 0026. However, based upon PID field screening and laboratory analytical results, subsurface concentrations of TOVs and TPH were observed to increase. ATEC recommends the installation of monitoring wells to evaluate groundwater in the vicinity of the former UST No. 0026 for the presence of petroleum hydrocarbons.

3.4 BACKFILL

The excavation was lined with polyethylene plastic sheeting and backfilled with 137.9 cubic yards of uncontaminated fill material on July 29, 1992, as estimated through field drawings. Backfilling was conducted with the approval of the Contracting Officer's Representative.

3.5 SITE RESTORATION

Following backfill of the excavation, approximately 149.8 square feet of loam was distributed over the excavated area.

3.6 PHOTOGRAPHIC DOCUMENTATION

The following photographs are of the removed UST, the excavation and a post remedial view of the excavation.

A-1: One side of removed tank

A-2: Opposite side of removed tank.

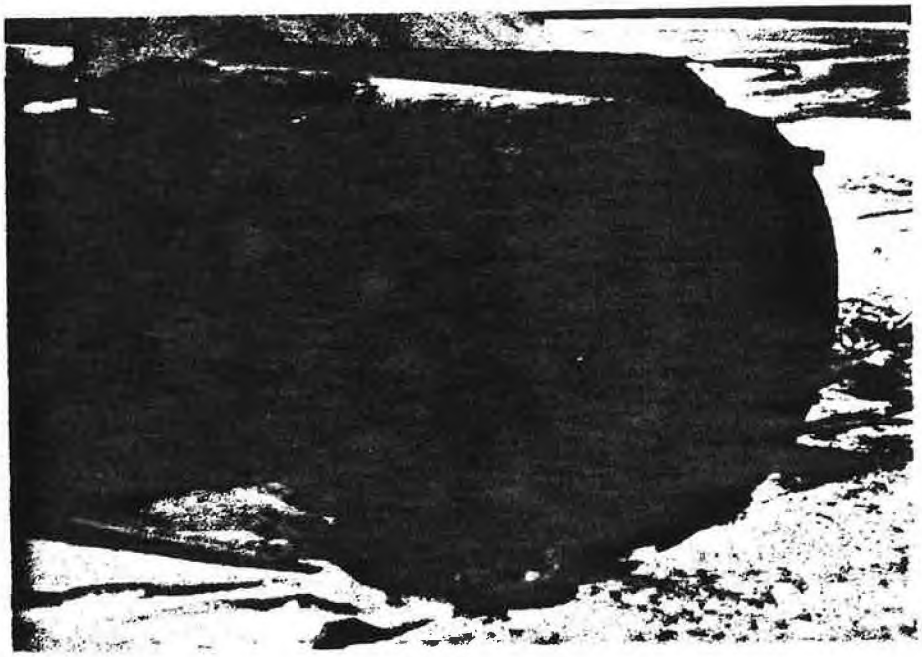
A-3: Excavation as viewed from north, facing south.

A-4: Excavation as viewed from south, facing north.

A-5: Post-remedial excavation as viewed from the north, facing south.

A-6: Post-remedial excavation as viewed from the west, facing east.

A-1



A-2

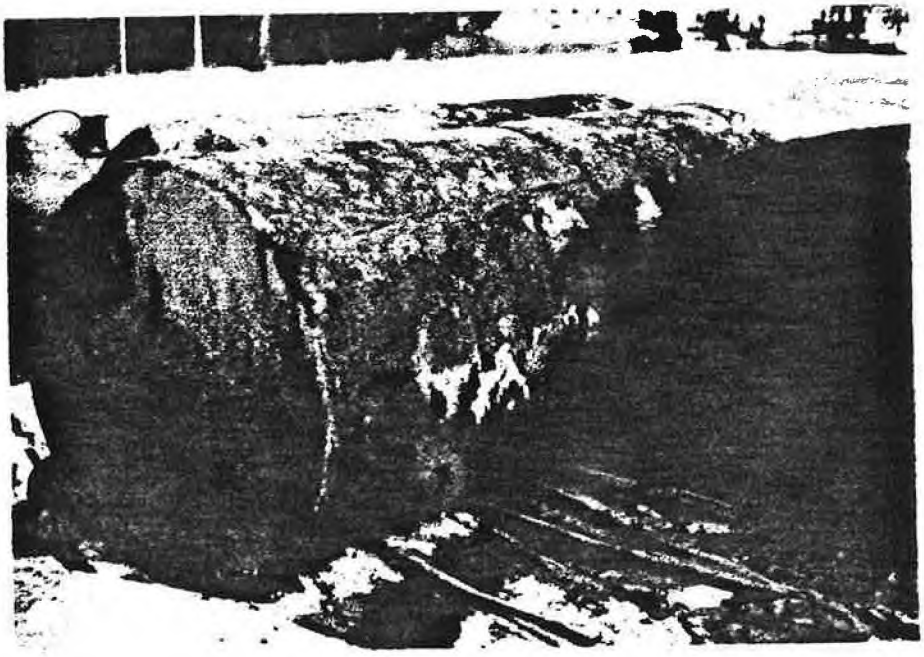
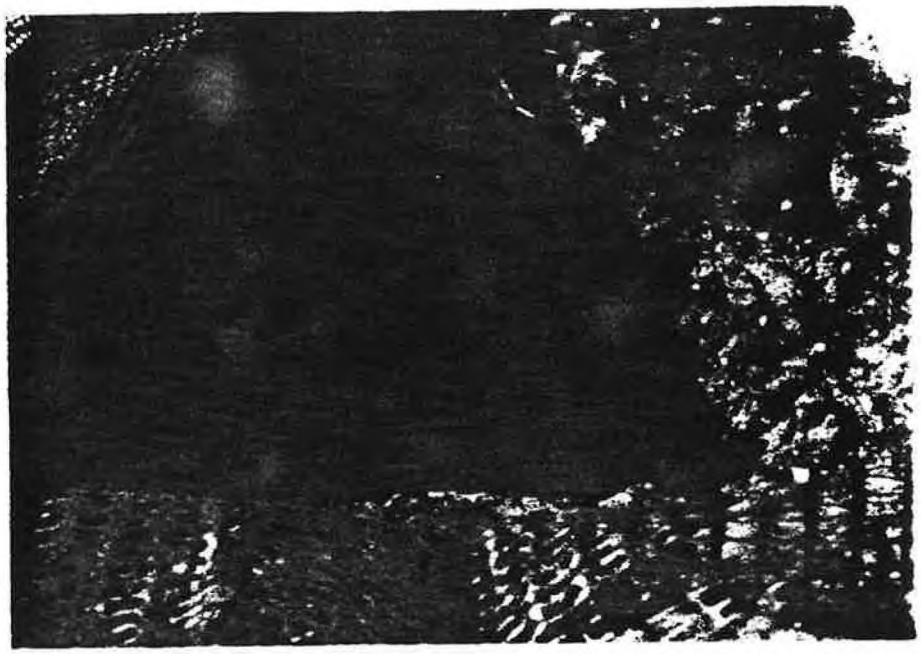


PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 2290 Fort Devens, Massachusetts	PROJECT: 37.07.91.07451	ATEC

A-3



A-4

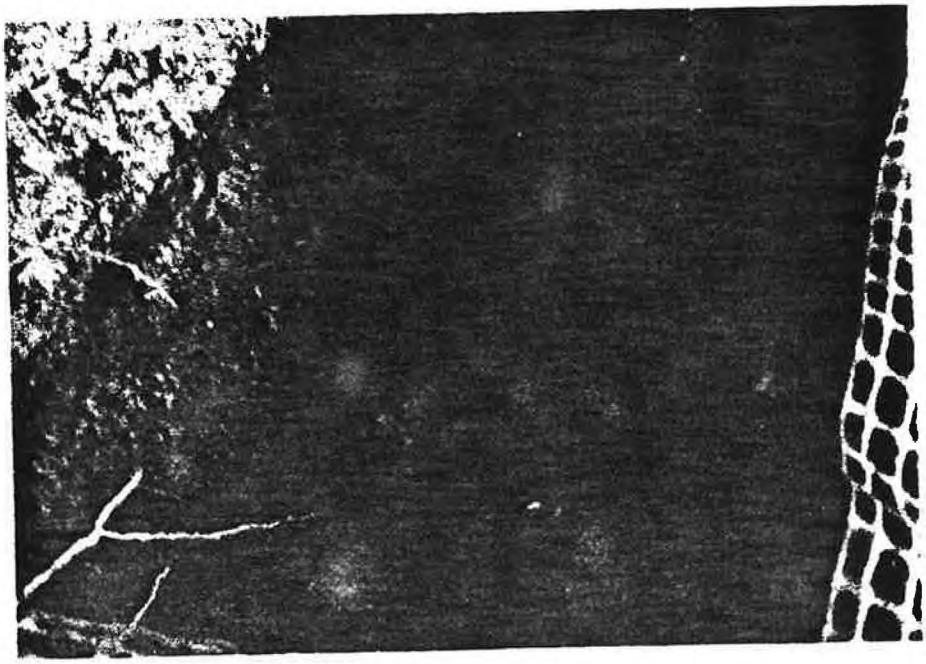
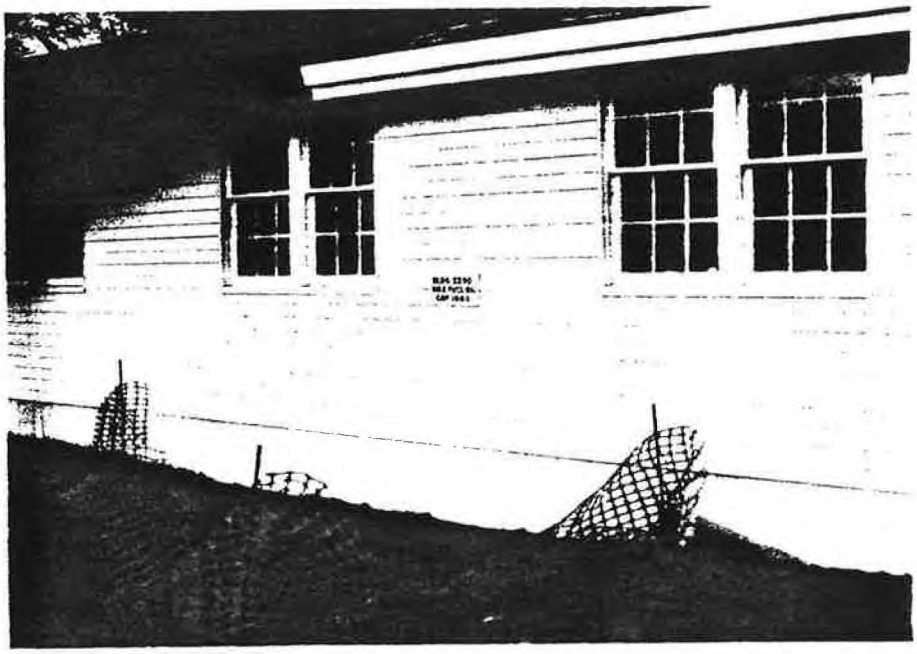


PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 2290 Fort Devens, Massachusetts	PROJECT: 37.07.91.07451	ĀTEC

A-5



A-6

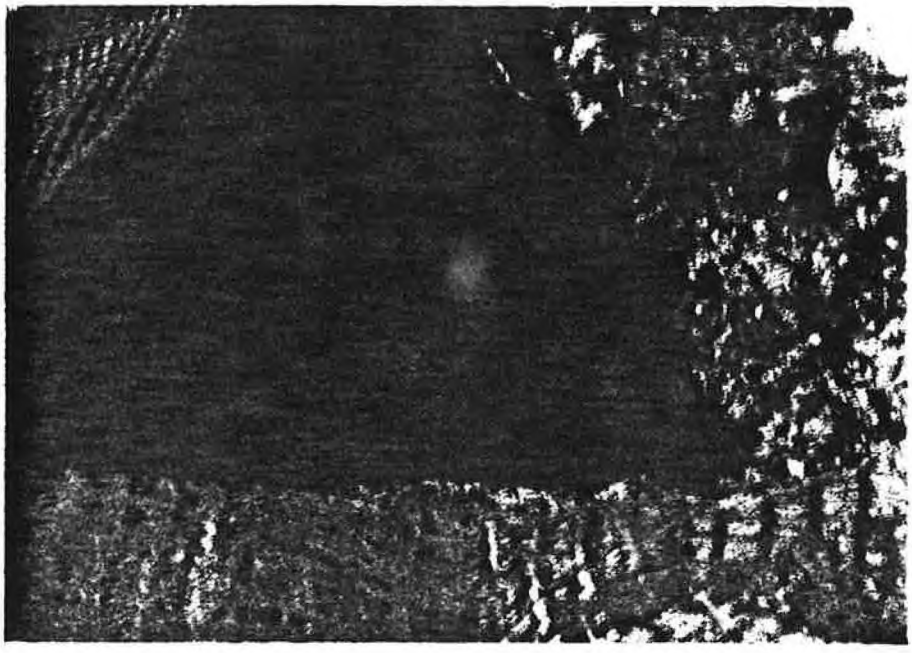


PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 2290 Fort Devens, Massachusetts	PROJECT: 37.07.91.07451	ĀTEC

3.7 OCMA 220 DATA SHEETS

The following information was organized from the data collected from the NDIR analyzer.

- SS-1 to SS-10, Stock-1 and Stock-2: Soil samples obtained from the original excavation.

- RSS-1 to RSS-3: Soil samples obtained from remedial excavation.

OCMA Data Sheet

Operator Name: Rick Green Date: 13 Jan 92 EBI Project Number: 37.07.451 TK426

Calibration

	First Reading Initial	First Reading Final	Second Reading Initial	Second Reading Final	Third Reading Initial	Third Reading Final
Zero Calibration	-0.3	0.0	0.0	0.0	—	—
Span Calibration						
Zero Calibration						

Span Check: 31.0

Testing

Sample ID#	Weight Gross	Weight Tare	First Approach F-113	First Approach Sample	Second Approach F-113	Second Approach Sample	Readings First	Readings Second	Readings Third
STICK 1	82.1	75.8					0.5	0.8	0.8
STICK 2	81.0	74.6					2.1	2.2	—
1	79.2	79.3					19.4	19.0	19.0
2	80.1	74.8					2.5	3.0	3.0
3	82.7	75.2					28.9	34.0	34.1
4	80.8	74.5					.2	.2	
5	81.3	75.0					.3	.4	.4
6	82.2	75.0					.6	.6	—
7	81.5	74.0					.6	.6	—
8	81.3	74.2					.2	.3	.3
9	81.8	75.3					11.5	11.5	—
10	82.3	76.0					.2	.3	.3

TPH SOIL ANALYSES BY NON-DISPERSIVE INFRARED ANALYZER - MODIFIED EPA STANDARD TEST METHOD 418.1

PROJECT NAME, NUMBER, TANK: U.S. ARMY - FORT DEVENS 37.07.91.451 UST 0026

DATE: Jul 24, 1992

OPERATOR: Charles Langenhagen

CALIBRATION DATA

TYPE CALIBRATION	FIRST READING INITIAL	FIRST READING FINAL	SECOND READING INITIAL	SECOND READING FINAL	THIRD READING INITIAL	THIRD READING FINAL	SPAN CHECK
ZERO:	-5.7	0.0	-1.1	0.0	-0.4	0.0	27.6
SPAN:	34.2	40.0	45.8	40.0	40.9	40.0	
ZERO:	6.1	0.0	-7.0	0.0	-0.2	0.0	

ANALYTICAL DATA

SAMPLE NUMBER	WEIGHT (g) GROSS	WEIGHT (g) TARE	1st DILUTION RATIO (ml) F-113	1st DILUTION RATIO (ml) SAMPLE	2nd DILUTION RATIO (ml) F-113	2nd DILUTION RATIO (ml) SAMPLE	INSTRUMENT RESULTS (ppm) 1st	2nd	3rd	CONCENTRATION mg/l
RSS-1	80.5	75.0	17.5	3.0	----	----	0.2	0.2	--	7.5
RSS-2	79.9	74.7	17.5	3.0	--	--	0.2	0.3	--	11.8
RSS-3	80.5	74.9	17.5	3.0	--	--	0.0	0.0	--	0.0

3.8 LABORATORY ANALYTICAL REPORTS

The following laboratory analytical reports are associated with the removal, remedial excavation, and stockpiled soil. These reports were organized and provided by Environmental Science Services Inc.

- LSS-1, LSS-2, and LSS-3: Soil samples obtained from original excavation. Laboratory analyzed for TPH.

- RSS-1 and RSS-2: Soil samples obtained from post-remedial excavation. Laboratory analyzed for TPH.

- Stock-26: Soil sample obtained from stockpiled soil for disposal classification. Laboratory analyzed for VOCs, Semi-volatiles, Flashpoint, Reactive Cyanide, Reactive Sulfide, PCBs, Corrosivity (pH), and 13 TCLP Metals.

RECEIVED JAN 21 1992

In Response To The Future

CERTIFICATE OF ANALYSIS

Date: 1/17/92 Job: 112
Account: 95659
Received: 1/14/92

O: ATEC ENVIRONMENTAL CO.
62 Accord Park Drive
Norwell, MA 02061

Project: TANK 26

ttn: Mr. Mark Baldi

Sample Number	Method Number	Parameter	Result	Unit	Sample Description
2011201	EPA-160.3	Total Solids	90	%	LSS-1
	EPA-418.1	TPH/IR (Dry Wt.)	94	mg/kg	
92011202	EPA-160.3	Total Solids	93	%	LSS-2
	EPA-418.1	TPH/IR (Dry Wt.)	375	mg/kg	
92011203	EPA-160.3	Total Solids	86	%	LSS-3
	EPA-418.1	TPH/IR (Dry Wt.)	60	mg/kg	

David Dickinson
Laboratory Manager

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax. (401) 421-5731

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens Remediation | ESS Project ID: 921907

Client Sample ID: RSS-1 (26) | ESS Sample ID: 921907-07

Date Sample Received: 7/24/92 | Date Reported: 8/6/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	514	mg/Kg	11	418.1

MRL = Method Reporting Limit

Approved by: _____ Date: 6 Aug 92

David Dickinson
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens Remediation ESS Project ID: 921907

Client Sample ID: RSS-2 (26) ESS Sample ID: 921907-08

Date Sample Received: 7/24/92 Date Reported: 8/6/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	3,630	mg/Kg	105	418.1

MRL = Method Reporting Limit

Approved by: _____ Date: 6 Aug 92

David Dickinson
Laboratory Director

022

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens
ESS Project ID: 921516

Client Sample ID: Stock-26
ESS Sample ID: 921516-06

Date Sample Received: 6/10/92
Date Reported: 6/26/92

Parameter	Results	Units	MRL	Method
pH (Corrosivity)	5.5	S.U.	N/A	9045
Flashpoint	No Flash	°F	200	1010
Polychlorinated Biphenyls	ND	mg/Kg	Attached	8080
Reactive Cyanide	ND	mg/Kg	2	7.3.3.2
Reactive Sulfide	ND	mg/Kg	2	7.3.4.1
Semivolatile Organics	ND	ug/Kg	Attached	8270
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Lead	0.3	mg/L	Attached	6010
Copper	0.05	mg/L	Attached	6010
Zinc	0.40	mg/L	Attached	6010

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____
David Dickinson
Laboratory Director

Date: 26 June 92

036

Environmental Science Services
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101 Post Road West, Westport, Connecticut 06880 (203) 221-7253 Fax (203) 454-4970

In Response To The Future

CERTIFICATE OF ANALYSIS

POLYCHLORINATED BIPHENYLS
Method 8080

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens — ESS Project ID: 921516

Client Sample ID: Stock-26 — ESS Sample ID: 921516-06

Date Sample Received: 6/10/92 — Date Reported: 6/26/92

Parameter	Result (mg/Kg)	MRL
Arochlor 1016	ND	1
Arochlor 1221	ND	1
Arochlor 1232	ND	1
Arochlor 1242	ND	1
Arochlor 1248	ND	1
Arochlor 1254	ND	1
Arochlor 1260	ND	1

ND = Not Detected above Method Reporting Limit (MRL)

Surrogate Recovery Data	% Recovery	QC Limit
Dibutylchlorendate	78%	50 - 150%

Approved by: _____ Date: 26 June 92
David Dickinson
Laboratory Director

037

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In Response To The Future

CERTIFICATE OF ANALYSIS

ACID EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens
ESS Project ID: 921516

Client Sample ID: Stock-26
ESS Sample ID: 921516-06

Date Sample Received: 6/10/92
Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL
2-Chlorophenol	ND	330
2-Nitrophenol	ND	330
Phenol	ND	330
2,4-Dimethylphenol	ND	330
2,4-Dichlorophenol	ND	330
2,4-Dinitrophenol	ND	1,650
Pentachlorophenol	ND	1,650
4-Nitrophenol	ND	1,650
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	1,650
2-Methylphenol	ND	330
4-Methylphenol	ND	330
4-Chloro-3-Methylphenol	ND	330
4,6-Dinitro-2-Methylphenol	ND	1,650

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____
David Dickinson
Laboratory Director

Date: 26 June 92

033

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532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax (401) 421-5731

In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens — ESS Project ID: 921516

Client Sample ID: Stock-26 — ESS Sample ID: 921516-06

Date Sample Received: 6/10/92 — Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL
Acenaphthylene	ND	330
1,2,4-Trichlorobenzene	ND	330
Hexachlorobenzene	ND	330
Bis(2-chloroethyl)ether	ND	330
2-Chloronaphthalene	ND	330
1,2-Dichlorobenzene	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
3,3-Dichlorobenzidine	ND	660
2,4-Dinitrotoluene	ND	330
2,6-Dinitrotoluene	ND	330
Fluoranthene	ND	330
4-Chlorophenyl phenyl ether	ND	330
Bis(2-chloroisopropyl) ether	ND	330
Bis(2-chloroethoxy) methane	ND	330
Hexachlorobutadiene	ND	330
Hexachlorocyclopentadiene	ND	330
Isophorone	ND	330
Naphthalene	ND	330
Nitrobenzene	ND	330
N-nitrosodiphenylamine	ND	330
N-nitrosodi-n-propylamine	ND	330
Bis(2-ethylhexyl)phthalate	ND	330
Di-n-butylphthalate	ND	330
Di-n-octylphthalate	ND	330
Diethyl phthalate	ND	330
Dimethyl phthalate	ND	330
Benzo(a)anthracene	ND	330

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 26 June 92

David Dickinson
Laboratory Director

039

Environmental Science Services

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In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES cont.
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens ESS Project ID: 921516

Client Sample ID: Stock-26 ESS Sample ID: 921516-06

Date Sample Received: 6/10/92 Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL
Benzo(a)pyrene	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(k)fluoranthene	ND	330
Chrysene	ND	330
Acenaphthene	ND	330
Anthracene	ND	330
Benzo(ghi)perylene	ND	330
Fluorene	ND	330
Phenanthrene	ND	330
Dibenzo(a,h)anthracene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Pyrene	ND	330
Hexachloroethane	ND	330
4-Bromophenyl-phenylether	ND	330
Benzyl Alcohol	ND	330
Benzoic Acid	ND	1,650
Bis(2-Chloroethoxy)methane	ND	330
4-Chloroaniline	ND	330
2-Methylnaphthalene	ND	330
2-Nitroaniline	ND	1,650
3-Nitroaniline	ND	330
Dibenzofuran	ND	330
4-Nitroaniline	ND	1,650
Butylbenzylphthalate	ND	330

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
Laboratory Director

Date: 26 June 92

Environmental Science Services

532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax (401) 421-5731

In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens — ESS Project ID: 921516

Client Sample ID: Stock-26 — ESS Sample ID: 921516-06

Date Sample Received: 6/10/92 — Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL
Methylene Chloride	ND	1,000
1,1-Dichloroethane	ND	1,000
Chloroform	ND	1,000
Carbon Tetrachloride	ND	1,000
1,2-Dichloropropane	ND	1,000
Dibromochloromethane	ND	1,000
1,1,2-Trichloroethane	ND	1,000
Tetrachloroethene	ND	1,000
Chlorobenzene	ND	1,000
1,2-Dichloroethane	ND	1,000
1,1,1-Trichloroethane	ND	1,000
Bromodichloromethane	ND	1,000
Trans-1,3-Dichloropropene	ND	1,000
Bromoform	ND	1,000
1,1,2,2-Tetrachloroethane	ND	1,000
Benzene	ND	1,000
Toluene	ND	1,000
Ethyl Benzene	ND	1,000
Chloromethane	ND	1,000
Bromomethane	ND	1,000
Vinyl Chloride	ND	1,000
Chloroethane	ND	1,000
1,1-Dichloroethene	ND	1,000
1,2-Dichloroethene (Total)	ND	1,000
Trichloroethene	ND	1,000
Acetone	ND	1,000
Carbon Disulfide	ND	1,000
2-Butanone	ND	1,000
Cis-1,3-Dichloropropene	ND	1,000
4-Methyl-2-Pentanone	ND	1,000
2-Hexanone	ND	1,000
Styrene	ND	1,000
Xylenes (Total)	ND	1,000

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 26 June 92

David Dickinson
Laboratory Director

Environmental Science Services
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In Response To The Future

CERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants
Client Project ID: U.S. Army-Ft. Devens
Client Sample ID: Stock-26
ESS Sample ID: 921516-06

Date Sampled: 6/8/92
Date TCLP Performed: 6/18/92
Date Leachate Extracted: 6/19/92
Date Extract Analyzed: 6/22/92

	Actual		Adjusted*	
Target Analyte	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.2	ND	0.3
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.02
Chromium	ND	0.05	ND	0.05
Lead	0.2	0.1	0.3	0.2
Mercury	ND	0.002	ND	0.003
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.05
Copper	0.05	0.02	0.05	0.02
Nickel	ND	0.04	ND	0.05
Zinc	0.37	0.02	0.40	0.03
Beryllium	ND	0.01	ND	0.02
Thallium	ND	0.05	ND	0.06

* Actual sample result adjusted for matrix bias. Refer to matrix spike analysis summary form.

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 26 June 92
David Dickinson
Laboratory Director

042

Environmental Science Services
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101 Post Road West, Westport, Connecticut 06880 (203) 221-2753 Fax (203) 454-3970

QUALITY CONTROL SECTION

In Response To The Future

CERTIFICATE OF ANALYSIS

ACID SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens

Date Sample Analyzed: 6/18/92

ESS Project ID: 921516

SAMPLE ID	PHENOL-D5 (10-94%)*	2-FLUOROPHENOL (21-100%)*	2,4,6 TRIBROMOPHENOL (10-123%)*
921516-01	69%	69%	25%
921516-02	40	40	25
921516-03	55	54	10
921516-04	74	57	25
921516-05	50	73	1**
921516-06	37	74	15

* Acceptance criteria.

** Recovery is outside of QC Limits

Approved by: _____ Date: 26 June 92

David Dickinson
Laboratory Director

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax. (401) 421-5731
101 Post Road West, Westport, Connecticut 06880 (203) 226-3753 Fax. (203) 454-3970

In Response To The Future

CERTIFICATE OF ANALYSIS

BASE-NEUTRAL SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens

Date Sample Analyzed: 6/18/92

ESS Project ID: 921516

SAMPLE ID	NITROBENZENE-D5 (35-115%)*	2-FLUOROBIPHENYL (43-115%)*	P-TERPHENYL-D14 (33-141%)*
921516-01	97%	97%	79%
921516-02	88	94	69
921516-03	81	90	65
921516-04	81	70	77
921516-05	70	63	48
921516-06	69	81	58

* Acceptance criteria.

Approved by: _____ Date: 16 June 92

David Dickinson
Laboratory Director

045

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax (401) 421-5731
101 Rye Road West, Waterford, Connecticut 06385 (203) 444-2553 Fax (203) 444-2570

In Response To The Future

CERTIFICATE OF ANALYSIS

VOA SOIL SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army -Ft. Devens

Date Sample Analyzed: 6/19/92

ESS Project ID: 921516

SAMPLE ID	1,2 DICHLOROETHANE-D4 (70-121%)*	TOLUENE-D8 (81-117%)*	BFB (74-121%)*
VS0619B1	107%	102%	106%
921516-01	93	108	112
921516-02	108	110	128
921516-03	110	104	100
921516-04	96	101	106
921516-05	111	102	100
921516-06	106	115	86

* Acceptance criteria

Approved by: _____ Date: 21 June 92

David Dickinson
Laboratory Director

046

Environmental Science Services

532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-8698 Fax: (401) 421-5731

191 Post Road West, Westport, Connecticut 06880 (203) 221-7553 Fax: (203) 454-9970

In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: U.S. Army-Ft. Devens — ESS Project ID: 921516

Client Sample ID: Method Blank — ESS Sample ID: VS0619B1

Date Sample Received: 6/10/92 — Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL
Methylene Chloride	ND	1,000
1,1-Dichloroethane	ND	1,000
Chloroform	ND	1,000
Carbon Tetrachloride	ND	1,000
1,2-Dichloropropane	ND	1,000
Dibromochloromethane	ND	1,000
1,1,2-Trichloroethane	ND	1,000
Tetrachloroethene	ND	1,000
Chlorobenzene	ND	1,000
1,2-Dichloroethane	ND	1,000
1,1,1-Trichloroethane	ND	1,000
Bromodichloromethane	ND	1,000
Trans-1,3-Dichloropropene	ND	1,000
Bromoform	ND	1,000
1,1,2,2-Tetrachloroethane	ND	1,000
Benzene	ND	1,000
Toluene	ND	1,000
Ethyl Benzene	ND	1,000
Chloromethane	ND	1,000
Bromomethane	ND	1,000
Vinyl Chloride	ND	1,000
Chloroethane	ND	1,000
1,1-Dichloroethene	ND	1,000
1,2-Dichloroethene (Total)	ND	1,000
Trichloroethene	ND	1,000
Acetone	ND	1,000
Carbon Disulfide	ND	1,000
2-Butanone	ND	1,000
Cis-1,3-Dichloropropene	ND	1,000
4-Methyl-2-Pentanone	ND	1,000
2-Hexanone	ND	1,000
Styrene	ND	1,000
Xylenes (Total)	ND	1,000

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 26 June 92

David Dickinson
Laboratory Director

047

Environmental Science Services
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In Response To The Future

CERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

MATRIX SPIKE ANALYSIS SUMMARY

EPA METHOD 1311

Client: ATEC Environmental Consultants Matrix: Solid

TCLP Batch ID: 151606 Concentration in: mg/L

Target Analyte	Sample Result	Spike Added	Spiked Sample Result	Percent Recovery
Antimony	ND	*	ND	83%
Arsenic	ND	2.00	2.13	107
Cadmium	ND	0.5	0.535	107
Chromium	ND	1.0	1.12	112
Lead	0.24	1.0	1.132	89
Mercury	ND	0.002	0.00165	83
Selenium	ND	2.00	2.57	126
Silver	ND	1.0	1.03	103
Copper	0.05	1.0	1.05	100
Nickel	ND	1.0	1.03	103
Zinc	0.37	1.0	1.199	83
Beryllium	ND	*	ND	83
Thallium	ND	*	ND	83

This matrix spike analysis summary applies to the following samples:
921516-01, -02, -03, -04, -05, -06

ND = Not Detected above Method Reporting Limit (MRL)

* Matrix Spike Recovery based on the lowest spike recovery of the spiked compounds.

Approved by: _____ Date: 2 June 92
David Dickinson
Laboratory Director

048

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax (401) 421-5731
191 Post Road West, Westport, Connecticut 06880 (203) 221-3534 Fax (203) 226-3074

3.9 CHAIN OF CUSTODY FORMS

The following chain of custody forms were produced for the soil samples which were laboratory analyzed. Please refer to analytical report for dates and times of analysis.

,12

CHAIN OF CUSTODY RECORD

PROJ. NO. 07451 | PROJECT NAME Tank 26 | CLIENT P.O. 19411 | LAB PROJ. NO.

SAMPLERS: (Signature) Mark E Zaldi

SAMPLING METHOD grab

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
LS51	1/13/92			X		X						1				X						
LS52	1/13/91			X		X						1				X						
LS53	1/13/92			X		X						1				X						

LABORATORY ANALYSIS

ATEC Environmental Consultants
Division of ATEC Associates, Inc.
62 Accord Park Drive
Norwell, MA 02061
(617) 878-6200

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Mark E Zaldi	1/13/91				
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Project Manager / Phone #:	
		1/14			

P.O# 37.07.12358

CHAIN OF CUSTODY RECORD

PROJ. NO. 37.07.451

PROJECT NAME / CLIENT: U.S. Army - Ft. Devens

LAB PROJ. NO.

SAMPLERS: (Signature) Charles Langenhagen

SAMPLING METHOD: Grab

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS - 8240	~~BTX&E~~ 5-VOA-8270	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	~~TOTAL METALS (10)~~ 13 TCLP	IGNITABILITY	pH	Cyanide/sulfide react	SAMPLE LOCATION / REMARKS
STOCK-19	6/8/92	10:30A	X	X		X				X		3		X	X	X	X		X	X	X	X	Build 0631
STOCK-22		10:45A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg. 1427
STOCK-23		11:00A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg. 1429
STOCK-24		11:15A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg. 1435
STOCK-25		11:30A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg 1605
STOCK-26		11:45A	X	X		X				X		3		X	X		X		X	X	X	X	Bldg. 1666

ATEC Environmental Consultants
Division of ATEC Associates, Inc.
62 Accord Park Drive
Norwell, MA 02061
(617) 878-6200

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Charles Langenhagen	6/9	[signature] 6/10			
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Project Manager / Phone #:	
04					

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	LAB PROJ. NO.
07.151	7...6 26	
	CLIENT	

SAMPLERS: *(Signature)*

SAMPLING METHOD: 7...6

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
1551	1/13/92					X						1				X						Sp1.+
1552	1/13/92					X						1				X						Sp1.+
1553	1/13/92					X						1				X						Sp1.+

ATEC Environmental Consultants
Division of ATEC Associates, Inc.
62 Accord Park Drive
Norwell, MA 02061
(617) 878-6200

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
[illegible]	1/13/92				

Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Project Manager / Phone #:

P.O.# 72453

CHAIN OF CUSTODY RECORD

PROJ. NO. 17.07.451 | PROJECT NAME FT. DEVENS - REMEDIATION | CLIENT UST 13, 24, 25, 26, 56, 58 | LAB PROJ. NO.

SAMPLERS: (Signature) Craig D. Towlby

SAMPLING METHOD

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY	13 TCLP	SAMPLE LOCATION / REMARKS
RSS-1 (13)	7-23-92			X		X				Y		4		X		X	X			X		BLDG. 204
SS-2 (13)	"			Y		X				X		4		X		X	X			X		"
RSS-1 (24)	7-23-92			X		X				X		4			X	X				X		BLDG. 1435
RSS-2 (24)	"			X		X				X		4			X	X				X		"
RSS-1 (25)	7-20-92			X		X				X		1				X						BLDG. 1665
RSS-2 (25)	"			X		X				X		1				X						"
RSS-1 (26)	7-21-92			X		X				X		2				X						BLDG. 1666
RSS-2 (26)	"			X		X				Y		2				X						"
RSS-1 (56)	7-21-92			X		X				X		4		X		X	X			X		BLDG. 3587
RSS-2 (56)	"			X		X				X		4		X		X	X			X		"
RSS-1 (58)	7-22-92			X		X				X		4		X		X	X			X		BLDG. 3713
RSS-2 (58)	7-22-92			X		X				X		4		X		X	X			X		"

ATEC Environmental Consultants
Division of ATEC Associates, Inc.
62 Accord Park Drive
Norwell, MA 02061
(617) 878-6200

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Craig D. Towlby	7-23-92 4:30	Derek Couve			
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Project Manager / Phone #:	

3.10 HAZARDOUS WASTE MANIFESTS

UST No. 0026 was estimated to contain 945 gallons of number 2 fuel oil and residuals. Approximately 935 gallons of fuel oil were removed on January 6, 1992, and transported to a licensed Treatment Storage Disposal Facility (T.S.D.F.) (Beede Waste Oil Corporation, Plaistow, New Hampshire). Approximately 10 gallons of residual tank materials were removed and drummed on January 9, 1992 for transportation at a later date. Drummed material was transported to Beede Waste Oil Corporation on February 25, 1992.

The following Hazardous Waste Manifests were generated from residual tank materials during the vacuum process and cleaning process. The manifest dated January 6, 1992 is associated with vacuuming product of several USTs. Therefore, the total quantity (2,200 gallons) is much greater than the 935 gallons which was removed from UST 0026. The manifest dated February 25, 1992 is associated with the drummed material from several USTs. Therefore, the total quantity (495 gallons) is much greater than the 10 gallons which was removed from UST 0026.

PRESS HARD - YOU ARE WRITING THROUGH EIGHT COPIES. SEE REVERSE SIDE FOR DIRECTIONS

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE
One Winter Street
Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator US EPA ID No.: MA 7 2 1 1 0 0 1 2 1 5 1 1 5 4 — Manifest Document No.: 1 1 1 1 1
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: HQS Fort Devens FD600
AFZD-DEQ Box 10
Fort Devens, MA 01433

4. Generator's Phone: (508) 796-3002 24HR 508-796-2711

5. Transporter 1 Company Name: Beede Waste Oil Corp
6. US EPA ID Number: N H D 0 1 8 9 5 8 1 4 0

7. Transporter 2 Company Name:
8. US EPA ID Number:

9. Designated Facility Name and Site Address:
Beede Waste Oil Corp.
Kelley Road PO Box 127
Plaistow, NH 03865
10. US EPA ID Number: N H D 0 1 8 9 5 8 1 4 0

State Manifest Document Number: MA F353630
State Gen. ID:
State Trans. ID:
Transporter's Phone:
State Trans. ID:
State Facility's ID: Not Required
Facility's Phone: 603-382-5700

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	Unit Wt/Vol	Waste No.
a. WASTE PETROLEUM OILS, N.O.S. COMBUSTIBLE LIQUID NA1270	1	TT	2290	G	MA01
b.					
c.					
d.					

14. Special Handling Instructions and Additional Information
To be Recycled — Recycle

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Mark Boser — Signature: Mark Boser — Date: Month 01 Day 06 Year 92

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Robert D. Murphy Jr. — Signature: Robert D. Murphy Jr. — Date: Month 01 Day 06 Year 92

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: — Signature: — Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Date

GENERATOR — TRANSPORTER — FACILITY

MA F353630 COPY 1: FACILITY MAILS TO DESTINATION STATE

DEP

One Winter Street
Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator US EPA ID No. MA7210025154 — Manifest Document No. FD6378

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Dept. of The ARMY, Headquarters Ft. Devens Box 19, Attn: Mark Boser, Ft. Devens Ma 01433

4. Generator's Phone: 508-796-3002AFZD-~~RESEM~~

5. Transporter 1 Company Name: Beede Waste Oil Corp. — US EPA ID Number: NHD018958140

6. Transporter 2 Company Name — US EPA ID Number

7. Designated Facility Name and Site Address: Beede Waste Oil Corp., Keely RD. PO Box 127, Plastow NH 03865 — US EPA ID Number: NHDO18958140

A. State Manifest Document Number: MA F291211

B. State Gen. ID: N/A

C. State Trans. ID: N/A NHAA0134

D. Transporter's Phone: (603) 382-5761

E. State Trans. ID:

F. Transporter's Phone ( )

G. State Facility's ID: Not Required

H. Facility's Phone: 603 382-5761

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Waste Petroleum Oils N.O.S. Combustable liquid NA 1270	009	DM	004195	G	MA01
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)

a. c.

b. d.

K. Handling Codes for Wastes Listed Above

a. c.

b. d.

15. Special Handling Instructions and Additional Information

To Be Recycled #2 Fuel With SI=Sludge

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR — Printed/Typed Name: Mark Boser — Signature: Mark Boser — Date: Month 02 Day 25 Year 92

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials — Printed/Typed Name: Brian Ginivan — Signature: Brian Ginivan — Date: Month 02 Day 25 Year 92

18. Transporter 2 Acknowledgement of Receipt of Materials — Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. — Printed/Typed Name: Jo-Anne Collins — Signature: Jo-Anne Collins — Date: Month 02 Day 25 Year 92

Form Approved OMB No. 2050-0039, Expires 9-30-91
EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

COPY>3: FACILITY MAILS TO GENERATOR

MA F291211 COPY>3: FACILITY MAILS TO GENERATOR

3.11 WEIGHT RECEIPTS AND BILLS OF LADING

The following wight receipt documents the disposal of contaminated soil associated with UST 0025. The corresponding Bill of Lading is not available.

TRIMOUNT BITUMINOUS PRODUCTS CO.
5 CHERRY HILL DRIVE
P.O. BOX
DANVERS, MA 01923-5089
SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

MAIN OFFICE:
DANVERS 750-4200

TIME
FMN _____ Cash ☐ C.O.D. ☐ Charge ☑
ARRIVED JOB _____ CHECKED BY _____
LEFT JOB ~~CHECK #~~

CARRIER

TICKET #R 71908

Customer # ATE001
ATEC ASSOC.
62 ACCORD PARK DRIVE
NORWELL, MA 02061
617-878-6200

Job # BLDG1666
US ARMY
BLDG 1666
FORT DEVENS, MA 01433
PO# 37.04.72057

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
2:52:55	29600	37380	66980	18.69

Cost/Ton	Percent Tax	Load Cost	Amount Tax	Dest Charge	Total Cost

Load#	Job Total	Time & Date	Fob/Del
3	59.45	2:52:55 pm Jul 21, 1992	F

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY TRUCKS DELIVERING MATERIAL BEYOND STREET PAVEMENT.

RECEIVED BY _____

TRIMOUNT BITUMINOUS PRODUCTS CO.
5 CHERRY HILL DRIVE
P.O. BOX
DANVERS, MA 01923-5089
SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

MAIN OFFICE:
DANVERS 750-4200

TIME
FMN _____ Cash ☐ C.O.D. ☐ Charge ☑
ARRIVED JOB _____ CHECKED BY _____
LEFT JOB ~~CHECK #~~

CARRIER

TICKET #R 71889

Customer # ATE001
ATEC ASSOC.
62 ACCORD PARK DRIVE
NORWELL, MA 02061
617-878-6200

Job # BLDG1666
US ARMY
BLDG 1666
FORT DEVENS, MA 01433
PO# 37.04.72053

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
12:09:59	29600	43880	73480	21.94

Cost/Ton	Percent Tax	Load Cost	Amount Tax	Dest Charge	Total Cost

Load#	Job Total	Time & Date	Fob/Del
2	40.76	12:09:59 pm Jul 21, 1992	F

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY TRUCKS DELIVERING MATERIAL BEYOND STREET PAVEMENT.

RECEIVED BY _____

MAIN OFFICE:
DANVERS 750-4200

TRIMOUNT BITUMINOUS PRODUCTS CO.
5 CHERRY H[illegible]RIVE
P.O. BOX[illegible]
DANVERS, MA 01923-5089
SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

TIME
FMN _____ Cash ☐ C.O.D. ☐ Charge ☑
ARRIVED JOB _____ CHECKED BY _____
LEFT JOB _____ CHECK # _____

CARRIER

TICKET #R 71925

Customer # ATE001
ATEC ASSOC.
62 ACCORD PARK DRIVE
NORWELL, MA 02061
617-878-6200

Job # BLDG1666
US ARMY
BLDG 1666
FORT DEVENS, MA 01433
PO# 37.04.72057

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
9:40:00	29600	39360	68960	19.68

Cost/Ton	Percent Tax	Load Cost	Amount Tax	Dest Charge	Total Cost

Load#	Job Total	Time & Date	Fob/Del
1	19.68	9:40:00 am Jul 22, 1992	F

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY TRUCKS DELIVERING MATERIAL BEYOND STREET PAVEMENT.

RECEIVED BY _____

MAIN OFFICE:
DANVERS 750-4200

TRIMOUNT BITUMINOUS PRODUCTS CO.
5 CHERRY H[illegible]RIVE
P.O. BOX[illegible]
DANVERS, MA 01923-5089
SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

TIME
FMN _____ Cash ☐ C.O.D. ☐ Charge ☑
ARRIVED JOB _____ CHECKED BY _____
LEFT JOB _____ CHECK # _____

CARRIER

TICKET #R 71851

Customer # ATE001
ATEC ASSOC.
62 ACCORD PARK DRIVE
NORWELL, MA 02061
617-878-6200

Job # BLDG1666
US ARMY
BLDG 1666
FORT DEVENS, MA 01433
PO# 37.04.72053

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
4:26:33	29600	43860	73460	21.93

Cost/Ton	Percent Tax	Load Cost	Amount Tax	Dest Charge	Total Cost

Load#	Job Total	Time & Date	Fob/Del
1	21.93	4:26:33 pm Jul 20, 1992	F

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY TRUCKS DELIVERING MATERIAL BEYOND STREET PAVEMENT.

RECEIVED BY _____

MAIN OFFICE:
DANVERS 750-4200

TRIMOUNT BITUMINOUS PRODUCTS CO.
5 CHERRY HI[illegible]IVE
P.O. BOX[illegible]
DANVERS, MA 01923-5089
SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

TIME
FMN _____ Cash ☐ C.O.D. ☐ Charge ☑
ARRIVED JOB _____ CHECKED BY _____
LEFT JOB _____ CHECK #

CARRIER

TICKET #R 71871

Customer # ATE001 Job # BLDG1666 MIX # #76 MIX NAME OIL SOIL TRUCK# 9
ATEC ASSOC.
62 ACCORD PARK DRIVE
NORWELL, MA 02061
617-878-6200

US ARMY
BLDG 1666
FORT DEVENS, MA 01433
PO# 37.04.72053

Time	Tare	Net	Gross	Total
9:16:13	29600	37640	67240	18.82

Cost/Ton	Percent Tax	Load Cost	Amount Tax	Dest Charge	Total Cost

Load#	Job Total	Time & Date	Fob/Del
1	18.82	9:16:13 am Jul 21, 1992	F

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY TRUCKS DELIVERING MATERIAL BEYOND STREET PAVEMENT.

RECEIVED BY _____

BILL OF LADING
POLICY # WSC- 400-89

BILL OF LADING #: 5 DATE: 7-22-92 DEP CASE #: _____

GENERATOR NAME/ADDRESS:
US Army
AFZD-EM - Box 19
Fort Devens
CONTACT/TEL #: (508) 796-3002

SITE OF GENERATION:
STREET Building 1666, No Name Street
TOWN Fort Devens
STATE MA 01437
TRANSPORTATION ACCIDENT? __Y X N

MATERIAL DESCRIPTION (TOTAL PROJECTED QUANTITY):
CONTAMINATED SOIL: 37.2 wt (tons) 25 vol (cu yds)
CONTAMINATED DEBRIS: # absorbent pads _____ # absorbent booms _____ / vol (cu yds) sandy dirt _____ other (specify) _____

TYPE OF CONTAMINATION:
__ gasoline X #2 oil __ #4 oil __ #6 oil __ other (specify) _____
ANALYSES ATTACHED? Volatiles: X Y __N TPH: X Y __N

TRANSPORTER NAME/ADDRESS:
Trimount Bituminous Products
70 Blanchard Road
Burlington, MA 01803
CONTACT/TEL #: David Peter (617) 221-8400

DESTINATION FACILITY NAME/ADDRESS:
Trimount Bituminous Products
651 Lake Street
Shrewsbury MA
TYPE OF FACILITY: X Recycling __ Landfill __ Incinerator

GENERATOR'S SIGNATURE: Mark Gn DATE: 6-29-92
(ABOVE ITEMS MUST BE COMPLETED PRIOR TO DEQE AUTHORIZATION)

AUTHORIZATION: DEQE SIGNATURE (originating region): N. Lynne Chappell DATE: 7/16/92
(if applicable) DEQE SIGNATURE (destination region): _____ DATE: _____

TRUCK/TRACTOR REGISTRATION 396-031 MA
TRAILER REGISTRATION _____
LEFT SITE AT 8:50 A.M. DATE 7-22-92
GENERATOR OR RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE: _____

QUANTITY SHIPPED:	wt (tons)	vol (cu yds)
TOTAL PROJECTED	—	—
SHIPPED TO DATE	—	—
THIS LOAD (estimated)	19.66	—
REMAINING TO BE SHIPPED	—	—

Ticket # R 7195

TRANSPORTER'S SIGNATURE Steve Kunchick DATE 7-22-92
RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE _____ DATE 7/22/92 ARR TIME 9:40 A

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:

DEPARTMENT OF ENVIRONMENTAL Protection
BWSC/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

FALSIFICATION OR MISREPRESENTATION OF ANY OF THE INFORMATION ON THIS BILL OF LADING IS A VIOLATION OF M.G.L. C. 21C AND 310 CMR 30.006 AND 30.007 AND IS SUBJECT TO APPROPRIATE STATUTORY OR REGULATORY PENALTIES.

BILL OF LADING
POLICY # WSC- 400-89

BILL OF LADING #: _____ DATE: _____ DEP'CASE #: _____

GENERATOR NAME/ADDRESS:
US Army
AFZD-EM - Box 19
Fort Devens
CONTACT/TEL #: (508) 796-3002

SITE OF GENERATION:
STREET Building 1666
TOWN Fort Devens
STATE MA 01433
TRANSPORTATION ACCIDENT? __Y X N

MATERIAL DESCRIPTION (TOTAL PROJECTED QUANTITY):
CONTAMINATED SOIL: 37.5 wt (tons) 25 vol (cu yds)
CONTAMINATED DEBRIS: # absorbent pads _____ # absorbent booms _____ / vol (cu yds) speedy dri _____ other (specify) _____

TYPE OF CONTAMINATION:
__ gasoline X #2 oil __ #4 oil __ #6 oil __ other (specify) _____
ANALYSES ATTACHED? Volatiles: X Y __N TPH: X Y __N

TRANSPORTER NAME/ADDRESS:
Trimount Bituminous Products
70 Blanchard Road
Burlington, MA 01803
CONTACT/TEL #: David Peter (617) 221-8400

DESTINATION FACILITY NAME/ADDRESS:
Trimount Bituminous Products
651 Lake Street
Shrewsbury MA
TYPE OF FACILITY: X Recycling __ Landfill __ Incinerator

GENERATOR'S SIGNATURE: _____ DATE: 6-29-92
(ABOVE ITEMS MUST BE COMPLETED PRIOR TO DEQE AUTHORIZATION)

AUTHORIZATION: DEQE SIGNATURE (originating region): D. Lynne Chappell DATE: 7/16/92
(if applicable) DEQE SIGNATURE (destination region): _____ DATE: _____

TRUCK/TRACTOR REGISTRATION 896 031 MA
TRAILER REGISTRATION _____
LEFT SITE AT 3:35 DATE 7-20-92
GENERATOR OR RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE: Craig D. Lantry

QUANTITY SHIPPED:	wt (tons)	vol (cu yds)
TOTAL PROJECTED	—	—
SHIPPED TO DATE	—	—
THIS LOAD (estimated)	21.93	—
REMAINING TO BE SHIPPED	—	—

Ticket # R 71851

TRANSPORTER'S SIGNATURE _____ DATE 7-20-92
RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE _____ DATE 7/20/92 ARR TIME 4:26

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:

DEPARTMENT OF ENVIRONMENTAL Protection
BWSC/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

FALSIFICATION OR MISREPRESENTATION OF ANY OF THE INFORMATION ON THIS BILL OF LADING IS A VIOLATION OF M.G.L. C. 21C AND 310 CMR 30.006 AND 30.007 AND IS SUBJECT TO APPROPRIATE STATUTORY OR REGULATORY PENALTIES.

P.2

BILL OF LADING
POLICY # WSC-400-89

BILL OF LADING #: 5 DATE: _____ DEP'T CASE #: _____

GENERATOR NAME/ADDRESS:
US Army
AFZD-EM - Box 19
Fort Devens
CONTACT/TEL #: (508) 796-3002

SITE OF GENERATION:
STREET: Building 1666, No Name Street
TOWN: Fort Devens
STATE: MA 01433
TRANSPORTATION ACCIDENT? ___Y X N

MATERIAL DESCRIPTION (TOTAL PROJECTED QUANTITY):
CONTAMINATED SOIL: 17.2 wt (tons) 35 vol (cu yds)
CONTAMINATED DEBRIS: # absorbent pads _____ # absorbent booms _____ / vol (cu yds) speedy dri _____ other (specify) _____

TYPE OF CONTAMINATION:
___ gasoline X #2 oil ___ #4 oil ___ #6 oil ___ other (specify) _____
ANALYSES ATTACHED?
Volatiles: X Y ___N TPH: X Y ___N

TRANSPORTER NAME/ADDRESS:
Trimount Bituminous Products
70 Blanchard Road
Burlington, MA 01803
CONTACT/TEL #: David Peter (617) 221-8400

DESTINATION FACILITY NAME/ADDRESS:
Trimount Bituminous Products
651 Lake Street
Shrewsbury MA
TYPE OF FACILITY: X Recycling ___ Landfill ___ Incinerator

GENERATOR'S SIGNATURE: Mark Bon DATE: 6-29-92
(ABOVE ITEMS MUST BE COMPLETED PRIOR TO DEQE AUTHORIZATION)

AUTHORIZATION: DEQE SIGNATURE (originating region): N. Lynne Chappell DATE: 7/16/92
(if applicable) DEQE SIGNATURE (destination region): _____ DATE: _____

TRUCK/TRACTOR REGISTRATION: 896-031 MA
TRAILER REGISTRATION: _____
LEFT SITE AT: 2:05 DATE: 7-21-92
GENERATOR OR RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE: Craig D. Tomlin

QUANTITY SHIPPED:	wt (tons)	vol (cu yds)
TOTAL PROJECTED	___	___
SHIPPED TO DATE	___	___
THIS LOAD (estimated)	18.69	___
REMAINING TO BE SHIPPED	___	___

Ticket # R 71908

TRANSPORTER'S SIGNATURE: Steve Bruchard DATE: 7-21-92
RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE: _____ DATE: 7/21/92 ARR TIME: 2:52

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:

DEPARTMENT OF ENVIRONMENTAL Protection
BWSC/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

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BILL OF LADING
POLICY # WSC-400-89

BILL OF LADING #: 4 DATE: 7/21/92 DEP'T CASE #:

GENERATOR NAME/ADDRESS:
US Army
AFZD-EM - Box 19
Fort Devens
CONTACT/TEL #: (508) 796-3002

SITE OF GENERATION:
STREET Building 1666
TOWN Fort Devens
STATE MA 01433
TRANSPORTATION ACCIDENT? ___Y X N

MATERIAL DESCRIPTION (TOTAL PROJECTED QUANTITY):
CONTAMINATED SOIL: 37.5 wt (tons) 25 vol (cu yds)
CONTAMINATED DEBRIS: # absorbent pads ___ # absorbent booms ___ / vol (cu yds) sprady dri ___ other (specify) ___

TYPE OF CONTAMINATION:
___ gasoline X #2 oil ___ #4 oil ___ #6 oil ___ other (specify) ___
ANALYSES ATTACHED? Volatiles: X Y ___N TPH: X Y ___N

TRANSPORTER NAME/ADDRESS:
Trimount Bituminous Products
70 Blanchard Road
Burlington, MA 01803
CONTACT/TEL #: David Peter (617) 221-8400

DESTINATION FACILITY NAME/ADDRESS:
Trimount Bituminous Products
651 Lake Street
Shrewsbury MA
TYPE OF FACILITY: X Recycling ___ Landfill ___ Incinerator

GENERATOR'S SIGNATURE: Mark R DATE: 6-29-92
(ABOVE ITEMS MUST BE COMPLETED PRIOR TO DEQE AUTHORIZATION)

AUTHORIZATION: DEQE SIGNATURE (originating region): D. Lynne Chappell DATE: 7/16/92
(if applicable) DEQE SIGNATURE (destination region): ___ DATE: ___

TRUCK/TRACTOR REGISTRATION 896-031 MA
TRAILER REGISTRATION ___
LEFT SITE AT 11:15 DATE 7-21-92
GENERATOR OR RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE: Craig O. Trombly

QUANTITY SHIPPED:	wt (tons)	vol (cu yds)
TOTAL PROJECTED	___	___
SHIPPED TO DATE	___	___
THIS LOAD (estimated)	21.99	___
REMAINING TO BE SHIPPED	___	___

Ticket R 71889

TRANSPORTER'S SIGNATURE Bob Bruchet DATE 7-21-92
RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE ___ DATE 7/21/92 ARR TIME 1209

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:

DEPARTMENT OF ENVIRONMENTAL Protection
BWSC/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

FALSIFICATION OR MISREPRESENTATION OF ANY OF THE INFORMATION ON THIS BILL OF LADING IS A VIOLATION OF M.G.L. C. 21C AND 310 CMR 30.006 AND 30.007 AND IS SUBJECT TO APPROPRIATE STATUTORY OR REGULATORY PENALTIES.

BILL OF LADING
POLICY # WSC-400-89

BILL OF LADING #: 3 DATE: 7/21/92 DEP CASE #: _____

GENERATOR NAME/ADDRESS:
US Army
AFZD-EM - Box 19
Fort Devens
CONTACT/TEL #: (508) 796-3002

SITE OF GENERATION:
STREET Building 1666
TOWN Fort Devens
STATE MA 01433
TRANSPORTATION ACCIDENT? ___Y X N

MATERIAL DESCRIPTION (TOTAL PROJECTED QUANTITY):
CONTAMINATED SOIL: 37.5 wt (tons) 25 vol (cu yds)
CONTAMINATED DEBRIS: # absorbent pads _____ # absorbent booms _____
vol (cu yds) speedy dri _____ other (specify) _____

TYPE OF CONTAMINATION:
___ gasoline X #2 oil ___ #4 oil ___ #6 oil ___ other (specify) _____
ANALYSES ATTACHED?
Volatiles: X Y ___N TPH: X Y ___N

TRANSPORTER NAME/ADDRESS:
Trimount Bituminous Products
70 Blanchard Road
Burlington, MA 01803
CONTACT/TEL #: David Peter (617) 221-8400

DESTINATION FACILITY NAME/ADDRESS:
Trimount Bituminous Products
651 Lake Street
Shrewsbury MA
TYPE OF FACILITY: X Recycling ___ Landfill ___ Incinerator

GENERATOR'S SIGNATURE: Mark B DATE: 6-29-92
(ABOVE ITEMS MUST BE COMPLETED PRIOR TO DEQE AUTHORIZATION)

AUTHORIZATION: DEQE SIGNATURE (originating region): D. Lynne Chappell DATE: 7/16/92
(If applicable) DEQE SIGNATURE (destination region): _____ DATE: _____

TRUCK/TRACTOR REGISTRATION 896-031 MA
TRAILER REGISTRATION _____
LEFT SITE AT 8:30 DATE 7-21-92
GENERATOR OR RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE: Craig D. Townley

QUANTITY SHIPPED:	wt (tons)	vol (cu yds)
TOTAL PROJECTED	___	___
SHIPPED TO DATE	___	___
THIS LOAD (estimated)	18.62	___
REMAINING TO BE SHIPPED	___	___

Ticket # R71871

TRANSPORTER'S SIGNATURE Steve Russell DATE 7-21-92
RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE _____ DATE 7/21/92 ARR TIME _____

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:

DEPARTMENT OF ENVIRONMENTAL Protection
BWSC/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

FALSIFICATION OR MISREPRESENTATION OF ANY OF THE INFORMATION ON THIS BILL OF LADING IS A VIOLATION OF M.G.L. C. 21C AND 310 CMR 30.006 AND 30.007 AND IS SUBJECT TO APPROPRIATE STATUTORY OR REGULATORY PENALTIES.

3.12 PERMITS AND CERTIFICATIONS

The following permit was obtained, from the Fire Department, for the proper closure of an underground storage tank. Following the permit there is a disposal receipt for the steel UST.

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC SAFETY—DIVISION OF FIRE PREVENTION

PERMIT

FOR REMOVAL AND TRANSPORTATION TO APPROVED TANK YARD

C.82 S.40 M.G.L.
DIG SAFE NUMBER
920205 05
Start Date 1/9/92

In accordance with the provisions of Chapter 148, G.L. as provided in Section 38A this permit is granted to

Name: Atec Environmental Associates Inc.
Full name of person, firm or Corporation

To transport underground steel storage tank(s) to Approved tank yard# 14901

State clearly type of inert gas used in steel storage tank

steel tank: Dry Ice
method

FDID# 17919 N/A

Fee paid $ _____

Name and address of contractor disposing tank ATEC Associates, 62 Accord Park Dr., Norwell MA

Location to which tank will be transported

14901
Approved tank yard#

This permit will expire 31 Jan 1992

Donald R. Orrell Fire Chief
Signature of official granting permit (TITLE)
(Head of Fire Dept.)

Tank 26
Bldg 1666

RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK

NAME AND ADDRESS OF APPROVED TANK YARD: JOHN C. TOMBARELLO & SONS, 207 MARSTON ST., LAWRENCE, MASS. 01841

APPROVED TANK YARD NO. 1 4 9 0 1

Tank Yard Ledger 502 CMR 3.03(4) Number: 9 2 0 0 1 0 0

I certify under penalty of law I have personally examined the underground steel storage tank delivered to this "approved tank yard" by firm, corporation or partnership ATEC Env. and accepted same in conformance with Massachusetts Fire Prevention Regulation 502 CMR 3.00 Provisions for Approving Underground Steel Storage Tank dismantling yards. A valid permit was issued by LOCAL Head of Fire Department FDID# 17919 to transport this tank to this yard.

Name and official title of approved tank yard owner or owners authorized representative:

SIGNATURE	TITLE	DATE SIGNED
[signature]	CPW	1-24-92

This signed receipt of disposal must be returned to the local head of the fire department FDID# 17919 pursuant to 502 CMR 3:00. (EACH TANK MUST HAVE A RECEIPT OF DISPOSAL)

FORM F.P. 291 (rev. 9/88) (OVER) MASSACHUSETTS STATE FIRE MARSHAL'S OFFICE

DIMENSIONS

	Width (feet)		Length (feet)
Tank 1	48	X	10
Tank 2	-----	X	-----
Tank 3	-----	X	-----
Tank 4	-----	X	-----
Tank 5	-----	X	-----

Tank Removed From

Building 1666
(no. street)

Fort Devens MA
(city or town)

Fire Department Permit # ----------
(if applicable)

3.13 UST CLOSURE CHECKLIST

The following UST closure checklist was produced by ATEC Associates Inc., to ensure Quality Control of the proper abandonment of an underground storage tank.

UST-CLOSURE Q/C CHECK LIST Tank 4	26	Bldg	1666 Fort Stevens	
1000 gal No 2 Fuel				
DEFINABLE FEATURE	**DATE**	**TIME**	**MEASUREMENTS**	**NOTES**
Calibrate PID & LEL/O2 meters	1/13/91	8:00		Site Topography: level
Drain & flush piping & pumps	1/13/91	8:30		
Excavate to top of tank	1/9/91	2:30		Depth to tank: 15'
Vent tank note LEL/O2 levels & times	1/13/91		LEL O2	
		T1: 8:45	3 20.5	
		T2: 9:00	2 20.7	
		T3: 9:15	0 20.9	
		T4: 9:30	0 20.9	
		T5:		
		T6:		
		T7:		
		T8:		
		T9:		
		T10:		
		T11:		
		T12:		
Pump & clean tank:	1/6/91		___ gal. liquid + 10 gal	Tank Dimensions: 4'x 10.5'L
quantities liquid (gal) & sludge (lbs)	1/13/91		___ lbs. sludge	Tank good cond. ⇒ no bio's perforations or rust
Remove all tank connections, and cap openings	1/13/91	8:30		
Excavate soils to free tank	1/9/91	2:30		
Segregate stained soils: Note PID readings	1/9/91	2:30	PID (ppm) NDIR (ppm)	
(if >10 ppm NDIR also)	1/13/91	9:30	0.1	stock-1
none vicibly contaminated			0.2	stock-7
pieces of asphalt coating				
of UST in excav				

UST-CLOSURE Q/C CHECK LIST				
DEFINABLE FEATURE	**DATE**	**TIME**	**MEASUREMENTS**	**NOTES**
Remove tank, piping, pumps, and hardware.	1/13/91	8130	Photographic Descriptions:	Soil Description: light-medbrown fine sand
Photograph excavation; note descriptions.			Photo 1:	little fine-med gravel
Sketch Schematic			Photo 2:	
			Photo 3:	
			Photo 4:	
			Photo 5:	Depth to Groundwater/Conditions: N/A
			Photo 6:	
e tank at safe distance from excavation	1/13/91	8:30		Depth of Excavation: 9.5
Secure tanks transport off-site	1/13/91	9:30		
Obtain 10 soil samples from	1/13/91	8:45	PID (ppm) NDIR (ppm)	Sample locations: 7.5-7.5' (see sketch)
excavation walls/bottom: Note PID/NDIR			SS1: 1.2	W wall
readings and sample locations.			SS2: 4.5	W wall
			SS3: 1.7	N wall
			SS4: 0.0	N wall
			SS5: 0.1	E wall
			SS6: 0.2	E wall
			SS7: 0.0	S wall
			SS8: 0.1	S wall
			SS9: 5.8	bottom
			SS10: 0.4	bottom
Obtain 2 soil samples & 1 water samples	1/13/91	8:45		Sample Locations:
for laboratory analysis. Note sample locations.				LSS1: ~ SS7
				LSS2: ~ SS9
				LWS1:
				1553: composite stockpile

UST CLOSURE Q/C CHECK LIST				
DEFINABLE FEATURE	**DATE**	**TIME**	**MEASUREMENTS**	**NOTES**
				____ tons of backfill
Backfill excavation (if clean):				Backfill description:
Note amount & type of backfill				
Close open excavation (if applicable)				
ore surface and rope off				
Remove rubbish/debris				
Transport hazardous material off-site:				Amount Classification
Note amount/classification				
Make copies of manifests, permits,				
and disposal receipts.				

3.14 INSTALLATION

The installation of a replacement UST No. 0026 was not performed.

4.0 UST No. 0028

4.1 POST REMOVAL REPORT

4.1.1 Introduction

This Post-Removal Report details the results of the closure of one 1,000-gallon, single wall, steel, underground storage tank (UST) referenced as UST No. 0028, located at property known as Building 2290, Fort Devens, Massachusetts (the site). The purpose of the closure was to excavate the UST and evaluate the potential for the presence of oil and hazardous material at the site. The closure of this UST was conducted on January 9, and 10, 1992.

The basic Project Work Scope included:

- Procurement/administration of all federal, state and local permits, manifests, regulations, etc., associated with UST system closure.
- Excavating, venting, cleaning, transporting, and disposing of one 1,000-gallon UST by appropriately licensed contractors/facilities.
- Disposal of residual UST materials at a licensed facility.
- Field screening and analysis of soil from the excavation by Photoionization Detector (PID) and field analyzed with a portable Non-Dispersive Infrared (NDIR) analyzer, to identify evidence of the release of oil and hazardous materials from the UST, if any.
- Laboratory analysis of soil sampled from the UST excavation by a USEPA certified laboratory for Total Petroleum Hydrocarbons (TPH).
- Preparation of a Technical Report, to include assimilation of information gathered, major findings, and conclusions.

4.1.2 Subsurface Storage Tank Excavation and Removal

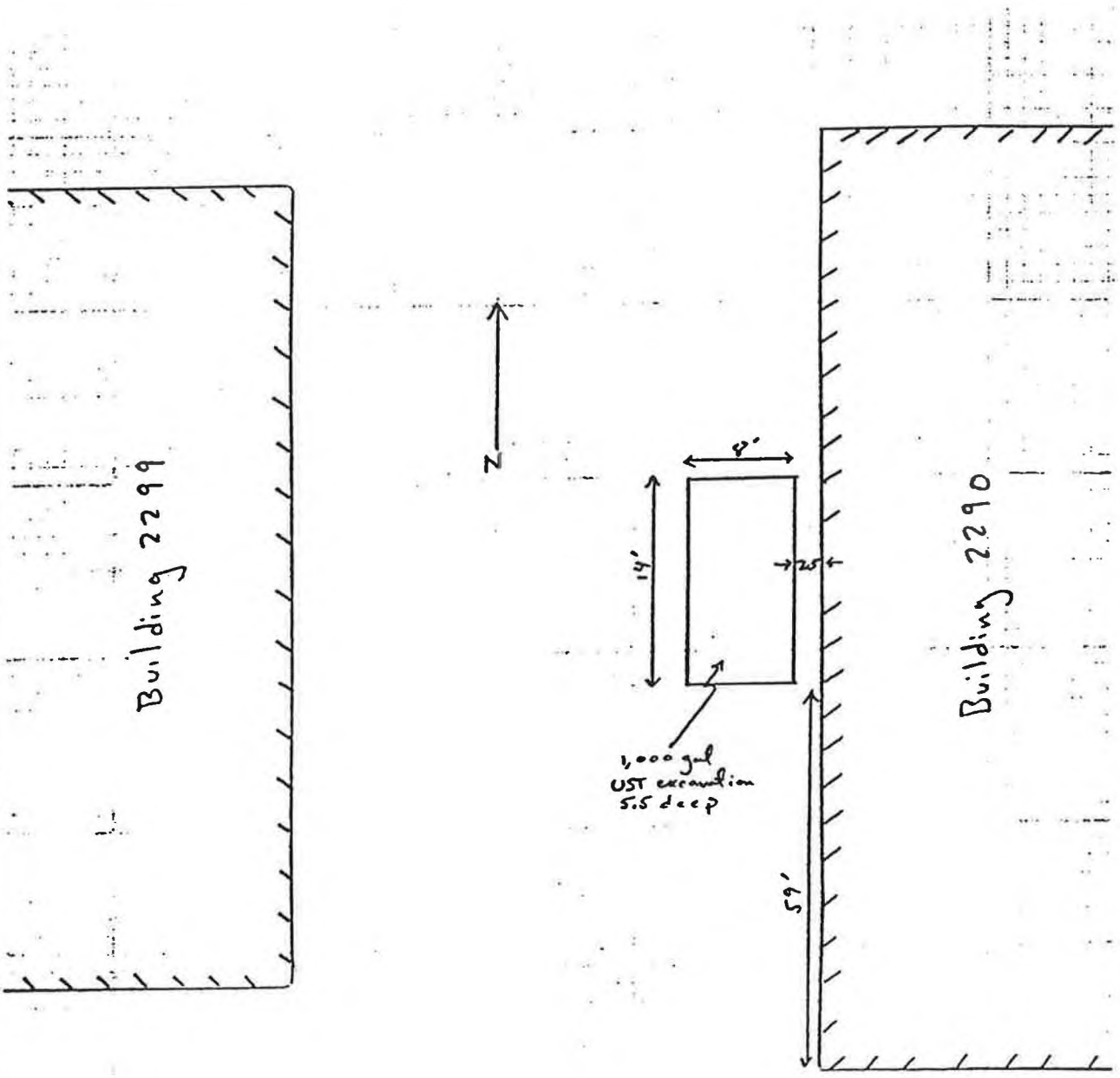
On January 9, and 10, 1992, one 1,000-gallon, subsurface, number 2 fuel oil, storage tank was excavated and removed from the site. The UST was located adjacent to the southwest side of the Building 2290. Site topography is level. Topography gently slopes downgradient to the south approximately 75 feet south of the site.

Soils in the excavation consisted primarily of tan to medium-brown, fine sand and silt with some medium to coarse gravel. The tank was covered by approximately 1.5 feet of soil. The bottom of the excavation was approximately 5.5 feet below grade. Groundwater was not encountered. Excavated soil appeared uncontaminated.

The associated piping was drained, and tank connections were removed. UST No. 0028 was estimated to contain 14 gallons of number 2 fuel oil. The fuel oil was removed on January 6, 1992, and transported to a licensed Treatment Storage Disposal Facility (T.S.D.F.) (Beede Waste Oil Corporation, Plaistow, New Hampshire).

Tank openings were then capped and the tank was removed from the excavation. The tank was observed to be in good condition with no perforations, punctures, or severe corrosion. The tank was observed to have some surficial rust. Following venting of the tank, an access way was cut in the end of the tank to allow entry for cleaning. The tank was then entered and vacuumed/wiped clean of any residual materials. See Section 4.10 for copies of the appropriate Hazardous Waste Manifests.

The scrap tank was removed from the site on January 10, 1992 and transported to the Contractor's yard located on Lake George Street, Fort Devens for temporary storage. The tank was disposed of at Tombarello & Sons, a licensed Massachusetts tank yard, located Lawrence, MA, on January 28, 1992. A copy of the disposal receipt is included in Section 4.11, Permits and Certifications.



UST LOCATION PLAN

1,000 gallon UST relative to:
Building 2290
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

NOT TO SCALE

FIGURE: 4.1

ATEC

4.1.3 Sampling and Analysis Plan

Ten soil samples were obtained from the excavation for field screening with a Photoionization Detector (PID) and field analyzed with a Non-Dispersive Infrared (NDIR) analyzer. The PID field screening for Total Organic Vapors (TOVs) was conducted with an HNu photoionizer utilizing the jar headspace screening procedure outlined in the Hazardous Materials Containment Plan. The NDIR field screening for Total Petroleum Hydrocarbons (TPH) was conducted with a Horiba OCMA 220, utilizing the procedures outlined in the Hazardous Materials Containment Plan.

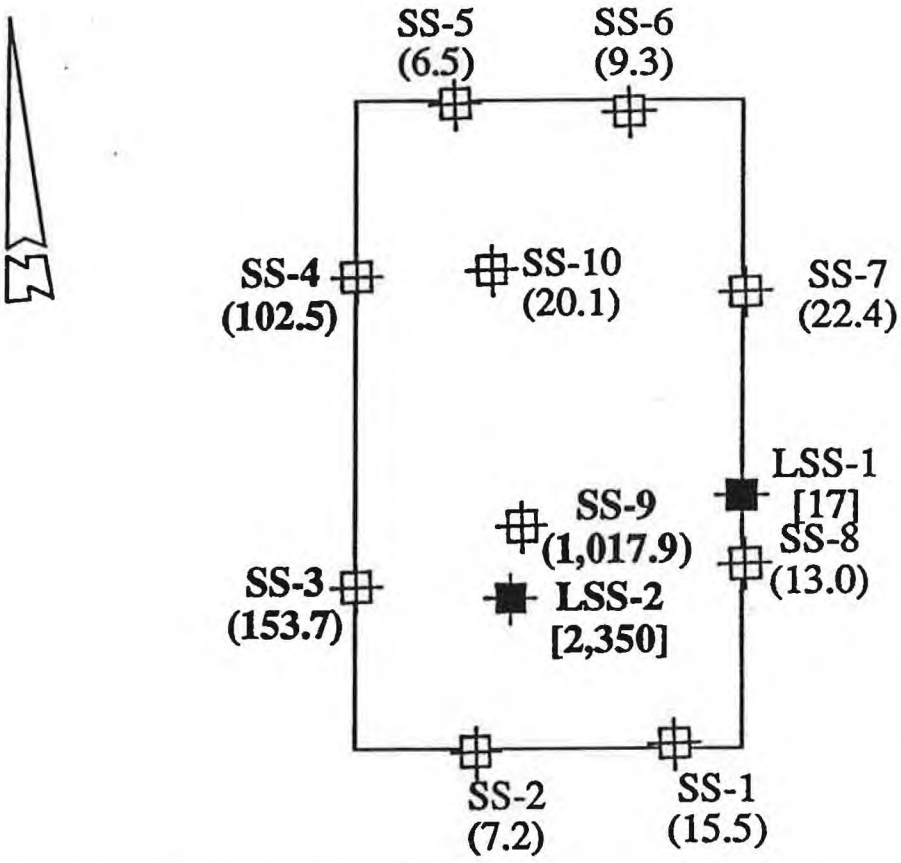
Eight of the samples (SS-1 to SS-8) were obtained from the excavation walls at a depth of approximately 2.5 to 3 feet below grade. Two of the samples (SS-9 and SS-10) were obtained from the bottom of the excavation at a depth of approximately 5.5 feet below grade. Two composite soil samples (Stock-1 and Stock-2) were obtained from stockpiled soils for NDIR field analysis.

Two soil samples (LSS-1 and LSS-2) were obtained from the excavation for laboratory analysis. Soil Sample LSS-1 was obtained from the southeast wall of the excavation. Soil sample LSS-2 was obtained from the bottom of the excavation. One composite soil sample (LSS-3) was obtained from stockpiled soils required to free the tank. These samples were analyzed for TPH (USEPA Method 418.1).

Sampling locations are depicted on the Sampling Schematic as Figure 4.2. The appropriate chain of custodies are included in Section 4.9, Chain of Custody Forms.

4.1.4 Analytical Results

The results from analysis with the PID and the NDIR analyzer of the ten samples obtained from the excavation are as follows:



LEGEND:

Field Screened Soil Sample

Lab Analyzed Soil Sample

( ) NDIR Results in ppm

[ ] Lab Analysis Results in ppm

Results in bold denote levels in excess of MA DEP Remedial Goal Level (100 ppm)

SAMPLING SCHEMATIC

1,000 gallon UST excavation at:
Building 2290
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

NOT TO SCALE

FIGURE: 4.2

ATEC

TABLE 4.1 - PID AND NDIR RESULTS

SAMPLE NUMBER	PID (ppm TOVs)	NDIR (ppm TPH)
SS-1	8.2	15.5
SS-2	11.0	7.2
SS-3	13.2	153.7
SS-4	3.0	102.5
SS-5	1.5	6.5
SS-6	9.4	9.3
SS-7	11.8	22.4
SS-8	10.6	13.0
SS-9	11.8	1,017.9
SS-10	2.0	20.1
Stock-1	N.A.	175.1
Stock-2	N.A.	57.8

N.A. = Not Applicable
N.D. = None Detected

Laboratory analytical results of the two soil samples obtained from the excavation revealed a TPH concentration of 17 ppm for LSS-1, and 2,350 ppm for LSS-2. Laboratory analysis of the one soil sample obtained from the stockpiled soils revealed a TPH concentration of 216 ppm for LSS-3 (see Section 4.9, Laboratory Analytical Results).

4.1.5 Conclusions and Recommendations

As noted in ATEC's Post Removal Report dated February 21, 1992, ATEC's conclusions are as follows:

Upon excavation and removal, the tank was observed to be in good condition with no signs of perforations, punctures, or severe corrosion. The tank was observed to have some surficial rust.

Groundwater was not encountered within the excavation.

Petroleum impacted soil was not observed during the excavation of the UST.

Ten soil samples were obtained from the excavation for field screening and field analysis utilizing a PID and NDIR analysis, respectively. PID readings revealed TOV concentrations ranging from 1.5 ppm to 13.2 ppm. NDIR results revealed TPH concentrations ranging from 6.5 ppm to 1,017.9 ppm.

Two soil samples were obtained from the excavation for laboratory analysis for TPH utilizing USEPA Method 418.1. Analytical results for LSS-1 obtained from the southeast wall of the excavation revealed a TPH concentration of 17 ppm. Analytical results for LSS-2 obtained from the bottom of the excavation revealed a TPH concentration of 2,350 ppm.

One composite, soil sample (LSS-3) was obtained from stockpiled soils for laboratory analysis. Analytical results for LSS-3 revealed a TPH concentration of 216 ppm. Two composite soil samples were obtained from stockpiled soil (Stock-1 and Stock-2) for NDIR analysis. NDIR results revealed a TPH concentration of 175.1 ppm and 57.8 ppm, respectively.

Based on these findings, ATEC recommended the following:

Groundwater samples should be periodically collected and analyzed for TPH and volatile organic compounds (VOCs) to ensure that the environmental integrity of the site is maintained.

4.2 SITE REMEDIATION AND CONTAMINATED SOIL DISPOSAL

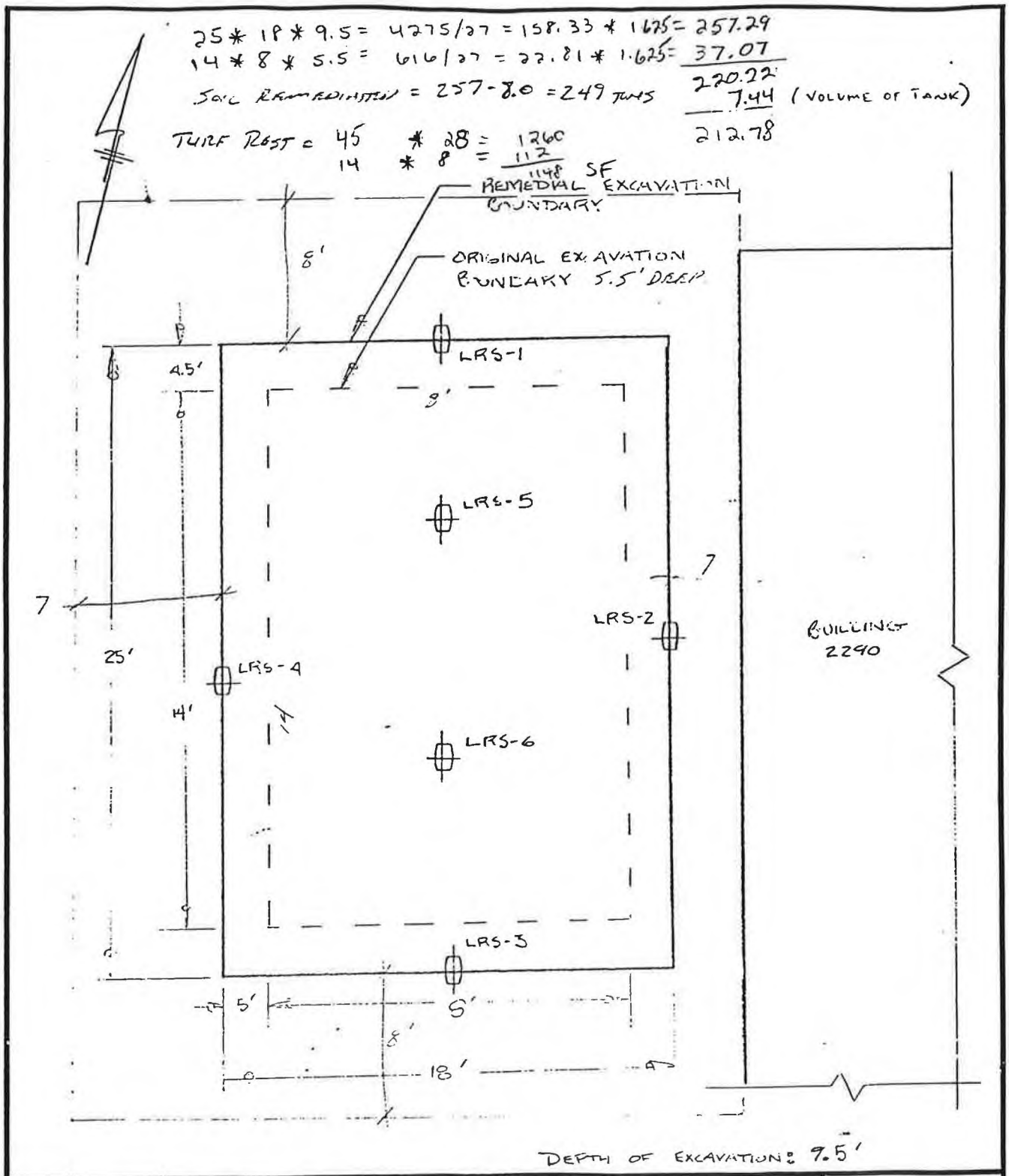
4.2.1 Site Remediation

Following initial PID screening, additional excavation to remove contaminated soil and reach background levels (<1ppm TOVs by PID) was conducted per order of the Contracting Officer's Representative and David Salvadore of the Massachusetts Department of Environmental Protection (DEP). Approximately 220.22 tons of contaminated soil were removed from excavation floor and all sidewalls during remedial excavation on August 6, 1992. The estimated volume of soil removed was calculated from field drawings produced during the removal and remediation of UST No. 0028 (see Remedial Excavation Plan, Figure 4.3).

Six soil samples (RSS-1A through RSS-6A) were obtained from the post-remedial excavation for PID field screening. RSS-1A through RSS-4A were obtained from the side walls at a depth of approximately 4 feet below grade. RSS-5A and RSS-6A were obtained from the bottom of the excavation at a depth of 6 feet below grade. PID results ranged from 18 to 150 ppm.

Further excavation was conducted from the bottom of the excavation and from all sidewalls. Four soil samples (RSS-1B through RSS-4B) were obtained from sidewalls at a depth of approximately 4 feet below grade. RSS-5B and RSS-6B were obtained from the bottom of the excavation at a depth of 7 feet below grade. PID results for RSS-1B through RSS-6B revealed TOV concentrations ranging from 26.0 to 180.0 ppm.

Subsequent to further excavation, four soil samples (LRS-3C through LRS-6C) were obtained for PID field screening. Two soil samples (LRS-1C and LRS-2C) were not obtainable due to obstructions (pine tree and building). LRS-3C and LRS-4C were obtained from the side walls of the excavation at a depth of approximately 4 feet below



REMEDIAL EXCAVATION PLAN

1,000 gallon UST relative to:
Building 2290
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

FIGURE: 4.3

ATEC

grade. LRS-5C and LRS-6C were obtained from the bottom of the excavation at a depth of 9.5 feet below grade. Final PID results ranged from 60 to 250 ppm (See Table 2.2). Further remedial excavation was not conducted per order of the Contracting Officer.

TABLE 4.2 - PID SCREENING RESULTS

SAMPLE NUMBER	PID (ppm TOV)	LOCATION
RSS-1A	30.0	north sidewall (4' depth)
RSS-2A	150.0	east sidewall (4' depth)
RSS-3A	30.0	south sidewall (4' depth)
RSS-4A	45.0	west sidewall (4' depth)
RSS-5A	40.0	bottom (6' depth)
RSS-6A	18.0	bottom (6' depth)
RSS-1B	180.0	north sidewall (4' depth)
RSS-2B	70.0	east sidewall (4' depth)
RSS-3B	45.0	south sidewall (4' depth)
RSS-4B	40.0	west sidewall (4' depth)
RSS-5B	45.0	bottom (7' depth)
RSS-6B	26.0	bottom (7' depth)
RSS-1C	N.A.	north sidewall (4' depth)
RSS-2C	N.A.	east sidewall (4' depth)
RSS-3C	170.0	south sidewall (4' depth)
RSS-4C	250.0	west sidewall (4' depth)
RSS-5C	60.0	bottom (9.5' depth)
RSS-6C	70.0	bottom (9.5' depth)

N.A. = Not Applicable

Six soil samples (LRS-1 through LRS-6) were obtained from the remedial excavation for laboratory analysis for TPH (USEPA Method 418.1). Two of the soil samples (LRS-4 and LRS-6) were additionally analyzed for Volatile Organic Compounds (VOCs) (USEPA

Method 8240) and 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP) (USEPA Method 1311). The following table contained levels revealed by laboratory analysis:

TABLE 4.3 - LABORATORY ANALYSIS

SAMPLE NUMBER	TPH (ppm)	VOCs (ppm)	13 TCLP METALS (ppm)	LOCATION
LRS-1	81.0	N.A.	N.A.	north sidewall (4' depth)
LRS-2	135.0	N.A.	N.A.	east sidewall (4' depth)
LRS-3	112.0	N.A.	N.A.	south sidewall 4' depth)
LRS-4	125.0	N.D.	N.D.	west sidewall (4' depth)
LRS-5	4,840.0	N.A.	N.A.	bottom (9.5' depth)
LRS-6	4,030.0	30.0 ethyl benzene	0.38 zinc	bottom (9.5' depth)

LRS = Laboratory Remediation Sample
N.D. = Not Detected above the Method Reporting Limit (MRL)
N.A. = Not Applicable

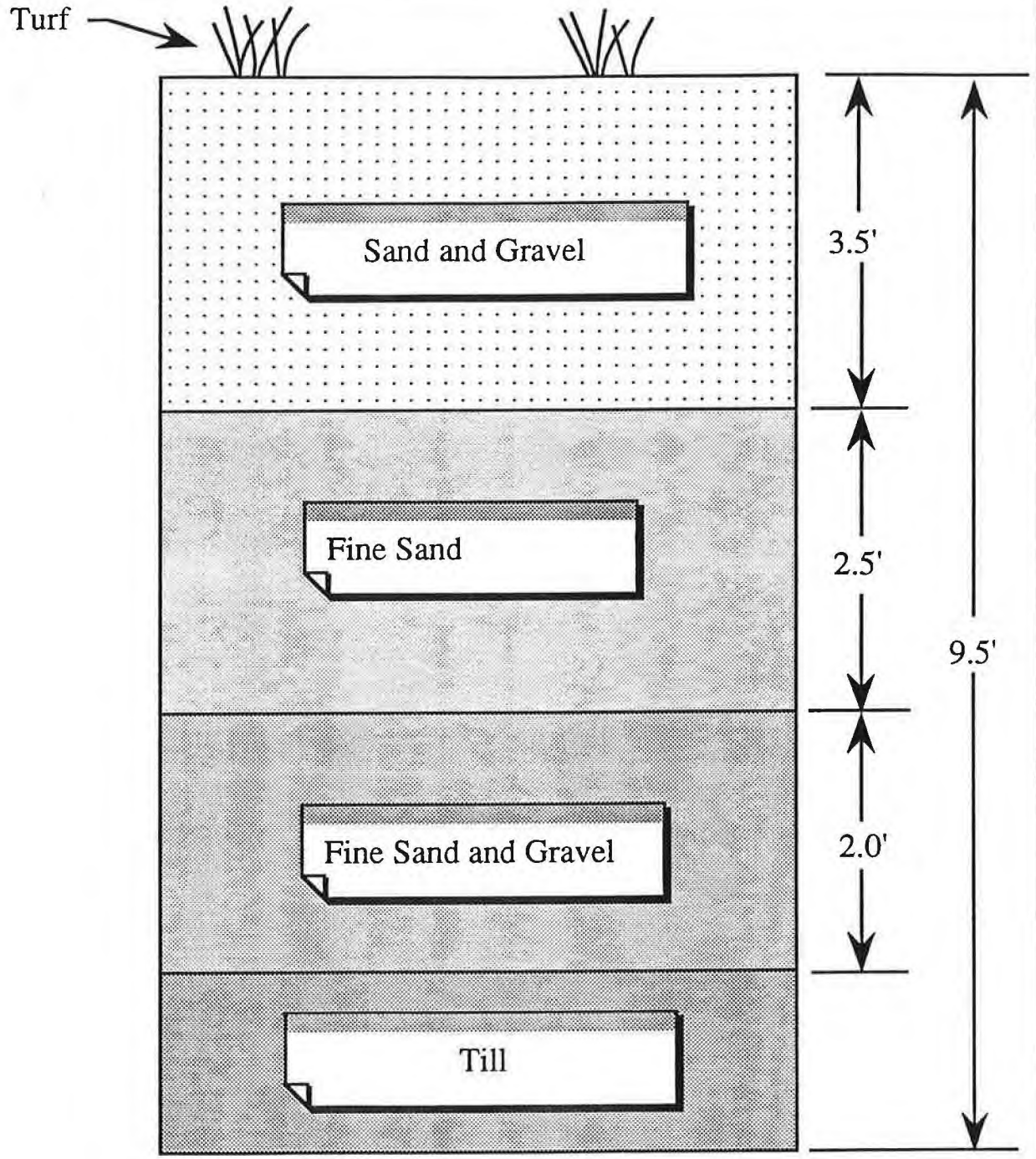
See Section 4.8 - Laboratory Analytical Results

4.2.2 Soil Stratigraphy

The stratigraphy of the soil consisted of brown sand and gravel for approximately the first 3.5 feet. The following 2.5 feet was made up of fine sand. The next 2 feet of the excavation revealed brown, fine sand and gravel. Glacial till was encountered from approximately 8 feet to the bottom of the excavation at 9.5 feet below grade. (See Soil Stratigraphy - Figure 4.4.)

4.2.3 Contaminated Soil Disposal

Prior to disposal, contaminated soil was laboratory analyzed for disposal classification



SOIL STRATIGRAPHY

1,000 gallon UST excavation at:
Building 2290
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

UST-28

FIGURE: 4.4

ĀTEC

purposes. One soil sample (LSP-28) was obtained from stockpiled soil. Laboratory analyses were performed for VOCs, Semi-volatiles, Flashpoint, PCBs, Reactive Sulfide Reactive Cyanide, Corrosivity (pH), and 13 TCLP Metals.

Laboratory analytical results revealed 8.3 standard units (S.U.) Corrosivity, 0.06 ppm Copper, 0.20 ppm Zinc, 0.04 ppm Nickel, 0.4 ppm Lead. All other analytical results were below the Method Reporting Limits (MRL). (See Section 4.8 Laboratory Analytical Results).

Approximately 135.50 cubic yards (220.22 tons) of number 2 fuel oil contaminated soil was removed and stockpiled during remediation of the excavation, as estimated through field drawings (see Figure 4.3 - Remedial Excavation Plan). Contaminated soil was disposed for recycling at Trimount Bituminous Products Company, Shrewsbury, Massachusetts.

4.3 HYDROGEOLOGICAL INVESTIGATION

4.3.1 General Explanation of Procedures

At the time of the removal of UST No. 0028, laboratory analysis of one soil sample obtained from the bottom of the excavation revealed a TPH concentration of 2,350.0 ppm. Following additional excavation of petroleum contaminated soil, laboratory analytical results of two soil samples obtained from the bottom of the excavation revealed TPH concentrations ranging from 4,030.0 to 4,840.0 ppm. Therefore, three groundwater monitoring wells were drilled and installed in the vicinity of UST No. 0028 to assess soil and groundwater conditions.

Prior to advancing soil borings at the site, "Dig-safe" was contacted. Dig Safe contacts various utilities to mark their service connections on public ground surfaces. The Fort Devens Plumbing Department was contacted and site plans were reviewed that depicted

underground utilities (i.e. water, gas, and sewer). Ron DeFilippo, Contracting Officer Representative (COR) met with Craig D. Trombly, Project Manager with ATEC to determine monitoring well locations to assess the potential release of number 2 fuel oil from the 1,000-gallon UST (UST No. 0028). Geosearch, Inc. of Leominister, Massachusetts, was subcontracted by ATEC to install the monitoring wells at the site. Monitoring well borings were advanced on September 30, 1992, utilizing hollow stem auger drilling techniques. Split spoon samplers were utilized to collect subsurface soil samples and determine soil types at five foot intervals.

4.3.2 Soil Borings for Monitoring Wells

Monitoring well MW-1 was installed approximately 47.5 feet west of Building 2290 and approximately 39.5 feet west of the backfilled tank excavation (see Figure 4.5 Site Plan). MW-1 is located hydrogeologically crossgradient of the former UST No. 0028. MW-1 was advanced to a depth of 12.5 feet to assess the potential release of number 2 fuel oil from the removed UST. Soil types encountered from grade level to a depth of approximately 6 feet below grade consisted primarily of very loose to medium dense, fine to coarse light-brown sand. Soil encountered from a depth of approximately 9 to 11 feet below grade consisted primarily of stiff, grey, silty clay. Concentrations of TOVs were not detected by field screening with a PID. Furthermore, no petroleum odors were noted. Groundwater was encountered during drilling at approximately 11 feet below grade. Auger refusal was encountered at a depth of approximately 12.5 feet below grade. See Section 4.14 - Boring Logs for further information.

Monitoring well MW-2 was installed approximately 23 feet west of Building 2290 and approximately 15 feet north of the backfilled tank excavation (see Figure 4.5 Site Plan). MW-2 is located hydrogeologically upgradient of the former UST No. 0028. MW-2 was advanced to a depth of 15 feet to assess the potential release of number 2 fuel oil from the removed UST. Soil types encountered from grade level to a depth of approximately 6 feet below grade consisted primarily of very loose to medium dense, fine to coarse

light-brown sand. Soil encountered from a depth of approximately 9 to 11 feet below grade consisted primarily of stiff, grey, silty clay. Concentrations of TOVs were not detected by field screening with a PID. Furthermore, petroleum odors were not noted. Groundwater was encountered during drilling at approximately 11 feet below grade. Auger refusal was encountered at a depth of approximately 15 feet below grade. See Section 4.14 - Boring Logs for further information.

Monitoring well MW-3 was installed approximately 18 feet west of Building 2290 and approximately 26.5 feet south of the backfilled tank excavation (see attached Site Plan, Figure 4.5). MW-3 is located hydrogeologically downgradient of the former UST No. 0028. MW-3 was advanced to a depth of 14 feet to assess the potential release of number 2 fuel oil from the removed UST. Soil types encountered from grade level to a depth of approximately 6 feet below grade consisted primarily of very loose to medium dense, fine to coarse light-brown sand. Soil encountered from a depth of approximately 9 to 11 feet below grade consisted primarily of very stiff, grey-blue, silt. Results of PID screening revealed a TOV concentration of 65.0 ppm in one soil sample (MW-3.3) collected at 9 to 11 feet below grade. Petroleum odors were noted in soil sample MW-3.3. Groundwater was encountered during drilling at approximately 9 feet below grade. Auger refusal was encountered at a depth of approximately 14 feet below grade. See Section 4.14 - Boring Logs for further information.

4.3.3 Results of Soil Screenings and Chemical Analyses

Split spoon soil samples were obtained at minimum five foot intervals during the installation of monitoring wells at the site. Split spoon soil samples were screened for TPH utilizing a NDIR. Subsurface soil samples were placed directly into pre-labeled, precleaned containers and immediately placed on ice for shipment to the laboratory. TPH samples were placed in 500-ml amber glass jars.

Three subsurface soil samples were selected during the installation of monitoring well one

(MW-1) and labelled MW-1.1, MW-1.2, and MW-1.3. Results of NDIR screening revealed TPH concentrations of 27.1 ppm, 11.8 ppm, and 37.3 ppm in soil samples MW-1.1, MW-1.2, and MW-1.3, respectively.

Three subsurface soil samples were selected during the installation of monitoring well two (MW-2) and labelled MW-2.1, MW-2.2, and MW-2.3. Results of NDIR screening revealed TPH concentrations of 18.6 ppm, 18.3 ppm, and 11.6 ppm in soil samples MW-2.1, MW-2.2, and MW-2.3, respectively.

Three subsurface soil samples were selected during the installation of monitoring well three (MW-3) and labelled MW-3.1, MW-3.2, and MW-3.3. Results of NDIR screening revealed TPH concentrations of 26.1 ppm, 10.0 ppm, and 1,376.0 ppm in soil samples MW-3.1, MW-3.2, and MW-3.3, respectively.

Analytical results of subsurface soil samples collected during the site investigation are presented in Table 4.4 - Summary of Subsurface Soil Analyses.

TABLE 4.4 - SUMMARY OF SUBSURFACE SOIL ANALYSES

SAMPLE NUMBER	DEPTH (ft.)	TPH (ppm)
MW-1.1	0-2	27.1
MW-1.2	4-6	11.8
MW-2.3	9-11	37.3
MW-2.1	0-2	18.6
MW-2.2	4-6	18.3
MW-2.3	9-11	11.6
MW-3.1	0-2	26.1
MW-3.2	4-6	10.0
MW-3.3	9-11	1,376.0

4.3.4 Details of Monitoring Well Construction

Monitoring wells were typically constructed of 10 feet of, bottom-plugged, 2 inch diameter Polyvinyl Chloride (PVC) well screen (0.010 inch slot) followed by a length of 2 inch diameter PVC solid riser to grade level. No. 2 washed, silica sand was packed to approximately 1 foot above the screen followed by a 1 to 2 foot thick bentonite grout packing. The remainder of the boring was backfilled with washed silica sand and concrete surface seal to grade.

Monitoring wells were fitted with a 6 inch diameter flush mount cast iron roadbox.

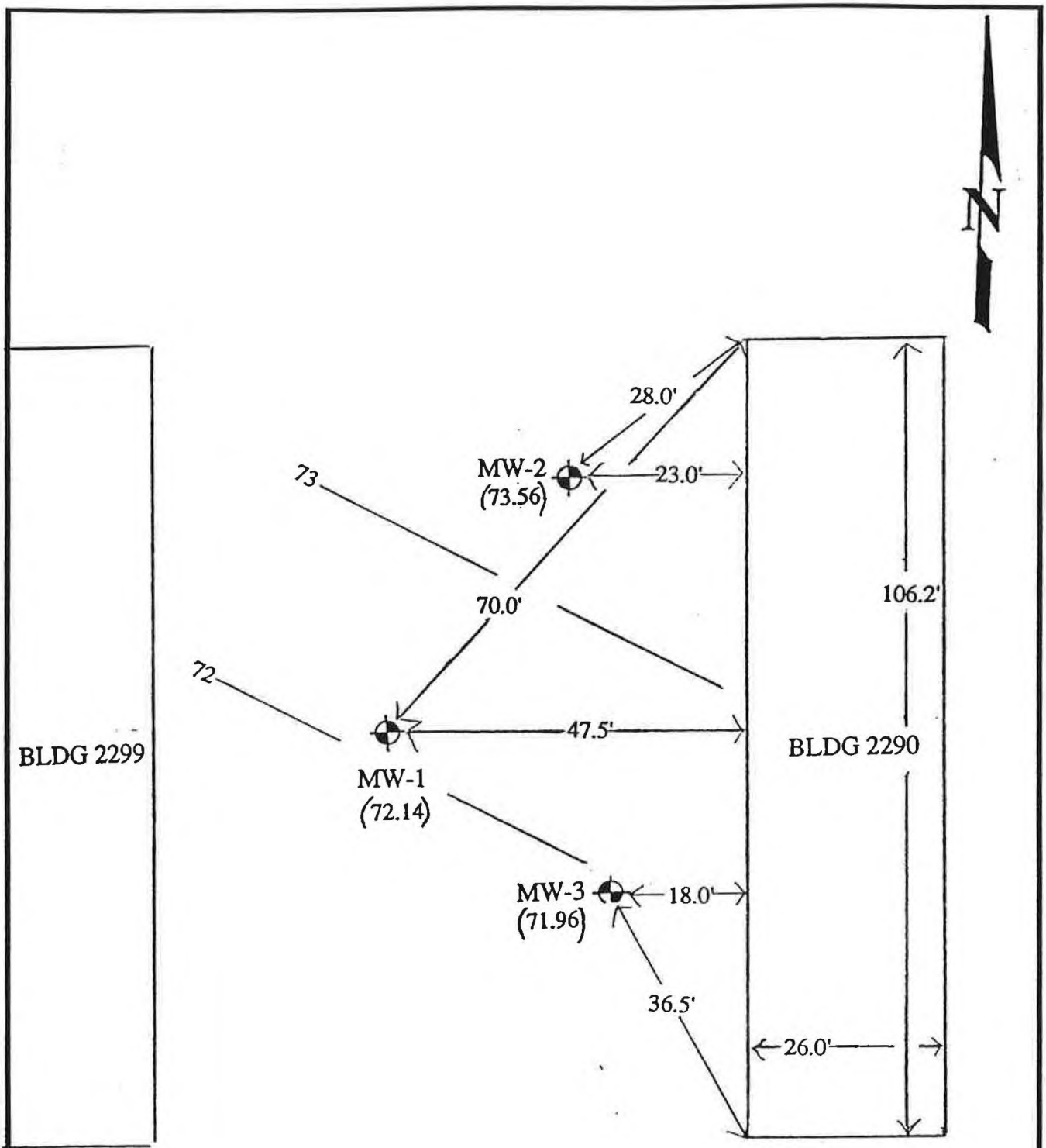
Monitoring well locations are depicted on Figure 4.5 - Site Plan. Boring logs are included in Section 4.14.

4.3.5 Standard Type Survey and Determination of Groundwater Gradient

An instrument survey was conducted by Glen Harrington, Scientist II and Andrea Mischel, Environmental Scientist, to determine the relative locations and elevations of the groundwater monitoring wells and significant surficial features. The monitoring wells were gauged utilizing an electronic water level meter prior to sampling to determine the groundwater elevations at each well.

Groundwater elevations were then calculated utilizing the survey and gauging data. Based on the gauging data, groundwater in the area flows generally to the southwest across the site at a lateral hydraulic gradient of 3.4 percent. Groundwater at the site occurs at depths of 10.52 feet, 9.15 feet, and 10.35 feet below grade for MW-1, MW-2, and MW-3, respectively.

Table 4.5 - summarizes groundwater elevations measured at the three monitoring wells installed at the site.



SITE PLAN

GROUNDWATER MONITORING WELLS
UST #28 relative to: Building 2290
Fort Devens, Massachusetts

PROJECT: 37.07.92.00451

SCALE: 1 IN. = 20 FT.

FIGURE: 4.5

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TABLE 4.5 - SUMMARY OF GROUNDWATER ELEVATIONS

MONITORING WELL	DATE	RIM ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW-1	11-4-92	82.66	10.52	72.14
MW-2	11-4-92	82.61	9.15	73.56
MW-3	11-4-92	82.31	10.35	71.96

4.3.6 Results of Groundwater Chemical Analyses

Each of the three groundwater monitoring wells were sampled on November 4, 1992. The groundwater samples were analyzed for TPH. Approximately three well casing volumes of groundwater were purged from each well prior to sample collection.

Groundwater samples were placed directly into pre-labeled, precleaned 500 ml amber glass jars and immediately placed on ice for shipment to the laboratory. The samples were analyzed for TPH by Environmental Science Services (ESS) of Providence, Rhode Island.

Chain-of-custody forms were completed and included in the shipment.

Laboratory analytical results revealed no detectable concentrations of TPH in the groundwater samples collected from MW-1 and MW-2. Laboratory analytical results revealed a TPH concentration of 12.0 ppm in the groundwater sample MW-3.

Analytical results of groundwater samples collected during the site investigation are depicted in Table 4.6 - Summary of Groundwater Analyses.

TABLE 4.6 - SUMMARY OF GROUNDWATER ANALYSES

SAMPLE NUMBER	TPH (ppm)
MW-1	N.D.
MW-2	N.D.
MW-3	12.0

N.D. - Not detected

4.4 BACKFILL

The excavation was lined with polyethylene plastic sheeting and backfilled with approximately 158.3 cubic yards of uncontaminated fill material on August 5, 1992. Backfilling was conducted with the approval of the Contracting Officer's Representative.

4.5 SITE RESTORATION

Following backfill of the excavation, approximately 338 square feet of loam was distributed over the excavated area. Seed was then distributed over the disturbed area.

4.6 PHOTOGRAPHIC DOCUMENTATION

The following photographs are of the removed UST, the excavation, and a post remedial view of the excavation.

A-1: One side of removed tank.

A-2: Opposite side of removed tank.

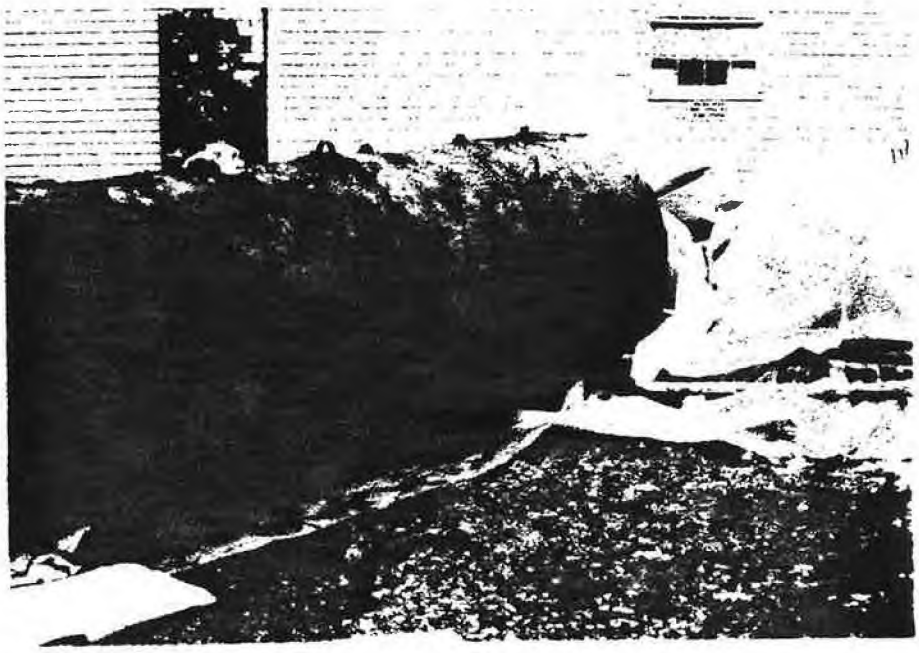
A-3: Photograph not available.

A-4: Photograph not available

A-5: Post-remedial excavation as viewed from south, facing north.

A-6: Post-remedial excavation as viewed from north, facing south.

A-1



A-2

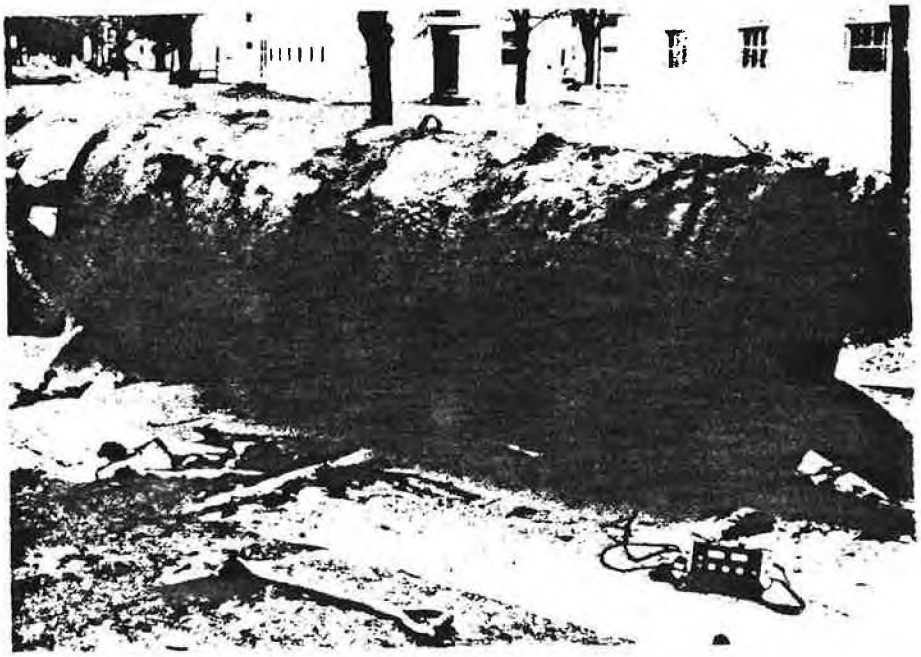
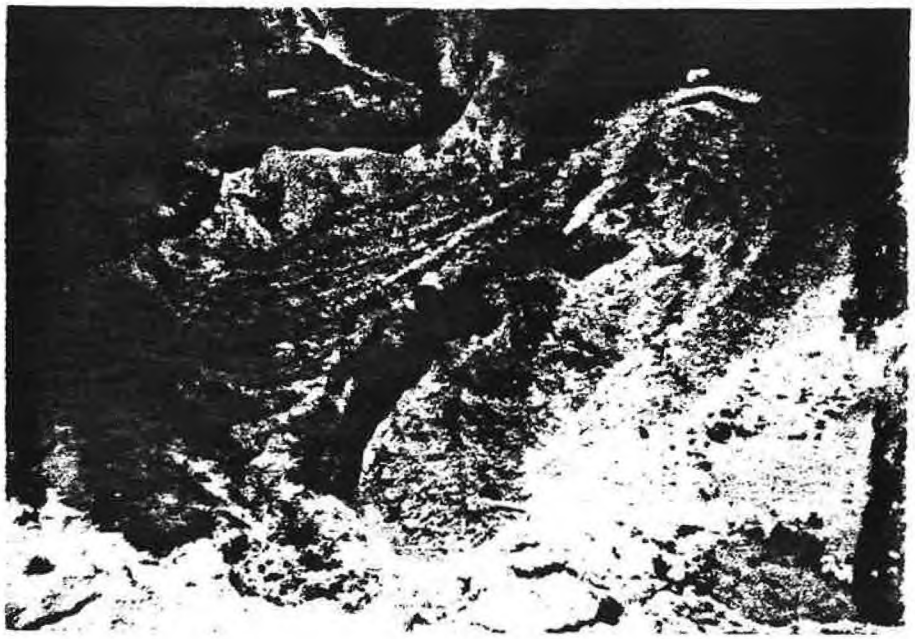


PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 1666 Fort Devens, Massachusetts	PROJECT: 37.07.91.07451	ĀTEC

A-5



A-6

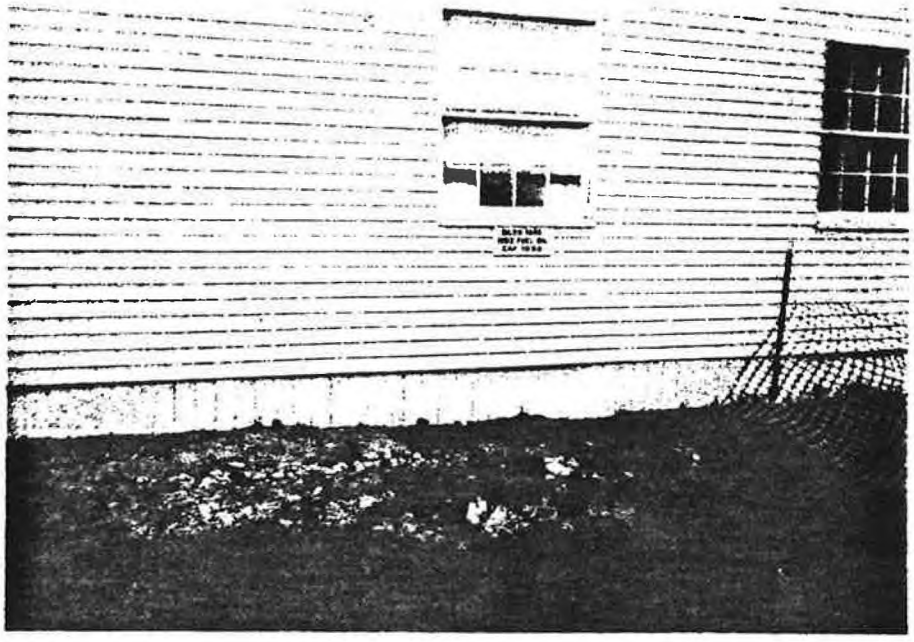


PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 1666 Fort Devens, Massachusetts	PROJECT: 37.07.91.07451 UST-26	ĀTEC

4.8 OCMA 220 DATA SHEETS

The following information was organized from the data collected from the Non-dispersive Infrared Analyzer.

- SS-1 to SS-10, Stock-1 and Stock-2: Soil samples obtained from original excavation.

- MW-1.1 to MW-1.3, MW-2.1 to MW-2.3, MW-3.1 to MW-3.3: Soil samples obtained from monitoring wells.

OCMA Data Sheet

Operator Name: RW German **Date:** 14 Jan 92 ***EBI* Project Number:** 3709.451
Task #28

Calibration

	First Reading		Second Reading		Third Reading	
	Initial	Final	Initial	Final	Initial	Final
Zero Calibration	-3.9	0.0	-1.7	0.0	-0.1	0.0
Span Calibration	36.3	40.0	47.6	40.0	40.7	40.0
Zero Calibration	6.6	0.0	-6.8	0.0	-0.8	0.0

Span Check: 27.9

Testing

Sample ID#	Weight		First Approach		Second Approach		Readings			
	Gross	Tare	F-113	Sample	F-113	Sample	First	Second	Third	
SPIKE2	81.2	75.0		370			4.3	5.0	5.5	175.1
SPIKE2	83.7	75.9					1.7	2.2	2.2	57.8
1	77.5	74.2					.4	.4	—	15.5
2	82.9	74.4					.3	.3		7.2
3	79.1	74.3					3.3	3.6	—	153.7
4	79.7	74.7					.4	.5	—	102.5
5	80.3	74.8					.3	.3	—	6.5
6	81.8	75.2					.2	.3	—	9.3
7	81.0	74.6					.7	.7	—	22.4
8	80.5	74.2					.4	.4	—	13.0
9	80.5	74.3					31.0	30.8	—	1,017.9
10	79.6	74.5					.5	.3	—	20.0

TPH SOIL ANALYSES BY NON-DISPERSIVE INFRARED ANALYZER - MODIFIED EPA STANDARD TEST METHOD 418.1

PROJECT NAME, NUMBER, TANK: U.S. ARMY - FORT DEVENS 37.07.91.4 UST 28

DATE: Nov 4, 1992

OPERATOR: David G. Pannuto

CALIBRATION DATA

TYPE CALIBRATION	FIRST READING INITIAL	FIRST READING FINAL	SECOND READING INITIAL	SECOND READING FINAL	THIRD READING INITIAL	THIRD READING FINAL	SPAN CHECK
ZERO:	1.9	0.0	-2.4	0.0	-0.1	0.0	30.1
SPAN:	39.3	40.0	39.7	40.0	40.1	40.0	
ZERO:	-0.5	0.0	-0.3	0.0	-0.1	0.0	

ANALYTICAL DATA

SAMPLE NUMBER	WEIGHT (g) GROSS	WEIGHT (g) TARE	1st DILUTION RATIO (ml) F-113	1st DILUTION RATIO (ml) SAMPLE	2nd DILUTION RATIO (ml) F-113	2nd DILUTION RATIO (ml) SAMPLE	INSTRUMENT RESULTS (ppm) 1st	INSTRUMENT RESULTS (ppm) 2nd	INSTRUMENT RESULTS (ppm) 3rd	CONCENTRATION mg/l
MW -1.1	83.9	78.6	17.5	3.0	--	--	1.7	0.7	--	27.1
MW -1.2	83.9	78.7	17.5	3.0	--	--	0.4	0.3	--	11.8
MW -1.3	84.5	77.9	17.5	3.0	--	--	1.1	1.2	--	37.3
MW -2.1	84.8	77.1	17.5	3.0	----	----	0.7	0.7	--	18.6
MW -2.2	84.5	78.9	17.5	3.0	--	--	0.4	0.5	--	18.3
MW -2.3	89.2	80.4	17.5	3.0	--	--	0.3	0.5	--	11.6
MW -3.1	85.5	80	17.5	3.0	--	--	0.6	0.7	--	26.1
MW -3.2	86.5	78.3	17.5	3.0	----	----	0.4	0.4	--	10.0
MW -3.3	84.6	78.0	17.5	3.0	----	----	45.9	44.3	--	1376.0

4.8 LABORATORY ANALYTICAL RESULTS

The following laboratory analytical reports are associated with the removal, remedial excavation, and stockpiled soil. These reports were organized and provided by Environmental Science Services, Inc. (ESS).

- LSS-1, LSS-2, and LSS-3: Soil samples obtained from original excavation and the soil stockpile. Laboratory analyzed for TPH.

- LRS-1 to LRS-6: Soil samples obtained from post-remedial excavation. Laboratory analyzed for TPH. LRS-4 and LRS-6 were additionally analyzed for VOCs and 13 TCLP Metals. Please note that the analytical laboratory states that LRS-5 and LRS-6 were obtained from Building 2980. This is a laboratory typographic error. This can be confirmed by reviewing the Chain of Custody forms.

- LSP-28: Soil sample obtained from stockpiled soil for disposal classification. Laboratory analyzed for VOCs, semi-volatiles, Flashpoint, PCBs, Reactive Cyanide, Reactive Sulfide, Corrosivity (pH), and 13 TCLP Metals.

- MW-1.1 to MW-1.3, MW-2.1 to MW-2.3, MW-3.1 to MW-3.3: Soil samples obtained from monitoring wells. Laboratory analyzed for TPH.

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens-Stockpiled Soils **ESS Project ID:** 921528

Client Sample ID: LSP-28 **ESS Sample ID:** 921528-01

Date Sample Received: 6/11/92 **Date Reported:** 7/1/92

Parameter	Results	Units	MRL	Method
pH (Corrosivity)	8.3	S.U.	N/A	9045
Flashpoint	No Flash	°F	200	1010
Polychlorinated Biphenyls	ND	mg/Kg	Attached	8080
Reactive Cyanide	ND	mg/Kg	2	7.3.3.2
Reactive Sulfide	ND	mg/Kg	2	7.3.4.1
Semivolatile Organics	ND	ug/Kg	Attached	8270
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Lead	0.4	mg/L	Attached	6010
Copper	0.06	mg/L	Attached	6010
Nickel	0.04	mg/L	Attached	6010
Zinc	0.20	mg/L	Attached	6010

N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92

David Dickinson
Laboratory Director

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax. (401) 421-5731
191 Post Road West, Westport, Connecticut 06880 (203) 221-2753 Fax. (203) 454-4970

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 28 Bldg.2980, UST 29 Bldg.2996

ESS Project ID: 922057

Client Sample ID: LRS-1, UST 28

ESS Sample ID: 922057-01

Date Sample Received: 8/7/92

Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	93	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	81	mg/Kg	11	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____
David Dickinson
Laboratory Director

Date: 14 Aug 92

001

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 28 Bldg.2980, UST 29 Bldg.2996

ESS Project ID: 922057

Client Sample ID: LRS-2, UST 28

ESS Sample ID: 922057-02

Date Sample Received: 8/7/92

Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	92	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	135	mg/Kg	11	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

002

Environmental Science Services

532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax (401) 421-5731

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 28 Bldg.2980, UST 29 Bldg.2996

ESS Project ID: 922057

Client Sample ID: LRS-3, UST 28

ESS Sample ID: 922057-03

Date Sample Received: 8/7/92

Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	94	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	112	mg/Kg	11	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

003

Environmental Science Services

532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax (401) 421-5731

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 28 Bldg. 2980, UST 29 Bldg. 2966

ESS Project ID: 922057

Client Sample ID: LRS-4, UST 28

ESS Sample ID: 922057-04

Date Sample Received: 8/7/92

Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	96	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	125	mg/Kg	10	418.1
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals	ND	mg/L	Attached	6010

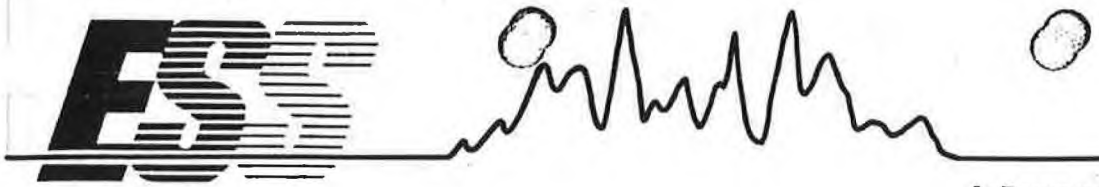
TPHIR reported on dry weight basis

ND = Not Detected above the Method Reporting Limit(MRL)

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

004



In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 28 Bldg.2980, UST 29 Bldg.2996

ESS Project ID: 922057

Client Sample ID: LRS-5, UST 28

ESS Sample ID: 922057-05

Date Sample Received: 8/7/92

Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	87	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	4,840	mg/Kg	115	418.1

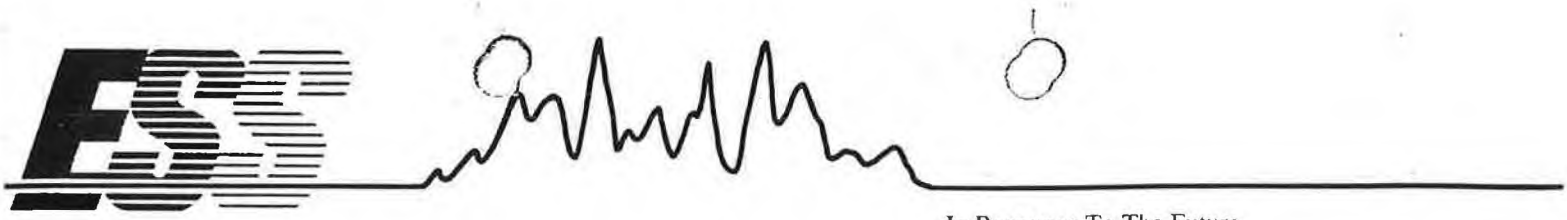
TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

007



In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 28 Bldg. 2980, UST 29 Bldg. 2966

ESS Project ID: 922057

Client Sample ID: LRS-6, UST 28

ESS Sample ID: 922057-06

Date Sample Received: 8/7/92

Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	89	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	4,030	mg/Kg	112	418.1
Volatile Organics				
Ethyl Benzene	30	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Zinc	0.38	mg/L	Attached	6010

TPHIR reported on dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

008

In Response To The Future

CERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants
Client Project ID: UST# 28, 29
Client Sample ID: LRS-6, UST 28
ESS Sample ID: 922057-06

Date Sampled: 8/6/92
Date TCLP Performed: 8/10/92
Date Leachate Extracted: 8/11/92
Date Extract Analyzed: 8/11/92

	Actual		Adjusted*	
Target Analyte	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.2	ND	0.3
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.02
Chromium	ND	0.05	ND	0.07
Lead	ND	0.1	ND	0.1
Mercury	ND	0.005	ND	0.005
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.07
Copper	ND	0.02	ND	0.02
Nickel	ND	0.04	ND	0.04
Zinc	0.36	0.02	0.38	0.03
Beryllium	ND	0.02	ND	0.03
Thallium	ND	0.3	ND	0.4

* Actual sample result adjusted for matrix bias. Refer to matrix spike analysis summary form.

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 14 Aug 92
David Dickinson
Laboratory Director

010

532 Mundell Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax (401) 421-5731

In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: UST 28, 29 — ESS Project ID: 922057

Client Sample ID: LRS-6, UST 28 — ESS Sample ID: 922057-06

Date Sample Received: 8/7/92 — Date Reported: 8/14/92

Parameter	Result (ug/Kg)	MRL
Methylene Chloride	ND	5
1,1-Dichloroethane	ND	5
Chloroform	ND	5
Carbon Tetrachloride	ND	5
1,2-Dichloropropane	ND	5
Dibromochloromethane	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
Chlorobenzene	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Bromodichloromethane	ND	5
Trans-1,3-Dichloropropene	ND	5
Bromoform	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Benzene	ND	5
Toluene	ND	5
Ethyl Benzene	**30**	5
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	10
1,1-Dichloroethene	ND	5
1,2-Dichloroethene (Total)	ND	5
Trichloroethene	ND	5
Acetone	ND	10
Carbon Disulfide	ND	5
2-Butanone	ND	10
Cis-1,3-Dichloropropene	ND	5
4-Methyl-2-Pentanone	ND	10
2-Hexanone	ND	10
Styrene	ND	5
Xylenes (Total)	ND	10

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

009

In Response To The Future

CERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants
Client Project ID: UST# 28, 29
Client Sample ID: LRS-4, UST 28
ESS Sample ID: 922057-04

Date Sampled: 8/6/92
Date TCLP Performed: 8/10/92
Date Leachate Extracted: 8/11/92
Date Extract Analyzed: 8/11/92

	Actual		Adjusted*	
Target Analyte	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.2	ND	0.3
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.02
Chromium	ND	0.05	ND	0.07
Lead	ND	0.1	ND	0.1
Mercury	ND	0.005	ND	0.005
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.07
Copper	ND	0.02	ND	0.02
Nickel	ND	0.04	ND	0.04
Zinc	ND	0.02	ND	0.03
Beryllium	ND	0.02	ND	0.03
Thallium	ND	0.3	ND	0.4

* Actual sample result adjusted for matrix bias. Refer to matrix spike analysis summary form.

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 14 Aug 92
David Dickinson
Laboratory Director

006

In Response To The Future

CHEMICAL ANALYSIS — TCL VOLATILE ORGANICS
Method 8240

Environmental Consultants

ct ID: UST 28, 29 — ESS Project ID: 922057

le ID: LRS-4, UST 28 — ESS Sample ID: 922057-04

e Received: 8/7/92 — Date Reported: 8/14/92

	Result (ug/Kg)	MRL
e Chloride	ND	5
loroethane	ND	5
orm	ND	5
Tetrachloride	ND	5
chloropropane	ND	5
mochloromethane	ND	5
-Trichloroethane	ND	5
achloroethene	ND	5
orobenzene	ND	5
-Dichloroethane	ND	5
1,1-Trichloroethane	ND	5
Bromodichloromethane	ND	5
trans-1,3-Dichloropropene	ND	5
Bromoform	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Benzene	ND	5
Toluene	ND	5
Ethyl Benzene	ND	5
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	10
1,1-Dichloroethene	ND	5
1,2-Dichloroethene (Total)	ND	5
Trichloroethene	ND	5
Acetone	ND	10
Carbon Disulfide	ND	5
2-Butanone	ND	10
Cis-1,3-Dichloropropene	ND	5
4-Methyl-2-Pentanone	ND	10
2-Hexanone	ND	10
Styrene	ND	5
Xylenes (Total)	ND	10

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

005

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-[illegible] Fax (401) 421-[illegible]

RECEIVED JAN 2 1 1992

In Response To The Future

CERTIFICATE OF ANALYSIS

Date: 1/17/92 Job: 99
Account: 95659
Received: 1/13/92

TO: ATEC ENVIRONMENTAL CO.
62 Accord Park Drive
Norwell, MA 02061

Project: TANK 28

Attn: Mr. Mark Baldi

Sample Number	Method Number	Parameter	Result	Unit	Sample Description
92009901	EPA-160.3	Total Solids	88	%	LSS-1
	EPA-418.1	TPH/IR (Dry Wt.)	17	mg/kg	
92009902	EPA-160.3	Total Solids	76	%	LSS-2
	EPA-418.1	TPH/IR (Dry Wt.)	2350	mg/kg	
92009903	EPA-160.3	Total Solids	91	%	LSS-3
	EPA-418.1	TPH/IR (Dry Wt.)	216	mg/kg	

David Dickinson
Laboratory Manager

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax (401) 421-5731

ESS

8 8

In Response To The Future

CERTIFICATE OF ANALYSIS

POLYCHLORINATED BIPHENYLS
Method 8080

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens-Stockpiled Soils — ESS Project ID: 921528

Client Sample ID: LSP-28 — ESS Sample ID: 921528-01

Date Sample Received: 6/11/92 — Date Reported: 6/30/92

Parameter	Result (mg/Kg)	MRL
Arochlor 1016	ND	0.1
Arochlor 1221	ND	0.1
Arochlor 1232	ND	0.1
Arochlor 1242	ND	0.1
Arochlor 1248	ND	0.1
Arochlor 1254	ND	0.2
Arochlor 1260	ND	0.2

ND = Not Detected above Method Reporting Limit (MRL)

Surrogate Recovery Data	% Recovery	QC Limit
Dibutylchlorendate	90%	50 - 150%

Approved by: [signature]
David Dickinson
Laboratory Director

Date: 2 Jul 92

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax. (401) 421-5731
[illegible] 06880 (203) 221-2753 Fax. (203) 454-4970

In Response To The Future

CERTIFICATE OF ANALYSIS

ACID EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens-Stockpiled Soils **ESS Project ID: 921528**

Client Sample ID: LSP-28 **ESS Sample ID: 921528-01**

Date Sample Received: 6/9/92 **Date Reported: 7/1/92**

Parameter	Result (ug/Kg)	MRL
2-Chlorophenol	ND	1,670
2-Nitrophenol	ND	1,670
Phenol	ND	1,670
2,4-Dimethylphenol	ND	1,670
2,4-Dichlorophenol	ND	1,670
2,4-Dinitrophenol	ND	8,350
Pentachlorophenol	ND	8,350
4-Nitrophenol	ND	8,350
2,4,6-Trichlorophenol	ND	1,670
2,4,5-Trichlorophenol	ND	8,350
2-Methylphenol	ND	1,670
4-Methylphenol	ND	1,670
4-Chloro-3-Methylphenol	ND	1,670
4,6-Dinitro-2-Methylphenol	ND	8,350

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92
David Dickinson
Laboratory Director

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In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens-Stockpiled Soils **ESS Project ID: 921528**

Client Sample ID: LSP-28 **ESS Sample ID: 921528-01**

Date Sample Received: 6/9/92 **Date Reported: 7/1/92**

Parameter	Result (ug/Kg)	MRL
Acenaphthylene	ND	1,670
1,2,4-Trichlorobenzene	ND	1,670
Hexachlorobenzene	ND	1,670
Bis(2-chloroethyl)ether	ND	1,670
2-Chloronaphthalene	ND	1,670
1,2-Dichlorobenzene	ND	1,670
1,3-Dichlorobenzene	ND	1,670
1,4-Dichlorobenzene	ND	1,670
3,3-Dichlorobenzidine	ND	3,340
2,4-Dinitrotoluene	ND	1,670
2,6-Dinitrotoluene	ND	1,670
Fluoranthene	ND	1,670
4-Chlorophenyl phenyl ether	ND	1,670
Bis(2-chloroisopropyl) ether	ND	1,670
Bis(2-chloroethoxy) methane	ND	1,670
Hexachlorobutadiene	ND	1,670
Hexachlorocyclopentadiene	ND	1,670
Isophorone	ND	1,670
Naphthalene	ND	1,670
Nitrobenzene	ND	1,670
N-nitrosodiphenylamine	ND	1,670
N-nitrosodi-n-propylamine	ND	1,670
Bis(2-ethylhexyl)phthalate	ND	1,670
Di-n-butylphthalate	ND	1,670
Di-n-octylphthalate	ND	1,670
Diethyl phthalate	ND	1,670
Dimethyl phthalate	ND	1,670
Benzo(a)anthracene	ND	1,670

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92

David Dickinson
Laboratory Director

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax. (401) 421-5731

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES cont.
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens-Stockpiled Soils **ESS Project ID: 921528**

Client Sample ID: LSP-28 **ESS Sample ID: 921528-01**

Date Sample Received: 6/9/92 **Date Reported: 7/1/92**

Parameter	Result (ug/Kg)	MRL
Benzo(a)pyrene	ND	1,670
Benzo(b)fluoranthene	ND	1,670
Benzo(k)fluoranthene	ND	1,670
Chrysene	ND	1,670
Acenaphthene	ND	1,670
Anthracene	ND	1,670
Benzo(ghi)perylene	ND	1,670
Fluorene	ND	1,670
Phenanthrene	ND	1,670
Dibenzo(a,h)anthracene	ND	1,670
Indeno(1,2,3-cd)pyrene	ND	1,670
Pyrene	ND	1,670
Hexachloroethane	ND	1,670
4-Bromophenyl-phenylether	ND	1,670
Benzyl Alcohol	ND	1,670
Benzoic Acid	ND	8,350
Bis(2-Chloroethoxy)methane	ND	1,670
4-Chloroaniline	ND	1,670
2-Methylnaphthalene	ND	1,670
2-Nitroaniline	ND	8,350
3-Nitroaniline	ND	1,670
Dibenzofuran	ND	1,670
4-Nitroaniline	ND	8,350
Butylbenzylphthalate	ND	1,670

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
Laboratory Director

Date: 2 Jul 92

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax. (401) 421-5731
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In Response To The Future

CERTIFICATE OF ANALYSIS

ACID EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens-Stockpiled Soils **ESS Project ID: 921528**

Client Sample ID: LSP-28 Matrix Spike **ESS Sample ID: 921528-01MS**

Date Sample Received: 6/9/92 **Date Reported: 7/1/92**

Parameter	Result (ug/Kg)	MRL
2-Chlorophenol	**18,000***	1,670
2-Nitrophenol	ND	1,670
Phenol	**16,700***	1,670
2,4-Dimethylphenol	ND	1,670
2,4-Dichlorophenol	ND	1,670
2,4-Dinitrophenol	ND	8,350
Pentachlorophenol	**14,700***	8,350
4-Nitrophenol	**14,000***	8,350
2,4,6-Trichlorophenol	ND	1,670
2,4,5-Trichlorophenol	ND	8,350
2-Methylphenol	ND	1,670
4-Methylphenol	ND	1,670
4-Chloro-3-Methylphenol	**14,300***	1,670
4,6-Dinitro-2-Methylphenol	ND	8,350

* Matrix Spike compound
ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92
David Dickinson
Laboratory Director

006

Environmental Science Services
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In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens-Stockpiled Soils ESS Project ID: 921528

Client Sample ID: LSP-28 Matrix Spike ESS Sample ID: 921528-01MS

Date Sample Received: 6/9/92 Date Reported: 7/1/92

Parameter	Result (ug/Kg)	MRL
Acenaphthylene	ND	1,670
1,2,4-Trichlorobenzene	9,170*	1,670
Hexachlorobenzene	ND	1,670
Bis(2-chloroethyl)ether	ND	1,670
2-Chloronaphthalene	ND	1,670
1,2-Dichlorobenzene	ND	1,670
1,3-Dichlorobenzene	ND	1,670
1,4-Dichlorobenzene	7,670*	1,670
3,3-Dichlorobenzidine	ND	3,340
2,4-Dinitrotoluene	7,170*	1,670
2,6-Dinitrotoluene	ND	1,670
Fluoranthene	ND	1,670
4-Chlorophenyl phenyl ether	ND	1,670
Bis(2-chloroisopropyl) ether	ND	1,670
Bis(2-chloroethoxy) methane	ND	1,670
Hexachlorobutadiene	ND	1,670
Hexachlorocyclopentadiene	ND	1,670
Isophorone	ND	1,670
Naphthalene	ND	1,670
Nitrobenzene	ND	1,670
N-nitrosodiphenylamine	ND	1,670
N-nitrosodi-n-propylamine	7,830*	1,670
Bis(2-ethylhexyl)phthalate	ND	1,670
Di-n-butylphthalate	ND	1,670
Di-n-octylphthalate	ND	1,670
Diethyl phthalate	ND	1,670
Dimethyl phthalate	ND	1,670
Benzo(a)anthracene	ND	1,670

* Matrix Spike compound
ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92
David Dickinson
Laboratory Director

007

Environmental Science Services
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101 Rye Ridge West, Windsor, Connecticut 06880 (203) 285-2553 Fax. (203) 454-4970

In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES cont.
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens-Stockpiled Soils **ESS Project ID: 921528**

Client Sample ID: LSP-28 Matrix Spike **ESS Sample ID: 921528-01MS**

Date Sample Received: 6/9/92 **Date Reported: 7/1/92**

Parameter	Result (ug/Kg)	MRL
Benzo(a)pyrene	ND	1,670
Benzo(b)fluoranthene	ND	1,670
Benzo(k)fluoranthene	ND	1,670
Chrysene	ND	1,670
Acenaphthene	13,300*	1,670
Anthracene	ND	1,670
Benzo(ghi)perylene	ND	1,670
Fluorene	ND	1,670
Phenanthrene	ND	1,670
Dibenzo(a,h)anthracene	ND	1,670
Indeno(1,2,3-cd)pyrene	ND	1,670
Pyrene	11,300*	1,670
Hexachloroethane	ND	1,670
4-Bromophenyl-phenylether	ND	1,670
Benzyl Alcohol	ND	1,670
Benzoic Acid	ND	8,350
Bis(2-Chloroethoxy)methane	ND	1,670
4-Chloroaniline	ND	1,670
2-Methylnaphthalene	ND	1,670
2-Nitroaniline	ND	8,350
3-Nitroaniline	ND	1,670
Dibenzofuran	ND	1,670
4-Nitroaniline	ND	8,350
Butylbenzylphthalate	ND	1,670

* Matrix Spike compound
ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92
David Dickinson
Laboratory Director

008

Environmental Science Services
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In Response To The Future

CERTIFICATE OF ANALYSIS

ACID EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens-Stockpiled Soils ESS Project ID: 921528

Client Sample ID: LSP-28 Matrix Spike Dup. ESS Sample ID: 921528-01MSD

Date Sample Received: 6/9/92 Date Reported: 7/1/92

Parameter	Result (ug/Kg)	MRL
2-Chlorophenol	**18,300***	1,670
2-Nitrophenol	ND	1,670
Phenol	**16,700***	1,670
2,4-Dimethylphenol	ND	1,670
2,4-Dichlorophenol	ND	1,670
2,4-Dinitrophenol	ND	8,350
Pentachlorophenol	**16,700***	8,350
4-Nitrophenol	**17,300***	8,350
2,4,6-Trichlorophenol	ND	1,670
2,4,5-Trichlorophenol	ND	8,350
2-Methylphenol	ND	1,670
4-Methylphenol	ND	1,670
4-Chloro-3-Methylphenol	**14,300***	1,670
4,6-Dinitro-2-Methylphenol	ND	8,350

* Matrix Spike compound
ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92
David Dickinson
Laboratory Director

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In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens-Stockpiled Soils ESS Project ID: 921528

Client Sample ID: LSP-28 Matrix Spike Dup. ESS Sample ID: 921528-01MSD

Date Sample Received: 6/9/92 Date Reported: 7/1/92

Parameter	Result (ug/Kg)	MRL
Acenaphthylene	ND	1,670
1,2,4-Trichlorobenzene	**9,170***	1,670
Hexachlorobenzene	ND	1,670
Bis(2-chloroethyl)ether	ND	1,670
2-Chloronaphthalene	ND	1,670
1,2-Dichlorobenzene	ND	1,670
1,3-Dichlorobenzene	ND	1,670
1,4-Dichlorobenzene	**7,670***	1,670
3,3-Dichlorobenzidine	ND	3,340
2,4-Dinitrotoluene	**8,330***	1,670
2,6-Dinitrotoluene	ND	1,670
Fluoranthene	ND	1,670
4-Chlorophenyl phenyl ether	ND	1,670
Bis(2-chloroisopropyl) ether	ND	1,670
Bis(2-chloroethoxy) methane	ND	1,670
Hexachlorobutadiene	ND	1,670
Hexachlorocyclopentadiene	ND	1,670
Isophorone	ND	1,670
Naphthalene	ND	1,670
Nitrobenzene	ND	1,670
N-nitrosodiphenylamine	ND	1,670
N-nitrosodi-n-propylamine	**7,500***	1,670
Bis(2-ethylhexyl)phthalate	ND	1,670
Di-n-butylphthalate	ND	1,670
Di-n-octylphthalate	ND	1,670
Diethyl phthalate	ND	1,670
Dimethyl phthalate	ND	1,670
Benzo(a)anthracene	ND	1,670

* Matrix Spike compound
ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92
David Dickinson
Laboratory Director

010

Environmental Science Services
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In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES cont.
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens-Stockpiled Soils ESS Project ID: 921528

Client Sample ID: LSP-28 Matrix Spike Dup. ESS Sample ID: 921528-01MSD

Date Sample Received: 6/9/92 Date Reported: 7/1/92

Parameter	Result (ug/Kg)	MRL
Benzo(a)pyrene	ND	1,670
Benzo(b)fluoranthene	ND	1,670
Benzo(k)fluoranthene	ND	1,670
Chrysene	ND	1,670
Acenaphthene	13,000*	1,670
Anthracene	ND	1,670
Benzo(ghi)perylene	ND	1,670
Fluorene	ND	1,670
Phenanthrene	ND	1,670
Dibenzo(a,h)anthracene	ND	1,670
Indeno(1,2,3-cd)pyrene	ND	1,670
Pyrene	8,000*	1,670
Hexachloroethane	ND	1,670
4-Bromophenyl-phenylether	ND	1,670
Benzyl Alcohol	ND	1,670
Benzoic Acid	ND	8,350
Bis(2-Chloroethoxy)methane	ND	1,670
4-Chloroaniline	ND	1,670
2-Methylnaphthalene	ND	1,670
2-Nitroaniline	ND	8,350
3-Nitroaniline	ND	1,670
Dibenzofuran	ND	1,670
4-Nitroaniline	ND	8,350
Butylbenzylphthalate	ND	1,670

* Matrix Spike compound
ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92
David Dickinson
Laboratory Director

011

Environmental Science Services
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101 Rt. 1 Post Rd. W., Westport, Connecticut 06880 (203) 221-2553 Fax. (203) 454-4959

In Response To The Future

CERTIFICATE OF ANALYSIS

SEMI-VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client: ATEC Environmental Consultants

Client Project ID: Stockpiled Soils — ESS Project ID: 921528

Client Sample ID: LSP-28 — ESS Sample ID: 921528-01 MS/MSD

Date Sampled: 6/9/92 — Date Analyzed: 6/19/92

Compound	Sample Concentration (ug/L)	Spike Added	MS Concentration	MS % Rec#	QC Limits REC
Phenol	ND	33,300	16,670	51	26-90
2-Chlorophenol	ND	23,300	18,000	54	25-102
1,4-Dichlorobenzene	ND	16,670	7,670	46	28-104
N-Nitroso-di-n-prop. (1)	ND	16,670	7,830	47	41-126
1,2,4-Trichlorobenzene	ND	16,670	9,170	55	38-107
4-Chloro-3-methylphenol	ND	33,300	14,300	43	26-103
Acenaphthene	ND	16,670	13,330	80	31-137
4-Nitrophenol	ND	33,300	14,000	42	11-114
2,4-Dinitrotoluene	ND	16,670	7,170	43	28-89
Pentachlorophenol	ND	33,000	14,700	45	17-109
Pyrene	ND	16,670	11,330	68	35-142

Compound	Spike Added	MSD Concentration	MSD % Rec#	% RPD#	QC Limits RPD	QC Limits REC
Phenol	33,300	16,670	50	2	35	26-90
2-Chlorophenol	33,300	18,300	55	2	50	25-102
1,4-Dichlorobenzene	16,670	7,670	46	0	27	28-104
N-Nitroso-di-n-prop. (1)	16,670	7,500	45	4	38	41-126
1,2,4-Trichlorobenzene	16,670	9,170	55	0	23	38-107
4-Chloro-3-methylphenol	33,300	14,330	43	0	33	26-103
Acenaphthene	16,670	13,000	78	3	19	31-137
4-Nitrophenol	33,300	17,330	52	21	50	11-114
2,4-Dinitrotoluene	16,670	8,330	50	15	47	28-89
Pentachlorophenol	33,000	16,670	50	11	47	17-109
Pyrene	16,670	8,000	48	34	36	35-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC Limits

Approved by: _____ Date: 2 Jul 92

David Dickinson
Laboratory Director

012

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In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens-Stockpiled Soils ESS Project ID: 921528

Client Sample ID: LSP-28 ESS Sample ID: 921528-01

Date Sample Received: 6/29/92 Date Reported: 7/1/92

Parameter	Result (ug/Kg)	MRL
Methylene Chloride	ND	1,000
1,1-Dichloroethane	ND	1,000
Chloroform	ND	1,000
Carbon Tetrachloride	ND	1,000
1,2-Dichloropropane	ND	1,000
Dibromochloromethane	ND	1,000
1,1,2-Trichloroethane	ND	1,000
Tetrachloroethene	ND	1,000
Chlorobenzene	ND	1,000
1,2-Dichloroethane	ND	1,000
1,1,1-Trichloroethane	ND	1,000
Bromodichloromethane	ND	1,000
Trans-1,3-Dichloropropene	ND	1,000
Bromoform	ND	1,000
1,1,2,2-Tetrachloroethane	ND	1,000
Benzene	ND	1,000
Toluene	ND	1,000
Ethyl Benzene	ND	1,000
Chloromethane	ND	1,000
Bromomethane	ND	1,000
Vinyl Chloride	ND	1,000
Chloroethane	ND	1,000
1,1-Dichloroethene	ND	1,000
1,2-Dichloroethene (Total)	ND	1,000
Trichloroethene	ND	1,000
Acetone	ND	1,000
Carbon Disulfide	ND	1,000
2-Butanone	ND	1,000
Cis-1,3-Dichloropropene	ND	1,000
4-Methyl-2-Pentanone	ND	1,000
2-Hexanone	ND	1,000
Styrene	ND	1,000
Xylenes (Total)	ND	1,000

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 1992

David Dickinson
Laboratory Director

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In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens-Stockpiled Soils — ESS Project ID: 921528

Client Sample ID: LSP-28 Matrix Spike — ESS Sample ID: 921528-01MS

Date Sample Received: 6/29/92 — Date Reported: 7/1/92

Parameter	Result (ug/Kg)	MRL
Methylene Chloride	ND	1,000
1,1-Dichloroethane	ND	1,000
Chloroform	ND	1,000
Carbon Tetrachloride	ND	1,000
1,2-Dichloropropane	ND	1,000
Dibromochloromethane	ND	1,000
1,1,2-Trichloroethane	ND	1,000
Tetrachloroethene	ND	1,000
Chlorobenzene	**51***	1,000
1,2-Dichloroethane	ND	1,000
1,1,1-Trichloroethane	ND	1,000
Bromodichloromethane	ND	1,000
Trans-1,3-Dichloropropene	ND	1,000
Bromoform	ND	1,000
1,1,2,2-Tetrachloroethane	ND	1,000
Benzene	**58***	1,000
Toluene	**50***	1,000
Ethyl Benzene	ND	1,000
Chloromethane	ND	1,000
Bromomethane	ND	1,000
Vinyl Chloride	ND	1,000
Chloroethane	ND	1,000
1,1-Dichloroethene	**53***	1,000
1,2-Dichloroethene (Total)	ND	1,000
Trichloroethene	**51***	1,000
Acetone	ND	1,000
Carbon Disulfide	ND	1,000
2-Butanone	ND	1,000
Cis-1,3-Dichloropropene	ND	1,000
4-Methyl-2-Pentanone	ND	1,000
2-Hexanone	ND	1,000
Styrene	ND	1,000
Xylenes (Total)	ND	1,000

ND = Not Detected above Method Reporting Limit (MRL)
* Matrix Spike compound

Approved by: _____ Date: 2 Jul 92

David Dickinson
Laboratory Director

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In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: Ft. Devens-Stockpiled Soils ESS Project ID: 921528

Client Sample ID: LSP-28 Matrix Spike Dup. ESS Sample ID: 921528-01MSD

Date Sample Received: 6/29/92 Date Reported: 7/1/92

Parameter	Result (ug/Kg)	MRL
Methylene Chloride	ND	1,000
1,1-Dichloroethane	ND	1,000
Chloroform	ND	1,000
Carbon Tetrachloride	ND	1,000
1,2-Dichloropropane	ND	1,000
Dibromochloromethane	ND	1,000
1,1,2-Trichloroethane	ND	1,000
Tetrachloroethene	ND	1,000
Chlorobenzene	**51***	1,000
1,2-Dichloroethane	ND	1,000
1,1,1-Trichloroethane	ND	1,000
Bromodichloromethane	ND	1,000
Trans-1,3-Dichloropropene	ND	1,000
Bromoform	ND	1,000
1,1,2,2-Tetrachloroethane	ND	1,000
Benzene	**54***	1,000
Toluene	**47***	1,000
Ethyl Benzene	ND	1,000
Chloromethane	ND	1,000
Bromomethane	ND	1,000
Vinyl Chloride	ND	1,000
Chloroethane	ND	1,000
1,1-Dichloroethene	**53***	1,000
1,2-Dichloroethene (Total)	ND	1,000
Trichloroethene	**50***	1,000
Acetone	ND	1,000
Carbon Disulfide	ND	1,000
2-Butanone	ND	1,000
Cis-1,3-Dichloropropene	ND	1,000
4-Methyl-2-Pentanone	ND	1,000
2-Hexanone	ND	1,000
Styrene	ND	1,000
Xylenes (Total)	ND	1,000

ND = Not Detected above Method Reporting Limit (MRL)
* Matrix Spike compound

Approved by: _____ Date: 2 Jul 92
David Dickinson
Laboratory Director

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In Response To The Future

CERTIFICATE OF ANALYSIS

VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client: ATEC Environmental Consultants

Client Project ID: Stockpiled Soils ESS Project ID: 921528

Client Sample ID: LSP-28 MS/MSD ESS Sample ID: 921528-01 MS/MSD

Date Sampled: 6/26/92 Date Analyzed: 6/29/92

Compound	Sample Concentration (ug/L)	Spike Added	MS Concentration	MS % Rec#	QC Limits REC
1,1-Dichloroethene	ND	50	53	106	61-145
Trichloroethene	ND	50	51	102	71-120
Benzene	ND	50	58	116	76-127
Toluene	ND	50	50	100	76-125
Chlorobenzene	ND	50	51	102	75-130

Compound	Spike Added	MSD Concentration	MSD % Rec#	% RPD#	QC Limits RPD	QC Limits REC
1,1-Dichloroethene	50	53	106	0	22	61-145
Trichloroethene	50	50	100	2	24	71-120
Benzene	50	54	108	7	21	76-127
Toluene	50	47	94	6	21	76-125
Chlorobenzene	50	51	102	0	21	75-130

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC Limits

Approved by: _____ Date: 2 Jul 92

David Dickinson
Laboratory Director

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[illegible] (203) 454-4970

In Response To The Future

CERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants
Client Project ID: Stockpiled Soils
Client Sample ID: LSP-28
ESS Sample ID: 921528-01

Date Sampled: 6/9/92
Date TCLP Performed: 6/22/92
Date Leachate Extracted: 6/23/92
Date Extract Analyzed: 6/24/92

	Actual		Adjusted*	
Target Analyte	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.1	ND	0.2
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.02
Chromium	ND	0.05	ND	0.05
Lead	0.4	0.1	0.4	0.1
Mercury	ND	0.005	ND	0.005
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.09
Copper	0.05	0.02	0.06	0.03
Nickel	0.04	0.04	0.04	0.04
Zinc	0.20	0.02	0.20	0.02
Beryllium	ND	0.02	ND	0.04
Thallium	ND	0.05	ND	0.09

* Actual sample result adjusted for matrix bias. Refer to matrix spike analysis summary form.

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92
David Dickinson
Laboratory Director

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In Response To The Future

CERTIFICATE OF ANALYSIS

TOTAL PETROLEUM HYDROCARBON-IR
Method 418.1

Client: ATEC Environmental Consultants

Client Project ID: US Army UST 28 Bldg 2290 ESS Project ID: 923028

Date Samples Received: 11/5/92 Date Reported: 11/9/92

Client ID	Lab ID	Results	Units	MRL
MW-1	923028-01	ND	mg/L	1
MW-2	923028-02	ND	mg/L	1
MW-3	923028-03	12	mg/L	1

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 11/9/92

Environmental Science Services

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4.9 CHAIN OF CUSTODY FORMS

The following chain of custody forms were produced for the soil samples which were laboratory analyzed. Please refer to the analytical reports for date and time of analysis.

PO# 37.07.076054

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	LAB PROJ. NO.
37.07.451	CLIENT US Army	

SAMPLERS: *(Signature)* Derek Witt

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY			SAMPLE LOCATION / REMARKS
MW-1	11/4				X					X		1				X							
MW-2	11/4				X					X		1				X							
MW-3	11/4				X					X		1				X							

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Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Derek Witt	11/4/91				
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Project Manager / Phone #:	

DUE DATE - 8-14-92

CHAIN OF CUSTODY RECORD

P.O.# 72472

PROJ. NO. 37.07.451

PROJECT NAME FT. DEVENS - REMEDIATION

CLIENT UST # 29 - BLDG. 2296, UST # 28, - BLDG. 2290

LAB PROJ. NO.

SAMPLERS: (Signature) Craig D. Trombly

SAMPLING METHOD

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS 8240	BTX & E	TOTAL HYDROCARBONS HR	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY	13 TCLP	SAMPLE LOCATION / REMARKS
LRS-1	8-6-92					X				X		1				X						UST # 28 BLDG. 2980
LRS-2	"					X				X		1				X						"
LRS-3	"					X				X		1				X						"
LRS-4	"					X				X		3		X		X				X		"
LRS-5	"					X				X		1				X						"
LRS-6	"					X				X		3		X		X				X		"
LRS-1	8-6-92					X				X				X		X				X		UST # 29 BLDG. 2296
LRS-2	"					X				X						X						"
LRS-3	"					X				X						X						"
LRS-4	"					X				X						X						"
LRS-5	"					X				X				X		X				X		"
LRS-6	"					X				X						X						"

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Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Craig D. Trombly	8-6-92	Derek C. Sowers			
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Project Manager / Phone #:	

CHAIN OF CUSTODY RECORD

P.O. # 72362

PROJ. NO.	PROJECT NAME	LAB PROJ. NO.
37.07.451	Ft. Devens - Stockpiled Soils UST #'s 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43 CLIENT	Given 15281-76

SAMPLERS: *(Signature)* Chuck Langenhagen

SAMPLING METHOD: Grab/Composite

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS 8240	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
LS-28	6/26/92		X	X								2		X								Bldg 2290
LS-29	↓		X	X								2		X								2296
LS-30			X	X								2		X								2401
LS-31			X	X								2		X								2419
LS-32			X	X								2		X								2432
LS-33			X	X								2		X								2434
LS-34			X	X								2		X								2447
LS-35			X	X								2		X								2452
LS-36			X	X								2		X								2458
LS-37			X	X								2		X								2461
LS-38			X	X								2		X								2519
LS-39			X	X								2		X								2520
LS-40			X	X								2		X								2686
LS-41			X	X								2		X								2732
LS-42			X	X								2		X								3525
LS-43	↓		X	X								2		X								3573

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Charles Langenhagen	6/27 11:45am	6/29/92			

Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Project Manager / Phone #:

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CHAIN OF CUSTODY RECORD

P.O.# 72362

PROJ. NO. 37.07 451

PROJECT NAME FT. DEVENS - STOCKPILED SOILS UST #5 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43

CLIENT

LAB PROJ. NO.

SAMPLERS: (Signature) Craig D. Fromby

SAMPLING METHOD: COMPOSITE

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS 8240	~~BNEC~~ SEMI VOA 8270	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	~~TOTAL METALS~~ 13 TCLP	IGNITABILITY	PH	CYANIDE SULFIDE REALTION	SAMPLE LOCATION / REMARKS
LSP-28	6-9-92		X			X				X		3		X	X	~~X~~	X		X	X	X	X	BLDG. 2290
LSP-29	"		X			X				X		3		X	X		X		X	X	X	X	" 2296
LSP-30	"		X			X				X		3		X	X		X		X	X	X	X	" 2401
LSP-31	"		X			X				X		3		X	X		X		X	X	X	X	" 2419
LSP-32	"		X			X				X		3		X	X		X		X	X	X	X	" 2439
LSP-33	"		X			X				X		3		X	X		X		X	X	X	X	" 2434
LSP-34	"		X			X				X		3		X	X		X		X	X	X	X	" 2447
LSP-35	"		X			X				X		3		X	X		X		X	X	X	X	" 2452
LSP-36	"		X			X				X		3		X	X		X		X	X	X	X	" 2458
LSP-37	"		X			X				X		3		X	X		X		X	X	X	X	" 2461
LSP-38	"		X			X				X		3		X	X		X		X	X	X	X	" 2519
LSP-39	"		X			X				X		3		X	X		X		X	X	X	X	" 2520
LSP-40	"		X			X				X		3		X	X		X		X	X	X	X	" 2686
LSP-41	"		X			X				X		3		X	X		X		X	X	X	X	" 2732
LSP-42	"		X			X				X		3		X	X	X	X		X	X	X	X	" 3525
LSP-43	"		X			X				X		3		X	X	X	X		X	X	X	X	" 3573

ATEC Environmental Consultants
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(617) 878-6200

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Craig D. Fromby	6-10-92 11:00				
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Project Manager / Phone #:	

CHAIN OF CUSTODY RECORD

PROJ. NO. 07.451 | PROJECT NAME Tank 28 | CLIENT P.O. 19410 | LAB PROJ. NO.

SAMPLERS: (Signature) Mark E Zaldi

SAMPLING METHOD grab

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS (IR)	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
C551	1/10/92					X						1				X						
C552	1/10/92					X						1				X						
C553	1/10/92		X			X						1				X						

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Mark E Zaldi	1/10/92				
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Project Manager / Phone #:	

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	LAB PROJ. NO.
021451	CLIENT	

SAMPLERS: *(Signature)*

SAMPLING METHOD

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER
1-S1	1/10/92					X						1	
1-S2	1/10/92					X						1	
1-S3	1/10/92		X			X						1	

LABORATORY ANALYSIS

VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
		X						SP1, T
		X						SP1, T
		X						SP1, T

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Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
	1/11/92				

Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Project Manager / Phone #:

4.10 HAZARDOUS WASTE MANIFEST

UST No. 0028 was estimated to contain 14 gallons of number 2 fuel oil. The fuel oil was removed on January 6, 1992, and transported to a licensed T.S.D.F. (Beede Waste Oil Corporation, Plaistow, New Hampshire).

The following Hazardous Waste Manifest was generated from residual tank materials during the vacuum process and cleaning process. The manifest dated January 6, 1992 is associated with vacuumed product of several USTs. Therefore, the total quantity (2,200 gallons) is much greater than the 14 gallons which were removed from UST 0028.

PRESS HARD - YOU ARE WRITING THROUGH EIGHT COPIES. SEE REVERSE SIDE FOR DIRECTIONS

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE
One Winter Street
Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator US EPA ID No. MA 7 2 1 0 0 2 1 5 1 5 4 — Manifest Document No. 0 0 0 0 1 — 2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: HQS Fort Devens, AFZD-DEQ Box 10, Fort Devens, MA 01433 — FD600

4. Generator's Phone (508) 796-3002 — 24HR 508-796-2711

5. Transporter 1 Company Name: Beede Waste Oil Corp. — 6. US EPA ID Number: N H D 018958140

7. Transporter 2 Company Name — 8. US EPA ID Number

9. Designated Facility Name and Site Address: Beede Waste Oil Corp., Kelley Road PO Box 127, Plaistow, NH 03065 — 10. US EPA ID Number: N H D 018958140

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
a. WASTE PETROLEUM OILS, N.O.S. COMBUSTIBLE LIQUID NA1270	1	TT	2290	G	MA0
b.					
c.					
d.					

GENERATOR

Additional Descriptions for Materials Listed Above (Include any special codes and handling codes)

Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

To be Recycled — Recycle

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Mark Boser — Signature: Mark Boser — Date: Month 01 Day 06 Year 92

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Robert D. Murphy Jr. — Signature: Robert D. Murphy Jr. — Date: Month 01 Day 04 Year 92

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name — Signature — Date: Month Day Year

MA F353630 COPY>1: FACILITY MAILS TO DESTINATION STATE

4.11 WEIGHT RECEIPTS AND BILLS OF LADING

The following weight receipt documents the disposal of contaminated soil associated with UST 0028. The corresponding Bill of Lading is not available.

TRIMOUNT BITUMINOUS PRODUCTS CO.
5 CHERRY [illegible] DRIVE
P.O. BOX 2089
DANVERS, MA 01923-5089

MAIN OFFICE:
DANVERS 750-4200

SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

TIME
FMN
ARRIVED JOB
LEFT JOB CHECK #

Cash ☐ C.O.D. ☐ Charge ☑
CHECKED BY
CARRIER

TICKET #R 73231

Customer # ATE001
ATEC ASSOC.
62 ACCORD PARK DRIVE
NORWELL, MA 02061
617-878-6200

Job # BLDGFD
US ARMY
BLDG 2290 TANK 28
FORT DEVENS, MA 01433
PO# 37.04.72053

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
3:34:58	39600	59500	99100	29.75

Cost/Ton	Percent Tax	Load Cost	Amount Tax	Dest Charge	Total Cost

Load#	Job Total	Time & Date	Fob/Del
9	249.23	3:34:58 pm Aug 7, 1992	F

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY TRUCKS DELIVERING MATERIAL BEYOND STREET PAVEMENT.

RECEIVED BY

TRIMOUNT BITUMINOUS PRODUCTS CO.
5 CHERRY [illegible] DRIVE
P.O. BOX 2089
DANVERS, MA 01923-5089

MAIN OFFICE:
DANVERS 750-4200

SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

TIME
FMN
ARRIVED JOB
LEFT JOB CHECK #

Cash ☐ C.O.D. ☐ Charge ☐
CHECKED BY
CARRIER

TICKET #R 73230

Customer # ATE001
ATEC ASSOC.
2 ACCORD PARK DRIVE
NORWELL, MA 02061
617-878-6200

Job # BLDGFD
US ARMY
BLDG 2290 TANK 28
FORT DEVENS, MA 01433
PO# 37.04.72053

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
3:11:20	39600	58380	97980	29.19

Cost/Ton	Percent Tax	Load Cost	Amount Tax	Dest Charge	Total Cost

Load#	Job Total	Time & Date	Fob/Del
8	219.48	3:11:20 pm Aug 7, 1992	F

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY TRUCKS DELIVERING MATERIAL BEYOND STREET PAVEMENT.

RECEIVED BY

4.12 PERMITS AND CERTIFICATIONS

The following permit was obtained for the proper closure of a UST. Following the permit there is a disposal receipt for the steel UST. This disposal receipt has the correct building number but the incorrect UST number. This is a typographical error.

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC SAFETY—DIVISION OF FIRE PREVENTION

PERMIT

FOR REMOVAL AND TRANSPORTATION TO APPROVED TANK YARD

C.82 S.40 M.G.L.
DIG SAFE NUMBER
920205-05
Start Date 1/9/92

In accordance with the provisions of Chapter 148, G.L. as provided in Section 38A this permit is granted to

Name: Atec Environmental Associates Inc.
Full name of person, firm or Corporation

To transport underground steel storage tank(s) to Approved tank yard# 14901

State clearly type of inert gas used in steel storage tank

steel tank: Dry Ice
method

FDID# 17919 N/A

Fee paid $ _____

Name and address of contractor disposing tank ATEC Associates, 62 Record Park Dr., Norwell MA

Location to which tank will be transported

14901
Approved tank yard#

This permit will expire 31 Jan 1992

Signature of official granting permit (TITLE)
(Head of Fire Dept.)

RECEIPT FOR DISPOSAL OF UNDERGROUND STEEL STORAGE TANK

NAME AND ADDRESS OF APPROVED TANK YARD: JOHN C TOMBARELLO & SONS
[illegible] ASHBURTON ST.
[illegible]PRICE MASS. 01841

APPROVED TANK YARD NO. 1 4 9 0 1

Tank Yard Ledger 502 CMR 3.03(4) Number: 9 2 0 0 1 1 3

I certify under penalty of law I have personally examined the underground steel storage tank delivered to this "approved tank yard" by firm, corporation or partnership ATEC Environmental Assoc. and accepted same in conformance with Massachusetts Fire Prevention Regulation 502 CMR 3.00 Provisions for Approving Underground Steel Storage Tank dismantling yards. A valid permit was issued by LOCAL Head of Fire Department FDID# 1 7 9 1 9 to transport this tank to this yard.

Name and official title of approved tank yard owner or owners authorized representative:

James Marando	OPW	1-28-92
SIGNATURE	TITLE	DATE SIGNED

This signed receipt of disposal must be returned to the local head of the fire department FDID# 1 7 9 1 9 pursuant to 502 CMR 3:00. (EACH TANK MUST HAVE A RECEIPT OF DISPOSAL)

FORM F.P. 291 (rev. 9/88) (OVER) MASSACHUSETTS STATE FIRE MARSHAL'S OFFICE

DIMENSIONS

	Width (feet)		Length (feet)
Tank 1	48"	X	10'8"
Tank 2	-----	X	-----
Tank 3	-----	X	-----
Tank 4	-----	X	-----
Tank 5	-----	X	-----

Tank Removed From #2290
FT. DEVENS BLDG # [illegible] tank #30
(no. street)
AYER
(city or town)

Fire Department Permit # None-Listed (if applicable)

FAX # (617) 871-6781

ATTN: Mark

4.13 UST CLOSURE CHECKLIST

The following closure checklist was produced by ATEC Associates Inc., to ensure quality control of the proper abandonment of a UST.

UST-CLOSURE O/C CHECK LIST	Tank 28 Bldg 2290 Fort Devens			
1000 gal No. 2 Fuel				
DEFINABLE FEATURE	**DATE**	**TIME**	**MEASUREMENTS**	**NOTES**
Calibrate PID & LEL/O2 meters	1/10/92	9:00		Site Topography: level, sloping gently down gradient 75' to south of UST
Drain & flush piping & pumps	1/9/92	2:30		
Excavate to top of tank	1/9/92	3:00		Depth to tank: 1.5'
Vent tank note LEL/O2 levels & times			LEL O2	
	1/10/92	T1: 10:00	1 20.8	
		T2: 10:15	1 20.8	
		T3: 10:30	0 20.9	
		T4: 10:45	0 20.9	
		T5:		
		T6:		
		T7:		
		T8:		
		T9:		
		T10:		
		T11:		
		T12:		
Pump & clean tank:	1/7/92	2:45	___ gal. liquid	Tank Dimensions: 4' x
Note quantities liquid (gal) & sludge (lbs)			___ lbs. sludge	no holes, perforations
				some surficial rust
Remove all tank connections, and cap openings	1/9/92	3:00		
Excavate soils to free tank	1/9/92	3:15		
Segregate stained soils: Note PID readings	1/9/92		PID (ppm) NDIR (ppm)	none visibly contaminated
(if >10 ppm NDIR also)				stock-1
				stock-2

UST-CLOSURE Q/C CHECK LIST				
DEFINABLE FEATURE	**DATE**	**TIME**	**MEASUREMENTS**	**NOTES**
Remove tank, piping, pumps, and hardware.	1/10/97	10:00	Photographic Descriptions:	Soil Description: tan to med brown
Photograph excavation; note descriptions.			Photo 1: tank	fine silt & sand w/some
Sketch Schematic			Photo 2: tank	med-coarse gravel
			Photo 3: ex cav	
			Photo 4: ex cav	
			Photo 5:	Depth to Groundwater/Conditions: N/A
			Photo 6:	
Place tank at safe distance from excavation	1/10/97	10:00		Depth of Excavation: 5.5'
Secure tanks transport off-site	1/10/97	10:30		
Obtain 10 soil samples from	1/10/97	10:00	PID (ppm) NDIR (ppm)	Sample locations: 7.5' - 3.0'
excavation walls/bottom: Note PID/NDIR			SS1: 8.7	S wall
readings and sample locations.			SS2: 11.0	S wall
			SS3: 13.2	W wall
			SS4: 3.0	W wall
			SS5: 1.5	N wall
			SS6: 9.4	N wall
			SS7: 11.8	E wall
			SS8: 10.6	E wall
			SS9: 11.9	bottom
			SS10: 7.0	bottom
Obtain 2 soil samples & 1 water samples	1/10/97	10:00		Sample Locations:
for laboratory analysis. Note sample locations.				LSS1: = SS8
				LSS2: = SS9
				LWS1:
				LSS3: stockpile composite

UST CLOSURE O/C CHECK LIST				
DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
				____ tons of backfill
Backfill excavation (if clean):				Backfill description:
Note amount & type of backfill				
Close open excavation (if applicable)				
Restore surface and rope off				
Remove rubbish/debris				
Transport hazardous material off-site:				Amount Classification
Note amount/classification				
Make copies of manifests, permits,				
and disposal receipts.				

4.14 INSTALLATIONS

The installation of a replacement UST No. 0028 was not performed.

4.15 BORING LOGS

The following boring logs were completed during the installation of groundwater monitoring wells (MW-1 to MW-3), located at Building 2290, Fort Devens, Massachusetts.

ATEC ENVIRONMENTAL CONSULTANTS

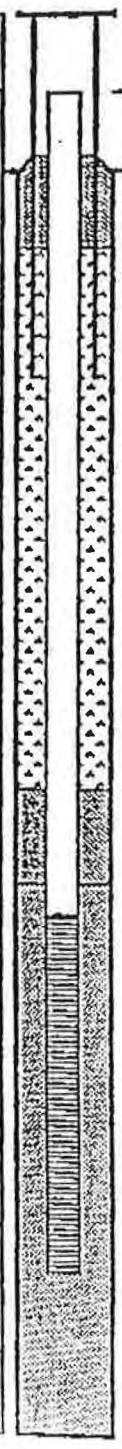
GROUND WATER MONITORING WELL BORING/INSTALLATION LOG

LOG OF BORING/WELL: MW-1
UST# 28 ; BLDG 2290

PROJECT NAME: FT. DEVENS
PROJECT NUMBER: 37.07.451
PROJECT LOCATION: UST# 28 ; BLDG 2290
BORING LOCATION: SEE SITE SCHEMATIC

FOREMAN: MATT BOVENZI
INSPECTOR: C. TROMBLY
DATE: 9-30-92

SOIL/ROCK DESCRIPTION	DEPTH FEET	SAMP. NO.	S.P.T.
FINE SAND COLOR: TAN CONSISTENCY: VERY LOOSE NOTE: NO PETRO. ODOR PID: N.D.	0'-2'	MW 1.1	TFF
FINE TO COARSE SAND COLOR: TAN-GREY CONSISTENCY: MED. DENSE NOTE: NO PETROL ODOR PID: N.D.	4'-6'	MW 1.2	9.8.7.12
SILT/CLAY COLOR: GREY/GREEN CONSISTENCY: STIFF NOTES - NO PETRO. ODOR PID: N.D.	9'-11'	MW 2.3	7.11.9.8
H_2O			
12.5' - BEDROCK			



- Length of Casing Above Surface Elevation: FLUSH W/GRADE
- Length of Riser Above Surface Elevation: 2" B.G.
- Surface Elevation: GRADE
- Type/Thickness of Surface Seal: 1.0' CONCRETE
- ID/Type of Protect. Casing:
- Depth Bottom of Casing: 2.0' BELOW GRADE
- ID/OD/ Type Riser: 2.0" - PVC
- Diameter of Borehole: 8.0"
- Type of Backfill @ Riser: NATIVE
- Depth/Type Bottom Seal: BENTANITE
- Depth Top of Screen: 7.5
- ID/OD/Type Screen: 2.0" PVC 10. SLOT
- Type Backfill @ Screen: SILICA / SAND
- Depth Bottom of Screen: 12.6
- Type of Backfill Below Screen: BEDROCK

ATEC ENVIRONMENTAL CONSULTANTS

GROUND WATER MONITORING WELL BORING/INSTALLATION LOG

LOG OF BORING/WELL: MW-2
UST #28; BLDG 2290

PROJECT NAME: FT. DEVENS
PROJECT NUMBER: 37.07 451
PROJECT LOCATION: UST #28; BLDG 2290
BORING LOCATION: SEE SITE SCHEMATIC

FOREMAN: MATT BOVENZI
INSPECTOR: C. TROMBLY
DATE: 9-30-92

SOIL/ROCK DESCRIPTION	DEPTH FEET	SAMP. NO.	S.P.T.
FINE SAND COLOR: BLACK CONSISTENCY: VERY LOOSE NOTES: NO PETRO. ODOR PID: N.D.	0'-2'	MW 2.1	TFF
FINE TO COARSE SAND AND GRAVEL COLOR: LIGHT BROWN CONSISTENCY: MED. DENSE NOTES: NO PETRO. ODOR PID: N.D.	4'-6'	MW 2.2	16-13-15-15
SAND/CLAY COLOR: BROWN/GREY CONSISTENCY: STIFF NOTES: NO PETRO. ODOR PID: N.D. H_2O	9'-11'	MW. 2.3	25-21-13-13
H_2O BEDROCK	15.0'		

- Length of Casing Above Surface Elevation: _____
- Length of Riser Above Surface Elevation: _____
- Surface Elevation: GRADE
- Type/Thickness of Surface Seal: 1.0' - CONCRETE
- ID/Type of Protect. Casing: _____
- Depth Bottom of Casing: 2.0' BELOW GRADE
- ID/OD/ Type Riser: 2.0" PVC
- Diameter of Borehole: 8.0"
- Type of Backfill @ Riser: NATIVE
- Depth/Type Bottom Seal: BENTONITE
- Depth Top of Screen: 5.0'
- ID/OD/Type Screen: 2.0" PVC - 10-SLOT
- Type Backfill @ Screen: SILICA
- Depth Bottom of Screen: 15.0
- Type of Backfill Below Screen: BEDROCK

AUG-31-92 MON 8:18

ATEC ENVIRONMENTAL CONSULTANTS

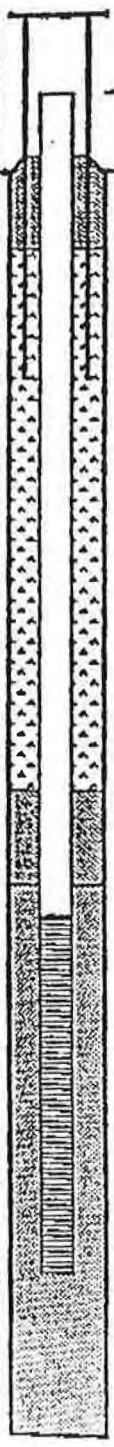
GROUND WATER MONITORING WELL BORING/INSTALLATION LOG

LOG OF BORING/WELL: M.W. - 3
UST# 28 ; BLDG. 2290

PROJECT NAME: FT. DEVENS
PROJECT NUMBER: 37.07.451
PROJECT LOCATION: UST# 28; BLDG. 2290
BORING LOCATION: SEE SCHEMATIC

FOREMAN: MATT BOVENZI
INSPECTOR: C. TROMBLY
DATE: 9-30-92

SOIL/ROCK DESCRIPTION	DEPTH FEET	SAMP. NO.	S.P.T.
MED COARSE SAND COLOR: BROWN CONSISTENCY: VERY LOOSE NOTES: NO PETRO ODOR PID: N.D.	0'-2'	MW 3.1	T FF
SAND/SILT COLOR: BROWN/GREY CONSISTENCY: LOOSE NOTES: NO PETRO. ODOR PID: N.D.	4.'-6.'	MW 3.2	4.5.4.4
SILT COLOR: GREY/BLUE CONSISTENCY: VERY STIFF NOTES: STRONG HYDROCARBON ODOR PID: 65.0 PPM H_2O BEDROCK	14.0'		9.6.5.12



- Length of Casing Above Surface Elevation: FLUSH
- Length of Riser Above Surface Elevation: 2.0" B.G.
- Surface Elevation: GRADE
- Type/Thickness of Surface Seal: 1.0'-CONCRETE
- ID/Type of Protect. Casing: 6."
- Depth Bottom of Casing: 2.0' B.G.
- ID/OD/ Type Riser: 2." PVC
- Diameter of Borehole: 8."
- Type of Backfill @ Riser: SILICA
- Depth/Type Bottom Seal: BENTONITE
- Depth Top of Screen: 4.'0
- ID/OD/Type Screen: 2." PVC - 10 SLOT
- Type Backfill @ Screen: SILICA
- Depth Bottom of Screen: 14.0'
- Type of Backfill Below Screen: BEDROCK

ATEC Promises

- To be totally responsive to our clients' wants and needs with a constant sense of urgency.
- To perform high quality services with technically superior personnel.
- To perform all assignments for a reasonable fee and within budget.
- To communicate with our clients frequently so there will be no surprises.
- To complete our assignments and deliver reports when promised.
- To review reports with our clients to be sure there are no misunderstandings.
- To deliver accurate invoices to our clients within seven (7) days after the completion of the assignment or as required by the clients.
- To follow up with the clients to be sure services completely satisfied their wants and needs.

ATEC Associates, Inc.
Corporate Headquarters
8665 Bash Street
Indianapolis, IN 46256-1202
(317) 577-1761

At ATEC, "Client satisfaction with a constant sense of urgency" is our goal. If you have concerns with an ATEC project or service that your local ATEC Representative has not resolved, please call 1-800-800-ATEC, a "hot line" to my office. We will do everything possible to satisfy your concerns. If you have received quality service, we would appreciate knowing that as well. Thank you for allowing us to work on your team.

Sincerely,

Gerald D. Mann
President
ATEC Associates, Inc.

Corporate Headquarters – Client Satisfaction Hot Line
1-800-800-ATEC
(1-800-800-2832)