

Technical Report
Volume 4
Underground Storage Tank Closures
UST Nos. 0022 - 0024
Fort Devens, Massachusetts

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



Prepared for:

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

Attn: Mr. Steven Dijack,
Contracting Officer

December 17, 1993

UST 93123 ATE



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Solid & Hazardous Waste Site Assessments
Remedial Design & Construction
Underground Tank Management
Asbestos Surveys & Analysis
Hydrogeologic Investigations & Monitoring
Analytical Testing / Chemistry
Industrial Hygiene / Hazard Communication
Environmental Audits & Permitting
Exploratory Drilling & Monitoring Wells

December 17, 1993

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

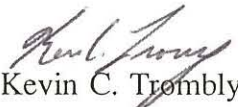
RE: Technical Report
Underground Storage Tank Closures
UST Nos. 0022 - 0024
Fort Devens, Massachusetts
ATEC File: 37.07.91.00451


Mr. Dijack:

Attached is Volume 4 of the Technical Report by ATEC Associates, Inc. (ATEC), detailing the closure of three underground storage tanks (UST) referenced as UST Nos. 0022, 0023, and 0024, 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.


Kevin C. Trombly
Environmental Scientist


James B. O'Brien
Division Manager

Ronald A. Lawson
Assistant Vice President &
District Manager

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UNDERGROUND STORAGE TANK INDEX (Volume 4)

<u>UST No.</u>	<u>SIZE (gal)</u>	<u>PRODUCT</u>	<u>LOCATION</u>
0022	1,000	Number 2 Fuel Oil	Building 1427, Fort Devens, MA
0023	1,000	Number 2 Fuel Oil	Building 1429, Fort Devens, MA
0024	1,000	Number 2 Fuel Oil	Building 1435, Fort Devens, MA

TECHNICAL REPORT

Volume 4

UST Nos. 0022 - 0024

United States Army

Fort Devens, Massachusetts

ATEC Project No. 37.07.91.00451

2.0 INTRODUCTION

This volume (Volume 4) of the Technical Report details the removal of three underground storage tanks (USTs) referenced as UST Nos. 0022 - 0024 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 included:

- Excavation and removal of 69 USTs at various buildings located at Fort Devens, Massachusetts.
- 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. 0022

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, number 2 fuel oil underground storage tank (UST) referenced as UST No. 0022, located at property known as Building 1427, Fort Devens, Massachusetts (the site). The purpose of the closure was to excavate and remove 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 8, 1992.

The basic Project Work Scope included:

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

418.1).

- Preparation of a Technical Report, to include assimilation of information gathered, major findings, and conclusions.

2.1.2 Subsurface Storage Tank Excavation and Removal

On January 8, 1992, one 1,000-gallon, subsurface, number 2 fuel oil storage tank was excavated and removed from the site. The UST was located approximately near the northwest corner of Building 1427 (see Figure 2.1, UST Location Plan). Cold Spring Brook is located approximately 30 feet northwest of the former UST No. 0022. Site topography is relatively level.

The tank was covered by approximately 2 feet of soil. From grade level to a depth of approximately 5.5 feet below grade, soil types encountered consisted primarily of brown, fine sand with trace coarse gravel and cobbles. From a depth of approximately 5.5 to 6 feet below grade, soil consisted primarily of medium grey sand. The bottom of the excavation was approximately 6 feet below grade. Groundwater was encountered within the excavation at a depth of approximately 6 feet below grade.

The associated piping was drained and tank connections were removed. UST No. 0022 was estimated to contain approximately 764 gallons of number 2 fuel oil and residuals. Approximately 759 gallons of fuel oil were removed from the tank on January 6, 1992 and transported to a licensed Treatment Storage Disposal Facility (TSDF) (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 fair condition with no perforations or severe corrosion. Following venting of the tank, an access way was cut in the end of the tank to allow entry for cleaning. It was then entered and

wiped/vacuumed clean of any residual materials. Approximately 5 gallons of residuals were drummed on January 8, 1992 for transportation at a later date. Drummed material was transported to Cyn Environmental Services, Inc., Stoughton, MA. See Section 2.10 for copies of the appropriate hazardous waste manifests.

The scrap tank was disposed at Tombarello & Sons, a licensed Massachusetts tank yard, located in Lawrence, MA, on January 24, 1992. A copy of the disposal receipt is included in Section 2.11, Permits and Certifications. A copy of the Commonwealth of Massachusetts Department of Public Safety Division of Fire Prevention Tank Removal Permit is also included in Section 2.11.

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 sidewalls at a depth of approximately 3 to 4 feet below grade. Two of the samples (SS-9 and SS-10) were obtained from the excavation bottom at a depth of 6 feet below grade.

Two composite soil samples (Stock-1 and Stock-2) were obtained from stockpiled soils for PID and NDIR field screening. One soil sample (Spill Contain-1) was obtained from within the spill containment manway surrounding the fill pipe for PID and NDIR field screening.

Three soil samples (LSS-1, LSS-2, and LSS-3) were obtained from the excavation for laboratory analysis. Soil Sample LSS-1 was obtained from the south sidewall of the excavation at a depth of approximately 1.5 feet below the feed and return lines associated with UST No. 0022. Soil sample LSS-2 was obtained from the excavation bottom at a depth of approximately 6.5 feet below grade. One soil sample (LSS-3) was obtained from soil within the spill containment manway surrounding the fill pipe. These samples were analyzed for TPH utilizing USEPA Method 418.1.

One groundwater sample (LWS-1) was obtained from the excavation for laboratory analysis for TPH utilizing USEPA Method 418.1.

Sampling locations are depicted on the Sampling Schematic attached as Figure 2.2. The appropriate chain of custodies are included in Section 2.10, 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, the two composite samples obtained from stockpiled soil, and the one soil sample associated with the spill containment are as follows:

TABLE 2.1 - PID AND NDIR RESULTS

SAMPLE NUMBER	PID (ppm TOV)	NDIR (ppm TPH)
SS-1	0.0	8.6
SS-2	0.0	10.2
SS-3	0.0	5.6
SS-4	0.0	7.8
SS-5	0.0	5.9
SS-6	0.0	8.2
SS-7	0.0	6.4

SS-8	0.0	6.0
SS-9	1.0	7.3
SS-10	0.5	10.2
Stock-1	0.6	5.8
Stock-2	0.5	7.7
Spill Contain - 1	0.0	6.3

Laboratory analysis of the two soil samples obtained from the excavation revealed TPH concentrations of <10 ppm for LSS-1 and 25 ppm for LSS-2. Laboratory analysis of the soil sample (Spill Contain-1) obtained from the spill containment manway area revealed a TPH concentration of 11 ppm. Laboratory analysis of the groundwater sample (LWS-1) obtained from the excavation revealed a TPH concentration of <1ppm.

A copy of the laboratory results has been included in Section 2.9, Laboratory Analytical Results.

2.1.5 Conclusions and Recommendations

ATEC's conclusions are as follows:

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

Groundwater was encountered within the excavation at a depth of approximately 6 feet below grade.

Visual contamination of soils was not observed within the excavation.

Ten soil samples were obtained from the excavation for field screening and field analysis utilizing a PID and NDIR analysis respectively. PID readings revealed TOV concentrations ranging from 0.0 ppm to 1.0 ppm. NDIR results revealed TPH concentrations ranging from 5.6 ppm to 10.2 ppm. One sample was obtained from the spill containment manway (Spill Contain-1) for PID and NDIR analysis. PID screening revealed a TOV concentration of 0.0. NDIR analysis revealed a TPH concentration of 6.3 ppm.

Two soil samples (Stock-1 and Stock-2) were obtained from stockpiled soils for PID field screening and NDIR analysis. PID screening revealed TOV concentrations of 0.6 ppm and 0.5 ppm. NDIR analysis revealed TPH concentrations of 5.8 ppm and 7.7 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 southwest sidewall of the excavation revealed a TPH concentration of <10 ppm. Analytical results for LSS-2 obtained from the excavation bottom revealed a TPH concentration of 25 ppm.

One soil sample (LSS-3) was obtained from soil within the spill containment manway surrounding the fill pipe. Analytical results for LSS-3 revealed a TPH concentration of 11 ppm.

Laboratory analysis of groundwater sample LWS-1 revealed a TPH concentration of <1 ppm.

ATEC's recommendations are as follows:

Utilize excavated soils as backfill as specified in Section 4.1 of the Contract.

No further investigation.

2.2 SITE REMEDIATION AND CONTAMINATED SOIL DISPOSAL

2.2.1 Site Remediation

Due to the low TPH concentrations detected in the excavation and its removed soils, site remediation of UST No. 0022 was not performed.

2.2.2 Soil Stratigraphy

Contract specifications did not require soil stratigraphy to be performed on UST No. 0022.

2.2.3 Contaminated Soil Disposal

Prior to disposal, contaminated soil was laboratory analyzed for disposal classification purposes. One composite soil sample (Stock-22) was obtained from the stockpiled soil associated with the removal of the UST Nos. 0022. Laboratory analyses of Stock-22 included VOCs, Semi-volatile Organic Vapors, 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 a pH of 6.7 and concentrations of 0.04 ppm Copper and 0.08 ppm Zinc. All other analytical results were below their respective Method Reporting Limits (MRL).

Approximately 31 tons of petroleum hydrocarbon contaminated soil was removed and stockpiled during the excavation of UST No. 0022. The estimated volume of removed soil was calculated from field drawings produced during the removal of UST No. 0022. Contaminated soil was disposed for recycling at Trimount Bituminous Products Company of Shrewsbury, Massachusetts on July 17, 1992.

2.3 HYDROGEOLOGICAL SERVICES

Hydrogeological services were not conducted relative to UST No. 0022.

2.4 BACKFILL

The excavation was backfilled with approximately 69 tons of clean fill material on June 30, 1992, as estimated through field drawings. Backfilling was conducted with the approval of the Contracting Officer's Representative and the DEP.

2.5 SITE RESTORATION

Following backfill, approximately 68 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 the tank removed from the site.

A-2: Opposite side of the tank removed from the site.

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 1427
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451



A-3



A-4

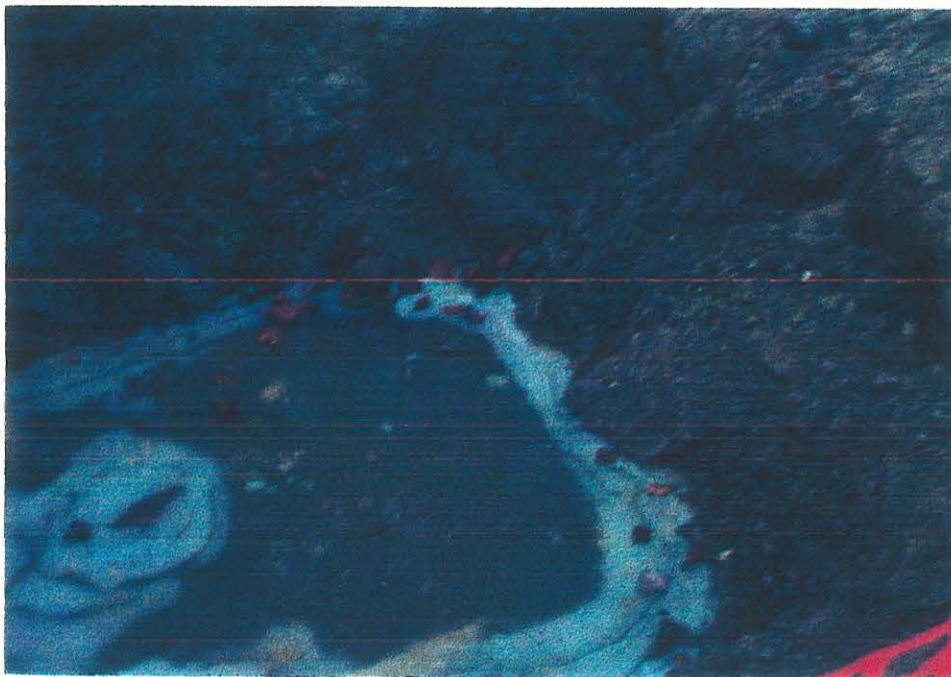


PHOTO DOCUMENTATION

1,000 gallon UST excavation at:
Building 1427
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451



2.7 OCMA 220 DATA SHEETS

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

EBI Project Number:

Calibration

	First Reading		Second Reading		Third Reading	
	Initial	Final	Initial	Final	Initial	Final
Zero Calibration	0.9	0.0	0.8	0.0	0.0	0.0
Span Calibration						
Zero Calibration						

Span Check: 75.7

Testing

[illegible]

2.8 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 and the vicinity of the spill containment manway. Laboratory analysis included TPH analysis.
- LWS-1: Groundwater sample obtained from excavation bottom for TPH laboratory analysis.



In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

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

Client Sample ID: Stock-22

Date Sample Received: 6/10/92

ESS Project ID: 921516


ESS Sample ID: 921516-02

Date Reported: 6/26/92

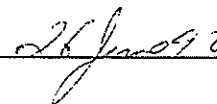
Parameter	Results	Units	MRL	Method
pH (Corrosivity)	6.7	S.U.	N/A	9045
Flashpoint	No Flash	°F	200	1010
Polychlorinated Biphenyls	ND	mg/Kg	Attached	8080
Reactive Cyanide	ND	mg/Kg	2	7.3.3.2
Reactive Sulfide	ND	mg/Kg	2	7.3.4.1
Semivolatile Organics	ND	ug/Kg	Attached	8270
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure Metals				1311
Copper	0.04	mg/L	Attached	6010
Zinc	0.08	mg/L	Attached	6010

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:


David Dickinson
Laboratory Director

Date:

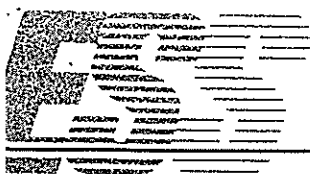

26 June 92

008

Environmental Science Services

532 Attucks Avenue, Providence, RI 02903

TEL: 401-863-1111



In Response To The Future

CERTIFICATE OF ANALYSIS

POLYCHLORINATED BIPHENYLS Method 8080

Client: ATEC Environmental Consultants

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

Client Sample ID: Stock-22

Date Sample Received: 6/10/92

ESS Project ID: 921516


ESS Sample ID: 921516-02

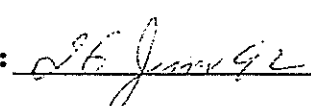
Date Reported: 6/26/92

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

ND = Not Detected above Method Reporting Limit (MRL)

Surrogate Recovery Data	% Recovery	QC Limit
Dibutylchloroendate	83%	50 - 150%

Approved by: 
David Dickinson
Laboratory Director

Date:  26 June 92



In Response To The Future

CERTIFICATE OF ANALYSIS

ACID EXTRACTABLES EPA 8270

Client: ATEC Environmental Consultants

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

Client Sample ID: Stock-22

Date Sample Received: 6/10/92

ESS Project ID: 921516

ESS Sample ID: 921516-02


Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL*
2-Chlorophenol	ND	1,650
2-Nitrophenol	ND	1,650
Phenol	ND	1,650
2,4-Dimethylphenol	ND	1,650
2,4-Dichlorophenol	ND	1,650
2,4-Dinitrophenol	ND	8,250
Pentachlorophenol	ND	8,250
4-Nitrophenol	ND	8,250
2,4,6-Trichlorophenol	ND	1,650
2,4,5-Trichlorophenol	ND	8,250
2-Methylphenol	ND	1,650
4-Methylphenol	ND	1,650
4-Chloro-3-Methylphenol	ND	1,650
4,6-Dinitro-2-Methylphenol	ND	8,250

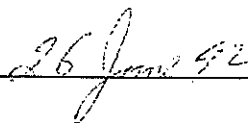
* Sample diluted due to matrix interference.

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:


David Dickinson
Laboratory Director

Date:


26 June 92

Environmental Science Services

552 Atwell Avenue, Proctorville, OH 44274

010



In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES EPA 8270

Client: ATEC Environmental Consultants

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

ESS Project ID: 921516

Client Sample ID: Stock-22

ESS Sample ID: 921516-02

Date Sample Received: 6/10/92

Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL*
Acenaphthylene	ND	1,650
1,2,4-Trichlorobenzene	ND	1,650
Hexachlorobenzene	ND	1,650
Bis(2-chloroethyl) ether	ND	1,650
2-Chloronaphthalene	ND	1,650
1,2-Dichlorobenzene	ND	1,650
1,3-Dichlorobenzene	ND	1,650
1,4-Dichlorobenzene	ND	1,650
3,3-Dichlorobenzidine	ND	3,300
2,4-Dinitrotoluene	ND	1,650
2,6-Dinitrotoluene	ND	1,650
Fluoranthene	ND	1,650
4-Chlorophenyl phenyl ether	ND	1,650
Bis(2-chloroisopropyl) ether	ND	1,650
Bis(2-chloroethoxy) methane	ND	1,650
Hexachlorobutadiene	ND	1,650
Hexachlorocyclopentadiene	ND	1,650
Isophorone	ND	1,650
Naphthalene	ND	1,650
Nitrobenzene	ND	1,650
N-nitrosodiphenylamine	ND	1,650
N-nitrosodi-n-propylamine	ND	1,650
Bis(2-ethylhexyl) phthalate	ND	1,650
Di-n-butylphthalate	ND	1,650
Di-n-octylphthalate	ND	1,650
Diethyl phthalate	ND	1,650
Dimethyl phthalate	ND	1,650
Benzo(a)anthracene	ND	1,650

* Sample diluted due to matrix interference.

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:

David Dickinson

Laboratory Director

Date:

26 June 92



In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES cont. EPA 8270

Client: ATEC Environmental Consultants

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

ESS Project ID: 921516

Client Sample ID: Stock-22

ESS Sample ID: 921516-02

Date Sample Received: 6/10/92


Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL*
Benzo(a)pyrene	ND	1,650
Benzo(b)fluoranthene	ND	1,650
Benzo(k)fluoranthene	ND	1,650
Chrysene	ND	1,650
Acenaphthene	ND	1,650
Anthracene	ND	1,650
Benzo(ghi)perylene	ND	1,650
Fluorene	ND	1,650
Phenanthrene	ND	1,650
Dibenzo(a,h)anthracene	ND	1,650
Indeno(1,2,3-cd)pyrene	ND	1,650
Pyrene	ND	1,650
Hexachloroethane	ND	1,650
4-Bromophenyl-phenylether	ND	1,650
Benzyl Alcohol	ND	1,650
Benzoic Acid	ND	8,250
Bis(2-Chloroethoxy)methane	ND	1,650
4-Chloroaniline	ND	1,650
2-Methylnaphthalene	ND	1,650
2-Nitroaniline	ND	8,250
3-Nitroaniline	ND	1,650
Dibenzofuran	ND	1,650
4-Nitroaniline	ND	8,250
Butylbenzylphthalate	ND	1,650

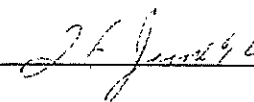
* Sample diluted due to matrix interference.

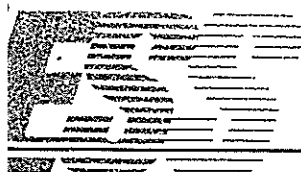
ND = Not Detected above Method Reporting Limit (MRL)

Approved by:


David Dickinson
Laboratory Director

Date:


26 June 92



In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS Method 8240

Client: ATEC Environmental Consultants

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

Client Sample ID: Stock-22

Date Sample Received: 6/10/92

ESS Project ID: 921516

ESS Sample ID: 921516-02

Date Reported: 6/26/92

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:

David Dickinson
David Dickinson
Laboratory Director

Date:

26 June 92

CERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants Date Sampled: 6/8/92
Client Project ID: U.S. Army-Ft. Devens Date TCLP Performed: 6/18/92
Client Sample ID: Stock-22 Date Leachate Extracted: 6/19/92
ESS Sample ID: 921516-02 Date Extract Analyzed: 6/22/92

Target Analyte	Actual		Adjusted*	
	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.2	ND	0.3
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.02
Chromium	ND	0.05	ND	0.05
Lead	ND	0.1	ND	0.2
Mercury	ND	0.002	ND	0.003
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.05
Copper	0.04	0.02	0.04	0.02
Nickel	ND	0.04	ND	0.05
Zinc	0.07	0.02	0.08	0.03
Beryllium	ND	0.01	ND	0.02
Thallium	ND	0.05	ND	0.06

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
David Dickinson
Laboratory Director

Date: 6/22/92



In Response To The Future

CERTIFICATE OF ANALYSIS

Date: 1/16/92 Job: 73

Account: 95659

Received: 1/09/92

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

Project: DEVENS-TANK 22

n: Mr. Mark Baldi

Sample Number	Method Number	Parameter	Result	Unit	Sample Description
07301	EPA-160.3	Total Solids	95	%	LSS-1
	EPA-418.1	TPH/IR (Dry Wt.)	<10	mg/kg	
07302	EPA-160.3	Total Solids	83	%	LSS-2
	EPA-418.1	TPH/IR (Dry Wt.)	25	mg/kg	
07303	EPA-160.3	Total Solids	95	%	LSS-3
	EPA-418.1	TPH/IR (Dry Wt.)	11	mg/kg	
07304	EPA-418.1	TPH/IR	<1	mg/L	LWS-1


David Dickinson
Laboratory Manager

e: 1

2.9 CHAIN OF CUSTODY FORMS

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

[illegible]

2.9 CHAIN OF CUSTODY FORMS

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

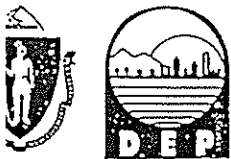
CHAIN OF CUSTODY RECORD

[illegible]

2.10 HAZARDOUS WASTE MANIFEST

UST No. 0022 was estimated to contain approximately 764 gallons of No. 2 fuel oil and residuals. Approximately 759 gallons of fuel oil were removed from the tank on January 6, 1992 and transported to a licensed Treatment Storage Disposal Facility (T.S.D.F.) (Beede Waste Oil Corporation). Approximately 5 gallons of residuals were removed and placed in a 55-gallon drum on January 8, 1992. The 5-gallons of No. 2 fuel oil tank residuals were transported to Cyn Environmental Services, Inc., Stoughton, MA.

The following Hazardous Waste Manifests were generated from tank materials.



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

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

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA 7211001251154104441	Manifest Document No. FD600	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) 796-3002 24HR 508-796-2711		A. State Manifest Document Number MA F353630		
5. Transporter 1 Company Name Beede Waste Oil Corp.		6. US EPA ID Number NH 018958140		B. State Gen. ID SAMPLE		
7. Transporter 2 Company Name		8. US EPA ID Number		C. State Trans. ID NH 018958140		
9. Designated Facility Name and Site Address Beede Waste Oil Corp. Kelley Road PO Box 127 Plaistow, NH 03865		10. US EPA ID Number NH 018958140		D. Transporter's Phone 603-382-5761		
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers		13. Total Quantity		Unit Wt/Vol
a. WASTE PETROLEUM OILS N.O.S. COMBUSTIBLE LIQUID NA1270		No. 1 Type TT		603 12290		G
b.						
c.						
d.						
J. Additional Descriptions for Materials Listed Above (include physical state and hazard code)		K. Handling Codes for Wastes Listed Above				
15. Special Handling Instructions and Additional Information		To be Recycled Recycle				
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations						
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name Mark Bosar		Signature Mark Bosar		Date 01/06/92		
17. Transporter 1 Acknowledgement of Receipt of Materials		Printed/Typed Name Robert D. Murphy Jr.		Signature Robert D. Murphy Jr.		Date 01/04/92
18. Transporter 2 Acknowledgement of Receipt of Materials		Printed/Typed Name		Signature		Date
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.						
Date						

MA F353630 COPY 1: FACILITY MAILED TO DESTINATION STATE

2.11 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

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
Fee paid \$ N/A

Name and address of contractor

disposing tank Atec Associates, 62 Record Park Dr, Norw
Location to which tank will
be transported

This permit will expire 31 Jan 1992

14901
Approved tank yard#

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

C.62 B.46 M.O.L.
DIG SAFE NUMBER
Start Date

Tank 22

Bldg 1427

RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK

NAME AND ADDRESS JOHN C. TOMBARELLO & SONS
OF 207 MARSTON ST.
APPROVED TANK YARD 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 0 9 7

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 and accepted same in conformance with Massachusetts Fire Prevention Regulation 502 CMR 3.00 Provisions for Approving Underground Steel Storage Tank dismantling yards. A valid permit was issued by LOCAL Head of Fire Department FDID# 17919 to transport this tank to this yard.

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

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

This signed receipt of disposal must be returned to the local head of the fire department FDID# 17919 pursuant to 502 CMR 3.00. (EACH TANK MUST HAVE A RECEIPT OF DISPOSAL)

FORM F.P. 291 (rev. 9/88)

(OVER)

MASSACHUSETTS STATE FIRE MARSHAL'S OFFICE

DIMENSIONS

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

Tank Removed From

Building 1427
(no. street)
Fort Devens, Mass
(city or town)

Fire Department
Permit #

(if applicable)

2.12 UST CLOSURE CHECKLIST

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

1500000 No 2 Fuel		Jan 22 - 1989 1724 Port Venens		
DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
Calibrate PID & LEL/O2 meters	1/18/92	9:00		Site Topography: rel. level. wetland 70' NW of UST, flowing N/NE.
Drain & flush piping & pumps	1/19/92	9:30		Break access Antenna to E flow N
Excavate to top of tank	1/18/92	9:45		Depth to tank: 2'
Vent tank note LEL/O2 levels & times			LEL O2	
		T1: 10:15	12	70
		T2: 11:00	8	71
		T3: 11:45	5	72
		T4: 12:45	0	70.9
		T5: 12:00	0	70.7
		T6: 12:15	0	70.7
		T7: 12:30	0	70.7
		T8:		
		T9:		
		T10:		
		T11:		
		T12:		
Pump & clean tank:	1/16/92	11:00	759 gal. liquid + 5 gal = 764 gal	Tank Dimensions: 4' x 10.5' L
Note quantities liquid (gal) & sludge (lbs)	1/8/92	9:00	<5 lbs. sludge	
Remove all tank connections, and cap openings	1/8/92	7:45		
Excavate soils to free tank	1/15/92	10:00		
Segregate stained soils: Note PID readings (if >10 ppm NDIR also)	1/9/92	9:45	PID (ppm) NDIR (ppm)	none visibly contaminated spill contain - 1
			0	1.3
			0.6	5.8
			0.5	7.7
				stack - 1
				stack - 2
				spill containment soils segregated stacked on N end main site

US: OSURE O/C CHECK LIST

DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
Remove tank, piping, pumps, and hardware.	1/5/11	10:00	Photographic Descriptions:	Soil Description: ^{SS1} brown fine sand w/ trace coarse gravel, cobbles, etc.
Photograph excavation; note descriptions.			Photo 1: <i>Sketch</i>	
Sketch Schematic			Photo 2: <i>Sketch</i>	SS2: mixed grey sand no gravel
			Photo 3: <i>exterior N face S</i>	SS3: N wall exposed fine silty sand w/ coarse gravel
			Photo 4: <i>exterior E face E</i>	
			Photo 5: <i>exterior S face S</i>	Depth to Groundwater/Conditions: 6' \Rightarrow just tagged on table.
			Photo 6:	
Place tank at safe distance from excavation	1/5/11	10:10		Depth of Excavation: 6' <i>concrete to sand</i>
Secure tanks transport off-site	1/5/11	10:45	<i>transport to contractor yard @ Devco</i>	@ 6'
Obtain 10 soil samples from excavation walls/bottom: Note PID/NDIR readings and sample locations.			PID (ppm) NDIR (ppm)	Sample locations: 3.0 - 4.0' below grade
			SS1: 0 8.6	S wall
			SS2: 0 10.2	E wall
			SS3: 0 5.6	N wall
			SS4: 0 7.9	E wall
			SS5: 0 5.9	N wall
			SS6: 0 8.2	E wall
			SS7: 0 6.4	E wall
			SS8: 0 6.0	E wall
			SS9: 1.0 7.3	bottom 2' below grade
			SS10: 0.5 10.2	bottom 1' below grade
Obtain 2 soil samples & 1 water samples for laboratory analysis. Note sample locations.	1/8/11	10:45		Sample Locations:
				LSS1: SS1
				LSS2: SS10
				LWS1:
				LSS3: spill containment & below per meter P. Chong

UST CLOSURE O/C CHECK LIST			
DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS
			60.1 tons of backfill
Backfill excavation (if clean):			Backfill description: 35.1 cy native soil +
Note amount & type of backfill			1.9 cy sand
Close open excavation (if applicable)			
Restore surface and rope off			
Remove rubbish/debris			
Transport hazardous material off-site:			Amount Classification
Note amount/classification			
Make copies of manifests, permits,			
and disposal receipts.			

2.13 INSTALLATION

The installation of a replacement UST No. 0022 was not performed.

3.0 UST No. 0023

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. 0023, located at property known as Building 1429, 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 8, 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 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 Subsurface Storage Tank Excavation and Removal

On January 8, 1992, one 1,000-gallon, subsurface, number 2 fuel oil, storage tank was excavated and removed from the site. The UST was located near the northwest corner of Building 1429 (see Figure 3.1 - UST Location Plan). Topography at the site appeared level. Approximately 60 feet south of the former UST location, topography slopes slightly downgradient to the south.

The tank was covered by approximately 2.5 feet of soil. Soil required to free the tank was visibly contaminated, particularly in the vicinity of the UST fill pipe. This soil was segregated from other stockpiled soils. Soil within the excavation consisted primarily of light brown, fine sand. The bottom of the excavation was located at a depth of approximately 6.5 feet below grade. Groundwater was not encountered within the excavation.

The associated piping was drained and tank connections were removed. UST No. 0023 was estimated to contain approximately 368 gallons of No. 2 fuel oil and residuals. Approximately 348 gallons of fuel oil were removed on January 6, 1992 and transported to a licensed Treatment Storage Disposal Facility T.S.D.F. (Beede Waste Oil Corporation, Plaistow, New Hampshire). Tank openings were then capped and the tank was removed from the excavation. Upon excavation and removal, the tank was observed to be in good condition with no perforations or severe corrosion. A copy of the Commonwealth of Massachusetts Tank Removal Permit is included in Section 3.11, Permits and Certifications.

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. Approximately 20 gallons of No. 2 fuel oil and tank residuals were removed from the tank and drummed on January 8, 1992. Drummed material was transported to a licensed T.S.D.F. on June 5, 1992 (Cyn Environmental Services, Inc., Stoughton, MA). See section 3.10 for copies of the appropriate hazardous waste manifests.

The scrap tank was disposed at Tombarello & Sons, a licensed Massachusetts tank yard, located in Lawrence, MA, on January 24, 1992. A copy of the disposal receipt is included in Section 3.11, Permits and Certifications.

3.1.3 Sampling and Analysis Plan

Ten soil samples were obtained from the excavation for field screening and analysis with a Photoionization Detector (PID) and a Non-Dispersive Infrared (NDIR) analyzer. 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. NDIR field analysis of 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 sidewalls at a depth of approximately 2 to 4 feet below grade. Two of the samples (SS-9 and SS-10) were obtained from the excavation bottom at a depth of approximately 6.5 feet below grade.

Two composite soil samples (Stock-1 and Stock-2) were obtained from stockpiled soils for PID and NDIR field screening. Stockpile soil sample Stock-1 was obtained from visibly uncontaminated areas of stockpiled soil. Stock-2 was obtained from visibly contaminated areas of stockpiled soil.

One soil sample (Fill-1) was obtained from the visibly contaminated and segregated soil in the vicinity of the fill pipe.

Two soil samples (LSS-1 and LSS-2) were obtained from the excavation for TPH laboratory analysis. Soil sample LSS-1 was obtained at depth of 3 feet below grade from the southeast wall of the excavation in the vicinity of the former fill pipe. Soil sample LSS-2 was obtained from the bottom of the excavation at a depth of 6.5 feet below grade. One composite, soil sample (LSS-3) was obtained from stockpiled soils required to free the tank. Laboratory TPH analysis was performed utilizing USEPA Method 418.1.

One stockpiled soil sample (Stock-23) was obtained for characterization and disposal purposes on June 8, 1992. Laboratory analysis included Volatile Organic Compounds (VOCs), Semi-volatile Organic Compounds, 13 Metals by Toxicity Leachate Characteristic Procedure (TCLP), Polychlorinated Biphenyls (PCBs), Reactive Sulfide, Reactive Cyanide, Flashpoint, and Corrosivity (pH).

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.

3.1.4 Analytical Results

PID screening for TOV and NDIR analysis of ten soil samples obtained from the excavation, the two composite samples obtained from stockpiled soil, and the one soil sample obtained from the vicinity of the former fill pipe are as follows:

TABLE 3.1 - PID AND NDIR RESULTS

SAMPLE NUMBER	PID (ppm TOV)	NDIR (ppm TPH)
SS-1	1.0	17.6
SS-2	7.4	27.4
SS-3	2.9	36.4
SS-4	1.2	16.8
SS-5	1.8	20.2
SS-6	3.8	28.7
SS-7	0.2	15.4
SS-8	0.6	19.5
SS-9	29.0	2,460.0
SS-10	14.8	134.8
Stock-1	22.0	3,744.0
Stock-2	29.0	3,472.3
Fill-1	38.0	8,007.3

Laboratory analysis of the two soil samples obtained from the excavation revealed TPH concentrations of 26 ppm for LSS-1 and 3,740 ppm for LSS-2. Laboratory analysis of the one soil sample (LSS-3) obtained from the stockpiled soils revealed a TPH concentration of 4,990 ppm (See Section 3.8, Laboratory Analytical Results).

3.1.5 Conclusions and Recommendations

ATEC's conclusions are as follows:

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

Groundwater was not encountered within the excavation.

Excavated soils required to free the tank appeared to be uncontaminated. Soil staining was noted in the vicinity of the fill pipe. This soil was segregated and separately stockpiled. Soil within the excavation was not visibly contaminated.

Ten soil samples were obtained from the excavation for field screening and analysis utilizing a PID and NDIR analysis respectively. PID readings revealed TOV concentrations ranging from 0.2 ppm to 29.0 ppm. NDIR results revealed TPH concentrations ranging from 15.4 ppm to 2,460.0 ppm.

Two soil samples were obtained from the excavation for laboratory analysis for TPH utilizing USEPA Method 418.1. Analytical results of LSS-1 obtained from the southwest wall of the excavation revealed a TPH concentration of 26.0 ppm. Analytical results of LSS-2 obtained from the excavation bottom revealed a TPH concentration of 3,740 ppm.

Laboratory analysis of the one soil sample (LSS-3) obtained from the stockpiled soils revealed a TPH concentration of 4,990 ppm (See Section 3.8, Laboratory Analytical Results).

Two composite stockpile soil samples (Stock-1 and Stock-2) were obtained from excavated stockpiled soils required to free the tank for PID and NDIR screening. PID results revealed TOV concentrations of 22.0 ppm and 29.0 ppm for Stock-1 and Stock-2, respectively. NDIR results revealed TPH concentrations of 3,744.0 ppm and 3,472.3 ppm for Stock-1 and Stock-2, respectively.

One soil sample (Fill-1) was obtained from the vicinity of the fill pipe for NDIR analysis and PID screening. PID results revealed a TOV concentration of 38.0 ppm. NDIR analysis revealed a TPH concentration of 8,007.3 ppm.

ATEC's recommendations are as follows:

Conduct remedial excavation until background levels of <100 ppm TPH by laboratory analysis is attained. Field screening of soil should be conducted during excavation utilizing a PID until background levels of <1ppm 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 soils and stockpiled soils should be laboratory analyzed for TPH, VOCs, PCBs, 13 TCLP Metals, Flashpoint, Sulfide Reactivity, Cyanide Reactivity, and Corrosivity for disposal classification.

Appropriately dispose of additionally excavated and stockpiled soil off-site.

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 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 257.63 tons of contaminated soil were removed from the excavation floor and sidewalls during remedial excavation on July 29, 1992. The estimated volume of removed soil was calculated from field drawings produced during the removal and remediation of UST No.

0023 (see Remedial Excavation Plan, Figure 3.3).

Six soil samples (RS-1 to RS-6) were initially obtained from the post-remedial excavation associated with UST No. 0023 for PID field screening. RS-1 to RS-4 were obtained from the sidewalls at a depth of approximately 3.5 feet below grade. RS-5 and RS-6 were obtained from the excavation bottom at a depth of approximately 6.5 feet below grade. PID results revealed TOV concentrations ranging from 0.0 ppm to 0.2 ppm in samples RS-1 to RS-4. PID results revealed TOV concentrations of 10.0 ppm and 130.0 ppm in RS-5 and RS-6, respectively.

Due to elevated TPH levels, further soil removal was conducted along the excavation bottom. Two soil samples (RS-5A and RS-6A) were obtained after further remediation for PID screening revealing TOV concentrations of 3.5 ppm and 60.0 ppm for RS-5A and RS-6A, respectively. The excavation was advanced to a depth of 14.5 feet below grade, where two samples (RS-5B and RS-6B) were obtained for PID screening revealing TOV concentrations of 1.0 ppm and 2.5 ppm for RS-5B and RS-6B, respectively. A Remedial Excavation Plan is attached as Figure 3.3. Remedial excavation PID screening results are listed in Table 3.2 as follows:

TABLE 3.2 - PID AND NDIR RESULTS

SAMPLE NUMBER	PID TOV ppm	LOCATION
LRS-1	0.0	North Sidewall
LRS-2	0.2	East Sidewall
LRS-3	0.0	South Sidewall
LRS-4	0.0	West Sidewall
LRS-5	10.0	Excavation Bottom
LRS-6	130.0	Excavation Bottom
LRS-5A	3.5	Excavation Bottom
LRS-6A	60.0	Excavation Bottom

LRS-5B	1.0	Excavation Bottom
LRS-6B	2.5	Excavation Bottom

Six soil samples (LRS-1 through LRS-6) were obtained for TPH laboratory analysis. Soil samples LRS-1 and LRS-6 were additionally laboratory analyzed for VOCs. Results of laboratory analysis are depicted in Table 3.3 as follows:

TABLE 3.3 - LABORATORY ANALYSIS

SAMPLE NUMBER	TPH (ppm)	VOA (ppb)	LOCATION
LRS-1	N.D.	N.D.	North Sidewall
LRS-2	264.0	NA	East Sidewall
LRS-3	N.D.	NA	South Sidewall
LRS-4	N.D.	NA	West Sidewall
LRS-5	64.0	NA	Excavation Bottom
LRS-6	N.D.	Methylene Chloride: 10	Excavation Bottom

LRS = Laboratory Remediation Sample

N.A.= Not Applicable

N.D.=None Detected

Laboratory Analytical Results have been provided in Section 3.8.

3.2.2 Soil Stratigraphy

Soil stratigraphy in the vicinity of the former UST No. 0022 consisted of a layer of topsoil from grade to a depth of 1.5 feet below grade. A layer of fine to coarse sand was located from 1.5 to 15 feet below grade (see Figure 3.4 - Soil Stratigraphy).

3.2.3 Contaminated Soil Disposal

Approximately 148.7 tons of contaminated soil was removed and stockpiled during removal and remediation of the excavation, as estimated through field drawings. Contaminated soil was disposed for recycling at Trimount Bituminous Products Company, Shrewsbury, MA on September 21, 1992.

3.3 HYDROGEOLOGICAL SERVICES

Hydrogeological services were not performed relative to UST No. 0023.

3.4 BACKFILL

The excavation of UST No. 0023 was backfilled with approximately 288 tons of imported, uncontaminated fill material, as estimated through field drawings. Backfilling was conducted with the approval of the Contracting Officer's Representative and the DEP.

3.5 SITE RESTORATION

Following the backfill of the excavation, approximately 232.5 square feet of loam was distributed over the excavated area. This estimate was also derived from field drawings.

3.6 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 tank removed from the site.

A-2: Opposite side of the tank removed from the site.

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

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

A-1



A-2



PHOTO DOCUMENTATION

1,000 gallon UST excavation at:
Building 1429
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451



A-3



A-4



PHOTO DOCUMENTATION

1,000 gallon UST excavation at:
Building 1429
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451



3.7 OCMA 220 DATA SHEETS

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

UCMA Data Sheet

Operator Name: Rick D. Gorn

Date: Jan 9

EBI Project Number: 37.07.451

Tank 16 Z 3

Calibration

	First Reading		Second Reading		Third Reading	
	Initial	Final	Initial	Final	Initial	Final
Zero Calibration	0.2	0.0	-0.5	0.0	0.0	0.0
Span Calibration						
Zero Calibration						

Span Check: 25.8

Testing

Note = 1 mL

[illegible]

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 to LRS-6: Soil samples obtained from post-remedial excavation for TPH laboratory analysis. LRS-1 and LRS-6 additionally analyzed for VOCs.
- Stock-23: Soil sample obtained from stockpiled soil for disposal classification. Laboratory analyzed for VOCs, Semi-volatiles, 13 TCLP Metals, PCBs, Reactive Sulfide, Reactive Cyanide, Flashpoint, and Corrosivity (pH).

In Response To The Future

RTIFICATE OF ANALYSIS


Date: 1/15/92 Job: 75
Account: 95659
Received: 1/09/92

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

Project: DEVENS TANK 23

n: Mr. Mark Baldi

Sample Number	Method Number	Parameter	Result	Unit	Sample Description
07501	EPA-160.3	Total Solids	91	%	LSS-1
	EPA-418.1	TPH/IR (Dry Wt.)	26	mg/kg	
07502	EPA-160.3	Total Solids	89	%	LSS-2
	EPA-418.1	TPH/IR (Dry Wt.)	3740	mg/kg	
07503	EPA-160.3	Total Solids	91	%	LSS-3
	EPA-418.1	TPH/IR (Dry Wt.)	4990	mg/kg	


David Dickinson
Laboratory Manager

e: 1



in Response to The Chain

CERTIFICATE OF ANALYSIS

POLYCHLORINATED BIPHENYLS Method 8080

Client: ATEC Environmental Consultants

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

Client Sample ID: Stock-23

Date Sample Received: 6/10/92

ESS Project ID: 921516

ESS Sample ID: 921516-03

Date Reported: 6/26/92

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

ND = Not Detected above Method Reporting Limit (MRL)

Surrogate Recovery Data	% Recovery	QC Limit
Dibutylchloroendate	75%	50 - 150%

Approved by: David Dickinson
Laboratory Director

Date: 26 June 92



In Response To The Future

CERTIFICATE OF ANALYSIS

ACID EXTRACTABLES EPA 8270

Client: ATEC Environmental Consultants

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

ESS Project ID: 921516

Client Sample ID: Stock-23

ESS Sample ID: 921516-03


Date Sample Received: 6/10/92

Date Reported: 6/26/92

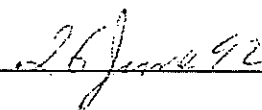
Parameter	Result (ug/Kg)	MRL
2-Chlorophenol	ND	330
2-Nitrophenol	ND	330
Phenol	ND	330
2,4-Dimethylphenol	ND	330
2,4-Dichlorophenol	ND	330
2,4-Dinitrophenol	ND	1,650
Pentachlorophenol	ND	1,650
4-Nitrophenol	ND	1,650
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	1,650
2-Methylphenol	ND	330
4-Methylphenol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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:


David Dickinson
Laboratory Director

Date:


26 June 92

Environmental Science Services

532 Amesbury Avenue, Amesbury, MA 01921

017



In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES EPA 8270

Client: ATEC Environmental Consultants

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

ESS Project ID: 921516

Client Sample ID: Stock-23

ESS Sample ID: 921516-03

Date Sample Received: 6/10/92

Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL
Acenaphthylene	ND	330
1,2,4-Trichlorobenzene	ND	330
Hexachlorobenzene	ND	330
Bis(2-chloroethyl) ether	ND	330
2-Chloronaphthalene	ND	330
1,2-Dichlorobenzene	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
3,3-Dichlorobenzidine	ND	660
2,4-Dinitrotoluene	ND	330
2,6-Dinitrotoluene	ND	330
Fluoranthene	5,470	330
4-Chlorophenyl phenyl ether	ND	330
Bis(2-chloroisopropyl) ether	ND	330
Bis(2-chloroethoxy) methane	ND	330
Hexachlorobutadiene	ND	330
Hexachlorocyclopentadiene	ND	330
Isophorone	ND	330
Naphthalene	ND	330
Nitrobenzene	ND	330
N-nitrosodiphenylamine	ND	330
N-nitrosodi-n-propylamine	ND	330
Bis(2-ethylhexyl) phthalate	ND	330
Di-n-butylphthalate	1,610	330
Di-n-octylphthalate	ND	330
Diethyl phthalate	ND	330
Dimethyl phthalate	ND	330
Benzo(a)anthracene	ND	330

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
Laboratory Director

Date: 26 June 92

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In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES cont. EPA 8270

Client: ATEC Environmental Consultants

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

ESS Project ID: 921516

Client Sample ID: Stock-23

ESS Sample ID: 921516-03

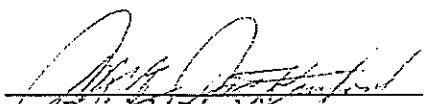
Date Sample Received: 6/10/92

Date Reported: 6/26/92

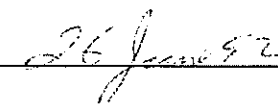
Parameter	Result (ug/Kg)	MRL
Benzo(a)pyrene	ND	330
Benzo(b)fluoranthene	1,590	330
Benzo(k)fluoranthene	ND	330
Chrysene	ND	330
Acenaphthene	ND	330
Anthracene	533	330
Benzo(ghi)perylene	ND	330
Fluorene	3,060	330
Phenanthrene	793	330
Dibenzo(a,h)anthracene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Pyrene	6,990	330
Hexachloroethane	ND	330
4-Bromophenyl-phenylether	ND	330
Benzyl Alcohol	ND	330
Benzoic Acid	ND	1,650
Bis(2-Chloroethoxy)methane	ND	330
4-Chloroaniline	ND	330
2-Methylnaphthalene	ND	330
2-Nitroaniline	ND	1,650
3-Nitroaniline	ND	330
Dibenzofuran	ND	330
4-Nitroaniline	ND	1,650
Butylbenzylphthalate	ND	330

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:


David Dickinson
Laboratory Director

Date:


26 June 92



In Response To The Future

CERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants Date Sampled: 6/8/92
Client Project ID: U.S. Army-Ft. Devens Date TCLP Performed: 6/18/92
Client Sample ID: Stock-23 Date Leachate Extracted: 6/19/92
ESS Sample ID: 921516-03 Date Extract Analyzed: 6/22/92

Target Analyte	Actual		Adjusted*	
	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.2	ND	0.3
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.02
Chromium	ND	0.05	ND	0.05
Lead	ND	0.1	ND	0.2
Mercury	ND	0.002	ND	0.003
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.05
Copper	0.08	0.02	0.08	0.02
Nickel	ND	0.04	ND	0.05
Zinc	0.12	0.02	0.14	0.03
Beryllium	ND	0.01	ND	0.02
Thallium	ND	0.05	ND	0.06

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
David Dickinson
Laboratory Director

Date: 26 June 92



In Response To The Future

CERTIFICATE OF ANALYSIS

TOTAL PETROLEUM HYDROCARBON-IR Method 418.1

Client: ATEC Environmental Consultants

Client Project ID: UST #23-Bldg 1429

ESS Project ID: 922379

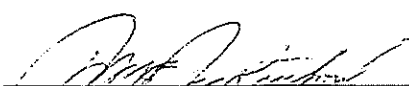
Date Samples Received: 9/8/92

Date Reported: 9/25/92

Client ID	Lab ID	Results	Units	MRL	% Solids
LRS-1	922379-01	ND	mg/Kg	10	96%
LRS-2	922379-02	264	mg/Kg	11	93
LRS-3	922379-03	ND	mg/Kg	11	91
LRS-4	922379-04	ND	mg/Kg	11	93
LRS-5	922379-05	64	mg/Kg	11	93
LRS-6	922379-06	ND	mg/Kg	11	95

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:


David Dickinson
Laboratory Director

Date:

25 Sep 1992

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In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS Method 8260

Client: ATEC Environmental Consultants

Client Project ID: UST #23-Bldg 1429

Client Sample ID: LRS-1

Date Sample Received: 9/8/92

ESS Project ID: 922379

ESS Sample ID: 922379-01

Date Reported: 9/25/92

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: David Dickinson
Laboratory Director

Date: 25 Sept 92

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In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS Method 8260

Client: ATEC Environmental Consultants

Client Project ID: UST #23-Bldg 1429

ESS Project ID: 922379

Client Sample ID: LRS-6

ESS Sample ID: 922379-06

Date Sample Received: 9/8/92

Date Reported: 9/25/92

Parameter	Result (ug/Kg)	MRL
Methylene Chloride	10	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: David Dickinson
Laboratory Director

Date: 25 Sep 1992

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In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

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

Client Sample ID: Stock-23

Date Sample Received: 6/10/92


ESS Project ID: 921516

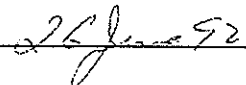
ESS Sample ID: 921516-03

Date Reported: 6/26/92

Parameter	Results	Units	MRL	Method
pH (Corrosivity)	4.0	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				
Fluoranthene	5,470	ug/Kg	Attached	8270
Di-n-butylphthalate	1,610	ug/Kg	Attached	8270
Benzo(b)fluoranthene	1,590	ug/Kg	Attached	8270
Anthracene	533	ug/Kg	Attached	8270
Fluorene	3,060	ug/Kg	Attached	8270
Phenanthrene	793	ug/Kg	Attached	8270
Pyrene	6,990	ug/Kg	Attached	8270
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Copper	0.08	mg/L	Attached	6010
Zinc	0.14	mg/L	Attached	6010

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: 
David Dickinson
Laboratory Director

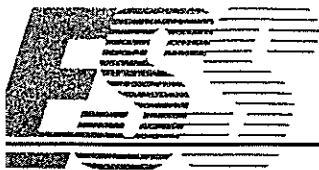
Date:  26 June 92

Environmental Science Services

532 Arwells Avenue, Providence, Rhode Island 02906

TEL: (401) 274-1111 FAX: (401) 274-1112

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In Response To The Future

CERTIFICATE OF ANALYSIS

VOA SOIL SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client

Project ID: UST #23 Bldg 1429

Date Sample Analyzed: 9/18/92


ESS

Project ID: 922379

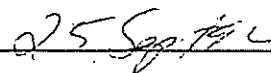
SAMPLE ID	1,2 DICHLOROETHANE-D4 (70-121%)*	TOLUENE-D8 (81-117%)*	BFB (74-121%)*
VS0918B1	94%	102%	100%
922379-01	96	94	100
922379-06	88	91	92

* Acceptance criteria

Approved by:


David Dickinson
Laboratory Director

Date:



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In Response To The Future

CERTIFICATE OF ANALYSIS **TCL VOLATILE ORGANICS**
Method 8260

Client: ATEC Environmental Consultants

Client Project ID: UST #23 Bldg 1429

Client Sample ID: Method Blank

Date Sample Received: N/A

ESS Project ID: 922379

ESS Sample ID: VS0918B1

Date Reported: 9/25/92

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: _____

David Dickinson
Laboratory Director

Date: _____

25 Sept 92

3.9 CHAIN OF CUSTODY FORMS

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

[illegible]

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

CHAIN OF CUSTODY RECORD

P.O. # 370172565

PROJ. NO. 37.07.451		PROJECT NAME FT. DEVENS - REMEDIATION CLIENT UST # 23 - BLDG. 1429										LAB PROJ. NO.		LABORATORY ANALYSIS										SAMPLE LOCATION / REMARKS
SAMPLERS: (Signature) <i>David P. Family</i>												VOLATILE ORGANICS BTX & E TOTAL HYDROCARBONS PCB'S E.P. TOXIC METALS TOTAL METALS (6) IGNITABILITY												
SAMPLING METHOD			COMPOSITE	GRAB	WATER	SOIL	FILTERED	ACIDIFIED	ICED	NUMBER OF CONTAINERS	LAB I.D. NUMBER													
SAMPLE I.D. NO.	DATE	TIME																						
LRS-1	9-8-92					X			X	3		X	X								UST # 23 BLDG. 1429			
LRS-2	"					X			X	1			X								"			
LRS-3	"					X			X	1			X								"			
LRS-4	"					X			X	1			X								"			
LRS-5	"					X			X	1			X								"			
LRS-6	"					X			X	3		X	X								"			
Relinquished by: (Signature) <i>David P. Family</i>			Date / Time 9-8-92 12:00		Received by: (Signature) <i>[Signature]</i>			Relinquished by: (Signature)			Date / Time		Received by: (Signature)											
Relinquished by: (Signature) C			Date / Time		Received for Laboratory by: (Signature) <i>[Signature]</i>			Date / Time		Project Manager / Phone #:														

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

3.10 HAZARDOUS WASTE MANIFEST

UST No. 0023 was estimated to contain approximately 368 gallons of No. 2 fuel oil. Approximately 348 gallons of fuel oil were removed on January 6, 1992, and transported to a licensed Transportation and Storage Disposal Facility (TSDF) (Beede Waste Oil Corporation). Approximately 20 gallons of No. 2 fuel oil and tank residuals were removed from the tank and placed in a 55-gallon drum on January 8, 1992. Tank residuals were transported to a licensed Cyn Environmental Services, Inc., Stoughton, MA, on June 5, 1992.

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

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

MA F353630 COPY>J: FACILITYMAILS TO DESTINATION STATE

3.11 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

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

Fee paid \$ N/A

Name and address of contractor

disposing tank A.T.E.C. Associates, 62 Accord Park Dr, Norwell, MA

Location to which tank will
be transported

This permit will expire 31 Jan 1992

Approved tank yard# 14901

James R. O'Neill Fire Chief
Signature of official granting permit (TITLE)
(Head of Fire Dept.)

C.02 3.46 M.O.L.

DIO SAFE NUMBER

8191 B016

Tank 23

31dg 1429

RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK

NAME AND ADDRESS JOHN C. TOMBARELLO & SONS
OF 207 MARSTON ST.
APPROVED TANK YARD 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 0 9 6

I certify under penalty of law I have personally examined the underground steel storage tank delivered to this "approved tank yard" by firm, corporation or partnership ATEC Env. and accepted same in conformance with Massachusetts Fire Prevention Regulation 502 CMR 3.00 Provisions for Approving Underground Steel Storage Tank dismantling yards. A valid permit was issued by LOCAL Head of Fire Department FDID# 12222 to transport this tank to this yard.

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

Monte CPO 1-24-92
SIGNATURE TITLE DATE SIGNED

This signed receipt of disposal must be returned to the local head of the fire department FD# 12222 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 Length
Tank 1 48 X 10
Tank 2 ----- X -----
Tank 3 ----- X -----
Tank 4 ----- X -----
Tank 5 ----- X -----
(feet) (feet)

Tank Removed From

Building 1429
(no. street)
Fort Devens MA
(city or town)

Fire Department
Permit #

(if applicable)

3.12 UST CLOSURE CHECKLIST

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

UST-CLOSURE O/C CHECK LIST		Tank 23 - Bldg 1429 Fort Devens		
1000 and No. 2 fuel				
DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
Calibrate PID & LEL/O2 meters	1/8/92	9:00		Site Topography: level slight (10-15')
Drain & flush piping & pumps	1/8/92	12:30		Grave approx 10' west S. adj. to Commissary
Excavate to top of tank	1/8/92	12:45		Depth to tank 2.5
Vent tank note LEL/O2 levels & times	1/8/92		LEL O2	
		T1: 1:15	0 20.9	
		T2: 1:30	0 20.9	
		T3: 1:45	0 20.9	
		T4: 2:00	0 20.9	
		T5: 2:15	0 20.9	
		T6:		
		T7:		
		T8:		
		T9:		
		T10:		
		T11:		
		T12:		
Pump & clean tank:	1/6/92		348 gal. liquid + 70 gal = 418 gal	Tank Dimensions: 12' x 12' x 12'
Note quantities liquid (gal) & sludge (lbs)	1/8/92		— lbs. sludge	
Remove all tank connections, and cap openings	1/8/92	12:30		
Excavate soils to free tank	1/8/92	12:45		
Segregate stained soils: Note PID readings (if >10 ppm NDIR also)	1/8/92		PID (ppm) NDIR (ppm)	visibly contaminated around tank segregated
			38.0	Fill-1
			22.0	stock-1
			29.0	stock-2

UST-CLOSURE O/C CHECK LIST				
DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
Remove tank, piping, pumps, and hardware.	1/8/92	1:00	Photographic Descriptions:	Soil Description: light brown fine sand
Photograph excavation; note descriptions.			Photo 1: tank	no gravel
Sketch Schematic			Photo 2: tank	
			Photo 3: excav S. Face N	
			Photo 4: excav N. Face S	
			Photo 5:	Depth to Groundwater/Conditions: N/A
			Photo 6:	
Place tank at safe distance from excavation	1/8/92	1:00		Depth of Excavation: 6.5'
Secure tanks transport off-site	1/8/92	3:00		
Obtain 10 soil samples from excavation walls/bottom: Note PID/NDIR readings and sample locations.	1/8/92	1:30	PID (ppm) NDIR (ppm)	Sample locations:
			SS1: 1.0	S wall
			SS2: 7.4	S wall
			SS3: 2.9	W wall
			SS4: 1.2	W wall
			SS5: 1.8	N wall
			SS6: 3.8	N wall
			SS7: 0.2	E wall
			SS8: 0.6	E wall
			SS9: 29.0	Bottom
			SS10: 14.8	Bottom
Obtain 2 soil samples & 1 water samples for laboratory analysis. Note sample locations.	1/8/92	1:30		Sample Locations:
				LSS1: SS7 closest to fill area
				LSS2: SS9
				LWS1:
				LSS3: composite stockpile

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

3.13 INSTALLATION

The installation of a replacement UST No. 0023 was not performed.

4.0 UST No. 0024

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. 0024, located at property known as Building 1435, Fort Devens, Massachusetts (the site). The purpose of the closure was to excavate the UST and evaluate the potential for the presence of oil and hazardous material at the site. The closure of this UST was conducted on January 9, and 10, 1992.

The basic Project Work Scope included:

- Procurement/administration of all federal, state and local permits, manifests, regulations, etc., associated with UST system closure.
- Excavating, venting, cleaning, transporting, and disposing of one 1,000-gallon UST by appropriately licensed contractors/facilities.
- Disposal of residual UST materials at a licensed facility.
- Field screening and analysis of soil 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 Subsurface Storage Tank Excavation and Removal

On January 9, and 10, 1992, one 1,000-gallon, subsurface, number 2 fuel oil storage tank was excavated and removed from the site. The UST was located adjacent to the southwest side of Building 1435 (see UST Location Plan, Figure 4.1). Site topography is relatively level. Surface cover at the site consisted of topsoil.

The tank was covered by approximately 1.5 feet of soil. The bottom of the excavation was approximately 5.5 feet below grade. Soils in the excavation consisted primarily of light to medium brown, fine sand with a trace of gravel. Soil staining was observed in soils in the vicinity of the fill neck. Soil within the excavation was also visibly contaminated. Groundwater was not encountered within the excavation.

The associated piping was drained and tank connections were removed. UST No. 0024 was estimated to contain approximately 34 gallons of No. 2 fuel oil and residual materials. Approximately 14 gallons of fuel oil were removed on January 6, 1992, and transported to a licensed Treatment Storage Disposal Facility (Beede Waste Oil Corporation, Plaistow, New Hampshire) for disposal. Approximately 20 gallons of residuals were removed and drummed on January 9, 1992 for transportation at a later date. Drummed material was transported to Cyn Environmental, Stoughton, MA, on June 5, 1992. Appropriate hazardous waste manifests are included in Section 4.10.

Tank openings were then capped and the tank was removed from the excavation. Upon excavation and removal, the tank was observed to be in slightly corroded with perforations. However, moderate corrosion was noted. 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 disposed at Tombarello & Sons, a licensed Massachusetts tank yard, located in Lawrence, MA, on January 24, 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 sidewalls at a depth of approximately 2 to 3 feet below grade. Two of the samples (SS-9 and SS-10) were obtained from the bottom of the excavation at a depth of approximately 5.5 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 west sidewall of the excavation in the vicinity of the fill pipe. Soil sample LSS-2 was obtained from the bottom of the excavation at a depth of approximately 5.5 below grade. One composite soil sample

(LSS-3) was obtained from stockpiled soils required to free the tank. These samples were TPH laboratory analyzed. Sampling locations are depicted on the Sampling Schematic, attached 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 in Table 4.1:

TABLE 4.1 - PID AND NDIR RESULTS

SAMPLE NUMBER	PID (ppm TOV)	NDIR (ppmTPH)
SS-1	1.4	77.9
SS-2	4.5	408.4
SS-3	5.3	992.7
SS-4	3.2	1,090.5
SS-5	7.5	986.7
SS-6	6.0	489.7
SS-7	1.2	128.1
SS-8	2.3	111.0
SS-9	200.0	3,838.8
SS-10	10.2	3,000.5
Stock-1	12.0	3,500.8
Stock-2	5.2	2,279.8

Laboratory analytical results of the two soil samples were obtained from the excavation revealed TPH concentrations of 4,430 ppm in LSS-1 and 3,380 ppm in LSS-2. Laboratory analysis of the soil sample LSS-3 obtained from the stockpiled soils revealed

a TPH concentration of 4,350 ppm. A copy of the laboratory results has been included in Section 4.8.

4.1.5 Conclusions and Recommendations

ATEC's conclusions are as follows:

Upon excavation and removal, the tank was observed to be in fair condition with no perforations. Moderate corrosion was noted.

Groundwater was encountered within the excavation.

Excavated soils required to free the tank appeared contaminated. Within the excavation, soils were also 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 1.2 ppm to 200 ppm. NDIR results revealed TPH concentrations ranging from 77.9 ppm to 3,838.8 ppm.

Two soil samples were obtained from the excavation for TPH laboratory analysis utilizing USEPA Method 418.1. Analytical results for LSS-1 obtained from the northwest wall of the excavation revealed a TPH concentration of 4,430 ppm. Analytical results for LSS-2 obtained from the excavation bottom revealed a TPH concentration of 3,380 ppm.

One composite stockpile soil sample (LSS-3) was obtained from stockpiled soils and was laboratory analyzed for TPH. Laboratory analytical results revealed a TPH concentration of 4,350 ppm.

Two composite soil samples (Stock-1 and Stock-2) were obtained from stockpiled soils for PID and NDIR screening. PID screening revealed TOV concentrations of 12.0 ppm and 5.2 ppm in Stock-1 and stock-2, respectively. NDIR analysis revealed TPH concentrations of 3,500.8 ppm and 2,279.8 in Stock-1 and Stock-2, respectively.

ATEC's recommendations are as follows:

Conduct remedial excavation of the 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 TPH, Volatile Organic Compounds (VOCs), Polychlorinated Biphenyls (PCBs), 13 Metals by Toxicity Leachate Characteristics Procedure (TCLP), Flashpoint, Corrosivity (pH), 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 Salvatore of

the Massachusetts Department of Environmental Protection (DEP). Approximately 2,527 tons of contaminated soil were removed from the excavation floor and sidewalls during remedial excavation on July 17, 1992. The estimated volume of soil removed was calculated from field drawings produced during the removal and remediation of UST No. 0024 (see Remedial Excavation Plan, Figure 4.3).

Four soil samples (RSS-1 to RSS-4) were obtained from the post-remedial excavation associated with UST No. 0024 for PID field screening. RSS-1 to RSS-3 were obtained from the sidewalls at a depth of approximately 8 feet below grade. RSS-4 was obtained from the excavation bottom at a depth of approximately 10 feet below grade. PID results revealed TOV concentrations ranging from 0.8 ppm to 50.0 ppm. NDIR analysis revealed TPH concentrations ranging from 23.8 ppm to 30.9 ppm (see Table 4.2).

TABLE 4.2 - PID AND NDIR RESULTS

SAMPLE NUMBER	PID (ppm TOVs)	NDIR (ppm TPH)	LOCATION
RSS-1	0.8	23.8	North sidewall
RSS-2	30.0	30.9	East sidewall
RSS-3	0.8	23.9	East sidewall
RSS-9	50.0	13.2	Excavation Bottom

Three soil samples (LRS-1 through LRS-3) were obtained for TPH laboratory analysis. Soil sample (LRS-1) was also laboratory analyzed for VOCs and 13 TCLP Metals. See Table 4.3, and Section 4.8, Laboratory Analytical Results.

TABLE 4.3 - LABORATORY ANALYSIS

SAMPLE NUMBER	TPH (ppm)	VOCs (ppb)	13 TCPL METALS (ppm)	LOCATION
LRS-1	78.0	97.0 ethyl benzene, 40.0 xylene	0.87 zinc, 0.13 copper	Bottom
LRS-2	1,330.0	N.A.	N.A.	Bottom
LRS-3	15.0	N.A.	N.A.	Bottom

LRS = Laboratory Remediation Sample

N.A.= Not Applicable

See Section 4.8 - Laboratory Analytical Results.

4.2.2 Soil Stratigraphy

From grade level to approximately 1 foot below grade, the soil in the excavation consisted primarily of dark-brown, loamy topsoil. From 1 foot, to approximately three feet below grade, soil in the excavation consisted primarily of rust-brown, fine sand. From three to 6.5 feet below grade surface, soil within the excavation consisted of light-brown, fine sand with trace gravel (see Figure 4.4 - Soil Stratigraphy)

4.2.3 Contaminated Soil Disposal

Approximately 168 tons of number 2 fuel oil contaminated soil were removed and stockpiled during UST removal and remediation of the excavation, as estimated through field drawings (see Remedial Excavation Plan, Figure 4.3). Contaminated soil was disposed for recycling at Trimount Bituminous Products Company, Shrewsbury, Massachusetts.

4.3 HYDROGEOLOGICAL SERVICES

Hydrogeological services were not conducted relative to UST No. 0024.

4.4 BACKFILL

The excavation was lined with polyethylene plastic sheeting and backfilled with approximately 180 tons of uncontaminated fill material, as estimated through field drawings. Backfilling was conducted with the approval of the Contracting Officer's Representative.

4.5 SITE RESTORATION

Following backfill of the excavation, approximately 196 square feet of loam was distributed over the excavated area. This estimate was also determined through field drawings.

4.6 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 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 1435
Fort Devens, Massachusetts

PROJECT: 37.07.451



A-3



A-4



PHOTO DOCUMENTATION

1,000 gallon UST excavation at:
Building 1435
Fort Devens, Massachusetts

PROJECT: 37.07.451



A-5



A-6



PHOTO DOCUMENTATION

1,000 gallon UST excavation at:
Building 1435
Fort Devens, Massachusetts

PROJECT: 37.04.91.0451



4.7 OCMA 220 DATA SHEETS

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

OCMA Data Sheet

Operator Name: K. C. Grewal

Date: 13 Jan 92

EBI Project Number: 37.C.4.

Feb 2, 1964

Calibration

	First Reading		Second Reading		Third Reading	
	Initial	Final	Initial	Final	Initial	Final
Zero Calibration	01.2	0.0	-0.7	0.0	-0.1	0.0
Span Calibration						
Zero Calibration						

Span Check: 31.1

Testing

[illegible]

8:00 - 12:00

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 0024

DATE: Jul 24, 1992
OPERATOR: Charles Langenhagen

CALIBRATION DATA

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

ANALYTICAL DATA

SAMPLE NUMBER	WEIGHT (g)		1st DILUTION RATIO (ml)		2nd DILUTION RATIO (ml)		INSTRUMENT RESULTS (ppm)			CONCENTRATION mg/l
	GROSS	TARE	F-113	SAMPLE	F-113	SAMPLE	1st	2nd	3rd	
SS-1A	<u>81.7</u>	<u>74.8</u>	<u>17.5</u>	<u>3.0</u>	<u>----</u>	<u>----</u>	<u>0.5</u>	<u>0.8</u>	<u>--</u>	<u>23.8</u>
SS-2A	<u>80.1</u>	<u>74.8</u>	<u>17.5</u>	<u>3.0</u>	<u>--</u>	<u>--</u>	<u>0.7</u>	<u>0.8</u>	<u>--</u>	<u>30.9</u>
SS-3A	<u>80.3</u>	<u>74.3</u>	<u>17.5</u>	<u>3.0</u>	<u>--</u>	<u>--</u>	<u>1.0</u>	<u>0.7</u>	<u>--</u>	<u>23.9</u>
SS-4A	<u>80.8</u>	<u>74.6</u>	<u>17.5</u>	<u>3.0</u>	<u>--</u>	<u>--</u>	<u>0.4</u>	<u>0.4</u>	<u>--</u>	<u>13.2</u>

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 0024

DATE: Jul 24, 1992

OPERATOR: Charles Langenhagen

CALIBRATION DATA

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

ANALYTICAL DATA

SAMPLE NUMBER	WEIGHT (g)		1st DILUTION RATIO (ml)		2nd DILUTION RATIO (ml)		INSTRUMENT RESULTS (ppm)			CONCENTRATION mg/l
	GROSS	TARE	F-113	SAMPLE	F-113	SAMPLE	1st	2nd	3rd	
RSS-2	<u>82.4</u>	<u>74.7</u>	<u>17.5</u>	<u>3.0</u>	<u>----</u>	<u>----</u>	<u>17.0</u>	<u>17.9</u>	<u>--</u>	<u>476.6</u>
RSS-3	<u>80.2</u>	<u>74.4</u>	<u>17.5</u>	<u>3.0</u>	<u>--</u>	<u>--</u>	<u>0.5</u>	<u>0.5</u>	<u>--</u>	<u>17.7</u>

4.8 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 and stockpile. Laboratory analyzed for TPH.
- RRS-1 and RRS-2: Soil samples obtained from post-remedial excavation. Laboratory analyzed for TPH, 13 TCLP Metals, and BTEX.
- Stock-24: Soil sample obtained from stockpiled soil for disposal classification. Laboratory analyzed for VOCs, Semi-volatiles, 13 TCLP Metals, PCBs, Reactive Sulfide, Reactive Cyanide, Flashpoint and Corrosivity (pH).

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

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

Client Sample ID: Stock-24

Date Sample Received: 6/10/92

ESS Project ID: 921516

ESS Sample ID: 921516-04

Date Reported: 6/26/92

Parameter	Results	Units	MRL	Method
pH (Corrosivity)	4.9	S.U.	N/A	9045
Flashpoint	No Flash	°F	200	1010
Polychlorinated Biphenyls	ND	mg/Kg	Attached	8080
Reactive Cyanide	ND	mg/Kg	2	7.3.3.2
Reactive Sulfide	ND	mg/Kg	2	7.3.4.1
Semivolatile Organics	ND	ug/Kg	Attached	8270
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Lead	0.3	mg/L	Attached	6010
Copper	0.03	mg/L	Attached	6010
Zinc	0.20	mg/L	Attached	6010

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:

David Dickinson
David Dickinson
Laboratory Director

Date:

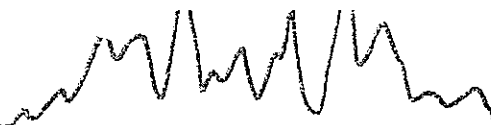
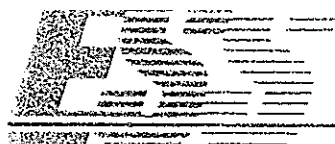
26 June 92

Environmental Science Services

532 Atwells Avenue, Providence, Rhode Island 02909 (401) 841-0385 Fax: (401) 841-5731

191 Post Road West, Westport, Connecticut 06881 (203) 226-7100 Fax: (203) 226-7101

022



In Reply, Please Refer to File No. 101-121-5731

CERTIFICATE OF ANALYSIS


Date: 1/17/92 Job: 101
Account: 95659
Received: 1/13/92

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

Project: TANK 24

ttn: Mr. Mark Baldi

Sample Number	Method Number	Parameter	Result	Unit	Sample Description
2010101	EPA-160.3	Total Solids	83	%	LSS-1
	EPA-418.1	TPH/IR (Dry Wt.)	4430	mg/kg	
2010102	EPA-160.3	Total Solids	84	%	LSS-2
	EPA-418.1	TPH/IR (Dry Wt.)	3380	mg/kg	
2010103	EPA-160.3	Total Solids	89	%	LSS-3
	EPA-418.1	TPH/IR (Dry Wt.)	4350	mg/kg	


David Dickinson
Laboratory Manager

age: 1

Environmental Science Services

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



CERTIFICATE OF ANALYSIS

POLYCHLORINATED BIPHENYLS Method 8080

Client: ATEC Environmental Consultants

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

ESS Project ID: 921516

Client Sample ID: Stock-24

ESS Sample ID: 921516-04

Date Sample Received: 6/10/92

Date Reported: 6/26/92

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

ND = Not Detected above Method Reporting Limit (MRL)

Surrogate Recovery Data	% Recovery	QC Limit
Dibutylchloroendate	81%	50 - 150%

Approved by:

David Dickinson
David Dickinson
Laboratory Director

Date:

26 June 92

Environmental Science Services

023

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

191 Post Road West, Westport, Connecticut 06880 (203) 231-2753 Fax: (203) 231-2997



In Response To The Future

CERTIFICATE OF ANALYSIS

ACID EXTRACTABLES EPA 8270

Client: ATEC Environmental Consultants

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

ESS Project ID: 921516

Client Sample ID: Stock-24

ESS Sample ID: 921516-04

Date Sample Received: 6/10/92

Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL*
2-Chlorophenol	ND	1,650
2-Nitrophenol	ND	1,650
Phenol	ND	1,650
2,4-Dimethylphenol	ND	1,650
2,4-Dichlorophenol	ND	1,650
2,4-Dinitrophenol	ND	8,250
Pentachlorophenol	ND	8,250
4-Nitrophenol	ND	8,250
2,4,6-Trichlorophenol	ND	1,650
2,4,5-Trichlorophenol	ND	8,250
2-Methylphenol	ND	1,650
4-Methylphenol	ND	1,650
4-Chloro-3-Methylphenol	ND	1,650
4,6-Dinitro-2-Methylphenol	ND	8,250

* Sample diluted due to matrix interference.

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____

David Dickinson
Laboratory Director

Date: _____

26 June 92

Environmental Science Services

024

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

191 Post Road West, Westport, Connecticut 06880 (203) 221-2755 Fax: (203) 434-4970



CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES EPA 8270

Client: ATEC Environmental Consultants

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

ESS Project ID: 921516

Client Sample ID: Stock-24

ESS Sample ID: 921516-04

Date Sample Received: 6/10/92

Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL*
Acenaphthylene	ND	1,650
1,2,4-Trichlorobenzene	ND	1,650
Hexachlorobenzene	ND	1,650
Bis(2-chloroethyl)ether	ND	1,650
2-Chloronaphthalene	ND	1,650
1,2-Dichlorobenzene	ND	1,650
1,3-Dichlorobenzene	ND	1,650
1,4-Dichlorobenzene	ND	1,650
3,3-Dichlorobenzidine	ND	3,300
2,4-Dinitrotoluene	ND	1,650
2,6-Dinitrotoluene	ND	1,650
Fluoranthene	ND	1,650
4-Chlorophenyl phenyl ether	ND	1,650
Bis(2-chloroisopropyl) ether	ND	1,650
Bis(2-chloroethoxy) methane	ND	1,650
Hexachlorobutadiene	ND	1,650
Hexachlorocyclopentadiene	ND	1,650
Isophorone	ND	1,650
Naphthalene	ND	1,650
Nitrobenzene	ND	1,650
N-nitrosodiphenylamine	ND	1,650
N-nitrosodi-n-propylamine	ND	1,650
Bis(2-ethylhexyl)phthalate	ND	1,650
Di-n-butylphthalate	ND	1,650
Di-n-octylphthalate	ND	1,650
Diethyl phthalate	ND	1,650
Dimethyl phthalate	ND	1,650
Benzo(a)anthracene	ND	1,650

* Sample diluted due to matrix interference.

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:

David Dickinson
David Dickinson
Laboratory Director

Date:

26 June 92

Environmental Science Services

025

532 Arwells Avenue, Providence, Rhode Island 02909 (401) 421-0251 Fax: (401) 421-5731

191 Post Road West, Westport, Connecticut 06880-2031 Tel: (203) 566-1200 Fax: (203) 431-1977

CERTIFICATE

BASE NEUTRAL EXTRACTABLES cont. EPA 8270

Client: ATEC Environmental Consultants

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

ESS Project ID: 921516

Client Sample ID: Stock-24

ESS Sample ID: 921516-04

Date Sample Received: 6/10/92

Date Reported: 6/26/92

Parameter	Result (ug/Kg)	MRL*
Benzo(a)pyrene	ND	1,650
Benzo(b)fluoranthene	ND	1,650
Benzo(k)fluoranthene	ND	1,650
Chrysene	ND	1,650
Acenaphthene	ND	1,650
Anthracene	ND	1,650
Benzo(ghi)perylene	ND	1,650
Fluorene	ND	1,650
Phenanthrene	ND	1,650
Dibenzo(a,h)anthracene	ND	1,650
Indeno(1,2,3-cd)pyrene	ND	1,650
Pyrene	ND	1,650
Hexachloroethane	ND	1,650
4-Bromophenyl-phenylether	ND	1,650
Benzyl Alcohol	ND	1,650
Benzoic Acid	ND	8,250
Bis(2-Chloroethoxy)methane	ND	1,650
4-Chloroaniline	ND	1,650
2-Methylnaphthalene	ND	1,650
2-Nitroaniline	ND	8,250
3-Nitroaniline	ND	1,650
Dibenzofuran	ND	1,650
4-Nitroaniline	ND	8,250
Butylbenzylphthalate	ND	1,650

* Sample diluted due to matrix inteference.

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:

David Dickinson
David Dickinson
Laboratory Director

Date:

26 June 92

Environmental Science Services

532 Atwell Avenue, Rockingham, NH 03086

100 West Road, Milford, NH 03055

026

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS Method 8240

Client: ATEC Environmental Consultants

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

ESS Project ID: 921516

Client Sample ID: Stock-24

ESS Sample ID: 921516-04

Date Sample Received: 6/10/92

Date Reported: 6/26/92

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:

David Dickinson
David Dickinson
Laboratory Director

Date:

26 June 92

Environmental Science Services

532 Ansel Avenue, Providence, Rhode Island 02908

191 Post Road West, Westport, MA 01886

027

CERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants Date Sampled: 6/8/92
 Client Project ID: U.S. Army-Ft. Devens Date TCLP Performed: 6/18/92
 Client Sample ID: Stock-24 Date Leachate Extracted: 6/19/92
 ESS Sample ID: 921516-04 Date Extract Analyzed: 6/22/92

Target Analyte	Actual		Adjusted*	
	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.2	ND	0.3
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.02
Chromium	ND	0.05	ND	0.05
Lead	0.2	0.1	0.3	0.2
Mercury	ND	0.002	ND	0.003
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.05
Copper	0.03	0.02	0.03	0.02
Nickel	ND	0.04	ND	0.05
Zinc	0.18	0.02	0.20	0.03
Beryllium	ND	0.01	ND	0.02
Thallium	ND	0.05	ND	0.06

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
 Laboratory Director

Date: 26 June 92

Environmental Science Services

028

532 Atwells Avenue, Providence, Rhode Island 02909

191 Post Road West, Westport, Connecticut 06881

Client: ATEC Environmental Consultants

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

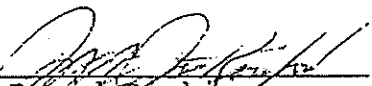
Client Sample ID: RSS-1 (24) ESS Sample ID: 921907-03

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

Parameter	Results	Units	MRL	Method
Volatile Organics	ND	ug/Kg	Attached	8240
Total Petroleum Hydrocarbon-IR	ND	mg/Kg	10	418.1
Toxicity Characteristic Leaching Procedure				1311
Metals				
Zinc	0.11	mg/L	Attached	6010

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:


David Dickinson
Laboratory Director

Date:

6 Aug 92

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

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


Client Sample ID: RSS-1 (24) ESS Sample ID: 921907-03

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

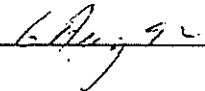
Parameter	Result (ug/Kg)	MRL
Benzene	ND	5
Toluene	ND	5
Ethyl Benzene	ND	5
Xylenes (Total)	ND	10

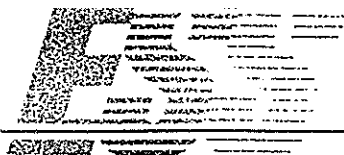
ND = Not Detected above Method Reporting Limit (MRL)

Approved by:


David Dickinson
Laboratory Director

Date:





In Response To The Request

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

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

Client Sample ID: RSS-2 (24) ESS Sample ID: 921907-04

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

Parameter	Results	Units	MRL	Method
Volatile Organics	ND	ug/Kg	Attached	8240
Total Petroleum Hydrocarbon-IR	10,800	mg/Kg	114	418.1
Toxicity Characteristic Leaching Procedure Metals	ND	mg/L	Attached	1311 6010

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
David Dickinson
Laboratory Director

Date: 8/6/92

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

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

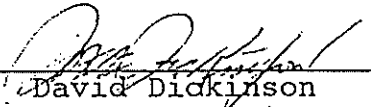
Client Sample ID: RSS-2 (24) ESS Sample ID: 921907-04

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

Parameter	Result (ug/Kg)	MRL
Benzene	ND	5
Toluene	ND	5
Ethyl Benzene	ND	5
Xylenes (Total)	ND	10

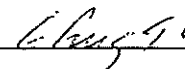
ND = Not Detected above Method Reporting Limit (MRL)

Approved by:


David Dickinson

Laboratory Director

Date:


6 Aug 92



In Response To The Future

CERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants Date Sampled: 7/23/92
Client Project ID: Ft. Devens Remediation Date TCLP Performed: 7/27/92
Client Sample ID: RSS-1 (24) Date Leachate Extracted: 7/28/92
ESS Sample ID: 921907-03 Date Extract Analyzed: 7/29/92

Target Analyte	Actual		Adjusted*	
	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	0.2
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	0.09
Copper	ND	0.02	ND	0.02
Nickel	ND	0.04	ND	0.04
Zinc	0.09	0.02	0.11	0.03
Beryllium	ND	0.02	ND	0.04
Thallium	ND	0.3	ND	0.6

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____

David Dickinson
Laboratory Director

Date: _____

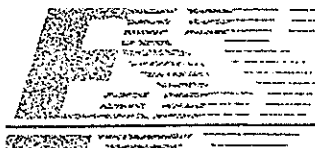
6 Aug 92

Environmental Science Services

015

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 Date Sampled: 7/23/92

Client Project ID: Ft. Devens Remediation Date TCLP Performed: 7/27/92

Client Sample ID: RSS-2 (24)

Date Leachate Extracted: 7/28/92

ESS Sample ID: 921907-04

Date Extract Analyzed: 7/29/92

Target Analyte	Actual		Adjusted*	
	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	0.2
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	0.09
Copper	ND	0.02	ND	0.02
Nickel	ND	0.04	ND	0.04
Zinc	ND	0.02	ND	0.03
Beryllium	ND	0.02	ND	0.04
Thallium	ND	0.3	ND	0.6

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
Laboratory Director

Date: 6 Aug 92

4.9 CHAIN OF CUSTODY FORMS

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

[illegible]

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

CHAIN OF CUSTODY RECORD

[illegible]

CHAIN OF CUSTODY RECORD

PROJ. NO. 17-07451		PROJECT NAME FT. SEVENS - REMEDIATION										LAB PROJ. NO.		LABORATORY ANALYSIS										SAMPLE LOCATION / REMARKS
CLIENT UST # 13, 24, 25, 26, 56, 58		SAMPLERS: (Signature) <i>Craig D. Foully</i>																						
SAMPLING METHOD		COMPOSITE	GRAB	WATER	SOIL	FILTERED	ACIDIFIED	ICED	NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS BTX & E	TOTAL HYDROCARBONS PBB'S 5-VOA	EP. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY 13 TCCP									
SAMPLE I.D. NO.	DATE															TIME								
RSS-1 (13)	7-23-92		X		X				Y	18		X	X	X	X	BLDG. 204								
RSS-2 (13)	"		Y		X				X	4		X	X		X	"								
RSS-1 (24)	7-23-92		X		X				X	4		X	X		X	BLDG. 1435								
RSS-2 (24)	"		X		X				X	4		X	X		X	"								
RSS-1 (25)	7-20-92		X		X				X	1		X				BLDG. 1515								
RSS-2 (25)	"		Y		X				X	1		X				"								
RSS-1 (26)	7-21-92		X		X				X	2		X				BLDG. 1566								
RSS-2 (26)	"		X		X				Y	2		X				"								
RSS-1 (56)	7-21-92		X		X				X	4		X	X		X	BLDG. 3587								
RSS-2 (56)	"		X		X				X	4		X	X		X	"								
RSS-1 (58)	7-22-92		X		X				X	4		X	X		X	BLDG. 3713								
RSS-2 (58)	7-22-92		Y		X				X	4		X	X		X	"								
Relinquished by: (Signature) <i>Craig D. Foully</i>		Date / Time 7-23-92 4:30		Received by: (Signature) <i>Kirk C. Rowe</i>		Relinquished by: (Signature)		Date / Time		Received by: (Signature)														
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Project Manager / Phone #:																

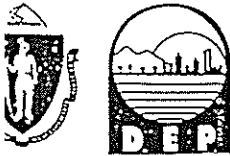
Division of ATEC Associates, Inc.
62 Accord Park Drive
Norwell, MA 02061
(617) 878-6200



4.10 HAZARDOUS WASTE MANIFEST

UST No. 0024 was estimated to contain approximately 34 gallons of No. 2 fuel oil and residual materials. Approximately 14 gallons of fuel oil were removed on January 6, 1992, and transported to a licensed Treatment Storage Disposal Facility (Beede Waste Oil Corporation, Plaistow, New Hampshire) for disposal. Approximately 20 gallons of residuals were removed and drummed on January 9, 1992 for transportation at a later date. Drummed material was transported to Cyn Environmental, Stoughton, MA, on June 5, 1992.

The following Hazardous Waste Manifest was generated from residual tank materials.



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

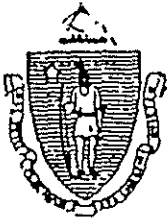
se print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA 72110021511541010001		Manifest Document No. FD600		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) 796-3002		5. Transporter 1 Company Name Beede Waste Oil Corp.		6. US EPA ID Number NH 018958140		7. State Manifest Document Number MA 353630	
7. Transporter 2 Company Name		8. US EPA ID Number		9. Designated Facility Name and Site Address Beede Waste Oil Corp. Kelley Road PO Box 127 Plaistow, NH 03865		10. US EPA ID Number NH 018958140		11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	
a.		b.		c.		d.		12. Containers	
WASTE PETROLEUM OILS, N.O.S.		COMBUSTIBLE LIQUID NA1270						13. Total Quantity 2290	
								14. Unit G	
								15. Waste No.	
								16. Handling Codes for Wastes Listed Above	
								17. Date	
								18. Date	
								19. Date	
								20. Date	

MA F353630 COPY 1: FACILITY MAINTS TO DESTINATION STATE

4.11 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

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
Fee paid \$ N/A

Name and address of contractor

disposing tank ATEC Associates, 62 Accord Park Dr, Norwell

Location to which tank will
be transported

MA

This permit will expire 31 Jan 1992

Approved tank yard# 14901

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

15412-10
102 B.46 M.O.L.
DIG SAFE NUMBER
92020505
SHR1018 1/9/92

Tank 24
Building 1435

RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK

NAME AND ADDRESS JOHN C. TOMBARELLO & SONS
OF 207 MARSTON ST.
APPROVED TANK YARD 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 0 9 9

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

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

Maranto CPW 1-24-92
SIGNATURE TITLE DATE SIGNED

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

FORM F.P. 291 (rev. 9/88)

(OVER)

MASSACHUSETTS STATE FIRE MARSHAL'S OFFICE

DIMENSIONS

Width Length

Tank 1 48 X 10

Tank 2 ----- X -----

Tank 3 ----- X -----

Tank 4 ----- X -----

Tank 5 ----- X -----

(feet) (feet)

Tank Removed From

Building 1435
(no. street)

Fort Devens, MA
(city or town)

Fire Department

Permit # _____
(if applicable)

4.12 UST CLOSURE CHECKLIST

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

UST-CLOSURE O/C CHECK LIST		UST No. 24 - Bldg 1435 Fuel Drums			
1000 gal No. 2 Fuel					
DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS		NOTES
Calibrate PID & LEL/O2 meters	1/9/92	8:30			Site Topography: Level
Drain & flush piping & pumps	1/9/92	8:30			
Excavate to top of tank	1/9/92	9:00			Depth to tank: 1.5'
Vent tank note LEL/O2 levels & times	1/10/92		LEL	O2	Volatiles - gasoline in tank & inert w/ Dry Ice in
		T1: 11:05	0.9%	11.5%	
		T2: 11:15	0.9%	11.5%	
		T3: 11:20	0.9%	11.5%	
		T4: 11:45	0.9%	11.5%	
		T5: 11:55	0.9%	10.9%	
		T6: 12:15	0.9%	10.9%	
		T7:			
		T8:			
		T9:			
		T10:			
		T11:			
		T12:			
Pump & clean tank:	1/6/92		___ gal. liquid + 20 gal		Tank Dimensions: 4' x 10.5'
Note quantities liquid (gal) & sludge (lbs)	1/9/92	12:00	___ lbs. sludge		
Remove all tank connections, and cap openings	1/9/92	15:00			
Excavate soils to free tank	1/9/92	10:00			
Segregate stained soils: Note PID readings (if >10 ppm NDIR also)	1/10/92	7:30	PID (ppm)	NDIR (ppm)	
			11.0		
			5.2		
All soils required to remove tank visibly & affect contaminated					

4.13 INSTALLATION

The installation of a replacement UST No. 0024 was not performed.

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)