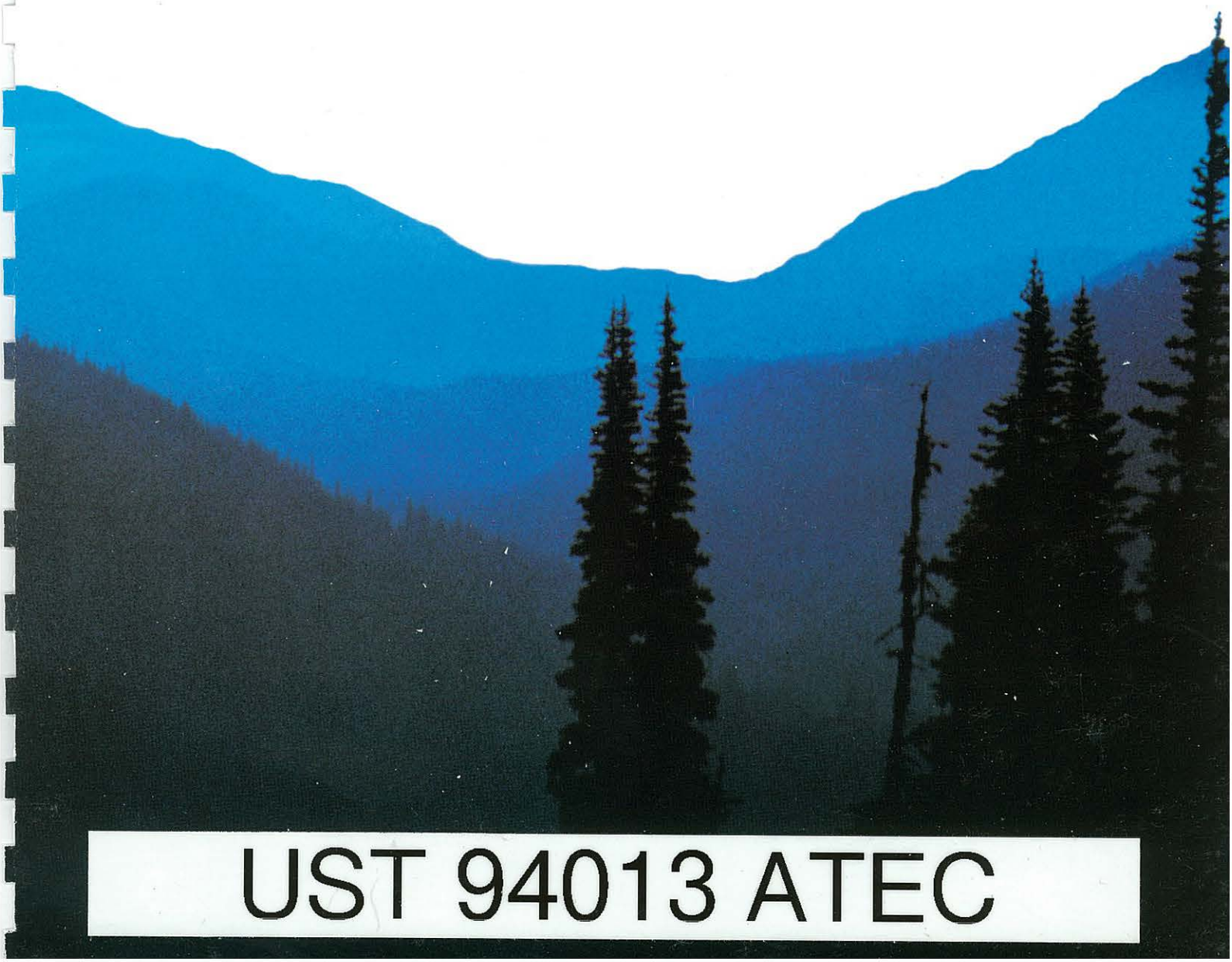
ĀTEC®



UST 94013 ATEC

Technical Report
Underground Storage Tank Closure
UST Nos. 0038 - 0040
Buildings 2519, 2520, 2686
Fort Devens, Massachusetts

ATEC File: 37.07.91.00451
Contract No. DAK31-91-D-0015

UST 9401B ATEC

Prepared for:

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

Attn: Mr. Steven Dijack,
Contracting Officer

January 14, 1994

Janauary 14, 1994

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

RE: Technical Report
Underground Storage Tank Closure
UST Nos. 0038 - 0040
Fort Devens, Massachusetts
ATEC File: 37.07.91.00451

Mr. Dijack:

Attached is Volume 9 of the Technical Report by ATEC Associates, Inc. (ATEC), detailing the closure of three underground storage tanks (UST) referenced as UST Nos. 0038 - 0040, located at Fort Devens, Massachusetts (the site). The Technical Report covers work conducted under Contract No. DAKF31-91-D-0015 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

Kerry R. Tull, P.G.
Senior Project Manager

Ronald Lawson
Assistant Vice President and District Manager

TABLE OF CONTENTS

UST Nos. 0038 - 0040

Building Nos. 2519, 2520, 2686

TABLES

UNDERGROUND STORAGE TANK INDEX

UST No.	SIZE (gal)	PRODUCT	LOCATION
0038	1,000	Number 2 Fuel Oil	Building 1605, Fort Devens, MA
0039	1,000	Number 2 Fuel Oil	Building 1666, Fort Devens, MA
0040	1,000	Number 2 Fuel Oil	Building 2290, Fort Devens, MA

TECHNICAL REPORT

Volume 9

UST Nos. 0038 - 0040

United States Army

Fort Devens, Massachusetts

ATEC Project No. 37.07.91.00451

1.0 INTRODUCTION

This volume (Volume 9) of the Technical Report details the removal of three underground storage tanks (USTs) referenced as UST Nos. 0038 - 0040 for the United States Army, located at various buildings, Fort Devens, Massachusetts (the site). The Technical report covers work conducted under Contract No. DAKF31-91-D-0015 as part of Removal of Underground Storage Tanks in the New England Area, United States Army Project No. EQ-19027-9P.

The basic Project Work Scope of Contract No. DAKF31-91-D-0015 included:

- Excavation and removal of 69 USTs at various buildings located at Fort Devens, Massachusetts and USTs at various locations around New England.
- Remedial excavation and disposal of contaminated soil.
- Hydrogeological services to include installation of monitoring wells, sampling and analysis of soil/groundwater, and determination of groundwater flow direction.
- 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. 0038

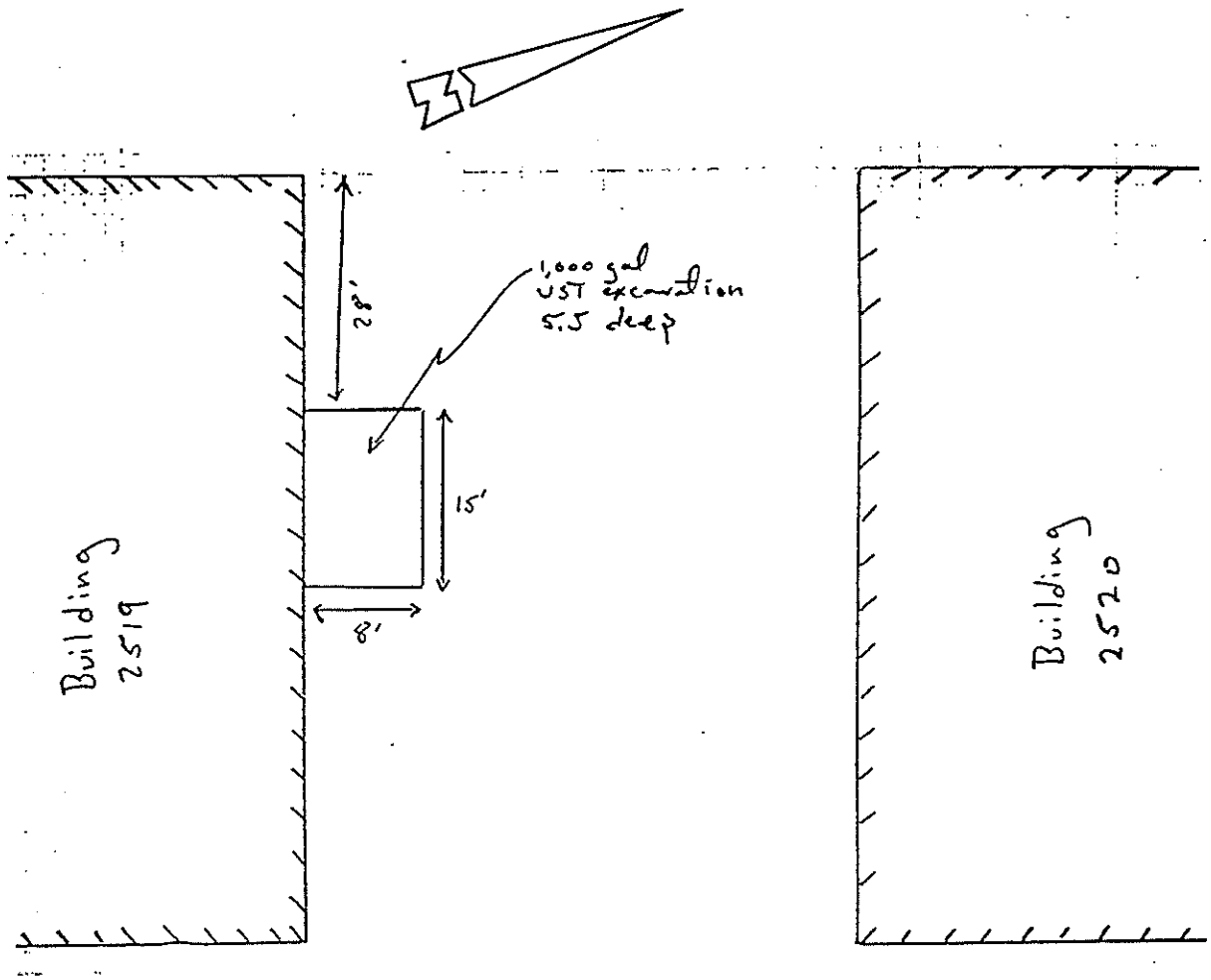
2.1 POST REMOVAL REPORT

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. 0038, located at property known as Building 2519, 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 21, 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) (USEPA Method 418.1).
- Preparation of a Technical Report, to include assimilation of information gathered, major findings and conclusions.



NOTE: BASED ON "FIELD ESTIMATES". SHALL NOT BE RELIED UPON AS EXACT MEASUREMENTS.

UST LOCATION PLAN

1,000 gallon UST relative to:
Building 2519
Fort Devens, Massachusetts

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 2.1

ATEC

2.1.2 Underground Storage Tank Excavation and Removal

On January 21, 1992, one 1,000-gallon, subsurface, No. 2 fuel oil, storage tank was excavated and removed from the site. The UST was located adjacent to the north side of Building 2519 (see Figure 2.1, UST Location Plan). Topography on the site is level with a slightly upgradient slope approximately 100 feet southeast of the site.

Soils in the excavation consisted primarily of medium-brown, fine sand with some medium to coarse gravel, cobbles, and boulders. The tank was covered by 1.5 feet of soil and the bottom of the excavation was 5.5 feet below grade. Groundwater was not encountered within the excavation. All excavated soils required to free the tank appeared visibly contaminated. Soil removed from above the tank appeared visibly stained. Within the excavation, soil was observed to be grossly contaminated with a strong petroleum odor.

The associated piping was drained and tank connections were removed. UST No. 0038 was estimated to contain approximately 48 gallons of No. 2 fuel oil and residuals. Approximately 13 gallons of fuel oil were removed from the tank on January 7, 1992 and transported to a licensed Treatment Storage Disposal Facility (T.S.D.F.) (Beede Waste Oil Corporation, Plainstow, New Hampshire). Approximately 35 gallons of fuel oil and residuals were removed and drummed on January 21, 1992 for disposal at a later date. Drummed material was disposed at Beede Waste Oil Corporation on February 27, 1992. See Section 2.10 for copies of the appropriate Hazardous Waste Manifests.

Tank openings were then capped and the tank was removed from the excavation. Upon excavation and removal, the tank was observed to be in fair condition with no holes or perforations. Some surficial to moderate rusting of the tank was noted and the fill pipe was observed to be broken at the connection with the tank. 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.

The scrap tank was removed from the site on January 21, 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, located in Lawrence, Massachusetts, a licensed Massachusetts tank yard, on January 28, 1992. A copy of the disposal receipt is included in Section 2.11, Permits and Certifications.

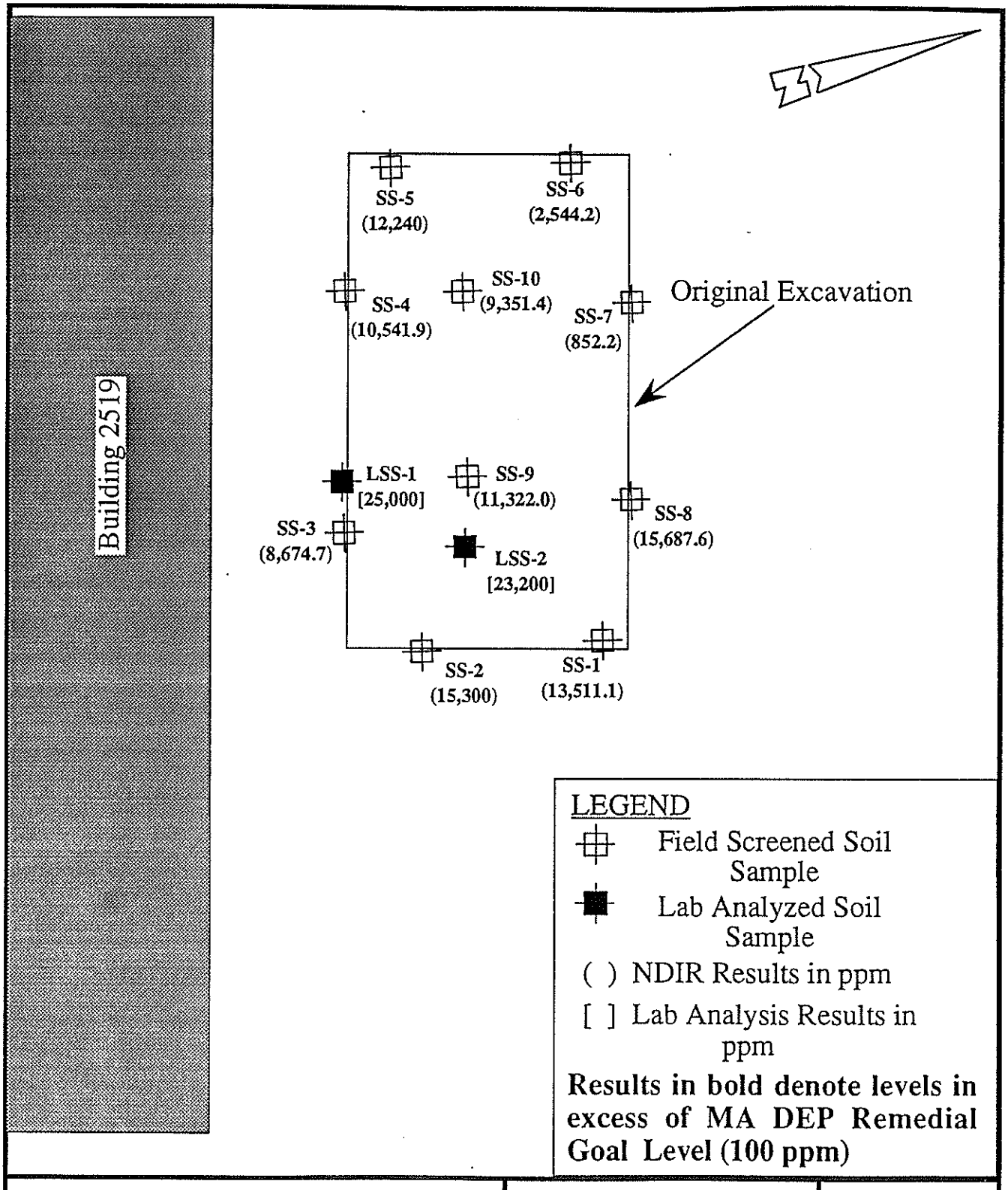
2.1.3 Sampling and Analysis Plan

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 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 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 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 south wall of the excavation at a depth of 2.5 to 3.5 feet below grade. 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 are depicted on the Sampling Schematic as Figure 2.2. The



SAMPLING SCHEMATIC

1,000 gallon UST excavation at:
Building 2519
Fort Devens, Massachusetts

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 2.2

ATEC

appropriate chain of custodies are included in Section 2.9, Chain of Custody Forms.

2.1.4 Analytical Results

The results from analysis with the PID and the NDIR analyzer of the ten soil samples obtained from the excavation, and the two composite samples obtained from stockpiled soil are as follows:

TABLE 2.1 - PID AND NDIR RESULTS

SAMPLE NUMBER	PID (ppm TOV)	NDIR (ppm TPH)
SS-1	132	13,511.1
SS-2	66.0	15,300.0
SS-3	146	8,674.7
SS-4	60.0	10,541.9
SS-5	31.0	12,240.0
SS-6	3.4	2,544.2
SS-7	61.0	852.2
SS-8	76.0	15,687.6
SS-9	91.0	11,322.0
SS-10	52.0	9,351.4
Stock-1	64.0	5,370.5
Stock-2	75.0	5,105.9

N.D. = None Detected

Laboratory analytical results of the two soil samples obtained from the excavation revealed TPH concentrations of 25,000 ppm for LSS-1 and 23,200 ppm for LSS-2. Laboratory analysis of the one soil sample obtained from the stockpiled soils revealed a TPH concentration of 4,750 ppm for LSS-3 (see Section 2.8, Laboratory Analytical Results).

2.1.5 Conclusions and Recommendations

As presented 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 fair condition with no holes or perforations. Some moderate rusting was noted, and the fill pipe was observed to be broken at the connection with the tank.

Groundwater was not encountered within the excavation.

Excavated soils required to free the tank appeared visibly contaminated. Soils located within the excavation were observed to be stained and had a strong petroleum odor.

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 3.4 ppm to 146 ppm. NDIR results revealed TPH concentrations ranging from 852.2 ppm to 15,687.6 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 south wall of the excavation revealed a TPH concentration of 25,000 ppm. Analytical results for LSS-2 obtained from the bottom of the excavation revealed a TPH concentration of 23,200 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 4,750 ppm.

Based on these findings, ATEC recommended the following:

Conduct remedial excavation until background levels of <100 ppm TPH by laboratory analysis are attained. Field screening of soil should be conducted during excavation utilizing a PID until background levels of <1 ppm are attained prior to obtaining samples for laboratory analysis, where applicable.

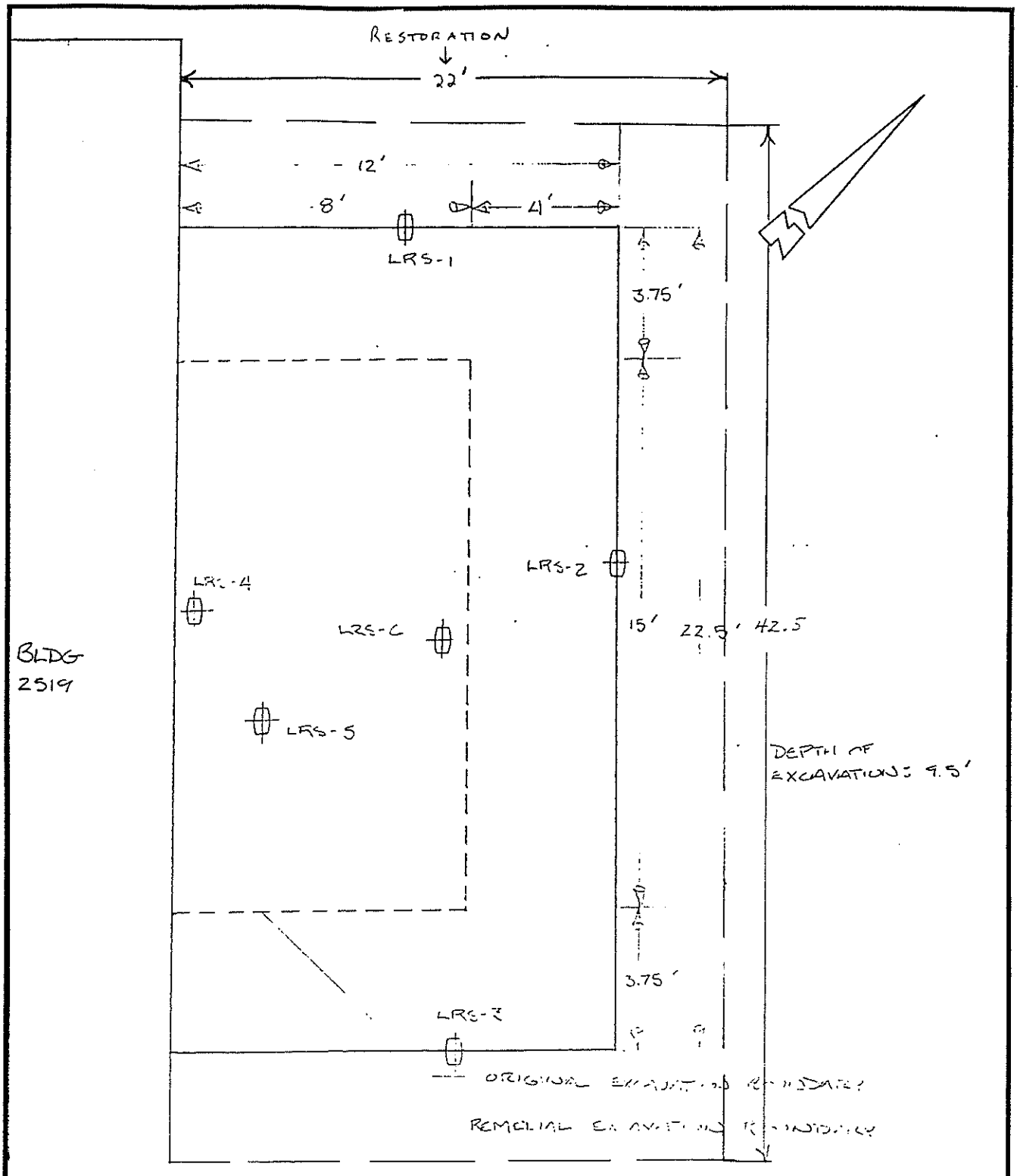
Advance soil borings and install groundwater monitoring wells to determine the vertical and horizontal extent of contamination. Continuous split spoon soil sampling and analysis will be conducted utilizing field analysis techniques, i.e. PID and NDIR analysis and laboratory analysis to document soil contamination levels as specified in the Hazardous Waste Containment Plan.

Stockpiled soils should be laboratory analyzed for VOCs, PCBs, 13 TCLP Metals, flashpoint, corrosivity, sulfide reactivity, and cyanide reactivity for disposal classification.

2.2 SITE REMEDIATION AND CONTAMINATED SOIL DISPOSAL

2.2.1 Site Remediation

Following review of field screening and laboratory analytical results, additional excavation to remove contaminated soil and to reach background levels by PID (<1 ppm) was conducted per order of the Contracting Officer's Representative and David Salvadore of the Massachusetts Department of Environmental Protection (DEP). Approximately 114.67 tons of contaminated soil were removed from the excavation floor and the north, west, and east sidewalls during remedial excavation on July 31, 1992. Excavation of the south wall could not be conducted due to potential structural and safety concerns. The estimated volume of soil removed was calculated from field drawings produced during the removal and remediation of UST No. 0038 (see Remedial Excavation Plan, Figure 2.3).



REMEDIAL EXCAVATION PLAN

1,000 gallon UST relative to:
Building 2519
Fort Devens, Massachusetts

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 2.3

ATEC

Six soil samples (RSS-1 to RSS-6) were obtained from the post-remedial excavation for PID field screening. RSS-1 to RSS-4 were obtained from the side walls at a depth of approximately 4 to 5 feet below grade. RSS-5 and RSS-6 were obtained from the bottom of the excavation, approximately 9.5 feet below grade. Due to the severe weather conditions during this period, the PID readings were considered non-representative of normal conditions. Therefore, Mr. Salvadore requested that the data not be used.

Weather conditions, however, do not alter laboratory testing results. Therefore, all six soil samples (LRS-1 to LRS-6) were laboratory analyzed for TPH utilizing modified USEPA Method 418.1. One of the samples (LRS-6) was additionally tested for VOCs (USEPA Method 8240) and 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP) (USEPA Method 6010), (See Table 2.2; Figure 2.2, Sampling Schematic; and Section 2.8, Laboratory Results).

TABLE 2.2 - LABORATORY ANALYSIS

SAMPLE NUMBER	TPH (ppm)	VOAs (ppb)	13 TCLP METALS (ppm)	LOCATION
LRS-1	14	NA	NA	west sidewall (4-5' depth)
LRS-2	ND	NA	NA	north sidewall (4-5' depth)
LRS-3	3,090	NA	NA	east sidewall (4-5' depth)
LRS-4	736	NA	NA	south sidewall (4-5' depth)
LRS-5	179	NA	NA	bottom (9.5' depth)
LRS-6	ND	ND	0.61 (Zn)	bottom (9.5' depth)

LRS = Laboratory Remediation Sample
ND = Not Detected Above Method Reporting Limit
NA = Not Applicable

2.2.2 Soil Stratigraphy

The soil stratigraphy of the excavation varied with the depth of the excavation. Soil consisted of coarse gravel fill material from grade level to a depth of approximately 2 feet below grade. From 2 to 9 feet below grade, soil consisted of sand and fine to coarse gravel. The remaining 6 inches (9 to 9.5 feet below grade) of the excavation consisted of clay (see Figure 2.4, Soil Stratigraphy).

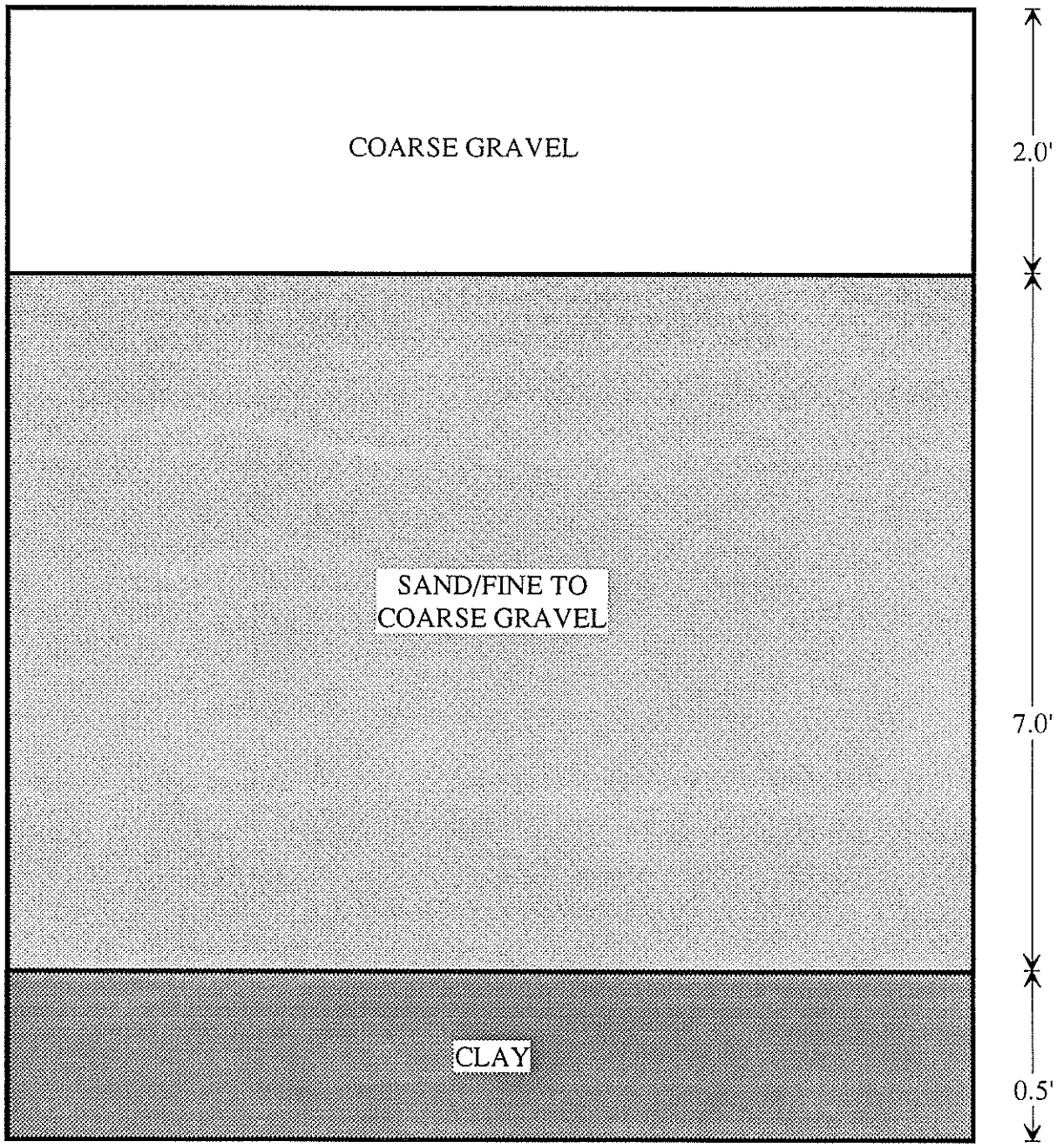
2.2.3 Contaminated Soil Disposal

Prior to disposal, contaminated soil was laboratory analyzed for disposal classification purposes. One composite soil sample (LSP-38) was obtained from stockpiled soil associated with the removal of the UST No. 0038 and the additional excavation conducted at the site. Laboratory analyses were performed for VOCs, Semi-volatile Organic Compounds, 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP), Polychlorinated Biphenyls (PCBs), reactive sulfide, reactive cyanide, flashpoint, and corrosivity for characterization and disposal purposes. Laboratory analytical results revealed 7.6 standard units (S.U.) for Corrosivity (pH), 1.0 ppm Lead, 0.05 ppm Copper, and 0.30 ppm Zinc. All other analytical results were below the Method Reporting Limits.

Approximately 45.5 tons of No. 2 fuel oil contaminated soil was removed and stockpiled during the remediation of the excavation. Contaminated soil was disposed for recycling at Trimount Bituminous Products Company, Shrewsbury, Massachusetts.

2.3 HYDROGEOLOGICAL SERVICES

Hydrogeological services were not performed relative to UST No. 0038.



SOIL STRATIGRAPHY
1,000 gallon UST Excavation
Building 2519
Fort Devens, Massachusetts

PROJECT: 37-07-91-00451

UST No. 0038

FIGURE 2.4

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2.4 BACKFILL

The excavation was lined with polyethylene plastic sheeting and backfilled with approximately 93 cubic yards of uncontaminated fill material on July 31, 1992. Backfilling was conducted with the approval of the Contracting Officer's Representative and the DEP.

2.5 SITE RESTORATION

Following backfill of the excavation, approximately 144 square feet of loam was distributed over the excavated area.

2.6 PHOTOGRAPHIC DOCUMENTATION

The following photographs are of the removed UST from the excavation and a post removal view of the excavation.

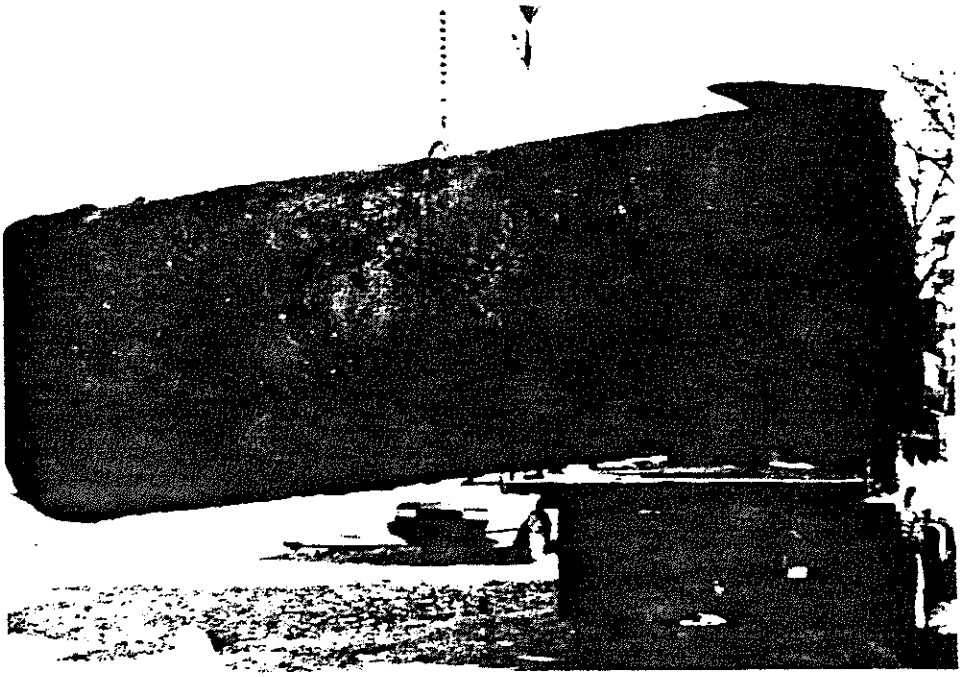
A-1: One side of removed tank.

A-2: Opposite side of removed tank.

A-3: Excavation as viewed from west, facing east.

A-4: Excavation as viewed from east, facing west.

A-1



A-2

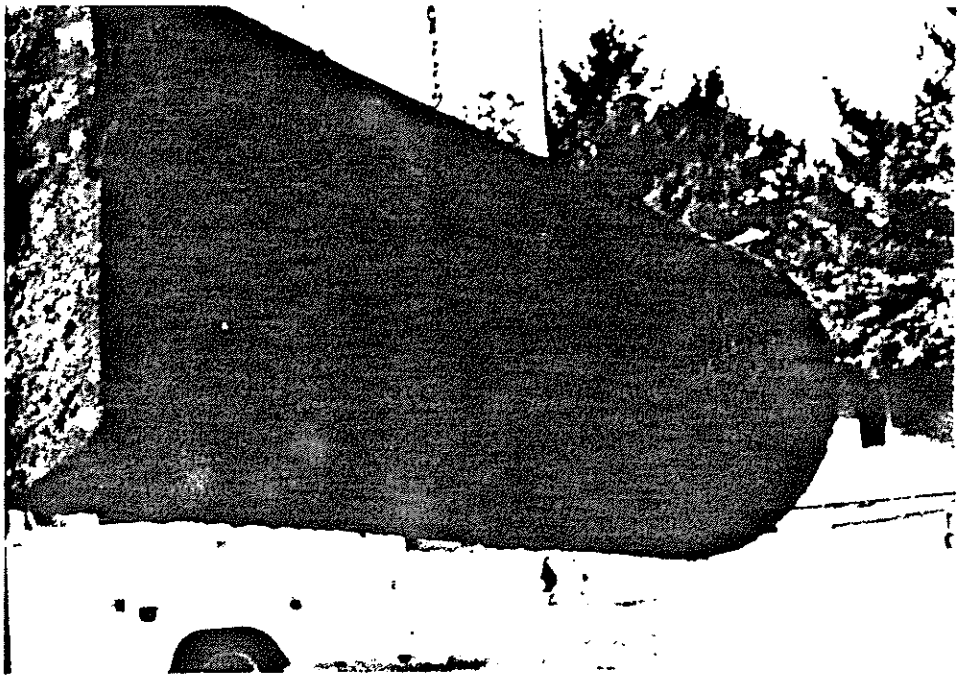
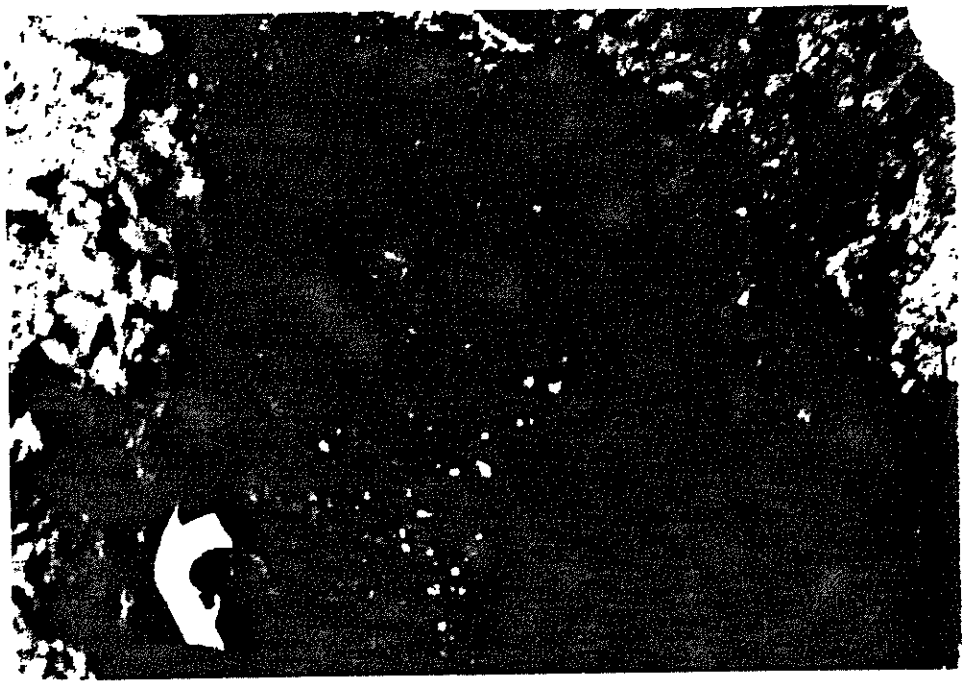


PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 2519 Fort Devens, Massachusetts	PROJECT: 37.07.91.07451	ĀTEC

A-3



A-4

PHOTO DOCUMENTATION	PROJECT: 37.07.91.07451	ATEC
1,000 gallon UST excavation at: Building 2519 Fort Devens, Massachusetts		

2.7 OCMA 220 DATA SHEETS

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

Consulting Geotechnical, Materials and Environmental Engineers

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 0033

DATE: Jan 24, 1992

OPERATOR: RICHARD W.GERMAN

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:	1.5	0.0	-1.1	0.0	0.8	0.0	30.9
SPAN:	30.0	40.0	44.3	40.0	40.4	40.0	
ZERO:	6.5	0.0	-2.0	0.0	-0.6	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
STOCK-1	85.2	79.1	20.0	1.0	—	—	51.8	52.0	–	5370.5
STOCK-2	81.9	73.3	20.0	1.0	20.0	0.5	60.0	35.5	35.7	5105.9
SS-1	81.5	75.0	20.0	0.5	25.0	0.5	68.0	57.2	57.4	13511.1
SS-2	82.0	75.9	20.0	0.5	25.0	0.5	69.0	60.8	61.0	15300.0
SS-3	87.2	76.3	25.0	0.5	—	—	62.1	61.8	–	9674.7
SS-4	84.3	75.2	25.0	0.5	—	—	63.3	62.7	–	10541.9
SS-5	83.0	76.3	25.0	0.5	—	—	56.0	54.0	53.6	12240.0
SS-6	85.4	78.1	20.0	0.5	—	—	16.5	15.0	15.1	2544.2
SS-7	83.5	75.4	20.0	0.5	—	—	5.4	5.6	–	852.2
SS-8	83.5	76.0	20.0	0.5	25.0	0.5	116.4	77.5	76.9	15687.6
SS-9	83.5	76.1	25.0	0.5	—	—	55.7	55.5	–	11322.0
SS-10	83.4	76.1	20.0	0.5	—	—	55.6	55.5	–	9351.4
—	—	—	—	—	—	—	—	—	—	*Error*
—	—	—	—	—	—	—	—	—	—	*Error*

2.8 LABORATORY ANALYTICAL RESULTS

The following laboratory analytical reports were organized and provided by Environmental Science Services Inc. Results are included for:

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

- LRS-1, LRS-2, LRS-3, LRS-4, LRS-5, LRS-6: Soil samples obtained from Post-remedial excavation. Laboratory analyzed for TPH. LRS-6 was also analyzed for VOCs, and 13 Metals by TCLP.

- LSP-38: Soil sample obtained from stockpiled soil for disposal classification. Laboratory analyzed for VOCs, Semi-volitile Organics, 13 Metals by TCLP, PCBs, reactive sulfide, reactive cyanide, flashpoint and corrosivity for characterization and disposal purposes.

ECEIVED FEB 0 4 1992

In Response To The Future

CERTIFICATE OF ANALYSIS

Date: 2/03/92 Job: 215
Account: 95659
Received: 1/25/92

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

Project: DEVENS-TANK 38

tn: Mr. Mark Baldi

ample umber	Method Number	Parameter	Result	Unit	Sample Description
021501	EPA-160.3	Total Solids	84	%	LSS1
	EPA-418.1	TPH/IR (Dry Wt.)	25000	mg/kg	
021502	EPA-160.3	Total Solids	85	%	LSS2
	EPA-418.1	TPH/IR (Dry Wt.)	23200	mg/kg	
021503	EPA-160.3	Total Solids	89	%	LSS3
	EPA-418.1	TPH/IR (Dry Wt.)	4750	mg/kg	

David Dickinson
Laboratory Manager

ge: 1

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-38 ESS Sample ID: 921528-11

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

Parameter	Results	Units	MRL	Method
pH (Corrosivity)	7.6	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	1.0	mg/L	Attached	6010
Copper	0.05	mg/L	Attached	6010
Zinc	0.30	mg/L	Attached	6010

N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92 SL

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) 454-2670

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-38 ESS Sample ID: 921528-11

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	88%	50 - 150%

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
101 Post Road West, Westport, Connecticut 06880 (203) 221-2753 Fax (203) 454-8078

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-38 ESS Sample ID: 921528-11

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 1992
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) 221-2753 Fax (203) 454-0076

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-38 ESS Sample ID: 921528-11

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
191 Post Road West, Westport, Connecticut 06880 (203) 221-2168 Fax (203) 454-1078

034

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-38 ESS Sample ID: 921528-11

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: [signature]
David Dickinson
Laboratory Director

Date: 2 Jul 92

083

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0398 Fax (401) 421-5731
101 Boston Road West, Westport, Connecticut [illegible]

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-38 ESS Sample ID: 921528-11

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

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

EPA METHOD 1311

Client: ATEC Environmental Consultants
Client Project ID: Stockpiled Soils
Client Sample ID: LSP-38
ESS Sample ID: 921528-11

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	1.0	0.1	1.0	0.1
Mercury	ND	0.005	ND	0.005
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.09
Copper	0.04	0.02	0.05	0.03
Nickel	ND	0.04	ND	0.04
Zinc	0.30	0.02	0.30	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

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 38, Bldg. 2519 ESS Project ID: 921997

Client Sample ID: LRS-1 ESS Sample ID: 921997-01

Date Sample Received: 8/3/92 Date Reported: 8/17/92

Parameter	Results	Units	MRL	Method
Percent Solids	84	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	14	mg/Kg	12	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 17 Aug 92

David Dickinson
Laboratory Director

001

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 38, Bldg. 2519 ESS Project ID: 921997

Client Sample ID: LRS-2 ESS Sample ID: 921997-02

Date Sample Received: 8/3/92 Date Reported: 8/17/92

Parameter	Results	Units	MRL	Method
Percent Solids	88	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	ND	mg/Kg	11	418.1

TPHIR reported on a dry weight basis

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

Approved by: _____ Date: 17 Aug 92

David Dickinson
Laboratory Director

002

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 38, Bldg. 2519 ESS Project ID: 921997

Client Sample ID: LRS-3 ESS Sample ID: 921997-03

Date Sample Received: 8/3/92 Date Reported: 8/17/92

Parameter	Results	Units	MRL	Method
Percent Solids	88	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	3,090	mg/Kg	114	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 17 Aug 92

David Dickinson
Laboratory Director

003

Environmental Science Services

532 Annalli Avenue, Providence, Rhode Island 02909 (401) 421-[illegible] Fax (401) 421-5731

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 38, Bldg. 2519 ESS Project ID: 921997

Client Sample ID: LRS-4 ESS Sample ID: 921997-04

Date Sample Received: 8/3/92 Date Reported: 8/17/92

Parameter	Results	Units	MRL	Method
Percent Solids	95	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	736	mg/Kg	11	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 17 Aug 92

David Dickinson
Laboratory Director

004

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 38, Bldg. 2519 ESS Project ID: 921997

Client Sample ID: LRS-5 ESS Sample ID: 921997-05

Date Sample Received: 8/3/92 Date Reported: 8/17/92

Parameter	Results	Units	MRL	Method
Percent Solids	89	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	179	mg/Kg	11	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 17 Aug 92

David Dickinson
Laboratory Director

005

Environmental Science Services

532 Armells Avenue, Providence, Rhode Island 02909 (401) 331-6248 Fax (401) 521-5731

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 38 Bldg. 2519 — ESS Project ID: 921997

Client Sample ID: LRS-6 — ESS Sample ID: 921997-06

Date Sample Received: 8/3/92 — Date Reported: 8/17/92

Parameter	Results	Units	MRL	Method
Percent Solids	93	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	ND	mg/Kg	11	418.1
Volatile Organics	ND	ug/Kg	Attached	8260
Toxicity Characteristic Leaching Procedure				1311
Metals				
Zinc	0.61	mg/L	Attached	6010

TPHIR reported on dry weight basis

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

Approved by: _____ Date: 17 Aug 92

David Dickinson
Laboratory Director

006

Environmental Science Services

532 Amwelk Avenue, Providence, Rhode Island 02909 (401) 421-0308 Fax (401) 421-5731

In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8260

Client: ATEC Environmental Consultants

Client Project ID: UST# 38 — ESS Project ID: 921997

Client Sample ID: LRS-6 — ESS Sample ID: 921997-06

Date Sample Received: 8/3/92 — Date Reported: 8/17/92

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	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: 8/17/92

David Dickinson
Laboratory Director

007

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# 38
Client Sample ID: LRS-6
ESS Sample ID: 921997-06

Date Sampled: 7/31/92
Date TCLP Performed: 8/6/92
Date Leachate Extracted: 8/7/92
Date Extract Analyzed: 8/10/92

	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	0.03
Chromium	ND	0.05	ND	0.05
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	0.61	0.02	0.61	0.02
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: 12 Aug 92
David Dickinson
Laboratory Director

008

Environmental Science Services
532 Annalls Avenue, Providence, Rhode Island 02909 (401) 421-0358 Fax (401) 351-5731

2.9 CHAIN OF CUSTODY FORMS

The following chain of custody forms were produced for the soil samples which were laboratory analyzed.

CHAIN OF CUSTODY RECORD

PROJ. NO. 07.451 | PROJECT NAME Devens - Tank 38 | CLIENT P.O. 19535 | 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	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
SS 1	1/22/92			X		X						1				X						
SS 2	1/21/92			X		X						1				X						
SS 3	1/21/92		X	X		X						1				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)
Mark E Zaldi	1/22/92				

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.
62.0171	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	VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
[illegible]	1/11/12			✓		✓						1				✓						Sp1. +
[illegible]	1/11/12			✓		✓						1				✓						Sp1. +
[illegible]	1/11/12		✓	✓		✓						1				✓						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]	1/17/12				

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

CHAIN OF CUSTODY RECORD

P.O. # 72362

PROJ. NO. 37.07.45

PROJECT NAME Ft. Devens - Stockpiled Soils
UST #'s 24, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43

CLIENT

LAB PROJ. NO. Given 15281-36

LABORATORY ANALYSIS

SAMPLERS: *(Signature)*
Chuck Langenhagen

SAMPLING METHOD
Grab/Composite

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								7732
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 #:

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

TOTAL P.19

CHAIN OF CUSTODY RECORD

P.O.# 72362

PROJ. NO. 37.07.451

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

CLIENT

LAB PROJ. NO.

SAMPLERS: (Signature) Craig D. Trombly

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	SEMI VOA 8270	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS 13 TCLP	IGNITABILITY	pH	CYANIDE SULFIDE REACTION	SAMPLE LOCATION / REMARKS
LSP-28	6-9-92		X			X			X	3		X	X	X	X	X	X	X	X	BLK. 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	" 2606
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
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	6-10-92 11:00				
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Project Manager / Phone #:	

CO
ET

CHAIN OF CUSTODY RECORD

P.O. 72465

PROJ. NO. | PROJECT NAME FT. DEVENS | LAB PROJ. NO.

CLIENT REMEDIATION - UST #38, BLDG. 2519

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	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY	13 TCLP	SAMPLE LOCATION / REMARKS
LRS-1	7-31-92	—				X				X		1				X						BLDG. 2519 N. SIDE WALL
LRS-2	7-31-92	—				X				X		1				X						E. side wall
LRS-3	"	—				X				X		1				X						S. side wall
LRS-4	"	—				X				X		1				X						W. side wall
LRS-5	"	—				X				X		1				X						Bottom
LRS-6	"	—				X				X		1		X		X				X		Bottom

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Craig D. Trombly	7-31-92				
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

2.10 HAZARDOUS WASTE MANIFEST

UST No. 0038 was estimated to contain approximately 48 gallons of No. 2 fuel oil and residuals. Approximately 13 gallons of fuel oil were removed from the tank on January 7, 1992 and transported to a licensed Treatment Storage Disposal Facility (T.S.D.F.) (Beede Waste Oil Corporation, Plaistow, New Hampshire). Approximately 35 gallons of fuel oil and residuals were removed and drummed on January 21, 1992 for disposal at a later date. Drummed material was disposed at Beede Waste Oil Corporation on February 27, 1992.

The following Hazardous Waste Manifests were generated from residual tank materials.

The manifests dated January 7, 1992 and February 27, 1992 are associated with fuel oil and residuals from several USTs. Therefore, the total quantities (1,400 gallons and 385 gallons) is much greater than the amount which was removed from UST 0039.

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. MA1721161235 — Manifest Document No. 101011

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

4. Generator's Phone: 508-796-3005 - 541-508-796-2711

A. State Manifest Document Number: MA F353641

B. State Gen. ID: SAME

5. Transporter 1 Company Name: Beede Waste Oil Corp.

6. US EPA ID Number: NHD018958140

C. State Trans. ID: NHW816731521

7. Transporter 2 Company Name:

8. US EPA ID Number:

D. Transporter's Phone: 603 382-5761

E. State Trans. ID:

9. Designated Facility Name and Site Address: Beede Waste Oil Corp., Kelley Road PO Box 127, Plaistow, NH 03865

10. US EPA ID Number: NHD018958140

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. COMBUSTIBLE LIQUID NA1270	1	TT	01400	G	~~MA01~~ MA917
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 Exempt 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: 01/17/92

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Robert D Murphy Jr | Signature: Robert D. Murphy Jr | Date: Month Day Year: 01/17/92

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

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.: MA7210025154 — Manifest Document No.: FD1639
2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

GENERATOR

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

4. Generator's Phone (508-796-3002)

A. State Manifest Document Number: MA F353777
B. State Gen. ID: N/A
C. State Trans ID: N/A
D. Transporter's Phone (603 382-5761)
E. State Trans. ID: N/A
F. Transporter's Phone ( ) N/A
G. State Facility's ID: Not Required
H. Facility's Phone (603 382-3761)

5. Transporter 1 Company Name: Beede Waste Oil Corp.
6. US EPA ID Number: NHD018958140
7. Transporter 2 Company Name:
8. US EPA ID Number:

9. Designated Facility Name and Site Address:
Beede Waste Oil Corp.
Kelley Rd., P.O. Box 127
Plaistow, NH 03865

10. US EPA ID Number: NHD018958140

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	007	DM	0385	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
4-Bldg 631 1-Bldg 2447 1-2686 - 1-3573
To Be Recycled #2 Fuel With SI=Sludge
For Recycling only Land Disposal Prohibited.

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: Stephen R Hopkins — Signature: [signature] — Date: Month 02 Day 27 Year 92

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Brian Ginivan — Signature: [signature] — Date: Month 02 Day 27 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

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

2.11 WEIGHT DISPOSAL RECEIPTS

The following weight slips document the disposal of contaminated soil associated with UST 0038.

BILL OF LADING
POLICY # WSC-89-001

OF LADING #: 13 DATE: _____ DEP CASE #: _____

ENERATOR NAME/ADDRESS:
U.S. ARMY
AFZD-FM, Box 19
FORT DEVENS, MA 01433
ONTACT/TEL #: 508-796-3002

SITE OF GENERATION: IK #2 F.O
STREET BUILDING 2519 UST #38
TOWN FORT DEVENS
STATE MA 01433
TRANSPORTATION ACCIDENT? __Y X N

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

PE OF CONTAMINATION:
_ gasoline X #2 oil __ #4 oil __ #6 oil __ other (specify) ____
ANALYSES ATTACHED?
Volatiles: __Y X N TPH: X Y __N

ANSPORTER NAME/ADDRESS:
TRIMOUNT BITUMINOUS PRODUCTS
70 BLANCHARD RD.
BURLINGTON MA 01803
ONTACT/TEL #: DAVID PETER (617) 221 8400

DESTINATION FACILITY NAME/ADDRESS:
TRIMOUNT BITUMINOUS PRODUCTS
651 LAKE ST.
SHREWSBURY, MA
TYPE OF FACILITY: X Recycling __ Landfill __ Incinerator

NERATOR'S SIGNATURE: _____ DATE: 7.20.92
OVE ITEMS MUST BE COMPLETED PRIOR TO DEP AUTHORIZATION)
THORIZATION: DEP SIGNATURE (originating region): _____ DATE: 23 July 92
(if applicable) DEP SIGNATURE (destination region): _____ DATE: _____

JCK/TRACTOR REGISTRATION A80653 MA
AILER REGISTRATION ____
T SITE AT 12:45 DATE ____
NERATOR OR RECEIVING FACILITY REPRESENTATIVES
INATURE: _____

QUANTITY SHIPPED: wt (tons) vol (cu yds)
TOTAL PROJECTED ____ ____
SHIPPED TO DATE ____ ____
THIS LOAD (estimated) 24.62 ____
REMAINING TO BE SHIPPED ____ ____
Ticket # 12418

NSPORTER'S SIGNATURE _____ DATE 7-31-92
EIVING FACILITY REPRESENTATIVE'S SIGNATURE _____ DATE 7/31/92 ARR TIME 1:15

VED
1992
Rec'd

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

FICATION OR MISREPRESENTATION OF ANY OF THE INFORMATION ON THIS BILL OF LADING IS A VIOLATION OF C. 21C AND 310 CMR 30.006 AND 30.007 AND IS SUBJECT TO APPROPRIATE STATUTORY OR REGULATORY TIES.

BILL OF LADING
POLICY # WSC-89-001

OF LADING #: 10 DATE: _____ DEP CASE #: _____

GENERATOR NAME/ADDRESS:
U.S. ARMY
AFZD-FM, BOX 19
FORT DEVENS, MA 01433
CONTACT/TEL #: 508-796-3002

SITE OF GENERATION: IK #2 F.O
STREET BUILDING 2519 UST #38
TOWN FORT DEVENS
STATE MA 01433
TRANSPORTATION ACCIDENT? __Y √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: __Y X N TPH: X Y __N

TRANSPORTER NAME/ADDRESS:
TRIMOUNT BITUMINOUS PRODUCTS
70 BLANCHARD RD.
BURLINGTON MA 01803
CONTACT/TEL #: DAVID PETER (617) 221 8400

DESTINATION FACILITY NAME/ADDRESS:
TRIMOUNT BITUMINOUS PRODUCTS
651 LAKE ST.
SHREWSBURY, MA
TYPE OF FACILITY: √ Recycling __ Landfill __ Incinerator

GENERATOR'S SIGNATURE: _____ DATE: 7.20.92
(ABOVE ITEMS MUST BE COMPLETED PRIOR TO DEP AUTHORIZATION)

AUTHORIZATION: DEP SIGNATURE (originating region): _____ DATE: 23 July 92

(If applicable) DEP SIGNATURE (destination region): _____ DATE: _____

TRUCK/TRACTOR REGISTRATION A80 653
TRAILER REGISTRATION _____
LEFT SITE AT 9:35 A.M DATE 7/31/92
GENERATOR OR RECEIVING FACILITY REPRESENTATIVES
SIGNATURE: _____

QUANTITY SHIPPED:	wt (tons)	vol (cu yds)
TOTAL PROJECTED	___	___
SHIPPED TO DATE	___	___
THIS LOAD (estimated)	20.86	___
REMAINING TO BE SHIPPED	___	___

Ticket # R 72463

TRANSPORTER'S SIGNATURE _____ DATE 7/31/92
RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE _____ DATE 7/31/92 ARR TIME 11:32

EIVED
21 1992
DEP
ral - Reg

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

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

TRIMOUNT BITUMINOUS PRODUCTS CO.
5 CHERRY HILL DRIVE
P.O. BOX 2089
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
ARRIVED JOB
LEFT JOB

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

TICKET #R 72463

Customer # ATE001 Job # BLDGFD MIX # #76 MIX NAME OIL SOIL TRUCK# 9
ATEC ASSOC. US ARMY
2 ACCORD PARK DRIVE BLDG 2519
NORWELL, MA 02061 FORT DEVENS, MA 01433
617-878-6200 PO# 37.04.72053

Time	Tare	Net	Gross	Total
11:32:04	29900	41720	71620	20.86

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

Load#	Job Total	Time & Date	Fob/Del
6	128.15	11:32:04 am Jul 31, 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 2089
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
ARRIVED JOB
LEFT JOB

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

TICKET #R 72478

Customer # ATE001 Job # BLDGFD MIX # #76 MIX NAME OIL SOIL TRUCK# 9
ATEC ASSOC. US ARMY
2 ACCORD PARK DRIVE BLDG
NORWELL, MA 02061 FORT DEVENS, MA 01433
617-878-6200 PO# 37.04.72053

Time	Tare	Net	Gross	Total
1:15:21	27400	49240	76640	24.62

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

Load#	Job Total	Time & Date	Fob/Del
9	190.85	1:15:21 pm Jul 31, 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 a UST. 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.85 S.46 M.G.L.
DIG SAFE NUMBER

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, Nor

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 OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK

NAME AND ADDRESS OF APPROVED TANK YARD: JOHN C. FOMBARELLO & 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 2 2

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 Marsanto	CPW	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"	10'8"
Tank 2	-----	-----
Tank 3	-----	-----
Tank 4	-----	-----
Tank 5	-----	-----

Tank Removed From

Ft. Devens Bldg #2519 - tank #38
(no. street)

Ayer
(city or town)

Fire Department Permit # none-listed (if applicable)

2.13 INSTALLATION

The installation of a replacement UST No. 0038 was not performed.

3.0 UST No. 0039

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. 0039, located at property known as Building 2520, Fort Devens, Massachusetts (the site). The purpose of the closure was to excavate the UST and to evaluate the potential for the presence of oil and hazardous material at the site. The closure of this UST was conducted on January 21, 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 a 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) (USEPA Method 418.1).
- Preparation of a Technical Report, to include assimilation of information gathered, major findings and conclusions.

3.1.2 Underground Storage Tank Excavation and Removal

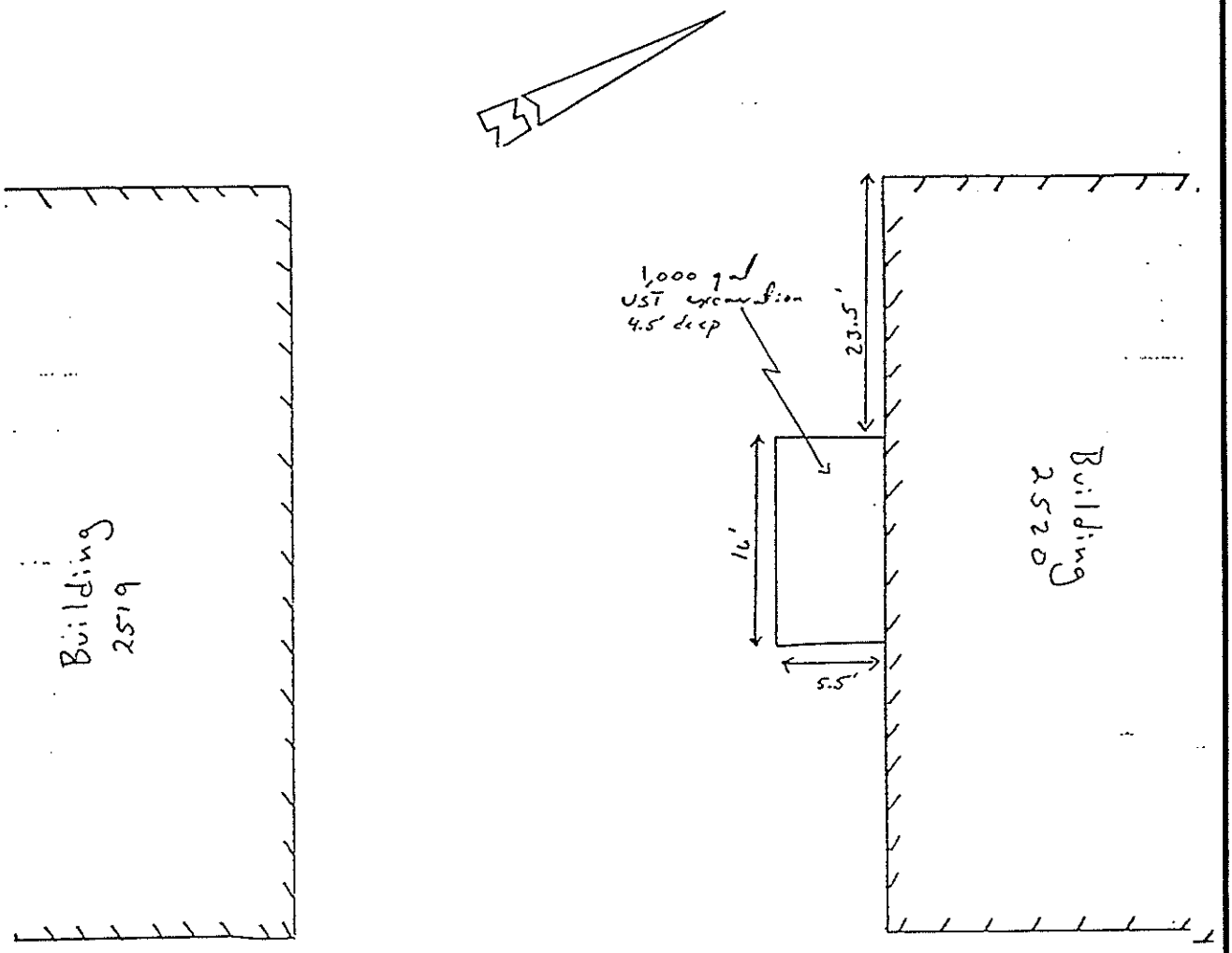
On January 21, 1992, one 1,000-gallon, subsurface, No. 2 fuel oil, storage tank was excavated and removed from the site. The UST was located adjacent to the south side of Building 2520. Topography at the site appeared level with a slighty upgradient slope approximately 100 feet southeast of the site.

Soils in the excavation consisted primarily of brown, fine sand and silt with some coarse gravel, cobbles, and boulders. The tank was covered by approximately 6 inches of soil. The bottom of the excavation was approximately 4.5 feet below grade. Groundwater was not encountered within the excavation. The excavated soils required to free the tank did not appeared to be contaminated. A slight staining of soil was noted at the east corner of the excavation, adjacent to the former fill area.

The associated piping was drained and tank connections were removed. UST No. 0039 was estimated to contain approximately 10 gallons of No. 2 fuel oil and residuals. 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 material. The fuel oil and residuals were removed from the tank and drummed on January 21, 1992. Drummed material was transported to a licensed Treatment Storage Disposal Facility (T.S.D.F.) (Beede Waste Oil Corporation, Plainstow, New Hampshire) on February 27, 1992. See Section 3.10 for copies of the appropriate Hazardous Waste Manifests.

Tank openings were then capped and the tank was removed from the excavation. Upon excavation and removal, the tank was observed to be in good condition with some surficial to moderate corrosion. During the removal procedure, following cleaning, the tank was punctured. No spillage or leakage resulted from this incident.

The scrap tank was removed from the site on January 21, 1992 and transported to the



UST LOCATION PLAN

1,000 gallon UST relative to:
Building 2520
Fort Devens, Massachusetts

PROJECT: 37.00451

NOT TO SCALE

FIGURE: 3.1

ATEC

Contractor's yard located on Lake George Street, Fort Devens for temporary storage. The tank was disposed at Tombarello & Sons, located in Lawrence, Massachusetts, a licensed Massachusetts tank yard on February 19, 1992. A copy of the disposal receipt is included in Section 3.11.

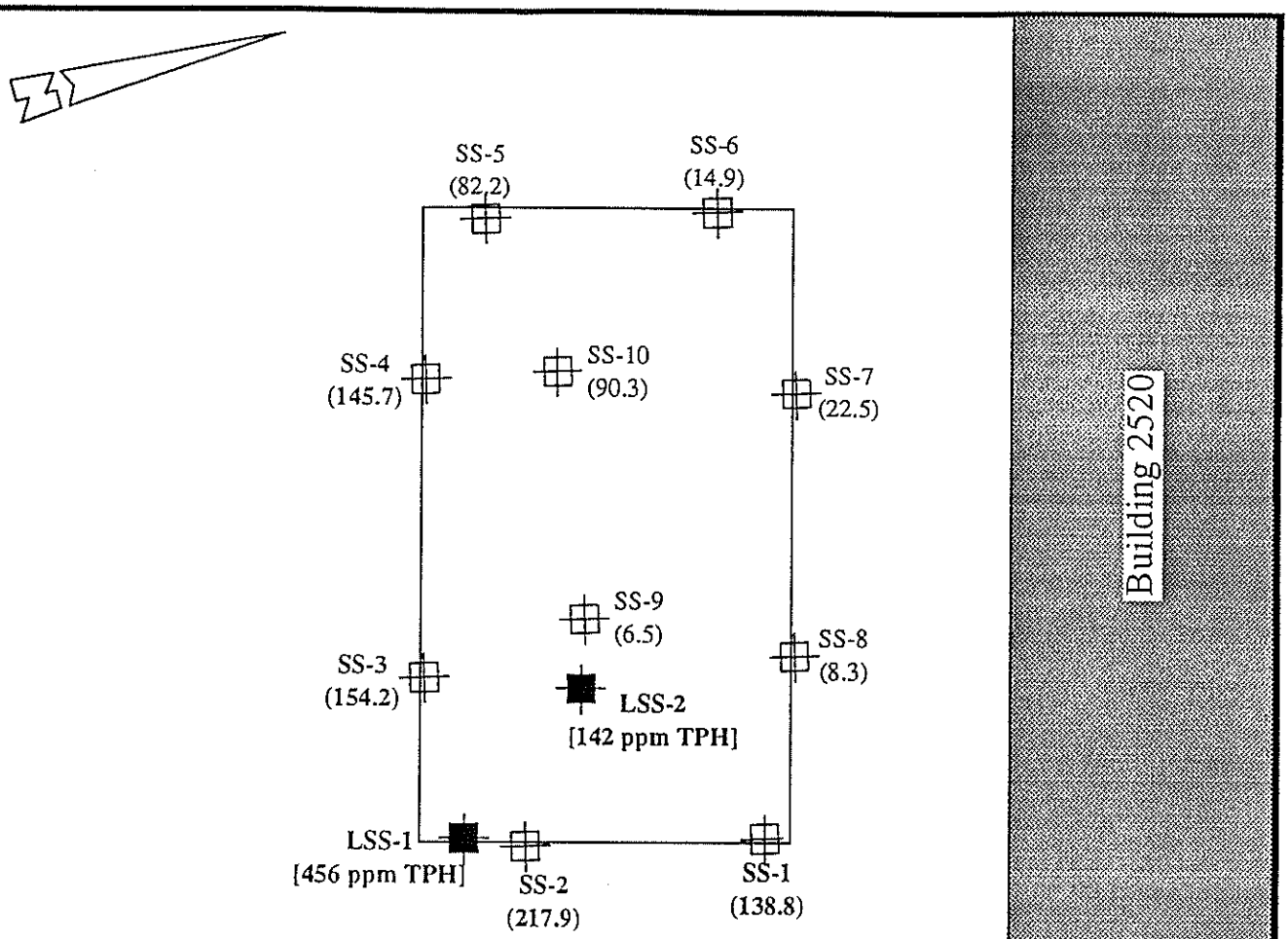
3.1.3 Sampling and Analysis Plan

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 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 4.5 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 at a depth of 2 to 3 feet below grade. Soil sample LSS-2 was obtained from the bottom of the excavation at a depth of 4.5 feet below grade. 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 are depicted on the Sampling Schematic attached as Figure 3.2. The appropriate chain-of-custodies are included in Section 3.9, 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 2520
Fort Devens, Massachusetts

PROJECT: 37.00451

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 soil samples obtained from the excavation, and the two composite samples obtained from stockpiled soil are as follows:

TABLE 3.1 - PID AND NDIR RESULTS

SAMPLE NUMBER	PID (ppm TOV)	NDIR (ppm TPH)
SS-1	9.0	138.8
SS-2	11.4	217.9
SS-3	1.8	154.2
SS-4	0.8	145.7
SS-5	1.8	82.2
SS-6	0.1	14.9
SS-7	0.1	22.5
SS-8	0.6	8.3
SS-9	1.4	6.5
SS-10	1.2	90.3
Stock-1	7.4	899.8
Stock-2	6.5	271.6

N.D. = None Detected

Laboratory analytical results of the two soil samples obtained from the excavation revealed a TPH concentration of 456 ppm for LSS-1, and 142 ppm for LSS-2. Laboratory analysis of the one soil sample obtained from the stockpiled soils revealed a TPH concentration of 1,090 ppm for LSS-3 (see Section 3.8, Laboratory Analytical Results).

3.1.5 Conclusions and Recommendations

As presented in ATEC's Post Removal Report dated February 3, 1992, ATEC's conclusions are as follows:

Upon excavation and removal, the tank was observed to be in good condition with some corrosion. During the removal procedure, following cleaning, the tank was punctured. No spillage or leakage resulted from this incident.

Groundwater was not encountered within the excavation.

Excavated soils required to free the tank did not appear to be visibly contaminated. A slight staining of soil was noted at the east corner of the excavation, adjacent to the former fill area.

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 0.1 ppm to 11.4 ppm. NDIR results revealed TPH concentrations ranging from 6.5 to 217.9 ppm.

Two soil samples were obtained from the excavation for laboratory analysis for TPH utilizing USEPA Method 418.8. Analytical results for LSS-1 obtained from the southeast wall of the excavation revealed a TPH concentration of 456 ppm. Analytical results for LSS-2 obtained from the bottom of the excavation revealed a TPH concentration of 142 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 1,090 ppm.

Based on these findings, ATEC recommended the following:

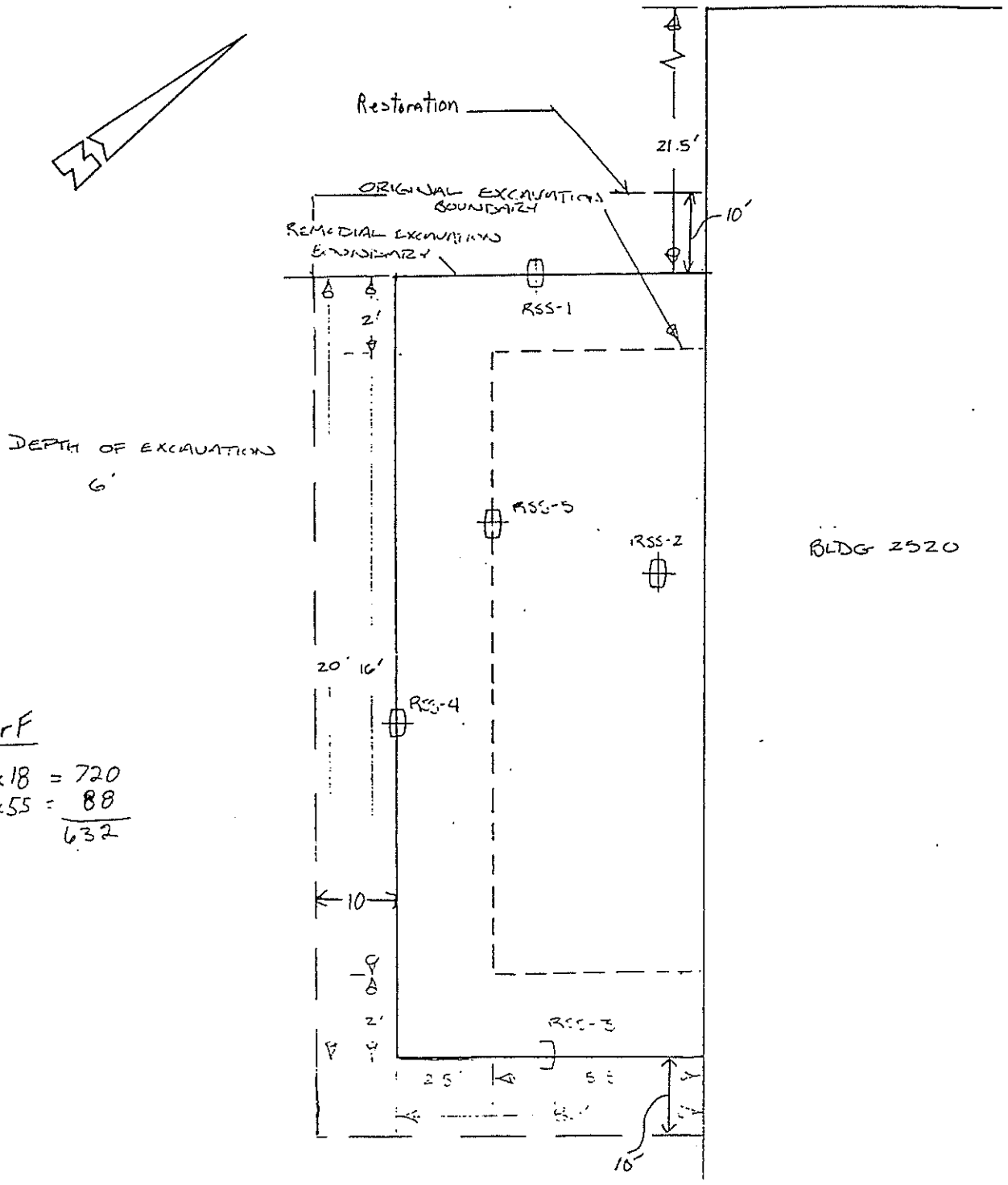
Advance soil borings and install groundwater monitoring wells to determine the vertical and horizontal extent of contamination. Continuous split spoon sampling and analysis will be conducted utilizing field analysis techniques, i.e. PID and NDIR analysis, and laboratory analysis to document soil contamination levels as specified in the Hazardous Waste Containment Plan.

Additionally excavated and stockpiled soils should be laboratory analyzed for VOCs, PCBs, 13 TCLP Metals, flashpoint sulfide reactivity, cyanide reactivity, and corrosivity for disposal classification.

3.2 SITE REMEDIATION AND CONTAMINATED SOIL DISPOSAL

3.2.1 Site Remediation

Following review of field screening and laboratory analytical results, additional excavation to remove contaminated soil and to reach background levels by PID (<1 ppm) was conducted per order of the Contracting Officer's Representative and David Salvadore of the Massachusetts Department of Environmental Protection (DEP). Approximately 33.97 tons of contaminated soil were removed from excavation floor and the east, west and south sidewalls during remedial excavation on July 23, 1992. Excavation could not be conducted on the north sidewall due to structural safety concerns. The estimated volume of soil removed was calculated from field drawings produced during the removal and remediation of UST No. 0039 (see Remedial Excavation Plan, Figure 3.3).



REMEDIAL EXCAVATION PLAN

1,000 gallon UST relative to:
Building 2520
Fort Devens, Massachusetts

PROJECT: 37.00451

NOT TO SCALE

FIGURE: 3.3

ATEC

Five soil samples (RSS-1A to RSS-5A) were obtained from the post-remedial excavation for PID field screening. RSS-1A to RSS-4A were obtained from the side walls at a depth of approximately 3 to 4 feet below grade. RSS-5A was obtained from the bottom of the excavation, approximately 6 feet below grade. PID results revealed TOV concentrations ranging from 0.0 to 13.5 ppm (see Table 3.2).

Further excavation of the west wall was conducted. One soil sample (RSS-1B) was obtained from the west sidewall at a depth of approximately 3 to 4 feet below grade for PID screening. PID results of RSS-1B did not reveal detectable levels of TOVs.

TABLE 3.2 - PID SCREENING RESULTS

SAMPLE NUMBER	PID (ppm TOV)	LOCATION
RSS-1A	13.5	west sidewall (3-4' depth)
RSS-2A	0.0	north sidewall (3-4' depth)
RSS-3A	0.2	east sidewall (3-4' depth)
RSS-4A	0.0	south sidewall (3-4' depth)
RSS-5A	0.0	bottom (6' depth)
RSS-1B	0.0	west sidewall (3-4' depth)

RSS = Remediation Soil Sample

Two soil samples (LRS-1 and LRS-5) were obtained from the excavation. LRS- 1 was obtained from the west sidewall at a depth of 3 to 4 feet below grade. LRS-5 was obtained from the bottom of the excavation at a depth of 6 feet below grade. LRS-1 and LRS-5 were laboratory analyzed for TPH (modified USEPA Method 418.1), (see Section 3.8, Laboratory Analytical Results).

Based on these findings, ATEC recommended the following:

Advance soil borings and install groundwater monitoring wells to determine the vertical and horizontal extent of contamination. Continuous split spoon sampling and analysis will be conducted utilizing field analysis techniques, i.e. PID and NDIR analysis, and laboratory analysis to document soil contamination levels as specified in the Hazardous Waste Containment Plan.

Additionally excavated and stockpiled soils should be laboratory analyzed for VOCs, PCBs, 13 TCLP Metals, flashpoint sulfide reactivity, cyanide reactivity, and corrosivity for disposal classification.

3.2 SITE REMEDIATION AND CONTAMINATED SOIL DISPOSAL

3.2.1 Site Remediation

Following review of field screening and laboratory analytical results, additional excavation to remove contaminated soil and to reach background levels by PID (<1 ppm) was conducted per order of the Contracting Officer's Representative and David Salvadore of the Massachusetts Department of Environmental Protection (DEP). Approximately 33.97 tons of contaminated soil were removed from excavation floor and the east, west and south sidewalls during remedial excavation on July 23, 1992. Excavation could not be conducted on the north sidewall due to structural safety concerns. The estimated volume of soil removed was calculated from field drawings produced during the removal and remediation of UST No. 0039 (see Remedial Excavation Plan, Figure 3.3).

TABLE 3.3 - LABORATORY ANALYSIS

SAMPLE NUMBER	TPH (ppm)	VOA (ppb)	13 TCPL METALS (ppm)	LOCATION
LRS-1	ND	NA	NA	north sidewall (3-4' depth)
LRS-5	108	NA	NA	bottom (6' depth)

LRS = Laboratory Remediation Sample

ND = Not Detected Above Method Reporting Limit

NA= Not Applicable

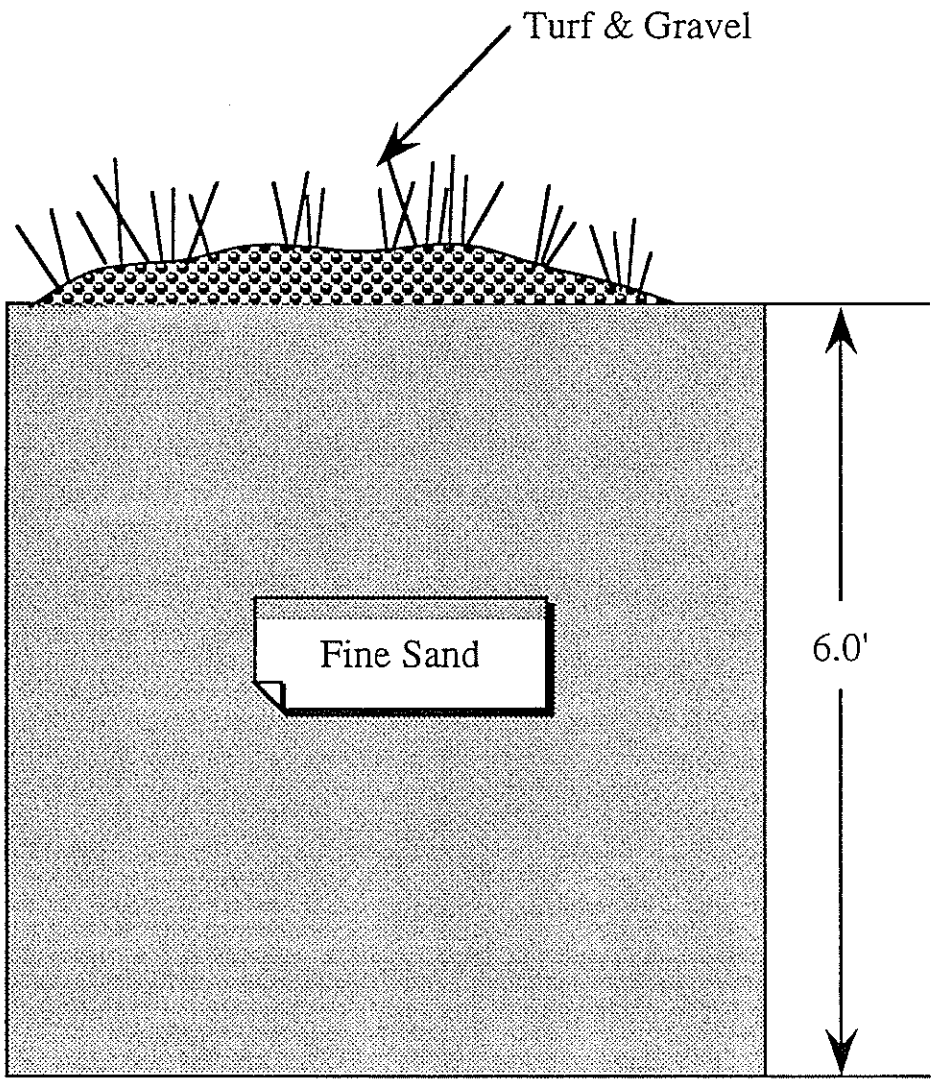
3.2.2 Soil Stratigraphy

Soil stratigraphy within the excavation consisted of fine sand from grade level to a depth of 6 feet below grade (see Figure 3.4, Soil Stratigraphy).

3.2.3 Contaminated Soil Disposal

Prior to disposal, contaminated soil was laboratory analyzed for disposal classification purposes. One composite soil sample (LSP-39) was obtained from stockpiled soil associated with the removal of the UST No. 0039 and the additional excavation conducted at the site. Laboratory analyses were performed for VOCs, Semi-volatile Organic Compounds, 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP), Polychlorinated Biphenyls (PCBs), reactive sulfide, reactive cyanide, flashpoint, and corrosivity for characterization and disposal purposes. Laboratory analytical results revealed 7.5 S.U. Corrosivity, 0.4 ppm Lead, 0.04 ppm Copper and 0.49 ppm Zinc. All other analytical results were below the Method Reporting Limits (MRL).

Approximately 20.90 cubic yards (33.97 tons) of No. 2 fuel oil contaminated soil was removed and stockpiled during the remediation of the excavation, as estimated through field drawings. Contaminated soil was disposed for recycling at Trimount Bituminous



SOIL STRATIGRAPHY

1,000 gallon UST excavation at:
Building 2520
Fort Devens, Massachusetts

PROJECT: 37.07.91.00451

UST No. 0039

FIGURE: 3.4

ĀTEC

Products Company, Shrewsbury, Massachusetts.

3.3 HYDROGEOLOGICAL SERVICES

Hydrogeological services were not performed relative to UST No. 0039.

3.4 BACKFILL

The excavation was lined with polyethylene plastic sheeting and backfilled with approximately 35.6 cubic yards of uncontaminated fill material on July 29, 1992. Backfilling was conducted with the approval of the Contracting Officer's Representative and the DEP.

3.5 SITE RESTORATION

Following backfill of the excavation, approximately 72 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 removal view of the excavation.

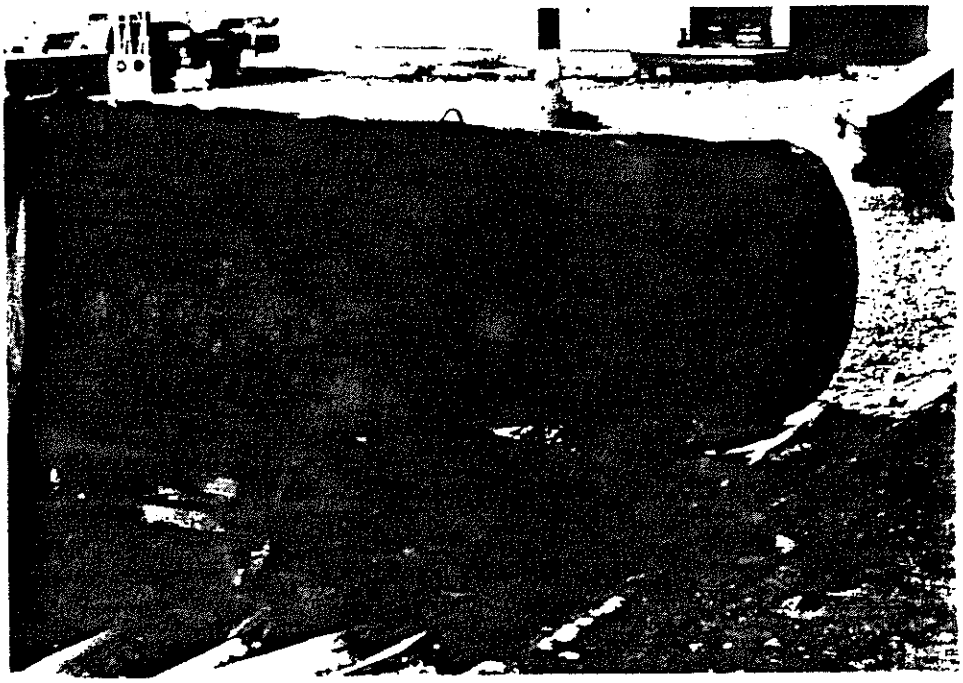
A-1: One side of removed tank.

A-2: Opposite side of removed tank.

A-3: Excavation as viewed from west, facing east.

A-4: Excavation as viewed from east, facing west.

A-1



A-2

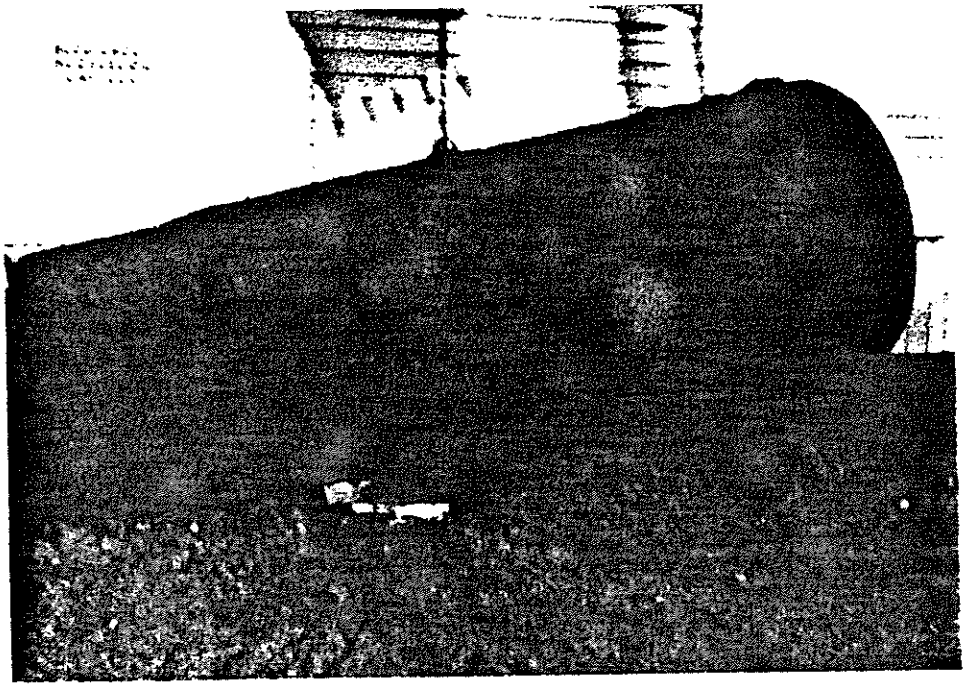


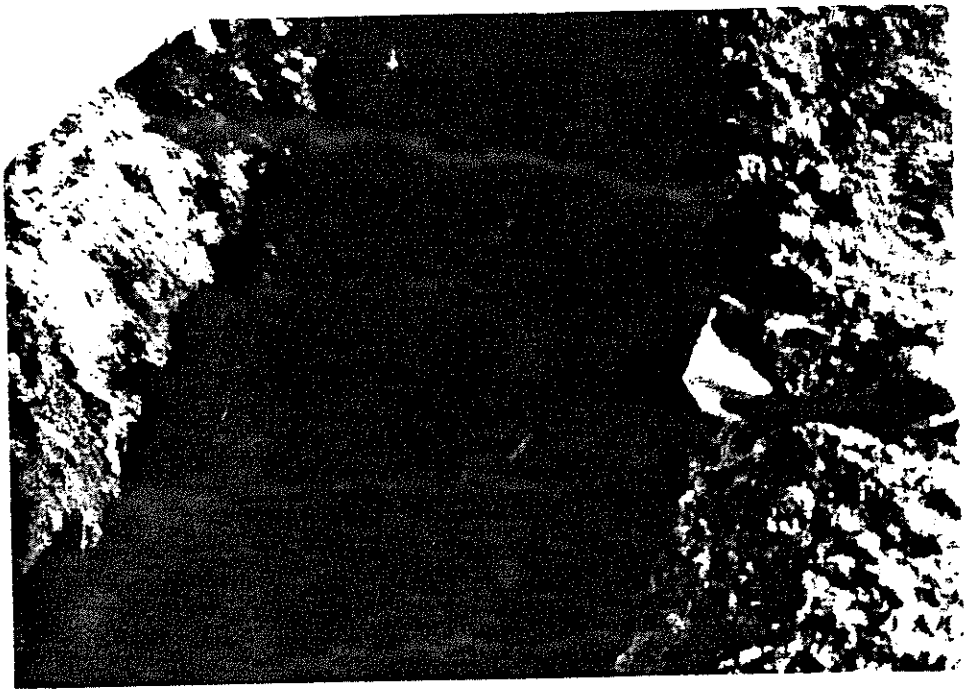
PHOTO DOCUMENTATION

1,000 gallon UST excavation at:
Building 2520
Fort Devens, Massachusetts

PROJECT: 37.07.451

ĀTEC

A-3



A-4

PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 2520 Fort Devens, Massachusetts	PROJECT: 37.07.451	ĀTEC

3.7 OCMA 220 DATA SHEETS

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

Consulting Geotechnical, Materials and Environmental Engineers

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 0089

DATE: Jan 22, 1992

OPERATOR: RICHARD W. GERMAN

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:	1.0	0.0	0.2	0.0	0.2	0.0	26.4
SPAN:							
ZERO:							

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
STOCK-1	80.5	73.9	17.5	1.0	—	—	10.6	10.7	–	809.8
STOCK-2	86.0	76.6	17.5	1.0	—	—	4.5	4.6	–	271.6
SS-1	83.0	76.6	17.5	1.0	—	—	1.5	1.6	–	139.8
SS-2	84.8	74.1	17.5	1.0	—	—	4.1	4.2	–	217.9
SS-3	81.1	75.7	17.5	1.0	—	—	1.6	1.5	–	154.2
SS-4	85.7	77.7	17.5	1.0	—	—	2.3	2.1	2.1	145.7
SS-5	85.5	77.4	17.5	1.0	—	—	1.1	1.2	–	82.2
SS-6	86.3	75.1	17.5	1.0	—	—	0.4	0.3	–	14.9
SS-7	81.3	73.9	17.5	1.0	—	—	0.2	0.3	–	22.5
SS-8	83.4	76.7	17.5	1.0	—	—	0.1	0.1	–	8.3
SS-9	85.6	77.0	17.5	1.0	—	—	0.2	0.1	–	6.5
SS-10	87.8	75.2	17.5	1.0	—	—	1.3	1.4	–	90.3
										Error
										Error

QUALITY CONTROL SECTION

In Response To The Future

CERTIFICATE OF ANALYSIS

VOA SOIL SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client Project ID: UST 38

Date Sample Analyzed: 8/14/92

ESS Project ID: 921997

SAMPLE ID	1,2 DICHLOROETHANE-D4 (70-121%)*	TOLUENE-D8 (81-117%)*	BFB (74-121%)*
VS0814B1	76%	88%	110%
921997-06	105	84	83

* Acceptance criteria

Approved by: _____ Date: 13 Aug 92

David Dickinson
Laboratory Director

010

In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8260

Client: ATEC Environmental Consultants

Client Project ID: UST# 38 — ESS Project ID: 921997

Client Sample ID: Method Blank — ESS Sample ID: VS0814B1

Date Sample Received: NA — Date Reported: 8/17/92

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	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)
NA = Not Applicable

Approved by: _____ Date: 17 Aug 92
David Dickinson
Laboratory Director

011

In Response To The Future

CERTIFICATE OF ANALYSIS

MATRIX SPIKE ANALYSIS SUMMARY

TCLP METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants Matrix: Solid

TCLP Batch ID: 202301 Concentration in: mg/L

Target Analyte	Result	Spike Added	Spiked Result	Percent Recovery
Antimony	ND	*	ND	76%
Arsenic	ND	2.00	2.26	113
Cadmium	ND	0.5	0.39	78
Chromium	ND	1.0	1.22	122
Lead	ND	1.0	1.12	112
Mercury	ND	0.02	0.020	100
Selenium	ND	2.00	2.13	107
Silver	ND	1.0	0.76	76
Copper	ND	1.0	1.14	114
Nickel	ND	1.0	1.07	107
Zinc	ND	1.0	1.09	109
Beryllium	ND	*	ND	76
Thallium	ND	*	ND	76

This matrix spike analysis summary applies to the following samples:
921997-06

ND = Not Detected above Method Reporting Limit (MRL)

* Matrix spike recovery is based on the lowest spike recovery of the spiked analytes.

Approved by: _____ Date: 12 May 92

David Dickinson
Laboratory Director

012

3.8 LABORATORY ANALYTICAL RESULTS

The following laboratory analytical reports were organized and provided by Environmental Science Services, Inc. (ESS). Results are included for:

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

- LRS-1 and LRS-5: Soil samples obtained from post-remedial excavation. Laboratory analyzed for TPH.

- LSP-39: Soil sample obtained from stockpiled soil for disposal classification. Laboratory analyzed for VOCs, Semi-volatile Compounds, 13 Metals by TCLP, PCBs, reactive sulfide, reactive cyanide, flashpoint and corrosivity for characterization and disposal purposes.

RECEIVED FEB 0 4 1992

In Response To The Future

ERTIFICATE OF ANALYSIS

Date: 2/03/92 Job: 214
Account: 95659
Received: 1/25/92

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

Project: DEVENS-TANK 39

tn: Mr. Mark Baldi

ample umber	Method Number	Parameter	Result	Unit	Sample Description
021401	EPA-160.3	Total Solids	89	%	LSS1
	EPA-418.1	TPH/IR (Dry Wt.)	456	mg/kg	
021402	EPA-160.3	Total Solids	92	%	LSS2
	EPA-418.1	TPH/IR (Dry Wt.)	142	mg/kg	
021403	EPA-160.3	Total Solids	89	%	LSS3
	EPA-418.1	TPH/IR (Dry Wt.)	1090	mg/kg	

David Dickinson
Laboratory Manager

ge: 1

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-39 ESS Sample ID: 921528-12

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

Parameter	Results	Units	MRL	Method
pH (Corrosivity)	7.5	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	0.4	mg/L	Attached	6010
Copper	0.04	mg/L	Attached	6010
Zinc	0.49	mg/L	Attached	6010

N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 1992

David Dickinson
Laboratory Director

083

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-0308 Fax (401) 421-5731

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-39 ESS Sample ID: 921528-12

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	93%	50 - 150%

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

033

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

ACID EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-39 ESS Sample ID: 921528-12

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

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

BASE NEUTRAL EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-39 ESS Sample ID: 921528-12

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: 7/1/92

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) 454-0870

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-39 ESS Sample ID: 921528-12

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: _____ Date: 2 Jul 1992
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: Ft. Devens-Stockpiled Soils ESS Project ID: 921528

Client Sample ID: LSP-39 ESS Sample ID: 921528-12

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 92

David Dickinson
Laboratory Director

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-39
ESS Sample ID: 921528-12

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	0.0052
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.09
Copper	0.03	0.02	0.04	0.03
Nickel	ND	0.04	ND	0.04
Zinc	0.49	0.02	0.49	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

Environmental Science Services
532 Atwells Avenue, Providence, Rhode Island 02909 (401) 421-8398 Fax: (401) 421-5731

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 37 Bldg. 2461, UST 39 Bldg. 2520

ESS Project ID: 922026

Client Sample ID: LRS-1 UST 39

ESS Sample ID: 922026-07

Date Sample Received: 8/5/92

Date Reported: 8/18/92

Parameter	Results	Units	MRL	Method
Percent Solids	89	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	ND	mg/Kg	11	418.1

TPHIR reported on dry weight basis

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

Approved by: _____ Date: 18 Aug 92

David Dickinson
Laboratory Director

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 37 Bldg. 2461, UST 39 Bldg. 2520

ESS Project ID: 922026

Client Sample ID: LRS-5 UST 39

ESS Sample ID: 922026-08

Date Sample Received: 8/5/92

Date Reported: 8/18/92

Parameter	Results	Units	MRL	Method
Percent Solids	88	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	108	mg/Kg	11	418.1

TPHIR reported on dry weight basis

MRL = Method Reporting Limit

Approved by: _____
David Dickinson
Laboratory Director

Date: 18 Aug 92

In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8260

Client: ATEC Environmental Consultants

Client Project ID: UST 37 Bldg. 2461, UST 39 Bldg. 2520

ESS Project ID: 922026

Client Sample ID: Method Blank

ESS Sample ID: WS0814B1

Date Sample Received: NA

Date Reported: 8/18/92

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	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)
NA = Not Applicable

Approved by: _____ Date: 18 Aug 92
David Dickinson
Laboratory Director

In Response To The Future

CERTIFICATE OF ANALYSIS

MATRIX SPIKE ANALYSIS SUMMARY

TCLP METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants Matrix: Solid

TCLP Batch ID: 202301 Concentration in: mg/L

Target Analyte	Result	Spike Added	Spiked Result	Percent Recovery
Antimony	ND	*	ND	76%
Arsenic	ND	2.00	2.26	113
Cadmium	ND	0.5	0.39	78
Chromium	ND	1.0	1.22	122
Lead	ND	1.0	1.12	112
Mercury	ND	0.02	0.020	100
Selenium	ND	2.00	2.13	107
Silver	ND	1.0	0.76	76
Copper	ND	1.0	1.14	114
Nickel	ND	1.0	1.07	107
Zinc	ND	1.0	1.09	109
Beryllium	ND	*	ND	76
Thallium	ND	*	ND	76

This matrix spike analysis summary applies to the following samples:
922026-04, -05

ND = Not Detected above Method Reporting Limit (MRL)

* Matrix spike recovery is based on the lowest spike recovery of the spiked analytes.

Approved by: _____ Date: 18 Aug 92

David Dickinson
Laboratory Director

3.9 CHAIN OF CUSTODY FORMS

The following chain of custody forms were produced for the soil samples which were laboratory analyzed.

CHAIN OF CUSTODY RECORD

PROJ. NO. 07.451 | PROJECT NAME Devens - Tank 39 | CLIENT P.O. 19536 | 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	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
GSS1	1/21/92			X		X						1				X						
GSS2	1/21/92			X		X						1				X						
GSS3	1/21/92		X	X		X						1				X						

Relinquished by: (Signature) Mark E Zaldi | Date / Time 1/22/92 | Received by: (Signature)

Relinquished by: (Signature) | Date / Time | Received by: (Signature)

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

CHAIN OF CUSTODY RECORD

PROJ. NO. 07.451 | PROJECT NAME Danvers - Trailers | CLIENT | LAB PROJ. NO.

SAMPLERS: (Signature)

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	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
[illegible]51	1/21/92			X		X						1				✓						SP1 +
[illegible]552	1/21/92			X		X						1				✓						SP1 +
[illegible]553	1/21/92		X	X		X						1				X						SP1 +

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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)
	1/21/92				

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

CHAIN OF CUSTODY RECORD

P.O.# 72362

PROJ. NO. 37.07 451

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

LAB PROJ. NO.

SAMPLERS: (Signature) Craig D. Fomby

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	~~BNA~~ SEMI VOA 8270	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	~~TOTAL METALS~~ 13 TCLP	IGNITABILITY	PH	CYANIDE SULFIDE REACTION	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

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Craig D. Fomby	6-10-92 11:00				
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

CHAIN OF CUSTODY RECORD

P.O. - 12561

PROJ. NO. 37.07.451

PROJECT NAME Ft. Devens - Stockpiled Soils
UST #'s 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43
CLIENT

LAB PROJ. NO. Given 15281-96

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

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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	6/27 11:45am	6/29/92			
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Project Manager / Phone #:	

CHAIN OF CUSTODY RECORD

P.O.# 72466

PROJ. NO.	PROJECT NAME
37.07.451	FT. DEVENS — CLIENT REMEDIATION – UST # 37, 39 ← BLDG. 2520 ↙ BLDG. 2461

LAB PROJ. NO.

SAMPLERS: *(Signature)* Craig D. Tomlinson

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	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY	13 TCLP	SAMPLE LOCATION / REMARKS
LRS-1	8-3-92					X										X						UST # 37 BLDG. 2461
LRS-2	"					X										X						"
LRS-3	"					X										X						"
LRS-4	"					X								X		X				X		"
LRS-5	"					X								X		X				X		"
LRS-6	"					X										X						"
LRS-1	"					X										X						UST # 39 BLDG. 2520
LRS-5	"					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. Tomlinson	8-3-92				

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

3.10 HAZARDOUS WASTE MANIFEST

UST No. 0039 was estimated to contain approximately 10 gallons of No. 2 fuel oil. Approximately 10 gallons of fuel oil were removed on January 21, 1992, and transported to a licensed Treatment Storage Disposal Facility (T.S.D.F.) (Beede Waste Oil Corporation, Plaistow, New Hampshire) on February 27, 1992.

The following Hazardous Waste Manifests were generated from residual tank materials. The manifest dated February 27, 1992 is associated with tank product and residuals from several USTs. Therefore, the total quantity (385 gallons) is greater than the 10 gallons which were removed from UST No. 0039.

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. MA7210025154 — Manifest Document No. FD639 — 2. Page 1 of — 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.
AFZD-DEQEM Attn: Mark Boser
Fort Devens, MA 01433

4. Generator's Phone (508-796-3002

A. State Manifest Document Number: MA F353777
B. State Gen. ID: N/A
C. State Trans. ID: N/A
D. Transporter's Phone (603 382-5761
E. State Trans. ID: N/A
F. Transporter's Phone (N/A
G. State Facility's ID: Not Required
H. Facility's Phone (603 382-3761

5. Transporter 1 Company Name: Beede Waste Oil Corp. — US EPA ID Number: NHD018958140
7. Transporter 2 Company Name — 8. US EPA ID Number

9. Designated Facility Name and Site Address
Beede Waste Oil Corp.
Kelley Rd., P.O. Box 127
Plaistow, NH 03865

10. US EPA ID Number: NHD018958140

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	007	DM	00385	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
4-Bldg 631 1-Bldg 2447 1-2686 ~ 1-3573
To Be Recycled #2 Fuel With SI=Sludge
For Recycling only land Disposal Prohibited.

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: Stephen R Hopkins — Signature — Date: Month 02 Day 27 Year 92

TRANSPORTER
17. Transporter 1 Acknowledgement of Receipt of Materials — Printed/Typed Name: Brian Ginivan — Signature — Date: Month 02 Day 27 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

3.11 WEIGHT DISPOSAL RECEIPTS

The following weight slips are associated with contaminated soil disposal associated with UST 0039.

TRIMOUNT BITUMINOUS PRODUCTS CO.
5 CHERRY HILL DRIVE
P.O. BOX 2089
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
ARRIVED JOB
LEFT JOB ~~CHECK #~~

Cash ☐ C.O.D. ☐ Charge ☑
CHECKED BY
CARRIER

TICKET #R 72863

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

Job # BLDGFD
US ARMY
BLDG 2447 & 2520 TANKS 34 & 39
FORT DEVENS, MA 01433
PO# 37.04.72053

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
9:20:30	39600	60560	100160	30.28

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

Load#	Job Total	Time & Date	Fob/Del
1	30.28	9:20:30 am Aug 5, 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 2089
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
ARRIVED JOB
LEFT JOB ~~CHECK #~~

Cash ☐ C.O.D. ☐ Charge ☑
CHECKED BY
CARRIER

TICKET #R 72621

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

Job # BLDGFD
US ARMY
BLDG 2520 TANK 39
FORT DEVENS, MA 01433
PO# 37.04.72053

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
12:26:05	27500	46860	74360	23.43

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

Load#	Job Total	Time & Date	Fob/Del
4	96.35	12:26:05 pm Aug 3, 1992	F

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

RECEIVED BY

3.12 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.

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC SAFETY—DIVISION OF FIRE PREVENTION

PERMIT

FOR REMOVAL AND TRANSPORTATION TO APPROVED TANK YARD

DIG SAFE NUMBER
920414497

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

Name: Ater 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

BLDG 25 TANK # 39

FDID# 17919

Fee paid $ N/A

Name and address of contractor disposing tank Same as above

Location to which tank will be transported

F-1

14901
Approved tank yard#

1,000

This permit will expire 2-15- 1992

Signature of official granting permit (TITLE)
(Head of Fire Dept.)

RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK

NAME AND ADDRESS OF APPROVED TANK YARD [illegible] ST LAWRENCE, MASS. 01841

APPROVED TANK YARD NO. 1 4 9 0 7

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

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., INC 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 Marante	CPW	2-19-92
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"	(1,000gal)
Tank 2	-----	X	-----	
Tank 3	-----	X	-----	
Tank 4	-----	X	-----	
Tank 5	-----	X	-----	

Tank Removed From

Ft. DEVENS BLDG. 2520 -tank#39
(no. street)

AYER
(city or town)

Fire Department Permit # None-Listed (if applicable)

3.13 INSTALLATION

The installation of a replacement UST No. 0039 was not performed.

4.0 UST No. 0040

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. 0040, located at property known as Building 2686, 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 23 and 24, 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 a 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) (USEPA Method 418.1).
- Preparation of a Technical Report to include assimilation of information gathered, major findings and conclusions.

4.1.2 Underground Storage Tank Excavation and Removal

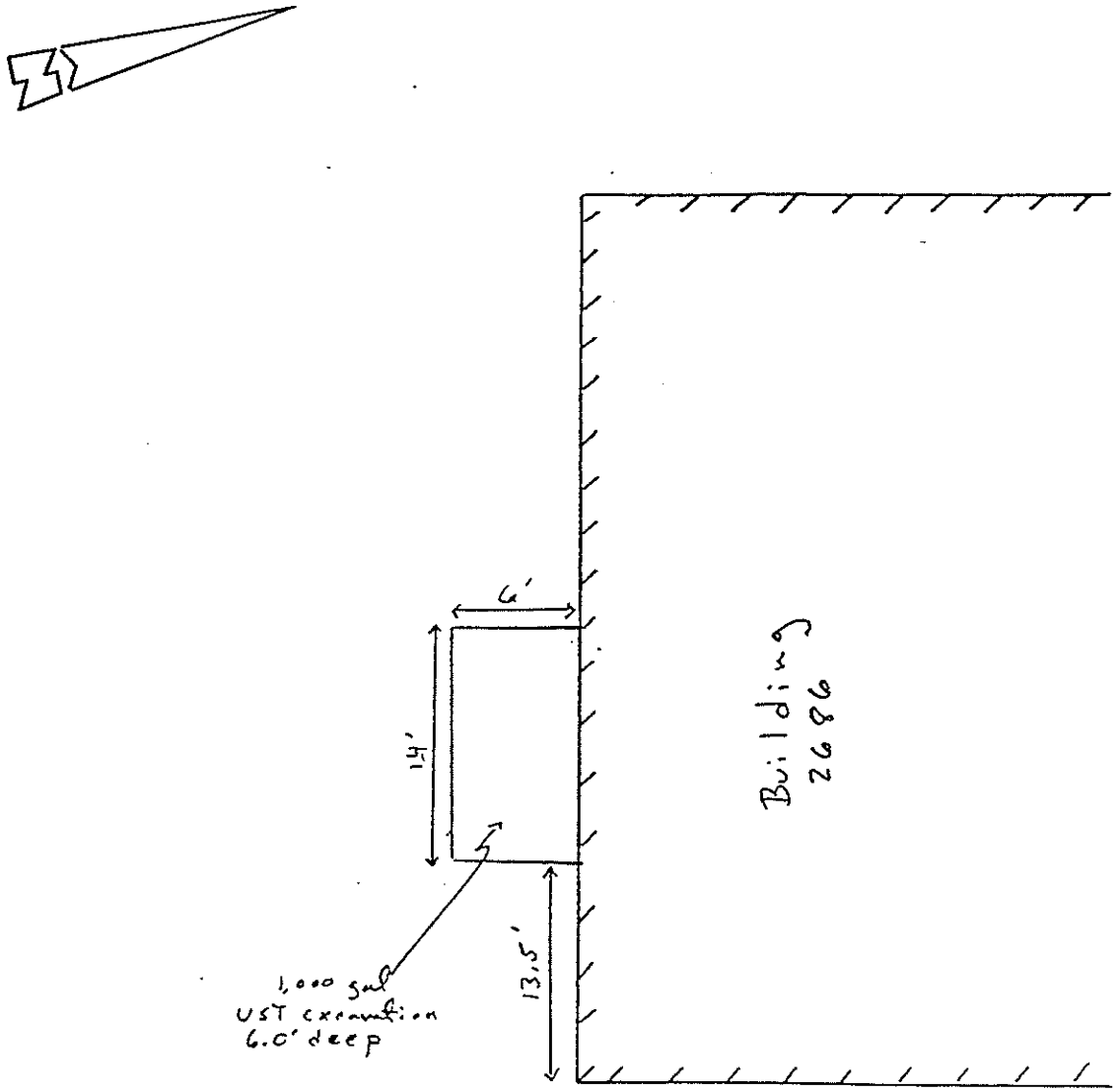
On January 23, and 24, 1992, one 1,000-gallon, subsurface, No. 2 fuel oil, storage tank was excavated and removed from the site. The UST was located adjacent to the southwest side of Building 2686 (see UST Location Plan, Figure 4.1). Site topography is relatively level with a gentle downgradient slope to the south.

Soils in the excavation consisted primarily of brown, fine sand with some medium to coarse gravel and cobbles. 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 within the excavation. Excavated soils required to free the tank appeared visibly contaminated, particularly those soils removed from the top of the tank. Soils observed at the southeast end of the excavation were visibly contaminated.

The associated piping was drained and tank connections were removed. UST No. 0040 was estimated to contain approximately 60 gallons of No. 2 fuel oil and residual materials. Approximately 30 gallons of fuel oil were removed on January 7, 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. Upon excavation and removal, the tank was observed to be in good condition with no holes or perforations. There was some surficial to moderate corrosion and the vent pipe was loosely threaded to the tank.

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. Thirty gallons of fuel oil and residual materials were drummed on January 23, 1992, and disposed of at Beede Waste Oil Corporation located in Plaistow, New Hampshire on February 27, 1992. See Section 4.10 for copies of the appropriate



NOTE: BASED ON "FIELD ESTIMATES" SHALL NOT BE RELIED UPON AS EXACT MEASUREMENTS

UST LOCATION PLAN 1,000 gallon UST relative to: Building 2686 Fort Devens, Massachusetts	PROJECT: 37.07.91.00451 NOT TO SCALE FIGURE: 4.1	ATEC©

Hazardous Waste Manifests.

The scrap tank was removed from the site on January 24, 1992 and disposed at Tombarello & Sons, located in Lawrence, Massachusetts, a licensed Massachusetts tank yard on January 28, 1992. A copy of the disposal receipt is included Section 4.11, Permits and Certificates.

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 protocol 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 3.5 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 6 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 at a depth of approximately 2.5 to 3.5 feet below grade. 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.

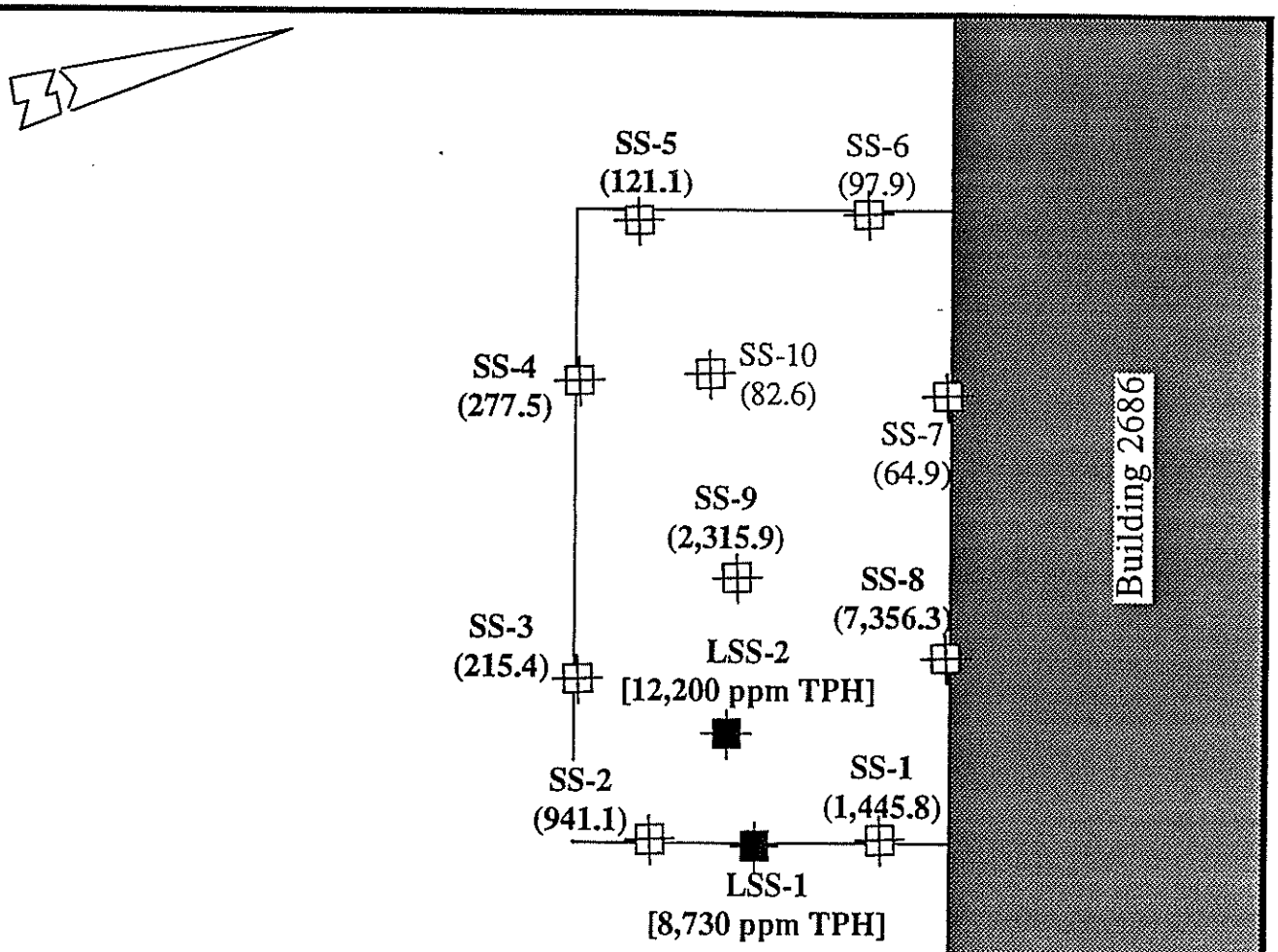
Sampling locations are depicted on the Sampling Schematic as Figure 4.2. The appropriate chain of custodies are included in Section 4.9, Chain of Custody Forms.

4.1.4 Analytical Results

The results from analysis with the PID and the NDIR analyzer of the ten soil samples obtained from the excavation, and the two composite samples obtained from stockpiled soil are as follows:

TABLE 4.1 - PID AND NDIR RESULTS

SAMPLE NUMBER	PID (ppm TOV)	NDIR (ppm TPH)
SS-1	52.0	1,445.8
SS-2	44.0	941.1
SS-3	32.0	215.4
SS-4	10.4	277.5
SS-5	2.2	121.1
SS-6	1.8	97.9
SS-7	26.0	64.9
SS-8	106	7,356.3
SS-9	110	2,315.9
SS-10	4.6	82.6
Stock-1	9.1	386.8
Stock-2	9.0	445.6



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 2686
Fort Devens, Massachusetts

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 4.2

ATEC

Laboratory analytical results of the two soil samples were obtained from the excavation revealing TPH concentrations of 8,730 ppm for LSS-1 and 12,200 ppm for LSS-2. Laboratory analysis of one soil sample obtained from the stockpiled soils produced a TPH concentration of for LSS-3. (see Section 4.8, Laboratory Analytical Results).

4.1.5 Conclusions and Recommendations

As presented 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 holes or perforations. There was some corrosion and the vent pipe was loosely threaded to the tank.

Groundwater was not encountered within the excavation.

Excavated soils required to free the tank appeared visibly contaminated, particularly those soils removed from the top of the tank. Soils observed at the southeast end of the excavation were visibly 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 1.8 ppm to 110 ppm. NDIR results revealed TPH concentrations ranging from 64.9 ppm to 7,356.3 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 8,730 ppm. Analytical results for LSS-2 obtained from the bottom of the excavation revealed a TPH concentration of 12,200 ppm.

4.1.2 Underground Storage Tank Excavation and Removal

On January 23, and 24, 1992, one 1,000-gallon, subsurface, No. 2 fuel oil, storage tank was excavated and removed from the site. The UST was located adjacent to the southwest side of Building 2686 (see UST Location Plan, Figure 4.1). Site topography is relatively level with a gentle downgradient slope to the south.

Soils in the excavation consisted primarily of brown, fine sand with some medium to coarse gravel and cobbles. 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 within the excavation. Excavated soils required to free the tank appeared visibly contaminated, particularly those soils removed from the top of the tank. Soils observed at the southeast end of the excavation were visibly contaminated.

The associated piping was drained and tank connections were removed. UST No. 0040 was estimated to contain approximately 60 gallons of No. 2 fuel oil and residual materials. Approximately 30 gallons of fuel oil were removed on January 7, 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. Upon excavation and removal, the tank was observed to be in good condition with no holes or perforations. There was some surficial to moderate corrosion and the vent pipe was loosely threaded to the tank.

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. Thirty gallons of fuel oil and residual materials were drummed on January 23, 1992, and disposed of at Beede Waste Oil Corporation located in Plaistow, New Hampshire on February 27, 1992. See Section 4.10 for copies of the appropriate

One composite soil sample (LSS-3) was obtained from stockpiled soils for laboratory analysis. Analytical results for LSS-3 revealed a TPH concentration of 648 ppm.

Based on these findings, ATEC recommended the following:

Conduct remedial excavation of the south wall, east wall, northeast wall, west corner, and east portion of the bottom of the excavation until background levels of <100 ppm TPH by laboratory analysis are attained. Field screening of soil should be conducted during excavation utilizing a PID until background levels of <1 ppm are attained prior to obtaining samples for laboratory analysis.

Advance soil borings and install groundwater monitoring wells to determine the vertical and horizontal extent of contamination. Continuous split spoon sampling and analysis will be conducted utilizing field analysis techniques, i.e. PID and NDIR Analysis, and laboratory analysis to document soil contamination levels as specified in the Hazardous Waste Containment Plan.

Additionally excavated and stockpiled soils should be laboratory analyzed for TPHs, VOCs, PCBs, 13 TCLP Metals, flashpoint, corrosivity, sulfide reactivity, and cyanide reactivity for disposal classification.

4.2 SITE REMEDIATION AND CONTAMINATED SOIL DISPOSAL

4.2.1 Site Remediation

Following review of field screening and laboratory analytical results, additional excavation to remove contaminated soil and reach background levels by PID (<1 ppm) was conducted per order of the Contracting Officer's Representative and David Salvadore of the Massachusetts Department of Environmental Protection (DEP). Approximately 321.0 tons of contaminated soil were removed from the excavation floor and from the south,

east and west sidewalls during remedial excavation on August 11, 1992. The estimated volume of soil removed was calculated from field drawings produced during the removal and remediation of UST No. 0040. Excavation of the north wall was not conducted due to potential safety and structural concerns (see Remedial Excavation Plan, Figure 4.3).

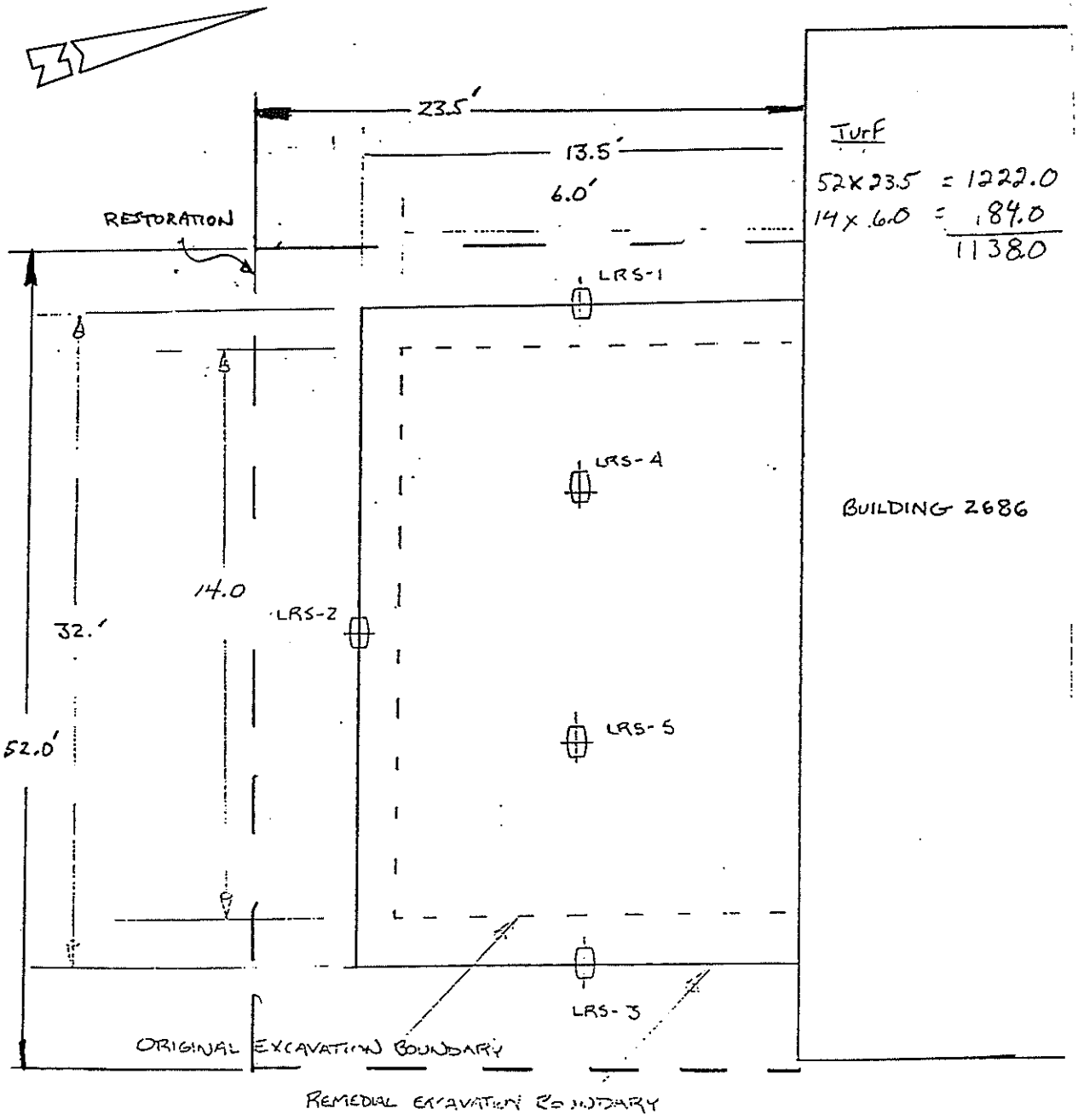
Five soil samples (RSS-1A to RSS-5A) were obtained from the post-remedial excavation for PID field screening. RSS-1A to RSS-3A were obtained from the side walls at a depth of approximately 6 to 7 feet below grade. RSS-4A and RSS-5A were obtained from the bottom of the excavation, approximately 13.5 feet below grade. PID readings for TOVs ranged from 9.0 to 200 ppm.

Following the removal of additional soil from the excavation, five soil samples (RSS-1B to RSS-5B) were obtained from the excavation south, east, and west sidewalls (6 to 7 feet below grade) and at the bottom (13.5 feet below grade) of the excavation. PID readings for TOVs ranged from 0.5 to 7.0 ppm.

An additional two soil samples (RSS-1C and RSS-4C) were obtained from the excavation following the additional removal of soil. RSS-1C was obtained from the west sidewall at a depth of 6 to 7 feet below grade. RSS-4C was obtained from the bottom of the excavation at a depth of 13 feet below grade. PID readings for TOVs ranged from 12.0 to 15.0 ppm.

Subsequent to the additional removal of soil from the west sidewall, soil sample RSS-1D was obtained from the excavation at a depth of 6 to 7 feet below grade. PID readings for TOVs were 0.2 ppm.

See Table 4.2 for PID screening results.



REMEDIAL EXCAVATION PLAN

1,000 gallon UST relative to:
Building 2686
Fort Devens, Massachusetts

PROJECT: 37.00451

NOT TO SCALE

FIGURE: 4.3

ATEC

TABLE 4.2 - PID SCREENING RESULTS

SAMPLE NUMBER	PID (ppm TOV)	LOCATION
RSS-1A	200	west sidewall (6-7' depth)
RSS-2A	55.0	south sidewall (6-7' depth)
RSS-3A	40.0	east sidewall (6-7' depth)
RSS-4A	30.0	bottom (13.5' depth)
RSS-5A	9.0	bottom (13.5' depth)
RSS-1B	4.0	west sidewall (6-7' depth)
RSS-2B	0.5	south sidewall (6-7' depth)
RSS-3B	0.8	east sidewall (6-7' depth)
RSS-4B	7.0	bottom (13.5' depth)
RSS-5B	6.0	bottom (13.5' depth)
RSS-1C	12.0	west sidewall (6-7' depth)
RSS-4C	15.0	bottom (13.5' depth)
RSS-1D	0.2	east sidewall (6-7' depth)

RSS = Remediation Soil Sample

Three soil samples (LRS-1 through LRS-3) were obtained for laboratory analysis for TPH. One soil sample (LRS-1) was also laboratory analyzed for VOCs, and 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP). See Table 4.3; Figure 4.2, Sampling Schematic; Section 4.8, Laboratory Analytical Results.

TABLE 4.3 - LABORATORY ANALYSIS

SAMPLE NUMBER	TPH (ppm)	VOA (ppb)	13 TCPL METALS (ppm)	LOCATION
LRS-1	ND	ND	0.05 Ni, 0.25 Zn	west sidewall (6-7' depth)
LRS-2	ND	NA	NA	south sidewall (6-7' depth)
LRS-3	16.0	NA	NA	east sidewall (6-7' depth)

LRS = Laboratory Remediation Sample
ND = Not Detected Above Method Reporting Limit
NA= Not Applicable

One composite soil sample (LSS-3) was obtained from stockpiled soils for laboratory analysis. Analytical results for LSS-3 revealed a TPH concentration of 648 ppm.

Based on these findings, ATEC recommended the following:

Conduct remedial excavation of the south wall, east wall, northeast wall, west corner, and east portion of the bottom of the excavation until background levels of <100 ppm TPH by laboratory analysis are attained. Field screening of soil should be conducted during excavation utilizing a PID until background levels of <1 ppm are attained prior to obtaining samples for laboratory analysis.

Advance soil borings and install groundwater monitoring wells to determine the vertical and horizontal extent of contamination. Continuous split spoon sampling and analysis will be conducted utilizing field analysis techniques, i.e. PID and NDIR Analysis, and laboratory analysis to document soil contamination levels as specified in the Hazardous Waste Containment Plan.

Additionally excavated and stockpiled soils should be laboratory analyzed for TPHs, VOCs, PCBs, 13 TCLP Metals, flashpoint, corrosivity, sulfide reactivity, and cyanide reactivity for disposal classification.

4.2 SITE REMEDIATION AND CONTAMINATED SOIL DISPOSAL

4.2.1 Site Remediation

Following review of field screening and laboratory analytical results, additional excavation to remove contaminated soil and reach background levels by PID (<1 ppm) was conducted per order of the Contracting Officer's Representative and David Salvadore of the Massachusetts Department of Environmental Protection (DEP). Approximately 321.0 tons of contaminated soil were removed from the excavation floor and from the south,

4.2.2 Soil Stratigraphy

The soil stratigraphy of the excavation varied with the depth of the excavation. The stratigraphy, to a depth of approximately 7 feet below grade, consisted of sand and gravel with cobbles. From a depth of 7 to 7.2 feet, the soil consisted of sand. The soil consisted of sand and gravel with cobbles at a depth from 7.2 feet to 12.5 feet below grade. Glacial till was encountered at approximately 12.5 feet below grade. Bedrock was encountered at approximately 13.5 feet below grade (see Figure 4.4, Soil Statigraphy).

4.2.3 Contaminated Soil Disposal

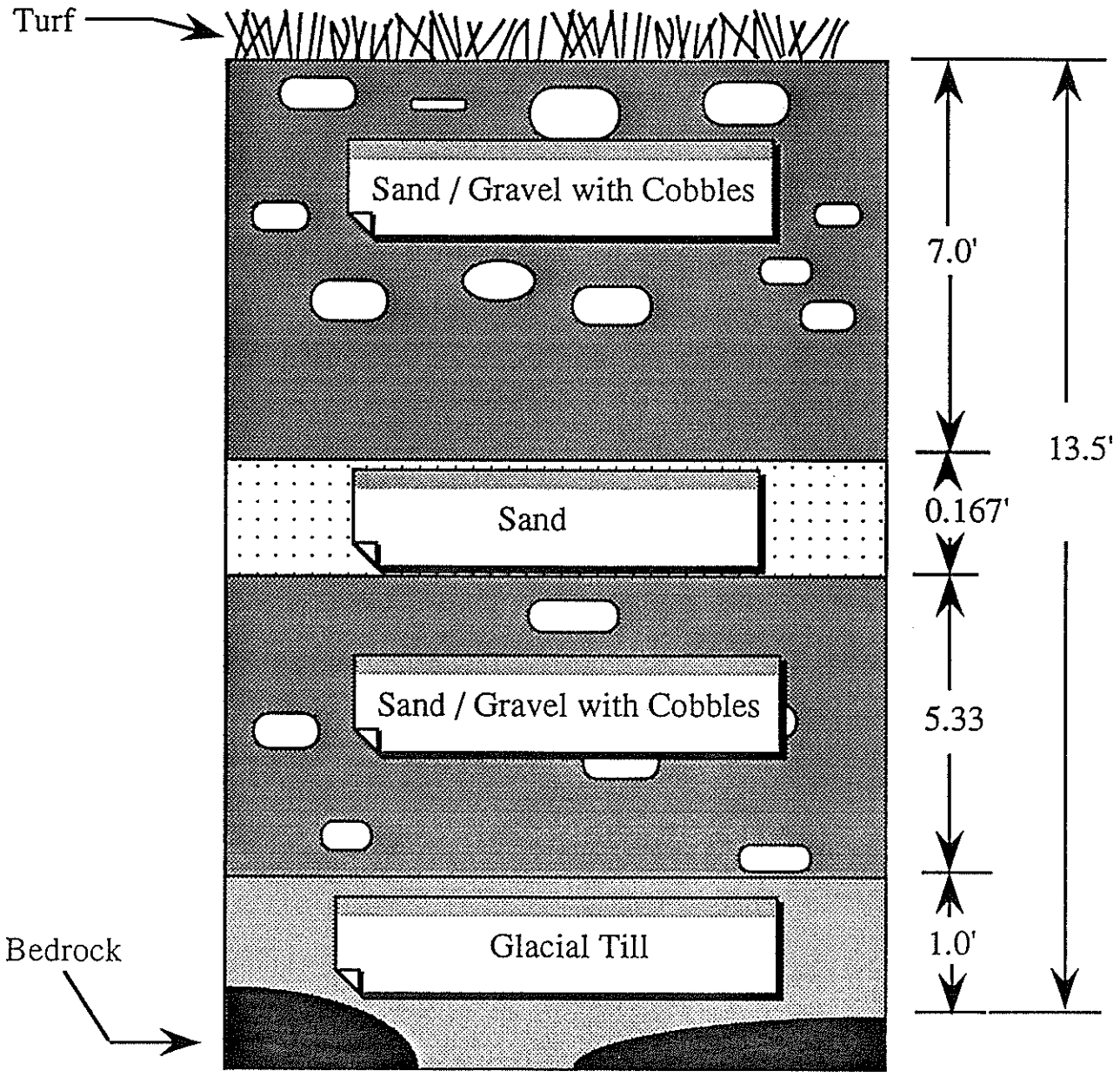
Approximately 197.53 cubic yards (321.0 tons) of No. 2 fuel oil contaminated soil were removed and stockpiled during the additional excavation conducted at the site, as estimated through field drawings. Contaminated soil was disposed for recycling at Trimount Bituminous Products Company, Shrewsbury, Massachusetts.

4.3 HYDROGEOLOGICAL SERVICES

A hydrogeological investigation was conducted on the immediate area of UST No. 0040 to include the installation of groundwater monitoring wells on September 30, 1992 by ATEC. However, auger refusal prior to encountering groundwater prevented installation of monitoring wells. Split spoon samples obtained during the advancement of the soil borings were screened utilizing the PID and NDIR analysis.

4.3.1 General Explanation of Procedures

At the time of removal of UST No. 0040, laboratory analysis of two soil samples obtained from the sidewall and bottom of the excavation revealed TPH concentrations of 8,730 and 12,200 ppm, respectively. Due to these elevated levels, two monitoring wells were proposed to be installed in the vicinity of UST No. 0040 to assess soil and



SOIL STRATIGRAPHY

1,000 gallon UST excavation at:
Building 2686
Fort Devens, Massachusetts

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 4.4

ĀTEC

groundwater conditions. Due to shallow bedrock in the area, the installation of the wells was terminated per order of the Contracting Officer Representative. Soils were collected before drilling termination and were analyzed for TOVs and TPH.

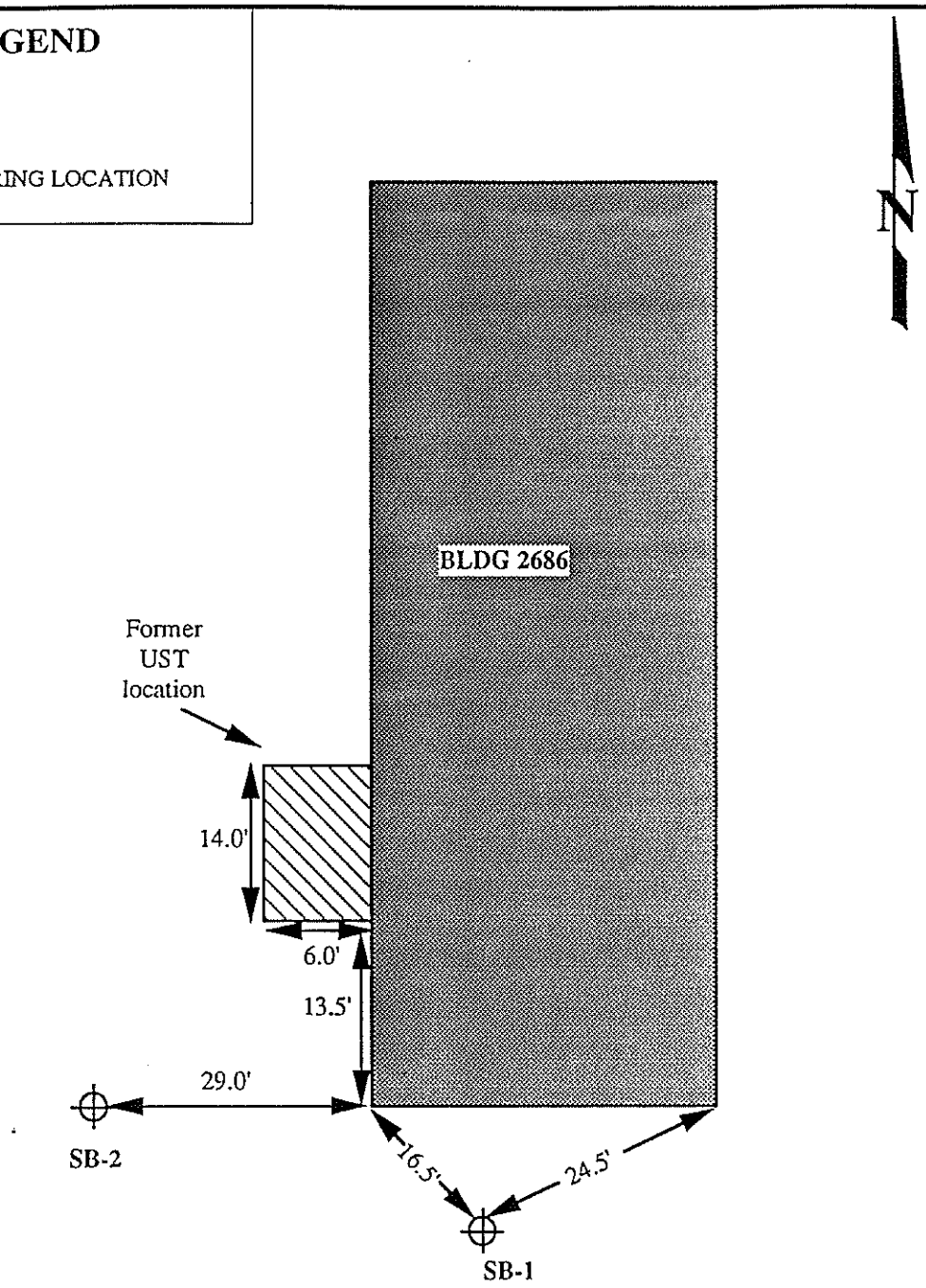
Prior to advancing the soil borings at the site, "Dig-Safe" was contacted. Dig-Safe contacts various utilities to mark their service connections on public ground surfaces. The Fort Devens Plumbing Department was contacted and site plans were reviewed that depicted underground utilities (i.e. water, gas, 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 No. 2 fuel oil from the 1,000-gallon UST (UST No. 0040). Geosearch, Inc. of Leominister, Massachusetts, was subcontracted by ATEC to perform the soil borings at the site. Soil 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 5 foot intervals.

4.3.2 Soil Borings

Soil boring SB-1 was advanced approximately 10 feet south of Building 2686 and approximately 20 feet southeast of the backfilled tank excavation (see Figure 4.5, Site Plan). SB-1 was advanced to a depth of 15 feet to assess the potential release of No. 2 fuel oil from the removed UST. Soil types encountered from grade level to a depth of approximately 2 feet below grade consisted primarily of very loose, brown, fine sand. Soil types encountered from a depth of approximately 4 to 6 feet below grade consisted primarily of dense, brown/grey, fine sand. Soil types encountered from a depth of approximately 9 to 11 feet below grade consisted primarily of very dense, brown/grey fine sand. Results of PID screenings revealed no detectable TOV concentrations in soil samples collected at grade level to 2 feet below grade, 4 to 6 feet below grade, and 9 to 11 feet below grade. Petroleum odors were not noted in the sampled soils. Auger refusal was encountered at a depth of 13 feet below grade (see Figure 4.14, Soil Boring Logs).

LEGEND

⊕ - SOIL BORING LOCATION



SITE PLAN

SOIL BORINGS
Relative to UST #40 Building 2686
Fort Devens, Massachusetts

PROJECT: 37.07. 92.00451

SCALE: None

FIGURE: 4.5

ATEC

Soil boring SB-2 was performed approximately 29 feet west of Building 2686 and approximately 10 feet southwest of the backfilled tank excavation (see Figure 4.5, Site Plan). SB-2 was advanced to a depth of 14.5 feet to assess the potential release of No. 2 fuel oil from the removed UST. Soil types encountered from grade level to a depth of approximately 2 feet below grade consisted primarily of very loose, dark brown, fine sand. Soil types encountered from a depth of approximately 4 to 6 feet below grade consisted primarily of dense, brown, fine sand. Soil types encountered from a depth of approximately 9 to 11 feet below grade consisted primarily of very dense, tan sand and gravel. Results of PID screenings revealed TOV concentrations of 10.0 ppm, 0.0 ppm, 7.0 ppm, and 5.0 ppm in soil samples collected at grade level to 2 feet below grade, 4 to 6 feet below grade, 9 to 11 feet below grade, and 14 feet below grade (bedrock), respectively. Petroleum odors were not noted in soils obtained from the sampled depths. Auger refusal was encountered at a depth of 14 feet below grade (see Figure 4.14, Soil Boring Logs).

Further attempts to install groundwater monitoring wells in the vicinity of UST No. 0040 were not conducted per order of the Contracting Officer Representative.

4.3.3 Results of Soil Screenings and Chemical Analyses

Split spoon soil samples were obtained at minimum 5 foot intervals during the soil borings. Split spoon soil samples were screened for TPH utilizing NDIR (modified EPA Standard Test Method 418.1). Subsurface soil samples were placed directly into pre-labeled, precleaned 500-ml amber glass jars and immediately placed on ice for shipment to the laboratory.

Four subsurface soil samples were selected during soil boring one (SB-1) and labelled SB-1.1, SB-1.2, SB-1.3, and SB-1.4. Results of NDIR screening revealed TPH concentrations of 13.7 ppm, 28.7 ppm, 26.0 ppm, and 47.8 ppm in soil samples SB-1.1, SB-1.2, SB-1.3, and SB-1.4, respectively.

Four subsurface soil samples were selected during soil boring two (SB-2) and labelled SB-2.1, SB-2.2, SB-2.3, and SB-2.4. Results of NDIR screening revealed TPH concentrations of 25.2 ppm, 18.3 ppm, 25.6 ppm, and 10.2 ppm in soil samples SB-2.1, SB-2.2, SB-2.3, and SB-2.4, respectively.

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

TABLE 4.4 - SUMMARY OF SUBSURFACE SOIL ANALYSES

SAMPLE NUMBER	SAMPLE DEPTH	TPH (ppm)
SB-1.1	0' - 2'	13.7
SB-1.2	4' - 6'	28.7
SB1.3	9' - 11'	26.0
SB-1.4	13' - 15'	47.8
SB-2.1	0' - 2'	25.2
SB-2.2	4' - 6'	18.3
SB-2.3	9' - 11'	25.6
SB-2.4	14' -14.5'	10.2

4.3.4 Details of Soil Borings

Soil boring locations are depicted on Figure 4.5, Site Plan.

4.3.5 Summary of Findings

On September 30, 1992, two soil borings were performed to assess soil and groundwater conditions in the vicinity of UST No. 0040. Soil samples collected during drilling were screened in the field for TOVs utilizing a PID. The soil sample (SB-2.1) exhibiting the highest TOV concentration of 10.0 ppm was obtained during soil boring SB-2 at a depth

of grade level to 2 feet below grade.

NDIR screening of the subsurface soil samples collected during soil borings SB-1 and SB-2 revealed TPH concentrations ranging between 10.2 ppm and 47.8 ppm. The soil sample (SB-1.4) exhibiting the highest TPH concentration of 10.2 ppm was obtained at soil boring SB-1 at a depth of 13 feet below grade.

4.3.6 Recommendations

Based upon TPH concentrations in soil samples, ATEC recommends installation of bedrock groundwater monitoring wells to evaluate the potential for petroleum hydrocarbons to have impacted the bedrock groundwater aquifer.

4.4 BACKFILL

The excavation was lined with polyethylene plastic sheeting and backfilled with 216 cubic yards of uncontaminated fill material. Backfilling was conducted with the approval of the Contracting Officer's Representative.

4.5 SITE RESTORATION

Following backfill of the excavation 348 square feet of loam was distributed over the excavated area.

4.6 PHOTOGRAPHIC DOCUMENTATION

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

A-1: One side of removed tank.

A-2: Opposite side of removed tank.

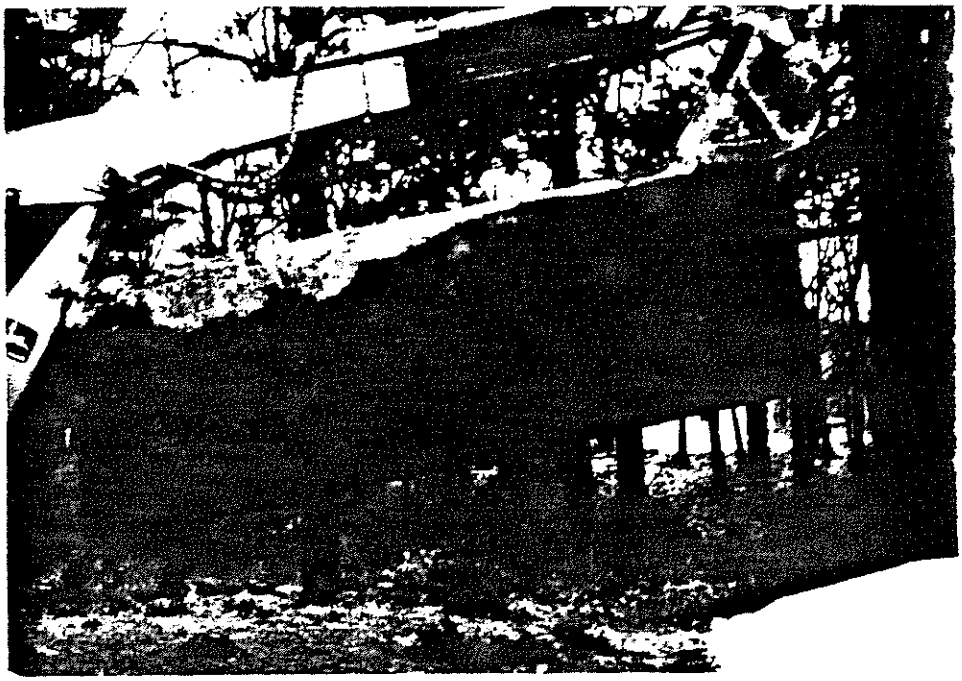
A-3: Excavation as viewed from northwest, facing southeast.

A-4 Excavation as viewed from the southeast, facing northwest.

A-5 Remedial excavation as viewed from the east, facing west.

A-6 Remedial excavation as viewed from the south facing north.

A-1



A-2

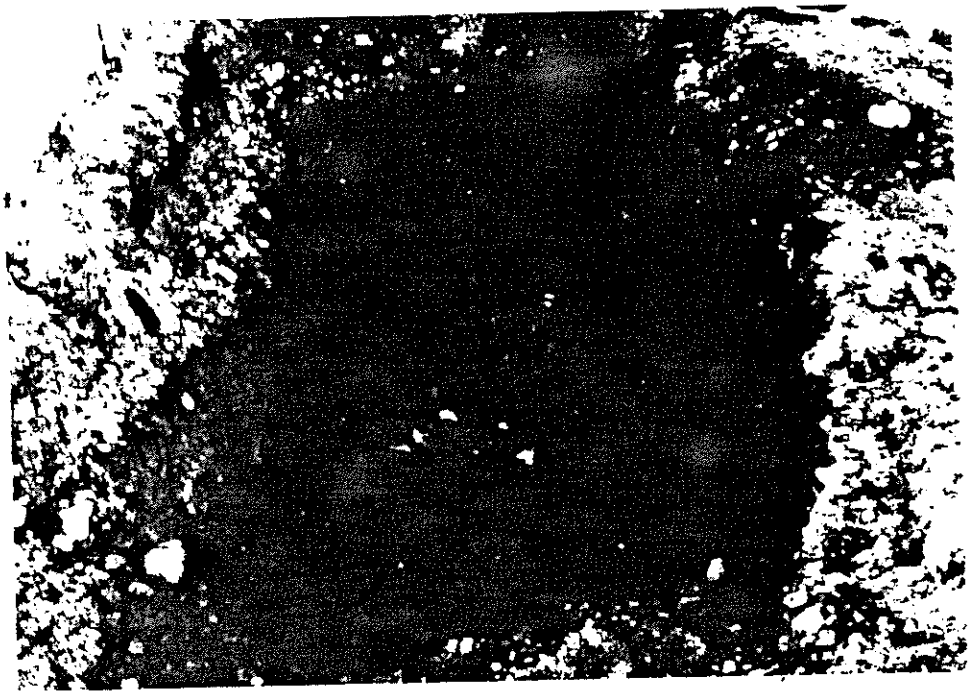
PHOTO DOCUMENTATION

1,000 gallon UST excavation at:
Building 2686
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

ATEC

A-3



A-4

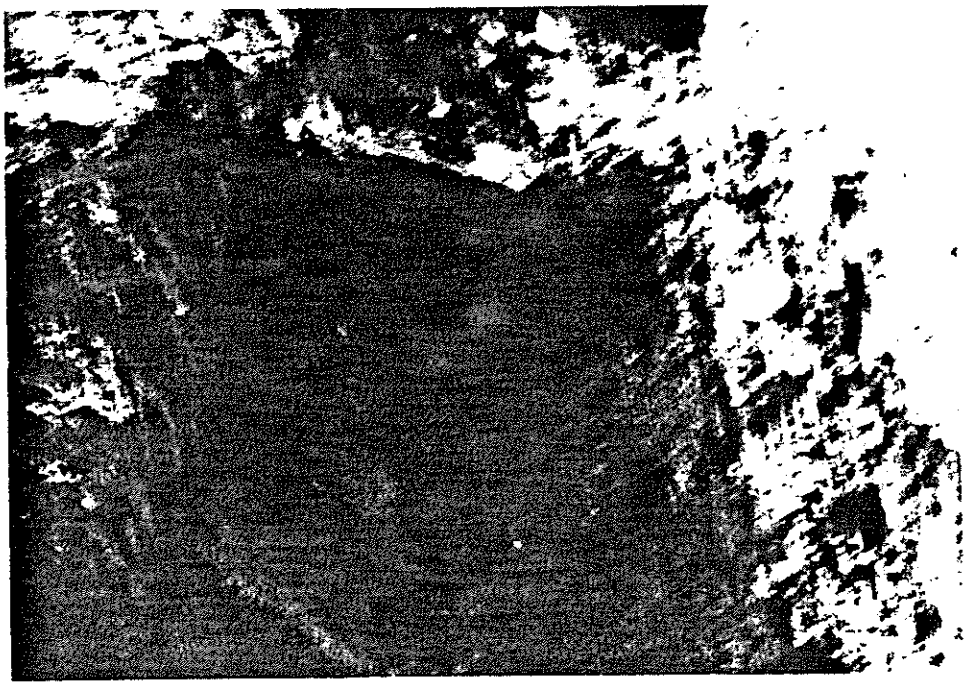
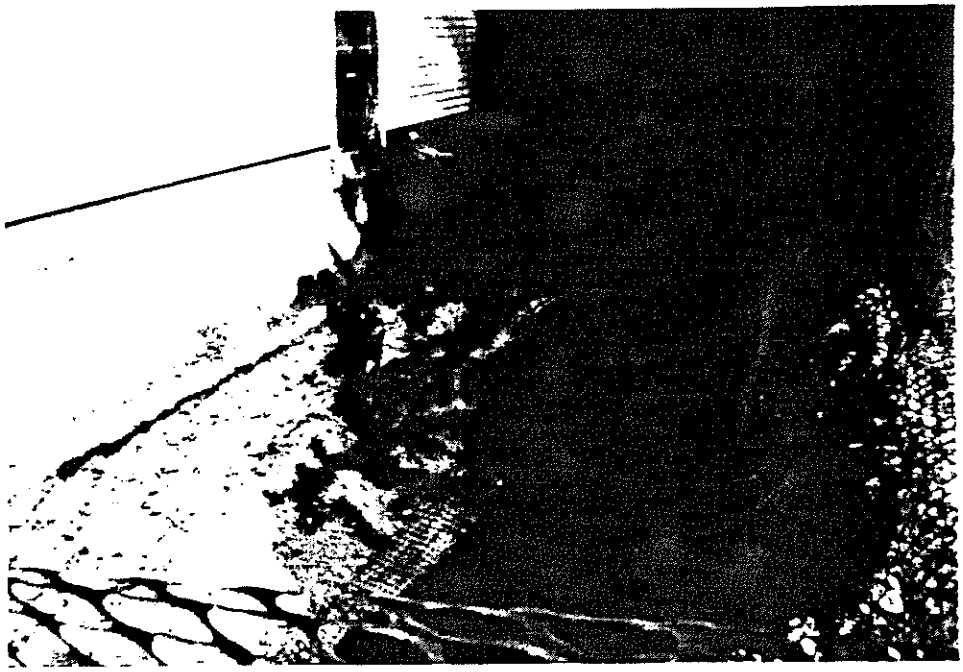


PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 2686 Fort Devens, Massachusetts	PROJECT: 37.07.91.07451	ĀTEC

A-5



A-6

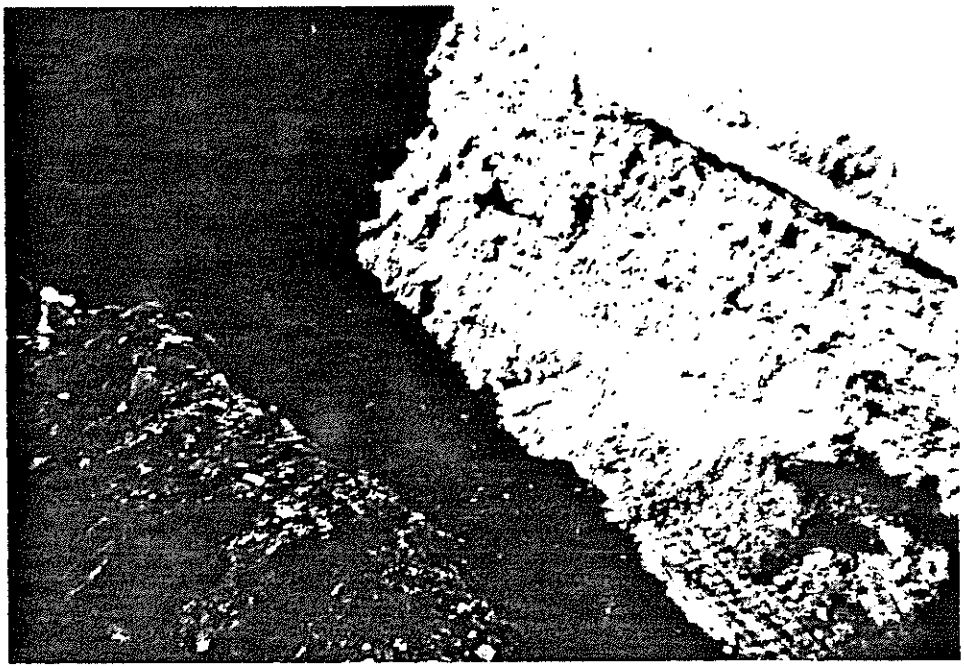


PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 2686 Fort Devens, Massachusetts	PROJECT: 37.07.91.00451	ĀTEC

4.7 OCMA 220 DATA SHEETS

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

- SS-1 to SS-10: Obtained from original excavation during the removal of UST 0040.

- SS-1.1 to 1.4 and SS-2.1 to 2.4: Obtained from soil borings during attempted groundwater monitoring well installation.

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 40 BLDG.2686 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:	0.9	0.0	3.2	0.0	-0.1	0.0	30.1
SPAN:	38.7	40.0	39.8	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
SB-1.1	84.6	78.6	17.5	3.0	--	--	1.1	0.4	--	13.7
SB-1.2	83.6	78.6	17.5	3.0	--	--	1.2	0.7	--	28.7
SB-1.3	85.8	78.7	17.5	3.0	--	--	0.8	0.9	--	26.0
SB-1.4	82.3	76.3	17.5	3.0	----	----	0.4	1.4	--	47.8
SB-2.1	83.9	78.2	17.5	3.0	--	--	0.7	0.7	--	25.2
SB-2.2	83.1	77.5	17.5	3.0	--	--	1.1	0.5	--	18.3
SB-2.3	83	77.8	17.5	3.0	---	---	0.7	0.8	---	25.6
SB-2.4	84.0	78.8	17.5	3.0	---	---	0.3	0.3	---	10.2

4.8 LABORATORY ANALYTICAL RESULTS

The following laboratory analytical reports were organized and provided by Environmental Science Services Inc. Results are included for:

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

- LRS-1, LRS-2, and LRS-3: Soil samples obtained from post-remedial excavation. Laboratory analyzed for TPH. LRS-1 was also analyzed for VOCs and 13 Metals by TCLP.

- LSP-40: Soil sample obtained from stockpiled soil for disposal classification. Laboratory analyzed for VOCs, Semi-volitile Organics, 13 Metals by TCLP, PCBs, reactive sulfide, reactive cyanide, flashpoint and corrosivity for characterization and disposal purposes.

RECEIVED FEB 0 4 1992

In Response To The Future

CERTIFICATE OF ANALYSIS

Date: 2/03/92 Job: 233
Account: 95659
Received: 1/28/92

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

Project: DEVENS-TANK 40

tn: Mr. Mark Baldi

ample umber	Method Number	Parameter	Result	Unit	Sample Description
023301	EPA-160.3	Total Solids	84	%	LSS1
	EPA-418.1	TPH/IR (Dry Wt.)	8730	mg/kg	
023302	EPA-160.3	Total Solids	85	%	LSS2
	EPA-418.1	TPH/IR (Dry Wt.)	12200	mg/kg	
023303	EPA-160.3	Total Solids	89	%	LSS3
	EPA-418.1	TPH/IR (Dry Wt.)	648	mg/kg	

David Dickinson
Laboratory Manager

ge: 1

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-40 ESS Sample ID: 921528-13

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

Parameter	Results	Units	MRL	Method
pH (Corrosivity)	7.5	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				
Pyrene	3,170	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	0.10	mg/L	Attached	6010

N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 1992

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

POLYCHLORINATED BIPHENYLS
Method 8080

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-40 ESS Sample ID: 921528-13

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	94%	50 - 150%

Approved by: _____
David Dickinson
Laboratory Director

Date: 2 Jul 1992

003

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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

ACID EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-40 ESS Sample ID: 921528-13

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 1992
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

BASE NEUTRAL EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-40 ESS Sample ID: 921528-13

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

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-40 ESS Sample ID: 921528-13

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	**3,170**	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: _____ Date: 2 Jul 1992
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: Ft. Devens-Stockpiled Soils ESS Project ID: 921528

Client Sample ID: LSP-40 ESS Sample ID: 921528-13

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

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

EPA METHOD 1311

Client: ATEC Environmental Consultants
Client Project ID: Stockpiled Soils
Client Sample ID: LSP-40
ESS Sample ID: 921528-13

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	0.2	0.1	0.2	0.1
Mercury	ND	0.005	ND	0.0052
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.09
Copper	0.04	0.02	0.05	0.03
Nickel	ND	0.04	ND	0.04
Zinc	0.10	0.02	0.10	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: 6/24/92
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

TOTAL PETROLEUM HYDROCARBON-IR
Method 418.1

Client: ATEC Environmental Consultants

Client Project ID: UST 40-Bldg 2686 ESS Project ID: 922108

Date Samples Received: 8/13/92 Date Reported: 8/27/92

Client ID	Lab ID	Results	Units	MRL	% Solids
LRS-1	922108-01	ND	mg/Kg	11	93%
LRS-2	922108-02	ND	mg/Kg	11	95
LRS-3	922108-03	16	mg/Kg	11	91

ND = Not Detected above Method Reporting Limit (MRL)

Note: Results reported on a dry weight basis.

Approved by: Kelly Vario for
David Dickinson
Laboratory Director

Date: August 27, 1992

In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8260

Client: ATEC Environmental Consultants

Client Project ID: UST 40-Bldg 2686 ESS Project ID: 922108

Client Sample ID: LRS-1 ESS Sample ID: 922108-01

Date Sample Received: 8/13/92 Date Reported: 8/27/92

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	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: Kelly Vann for: Date: August 27, 1992
David Dickinson
Laboratory Director

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 40-Bldg 2686
Client Sample ID: LRS-1
ESS Sample ID: 922108-01

Date Sampled: 8/10/92
Date TCLP Performed: 8/18/92
Date Leachate Extracted: 8/19/92
Date Extract Analyzed: 8/21/92

	Actual		Adjusted*	
Target Analyte	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.2	ND	0.4
Arsenic	ND	0.2	ND	0.4
Cadmium	ND	0.02	ND	0.04
Chromium	ND	0.05	ND	0.08
Lead	ND	0.1	ND	0.2
Mercury	ND	0.005	ND	0.005
Selenium	ND	0.3	ND	0.5
Silver	ND	0.05	ND	0.09
Copper	ND	0.02	ND	0.03
Nickel	0.05	0.04	0.06	0.05
Zinc	0.25	0.02	0.30	0.04
Beryllium	ND	0.02	ND	0.04
Thallium	ND	0.1	ND	0.2

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: Kelly Vario for
David Dickinson
Laboratory Director

Date: August 27, 1992

003

In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8260

Client: ATEC Environmental Consultants

Client Project ID: UST 40-Bldg 2686 ESS Project ID: 922108

Client Sample ID: Method Blank ESS Sample ID: VS0820B1

Date Sample Received: N/A Date Reported: 8/27/92

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	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)
N/A = Not Applicable

Approved by: Kelly Vann for
David Dickinson
Laboratory Director

Date: August 27, 1992

In Response To The Future

CERTIFICATE OF ANALYSIS

VOA SOIL SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client Project ID: UST 40-Bldg 2686

Date Sample Analyzed: 8/20/92

ESS Project ID: 922108

SAMPLE ID	1,2 DICHLOROETHANE-D4 (70-121%)*	TOLUENE-D8 (81-117%)*	BFB (74-121%)*
VS0820B1	105%	100%	98%
922108-01	92	95	86

* Acceptance criteria

Approved by: Kelly Vann for
David Dickinson
Laboratory Director

Date: August 27, 1992

In Response To The Future

CERTIFICATE OF ANALYSIS

MATRIX SPIKE ANALYSIS SUMMARY

TCLP METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants Matrix: Soil

TCLP Batch ID: 209501 Concentration in: mg/L

Target Analyte	Result	Spike Added	Spiked Result	Percent Recovery
Antimony	ND	*	ND	52%
Arsenic	ND	2.00	1.23	62
Cadmium	ND	0.5	0.26	52
Chromium	ND	1.0	0.62	62
Lead	ND	1.0	0.80	80
Mercury	ND	0.02	0.020	100
Selenium	ND	2.00	1.25	63
Silver	ND	1.0	0.52	52
Copper	ND	1.0	0.79	79
Nickel	ND	1.0	0.86	86
Zinc	0.39	1.0	1.23	84
Beryllium	ND	*	ND	52
Thallium	ND	*	ND	52

This matrix spike analysis summary applies to the following samples:
922108-01

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: Kelly Vaus for
David Dickinson
Laboratory Director

Date: August 27, 1992

007

4.9 CHAIN OF CUSTODY FORMS

The following chain of custody forms were produced for the soil samples which were laboratory analyzed.

CHAIN OF CUSTODY RECORD

PROJ. NO. 07.451

PROJECT NAME Tank 40 - Devens

CLIENT P.O. 19442

LAB PROJ. NO.

SAMPLERS: (Signature) Mark E Zalk

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	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
LSS1	1/27			X		X						1				X						
LSS2	1/27			X		X						1				X						
LSS3	1/27		X	X		X						1				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)
Mark E Zalk	1/27				
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.
07.451	Devens - Tank 40	
	CLIENT	

SAMPLERS: *(Signature)*

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
SAMPLING METHOD															LABORATORY ANALYSIS							
L551	1/24			X		X						1				X						Sp1, T
L552	1/24			X		X						1				X						Sp1, T
L553	1/24		X	X		X						1				X						Sp1, T
			X																			

EC 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)*
	1/27				

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

DUE DATE:

CHAIN OF CUSTODY RECORD

P.O.# 07.72474

PROJ. NO. 07.451

PROJECT NAME FT. DEVENS - REMEDIATION

CLIENT UST# 40 (BLDG 2686)

LAB PROJ. NO.

SAMPLERS: (Signature) Craig Tunelly

SAMPLING METHOD

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	13 TCLP	SAMPLE LOCATION / REMARKS
LRS-1	8-10-92					X				X		3		X		X				X		UST# 40 BLDG. 2686
LRS-2	"					X				X		1				X						
LRS-3	"					X				X		1				X						

Relinquished by: (Signature)

Date / Time

Received by: (Signature) DEREK C SOUWE

Relinquished by: (Signature)

Date / Time

Received by: (Signature)

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

CHAIN OF CUSTODY RECORD

P.O.# 72362

PROJ. NO. 37.07 451

PROJECT NAME FT. DEVENS - STOCKPILED SOILS UST #s 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	~~BTEX~~ SEMI VOA 8270	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS (8) TCLP ~~TOTAL METALS (8)~~ 6010	IGNITABILITY	PH	CYANIDE SULFIDE REACTION	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

Relinquished by: (Signature) Craig D. Fromby — Date / Time 6-10-92 11:00 — Received by: (Signature)

Relinquished by: (Signature) — Date / Time — Received by: (Signature)

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

CHAIN OF CUSTODY RECORD

P.O. # 72362

PROJ. NO.	PROJECT NAME / CLIENT	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	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 #:	

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

4.10 HAZARDOUS WASTE MANIFEST

UST No. 0040 was estimated to contain 64 gallons of No. 2 fuel oil and residual materials. Approximately 30 gallons of fuel oil were removed on January 7, 1992 and transported to a licensed Treatment Storage Disposal Facility T.S.D.F. (Beede Waste Oil Corporation, Plaistow, New Hampshire). An additional 30 gallons of fuel oil and residual materials were removed January 23, 1992, and transported to Beede Waste Oil Corporation on February 27, 1992.

The following Hazardous Waste Manifests were generated from residual tank materials. The manifest dated January 7, 1992 and February 27, 1992 are associated with the vacuumed product from several USTs. Therefore, the total quantity (1,400 gallons and 385 gallons) are greater than the amount which was removed from UST 0080.

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

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

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.: MA7210025754 Manifest Document No.: 00001
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
4. Generator's Phone: 508 796-3005 - 34 hr, 508-796-2711

A. State Manifest Document Number: MA F353641
B. State Gen. ID: SAME

5. Transporter 1 Company Name: Beede Waste Oil Corp.
6. US EPA ID Number: NHD018958140
C. State Trans. ID: NHD9967135
D. Transporter's Phone: 603 382-5761

7. Transporter 2 Company Name:
8. US EPA ID Number:
E. State Trans. ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address:
Beede Waste Oil Corp.
Kelley Road PO Box 127
Plaistow, NH 03865
10. US EPA ID Number: NHD018958140
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. COMBUSTIBLE LIQUID **NA1270**	1	TT	01400	G	~~MA01~~ MA97
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 Exempt 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 01 Day 07 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 07 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.

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. M A 7 2 1 0 0 2 5 1 5 4 — Manifest Document No. FD1639

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.
AFZD-DEQEM Attn: Mark Boser
Fort Devens, MA 01433

4. Generator's Phone (508-796-3002)

A. State Manifest Document Number: MA F353777

B. State Gen. ID: N/A

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

C. State Trans. ID: N/A

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

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

E. State Trans. ID: N/A

9. Designated Facility Name and Site Address
Beede Waste Oil Corp.
Kelley Rd., P.O. Box 127
Plaistow, NH 03865

10. US EPA ID Number: N H D 0 1 8 9 5 8 1 4 0

F. Transporter's Phone ( ) N/A

G. State Facility's ID: Not Required

H. Facility's Phone (603 382-3761)

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	007	DM	0385	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
4-Bldg 631 1-Bldg 2447 1-2686 - 1-3573
To Be Recycled #2 Fuel With SI=Sludge
For Recycling only Land Disposal Prohibited.

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)
Stephen R Hopkins		02 27 92

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Brian Ginivan		02 27 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.

Printed/Typed Name	Signature	Date (Month Day Year)

GENERATOR

TRANSPORTER

FACILITY

MA F353777 COPY>1: FACILITY MAILS TO DESTINATION STATE

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

4.11 WEIGHT DISPOSAL RECEIPTS

The following weight slips document the disposal of contaminated soil associated with UST 0040.

MAIN OFFICE:
DANVERS 750-4200

TRIMOUNT BITUMINOUS PRODUCTS CO.
5 CHERRY DRIVE
P.O. BOX 2089
DANVERS, MA 01923-5089
SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

TIME

FMN 4 Cash ☐ C.O.D. ☐ Charge ☑
ARRIVED JOB _____ CHECKED BY _____
LEFT JOB _____ CHECK # _____ CARRIER

TICKET #R 73341

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

Job # BLDGFD
US ARMY
BLDG 2686 TANK 40
FORT DEVENS, MA 01433
PO# 37.04.72053

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
9:01:24	39600	59300	98900	29.65

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

Load#	Job Total	Time & Date	Fob/Del
2	63.87	9:01:24 am Aug 11, 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 DRIVE
P.O. BOX 2089
DANVERS, MA 01923-5089
SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

TIME

FMN 4 Cash ☐ C.O.D. ☐ Charge ☑
ARRIVED JOB _____ CHECKED BY _____
LEFT JOB _____ CHECK # _____ CARRIER

TICKET #R 73344

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

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

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
9:06:43	39600	54760	94360	27.38

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

Load#	Job Total	Time & Date	Fob/Del
3	91.25	9:06:43 am Aug 11, 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 [illegible] DRIVE
P.O. BOX 2089
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 73348

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

Job # BLDGFD
US ARMY
BLDG 2686 TANK 40
FORT DEVENS, MA 01433
PO# 37.04.72053

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
9:12:24	39600	53060	92660	26.53

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

Load#	Job Total	Time & Date	Fob/Del
5	149.49	9:12:24 am Aug 11, 1992	F

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSE BY TRUCKS DELIVERING MATERI/ BEYOND STREET PAVEMENT.

RECEIVED BY _____

MAIN OFFICE:
DANVERS 750-4200

TRIMOUNT BITUMINOUS PRODUCTS CO.
5 CHERRY [illegible] DRIVE
P.O. BOX 2089
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 73346

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

Job # BLDGFD
US ARMY
BLDG 2686 TANK 40
FORT DEVENS, MA 01433
PO# 37.04.72053

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
9:09:56	39600	63420	103020	31.71

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

Load#	Job Total	Time & Date	Fob/Del
4	122.96	9:09:56 am Aug 11, 1992	F

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUS BY TRUCKS DELIVERING MATER BEYOND STREET PAVEMENT.

RECEIVED BY _____

TRIMOUNT BITUMINOUS PRODUCTS CO.
5 CHERRY [illegible] DRIVE
P.O. BOX 2089
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 73374

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

Job # BLDGFD
US ARMY
BLDG 2686 TANK 40
FORT DEVENS, MA 01433
PO# 37.04.72053

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
12:11:50	39600	58320	97920	29.16

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

Load#	Job Total	Time & Date	Fob/Del
7	203.50	12:11:50 pm Aug 11, 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
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 73373

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

Job # BLDGFD
US ARMY
BLDG 2686 TANK 40
FORT DEVENS, MA 01433
PO# 37.04.72053

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
12:07:03	39600	49700	89300	24.85

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

Load#	Job Total	Time & Date	Fob/Del
6	174.34	12:07:03 pm Aug 11, 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

T I M E

FMN
ARRIVED JOB
LEFT JOB
CHECK #

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

TICKET #R 733

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

Job # BLDGFD
US ARMY
BLDG 2686 TANK 40
FORT DEVENS, MA 01433
PO# 37.04.72053

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
8:53:21	39600	68440	108040	34.22

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

Load#	Job Total	Time & Date	Fob/Del
1	34.22	8:53:22 am Aug 11, 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

T I M E

FMN
ARRIVED JOB
LEFT JOB
CHECK #

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

TICKET #R 734

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

Job # BLDGFD
US ARMY
BLDG 2686 TANK 40
FORT DEVENS, MA 01433
PO# 37.04.72053

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
3:19:17	39600	51820	91420	25.91

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

Load#	Job Total	Time & Date	Fob/Del
10	285.25	3:19:17 pm Aug 11, 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 H[illegible]RIVE
P.O. BOX 2089
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
ARRIVED JOB
LEFT JOB

Cash ☐ C.O.D. ☐ Charge ☑

CHECKED BY

CHECK #

CARRIER

TICKET #R 73416

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

Job # BLDGFD
US ARMY
BLDG 2732 & 2680
FORT DEVENS, MA 01433
PO# 37.04.72053

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

TANK 41 & 40

Time	Tare	Net	Gross	Total
3:33:36	39600	57900	97500	28.95

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

Load#	Job Total	Time & Date	Fob/Del
11	314.20	3:33:37 pm Aug 11, 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 from the Fort Devens Fire Department for the proper closure of a UST. 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

Visible ... 19 ...

C.82 S.40 M.G.L.

DIG SAFE NUMBER

Start Date ...

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., No.

Location to which tank will be transported

14901
Approved tank yard#

This permit will expire 31 Jan 1992

James R. Driller Fire Chief
Signature of official granting permit (TITLE)
(Head of Fire Dept.)

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 2 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 Mauanto	Owner	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
Ft. Devens Bldg. # 2686 tank #40
(no. street)
Ayer
(city or town)

Fire Department Permit # None listed
(if applicable)

4.13 INSTALLATION

The installation of a replacement UST No. 0040 was not performed.

4.14 BORING LOGS

The attached boring logs were recorded during drilling and soil boring activities of SB-1 and SB-2, located at Building 2686, Fort Devens, Massachusetts (the site). Soil borings were performed on September 30, 1992 to assess for potential petroleum hydrocarbon contamination associated with one 1,000-gallon No. 2 fuel UST removed from the site.

Soil types encountered from grade level to a depth of approximately 2 feet below grade consisted typically of very loose, brown fine sand. Soil types encountered from a depth of approximately 4 to 6 feet below grade consisted typically of dense brown fine sand. Soil types encountered from a depth of approximately 9 to 11 feet below grade consisted typically of very dense, brown/grey/tan fine sand and shale.

Groundwater was not encountered during the soil borings. Auger refusal was encountered in SB-1 at a depth of 15 feet, and 14.5 in SB-2.

ATEC ENVIRONMENTAL CONSULTANTS

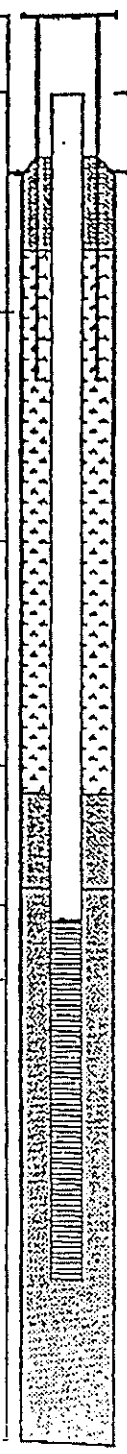
GROUND WATER MONITORING WELL BORING/INSTALLATION LOG

LOG OF BORING/WELL: SOIL BORING - 1

PROJECT NAME: FT. DEVENS
PROJECT NUMBER: 37-07-451
PROJECT LOCATION: UST # 40; BLDG. 2686
BORING LOCATION: SEE SCHEMATIC

FOREMAN: MATT BOVENZI
INSPECTOR: O. TROMBLY
DATE: 9-30-92

SOIL/ROCK DESCRIPTION	DEPTH FEET	SAMP. NO.	S.P.T.
FINE SAND COLOR: BROWN CONSISTENCY: VERY LOOSE NOTES: NO PETRO. ODOR PID: N.D.	0'-2'	S.B. 1.1	TFF
FINE SAND AND GRAVEL COLOR: BROWN-GREY CONSISTENCY: DENSE NOTES: NO PETRO. ODOR PID: N.D.	4'-6'	S.B. 1.2	13-12-16-18
FINE SAND COLOR: BROWN-GREY CONSISTENCY: VERY DENSE NOTES: NO PETRO. ODOR PID: N.D.	9'-11'	S.B. 1.3.	19-26-25-47
13.0'	13'	BED ROCK	
DRILLED 2.0' INTO TIGHT BEDROCK AND STOPPED	15'		



- Length of Casing Above Surface Elevation_____
- Length of Riser Above Surface Elevation_____
- Surface Elevation_____
- Type/Thickness of Surface Seal_____
- ID/Type of Protect. Casing_____
- Depth Bottom of Casing_____
- ID/OD/ Type Riser_____
- Diameter of Borehole_____
- Type of Backfill @ Riser_____
- Depth/Type Bottom Seal_____
- Depth Top of Screen_____
- ID/OD/Type Screen_____
- Type Backfill @ Screen_____
- Depth Bottom of Screen_____
- Type of Backfill Below Screen_____

ATEC ENVIRONMENTAL CONSULTANTS

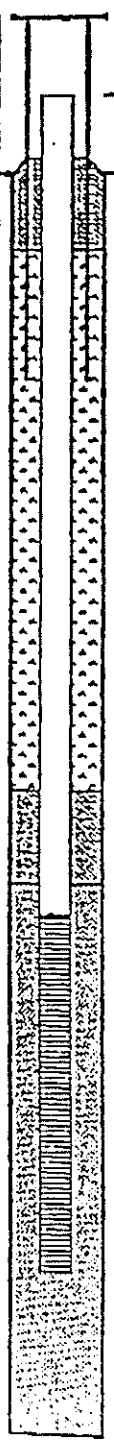
GROUND WATER MONITORING WELL BORING/INSTALLATION LOG

LOG OF BORING/~~WELL~~: SOIL BORING-2

PROJECT NAME: FT. DEVENS
PROJECT NUMBER: 3707451
PROJECT LOCATION: RT #40; BLDG 2686
BORING LOCATION: SEE SITE SCHEMATIC

FOREMAN: MATT BOUENZI
INSPECTOR: C. TROMBLY
DATE: 9-30-92

SOIL/ROCK DESCRIPTION	DEPTH FEET	SAMP. NO.	S.P.T.
FINE SAND COLOR: DARK BROWN CONSISTENCY: VERY LOOSE NOTES: NO PETRO. ODOR PID: 10.0 PPM	0-2'	S.B. 2.1	TFF
FINE SAND COLOR - BROWN CONSISTENCY: DENSE NOTES: NO PETRO. ODOR PID: N.D.	4'-6'	S.B. 2.2	13.23.26.12
FINE SAND/SHALE COLOR: TAN CONSISTENCY: VERY DENSE NOTE: NO PETRO. ODOR PID: 7.0 PPM.	9'-11'	S.B. 2.3	30.30.28.32
~~BEDROCK~~ PID = 5.0 PPM.	14'-14.5"	S.B 2.4	REFUSAL



- Length of Casing Above Surface Elevation_____
- Length of Riser Above Surface Elevation_____
- Surface Elevation_____
- Type/Thickness of Surface Seal_____
- ID/Type of Protect. Casing_____
- Depth Bottom of Casing_____
- ID/OD/ Type Riser_____
- Diameter of Borehole_____
- Type of Backfill @ Riser_____
- Depth/Type Bottom Seal_____
- Depth Top of Screen_____
- ID/OD/Type_____ Screen_____
- Type Backfill @ Screen_____
- Depth Bottom of Screen_____
- Type of Backfill Below Screen_____

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)