Technical Report
Volume 7
Underground Storage Tank Closure
UST Nos. 0032 - 0034
Fort Devens, Massachusetts

ATEC File: 37.07.91.00451
Contract No. DAK31-91-D-00015

Prepared for:

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

Attn: Ms. Elizabeth Castiotta,
Contract Specialist

December 18, 1992

UST 92125 ATEC

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December 18, 1992

Ms. Elizabeth Castriotta, Contract Specialist
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RE: Technical Report, Volume 7
Underground Storage Tank Closure
UST Nos. 0032 - 0034
Fort Devens, Massachusetts
ATEC File: 37.07.91.00451

Ms. Castriotta:

Attached is Volume 7 of the Technical Report by ATEC Associates, Inc. (ATEC), detailing the closure of three Underground Storage Tanks (USTs) referenced as UST Nos. 0032 - 0034, located at Fort Devens, Massachusetts (the site). The Technical Report covers work conducted under Contract No. DAKF31-91-D-00015 as part of Removal of Underground Storage Tanks in the New England Area, US Army Project No. EQ-19027-9P.

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

Sincerely,

ATEC Associates, Inc.

Mark E. Baldi
Project Manager

Greg A. Mischel
Senior Project Manager

Marta J. Nover
Associate and
Division Manager

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UNDERGROUND STORAGE TANK INDEX (Volume 7)

UST No.	SIZE (gal)	PRODUCT	LOCATION
0032	1,000	No. 2 Fuel Oil	Building 2432, Fort Devens, MA
0033	1,000	No. 2 Fuel Oil	Building 2434, Fort Devens, MA
0034	1,000	No. 2 Fuel Oil	Building 2447, Fort Devens, MA

TECHNICAL REPORT
Volume 7
UST Nos. 0032 - 0034

United States Army
Fort Devens, Massachusetts
ATEC Project No. 37.07.91.00451

25.0 INTRODUCTION

This volume (Volume 7) of the Technical Report details the removal of three Underground Storage Tank (USTs) referenced as UST Nos. 0032 - 0034 at Building 2432, Building 2434 and Building 2447 located at Fort Devens, Massachusetts (the site). The Technical report covers work conducted under Contract No. DAKF31-91-D-00015 as part of "Removal of Underground Storage Tanks in the New England Area", US Army Project No. EQ-19027-9P.

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

- Excavation and removal of sixty-nine USTs at various buildings located at Fort Devens, Massachusetts.
- Remedial excavation, if required, and disposal of contaminated soil.
- Hydrogeological services to include installation of monitoring wells, sampling and analysis of soil/ground water, 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.

26.0 UST No. 0032

26.1 POST REMOVAL REPORT

26.1.1 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. 0032, located at property known as Building 2432, 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 14, 1992.

The basic Project Work Scope included:

- Procurement/administration of all federal, state and local permits, manifests, regulations, etc., associated with UST system closure.

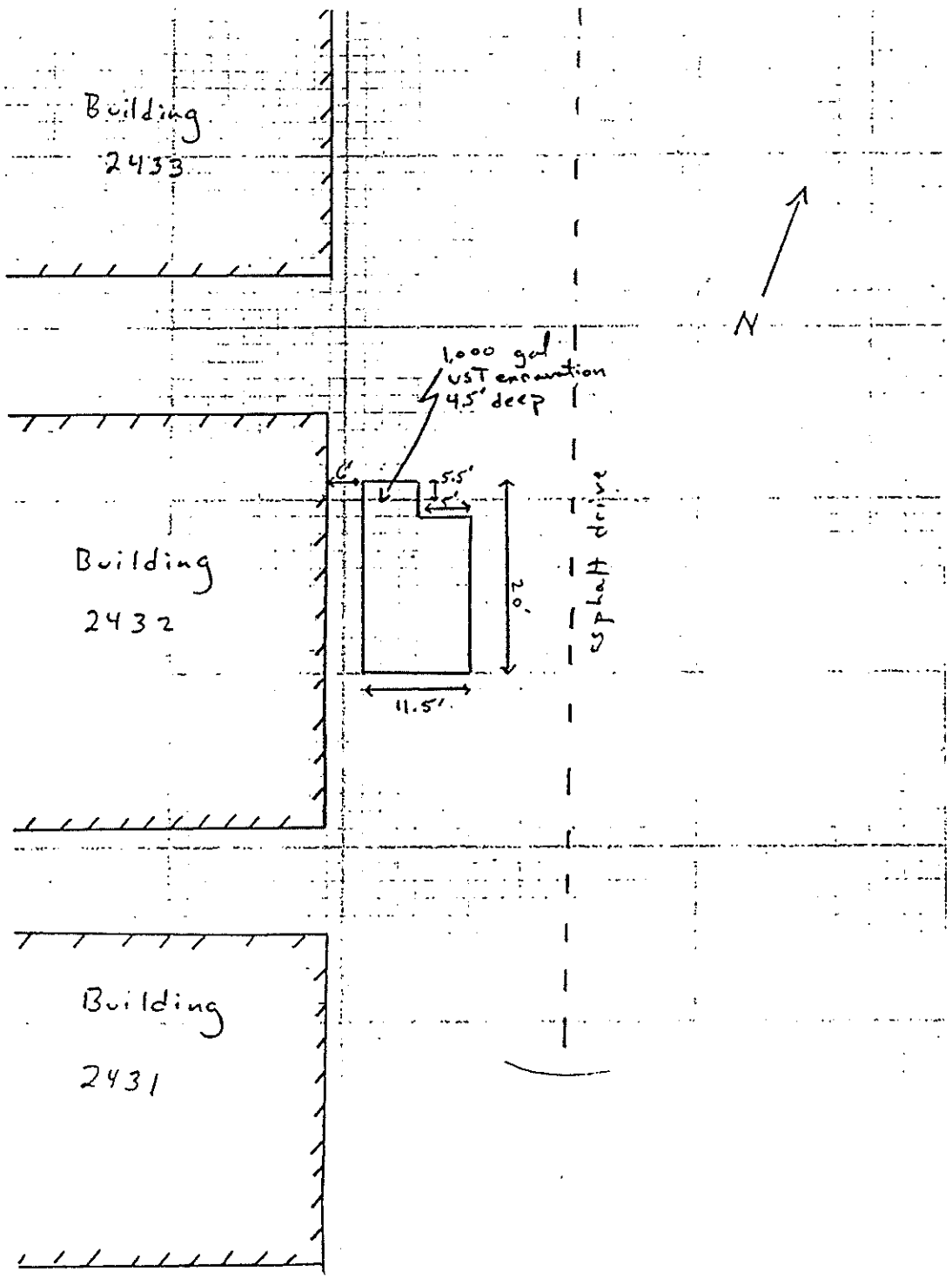
- Excavating, venting, cleaning, transporting, and disposing of one 1,000-gallon UST by appropriately licensed contractors/facilities.

- 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 a release of oil and hazardous materials from the UST, if any.

- Laboratory Analysis of soil and groundwater sampled from the UST excavation by a USEPA certified laboratory for Total Petroleum Hydrocarbons (USEPA Method 418.1)

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



UST LOCATION PLAN

1,000 gallon UST relative to:
Building 2432
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

NOT TO SCALE

FIGURE: 26.1

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26.1.2 Subsurface Storage Tank Excavation and Removal

On January 14, 1992, one 1,000-gallon, subsurface, No. 2 fuel oil, storage tank was excavated and removed from the site. The UST was located adjacent to the east side of the Building 2432. Site topography slopes gently downgradient to the southeast.

Soils in the excavation consisted primarily of medium brown, fine sand and silt with some cobbles, and boulders. The tank was covered by approximately six inches of soil. The bottom of the excavation was approximately four feet, six inches below grade. Groundwater was not encountered. All excavated soils required to free the tank were visibly contaminated. Some staining of soils within the excavation was also observed.

The associated piping was drained and tank connections were removed. UST No. 0032 was estimated to contain fifteen gallons of No. 2 fuel oil and residual materials. The fuel oil and residual materials were removed and drummed on January 14, 1992 for transportation. Drummed material was transported to a licensed Transportation Storage Disposal Facility (T.S.D.F.), Beede Waste Oil Corporation, on February 27, 1992. See Section 26.10 for copies of the appropriate Hazardous Waste Manifests.

Tank openings were capped and the tank was removed from the excavation. Upon excavation and removal, the tank was observed to be in fair condition with no holes or perforations. The tank was observed to be moderately rusted, and some cracking and chipping of the asphalt coating 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 removed from the site on January 14, 1992 and transported to the Contractor's yard, located on Lake George Street, Fort Devens for temporary storage. The tank was disposed of at Tombarello & Sons, a licensed Massachusetts tank yard, on January 28, 1992. A copy of the disposal receipt is included in Section 26.12, Permits and Certifications.

26.1.3 Sampling and Analysis Plan

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

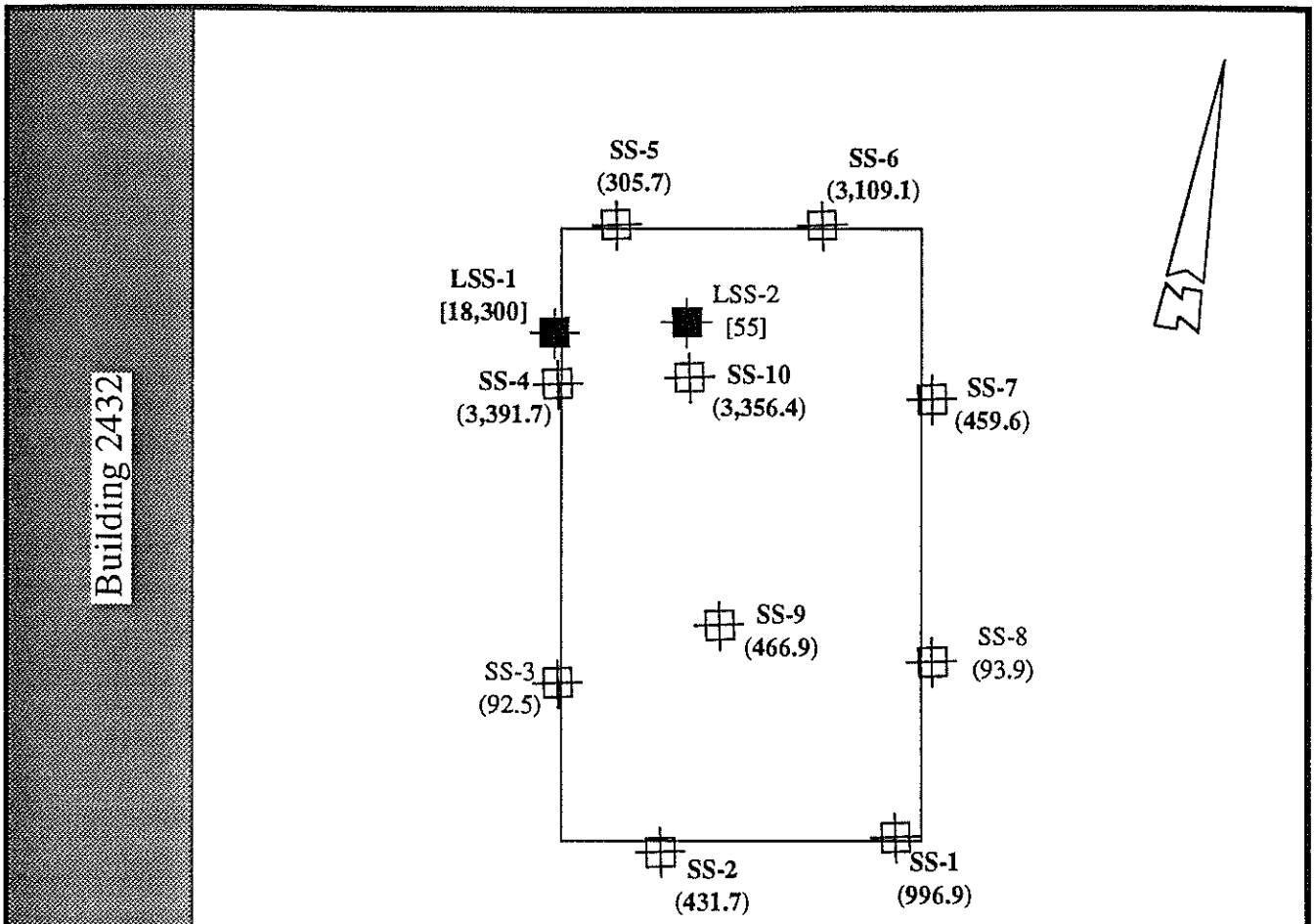
Eight of the samples (SS-1 to SS-8) were obtained from the excavation walls at a depth of approximately two to three feet below grade. Two of the samples (SS-9 and SS-10) were obtained from the bottom of the excavation at a depth of approximately four feet, six inches below grade. Two composite soil 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 northwest wall of the excavation. Soil sample LSS-2 was obtained from the bottom of the excavation. One composite, soil sample (LSS-3) was obtained from stockpiled soils required to free the tank. These samples were analyzed for TPH utilizing USEPA Method 418.1.

Sampling locations are depicted on the Sampling Schematic attached as Figure 26.2. The appropriate chain of custody forms are included in Section 26.9, Chain of Custody Forms.

26.1.4 Analytical Results

The results from analysis with the Photoionization Detector (PID) and the Non-Dispersive Infrared (NDIR) Analyzer of the ten soil samples obtained from the excavation, and the two composite samples obtained from stockpiled soil are as follows:



LEGEND:

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

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

SAMPLING SCHEMATIC

1,000 gallon UST excavation at:
Building 2432
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

NOT TO SCALE

FIGURE: 26.2 UST-32

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TABLE 26.1 - PID AND NDIR RESULTS

Sample No.	PID (ppm TOVs)	NDIR (ppm TPH)
SS-1	12.4	996.9
SS-2	18.2	431.7
SS-3	0.8	92.5
SS-4	102	3,391.7
SS-5	11.0	305.7
SS-6	40.0	3,109.1
SS-7	15.4	459.6
SS-8	15.2	93.9
SS-9	7.0	466.9
SS-10	42	3,356.4
Stock-1	24.0	526.3
Stock-2	25.0	836.8

Laboratory analytical results of the two soil samples obtained from the excavation revealed TPH concentrations of 18,300 ppm for LSS-1, and 55 ppm for LSS-2. Laboratory analysis of the one soil sample obtained from the stockpiled soils revealed a TPH concentration of 5,180 ppm for LSS-3. (See Section 26.8, Laboratory Analytical Results).

26.1.5 Conclusions and Recommendations

ATEC's conclusions are as follows:

Upon excavation and removal, the tank was observed to be moderately corroded with no holes or perforations. Some cracking and chipping of the asphalt coating was noted.

Groundwater was not encountered within the excavation.

Excavated soils required to free the tank were visibly contaminated. Some staining of soils within the excavation was also observed.

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 0.8 ppm to 102 ppm. NDIR results revealed TPH concentrations ranging from 92.5 ppm to 3,391.7 ppm.

Two soil samples were obtained from the excavation for laboratory analysis for TPH. Analytical results for LSS-1 obtained from the northwest wall of the excavation revealed a TPH concentration of 18,300 ppm. Analytical results for LSS-2 obtained from the bottom of the excavation revealed a TPH concentration of 55 ppm.

One composite, soil sample (LSS-3) was obtained from stockpiled soils for laboratory analysis. Analytical results for LSS-3 revealed a TPH concentration of 5,180 ppm.

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

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

Soil borings were advanced and groundwater monitoring wells were installed to determine the vertical and horizontal extent of contamination. Split spoon sampling and analysis was conducted utilizing field analysis techniques, i.e. Photoionization Detector and Non-Dispersive Infrared Analysis, and laboratory analysis to document soil contamination levels.

Additional excavated soils and stockpiled soils were laboratory analyzed for Total Petroleum Hydrocarbons, Volatile Organic Compounds, PCBs, Semivolatile Organic Compounds, 13 TCLP Metals, flashpoint, sulfide reactivity, cyanide reactivity, and corrosivity for disposal classification.

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

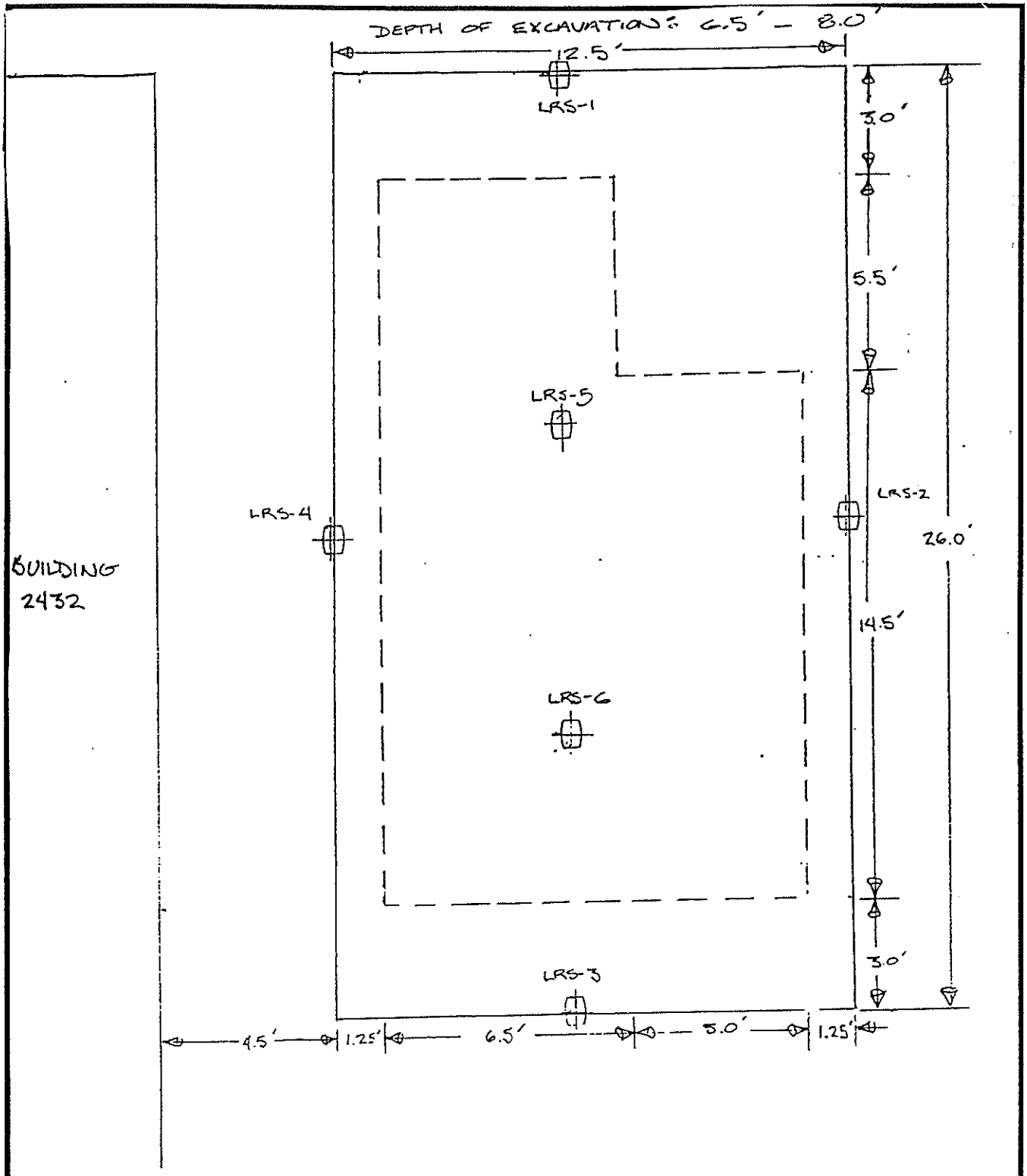
26.2 SITE REMEDIATION AND CONTAMINED SOIL DISPOSAL

26.2.1 Site Remediation

Following initial PID screening, additional excavation to remove contaminated soil and reach background levels by (<1 ppm TOVs) by PID was conducted per order of the Contracting Officer's Representative and David Salvadore of the Massachusetts Department of Environmental Protection (DEP). Approximately 103 tons of contaminated soil were removed from the excavation floor and all sidewalls during remedial excavation on July 23, 1992 (see Remedial Excavation Plan, Figure 26.3).

Six soil samples (RSS-1A through RSS-6A) were obtained following the removal of one foot of soil from the excavation sidewalls and at the bottom of the excavation. Four soil samples (RSS-1A to RSS-4A) were obtained from the sidewalls at a depth of approximately five feet below grade. Two soil samples (RSS-5A and RSS-6A) were obtained from the bottom of the excavation at a depth of six feet, six inches. PID results ranged from 20.0 to 130.0 ppm (see Table 26.2).

Following the removal of an additional one foot of soil, four soil samples (RSS-1B, RSS-2B, RSS-5B and RSS-6B) were obtained from the excavation side walls and at the bottom of the excavation. There were no soil samples taken on the south and east walls due to obstructions. RSS-1 and RSS-2 were obtained from the side walls at a depth of approximately six feet, six inches below grade. RSS-5B and RSS-6B were obtained from the bottom of the excavation at a depth of eight feet. Final PID results ranged from 1.0 ppm to 7.0 ppm (see Table 26.2).



REMEDIAL EXCAVATION PLAN

1,000 gallon UST relative to:
Building 2432
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

UST 32

FIGURE: 26.3

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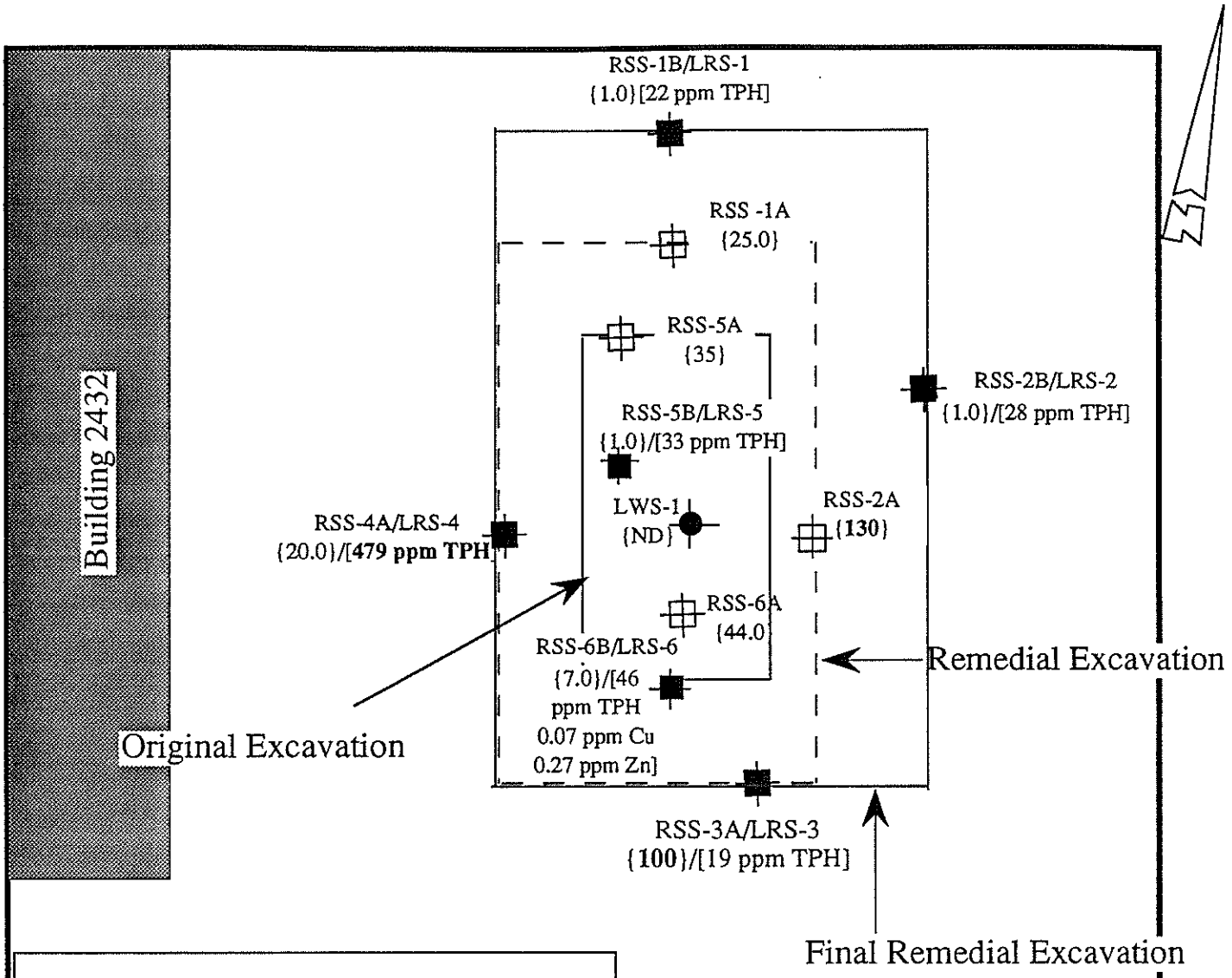
TABLE 26.2 - PID SCREENING RESULTS

Sample No.	PID (TOVs in ppm)	Location
RSS-1A	25.0	N. side wall (5' B.G.)
RSS-2A	130.0	E. side wall (5' B.G.)
RSS-3A	100.0	S. side wall (5' B.G.)
RSS-4A	20.0	W. side wall (5' B.G.)
RSS-5A	35.0	Bottom (6.5' B.G.)
RSS-6A	44.0	Bottom (6.5' B.G.)
RSS-1B	1.0	N. side wall (6.5' B.G.)
RSS-2B	1.0	E. side wall (6.5' B.G.)
RSS-3B	(obstruction)	S. side wall (6.5' B.G.)
RSS-4B	(obstruction)	W. side wall (6.5' B.G.)
RSS-5B	1.0	Bottom (8' B.G.)
RSS-6B	7.0	Bottom (8' B.G.)

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

Six soil samples (LRS-1 through LRS-6) and one water sample (LWS-1) were obtained for laboratory analysis for Total Petroleum Hydrocarbons. LRS-1 to LRS-4 obtained from sidewalls at a depth of approximately 6' below grade. LRS-5 and LRS-6 were obtained from the bottom of the excavation. Two soil samples (LRS-2 and LRS-6) were obtained for Volatile Organic Compounds, Total Petroleum Hydrocarbons, 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP).



LEGEND

- Field Screened Soil Sample
- Lab Analyzed Soil Sample
- { } TOV concentration (by PID) in ppm
- [ ] TPH, TCLP Metal, VOC concentrations, by Lab, (as applicable)

Results in bold denote TPH levels greater than the remedial goal of 100 ppm TPH

REMEDIAL SAMPLING SCHEMATIC

1,000 gallon UST excavation at:
Building 2432
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

NOT TO SCALE

FIGURE: 26.4 UST-32

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The following table contained levels revealed by laboratory analysis: (See Figure 26.4 - Remedial Excavation Sampling Schematic.)

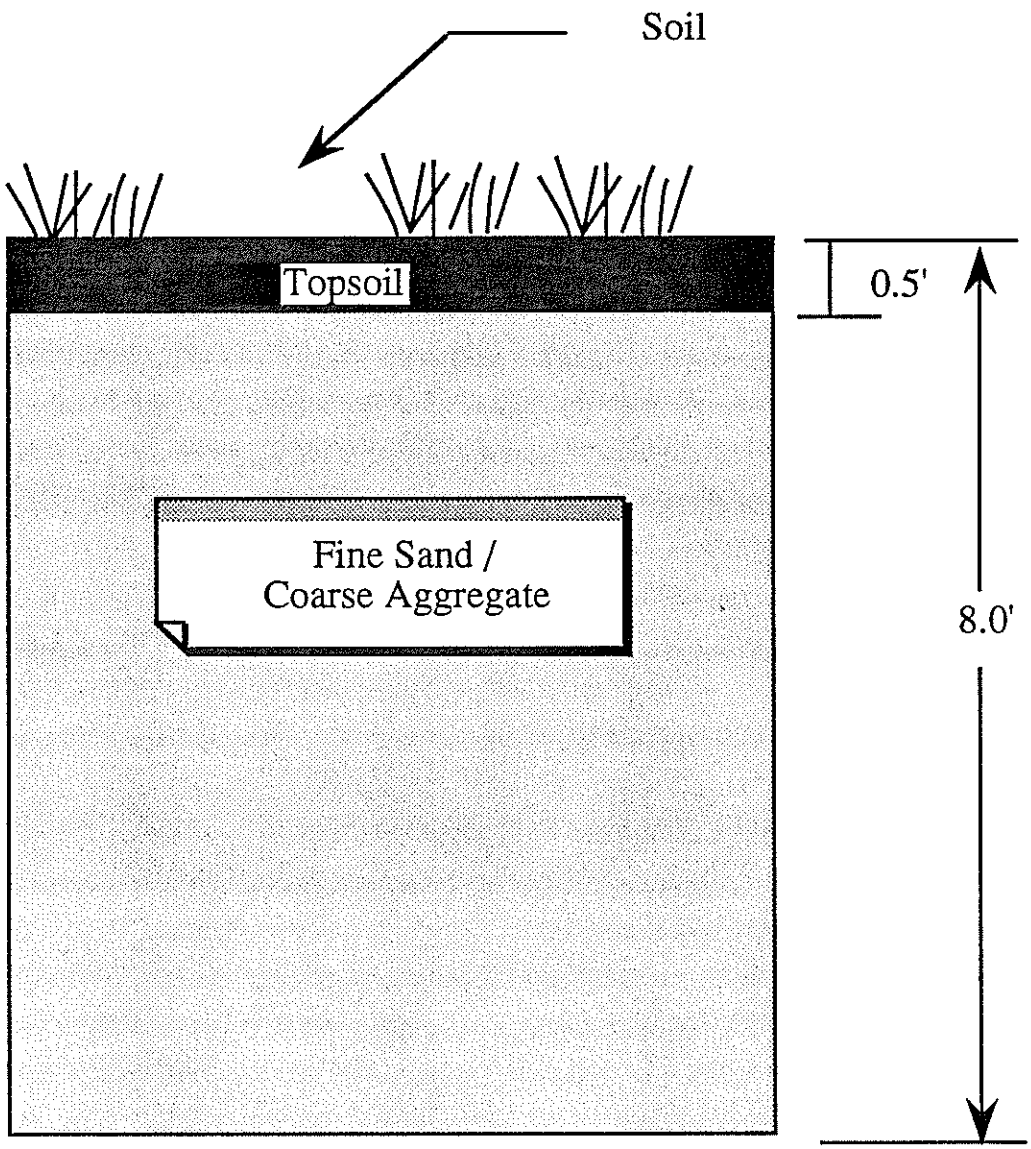
TABLE 26.3 - LABORATORY ANALYSIS

Sample No.	TPH (ppm)	VOA (ppb)	13 TCLP Metals(ppm)	Location
LRS-1	22	NA	NA	N. side wall (6' B.G.)
LRS-2	28	ND	ND	E. side wall (6' B.G.)
LRS-3	19	NA	NA	S. side wall (6' B.G.)
LRS-4	479	NA	NA	W. side wall (6' B.G.)
LRS-5	33	NA	NA	Bottom (8' B.G.)
LRS-6	46	ND	0.07 (Cu) 0.27 (Zn)	Bottom (8' B.G.)
LWS-1	ND	NA	NA	Bottom (8' B.G.)

LRS = Laboratory Remediation Sample
LWS = Laboratory Water Sample
ND = Not Detected above the Method Reporting Limit
NA = Not Applicable
B.G. = Below Grade

26.2.2 Soil Stratigraphy

The soil stratigraphy of the excavation consisted entirely of fine sand mixed with coarse aggregate to a depth of approximately 8' below grade (see Figure 26.5, Soil Stratigraphy).



SOIL STRATIGRAPHY

1,000 gallon UST excavation at:
Building 2432
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

UST -32

FIGURE 26.5

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26.2.3 Contaminated Soil Disposal

Prior to disposal, contaminated soil was laboratory analyzed for disposal classification purposes. One soil sample (LSP-32) was obtained from stockpiled soil. Laboratory analyses were perfomed for Volatile Organic Compounds, Semivolatile Organic Compounds, Polychlorinated Biphenyls, Reactive Sulfide, Reacitive Cyanide, Flashpoint, Corrosivity, TPH, and 13 Metals by TCLP. Laboratory analytical results revealed 8.2 S.U. Corrosivity; 8,330 ppb Benzo (a) antracene; 3,670 ppb Benzo (a) pyrene; 5,500 ppb Benzo (k) fluoranthene; 47,000 ppb Pyrene; 0.05 ppm Copper; 0.18 ppm Zinc. All other analytical results were below the Method Reporting Limits (see Section 26.8 Laboratory Analytical Results).

Approximately 68.51 cubic yards (≈ 102.8 tons) of No. 2 fuel oil contaminated soil was removed and stockpiled during remediation of the excavation (see Figure 26.3 - Remedial Excavation Plan). Contaminated soil was disposed for recycle at Trimount Bituminous Products Company, Shrewsbury, Massachusetts. Copies of Weight Receipts and Bills of Lading are included in Section 26.10.

26.3 HYDROGEOLOGICAL SERVICES

26.3.1 General Explanation of Procedures

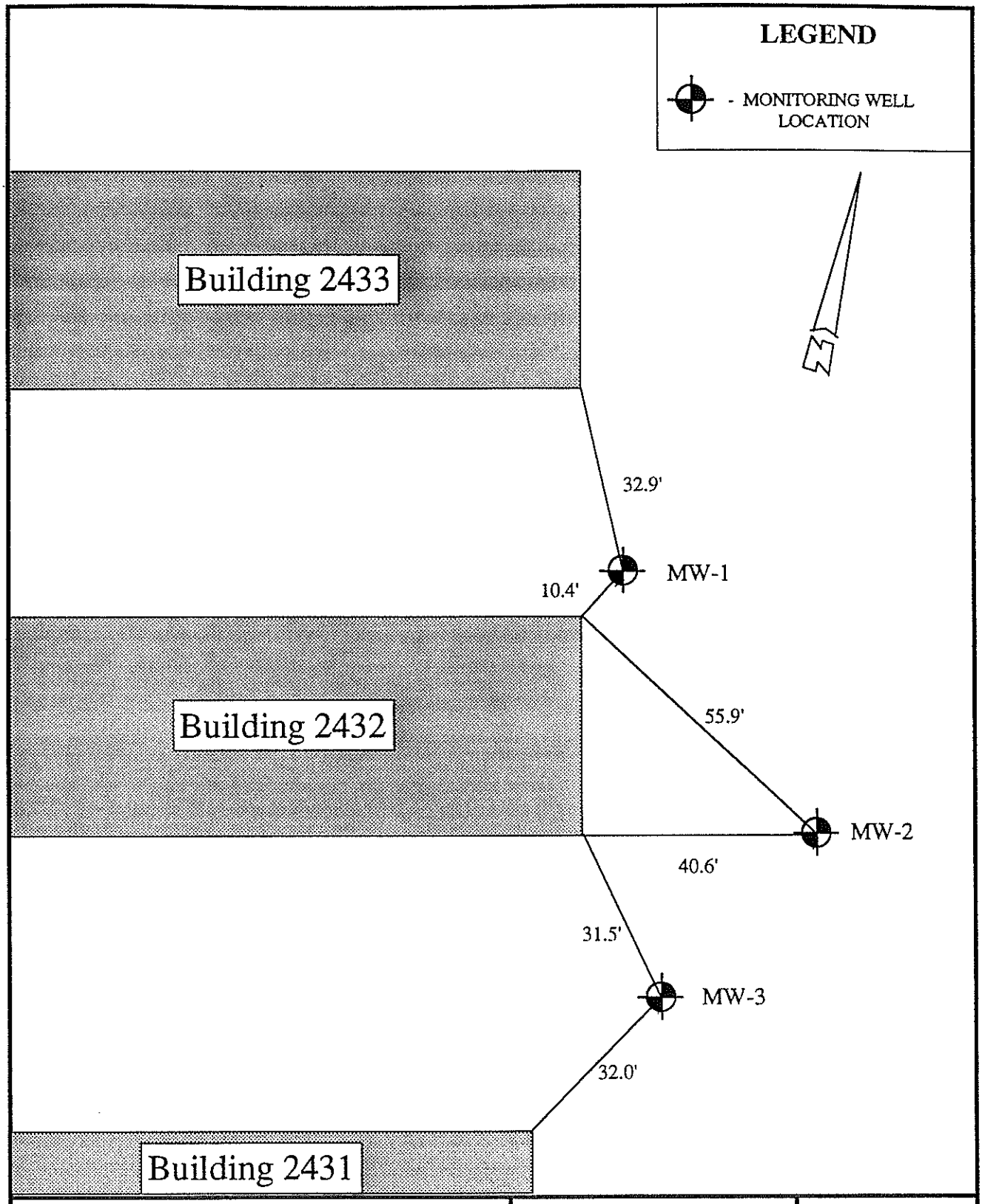
At the time of removal of UST No. 0032, laboratory analysis of one soil sample obtained from the northwest wall of the excavation revealed a TPH concentration of 18,300 ppm. Laboratory analysis of a second soil sample obtained from the bottom of the excavation revealed a TPH concentration of 55 ppm. Based on the analytical results, three groundwater monitoring wells were installed in the vicinity of UST No. 0032 to assess soil and groundwater conditions.

Prior to advancing soil borings at the site, "Dig-Safe" was contacted. Dig-Safe contacts various utilities to mark their service connections on public ground surfaces. Site plans depicting underground utilities (i.e. water, gas, and sewer) were obtained and reviewed. Geosearch, Inc. of Leominister, Massachusetts, was subcontracted by ATEC to install the monitoring wells at the site. Monitoring well borings were advanced on August 31, 1992, utilizing hollow-stem auger drilling and diamond-bit coring techniques, when neccessary. Split-spoon samplers were utilized to collect subsurface soil samples and determine soil types at five foot intervals.

26.3.2 Soil Borings for Monitoring Wells

Monitoring well MW-1 was installed approximately ten feet north of Building 2432 and approximately twenty feet northwest of the backfilled tank excavation (see Figure 26.6 - Site Plan). MW-1 is located hydrogeologically upgradient from the former UST No. 0032. MW-1 was advanced to a depth of sixteen feet, six inches to assess the potential release of No.2 fuel oil from the removed UST. Soil types encountered from grade level to a depth of approximately eleven feet below grade consisted primarily of medium-dense, gray-brown, clayey silt containing trace fine sand and fine gravel. Soil types encountered from a depth of eleven feet to approximately sixteen feet, six inches consisted primarily of dense, gray silt containing minor gravel. Concentrations of Total Organic Vapors (TOVs) were not detected by field screening with a PID. Furthermore, no petroleum odors were noted. Groundwater was encountered at a depth of approximately ten feet below grade. Auger refusal was encountered at a depth of approximately sixteen feet, six inches below grade. Bedrock consisted primarily of gray schist. See Section 26.3.9 - Boring Logs for further information.

Monitoring well MW-2 was installed approximately forty feet east of Building 2432 and approximately twenty feet east of the backfilled tank excavation (Figure 26.6 - Site Plan). MW-2 is located hydrogeolgically crossgradient from the former UST No. 0032. MW-2 was advanced to a depth of thirteen below grade to assess the potential release of No.2 fuel oil from the removed UST. Soil types encountered from grade level to a depth of approximately nine feet, three inches below grade consisted primarily of medium-dense, gray-brown silt containing trace coarse gravel. Concentrations of Total Organic Vapors (TOVs) were not detected by field screening with a PID. Furthermore, no petroleum odors were noted. Groundwater was encountered at a depth of approximately nine feet below grade. Auger refusal was encountered at a depth of approximately nine feet below grade. Coring was conducted from a depth of nine feet to thirteen feet below grade. Bedrock consisted primarily of gray schist. See Section 26.3.9 - Boring Logs for further information.



SITE PLAN
GROUNDWATER MONITOR WELLS
RELATIVE TO: UST No. 0032
BUILDING 2432
FORT DEVENS, MASSACHUSETTS

PROJECT: 31.07.451

SCALE: 1 : 300

FIGURE: 26.6

ATEC

Monitoring well MW-3 was installed approximately thirty-one feet southeast of Building 2432 and approximately twenty feet south of the backfilled tank excavation (see Figure 26.6 - Site Plan). MW-3 is located hydrogeolgically downgradient from the former UST No. 0032. MW-3 was advanced to a depth of fifteen feet, six inches below grade to assess the potential release of No.2 fuel oil from the removed UST. Soil types encountered from grade level to a depth of approximately six feet below grade consisted primarily of medium-dense, brown silt with minor gravel and cobbles. Concentrations of Total Organic Vapors (TOVs) were not detected by field screening with a PID. Furthermore, no petroleum odors were noted. Groundwater was encountered at a depth of approximately seven feet below grade. Auger refusal was encountered at a depth of approximately six feet below grade. Coring was conducted from a depth of six feet to fourteen feet, six inches below grade. Bedrock consisted primarily of gray schist. See Section 26.3.9 - Boring Logs for further information.

26.3.3 Results of Soil Screenings and Chemical Analyses

Split-spoon soil samples were obtained at a minimum of five foot intervals during the installation of monitoring wells at the site. Split-spoon soil samples were screened for TPH utilizing a Non-Dispersive Infrared Analyzer (NDIR) (modified EPA Standard Test Method 418.1). Subsurface soil samples were placed directly into pre-labeled, pre-cleaned containers and immediately placed on ice for shipment to the laboratory. TPH samples were placed in 500-ml amber glass jars.

Four subsurface soil samples were collected during the installation of monitor well one (MW-1) and labelled MW-1.1, MW-1.2, MW-1.3 and MW-1.4. Results of NDIR screening revealed TPH concentrations of 72.4 ppm, 21.7, 74.3 ppm, and 27.2 ppm in soil samples MW-1.1. MW-1.2, MW-1.3 and MW-1.4, respectively.

Four subsurface soil samples were collected during the installation of monitoring well two (MW-2) and labelled MW-2.1, MW-2.2, and MW-2.3. Results of NDIR screening revealed TPH concentrations of 67.2 ppm, 34.2 ppm, and 32.1 ppm in soil samples MW-2.1, MW-2.2, MW-2.3 ppm, respectively.

Two subsurface soil samples were collected during the installation of monitoring well three (MW-3) and labelled MW-3.1 and MW-3.2. Results of NDIR screening revealed TPH concentrations of 58.1 ppm and 48.6 ppm in soil samples MW-3.1 and MW-3.2, respectively.

Analytical results of subsurface soil samples collected during the site investigation are given in Table 26.4 - Summary of Subsurface Soil Analyses.

TABLE 26.4 - SUMMARY OF SUBSURFACE SOIL ANALYSES

Sample I.D.	Sample Depth	TPH (by NDIR)
MW-1.1	0' - 2'	72.4 ppm
MW-1.2	4' - 6'	21.7 ppm
MW-1.3	9' - 11'	74.3 ppm
MW-1.4	15'-16'6"	27.2 ppm
MW-2.1	0' - 2'	67.2 ppm
MW-2.2	4' - 6'	34.2 ppm
MW-2.3	8' - 9'3"	32.1 ppm
MW-3.1	0' - 2'	58.1 ppm
MW-3.2	4' - 6'	48.6 ppm

32.3.4 Details of Monitoring Well Construction

Monitoring wells were typically constructed of a length of bottom-plugged, two inch diameter Polyvinyl Chloride (PVC) well screen (0.010 inch slot) followed by a length of two inch diameter PVC solid riser to grade level. No. 2 washed, silica sand was packed to approximately one foot above the screen followed by a one to two foot thick bentonite grout packing. The remainder of the boring was backfilled with washed silica sand and concrete surface seal to grade. Monitoring wells were fitted with a water tight 4 four inch diameter, flush mount, cast iron road box.

26.3.5 Standard Type Survey and Determination of Groundwater Gradient

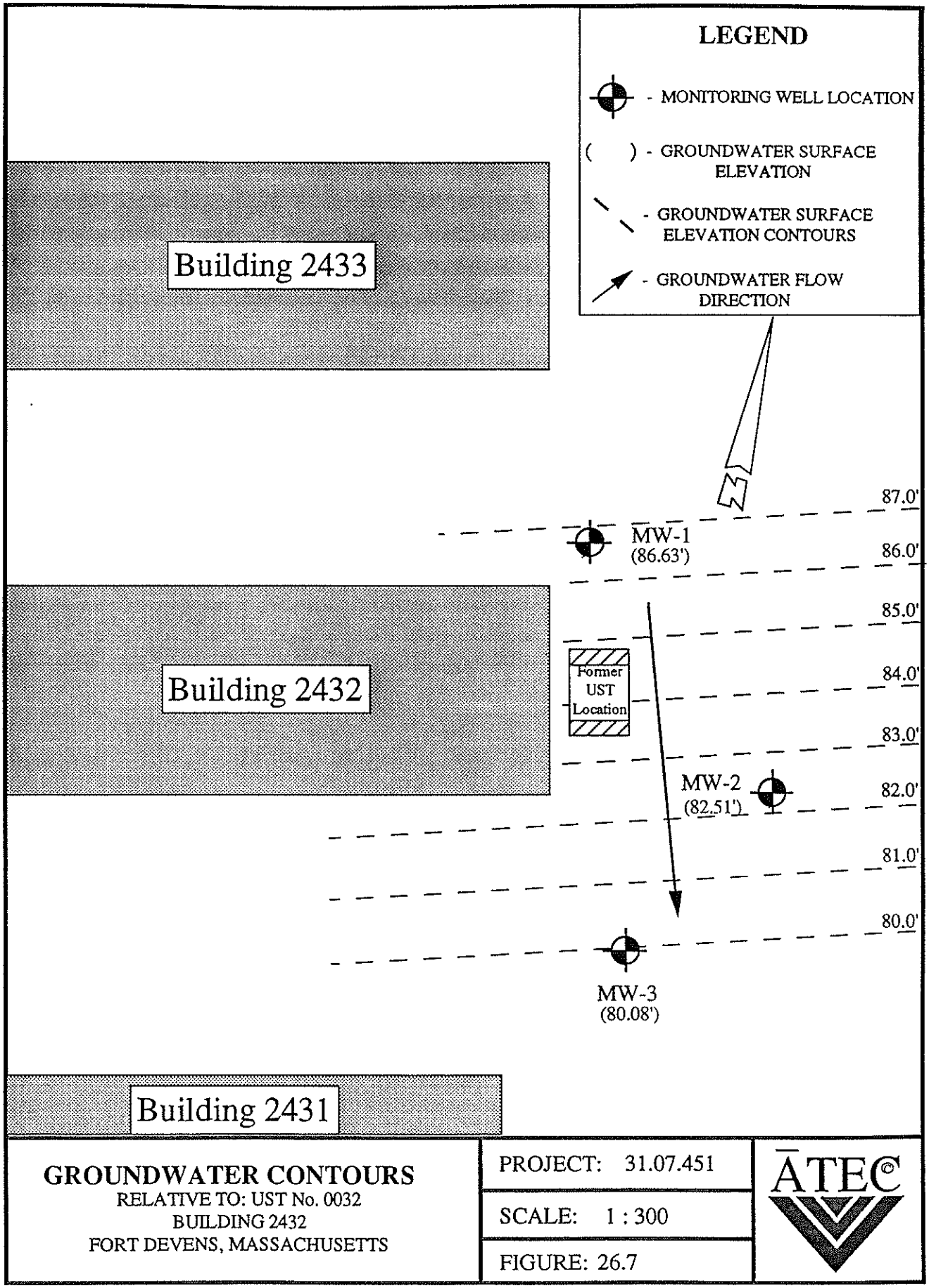
An instrument survey was conducted by Glen Harrington, Environmental Scientist, and Rob Segnatelli, Environmental Scientist, to determine the relative locations and elevations of the groundwater monitoring wells and significant surficial features. An arbitrary datum was established by assigning a fire hydrant located between Building 2432 and Building 2433 an elevation of 100.0 feet. All reported groundwater elevations are referenced to the fire hydrant. The monitoring wells were gauged utilizing an electronic water level meter prior to sampling to determine the groundwater elevations at each well.

Groundwater elevations were then calculated utilizing the survey and gauging data from MW-1, located north of former UST No. 0032, MW-2 located east of former UST No. 0032 and MW-3 located south of former UST No. 0032 (refer to Figure 26.7 - Groundwater Contours). Based on the gauging data, groundwater in the area flows generally to the southeast across the site at a lateral hydraulic gradient of 8.88 percent. Groundwater at the site occurs at depths of 8.99 feet, 9.15 feet, 9.50 feet below grade for MW-1, MW-2 and MW-3, respectively.

A summary of groundwater elevations measured at the three monitoring wells installed at the site are included in Table 26.5.

TABLE 26.5 - SUMMARY OF GROUNDWATER ELEVATIONS

Monitoring Well	Date	Rim Elevation (ft)	Depth to Groundwater	Groundwater Elevation (ft)
MW-1	11-03-92	96.62	8.99	86.63
MW-2	11-03-92	91.66	9.15	82.51
MW-3	11-03-92	89.58	9.50	80.08



GROUNDWATER CONTOURS
RELATIVE TO: UST No. 0032
BUILDING 2432
FORT DEVENS, MASSACHUSETTS

PROJECT: 31.07.451

SCALE: 1 : 300

FIGURE: 26.7

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26.3.6 Results of Groundwater Chemical Analyses

Groundwater monitoring wells MW-1, MW-2 and MW-3 were sampled on November 2, 1992. The groundwater samples were analyzed for TPH. Prior to sampling, approximately three well volumes of groundwater were purged from the well. Groundwater samples were placed directly into pre-labelled, pre-cleaned 500-ml amber glass jars and placed on ice for immediate shipment to the laboratory. The samples were analyzed by Environmental Science Services (ESS) of Providence, Rhode Island. Chain of custody forms were completed and included in the shipment.

Laboratory analytical results revealed no detectable concentrations of TPH in the groundwater samples collected from MW-1, MW-2 or MW-3 (see Section 26.8, Laboratory Analytical Results).

A summary of the groundwater analytical results are included in Table 26.6.

TABLE 26.6 - SUMMARY OF GROUNDWATER ANALYSES

Sample I.D	TPH
MW-1	ND
MW-2	ND
MW-3	ND

ND - Not detected above Method Reporting Limit

26.3.7 Summary of Findings

On August 31, 1992 three groundwater monitoring wells were installed to assess soil and groundwater conditions in the vicinity of UST No. 0032. Soil samples collected during drilling were screened in the field for TOVs utilizing a PID. PID field screening results did not indicate the presence of petroleum hydrocarbon contamination. Subsequent NDIR screening of the same soil samples revealed TPH concentrations ranging from 21.7 ppm to 72.4 ppm in MW-1, 32.1 ppm to 67.2 ppm in MW-2 and 48.6 ppm to 58.1 ppm in MW-3.

Results of laboratory analyses did not reveal detectable TPH concentrations in the groundwater samples collected from MW-1, MW-2 or MW-3.

26.3.8 Recommendations

Based on the analytical results, i.e. low soil TPH concentrations and the absence of detectable TPH concentrations in the groundwater, ATEC does not recommend any immediate investigative or remedial action at this time. However, to ensure that the environmental integrity of the site is maintained, ATEC recommends periodic sampling of the groundwater for TPH.

26.3.9 Boring Logs

The attached boring logs were recorded during drilling and monitoring well installation activities of MW-1, MW-2, and MW-3 located at Building 2432, Fort Devens, Massachusetts on August 31, 1992. The purpose of the borings and monitoring well installations was to assess for potential petroleum hydrocarbon contamination associated with one 1,000-gallon No.2 fuel oil UST removed from the site.

ATEC ENVIRONMENTAL CONSULTANTS

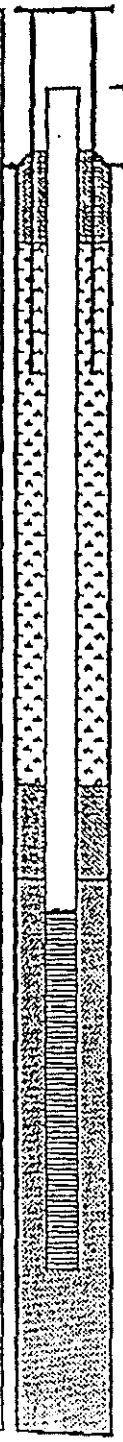
GROUND WATER MONITORING WELL BORING/INSTALLATION LOG

LOG OF BORING/WELL: MW-1

PROJECT NAME: US Army Multisite
PROJECT NUMBER: 37.67.451
PROJECT LOCATION: UST 32, Bldg 2432, Ft Devens
BORING LOCATION: see sketch on back

FOREMAN: Matt Bovenzi, Geosearch
INSPECTOR: Mark Baldi, ATEC
DATE: 9/31/92

SOIL/ROCK DESCRIPTION	DEPTH FEET	SAMP. NO.	S.P.T.
loose to very loose, brown, silt w/little fine sand, trace f-m gravel PID = 0.1 ppm	0-2'	SS-1.1	6, 8, 5, 5
med. dense, brown silt w/little fine sand, trace f-m gravel PID= 0.1 ppm	4-6'	SS-1.2	16, 17, 20 13
stiff, med dense, moist brown, grey, clayey silt w/some fine sand, little f-m gravel PID= 0.0 ppm	9-11' ▽10'	SS-1.3	16, 15, 15 16
very stiff to hard, dense, grey, silt w/little f-m gravel. PID= 0.2 ppm Bedrock @ 16'5"	15-16'5"	SS-1.4	23, 41, 50



- Length of Casing Above Surface Elevation 0
- Length of Riser Above Surface Elevation 0
- Surface Elevation
- Type/Thickness of Surface Seal 2' concrete
- ID/Type of Protect. Casing flushmount CI buffalo box
- Depth Bottom of Casing 2'
- ID/OD/ Type Riser 2" PVC
- Diameter of Borehole 6 5/8"
- Type of Backfill @ Riser cement/bentonite/concrete
- Depth/Type Bottom Seal 2-3' Bentonite
- Depth Top of Screen 5'
- ID/OD/Type 2" PVC Screen .01 slot
- Type Backfill @ Screen washed silica
- Depth Bottom of Screen 15'
- Type of Backfill Below Screen native

Drill cuttings ⇒ PID = 0.2 ⇒ soil on back

ATEC ENVIRONMENTAL CONSULTANTS

GROUND WATER MONITORING WELL BORING/INSTALLATION LOG

LOG OF BORING/WELL: MW-2x

PROJECT NAME: US Army multisite
PROJECT NUMBER: 37.07.451
PROJECT LOCATION: UST 32, Bldg 2432 Ft Devens
BORING LOCATION: see sketch

FOREMAN: Matt Borenzi, Geosearch
INSPECTOR: Mark Bubl, ATEC
DATE: 8/31/92

SOIL/ROCK DESCRIPTION	DEPTH FEET	SAMP. NO.	S.P.T.
med dense to loose, brown, silt w/ little fine sand, some f-c gravel PID = 0.0 ppm	0-2'	SS-2.1	11. 11. 9. 8
med dense, brown, silt w/ little fine sand, some f-c gravel, cobbles, boulders PID = 0.0 ppm	3-5'	SS2.2	21. 23. 22 25
very stiff to hard, med dense, gray brown, moist, silt w/ little f-m gravel. PID = 0.0 ppm	8-9'3" ▽9.5'	SS2.3	27. 20. 50
Bedrock: gray, metasedimentary (phyllitic schist), bedding dip <20°, very fractured @ intervals 2"-4" & major fracture @ approx 10', fractures dip 20°-30°	9'3"-13'	core	core

- Length of Casing Above Surface Elevation 0
- Length of Riser Above Surface Elevation 0
- Surface Elevation
- Type/Thickness of Surface Seal 1' concrete
- ID/Type of Protect. Casing flushmount CI buffalo box
- Depth Bottom of Casing 2'
- ID/OD/ Type Riser 2" PVC
- Diameter of Borehole 6 5/8" / 3"
- Type of Backfill @ Riser Bentonite/concrete
- Depth/Type Bottom Seal 1-3' Bentonite
- Depth Top of Screen 3'
- ID/OD/Type Screen 2" PVC .01 slot
- Type Backfill @ Screen washed silica
- Depth Bottom of Screen 13'
- Type of Backfill Below Screen Bedrock

ATEC ENVIRONMENTAL CONSULTANTS

GROUND WATER MONITORING WELL BORING/INSTALLATION LOG

LOG OF BORING/WELL: MW3

PROJECT NAME: US Army Multisite-
PROJECT NUMBER: 37.07.451
PROJECT LOCATION: UST 32, Bldg 2432, Ft Devens
BORING LOCATION: see sketch

FOREMAN: Matt Boronti, Geoscience
INSPECTOR: Mark Baldi, ATEC
DATE: 8/31/92

SOIL/ROCK DESCRIPTION	DEPTH FEET	SAMP. NO.	S.P.T.
loose to med. dense brown silt w/ little fine sand, some f-c gravel. PID=0.0ppm	0-2'	SS 3.1	8. 12 16. 31
med dense to dense, brown, silt w/some f-c gravel, cobbles, boulders. Split spoon refusal @ 5'9". PID=0.0ppm	4'-5'9"	SS 3.2	19-31 45-50/4"
Bedrock: gray, metasedimentary (phyllite-schist) bedding dip <20°, very fractured at intervals 2"-4"; major fracture @ ≈ 7' & 8' fractures dip 20-30°	5'9"-14.5' ▽7'	core	core

Length of Casing Above Surface Elevation 6
Length of Riser Above Surface Elevation 0
Surface Elevation
Type/Thickness of Surface Seal 1' concrete
ID/Type of Protect. Casing flushmount CS buffalo box
Depth Bottom of Casing 2'
ID/OD/ Type Riser 2" PVC
Diameter of Borehole 6 5/8"/8"
Type of Backfill @ Riser common
Depth/Type Bottom Seal 1-2' Bentonite
Depth Top of Screen 4.0'
ID/OD/Type 2" PVC Screen .01 slot
Type Backfill @ Screen washed silica
Depth Bottom of Screen 14.0'
Type of Backfill Below Screen native rock

PID Units = PPM

26.4 BACKFILL

The excavation was lined with polyethylene plastic sheeting and backfilled with sixty six tons of uncontaminated fill material on July 28, 1992. Backfilling was conducted with the approval of the Contracting Officer's Representative.

26.5 SURFACE RESTORATION

Following backfill of the excavation, three hundred twenty five square feet of loam was spread. Seeding was conducted to complete surface restoration on October 21, 1992.

26.6 PHOTOGRAPHIC DOCUMENTATION

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

A-1: One side of removed tank.

A-2: Opposite side of removed tank.

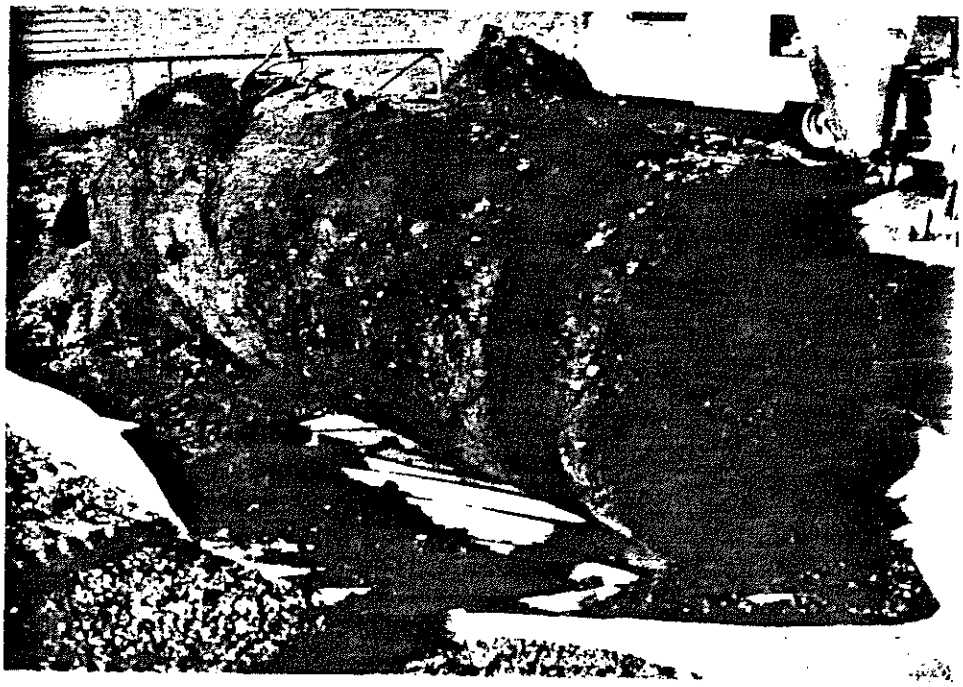
A-3: Excavation as viewed from north, facing south.

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

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

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

A-1



A-2

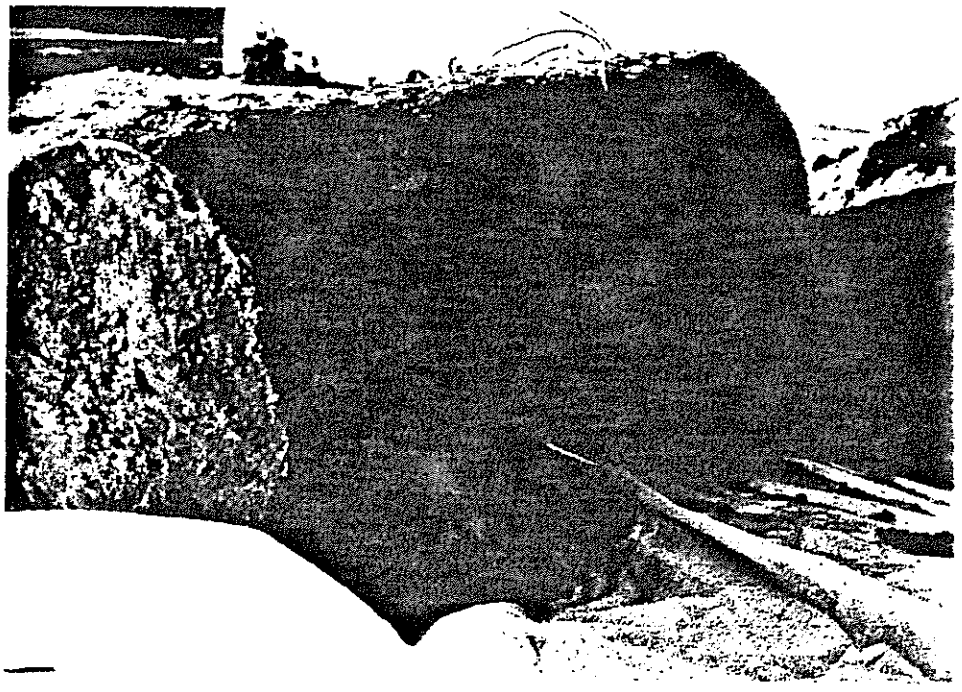


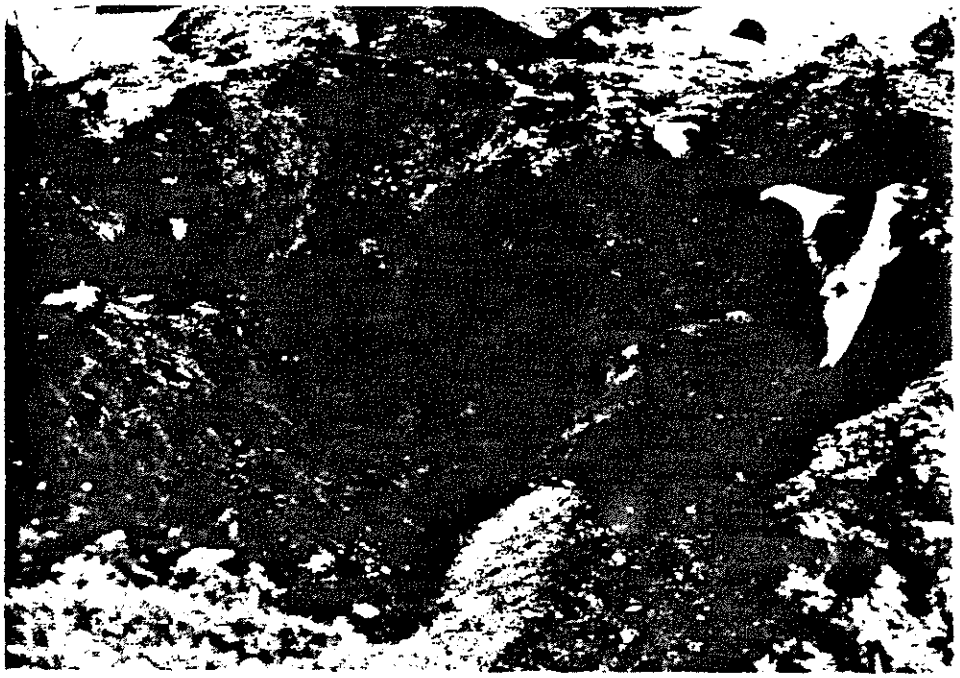
PHOTO DOCUMENTATION

1,000 gallon UST excavation at:
Building 2432
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

ĀTEC

A-3



A-4

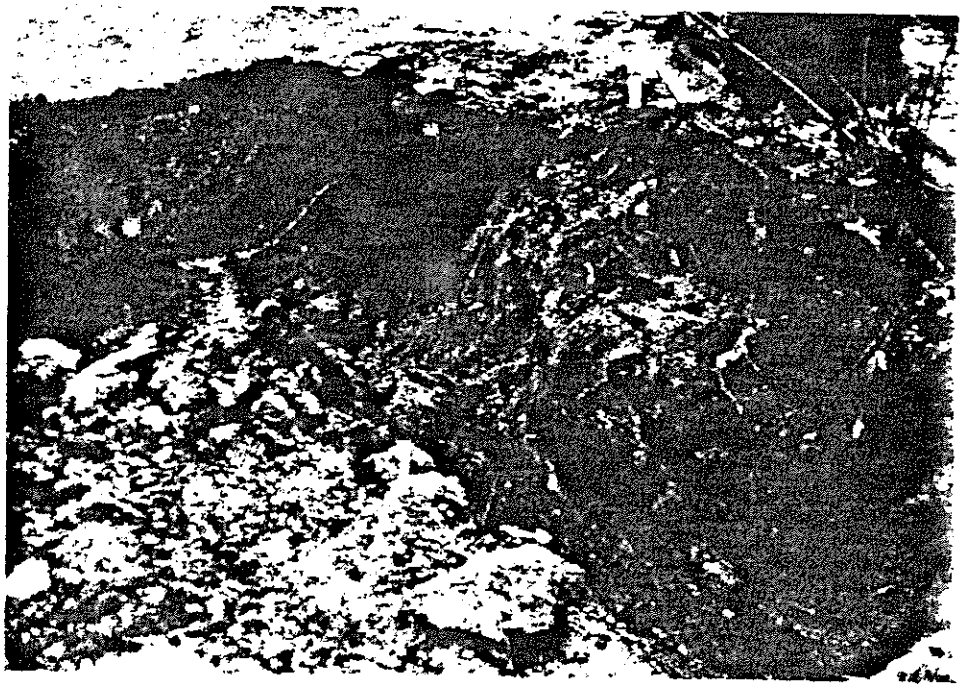


PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 2432 Fort Devens, Massachusetts	PROJECT: 37.07.91.07451	ĀTEC

A-5

A-6

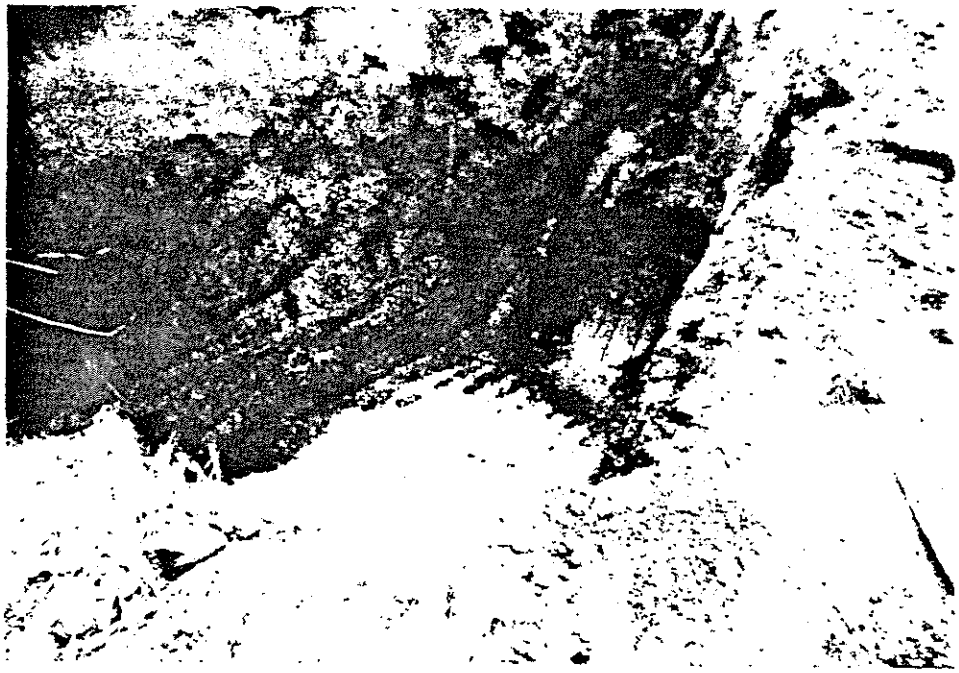


PHOTO DOCUMENTATION	PROJECT: 37.07.91.07451	ĀTEC
1,000 gallon UST excavation at: Building 2432 Fort Devens, Massachusetts		

26.7 OCMA 220 DATA SHEETS

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

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

- MW1.1-1.4, MW 2.1-2.3, and MW 3.1-3.2 : Soil samples obtained from split spoon samples during installation of monitoring wells.

OCMA Data Sheet

Operator Name: RWGoeman Date: 16 Jan 92 *EBI* Project Number: 37.07.45

TK# 32

Calibration

	First Reading		Second Reading		Third Reading	
	Initial	Final	Initial	Final	Initial	Final
Zero Calibration	3.1	0.0	-1.9	0.0	-0.2	0.0
Span Calibration						
Zero Calibration						

Span Check: 78.2

Testing

	Weight		First Approach		Second Approach		Readings			
Sample ID#	Gross	Tare	F-113	Sample	F-113	Sample	First	Second	Third	
STOCK 1	79.4	73.6				1 ml	5.1	5.4	5.5	526.3
STOCK 2	79.8	73.3					9.5	9.7	9.8	836.8
1	79.3	73.9					10.9	9.7	9.7	926.5
2	79.6	74.2					3.9	4.2	4.2	431.7
3	80.5	74.5					1.2	10.9	1.0	92.5
4	83.6	75.5					49.3	49.3	—	3391.7
5	80.7	73.8					3.8	3.8	—	305.7
6	82.4	75.8				5	19.2	18.9	19.0	3109.1
7	80.6	79.2				1 ml	3.1	5.2	5.3	457.6
8	81.7	75.2					1.1	1.1	—	93.9
9	82.1	75.8					5.4	5.3	—	466.9
10	78.3	74.1					25.5	25.4	—	3356.4

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 0032

DATE: Aug 31, 199
OPERATOR: Derek Witt

CALIBRATION DATA

TYPE CALIBRATION	FIRST READING INITIAL	FIRST READING FINAL	SECOND READING INITIAL	SECOND READING FINAL	THIRD READING INITIAL	THIRD READING FINAL	SPAN CHECK
ZERO:	2.2	0.0	-0.2	0.0	-0.1	0.0	26.0
SPAN:	32.2	40.0	39.3	40.0	40.2	40.0	
ZERO:	7.6	0.0	-5.9	0.0	-0.6	0.0	

ANALYTICAL DATA

SAMPLE NUMBER	WEIGHT (g) GROSS	WEIGHT (g) TARE	1st DILUTION RATIO (ml) F-113	1st DILUTION RATIO (ml) SAMPLE	2nd DILUTION RATIO (ml) F-113	2nd DILUTION RATIO (ml) SAMPLE	INSTRUMENT RESULTS (ppm) 1st	INSTRUMENT RESULTS (ppm) 2nd	INSTRUMENT RESULTS (ppm) 3rd	CONCENTRATION mg/l
MW-1.1	82.7	75.9	17.5	3.0	--	--	2.9	2.4	--	72.4
MW-1.2	83.1	76.5	17.5	3.0	--	--	0.5	0.7	--	21.7
MW-1.3	85.3	76.2	17.5	3.0	--	--	2.8	3.3	--	74.3
MW-1.4	84.1	75.8	17.5	3.0	--	--	1.2	1.1	--	27.2
MW-2.1	82.8	76.7	17.5	3.0	--	--	1.9	2.0	--	67.2
MW-2.2	83.4	76.2	17.5	3.0	--	--	1.1	1.2	--	34.2
MW-2.3	90.7	76.0	17.5	3.0	--	--	2.0	2.3	--	32.1
MW-3.1	82.1	76.1	17.5	3.0	--	--	1.4	1.7	--	58.1
MW-3.2	81.4	75.5	17.5	3.0	--	--	1.2	1.4	--	48.6

26.8 LABORATORY ANALYTICAL RESULTS

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

- LSS-1, LSS-2, and LSS-3: Soil samples obtained from original excavation. Laboratory analyzed for TPH (Method 418.1).

- LRS-1, LRS-2, LRS-3, LRS-4, LRS-5, and LRS-6: Soil samples obtained from Post-remedial excavation. Laboratory analyzed for TPH (Method 418.1). LRS-2 and LRS-6 were also analyzed for VOCs (Method 8240), and 13 Metals by TCLP (Method 6010) .

- LWS-1 (dated August 1992): Groundwater sample obtained from Post-remedial excavation. Laboratory analyzed for TPH (Method 418.1).

- LSP-32: Soil sample obtained from stockpiled soil for disposal classification. Laboratory analyzed for VOCs (Method 8240), Polychlorinated Biphenyls (Method 8080), Reactive Cyanide (Method 7.3.3.2), Reactive Sulfide (Method 7.3.4.1), Semivolatile Organics (Method 8270), Flashpoint (Method 1010), TPH (Method 418.1), 13 Metals by TCLP (Method 6010).

- MW-1, MW-2, MW-3: Soil samples obtained from monitoring wells. Laboratory analyzed for TPH (Method 418.1).

In Response To The Future

RTIFICATE OF ANALYSIS

Date: 1/24/92 Job: 138
Account: 95659
Received: 1/16/92

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

Project: DEVENS-TANK 32

: Mr. Mark Baldi

ple ber	Method Number	Parameter	Result	Unit	Sample Description
3801	EPA-160.3	Total Solids	84	%	LSS-1
	EPA-418.1	TPH/IR (Dry Wt.)	18300	mg/kg	
3802	EPA-160.3	Total Solids	85	%	LSS-2
	EPA-418.1	TPH/IR (Dry Wt.)	55	mg/kg	
3803	EPA-160.3	Total Solids	85	%	LSS-3
	EPA-418.1	TPH/IR (Dry Wt.)	5180	mg/kg	

David Dickinson
Laboratory Manager

: 1

In Response To The Future

RTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 31, 32 — ESS Project ID: 922023

Client Sample ID: LRS-1, UST 32 — ESS Sample ID: 922023-06

Date Sample Received: 8/5/92 — Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	91	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	22	mg/Kg	11	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

008

In Response To The Future

:RTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 31, 32 ESS Project ID: 922023

Client Sample ID: LRS-2, UST 32 ESS Sample ID: 922023-07

Date Sample Received: 8/5/92 Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	90	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	28	mg/Kg	11	418.1
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals	ND	mg/L	Attached	6010

TPHIR reported on dry weight basis

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

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

009

In Response To The Future

RTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants
Client Project ID: UST# 31, 32
Client Sample ID: LRS-2, UST 32
ESS Sample ID: 922023-07

Date Sampled: 8/4/92
Date TCLP Performed: 8/6/92
Date Leachate Extracted: 8/7/92
Date Extract Analyzed: 8/10/92

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

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

ND = Not Detected above Method Reporting Limit (MRL)

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

010

In Response To The Future

RTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: UST 31, 32 — ESS Project ID: 922023

Client Sample ID: LRS-2, UST 32 — ESS Sample ID: 922023-07

Date Sample Received: 8/5/92 — Date Reported: 8/14/92

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

In Response To The Future

ERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 31, 32 — ESS Project ID: 922023

Client Sample ID: LRS-3, UST 32 — ESS Sample ID: 922023-08

Date Sample Received: 8/5/92 — Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	87	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	19	mg/Kg	11	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

012

In Response To The Future

RTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 31, 32 | **ESS Project ID:** 922023

Client Sample ID: LRS-4, UST 32 | **ESS Sample ID:** 922023-09

Date Sample Received: 8/5/92 | **Date Reported:** 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	87	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	479	mg/Kg	11	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

013

In Response To The Future

:RTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 31, 32 — ESS Project ID: 922023

Client Sample ID: LRS-5, UST 32 — ESS Sample ID: 922023-10

Date Sample Received: 8/5/92 — Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	88	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	33	mg/Kg	11	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

In Response To The Future

ERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 31, 32 — ESS Project ID: 922023

Client Sample ID: LRS-6, UST 32 — ESS Sample ID: 922023-11

Date Sample Received: 8/5/92 — Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	89	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	46	mg/Kg	11	418.1
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Copper	0.07	mg/L	Attached	6010
Zinc	0.27	mg/L	Attached	6010

TPHIR reported on dry weight basis

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

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

015

In Response To The Future

RTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants
Client Project ID: UST# 31, 32
Client Sample ID: LRS-6, UST 32
ESS Sample ID: 922023-11

Date Sampled: 8/4/92
Date TCLP Performed: 8/6/92
Date Leachate Extracted: 8/7/92
Date Extract Analyzed: 8/10/92

	Actual		Adjusted*	
Target Analyte	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.2	ND	0.3
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.03
Chromium	ND	0.05	ND	0.05
Lead	ND	0.1	ND	0.1
Mercury	ND	0.005	ND	0.005
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.07
Copper	0.07	0.02	0.07	0.02
Nickel	ND	0.04	ND	0.04
Zinc	0.27	0.02	0.27	0.02
Beryllium	ND	0.02	ND	0.03
Thallium	ND	0.3	ND	0.4

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

ND = Not Detected above Method Reporting Limit (MRL)

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

016

In Response To The Future

RTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: UST 31, 32 — ESS Project ID: 922023

Client Sample ID: LRS-6, UST 32 — ESS Sample ID: 922023-11

Date Sample Received: 8/5/92 — Date Reported: 8/14/92

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

017

In Response To The Future

RTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 31, 32 — ESS Project ID: 922023

Client Sample ID: LWS-1, UST 32 — ESS Sample ID: 922023-12

Date Sample Received: 8/5/92 — Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	ND	mg/L	1	418.1

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

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

013

In Response To The Future

RTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-32 **ESS Sample ID:** 921528-05

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

Parameter	Results	Units	MRL	Method
pH (Corrosivity)	8.2	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				
Benzo(a)anthracene	8,330	ug/Kg	Attached	8270
Benzo(a)pyrene	3,670	ug/Kg	Attached	8270
Benzo(k)fluoranthene	5,500	ug/Kg	Attached	8270
Pyrene	47,000	ug/Kg	Attached	8270
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Copper	0.05	mg/L	Attached	6010
Zinc	0.18	mg/L	Attached	6010

N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 1992

David Dickinson
Laboratory Director

039

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

In Response To The Future

ERTIFICATE OF ANALYSIS

POLYCHLORINATED BIPHENYLS
Method 8080

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-32 ESS Sample ID: 921528-05

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

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

ND = Not Detected above Method Reporting Limit (MRL)

Surrogate Recovery Data	% Recovery	QC Limit
Dibutylchlorendate	94%	50 - 150%

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

Environmental Science Services
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In Response To The Future

RTIFICATE OF ANALYSIS

ACID EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-32 ESS Sample ID: 921528-05

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

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 1992
David Dickinson
Laboratory Director

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In Response To The Future

RTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-32 ESS Sample ID: 921528-05

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

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92

David Dickinson
Laboratory Director

042

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

In Response To The Future

ERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES cont.
EPA 8270

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-32 ESS Sample ID: 921528-05

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

Parameter	Result (ug/Kg)	MRL
Benzo(a)pyrene	**3,670**	1,670
Benzo(b)fluoranthene	ND	1,670
Benzo(k)fluoranthene	**5,500**	1,670
Chrysene	ND	1,670
Acenaphthene	ND	1,670
Anthracene	ND	1,670
Benzo(ghi)perylene	ND	1,670
Fluorene	ND	1,670
Phenanthrene	ND	1,670
Dibenzo(a,h)anthracene	ND	1,670
Indeno(1,2,3-cd)pyrene	ND	1,670
Pyrene	**47,000**	1,670
Hexachloroethane	ND	1,670
4-Bromophenyl-phenylether	ND	1,670
Benzyl Alcohol	ND	1,670
Benzoic Acid	ND	8,350
Bis(2-Chloroethoxy)methane	ND	1,670
4-Chloroaniline	ND	1,670
2-Methylnaphthalene	ND	1,670
2-Nitroaniline	ND	8,350
3-Nitroaniline	ND	1,670
Dibenzofuran	ND	1,670
4-Nitroaniline	ND	8,350
Butylbenzylphthalate	ND	1,670

ND = Not Detected above Method Reporting Limit (MRL)

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

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In Response To The Future

RTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-32 ESS Sample ID: 921528-05

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

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92

David Dickinson
Laboratory Director

044

ironmental Science Services
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In Response To The Future

ERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants
Client Project ID: Stockpiled Soils
Client Sample ID: LSP-32
ESS Sample ID: 921528-05

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

	Actual		Adjusted*	
Target Analyte	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.1	ND	0.2
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.02
Chromium	ND	0.05	ND	0.05
Lead	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	0.04	0.02	0.05	0.03
Nickel	ND	0.04	ND	0.04
Zinc	0.18	0.02	0.18	0.02
Beryllium	ND	0.02	ND	0.04
Thallium	ND	0.05	ND	0.09

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

ND = Not Detected above Method Reporting Limit (MRL)

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

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

In Response To The Future

:RTIFICATE OF ANALYSIS

VOA SOIL SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client Project ID: UST 31, 32

Date Sample Analyzed: 8/13/92

ESS Project ID: 922023

SAMPLE ID	1,2 DICHLOROETHANE-D4 (70-121%)*	TOLUENE-D8 (81-117%)*	BFB (74-121%)*
VS0813B1	102%	96%	105%
922023-01	93	96	102
922023-07	106	95	98
922023-11	110	91	92

* Acceptance criteria

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

In Response To The Future

ERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: UST 31, 32 — ESS Project ID: 922023

Client Sample ID: Method Blank — ESS Sample ID: VS0813B1

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

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

ND = Not Detected above Method Reporting Limit (MRL)
NA = Not Applicable

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

020

In Response To The Future

ERTIFICATE OF ANALYSIS

MATRIX SPIKE ANALYSIS SUMMARY

TCLP METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants Matrix: Solid

TCLP Batch ID: 202301 Concentration in: mg/L

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

This matrix spike analysis summary applies to the following samples:
922023-01, -07, -11

ND = Not Detected above Method Reporting Limit (MRL)

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

Approved by: _____
David Dickinson
Laboratory Director

Date: 14 Aug 92

021

In Response To The Future

RTIFICATE OF ANALYSIS

TOTAL PETROLEUM HYDROCARBON-IR
Method 418.1

Client: ATEC Environmental Consultants

Client Project ID: US Army UST 32 Bldg 2432 ESS Project ID: 923025

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

Client ID	Lab ID	Results	Units	MRL
MW-1	923025-01	ND	mg/L	1
MW-2	923025-02	ND	mg/L	1
MW-3	923025-03	ND	mg/L	1

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: Gillis Shilla Date: 11/9/92

26.9 CHAIN OF CUSTODY FORMS

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

PROJ. NO.	PROJECT NAME	LAB PROJ. NO.
07.451	Devens - Tank 32	
	CLIENT	

SAMPLERS: *(Signature)* Mark E Zaller

SAMPLING METHOD: grab

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

LABORATORY ANALYSIS

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Mark E Zaller	1/15/92				

Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Project Manager / Phone #:
		1/16		

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

PROJ. NO.: 07.451 | PROJECT NAME: [illegible] | CLIENT | LAB PROJ. NO.:

SAMPLERS: (Signature)

SAMPLING METHOD: grab

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
L551	1/14			X		X						1				X						spl.+
L552	1/14			X		X						1				X						spl.+
L553	1/14		X	X		X						1				X						spl.+

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62 Accord Park Drive
Norwell, MA 02061
(617) 878-6200

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	1/15/92				
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Project Manager / Phone #:	

PROJ. NO. 37.07 451

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

CLIENT

LAB PROJ. NO.

SAMPLERS: (Signature)

Craig D. Trombly

SAMPLING METHOD

COMPOSITE

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS 8240	~~BNE~~ SEMI VOA 8270	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	~~TOTAL METALS~~ (8) 6010	IGNITABILITY	PH	CYANIDE SULFIDE REACTION	SAMPLE LOCATION / REMARKS
SP-28	6-9-92		X			X				X		3		X	X	~~X~~	X		X	X	X	X	BLDG. 2290
SP-29	"		X			X				X		3		X	X		X		X	X	X	X	" 2296
SP-30	"		X			X				X		3		X	X		X		X	X	X	X	" 2401
SP-31	"		X			X				X		3		X	X		X		X	X	X	X	" 2419
SP-32	"		X			X				X		3		X	X		X		X	X	X	X	" 2439
SP-33	"		X			X				X		3		X	X		X		X	X	X	X	" 2434
SP-34	"		X			X				X		3		X	X		X		X	X	X	X	" 2447
SP-35	"		X			X				X		3		X	X		X		X	X	X	X	" 2452
SP-36	"		X			X				X		3		X	X		X		X	X	X	X	" 2458
SP-37	"		X			X				X		3		X	X		X		X	X	X	X	" 2461
SP-38	"		X			X				X		3		X	X		X		X	X	X	X	" 2519
SP-39	"		X			X				X		3		X	X		X		X	X	X	X	" 2520
SP-40	"		X			X				X		3		X	X		X		X	X	X	X	" 2496
SP-41	"		X			X				X		3		X	X		X		X	X	X	X	" 2732
SP-42	"		X			X				X		3		X	X	X	X		X	X	X	X	" 3525
SP-43	"		X			X				X		3		X	X	X	X		X	X	X	X	" 3573

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

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

PROJ. NO. 37.07.45

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

LAB PROJ. NO. Given 1528-96

LABORATORY ANALYSIS

SAMPLERS: (Signature)
Chuck Langenhagen

SAMPLING METHOD
Grab/Composite

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

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

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

PROJ. NO. 3702451 | PROJECT NAME FT. DRUENS - REMEDIATION | CLIENT UST # ~~31~~ 31, 32 | LAB PROJ. NO.

SAMPLERS: (Signature) Craig D. Tomlin

SAMPLING METHOD

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS 8240	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY	13 TCLP	SAMPLE LOCATION / REMARKS
LRS-1	8-4-92					X				X		3		X		X				X		UST # 31 ~~BLDG. 2119~~
LRS-2	8-4-92					X				X		1				X						"
LRS-3	8-4-92					X				X		1				X						"
LRS-4	8-4-92					X				X		1				X						"
~~LRS-5~~	~~8-4-92~~																					~~"~~
~~LRS-6~~	~~8-4-92~~																					~~"~~
LRS-1	8-4-92					X				X						X						UST # 32 BLDG. 2432
LRS-2	"					X				X				X		X				X		"
LRS-3	"					X				X						X						"
LRS-4	"					X				X						X						"
LRS-5	"					X				X						X						"
LRS-6	"					X				X				X		X				X		"
LWS-1	"				X					X						X						"

Relinquished by: (Signature) Craig D. Tomlin | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature)

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

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

PROJ. NO. 37.07.45 | PROJECT NAME UST 32 Bldg 2432 | CLIENT US ARMY | LAB PROJ. NO.

SAMPLERS: (Signature) Derek Wilt

SAMPLING METHOD

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

LABORATORY ANALYSIS

Relinquished by: (Signature) Derek Wilt | Date / Time 11/5/92 | Received by: (Signature)

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

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

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

6.10 HAZARDOUS WASTE MANIFEST

UST No. 0032 was estimated to contain 15 gallons of No. 2 fuel oil and residual materials. The fuel oil and residual materials were removed and drummed on January 14, 1992 for transportation. Drummed material was transported to a licensed Transportation Storage Disposal Facility (T.S.D.F.), Beede Waste Oil Corporation, on February 27, 1992.

The following Hazardous Waste Manifest was generated from residual tank materials. The manifest dated January 7, 1992 is associated with vaccuuming product from several USTs. Therefore, the total quantity (1,400 gallons) is much greater than the 15 gallons which was removed from UST 32.

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. / Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
	MA7210025154 FD1638		

3. Generator's Name and Mailing Address	A. State Manifest Document Number
Dept. of The ARMY Headquarters Ft. Devens Box 19. AFZD-DEQEM Attn: Mark Boser Fort Devens, MA 01433	MA F353777
4. Generator's Phone (508-796-3002)	B. State Gen. ID N/A
5. Transporter 1 Company Name: Beede Waste Oil Corp.	US EPA ID Number: NHD018958140 / C. State Trans. ID N/A
7. Transporter 2 Company Name	8. US EPA ID Number / D. Transporter's Phone (603382-5761)
	E. State Trans. ID N/A
9. Designated Facility Name and Site Address: Beede Waste Oil Corp. Kelley Rd., P.O. Box 127 Plaistow, NH 03865	10. US EPA ID Number: NHD018958140 / F. Transporter's Phone ( ) N/A
	G. State Facility's ID Not Required
	H. Facility's Phone (603 382-3761)

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Waste Petroleum Oils N.O.S. Combustable liquid NA 1270	007	DM	0385	G	MA01
b.					

Additional Descriptions for Materials Listed Above (include physical state and hazard code)	K. Handling Codes for Wastes Listed Above
c.	a. c.
d.	b. d.

i. Special Handling Instructions and Additional Information 4-Bldg 631 1-Bldg 2447 1-2686 ~ 1-3573

o Be Recycled #2 Fuel With SI=Sludge
For Recycling only Land Disposal Prohibited.

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

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

Printed/Typed Name	Signature	Date (Month Day Year)
Stephen R Hopkins		02 27 92
Transporter 1 Acknowledgement of Receipt of Materials		
rian Ginivan	Brian Ginivan	02 27 92
Transporter 2 Acknowledgement of Receipt of Materials		

Discrepancy Indication Space

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

Printed/Typed Name	Signature	Date (Month Day Year)

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

MA F353777 COPY>1: FACILITY MAILS TO DESTINATION STATE

26.11 WEIGHT RECEIPTS AND BILL OF LADING

The following Weight Receipts and Bills of Lading document the disposal of contaminated soil associated with UST 0032.

IAIN OFFICE:
IVERS 750-4200

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

TIME
FMN _____
ARRIVED JOB _____
LEFT JOB _____
CHECK #

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

TICKET #R 72472

tomer # ATE001 Job # BLDGFD MIX # #76 MIX NAME OIL SOIL TRUCK# 9
EC ASSOC. UC ARMY
ACCORD PARK DRIVE BLDG 2432
RWELL, MA 02061 FORT DEVENS, MA 01433
7-878-6200 PO# 37.04.72053

Time	Tare	Net	Gross	Total
2:22:23	27500	38300	65800	19.15

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

Load#	Job Total	Time & Date	Fob/Del
8	166.23	12:22:23 pm Jul 31, 1992	F

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

RECEIVED BY _____

BILL OF LADING
POLICY # WSC-89-001

F LADING #: 12 DATE: _____ DEP CASE #: _____

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

SITE OF GENERATION: 1K#2 F.O.
STREET BUILDING 2432 UST #32
TOWN FORT DEVENS
STATE MA 01433
TRANSPORTATION ACCIDENT? ___Y X N

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

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

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

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

ERATOR'S SIGNATURE: [signature] DATE: 7-30-92
OVE ITEMS MUST BE COMPLETED PRIOR TO DEP AUTHORIZATION
HORIZATION: DEP SIGNATURE (originating region): [signature] DATE: 23 July 92
(if applicable) DEP SIGNATURE (destination region): _____ DATE: _____

JCK/TRACTOR REGISTRATION A94-141 MA
AILER REGISTRATION N/A
T SITE AT 11:30 DATE 7-31-92
NERATOR OR RECEIVING FACILITY REPRESENTATIVE'S
GNATURE: [signature]

QUANTITY SHIPPED:	wt (tons)	vol (cu yds)
TOTAL PROJECTED	___	___
SHIPPED TO DATE	___	___
THIS LOAD (estimated)	19.15	___
REMAINING TO BE SHIPPED	___	___

Ticket # R 72472

ANSPORTER'S SIGNATURE [signature] DATE 7/31/92
CEIVING FACILITY REPRESENTATIVE'S SIGNATURE [signature] DATE 7/31/92 ARR TIME 12:22

EIVED
1 1992
EP
l - Req.

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BWSC/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

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

MAIN OFFICE:
ANVERS 750-4200

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

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

TICKET #R 73210

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

US ARMY
BLDG 2432
FORT DEVENS, MA 01433
PO# 37.04.72053

Time	Tare	Net	Gross	Total
1:02:09	39600	53360	92960	26.68

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

Load#	Job Total	Time & Date	Fob/Del
6	162.42	1:02:09 pm Aug 7, 1992	F

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

RECEIVED BY _____

MAIN OFFICE:
ANVERS 750-4200

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

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

TICKET #R 72494

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

US ARMY
BLDG 2432 & 2434
FORT DEVENS, MA 01433
PO# 37.04.72053

Time	Tare	Net	Gross	Total
7:42:58	27500	42740	70240	21.37

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

Load#	Job Total	Time & Date	Fob/Del
10	212.22	7:42:58 pm Jul 31, 1992	F

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

RECEIVED BY _____

BILL OF LADING
POLICY # WSC-89-001

LADING #: 46 DATE: _____ DEP CASE #: _____

ERATOR NAME/ADDRESS:
S. ARMY
FZD-FM, BOX 19
ORT DEVENS, MA 01433
TACT/TEL #: 508-796-3002

SITE OF GENERATION:
STREET BUILDING 2432 IK#2F.O. UST #32
TOWN FORT DEVENS
STATE MA 01433
TRANSPORTATION ACCIDENT? __Y ✓N

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

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

NSPORTER NAME/ADDRESS:
RIMOUNT BITUMINOUS PRODUCTS
70 BLANCHARD RD.
BURLINGTON MA 01803
TACT/TEL #: DAVID PETER (617) 221 8400

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

ERATOR'S SIGNATURE: _____ DATE: 7-20-92
OVE ITEMS MUST BE COMPLETED PRIOR TO DEP AUTHORIZATION
HORIZATION: DEP SIGNATURE (originating region): _____ DATE: 23 July 92
(if applicable) DEP SIGNATURE (destination region): _____ DATE: _____

CK/TRACTOR REGISTRATION 8767Y
ILER REGISTRATION 6218997
T SITE AT _____ DATE 8/7/92
ERATOR OR RECEIVING FACILITY REPRESENTATIVE'S
NATURE: _____

QUANTITY SHIPPED: wt (tons) vol (cu yds)
TOTAL PROJECTED ____ ____
SHIPPED TO DATE ____ ____
THIS LOAD (estimated) 26.68 ____
REMAINING TO BE SHIPPED ____ ____
Ticket# R73210

NSPORTER'S SIGNATURE _____ DATE 8/7/92
EIVING FACILITY REPRESENTATIVE'S SIGNATURE _____ DATE 8/7/92 ARR TIME 1:02

IVED
1992
P
- Req.

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BWSC/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

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

BILL OF LADING
POLICY # WSC-89-001

LADING #: 14 DATE: DEP CASE #:

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

SITE OF GENERATION: 1K#2F.O. UST #32
STREET BUILDING 2432
TOWN FORT DEVENS
STATE MA 01433
TRANSPORTATION ACCIDENT? __Y X N

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

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

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

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

ERATOR'S SIGNATURE: DATE: 7-20-92
OVE ITEMS MUST BE COMPLETED PRIOR TO DEP AUTHORIZATION
HORIZATION: DEP SIGNATURE (originating region): DATE: 23 July 92
(if applicable) DEP SIGNATURE (destination region): DATE:

CK/TRACTOR REGISTRATION
ILER REGISTRATION
T SITE AT DATE 7-31-92
ERATOR OR RECEIVING FACILITY REPRESENTATIVES
NATURE:

QUANTITY SHIPPED: wt (tons) vol (cu yds)
TOTAL PROJECTED
SHIPPED TO DATE
THIS LOAD (estimated) 21.37
REMAINING TO BE SHIPPED
Ticket # R 72494

NSPORTER'S SIGNATURE DATE 7/31/92
CEIVING FACILITY REPRESENTATIVE'S SIGNATURE DATE 7/31/92 ARR TIME 2147

IVED
1 1992
EP
l - Req.

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BWSC/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

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

MAIN OFFICE:
NVERS 750-4200

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

TIME
FMN _____
ARRIVED JOB _____
LEFT JOB _____ CHECK #

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

TICKET #R 72993

stomer # ATE001 Job # BLDGFD MIX # #76 MIX NAME OIL SOIL TRUCK# 9
TEC ASSOC. US ARMY
2 ACCORD PARK DRIVE BLDG 2432
ORWELL, MA 02061 FORT DEVENS, MA 01433
17-878-6200 PO# 37.04.72053

Time	Tare	Net	Gross	Total
8:53:44	39600	53680	93480	26.94

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

Load#	Job Total	Time & Date	Fob/Del
1	26.94	8:53:44 am Aug 6, 1992	F

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

RECEIVED BY _____

MAIN OFFICE:
NVERS 750-4200

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

TIME
FMN _____
ARRIVED JOB _____
LEFT JOB ~~CHECK #~~

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

TICKET #R 73200

stomer # ATE001 Job # BLDGFD MIX # #76 MIX NAME OIL SOIL TRUCK# 9
TEC ASSOC. US ARMY
2 ACCORD PARK DRIVE BLDG 2432
ORWELL, MA 02061 FORT DEVENS, MA 01433
17-878-6200 PO# 37.04.72053

Time	Tare	Net	Gross	Total
12:21:08	39600	59980	99580	29.99

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

Load#	Job Total	Time & Date	Fob/Del
4	111.07	12:21:08 pm Aug 7, 1992	F

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

RECEIVED BY _____

BILL OF LADING
POLICY # WSC-89-001

LADING #: 44 DATE: _____ DEP CASE #: _____

ERATOR NAME/ADDRESS:
U.S. ARMY
FZD-FM, Box 19
ORT DEVENS, MA 01433
TACT/TEL #: 508-796-3002

SITE OF GENERATION:
STREET BUILDING 2432 1K#2F.O. UST #32
TOWN FORT DEVENS
STATE MA 01433
TRANSPORTATION ACCIDENT? __Y X N

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

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

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

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

ERATOR'S SIGNATURE: [signature] DATE: 7-20-92
OVE ITEMS MUST BE COMPLETED PRIOR TO DEP AUTHORIZATION

HORIZATION: DEP SIGNATURE (originating region): [signature] DATE: 23 July 92
(if applicable) DEP SIGNATURE (destination region): _____ DATE: _____

CK/TRACTOR REGISTRATION 162377 MA
ILER REGISTRATION 38606 MA
T SITE AT 1130 DATE 7/17/92
ERATOR OR RECEIVING FACILITY REPRESENTATIVE'S
NATURE: _____

QUANTITY SHIPPED:
TOTAL PROJECTED
SHIPPED TO DATE
THIS LOAD (estimated) 8.9.99
REMAINING TO BE SHIPPED
Ticket# R73260

	wt (tons)	vol (cu yds)
TOTAL PROJECTED	___	___
SHIPPED TO DATE	___	___
THIS LOAD (estimated)	8.9.99	___
REMAINING TO BE SHIPPED	___	___

ANSPORTER'S SIGNATURE [signature] DATE 8/7/92
CEIVING FACILITY REPRESENTATIVE'S SIGNATURE [signature] DATE 8/7/92 ARR TIME 12:01

EIVED
1 1992
EP
il - Req.

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BWSC/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

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

BILL OF LADING
POLICY # WSC-89-001

F LADING #: 35 DATE: _____ DEP CASE #: _____

ERATOR NAME/ADDRESS:
U.S. ARMY
FZD-FM, BOX 19
FORT DEVENS, MA 01433
NTACT/TEL #: 508-796-3002

SITE OF GENERATION:
STREET BUILDING 2432 1K#2 F.O. UST #32
TOWN FORT DEVENS
STATE MA 01433
TRANSPORTATION ACCIDENT? __Y X N

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

E OF CONTAMINATION:
gasoline X #2 oil ___ #4 oil ___ #6 oil ___ other (specify) _____
ANALYSES ATTACHED?
Volatiles: __Y X N TPH: X Y __N

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

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

ERATOR'S SIGNATURE: _____ DATE: 7-20-92
OVE ITEMS MUST BE COMPLETED PRIOR TO DEP AUTHORIZATION
HORIZATION: DEP SIGNATURE (originating region): _____ DATE: 23 July 92
(if applicable) DEP SIGNATURE (destination region): _____ DATE: _____

CK/TRACTOR REGISTRATION 162377 MA
LER REGISTRATION 38806 MA
T SITE AT _____ DATE 8/6/92
ERATOR OR RECEIVING FACILITY REPRESENTATIVE'S
NATURE: _____

QUANTITY SHIPPED: wt (tons) vol (cu yds)
TOTAL PROJECTED ___ ___
SHIPPED TO DATE ___ ___
THIS LOAD (estimated) 26.94 ___
REMAINING TO BE SHIPPED ___ ___
Ticket # R 72993

NSPORTER'S SIGNATURE _____ DATE 8/6/92
EIVING FACILITY REPRESENTATIVE'S SIGNATURE _____ DATE 8/6/92 ARR TIME 8:53

IVED
1 1992
P
- Req.

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BWSC/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

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

BILL OF LADING
POLICY # WSC-89-001

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

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

SITE OF GENERATION:
STREET BUILDING 2432 1K #2 F.O. UST #32
TOWN FORT DEVENS
STATE MA 01433
TRANSPORTATION ACCIDENT? __Y X N

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

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

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

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

ENERATOR'S SIGNATURE: M J Doherty DATE: 7-20-92
ABOVE ITEMS MUST BE COMPLETED PRIOR TO DEP AUTHORIZATION

UTHORIZATION: DEP SIGNATURE (originating region): John C. Ellis DATE: 23 July 92
(if applicable) DEP SIGNATURE (destination region): _____ DATE: _____

RUCK/TRACTOR REGISTRATION _____
RAILER REGISTRATION _____
EFT SITE AT _____ DATE _____
ENERATOR OR RECEIVING FACILITY REPRESENTATIVE'S
SIGNATURE: _____

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

TRANSPORTER'S SIGNATURE _____ DATE _____

RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE _____ DATE _____ ARR TIME _____

CEIVED
- 2 1 1992
DEP
tral - Req.

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

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

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

6.12 PERMITS AND CERTIFICATIONS

The following permit was obtained from the Fort Devens Fire Department for the proper closure of a UST. Following the permit there is a disposal receipt for the steel UST.

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC SAFETY—DIVISION OF FIRE PREVENTION

PERMIT

FOR REMOVAL AND TRANSPORTATION TO APPROVED TANK YARD

8.02 8.46 M.G.L.

DIG SAFE NUMBER
920205 05
Start Date 2/19/92

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

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

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

State clearly type of inert gas used in steel storage tank

Steel tank: Dry ice
method

FDID# 17919

Fee paid $ N/A

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

Location to which tank will be transported

14901
Approved tank yard#

This permit will expire 31 Jan 1992

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

RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK

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

APPROVED TANK YARD NO. 1 4 9 0 1

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

I certify under penalty of law I have personally examined the underground steel storage tank delivered to this "approved tank yard" by firm, corporation or partnership ATEC Environmental Assoc. and accepted same in conformance with Massachusetts Fire Prevention Regulation 502 CMR 3.00 Provisions for Approving Underground Steel Storage Tank dismantling yards.
A valid permit was issued by LOCAL Head of Fire Department FDID# 1 7 9 1 9 to transport this tank to this yard.
Name and official title of approved tank yard owner or owners authorized representative:

James Malanto	CPW	1-28-92
SIGNATURE	TITLE	DATE SIGNED

This signed receipt of disposal must be returned to the local head of the fire department FDID# 1 7 9 1 9 pursuant to 502 CMR 3:00. (EACH TANK MUST HAVE A RECEIPT OF DISPOSAL)

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

DIMENSIONS

	Width (feet)		Length (feet)
k 1	48"	X	10'8"
k 2	-----	X	-----
k 3	-----	X	-----
k 4	-----	X	-----
k 5	-----	X	-----

Tank Removed From
FT. DEVENS - BLDG. #2432 - tank# 32
(no. street)
AYER
(city or town)

Fire Department Permit # Non-listed (if applicable)

26.13 UST CLOSURE CHECKLIST

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

UST-CLOSURE O/C CHECK LIST	Tank 32	Bldg	2432 Fort Devens	
1,000 gal No. 2 fuel				
DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
Calibrate PID & LEL/O2 meters	1/14/92	8:45		Site Topography: gently sloping drainage to SE
Drain & flush piping & pumps	1/14/92	9:30		
Excavate to top of tank	1/14/92	9:45		Depth to tank: ~5'
Vent tank note LEL/O2 levels & times	1/14/92		LEL O2	
		T1: 12:15	0 20.9	
		T2: 12:30	0 20.9	
		T3: 12:45	0 20.9	
		T4:		
		T5:		
		T6:		
		T7:		
		T8:		
		T9:		
		T10:		
		T11:		
		T12:		
Pump & clean tank:	1/7/92		0 gal liquid ~ 15 gal	Tank Dimensions: 4 x 10.5'
Note quantities liquid (gal) & sludge (lbs)	1/14/92		___ lbs. sludge	tank in good condition; some moderate rust, no holes or perf. asphalt coating on bottom cracked falling off
Remove all tank connections, and cap openings	1/14/92	9:45		
Excavate soils to free tank	1/14/92	10:00		
Segregate stained soils: Note PID readings	1/14/92	10:00	PID (ppm) NDIR (ppm)	
(if >10 ppm NDIR also)			74	stock-1
All soils visibly contaminated			25	stock-2

UST-CLOSURE O/C CHECK LIST				
DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
Remove tank, piping, pumps, and hardware.	1/14/92	10:15	Photographic Descriptions:	Soil Description: med brown fine
Photograph excavation; note descriptions.			Photo 1: tank	sand & silt w/some
Sketch Schematic			Photo 2: tank	cobbles, boulders
			Photo 3: excav	
			Photo 4: excav	
			Photo 5:	Depth to Groundwater/Conditions: N/A
			Photo 6:	
Place tank at safe distance from excavation	1/14/92	10:15		Depth of Excavation: 4.5'
Secure tanks transport off-site	1/14/92	10:45		
Obtain 10 soil samples from	1/14/92	10:45	PID (ppm) NDIR (ppm)	Sample locations: 2-3'
excavation walls/bottom: Note PID/NDIR			SS1: 12.4	
readings and sample locations.			SS2: 18.7	
			SS3: 0.8	
			SS4: 102	
			SS5: 11.0	
			SS6: 40	
			SS7: 15.4	
			SS8: 15.2	
			SS9: 7.0	
			SS10: 42	
Obtain 2 soil samples & 1 water samples	1/14/92	10:45		Sample Locations:
for laboratory analysis. Note sample locations.				LSS1: ≃ SS4
				LSS2: ≃ SS10

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

26.14 INSTALLATIONS

The installation of a replacement UST No. 32 was not performed.

27.0 UST No. 0033

27.1 POST REMOVAL REPORT

27.1.1 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. 0033, located at property known as Building 2434, 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 13, 1992.

The basic Project Work Scope included:

- Procurement/administration of all federal, state and local permits, manifests, regulations, etc., associated with UST system closure.

- Excavating, venting, cleaning, transporting, and disposing of one 1,000-gallon UST by appropriately licensed contractors/facilities.

- Disposal of residual UST materials at a licensed facility.

- Field screening and analysis of soil in the excavations by Photoionization Detector (PID) and field analyzed with a portable Non-Dispersive Infrared (NDIR) Analyzer, to identify evidence of a release of oil and hazardous materials from the UST, if any.

- Laboratory Analysis of soil and groundwater sampled from the UST excavation by a USEPA certified laboratory for Total Petroleum Hydrocarbons.

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

27.1.2 Subsurface Storage Tank Excavation and Removal

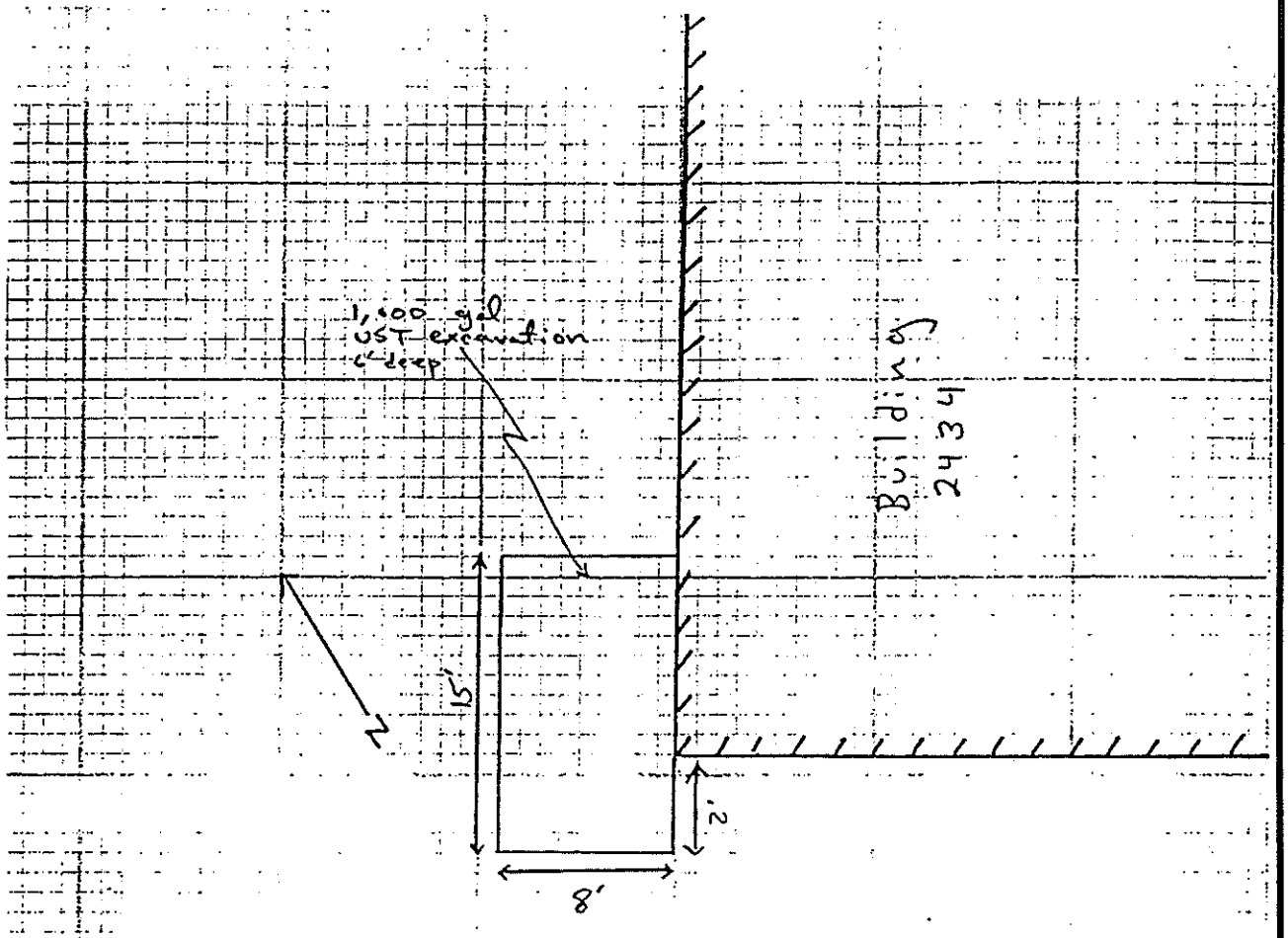
On January 13, 1992, one, 1,000-gallon, subsurface, No. 2 fuel oil, storage tank was excavated and removed from the site. The UST was located adjacent to the southwest corner of Building 2401. Site topography slopes gently downgradient to the southeast.

Soils in the excavation consisted primarily of dense, medium-brown, fine sand and silt with little fine gravel. A layer of gray, silty sand was noted at the southeast corner of the excavation at a depth of approximately three feet below grade to the bottom of the excavation. These soils located at the southeast corner of the excavation were observed to be visibly contaminated and a petroleum odor was evident. The tank was covered by approximately two feet of soil. The bottom of the excavation was approximately six feet below grade. Groundwater was encountered at a depth of approximately six feet below grade. A slight sheen was noted. Excavated soils required to free the tank were visibly contaminated.

The associated piping was drained, and tank connections were removed. UST No. 0033 was estimated to contain 64 gallons of No. 2 fuel oil. Approximately 14 gallons of fuel oil was removed on January 6, 1992, and transported to a licensed T.S.D.F. (Beede Waste Oil Corporation).

Tank openings were capped and the tank was removed from the excavation. The tank was observed to be in good condition with no perforations, punctures or severe corrosion. Following venting of the tank, an access way was cut in the end of the tank to allow entry for cleaning. It was then entered and vacuumed/wiped clean of any residual materials. Approximately 50 gallons of fuel oil and residual materials were removed and drummed on January 13, 1992. Drummed material was transported to Beede Waste Oil on February 25, 1992. See Section 27.10 for copies of the appropriate Hazardous Waste Manifests.

The scrap tank was removed from the site on January 13, 1992 and transported to the Contractor's yard, located on Lake George Street, Fort Devens for temporary storage. The tank was disposed of at Tombarello & Sons, a licensed Massachusetts tank yard on January 24, 1992. A copy of the disposal receipt is included in Section 27.12.



UST LOCATION PLAN

1,000 gallon UST relative to:
Building 2434
Fort Devens, Massachusetts

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 27.1

ATEC

27.1.3 Sampling and Analysis Plan

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

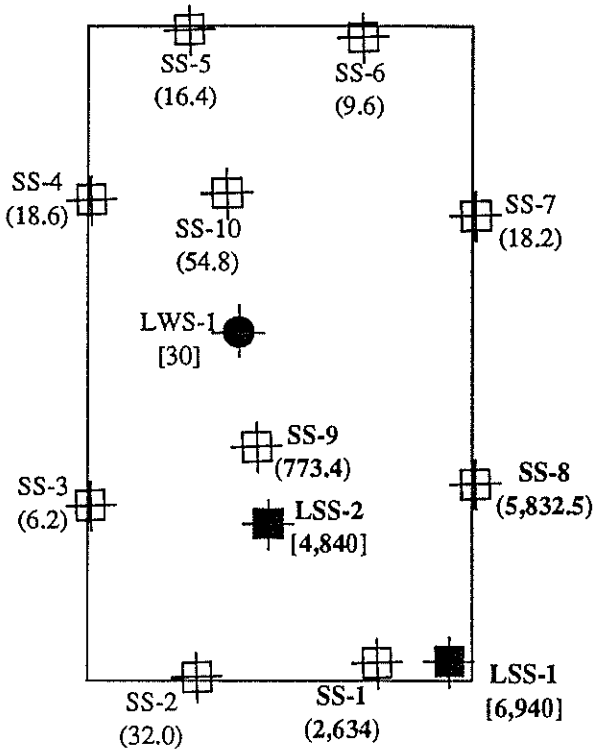
Eight of the samples (SS-1 through SS-8) were obtained from the excavation walls at a depth of approximately two feet, six inches to four feet below grade. Two of the samples (SS-9 and SS-10) were obtained from the bottom of the excavation at a depth of approximately six feet below grade. Two composite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

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

Sampling locations are depicted on the Sampling Schematic as Figure 27.2. The appropriate chain of custody forms are included in Section 27.9, Chain of Custody Forms.

27.1.4 Analytical Results

The results from analysis with the Photoionization Detector (PID) and the Non-Dispersive Infrared (NDIR) Analyzer of the ten samples obtained from the excavation, and the two composite samples obtained from stockpiled soil are as follows:



LEGEND:

Field Screened Soil Sample

Lab Analyzed Soil Sample

( ) NDIR Results in ppm

[ ] Lab Analysis Results in ppm

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

SAMPLING SCHEMATIC

1,000 gallon UST excavation at:
Building 2434
Fort Devens, Massachusetts

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 27.2 UST-33

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TABLE 27.1 - PID AND NDIR RESULTS

Sample No.	PID (ppm TOVs)	NDIR (ppm TPH)
SS-1	128	2,634
SS-2	2.0	32.0
SS-3	0.3	6.2
SS-4	0.0	18.6
SS-5	0.4	16.4
SS-6	0.8	9.6
SS-7	1.0	18.2
SS-8	12.2	5,832.5
SS-9	10.0	773.4
SS-10	2.4	54.8
Stock-1	5.4	526.9
Stock-2	3.4	195.3

Laboratory analytical results of the two soil samples obtained from the excavation revealed a TPH concentration of 6,940 ppm for LSS-1, and 4,840 ppm for LSS-2. Laboratory analysis of the one soil sample (LSS-3) obtained from the stockpiled soils revealed a TPH concentration of 876 ppm. Laboratory analysis of the one groundwater sample (LWS-1) obtained from the excavation revealed a TPH concentration of 30 ppm (see Section 27.8, Laboratory Analytical Results).

27.1.5 Conclusions and Recommendations

ATEC's conclusions are as follows:

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

Groundwater was encountered within the excavation. A slight sheen was observed on groundwater within the excavation.

Excavated soils required to free the tank were visibly contaminated. Soils located within the excavation at the southeast corner (approximately three feet below grade) were visibly contaminated and a petroleum odor was evident.

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 128 ppm. NDIR results revealed TPH concentration ranging from 6.2 ppm to 5,832.5 ppm.

Two soil samples were obtained from the excavation for laboratory analysis for TPH. Analytical results for LSS-1 obtained from the east wall of the excavation revealed a TPH concentration of 6,940 ppm. Analytical results for LSS-2 obtained from the bottom of the excavation revealed a TPH concentration of 4,840 ppm.

One composite, soil sample (LSS-3) was obtained from stockpiled soils for laboratory analysis. Analytical results for LSS-3 revealed a TPH concentration of 876 ppm.

One groundwater sample (LWS-1) was obtained from the excavation for laboratory analysis for TPH. Analytical results for LWS-1 revealed a TPH concentration of 30 ppm.

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

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

Soil borings were advanced and groundwater monitoring wells were installed to determine the vertical and horizontal extent of contamination. Split spoon sampling and analysis was conducted utilizing field analysis techniques, i.e. Photoionization Detector and Non-Dispersive Infrared Analysis, and laboratory analysis to document soil contamination levels.

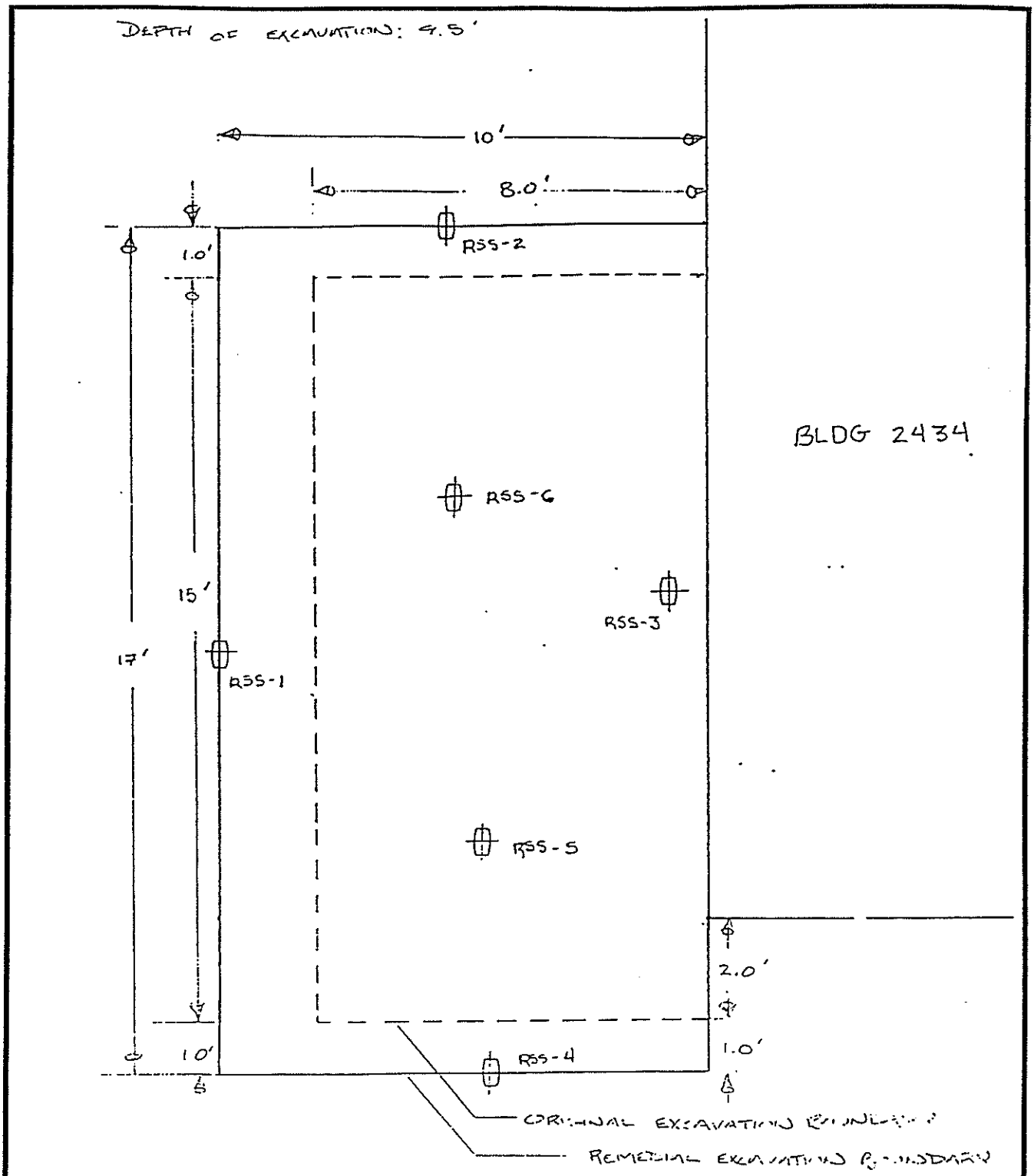
Additionally excavated soils and stockpiled soils were laboratory analyzed for Total Petroleum Hydrocarbons, Volatile Organic Compounds, PCBs, Semivolatile Organic Compounds, 13 TCLP Metals, flashpoint and corrosivity for disposal classification.

27.22 SITE REMEDIATION AND CONTAMINATED SOIL DISPOSAL

27.2.1 Site Remediation

Following initial PID screening, additional excavation to remove contaminated soil and reach background levels (<1 ppm TOVs) by PID was conducted per order of the Contracting Officer's Representative and David Salvadore of the Massachusetts Department of Environmental Protection (DEP). Approximately eighteen tons of contaminated soil were removed from the bottom of the excavation and all sidewalls during remedial excavation on August 5, 1992 (See Remedial Excavation Plan, Figure 27.3). Groundwater was encountered at a depth of approximately 9.5'.

Six soil samples (RSS-1 through RSS-6) were obtained from the post-remedial excavation for PID field screening. RSS-1 through RSS-4 were obtained from the side walls at a depth of approximately five feet below grade. RSS-5 and RSS-6 were obtained from the bottom of the excavation at a depth of approximately nine feet, six inches. Final PID results ranged from 0.0 ppm to 26.0 ppm (see Table 27.2).



REMEDIAL EXCAVATION PLAN

1,000 gallon UST relative to:
Building 2434
Fort Devens, Massachusetts

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE 27.3

ATEC

TABLE 27.2 - PID SCREENING RESULTS

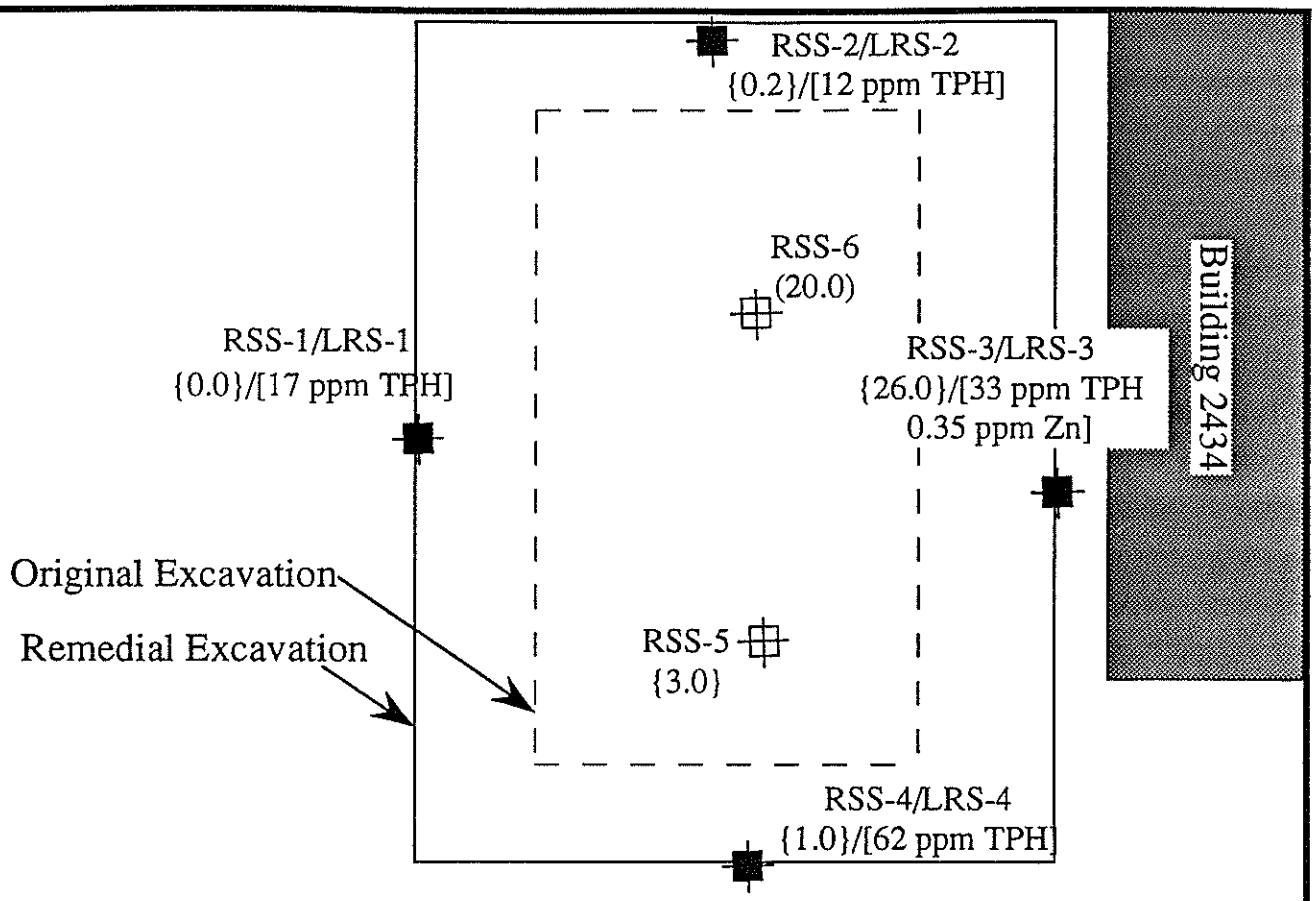
Sample No.	PID (TOVs in ppm)	Location
RSS-1	0.0	N. side wall (5' B.G.)
RSS-2	0.2	E. side wall (5' B.G.)
RSS-3	26.0	S. side wall (5' B.G.)
RSS-4	1.0	W. side wall(5' B.G.)
RSS-5	3.0	Bottom (9.5' B.G.)
RSS-6	20.0	Bottom (9.5' B.G.)

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

Four soil samples (LRS-1 through LRS-4) and one water sample (LWS-1) were obtained for laboratory analysis for Total Petroleum Hydrocarbons. LRS-1 to LRS-4 were obtained from the sidewalls at a depth of five feet below grade. One soil samples (LRS-3) was obtained for laboratory analysis for Volatile Organic Compounds, Total Petroleum Hydrocarbons, and 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP). The following table contains levels revealed by laboratory analysis:

TABLE 27.3 - LABORATORY ANALYSIS

Sample No.	TPH (ppm)	VOA (ppb)	13 TCLP Metals(ppm)	Location
LRS-1	17	ND	ND	N. side wall (5' B.G.)
LRS-2	12	NA	NA	E. side wall (5' B.G.)
LRS-3	33	ND	0.35 (Zn)	S. side wall (5' B.G.)
LRS-4	62	NA	NA	W.side wall (5' B.G.)
LWS-1	1.0	NA	NA	Bottom (9.5' B.G.)



LEGEND

Field Screened Soil Sample

Lab Analyzed Soil Sample

{ } TOV concentration (by PID) in ppm

[ ] TPH, TCLP Metal, VOC concentrations by Lab (as applicable)

Results in bold denote TPH levels greater than the remedial goal of 100 ppm TPH

REMEDIAL SAMPLING SCHEMATIC

1,000 gallon UST excavation at:
Building 2434
Fort Devens, Massachusetts

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 27.4 UST-33

ATEC

LRS = Laboratory Remediation Sample
ND = Not Detected Above the Method Reporting Limit
NA =Not Applicable
B.G.=Below Grade

See Section 27.8 - Laboratory Analytical Results. (See Figure 27.4, Remedial Excavation Sampling Schematic).

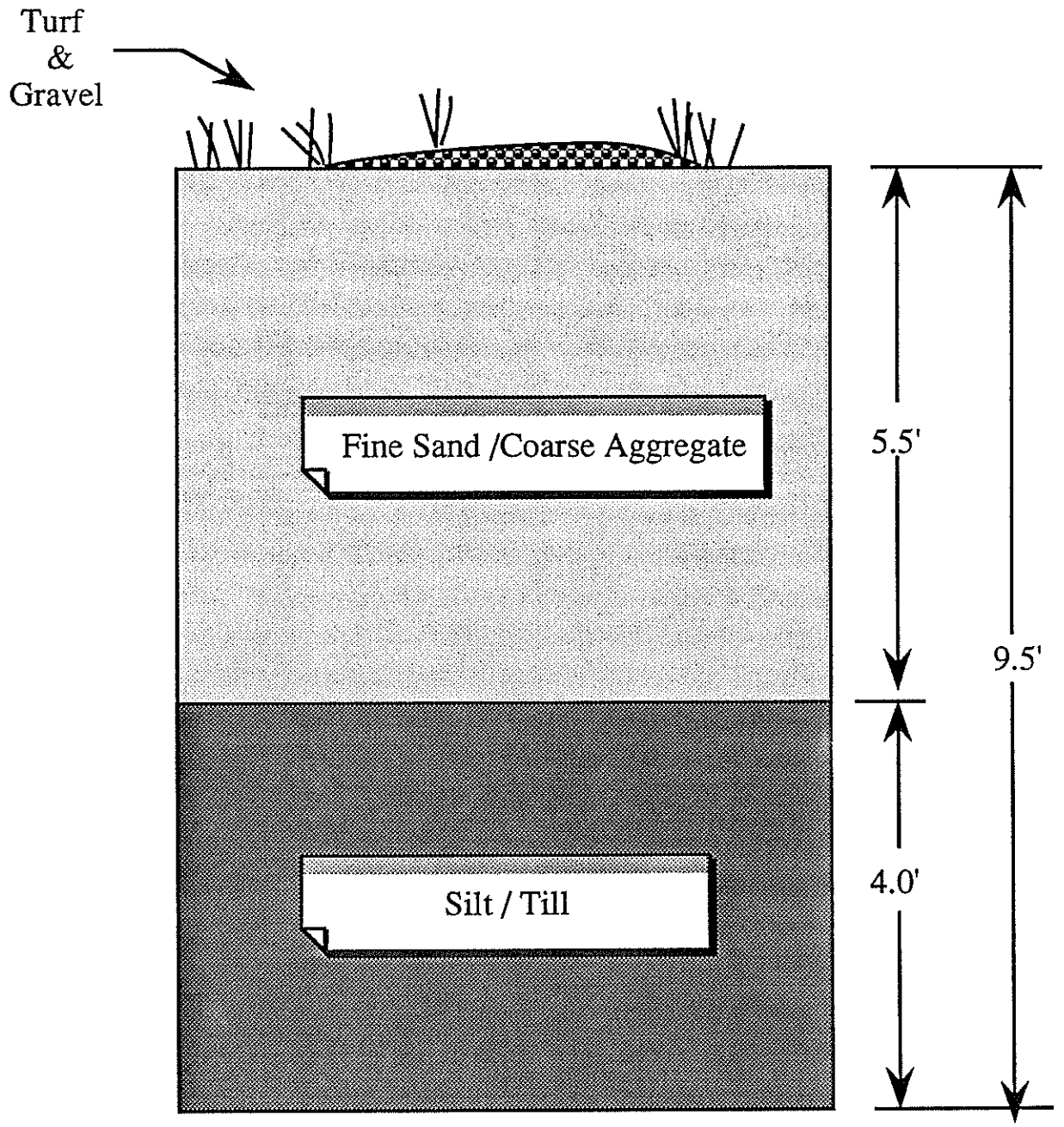
27.2.2 Soil Stratigraphy

The soil stratigraphy of the excavation varied upon the depth of the excavation. The stratigraphy for approximately the first five feet, six inches was a mixture of fine sand and coarse aggregate. The remaining four feet of the excavation was a mixture of silt and till. (See Figure 27.5, Soil Stratigraphy).

27.2.3 Contaminated Soil Disposal

Prior to disposal, contaminated soil was laboratory analyzed for disposal classification purposes. One soil sample (LSP-33) was obtained from stockpiled soil. Laboratory analyses were perfomed for Volatile Organic Compounds, TPH 13 Metals by TCLP. Laboratory analytical results revealed 7.5 S.U. Corrosivity; 10,300 ppb Pyrene, 0.05 ppm Copper, and 0.13 ppm Zinc. All other analytical results were below the Method Reporting Limits. (See Section 27.8 Laboratory Analytical Results).

Approximately 35.03 cubic yards (≈ 52.54 tons) of No. 2 fuel oil contaminated soil was removed and stockpiled during UST removal and remediation of the excavation (See Figure 27.3 - Remedial Excavation Plan). Contaminated soil was disposed for recycle at Trimount Bituminous Products Company, Shrewsbury, Massachusetts. Copies of Weight Receipts and Bills of Lading are included in Section 27.11.



SOIL STRATIGRAPHY

1,000 gallon UST excavation at:
Building 2434
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

UST-33

FIGURE 27.5

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3 HYDROGEOLOGICAL SERVICES

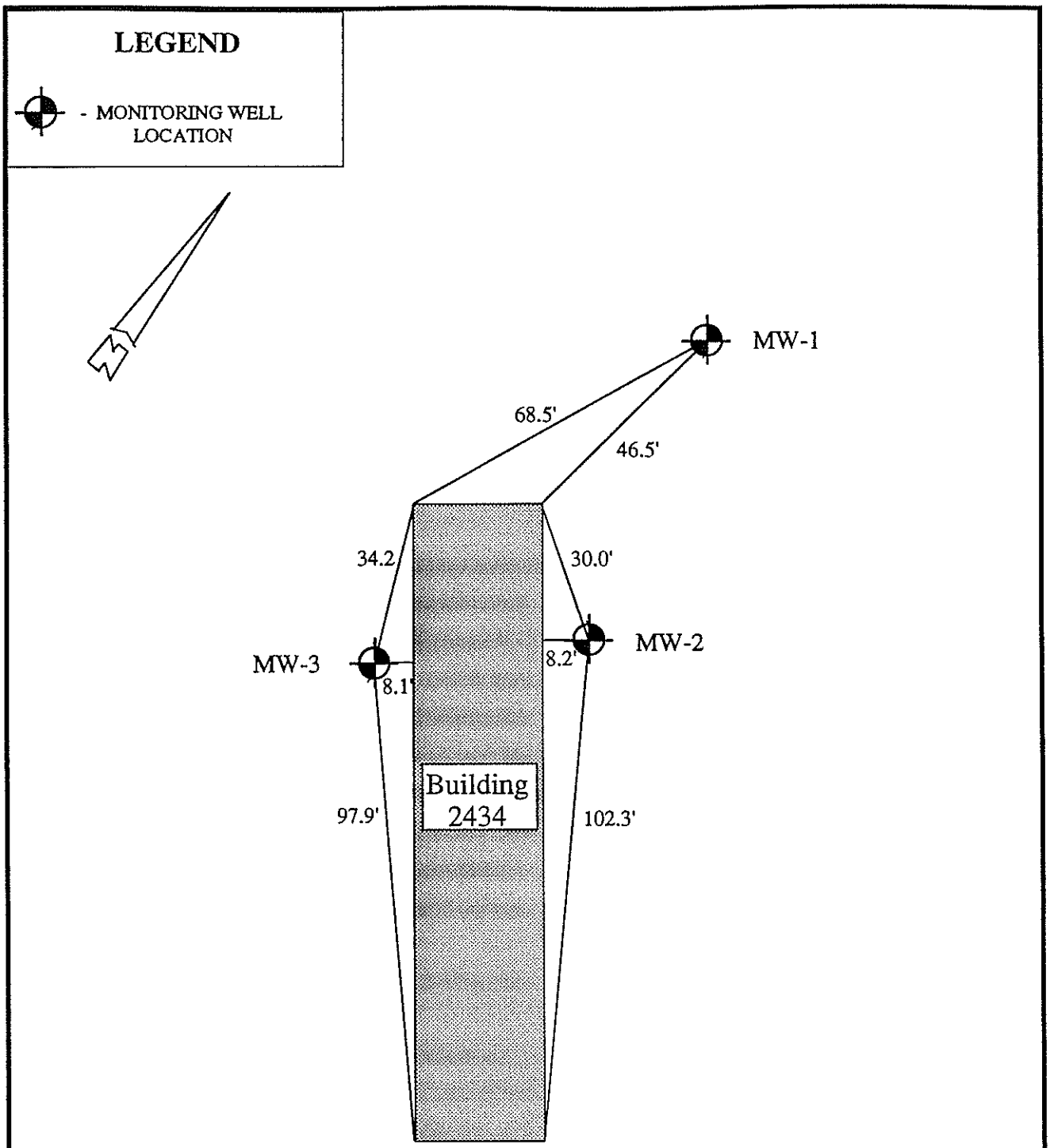
27.3.1 General Explanation of Procedures

At the time of removal of UST No. 0033, laboratory analysis of one soil sample obtained from the south wall of the excavation revealed a TPH concentration of 6,940 ppm. Laboratory analysis of a second soil sample obtained from the bottom of the excavation revealed a TPH concentration of 4,840 ppm. One groundwater sample was collected from the excavation and laboratory analysis revealed a TPH concentration of 30 ppm. Based on the analytical results, three groundwater monitoring wells were installed in the vicinity of UST No. 0033 to assess soil and groundwater conditions.

Prior to advancing soil borings at the site, "Dig-Safe" was contacted. Dig-Safe contacts various utilities to mark their service connections on public ground surfaces. Site plans depicting underground utilities (i.e. water, gas, and sewer) were obtained and reviewed. Geosearch, Inc. of Leominister, Massachusetts, was subcontracted by ATEC to install the monitoring wells at the site. Monitoring well borings were advanced on August 20, 1992, utilizing hollow-stem auger drilling techniques. Split-spoon samplers were utilized to collect subsurface soil samples and determine soil types at five foot intervals.

27.3.2 Soil Borings for Monitoring Wells

Monitoring well MW-1 was installed approximately forty-five feet north of Building 2434 and approximately sixty-five feet north of the backfilled tank excavation (see Figure 27.6 - Site Plan). MW-1 is located hydrogeologically upgradient from the former UST No. 0033. MW-1 was advanced to a depth of twenty-one feet to assess the potential release of No.2 fuel oil from the removed UST. Soil types encountered from grade level to a depth of approximately twenty-one feet below grade consisted primarily of medium-dense, gray-brown, clayey silt containing trace coarse gravel, cobbles and lithic fragments. Concentrations of Total Organic Vapors (TOVs) were not detected by field screening with a PID. Furthermore, no petroleum odors were noted. Auger refusal was not encountered during drilling. Groundwater was not encountered during drilling. See Section 27.3.8 - Boring Logs for further information.



SITE PLAN
GROUNDWATER MONITOR WELLS
RELATIVE TO: UST No. 0033
BUILDING 2434
FORT DEVENS, MASSACHUSETTS

PROJECT: 31.07.451

SCALE: 1 : 374

FIGURE: 27.6

ĀTEC©

Monitoring well MW-2 was installed approximately eight feet east of Building 2434 and approximately thirty-five feet southeast of the backfilled tank excavation (Figure 27.6 - Site Plan). MW-2 is located hydrogeolgically crossgradient from the former UST No. 0033. MW-2 was advanced to a depth of fifteen below grade to assess the potential release of No.2 fuel oil from the removed UST. Soil types encountered from grade level to a depth of approximately six feet below grade consisted primarily of medium-dense, tan-brown, silt containing trace coarse gravel grading to medium-brown fine sand. Soil types encountered from a depth of approximately six feet below grade to fifteen feet below grade consisted primarily of dense to medium-dense, tan-brown, clayey silt with trace gravel. Concentrations of Total Organic Vapors (TOVs) were not detected by field screening with a PID. Furthermore, no petroleum odors were noted. Groundwater was encountered at a depth of approximately ten feet below grade. Auger refusal was not encountered during drilling. See Section 27.3.8 - Boring Logs for further information.

Monitoring well MW-3 was installed approximately eight feet west of Building 2434 and approximately thirty-five feet southeast of the backfilled tank excavation (see Figure 27.6 - Site Plan). MW-3 is located hydrogeolgically downgradient from the former UST No. 0033. MW-3 was advanced to a depth of sixteen feet, six inches below grade to assess the potential release of No.2 fuel oil from the removed UST. Soil types encountered from grade level to a depth of approximately sixteen feet, six inches below grade consisted primarily of medium-dense, tan-brown, clayey silt with trace gravel. Concentrations of Total Organic Vapors (TOVs) were not detected by field screening with a PID. Furthermore, no petroleum odors were noted. Groundwater was encountered at a depth of approximately ten feet below grade. Auger refusal was not encountered during drilling. See Section 27.3.8 - Boring Logs for further information.

27.3.3 Details of Monitoring Well Construction

Monitoring wells were typically constructed of a length of bottom-plugged, two inch diameter Polyvinyl Chloride (PVC) well screen (0.010 inch slot) followed by a length of two inch diameter PVC solid riser to grade level. No. 2 washed, silica sand was packed to approximately one foot above the screen followed by a one to two foot thick bentonite grout packing. The remainder of the boring was backfilled with washed silica sand and concrete surface seal to grade. Monitoring wells were fitted with a water tight 4 four inch diameter, flush mount, cast iron road box.

27.3.4 Standard Type Survey and Determination of Groundwater Gradient

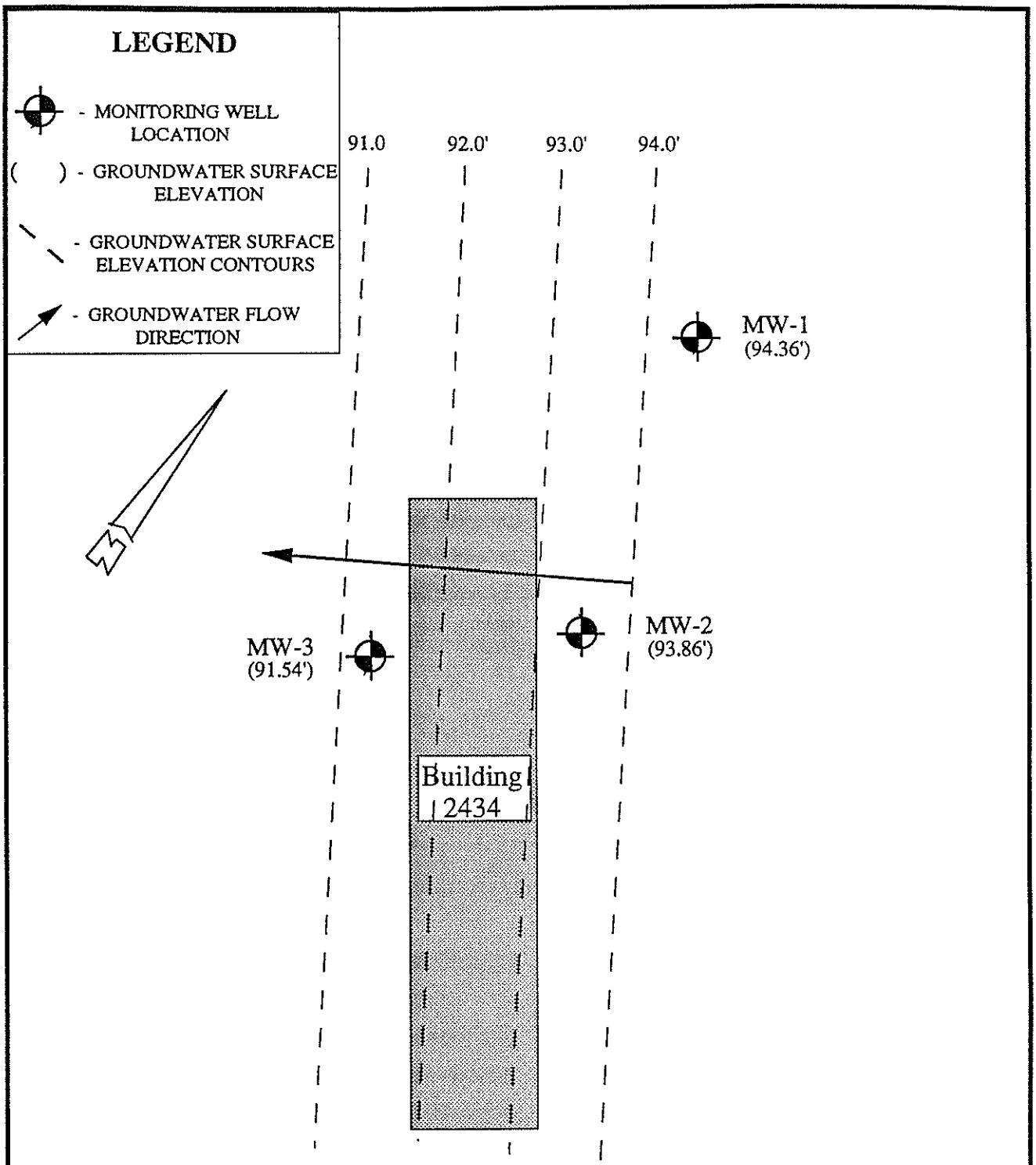
An instrument survey was conducted by Glen Harrington, Environmental Scientist, and Rob Signatelli, Environmental Scientist, to determine the relative locations and elevations of the groundwater monitoring wells and significant surficial features. An arbitrary datum was established by assigning a fire hydrant located between Building 2432 and Building 2433 an elevation of 100.0 feet. All reported groundwater elevations are referenced to the fire hydrant. The monitoring wells were gauged utilizing an electronic water level meter prior to sampling to determine the groundwater elevations at each well.

Groundwater elevations were then calculated utilizing the survey and gauging data from MW-1, located north of former UST No. 0033, MW-2 located east of former UST No. 0033 and MW-3 located south of former UST No. 0033 (refer to Figure 27.7 - Groundwater Contours). Based on the gauging data, groundwater in the area flows generally to the southwest across the site at a lateral hydraulic gradient of 4.97 percent. Groundwater at the site occurs at depths of 8.99 feet, 9.15 feet, 9.50 feet below grade for MW-1, MW-2 and MW-3, respectively.

A summary of groundwater elevations measured at the three monitoring wells installed at the site are included in Table 27.4.

TABLE 27.4 - SUMMARY OF GROUNDWATER ELEVATIONS

Monitoring Well	Date	Rim Elevation (ft)	Depth to Groundwater	Groundwater Elevation (ft)
MW-1	11-02-92	103.35	8.99	94.36
MW-2	11-02-92	103.01	9.15	93.86
MW-3	11-02-92	101.04	9.50	91.54



GROUNDWATER CONTOURS

RELATIVE TO: UST No. 0033
BUILDING 2434
FORT DEVENS, MASSACHUSETTS

PROJECT: 31.07.451

SCALE: 1 : 374

FIGURE: 27.7

ĀTEC©

27.3.5 Results of Groundwater Chemical Analyses

Groundwater monitoring wells MW-1, MW-2 and MW-3 were sampled on November 2, 1992. The groundwater samples were analyzed for TPH. Prior to sampling, approximately three well volumes of groundwater were purged from the well. Groundwater samples were placed directly into pre-labelled, pre-cleaned 500-ml amber glass jars and placed on ice for immediate shipment to the laboratory. The samples were analyzed by Environmental Science Services (ESS) of Providence, Rhode Island. Chain-of-custody forms were completed and included in the shipment.

Laboratory analytical results revealed no detectable concentrations of TPH in the groundwater samples collected from MW-1, MW-2 or MW-3.

A summary of the groundwater analytical results are included in Table 27.5.

TABLE 27.5 - SUMMARY OF GROUNDWATER ANALYSES

Sample I.D	TPH
MW-1	ND
MW-2	ND
MW-3	ND

ND - Not detected

27.3.6 Summary of Findings

On August 20, 1992 three groundwater monitoring wells were installed to assess soil and groundwater conditions in the vicinity of UST No. 0033. Soil samples collected during drilling were screened in the field for TOVs utilizing a PID. PID field screening results did not indicate the presence of petroleum hydrocarbon contamination.

Results of laboratory analyses did not reveal detectable TPH concentrations in the groundwater samples collected from MW-1, MW-2 or MW-3.

27.3.7 Recommendations

Based on the analytical results, i.e. low soil TPH concentrations and the absence of detectable TPH concentrations in the groundwater, ATEC does not recommend any immediate investigative or remedial action at this time. However, to ensure that the environmental integrity of the site is maintained, ATEC recommends periodic sampling of the groundwater for TPH.

27.3.8 Boring Logs

The attached boring logs were recorded during drilling and monitoring well installation activities of MW-1, MW-2, and MW-3 located at Building 2434, Fort Devens, Massachusetts on August 20, 1992. The purpose of the borings and monitoring well installations was to assess for potential petroleum hydrocarbon contamination associated with one 1,000-gallon No.2 fuel oil UST removed from the site.

TEC ENVIRONMENTAL CONSULTANTS

GROUND WATER MONITORING WELL BORING/INSTALLATION LOG

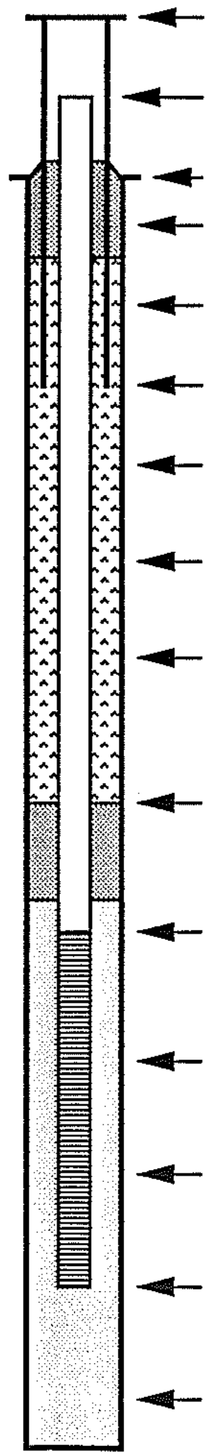
LOG OF BORING/WELL: MW-1

OJECT NAME: US Army Multisite
OJECT NUMBER: 37.07.451
OJECT LOCATION: Bldg 2434, Ft. Devens
RING LOCATION: See Site Schematic

FOREMAN: Matt Bovenzi, Geosearch Inc.
INSPECTOR: Mark Baldi
DATE: 8/20/92

SOIL/ROCK DESCRIPTION	DEPTH FEET	SAMP. NO.	S.P.T.
phalt cover over dark rown topsoil	0-.5	—	—
sse - med. dense, grey-brown yey silt w/trace f-m ravel. Very tight soil PID=0.1ppm	4-6	SS-1.1	6.6 9, 13
se to very dense, grey-wn, clayey silt w/trace m gravel, rock fragments, + lders. Very tight soil PID-	9-10	SS-1.2	29.70
se, grey-brown, clayey lt w/trace f-m gravel, lders. Very tight soil D=	14-16	SS-1.3	31.36 37.40
H₂O Table	16'		
d dense to dense, clayey lt w/little f-m gravel, k fragments. Very tight il. Very tight soil	19-21	SS-1.4	9.14 17.33

ill cuttings PID= 0.0



- Length of Protect. Casing Above Surface Elevation: 0'
- Length of Riser Pipe Above Surface Elevation: 0'
- Surface Elevation
- Type/Thickness of Surface Seal: 1' concrete
- ID/Type of Protect. Casing: flushmount CI roadbox
- Depth Bottom of Casing: 2'
- ID/OD/Type of Riser Pipe: 2" PVC
- Diameter of Borehole: 8"
- Type of Backfill Around Riser Pipe: common
- Depth/Type of Bottom Seal: 4-6' Bentonite
- Depth Top of Pervious Pipe: 5'
- ID/OD/Type of Pervious Pipe: 2" PVC .10 slot
- Type of Backfill Around Pervious Pipe: washed silica
- Depth Bottom of Pervious Pipe: 20'
- Type of Backfill Below Pervious Pipe: Native

ATEC ENVIRONMENTAL CONSULTANTS

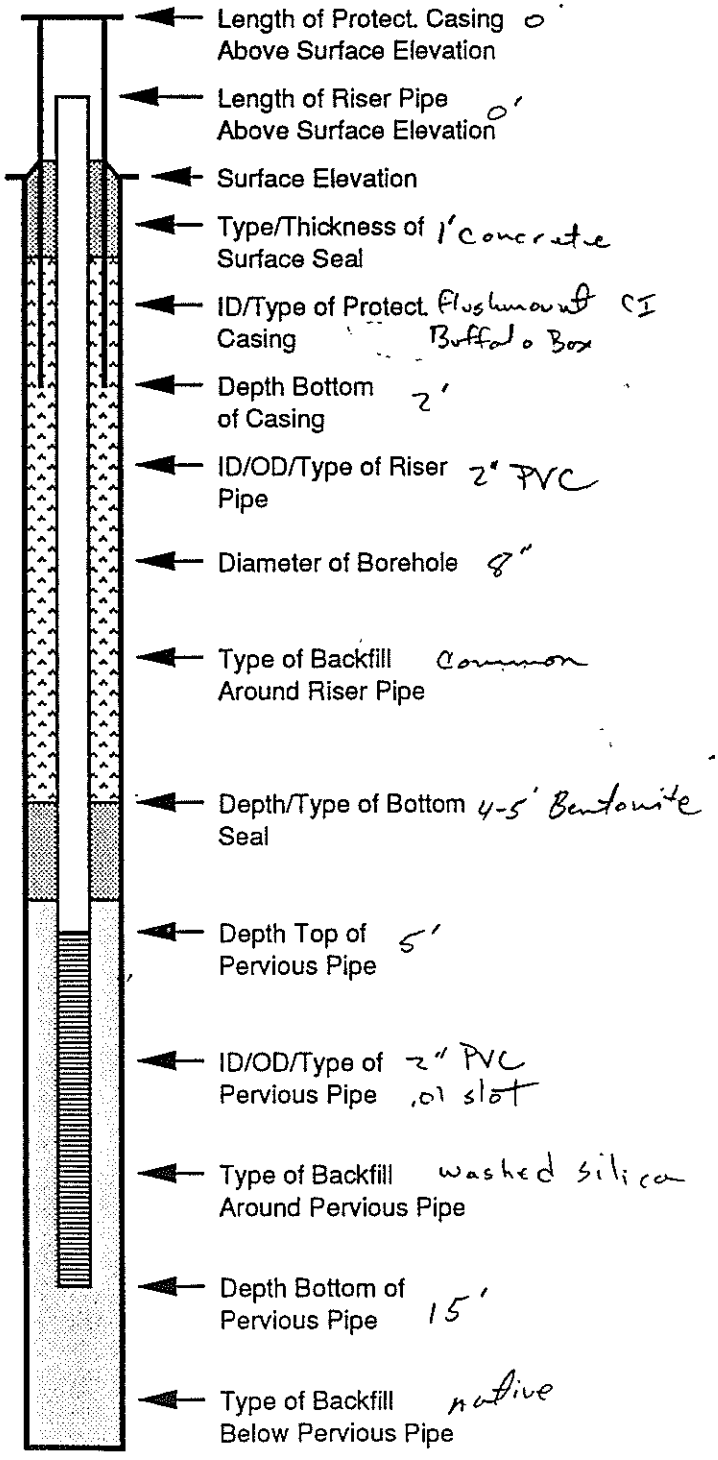
GROUND WATER MONITORING WELL BORING/INSTALLATION LOG

LOG OF BORING/WELL: MW-2

OJECT NAME: US Army Multisite
OJECT NUMBER: 39.02.451
OJECT LOCATION: UST 33 - Bldg 2434, Ft Devens
RING LOCATION: See Site Schematic

FOREMAN: Matt Borenzi, Geosearch Inc
INSPECTOR: Mark Babbi, ATEC
DATE: 8/20/92

SOIL/ROCK DESCRIPTION	DEPTH FEET	SAMP. NO.	S.P.T.
ry loose to med dense, -3" topsoil, 3"-1' black inder/slag, 1'-2' tan-brown, silt w/little fine gravel ID=	0-2	SS 2,1	2.3 8.16
ed dense to loose, tan brown, lt w/little fine gravel gradi med brown fine sand nd silt w/little fine grav. ID=	4-6'	SS 2,2	12.10 9.9
ed dense to dense, tan brown, ayey silt w/little fine grav ace boulders, moist. PID= — H.C table —	9-11' 10'	SS 2,3	15/16 33.41
ense to very dense, gray brown layey silt w/trace fine gravel ID=	14-15'	SS 2,4	32.50



Drill cuttings PID = 0.0

TEC ENVIRONMENTAL CONSULTANTS

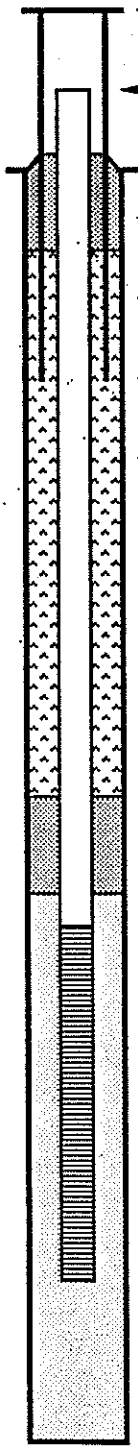
GROUND WATER MONITORING WELL BORING/INSTALLATION LOG

LOG OF BORING/WELL: MW-3

OJECT NAME: US Army Multisite
OJECT NUMBER: 37.07.451
OJECT LOCATION: UST 33-B 642434 Ft. Devens
RING LOCATION: See Site Schematic

FOREMAN: Matt Bovenzi, Groseareh Inc
INSPECTOR: Mark Baldi, TEC
DATE: 8/20/92

SOIL/ROCK DESCRIPTION	DEPTH FEET	SAMP. NO.	S.P.T.
ry loose to med dense, 0-6" h brown topsoil; 6"-2' n brown, tight silt. PID=	0-2'	SS-3.1	4, 9 15, 20
ed dense, tan, silt w/little f-m gravel. PID=	4-6'	SS-3.2	16, 15 13, 15
lense, tan-grey, silt w/little f-m gravel grading - H2O Table 10"	9-10'	SS-3.3	26, 31
light brown, fine sand & lt w/little f-m gravel TD=	10'-11	SS-3.3	37, 45
ense to very dense, grey brown, ight silt w/trace f-m gravel PID	15-16.5'	SS 3.4	36, 50 50



Length of Protect. Casing Above Surface Elevation 0'

Length of Riser Pipe Above Surface Elevation 0'

Surface Elevation

Type/Thickness of Surface Seal 1' concrete

ID/Type of Protect. Casing Flushmount CI Buffalo Box

Depth Bottom of Casing 7'

ID/OD/Type of Riser Pipe 2" PVC

Diameter of Borehole 8"

Type of Backfill Around Riser Pipe common

Depth/Type of Bottom Seal 9-10' Bentonite

Depth Top of Pervious Pipe 10'

ID/OD/Type of Pervious Pipe 2" PVC .01 slot

Type of Backfill Around Pervious Pipe washed silica

Depth Bottom of Pervious Pipe 15'

Type of Backfill Below Pervious Pipe native

Drilling cuttings => PID=

27.4 BACKFILL

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

27.5 SURFACE RESTORATION

Following backfill of the excavation, one hundred seventy square feet of loam was spread. Seeding was conducted to complete surface restoration on October 21, 1992.

27.6 PHOTOGRAPHIC DOCUMENTATION

The following photographs are of the removed UST excavation:

A-1: One side of removed tank.

A-2: Opposite side of removed tank.

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

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

A-1

A-2

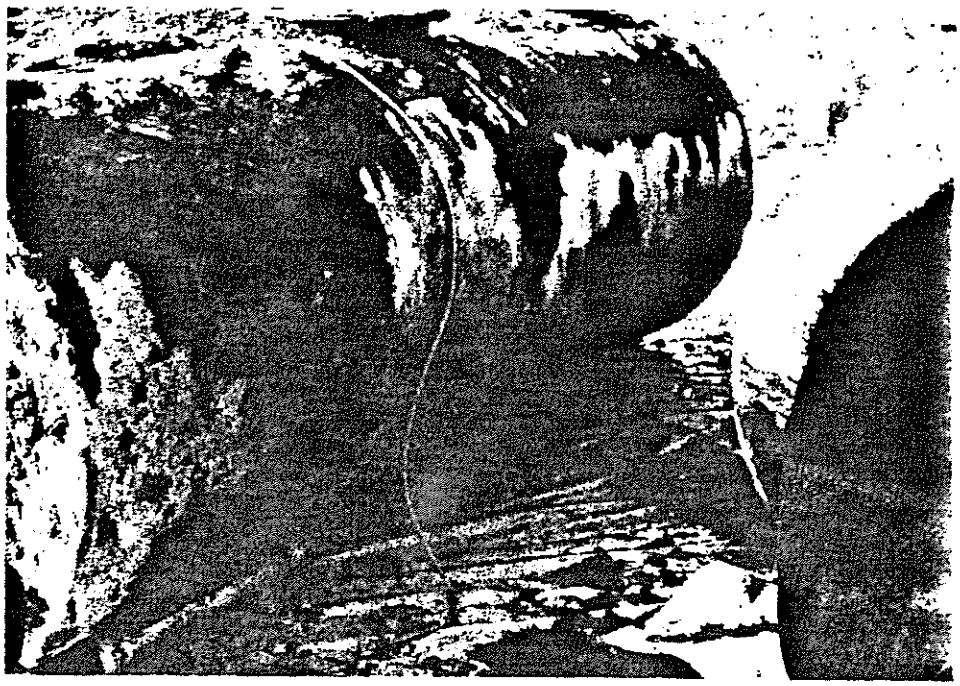
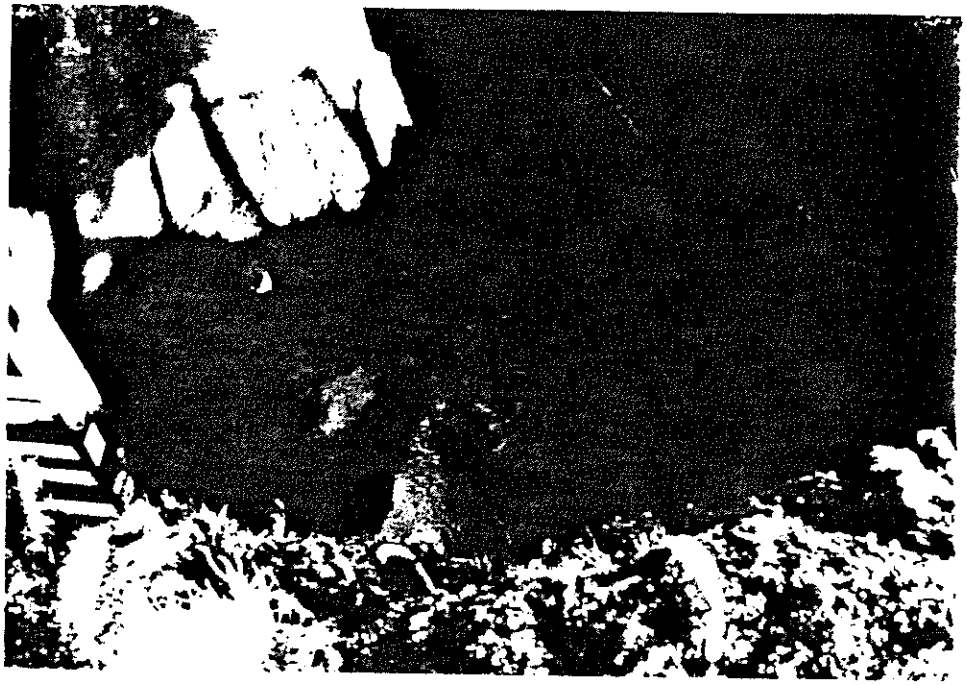


PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 2434 Fort Devens, Massachusetts	PROJECT: 37.07.91.00451	ĀTEC

A-3



A-4

PHOTO DOCUMENTATION

1,000 gallon UST excavation at:
Building 2434
Fort Devens, Massachusetts

PROJECT: 37.07.91.00451

ATEC

27.7 OCMA 220 DATA SHEETS

OCMA 220 Data Sheets

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

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

OCMA Data Sheet

Operator Name: RW Gremaux Date: 14 JAN 92 EBI Project Number: 37.07.45.1

TK# 85

Calibration

	First Reading Initial	First Reading Final	Second Reading Initial	Second Reading Final	Third Reading Initial	Third Reading Final
Zero Calibration	1.8	0.0	-0.6	0.0	-0.1	0.0
Span Calibration						
Zero Calibration						

Span Check: 27.5

Testing

Sample ID#	Weight Gross	Weight Tare	First Approach F-113	First Approach Sample	Second Approach F-113	Second Approach Sample	Readings First	Readings Second	Readings Third	
STD #1	81.6	75.3		3 ml		3 ml	17.2	16.2	16.2	526.9
STD #2	83.4	74.9		↓		3 ml	8.5	8.1	8.1	145.3
1	79.9	73.6		1 ml		1 ml	30.3	29.8	29.9	7634.0
2	77.4	72.2		↓		1 ml	.3	0.3	—	32.0
3	83.0	74.1				1 ml	0.1	0.1	—	6.2
4	80.1	74.1		3 ml		3 ml	0.2	0.3	0.3	18.6
5	80.0	75.0				3 ml	0.4	0.4	—	16.4
6	81.6	74.1				3 ml	0.2	0.2	0.2	9.6
7	79.4	79.9				3 ml	0.4	0.4	—	18.2
8	81.4	73.1		1 ml		1 ml	58.5	57.9	57.8	5832.5
9	86.0	73.9		3 ml		2 ml	27.1	26.8	26.8	773.4
10	86.8	75.2					2.0	1.9	1.9	54.8

27.8 LABORATORY ANALYTICAL RESULTS

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

- LSS-1, LSS-2, and LSS-3: Soil samples obtained from original excavation. Laboratory analyzed for TPH (Method 418.1).

- LWS-1 (dated January 1992): Groundwater sample obtained from excavation. Laboratory analyzed for TPH (Method 418.1).

- LRS-1, LRS-2, LRS-3, LRS-4: Soil samples obtained from Post-remedial excavation. Laboratory analyzed for TPH (Method 418.1). LRS-3 also analyzed for VOCs (Method 8240), and 13 Metals by TCLP (Meethod 6010).

- LWS-1 (dated August 1992): Groundwater sample obtained from Post-remedial excavation. Laboratory analyzed for TPH (Method 418.1).

- LSP-33: Soil sample obtained from stockpiled soil for disposal classification. Laboratory analyzed for VOCs (Method 8240), TPH (Method 418.1.), Corrosivity (pH) Method 9045), Flashpoint (Method 1010), Polychlorinated Biphenyls (Method 8080), Reactive Cyanide (Method 7.3.3.2), Reactive Sulfide (Method 7.3.4.1), 13 Metals by TCLP (Method 6010), Semivolatile Organics (Method 8270).

- MW-1, MW-2, MW-3: Soil samples obtained from monitoring wells. Laboratory analyzed for TPH (Method 418.1).

In Response To The Future

TIFICATE OF ANALYSIS

Date: 1/22/92 Job: 114
Account: 95659
Received: 1/14/92

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

Project: TANK 33

: Mr. Mark Baldi

ple ber	Method Number	Parameter	Result	Unit	Sample Description
1401	EPA-160.3	Total Solids	89	%	LSS-1
	EPA-418.1	TPH/IR (Dry Wt.)	6940	mg/kg	
1402	EPA-160.3	Total Solids	87	%	LSS-2
	EPA-418.1	TPH/IR (Dry Wt.)	4840	mg/kg	
1403	EPA-160.3	Total Solids	90	%	LSS-3
	EPA-418.1	TPH/IR (Dry Wt.)	876	mg/kg	
1404	EPA 418.1	TPH/IR	30	mg/L	LWS-1

David Dickinson
Laboratory Manager

: 1

In Response To The Future

RTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 33, Bldg. 2434 — **ESS Project ID:** 922024

Client Sample ID: LRS-1 — **ESS Sample ID:** 922024-01

Date Sample Received: 8/5/92 — **Date Reported:** 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	89	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	17	mg/Kg	11	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

001

In Response To The Future

RTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 33, Bldg. 2434 — **ESS Project ID:** 922024

Client Sample ID: LRS-2 — **ESS Sample ID:** 922024-02

Date Sample Received: 8/5/92 — **Date Reported:** 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	88	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	12	mg/Kg	11	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

002

In Response To The Future

RTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 33, Bldg. 2434 — ESS Project ID: 922024

Client Sample ID: LRS-3 — ESS Sample ID: 922024-03

Date Sample Received: 8/5/92 — Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	88	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	33	mg/Kg	11	418.1
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Zinc	0.35	mg/L	Attached	6010

TPHIR reported on dry weight basis

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

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

003

In Response To The Future

RTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: UST 33 — ESS Project ID: 922024

Client Sample ID: LRS-3 — ESS Sample ID: 922024-03

Date Sample Received: 8/5/92 — Date Reported: 8/14/92

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

004

In Response To The Future

RTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants
Client Project ID: UST# 33, Bldg. 2434
Client Sample ID: LRS-3
ESS Sample ID: 922024-03

Date Sampled: 8/5/92
Date TCLP Performed: 8/6/92
Date Leachate Extracted: 8/7/92
Date Extract Analyzed: 8/10/92

	Actual		Adjusted*	
Target Analyte	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.2	ND	0.3
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.03
Chromium	ND	0.05	ND	0.05
Lead	ND	0.1	ND	0.1
Mercury	ND	0.005	ND	0.005
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.07
Copper	ND	0.02	ND	0.02
Nickel	ND	0.04	ND	0.04
Zinc	0.35	0.02	0.35	0.02
Beryllium	ND	0.02	ND	0.03
Thallium	ND	0.3	ND	0.4

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

ND = Not Detected above Method Reporting Limit (MRL)

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

005

In Response To The Future

ERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 33, Bldg. 2434 ESS Project ID: 922024

Client Sample ID: LRS-4 ESS Sample ID: 922024-04

Date Sample Received: 8/5/92 Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	89	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	62	mg/Kg	11	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

006

In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-33 ESS Sample ID: 921528-06

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

Parameter	Results	Units	MRL	Method
pH (Corrosivity)	7.5	S.U.	N/A	9045
Flashpoint	No Flash	°F	200	1010
Polychlorinated Biphenyls	ND	mg/Kg	Attached	8080
Reactive Cyanide	ND	mg/Kg	2	7.3.3.2
Reactive Sulfide	ND	mg/Kg	2	7.3.4.1
Semivolatile Organics				
Pyrene	10,300	ug/Kg	Attached	8270
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Copper	0.05	mg/L	Attached	6010
Zinc	0.13	mg/L	Attached	6010

N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92

David Dickinson
Laboratory Director

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

In Response To The Future

ERTIFICATE OF ANALYSIS

POLYCHLORINATED BIPHENYLS
Method 8080

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-33 ESS Sample ID: 921528-06

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

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

ND = Not Detected above Method Reporting Limit (MRL)

Surrogate Recovery Data	% Recovery	QC Limit
Dibutylchlorendate	98%	50 - 150%

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

047

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In Response To The Future

CERTIFICATE OF ANALYSIS

ACID EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-33 ESS Sample ID: 921528-06

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

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92

David Dickinson
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In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-33 ESS Sample ID: 921528-06

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

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92

David Dickinson
Laboratory Director

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In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES cont.
EPA 8270

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-33 ESS Sample ID: 921528-06

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

Parameter	Result (ug/Kg)	MRL
Benzo(a)pyrene	ND	1,670
Benzo(b)fluoranthene	ND	1,670
Benzo(k)fluoranthene	ND	1,670
Chrysene	ND	1,670
Acenaphthene	ND	1,670
Anthracene	ND	1,670
Benzo(ghi)perylene	ND	1,670
Fluorene	ND	1,670
Phenanthrene	ND	1,670
Dibenzo(a,h)anthracene	ND	1,670
Indeno(1,2,3-cd)pyrene	ND	1,670
Pyrene	**10,300**	1,670
Hexachloroethane	ND	1,670
4-Bromophenyl-phenylether	ND	1,670
Benzyl Alcohol	ND	1,670
Benzoic Acid	ND	8,350
Bis(2-Chloroethoxy)methane	ND	1,670
4-Chloroaniline	ND	1,670
2-Methylnaphthalene	ND	1,670
2-Nitroaniline	ND	8,350
3-Nitroaniline	ND	1,670
Dibenzofuran	ND	1,670
4-Nitroaniline	ND	8,350
Butylbenzylphthalate	ND	1,670

ND = Not Detected above Method Reporting Limit (MRL)

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

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050

In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-33 ESS Sample ID: 921528-06

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

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92

David Dickinson
Laboratory Director

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In Response To The Future

ERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants
Client Project ID: Stockpiled Soils
Client Sample ID: LSP-33
ESS Sample ID: 921528-06

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

	Actual		Adjusted*	
Target Analyte	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.1	ND	0.2
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.02
Chromium	ND	0.05	ND	0.05
Lead	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	0.04	0.02	0.05	0.03
Nickel	ND	0.04	ND	0.04
Zinc	0.13	0.02	0.13	0.02
Beryllium	ND	0.02	ND	0.04
Thallium	ND	0.05	ND	0.09

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

ND = Not Detected above Method Reporting Limit (MRL)

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

052

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In Response To The Future

RTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 33, Bldg. 2434 ESS Project ID: 922024

Client Sample ID: LWS-1 ESS Sample ID: 922024-05

Date Sample Received: 8/5/92 Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	1	mg/L	1	418.1

MRL = Method Reporting Limit

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

007

In Response To The Future

RTIFICATE OF ANALYSIS

VOA SOIL SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client Project ID: UST 33

Date Sample Analyzed: 8/13/92

ESS Project ID: 922024

SAMPLE ID	1,2 DICHLOROETHANE-D4 (70-121%)*	TOLUENE-D8 (81-117%)*	BFB (74-121%)*
VS0813B1	102%	96%	105%
922024-03	110	92	92

* Acceptance criteria

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

008

In Response To The Future

RTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: UST 33 — ESS Project ID: 922024

Client Sample ID: Method Blank — ESS Sample ID: VS0813B1

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

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

ND = Not Detected above Method Reporting Limit (MRL)
NA = Not Applicable

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

009

In Response To The Future

RTIFICATE OF ANALYSIS

MATRIX SPIKE ANALYSIS SUMMARY

TCLP METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants Matrix: Solid

TCLP Batch ID: 202301 Concentration in: mg/L

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

This matrix spike analysis summary applies to the following samples:
922024-03

ND = Not Detected above Method Reporting Limit (MRL)

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

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

In Response To The Future

ERTIFICATE OF ANALYSIS

TOTAL PETROLEUM HYDROCARBON-IR
Method 418.1

Client: ATEC Environmental Consultants

Client Project ID: UST #33, Bldg 2434 ESS Project ID: 922989

Date Samples Received: 11/3/92 Date Reported: 11/4/92

Client ID	Lab ID	Results	Units	MRL
MW-1	922989-01	ND	mg/L	1
MW-2	922989-02	ND	mg/L	1
MW-3	922989-03	ND	mg/L	1

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 4/16/92

27.9 CHAIN OF CUSTODY FORMS

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

J. NO. 51 | PROJECT NAME Tank 33 | CLIENT P.O. 19413 | LAB PROJ. NO.

PLERS: (Signature)

PLING METHOD: grab

LABORATORY ANALYSIS

SAMPLE NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED	NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY	SAMPLE LOCATION / REMARKS
51	1/13/92			X		X					1				X					
52	1/13/92			X		X					1				X					Baffle Broken
53	1/13/92			X		X					1				X					
WS1	1/13/92				X						1				X					

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Norwell, MA 02061
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TOTAL P.05

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	1/13/92				
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Project Manager / Phone #:	

PROJ. NO. 07.415.1 | PROJECT NAME Dewars - Tank 35 | CLIENT

LAB PROJ. NO.

SAMPLERS: (Signature)

SAMPLING METHOD: Grab

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
LS51	1/15			X		X						1				X						Sp 1.+
LS52	1/15			X		X						1				X						Sp 1.+
LS53	1/15		X	X		X						1				X						Sp 1.+

LABORATORY ANALYSIS

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	1/15/97				

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

PROJ. NO.

PROJECT NAME FT. DEVENS - REMEDIATION

CLIENT UST # 33, BLDG. 2434

LAB PROJ. NO.

SAMPLERS: (Signature) Craig D. Fordy

SAMPLING METHOD

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS 624	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY	13 TCLP	SAMPLE LOCATION / REMARKS
LRS-1	8-5-92					X				X		1				X						UST #33 BLDG 2434
LRS-2	"					X				X		1				X						"
LRS-3	"					X				X		3		X		X				X		"
LRS-4	"					X				X		1				X						"
LWS-1	"				X					X		1				X						"

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Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Craig D. Fordy	8-5-92 12:15	Derek C Soune-			
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Project Manager / Phone #:	

PROJ. NO. 37.07 451

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

LAB PROJ. NO.

SAMPLERS: (Signature) Craig D. Fromby

SAMPLING METHOD: Composite

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS 8240	~~BNEX~~ SEMI VOA 8270	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS (8 TCLP)	~~TOTAL METALS (8)~~	IGNITABILITY 6010	PH	CYANIDE SULFIDE REACTION	SAMPLE LOCATION / REMARKS
SP - 28	6-9-92		X			X				X		3		X	X	~~X~~	X		X	X	X	X	BLDG. 2290
SP - 29	"		X			X				X		3		X	X		X		X	X	X	X	" 2296
SP - 30	"		X			X				X		3		X	X		X		X	X	X	X	" 2401
SP - 31	"		X			X				X		3		X	X		X		X	X	X	X	" 2419
SP - 32	"		X			X				X		3		X	X		X		X	X	X	X	" 2439
SP - 33	"		X			X				X		3		X	X		X		X	X	X	X	" 2434
LSP - 34	"		X			X				X		3		X	X		X		X	X	X	X	" 2447
LSP - 35	"		X			X				X		3		X	X		X		X	X	X	X	" 2452
LSP - 36	"		X			X				X		3		X	X		X		X	X	X	X	" 2458
LSP - 37	"		X			X				X		3		X	X		X		X	X	X	X	" 2461
LSP - 38	"		X			X				X		3		X	X		X		X	X	X	X	" 2519
LSP - 39	"		X			X				X		3		X	X		X		X	X	X	X	" 2520
LSP - 40	"		X			X				X		3		X	X		X		X	X	X	X	" 2686
LSP - 41	"		X			X				X		3		X	X		X		X	X	X	X	" 2732
LSP - 42	"		X			X				X		3		X	X	X	X		X	X	X	X	" 3525
LSP - 43	"		X			X				X		3		X	X	X	X		X	X	X	X	" 3573

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

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PROJ. NO. 37.07.45

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

LAB PROJ. NO. Given 1528 81-296

SAMPLERS: (Signature)
Chuck Langenhagen

SAMPLING METHOD
Grab/Composite

LABORATORY ANALYSIS

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

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

PROJ. NO. 37.07.451

PROJECT NAME USI 33 B12g 2424

CLIENT US Army

LAB PROJ. NO.

SAMPLERS: *(Signature)* Derek Witt

SAMPLING METHOD

LABORATORY ANALYSIS

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

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(617) 878-6200

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Derek Witt	11/2	Manuel Ferreira 11/3/92 (1534)			

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

27.10 HAZARDOUS WASTE MANIFEST

UST No. 0033 was estimated to contain 64 gallons of No. 2 fuel oil. Approximately 14 gallons of fuel oil was removed on January 6, 1992, and transported to a licensed T.S.D.F. (Beede Waste Oil Corporation). Approximately 50 gallons of fuel oil and residual materials were removed and drummed on January 13, 1992. Drummed material was transported to Beede Waste Oil on February 25, 1992.

The following Hazardous Waste Manifests were generated from residual tank materials. The manifest dated January 13, 1992 is associated with vaccuuming product from several USTs. Therefore, the total quantity (1,400 gallons) is much greater than the 50 gallons which was removed from UST No.0033. The manifest dated February 27, 1992 is associated with the drummed material from several USTs. Therefore, the total quantity (395 gallons) is much greater than the 14 gallons which was removed from UST No. 0033.

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

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

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

UNIFORM HAZARDOUS WASTE MANIFEST

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

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

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

Transporter 1 Company Name: Beede Waste Oil Corp. — 6. US EPA ID Number: N H D 018958140

Transporter 2 Company Name — 8. US EPA ID Number

Designated Facility Name and Site Address: Beede Waste Oil Corp.
Kelley Road PO Box 127
Plaistow, NH 03865 — 10. US EPA ID Number: N H D 018958140

9. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
WASTE PETROLEUM OILS, N.O.S. COMBUSTIBLE LIQUID NA1270	1	TT	2200	G	MA005

Additional Descriptions for Materials Listed Above (Include physical state and hazard codes) — J. Handling Codes for Wastes Listed Above

K. Special Handling Instructions and Additional Information

To be Recycled — Recycle

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

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

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

L. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Robert D. Murphy Jr.	Robert D. Murphy Jr.	01 14 92

M. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

N. Discrepancy Indication Space

O. 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 MAILS TO DESTINATION STATE

DEP

One Winter Street
Boston, Massachusetts 02108

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

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator US EPA ID No. MA7210025154 — Manifest Document No. FD1638

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

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

Generator's Phone: 508-796-3002AFZD-~~RRQEM~~ Ft. Devens Ma 01433

Transporter 1 Company Name: ede Waste Oil Corp. — US EPA ID Number: NHD018958114b

Transporter 2 Company Name — 8. US EPA ID Number

Designated Facility Name and Site Address: ede Waste Oil Corp., ely RD. PO Box 127, Lastow NH 03865 — 10. US EPA ID Number: NHDO1189581140

A. State Manifest Document Number: MA F291211

B. State Gen. ID: N/A

C. State Trans. ID: N/A # NHMA6134

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

E. State Trans. ID

F. Transporter's Phone ( )

G. State Facility's ID: Not Required

H. Facility's Phone: 603 881-5761

9. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
Waste Petroleum Oils N.O.S. Combustable liquid NA 1270	009	DM	004955	G	MA011

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

c.

d.

K. Handling Codes for Wastes Listed Above

a. c.

b. d.

15. Special Handling Instructions and Additional Information

To Be Recycled #2 Fuel With SI=Sludge

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

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

Printed/Typed Name	Signature	Date (Month Day Year)
Mark Boser	Mark Boser	02 25 92

16. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Brian Ginivan	Brian Ginivan	02 25 92

17. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

18. Discrepancy Indication Space

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

Printed/Typed Name	Signature	Date (Month Day Year)
b-Anne Collins	b-Anne Collins	02 25 92

ved OMB No. 2050-0039, Expires 9-30-91

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

COPY>3: FACILITY MAILS TO GENERATOR

MA F291211 COPY>3: FACILITY MAILS TO GENERATOR

27.11 WEIGHT RECEIPTS AND BILLS OF LADING

The following weight receipts and Bills of Lading document the disposal of contaminated soil associated with UST 0033.

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

IN OFFICE:
ERS 750-4200

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

TICKET #R 73229

ner # ATE001 Job # BLDGFD MIX # #76 MIX NAME OIL SOIL TRUCK# 9
ASSOC.
CCORD PARK DRIVE
ELL, MA 02061
378-6200

US ARMY
BLDG 2434
FORT DEVENS, MA 01433
PO# 37.04.72053

Time	Tare	Net	Gross	Total
05:27	39600	55740	95340	27.87

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

Load#	Job Total	Time & Date	Fob/Del
7	190.29	3:05:27 pm Aug 7, 1992	F

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

RECEIVED BY _____

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

UN OFFICE:
/ERS 750-4200

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

TICKET #R 73201

ner # ATE001 Job # BLDGFD MIX # #76 MIX NAME OIL SOIL TRUCK# 9
ASSOC.
CCORD PARK DRIVE
ELL, MA 02061
878-6200

US ARMY
BLDG 2439 & 2401
FORT DEVENS, MA 01433
PO# 37.04.72053

Time	Tare	Net	Gross	Total
24:21	39600	49340	88940	24.67

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

Load#	Job Total	Time & Date	Fob/Del
5	135.74	12:24:21 pm Aug 7, 1992	F

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

BILL OF LADING
POLICY # WSC-89-001

LADING #: 49 DATE: DEP CASE #:

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

SITE OF GENERATION:
STREET BUILDING 2434 IK #2 F.O. UST #33
TOWN FORT DEVENS
STATE MA 01433
TRANSPORTATION ACCIDENT? __Y X N

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

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

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

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

ERATOR'S SIGNATURE: DATE: 7.20.92
VE ITEMS MUST BE COMPLETED PRIOR TO DEP AUTHORIZATION
ORIZATION: DEP SIGNATURE (originating region): DATE: 23 July 92
(if applicable) DEP SIGNATURE (destination region): DATE:

CK/TRACTOR REGISTRATION 732-534
LER REGISTRATION 43125
SITE AT DATE 8/7/92
ERATOR OR RECEIVING FACILITY REPRESENTATIVE'S
IATURE:

QUANTITY SHIPPED: wt (tons) vol (cu yds)
TOTAL PROJECTED
SHIPPED TO DATE
THIS LOAD (estimated) 27.87
REMAINING TO BE SHIPPED
Ticket # R 73229

NSPORTER'S SIGNATURE DATE 8/1/92
EIVING FACILITY REPRESENTATIVE'S SIGNATURE DATE 8/1/92 ARR TIME 3:05

VED
1992
Req.

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BWSC/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

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

BILL OF LADING
POLICY # WSC-89-001

LADING #: 45 DATE: _____ DEP CASE #: _____

ERATOR NAME/ADDRESS:
S. ARMY
FZD-FM, Box 19
ORT DEVENS, MA 01433
TACT/TEL #: 508-796-3002

SITE OF GENERATION:
STREET BUILDING 2434 IK #2 F.O. UST #33
TOWN FORT DEVENS
STATE MA 01433
TRANSPORTATION ACCIDENT? ___Y ✓N

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

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

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

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

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

CS/TRACTOR REGISTRATION 732-534
ILER REGISTRATION 43125
T SITE AT _____ DATE 8/1/92
ERATOR OR RECEIVING FACILITY REPRESENTATIVES
NATURE: _____

QUANTITY SHIPPED: wt (tons) vol (cu yds)
TOTAL PROJECTED ___ ___
SHIPPED TO DATE ___ ___
THIS LOAD (estimated) 24.67 ___
REMAINING TO BE SHIPPED ___ ___
Tickets # 7.3201

NSPORTER'S SIGNATURE _____ DATE 8/1/92
EIVING FACILITY REPRESENTATIVE'S SIGNATURE _____ DATE 8/1/92 ARR TIME 12:24

IVED
1 1992
P
- Req.

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BWSC/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

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

7.12 PERMITS AND CERTIFICATIONS

The following permit was obtained from the Fort Devens Fire Department for the proper closure of a UST. Following the permit there is a disposal receipt for the steel UST.

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC SAFETY — DIVISION OF FIRE PREVENTION

PERMIT

FOR REMOVAL AND TRANSPORTATION TO APPROVED TANK YARD

DIG SAFE NUMBER
920205
DIGI Date 1/9/92

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

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

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

State clearly type of inert gas used in steel storage tank

steel tank: Dry Ice
method

FDID# 17919

Fee paid $ N/A

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

Location to which tank will be transported

14901
Approved tank yard#

This permit will expire 31 JAN 1992

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

RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK

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

APPROVED TANK YARD NO. 1 4 9 0 1

Tank Yard Ledger 502 CMR 3.03(4) Number: 9 2 0 0 1 1 5

I certify under penalty of law I have personally examined the underground steel storage tank delivered to this "approved tank yard" by firm, corporation or partnership ATEC Environmental and accepted same in conformance with Massachusetts Fire Prevention Regulation 502 CMR 3.00 Provisions for Approving Underground Steel Storage Tank dismantling yards.
A valid permit was issued by LOCAL Head of Fire Department FDID# 1 7 9 1 9 to transport this tank to this yard.
Name and official title of approved tank yard owner or owners authorized representative:

James Marento	CPW	1-28-92
SIGNATURE	TITLE	DATE SIGNED

This signed receipt of disposal must be returned to the local head of the fire department FDID# 1 7 9 1 9 pursuant to 502 CMR 3:00. (EACH TANK MUST HAVE A RECEIPT OF DISPOSAL)

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

DIMENSIONS

	Width (feet)		Length (feet)
Tank 1	48"	X	10'8"
Tank 2	-----	X	-----
Tank 3	-----	X	-----
Tank 4	-----	X	-----
Tank 5	-----	X	-----

Tank Removed From
Ft. Devens Bldg # 2434 tank # 33
(no. street)
Ayer
(city or town)

Fire Department Permit # None Listed
(if applicable)

17.13 UST CLOSURE CHECKLIST

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

UST-CLOSURE O/C CHECK LIST	Tank	33	Bldg 2434 Fort Devens	
DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
1000 gal No. 2 Fuel				
Calibrate PID & LEL/O2 meters	1/13/92	8:00		Site Topography: gently sloped downgradient to SE
Drain & flush piping & pumps	1/13/92	11:30		
Excavate to top of tank	1/13/92	11:30		Depth to tank: 2'
Vent tank note LEL/O2 levels & times	1/13/92		LEL O2	
		T1: 12:45	0 20.7	
		T2: 1:00	0 20.7	
		T3: 1:15	0 20.7	
		T4: 1:30	0 20.7	
		T5: 1:45	0 20.9	
		T6:		
		T7:		
		T8:		
		T9:		
		T10:		
		T11:		
		T12:		
Pump & clean tank:	1/7/92		___ gal. liquid +50 gal	Tank Dimensions: 4 x 10.5'L
Note quantities liquid (gal) & sludge (lbs)	1/13/92	12:30	___ lbs. sludge	S.W. bottom
Remove all tank connections, and cap openings	1/13/92	11:45		
Excavate soils to free tank	1/13/92	11:45		
Segregate stained soils: Note PID readings	1/13/92		PID (ppm) NDIR (ppm)	
(if >10 ppm NDIR also)			5.4	stock-1
stockpile soils visibly			3.4	stock-2
contaminated				

UST-CLOSURE Q/C CHECK LIST				
DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
Remove tank, piping, pumps, and hardware.	1/13/92	12:00	Photographic Descriptions:	Soil Description: dense/d. brown fine
Photograph excavation; note descriptions.			Photo 1:	sand & silt w/ little fine
Sketch Schematic			Photo 2:	gravel. Gray silty sand at
			Photo 3:	SW corner 3' How grade >
			Photo 4:	odor
			Photo 5:	Depth to Groundwater/Conditions: 6'
			Photo 6:	slight sheen
Place tank at safe distance from excavation	1/13/92	12:15		Depth of Excavation: 6'
Secure tanks transport off-site	1/13/92	2:00		
Obtain 10 soil samples from	1/13/92	12:45	PID (ppm) NDIR (ppm)	Sample locations:
excavation walls/bottom: Note PID/NDIR			SS1: 128	SW wall
readings and sample locations.			SS2: 2.0	SW wall
			SS3: 0.3	NW wall
			SS4: 0.0	NW wall
			SS5: 0.4	NE wall
			SS6: 0.8	NE wall
			SS7: 1.0	SE wall
			SS8: 12.2	SE wall
			SS9: 10.0	bottom
			SS10: 7.4	bottom
Obtain 2 soil samples & 1 water samples	1/13/92	12:45		Sample Locations:
for laboratory analysis. Note sample locations.				LSS1: @ SS1
				LSS2: @ SS9
				LWS1: obtained for TPH
				LSS3: composite stockpile

27.14 INSTALLATIONS

The installation of a replacement UST 0033 was not performed.

28.0 UST No. 0034

28.1 POST REMOVAL REPORT

28.1.1 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. 0034, located at property known as Building 2447, 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 16, 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 a 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.
- Preparation of a Post-Removal Report, to include assimilation of information gathered, major findings, and conclusions.

28.1.2 Subsurface Storage Tank Excavation and Removal

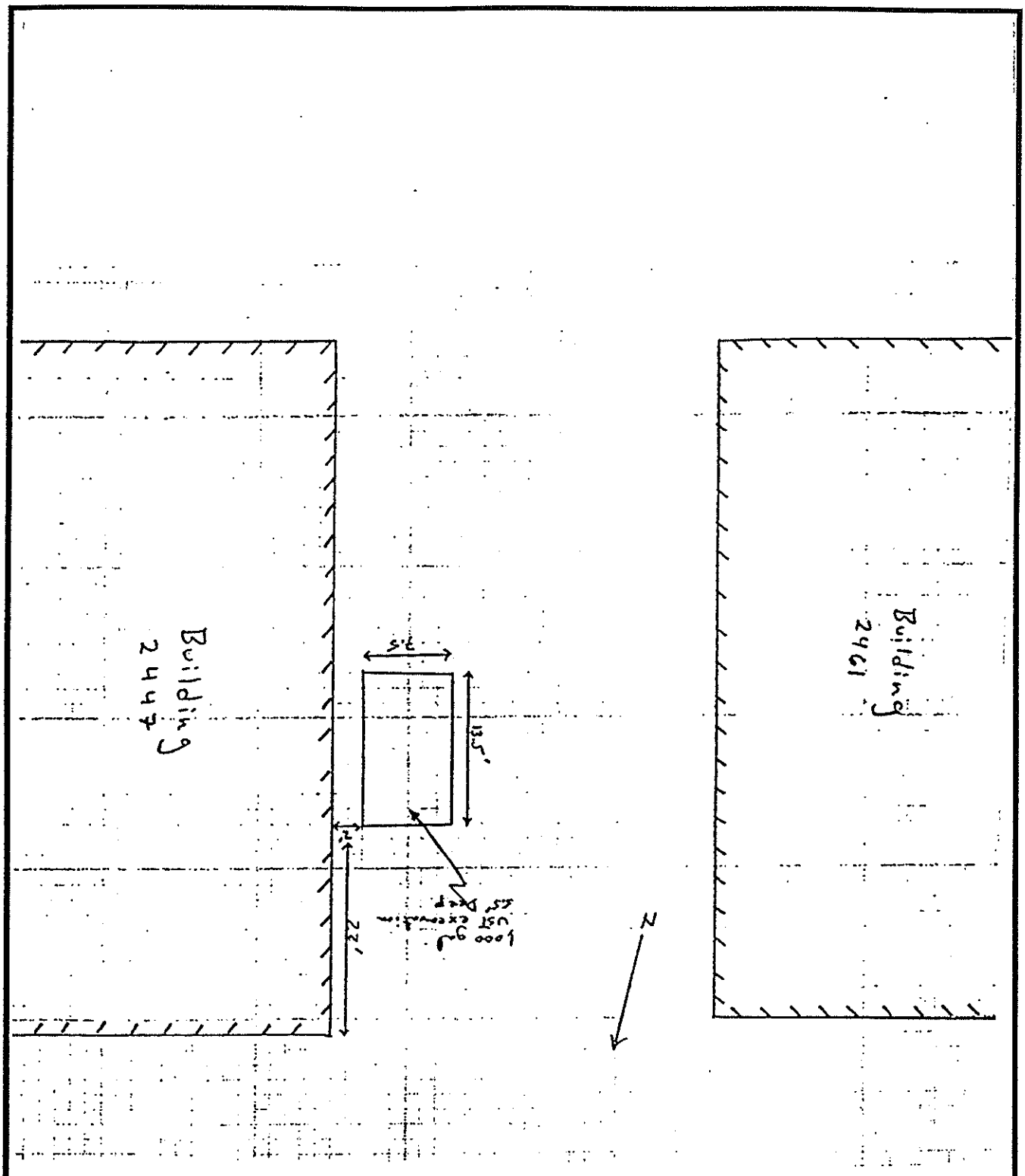
On January 16, 1992, one 1,000-gallon; subsurface, No. 2 fuel oil, storage tank was excavated and removed from the site. The UST was located adjacent to the west side of Building 2447. Site topography is level.

Soils in the excavation consisted primarily of medium brown, fine sand with fine to coarse gravel, cobbles, and boulders. The tank was covered by approximately one foot of soil. The bottom of the excavation was approximately five feet below grade. Groundwater was not encountered. Excavated soils required to free the tank were visibly contaminated. Soils excavated from above the tank were observed to be grossly contaminated and were segregated. Some staining of soils within the excavation was also observed.

The associated piping was drained and tank connections were removed. UST No. 0034 was estimated to contain 35 gallons of No. 2 fuel oil and residual materials. Approximately 20 gallons of fuel oil was removed on January 7, 1992, and transported to a licensed T.S.D.F. (Beede Waste Oil Corporation).

Tank openings were capped and the tank was removed from the excavation. Upon excavation and removal, the tank was observed to be in good condition with no holes, perforations, or severe corrosion. However, the fill pipe connection at the tank was noted to be very loose. Following venting of the tank, an access way was cut in the end of the tank to allow entry for cleaning. The tank was then entered and vacuumed/wiped clean of any residual materials. Approximately 15 gallons of No. 2 fuel oil and residual materials were removed and drummed on January 15, 1992. Drummed material was transported to Beede Waste Oil Corporation on February 27, 1992. See Section 28.10 for copies of the appropriate Hazardous Waste Manifests.

The scrap tank was removed from the site on January 16, 1992 and transported to the Contractor's yard, located on Lake George Street, Fort Devens for temporary storage. The tank was disposed of at Tombarello & Sons, a licensed Massachusetts tank yard, on January 28, 1992. A copy of the disposal receipt is included in Section 28.12, Permits and Certifications.



UST LOCATION PLAN

1,000 gallon UST relative to:
Building 2447
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

NOT TO SCALE

FIGURE: 28.1

ATEC

28.1.3 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 Volatile Organic Compound (VOC) vapors was conducted with an HNu photoionizer utilizing the jar headspace screening procedure outlined in the Hazardous Materials Containment Plan. The NDIR field screening for Total Petroleum Hydrocarbons (TPH) was conducted with a Horiba OCMA 220, utilizing the procedures outlined in the Hazardous Materials Containment Plan.

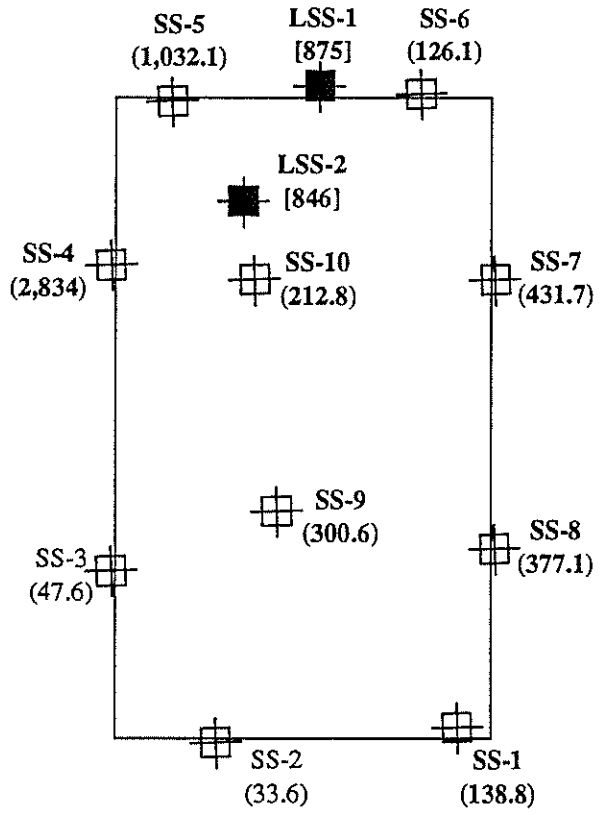
Eight of the samples (SS-1 through SS-8) were obtained from the excavation walls at a depth of approximately two feet, six inches to three feet, six inches below grade. Two of the samples (SS-9 and SS-10) were obtained from the bottom of the excavation at a depth of approximately five feet below grade. Two composite soil samples (Stock-1 and Stock-2) were obtained from stockpiled soils for PID and NDIR field screening. Soil sample Stock-2 was obtained from the segregated soils which were observed to be grossly contaminated.

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

Sampling locations are depicted on the Sampling Schematic as Figure 28.2. The appropriate chain of custody forms are included in Section 28.9, Chain of Custody Forms.

28.1.4 Analytical Results

The results from analysis with the Photoionization Detector (PID) and the Non-Dispersive Infrared (NDIR) Analyzer of the ten soil samples obtained from the excavation, and the two composite samples obtained from stockpiled soil are as follows:



LEGEND:

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

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

SAMPLING SCHEMATIC

1,000 gallon UST excavation at:
Building 2447
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

NOT TO SCALE

FIGURE: 28.2 UST-34

ATEC

TABLE 28.1 - PID AND NDIR RESULTS

Sample No.	PID (ppm TOVs)	NDIR (ppm TPH)
SS-1	4.0	138.8
SS-2	36.0	33.6
SS-3	19.4	47.6
SS-4	0.4	2,834.0
SS-5	15.4	1,032.1
SS-6	56.0	126.1
SS-7	26.0	431.7
SS-8	44.0	377.1
SS-9	25.0	300.6
SS-10	34.0	212.8
Stock-1	56.0	1,110.0
Stock-2	31.0	2,249.2

Laboratory analytical results of the two soil samples obtained from the excavation revealed TPH concentrations of 875 ppm for LSS-1, and 846 ppm for LSS-2. Laboratory analysis of the one soil sample (LSS-3) obtained from the stockpiled soils revealed a TPH concentration of 1,470 ppm (see Section 28.8, Laboratory Analytical Results).

28.1.5 Conclusions and Recommendations

ATEC's conclusions are as follows:

Upon excavation and removal, the tank was observed to be in good condition with no holes, perforations, or severe corrosion. However, the fill pipe connection at the tank was noted to be very loose.

Groundwater was not encountered within the excavation.

Excavated soils required to free the tank were visibly contaminated. Soils excavated from above the tank were observed to be grossly contaminated and were segregated. Some staining of soils within the excavation was also observed.

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 0.4 ppm to 56 ppm. NDIR results revealed TPH concentrations ranging from 33.6 ppm to 2,834.0 ppm.

Two soil samples were obtained from the excavation for laboratory analysis for TPH. Analytical results for LSS-1 obtained from the north wall of the excavation revealed a TPH concentration of 875 ppm. Analytical results for LSS-2 obtained from the bottom of the excavation revealed a TPH concentration of 846 ppm.

One composite, soil sample (LSS-3) was obtained from stockpiled soils for laboratory analysis. Analytical results for LSS-3 revealed a TPH concentration of 1,470 ppm.

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

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

Additional excavated soils and stockpiled soils were laboratory analyzed for Total Petroleum Hydrocarbons, Volatile Organic Compounds, Semivolatile Organic Compounds, PCBs, 13 TCLP Metals, flashpoint, sulfide reactivity, cyanide reactivity, and corrosivity for disposal classification.

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

Based on the data collected during the UST removal, the following was recommended by ATEC but was not performed at the request of the US Army:

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

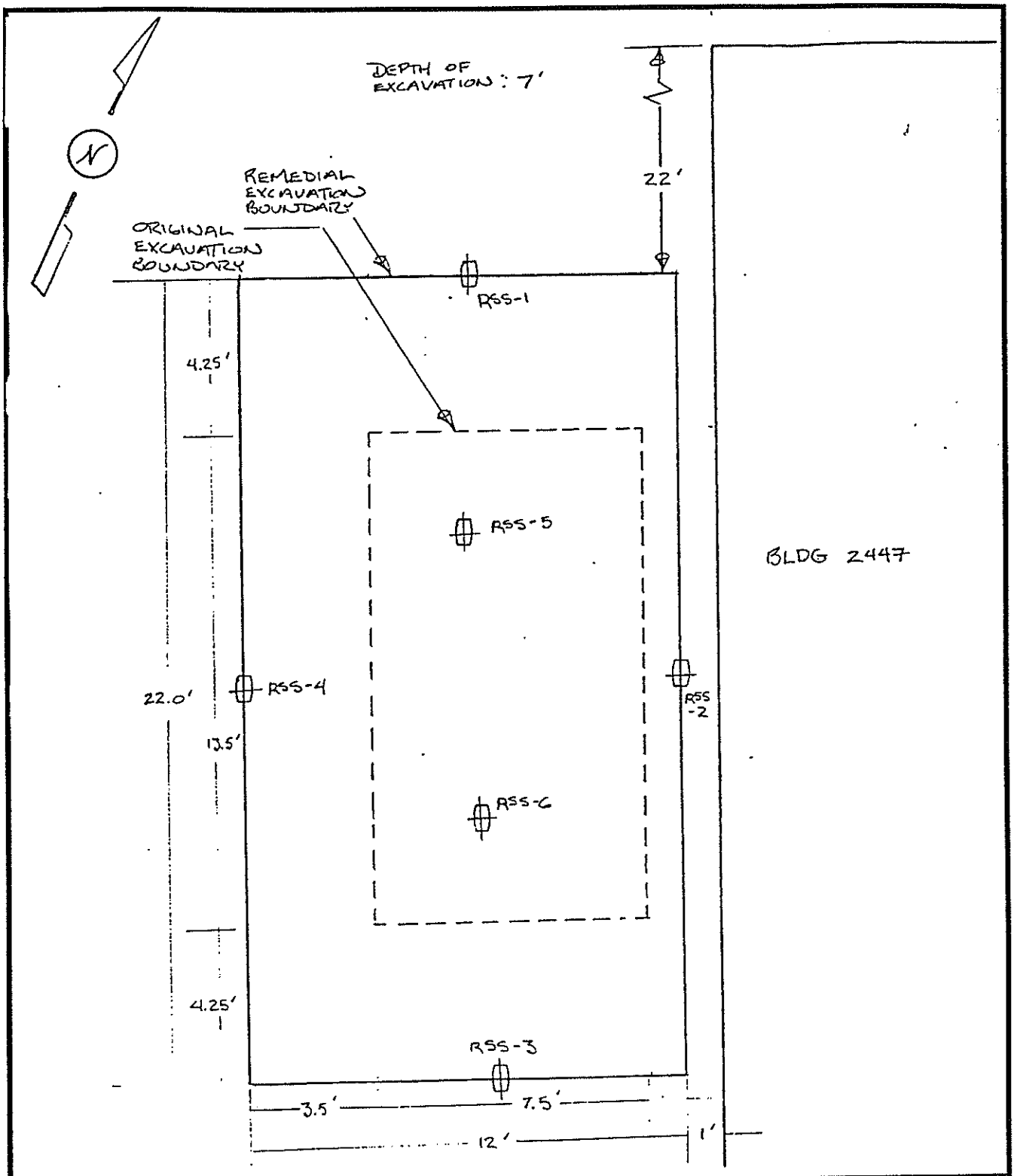
28.2 SITE REMEDIATION AND CONTAMINATED SOIL DISPOSAL

28.2.1 Site Remediation

Following initial PID screening, additional excavation to remove contaminated soil and reach background levels (<1 ppm TOVs) by PID was conducted per order of the Contracting Officer's Representative and David Salvadore of the Massachusetts Department of Environmental Protection (DEP). Approximately 63 tons of contaminated soil were removed from the bottom of the excavation and all sidewalls during remedial excavation on July 31, 1992 (see Remedial Excavation Plan, Figure 28.3). Groundwater was not encountered during remedial excavation.

Six soil samples (RSS-1A through RSS-6A) were obtained from the post-remedial excavation for PID field screening. RSS-1A through RSS-4A were obtained from the sidewalls at a depth of approximately five feet below grade. RSS-5A and RSS-6A were obtained from the bottom of the excavation at a depth of 7' below grade. PID results revealed TOV concentrations ranging from 0.6 to 8.5 (see Table 28.2).

Following the removal of an additional one foot of soil from the excavation sidewalls, four soil samples (RSS-1B through RSS-4B) were obtained from the post-remedial excavation for PID field screening. RSS-1B through RSS-4B were obtained from the sidewalls at a depth of approximately five feet below grade. All PID results revealed TOV concentrations <1 ppm with the exception of RSS-1B which was obtained from the north sidewall. Further excavation of the north sidewall was not conducted per order of the Contracting Officer's Representative. Final PID results revealed TOV concentrations ranging from 0.0 to 5.5 (see Table 28. 2).



REMEDIAL EXCAVATION PLAN

1,000 gallon UST relative to:
Building 2447
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

NOT TO SCALE

FIGURE 28.3 UST 34

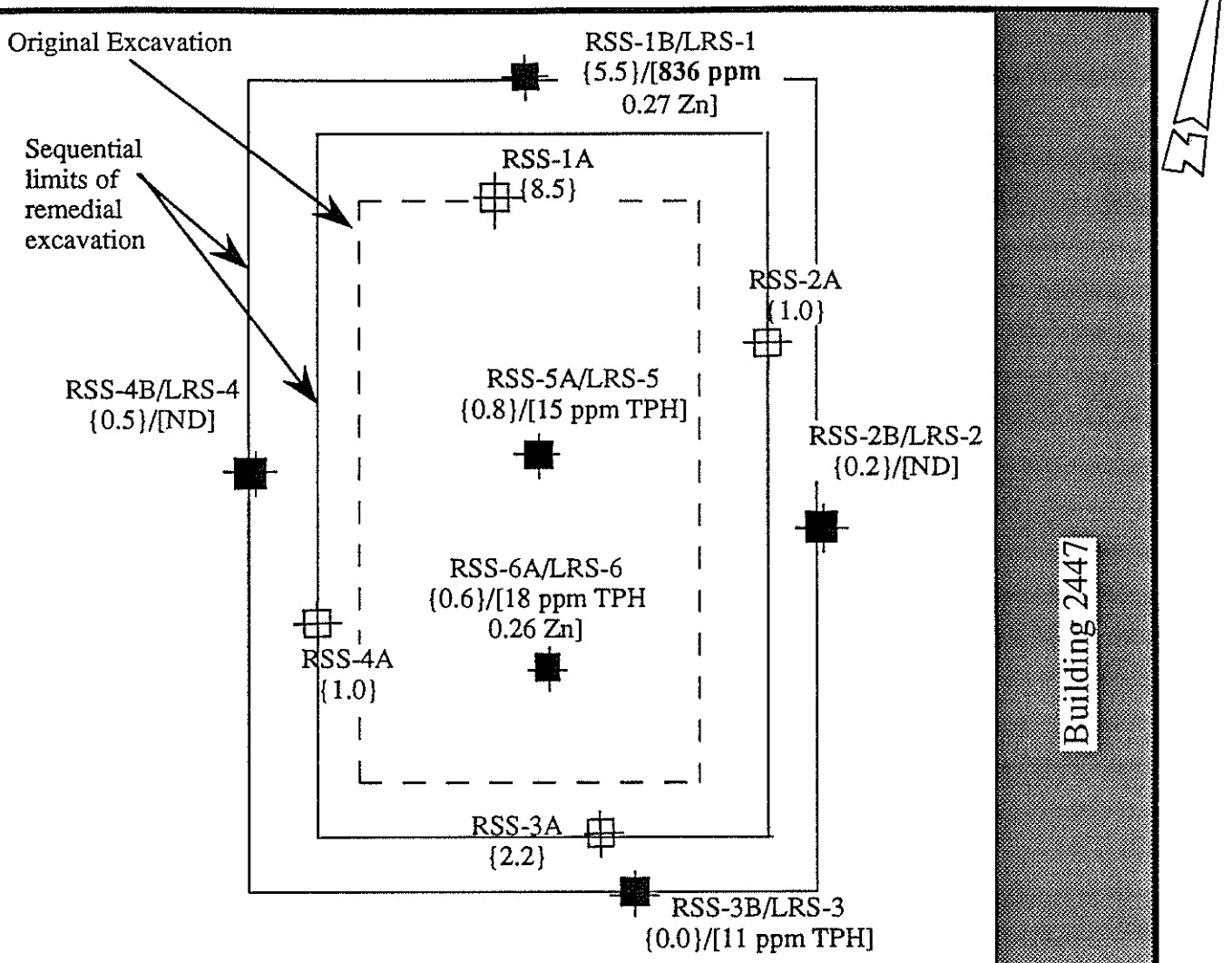
ATEC©

TABLE 28.2 - PID SCREENING RESULTS

Sample No.	PID (ppm)	Location
RSS-1A	8.5	N.side wall (5' B.G.)
RSS-2A	1.0	E. side wall (5' B.G.)
RSS-3A	2.2	S.side wall (5' B.G.)
RSS-4A	1.0	W. side wall (5' B.G.)
RSS-5A	0.8	Bottom (7' B.G.)
RSS-6A	0.6	Bottom (7' B.G.)
RSS-1B	5.5	N. side wall (5' B.G.)
RSS-2B	0.2	E. side wall (5' B.G.)
RSS-3B	0.0	S. side wall (5' B.G.)
RSS-4B	0.5	W. side wall (5' B.G.)

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

Six soil samples (LRS-1 through LRS-6) were obtained for laboratory analysis for Total Petroleum Hydrocarbons. Two soil samples (LRS-1 and LRS-6) were obtained for laboratory analysis for Volatile Organic Compounds, 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP). The following table contains levels revealed by laboratory analysis:



LEGEND

- Field Screened Soil Sample
- Lab Analyzed Soil Sample
- { } TOV concentration (by PID) in ppm
- [ ] TPH, TCLP Metal, VOC concentrations by Lab (as applicable)

Results in bold denote TPH levels greater than the remedial goal of 100 ppm TPH

REMEDIAL SAMPLING SCHEMATIC

1,000 gallon UST excavation at:
Building 2447
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

NOT TO SCALE

FIGURE: 28. 4 UST-34

ATEC

TABLE 28.3 - LABORATORY ANALYSIS

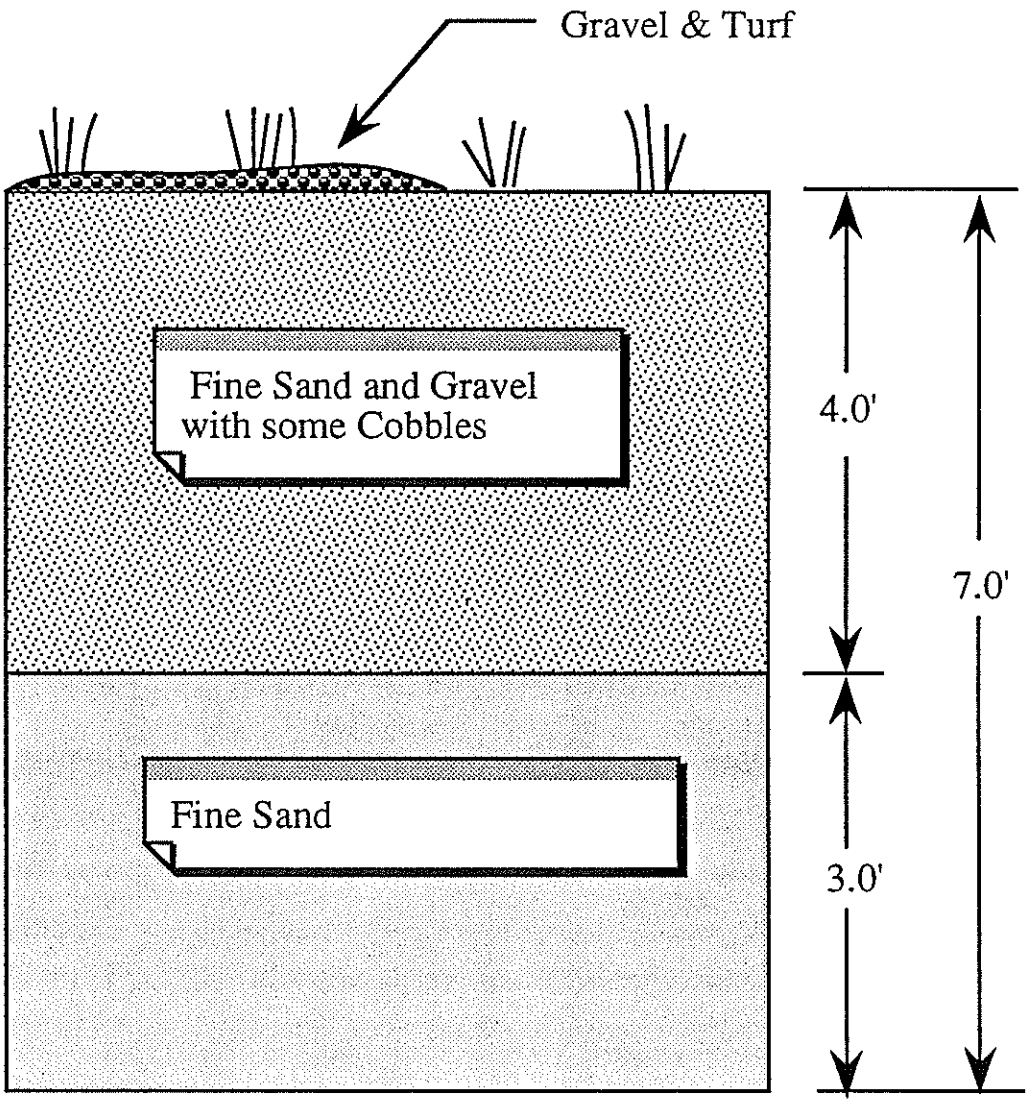
Sample No.	TPH (ppm)	VOA (ppb)	13 TCLP Metals(ppm)	Location
LRS-1	836	ND	0.27 (Zn)	N. side wall (5' B.G.)
LRS-2	ND	NA	NA	E. side wall (5' B.G.)
LRS-3	11	NA	NA	S. side wall (5' B.G.)
LRS-4	ND	NA	NA	W.side wall (5' B.G.)
LRS-5	15	NA	NA	Bottom (7' B.G.)
LRS-6	18	ND	0.26 (Zn)	Bottom (7' B.G.)

LRS = Laboratory Remediation Sample
ND = Not Detected above the Method Reporting Limit
NA = Not Applicable
B.G.=Below Grade

See Figure 28.3 Remedial Excavation Sampling Schematic. See Section 28.8 - Laboratory Analytical Results.

28.2.2 Soil Stratigraphy

The soil stratigraphy of the excavation was dependant upon the depth of the excavation. The soil for the initial four feet consisted primarily of fine sand and fine gravel, mixed with cobbles. The remaining three feet of the excavation primarily consisted of fine sand. (See Figure 28.5, Soil Stratigraphy).



SOIL STRATIGRAPHY

1,000 gallon UST excavation at:
Building 2447
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

UST-34

FIGURE 28.5

ĀTEC

28.2.3 Contaminated Soil Disposal

One composite soil sample (LSP-34) was obtained from stockpiled soil associated with the removal of the UST No. 0034 and the additional excavation conducted at the site. LSP-34 was laboratory analyzed for Volatile Organic Compounds (VOCs), Semivolatile Organic Compounds, 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP), Polychlorinated Biphenyls (PCBs), Reactive sulfide, Reactive cyanide, flashpoint, and corrosivity for characterization and disposal purposes. Laboratory analytical results revealed 7.5 S.U. Corrosivity; 1.1 ppm Lead, 0.06 ppm Copper, 0.05 ppm Nickel, and 2.79 ppm Zinc. All other analytical results were below the Method Reporting Limits. (See Section 28.8 Laboratory Analytical Results).

Approximately 43.01 cubic yards (≈ 64.52 tons) of No. 2 fuel oil contaminated soil was removed and stockpiled during UST removal and remediation of the excavation (see Figure 28.4 - Remedial Excavation Plan). Contaminated soil was disposed for recycle at Trimount Bituminous Products Company, Shrewsbury, Massachusetts. Copies of Weight Receipts and Bills of Lading are included in Section 28.11.

28.3 HYDROGEOLOGICAL SERVICES

Hydrogeological services, to include to installation of monitoring wells, was not performed relative to UST 0034.

28.4 BACKFILL

The excavation was lined with polyethylene plastic sheeting and backfilled with 162 tons of uncontaminated fill material on July 29, 1992. Backfilling was conducted with the approval of the Contracting Officer's Representative.

28.5 SURFACE RESTORATION

Following backfill of the excavation, 264 square feet of loam was spread. Seeding was conducted to complete sruface restoration on October 21, 1992.

28.6 PHOTOGRAPHIC DOCUMENTATION

The following photographs are of the removed UST excavation:

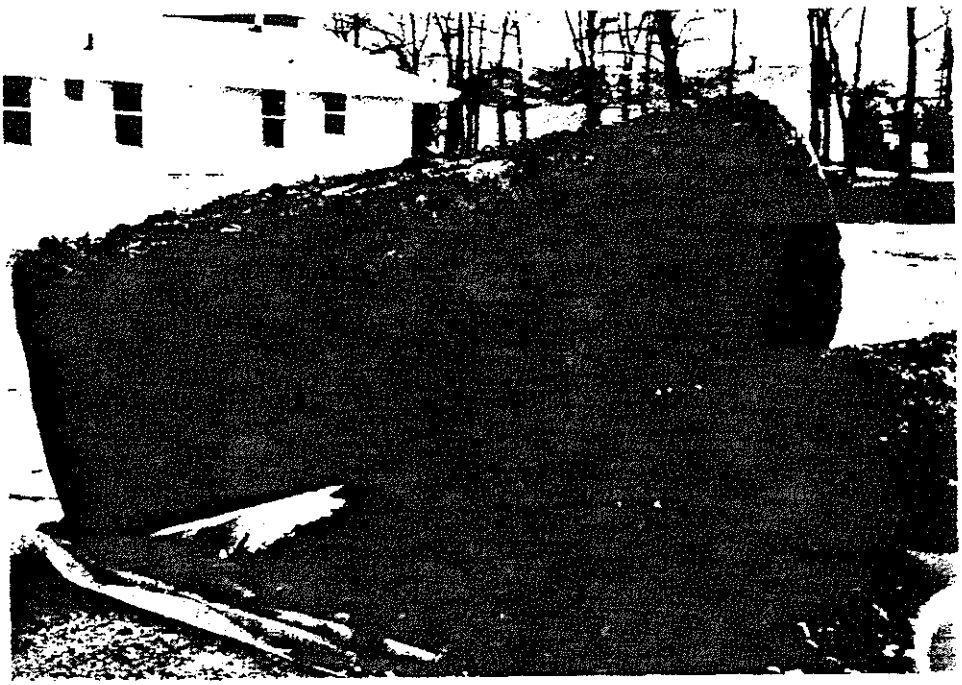
A-1: One side of removed tank.

A-2: Opposite side of removed tank.

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

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

A-1



A-2

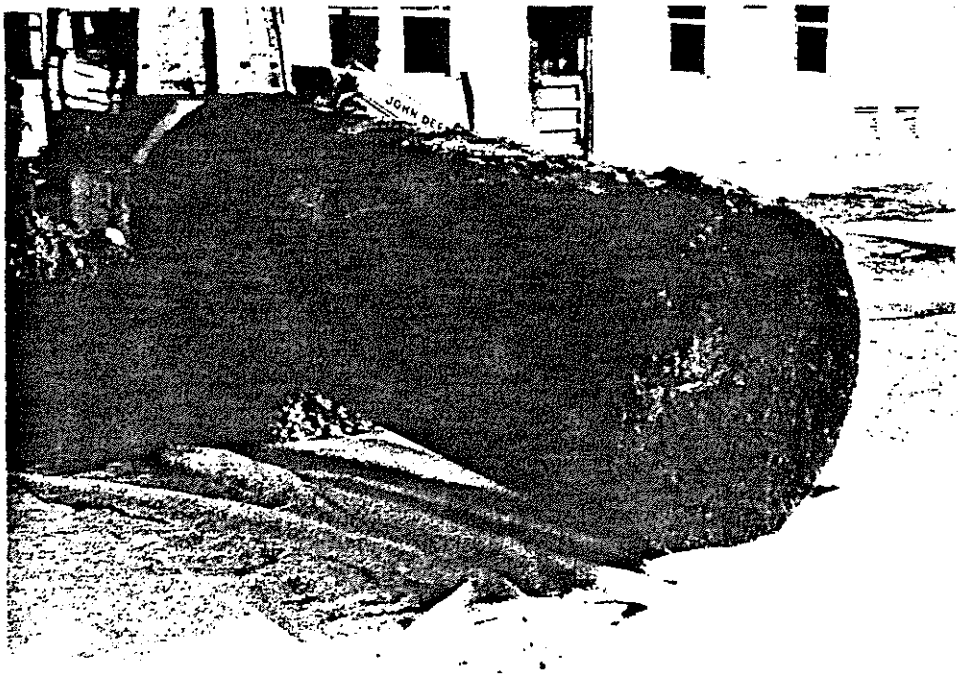
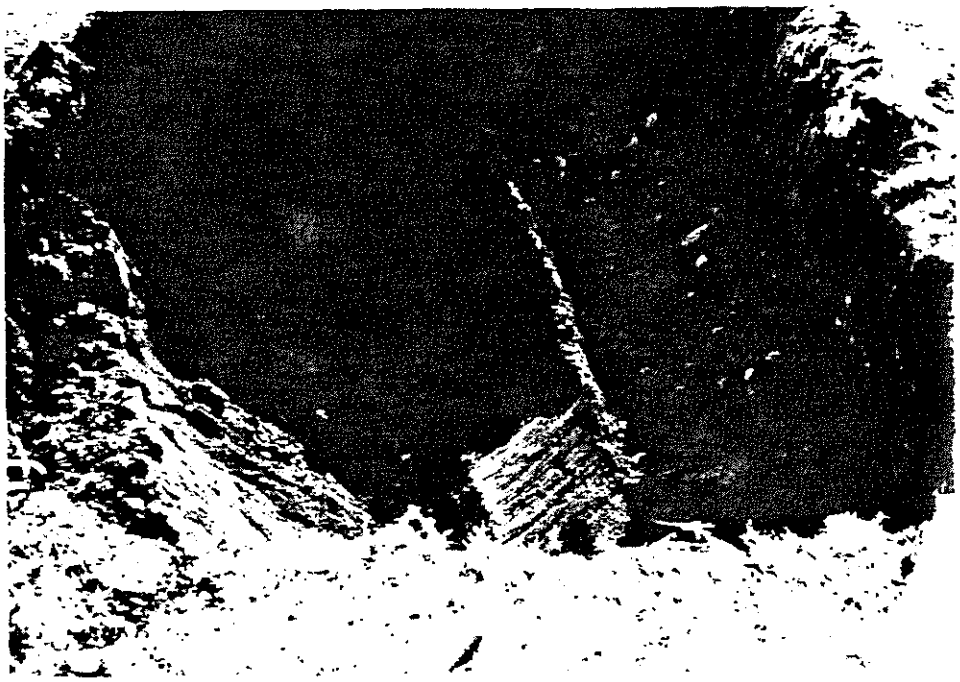


PHOTO DOCUMENTATION 1,000 gallon UST excavation at: Building 2447 Fort Devens, Massachusetts	PROJECT: 37.07.91.07451	ATEC

A-3



A-4

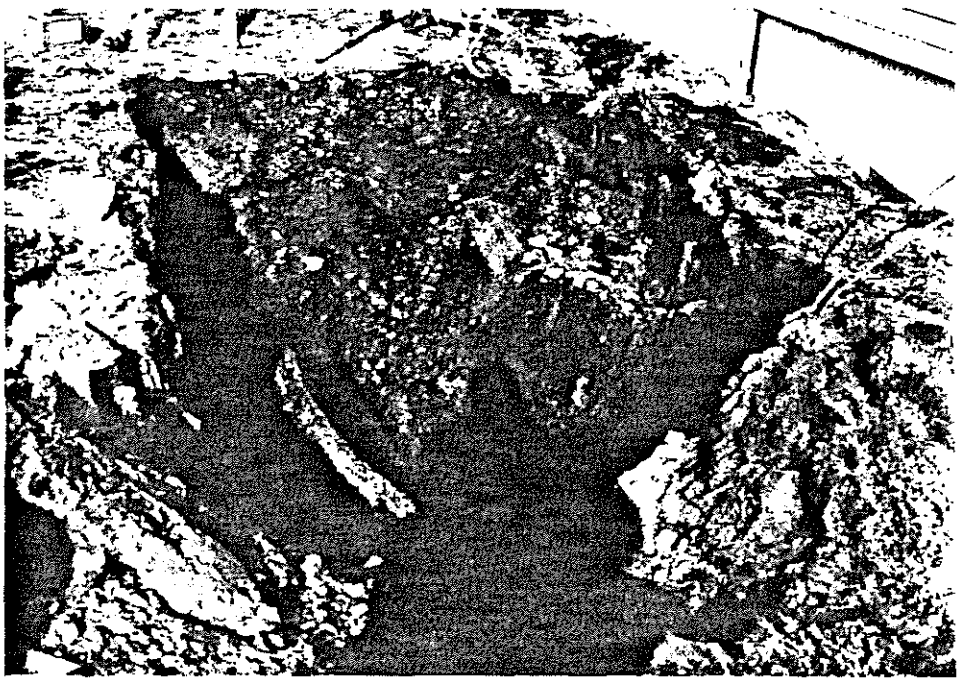


PHOTO DOCUMENTATION

1,000 gallon UST excavation at:
Building 2447
Fort Devens, Massachusetts

PROJECT: 37.07.91.07451

ATEC

28.7 OCMA 220 DATA SHEETS

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

ATEC Associates, Inc.

Consulting Geotechnical, Materials and Environmental Engineers

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

PROJECT NAME, NUMBER, TANK: U.S. ARMY - FORT DEVENS 37.07.91.451 TANK #34 DATE 01/17/92

OPERATOR: RICHARD GERMAN

CALIBRATION DATA

TYPE CALIBRATION	FIRST READING INITIAL	FIRST READING FINAL	SECOND READING INITIAL	SECOND READING FINAL	THIRD READING INITIAL	THIRD READING FINAL	SPAN CHECK
ZERO:	4.2	0.0	-3.5	0.0	-0.3	0.0	27.9
SPAN:							
ZERO:							

ANALYTICAL DATA

SAMPLE NUMBER	WEIGHT (g) GROSS	WEIGHT (g) TARE	1st DILUTION RATIO (ml) F-113	1st DILUTION RATIO (ml) SAMPLE	2nd DILUTION RATIO (ml) F-113	2nd DILUTION RATIO (ml) SAMPLE	INSTRUMENT RESULTS (ppm) 1st	2nd	3rd	CONCENTRATION mg/l
STOCK-1	79.7	75.3	17.5	1.0			9.0	8.7	8.8	1110.0
STOCK-2	79.0	73.3	17.5	1.0			23.2	23.1	--	2249.2
SS-1	81.0	74.6	17.5	1.0			1.3	1.6	1.6	139.8
SS-2	79.4	72.8	17.5	1.0			0.4	0.4	--	33.6
SS-3	81.0	74.0	17.5	1.0			0.5	0.6	--	47.5
SS-4	80.8	76.1	17.5	1.0			24.1	24.0	--	2334.0
SS-5	82.0	76.3	17.5	1.0			10.5	10.6	--	1034.1
SS-6	81.5	74.9	17.5	1.0			1.3	1.5	1.5	136.1
SS-7	82.7	75.5	17.5	1.0			5.2	5.6	5.6	491.7
SS-8	83.1	75.3	17.5	1.0			5.2	5.3	--	327.0
SS-9	77.6	72.8	17.5	1.0			2.5	2.6	--	300.6
SS-10	82.4	76.4	17.5	1.0			2.0	2.2	2.3	212.8

28.8 LABORATORY ANALYTICAL RESULTS

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

- LSS-1, LSS-2, and LSS-3: Soil samples obtained from original excavation. Laboratory analyzed for TPH (Method 418.1).

- LRS-1, LRS-2, LRS-3, LRS-4, LRS-5, and LRS-6: Soil samples obtained from Post-remedial excavation. Laboratory analyzed for TPH (Method 418.1). LRS-1 and LRS-6 were also analyzed for VOCs (Method 8240), and 13 Metals by TCLP (Method 6010).

- LSP-34: Soil sample obtained from stockpiled soil for disposal classification. Laboratory analyzed for VOCs (Method 8240), TPH (Method 418.1), 13 Metals by TCLP (Method 6010), Reactive Cyanide (Method 7.3.3.2), Reactive Sulfide (Method 7.3.4.1), Semi-volatile Organics (Mehtod 8270), Corrosivity (pH) (Method 9045), flashpoint (Method 1010), and Polychlorinated Biphenyls (Method 8080).

In Response To The Future

ERTIFICATE OF ANALYS :S

Date: 1/24/92 Job: 148
Account: 95659
Received: 1/17/92

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

Project: DEVENS-TANK 34

tn: Mr. Mark Baldi

ample umber	Method Number	Paran eter	Result	Unit	Sample Description
014801	EPA-160.3	Total Solids	92	%	LSS-1
	EPA-418.1	TPH/IR (Dry Wt.)	875	mg/kg	
014802	EPA-160.3	Total Solids	88	%	LSS-2
	EPA-418.1	TPH/IR (Dry Wt.)	846	mg/kg	
014803	EPA-160.3	Total Solids	87	%	LSS-3
	EPA-418.1	TPH/IR (Dry Wt.)	1470	mg/kg	

David Dickinson
Laboratory Manager

In Response To The Future

RTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 34 ESS Project ID: 922025

Client Sample ID: LRS-1 ESS Sample ID: 922025-01

Date Sample Received: 8/5/92 Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	92	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	836	mg/Kg	11	418.1
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Zinc	0.27	mg/L	Attached	6010

TPHIR reported on dry weight basis

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

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

001

In Response To The Future

ERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: UST 34 — ESS Project ID: 922025

Client Sample ID: LRS-1 — ESS Sample ID: 922025-01

Date Sample Received: 8/5/92 — Date Reported: 8/14/92

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

002

In Response To The Future

ERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants
Client Project ID: UST# 34
Client Sample ID: LRS-1
ESS Sample ID: 922025-01

Date Sampled: 8/4/92
Date TCLP Performed: 8/6/92
Date Leachate Extracted: 8/7/92
Date Extract Analyzed: 8/10/92

	Actual		Adjusted*	
Target Analyte	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.2	ND	0.3
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.03
Chromium	ND	0.05	ND	0.05
Lead	ND	0.1	ND	0.1
Mercury	ND	0.005	ND	0.005
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.07
Copper	ND	0.02	ND	0.02
Nickel	ND	0.04	ND	0.04
Zinc	0.27	0.02	0.27	0.02
Beryllium	ND	0.02	ND	0.03
Thallium	ND	0.3	ND	0.4

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

ND = Not Detected above Method Reporting Limit (MRL)

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

003

In Response To The Future

RTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 34 **ESS Project ID:** 922025

Client Sample ID: LRS-2 **ESS Sample ID:** 922025-02

Date Sample Received: 8/5/92 **Date Reported:** 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	96	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	ND	mg/Kg	10	418.1

TPHIR reported on a dry weight basis

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

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

In Response To The Future

RTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 34 ESS Project ID: 922025

Client Sample ID: LRS-3 ESS Sample ID: 922025-03

Date Sample Received: 8/5/92 Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	96	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	11	mg/Kg	10	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

005

In Response To The Future

ERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 34 ESS Project ID: 922025

Client Sample ID: LRS-4 ESS Sample ID: 922025-04

Date Sample Received: 8/5/92 Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	97	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	ND	mg/Kg	10	418.1

TPHIR reported on a dry weight basis

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

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

006

In Response To The Future

RTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 34 **ESS Project ID:** 922025

Client Sample ID: LRS-5 **ESS Sample ID:** 922025-05

Date Sample Received: 8/5/92 **Date Reported:** 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	91	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	15	mg/Kg	10	418.1

TPHIR reported on a dry weight basis

MRL = Method Reporting Limit

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

007

In Response To The Future

ERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST 34 ESS Project ID: 922025

Client Sample ID: LRS-6 ESS Sample ID: 922025-06

Date Sample Received: 8/5/92 Date Reported: 8/14/92

Parameter	Results	Units	MRL	Method
Percent Solids	90	% w/w	1	160.3
Total Petroleum Hydrocarbon-IR	18	mg/Kg	11	418.1
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Zinc	0.26	mg/L	Attached	6010

TPHIR reported on dry weight basis

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

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

003

In Response To The Future

ERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: UST 34 — ESS Project ID: 922025

Client Sample ID: LRS-6 — ESS Sample ID: 922025-06

Date Sample Received: 8/5/92 — Date Reported: 8/14/92

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

009

In Response To The Future

RTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants
Client Project ID: UST# 34
Client Sample ID: LRS-6
ESS Sample ID: 922025-06

Date Sampled: 8/4/92
Date TCLP Performed: 8/6/92
Date Leachate Extracted: 8/7/92
Date Extract Analyzed: 8/10/92

	Actual		Adjusted*	
Target Analyte	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.2	ND	0.3
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.03
Chromium	ND	0.05	ND	0.05
Lead	ND	0.1	ND	0.1
Mercury	ND	0.005	ND	0.005
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.07
Copper	ND	0.02	ND	0.02
Nickel	ND	0.04	ND	0.04
Zinc	0.26	0.02	0.26	0.02
Beryllium	ND	0.02	ND	0.03
Thallium	ND	0.3	ND	0.4

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

ND = Not Detected above Method Reporting Limit (MRL)

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

010

In Response To The Future

ERTIFICATE OF ANALYSIS

VOA SOIL SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client Project ID: UST 34

Date Sample Analyzed: 8/13/92

ESS Project ID: 922025

SAMPLE ID	1,2 DICHLOROETHANE-D4 (70-121%)*	TOLUENE-D8 (81-117%)*	BFB (74-121%)*
VS0813B1	102%	96%	105%
922025-01	109	99	97
922025-06	109	97	103

* Acceptance criteria

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

011

In Response To The Future

RTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: UST 34 — ESS Project ID: 922025

Client Sample ID: Method Blank — ESS Sample ID: VS0813B1

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

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

ND = Not Detected above Method Reporting Limit (MRL)
NA = Not Applicable

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

012

ERTIFICATE OF ANALYSIS

MATRIX SPIKE ANALYSIS SUMMARY

TCLP METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants Matrix: Solid

TCLP Batch ID: 202301 Concentration in: mg/L

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

This matrix spike analysis summary applies to the following samples: 922025-01, -06

ND = Not Detected above Method Reporting Limit (MRL)

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

Approved by: _____ Date: 14 Aug 92

David Dickinson
Laboratory Director

013

In Response To The Future

ERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-34 ESS Sample ID: 921528-07

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

Parameter	Results	Units	MRL	Method
pH (Corrosivity)	7.5	S.U.	N/A	9045
Flashpoint	No Flash	°F	200	1010
Polychlorinated Biphenyls	ND	mg/Kg	Attached	8080
Reactive Cyanide	ND	mg/Kg	2	7.3.3.2
Reactive Sulfide	ND	mg/Kg	2	7.3.4.1
Semivolatile Organics	ND	ug/Kg	Attached	8270
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Lead	1.1	mg/L	Attached	6010
Copper	0.06	mg/L	Attached	6010
Nickel	0.05	mg/L	Attached	6010
Zinc	2.79	mg/L	Attached	6010

N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 1992

David Dickinson
Laboratory Director

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

In Response To The Future

ERTIFICATE OF ANALYSIS

POLYCHLORINATED BIPHENYLS
Method 8080

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-34 ESS Sample ID: 921528-07

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

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

ND = Not Detected above Method Reporting Limit (MRL)

Surrogate Recovery Data	% Recovery	QC Limit
Dibutylchlorendate	100%	50 - 150%

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

vironmental Science Services
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In Response To The Future

ERTIFICATE OF ANALYSIS

ACID EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-34 ESS Sample ID: 921528-07

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

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

ND = Not Detected above Method Reporting Limit (MRL)

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

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In Response To The Future

ERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES
EPA 8270

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-34 ESS Sample ID: 921528-07

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

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul '92

David Dickinson
Laboratory Director

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In Response To The Future

ERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES cont.
EPA 8270

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-34 ESS Sample ID: 921528-07

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

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

ND = Not Detected above Method Reporting Limit (MRL)

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

057

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In Response To The Future

ERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS
Method 8240

Client: ATEC Environmental Consultants

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

Client Sample ID: LSP-34 ESS Sample ID: 921528-07

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

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

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: _____ Date: 2 Jul 92

David Dickinson
Laboratory Director

053

vironmental Science Services

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

In Response To The Future

ERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants
Client Project ID: Stockpiled Soils
Client Sample ID: LSP-34
ESS Sample ID: 921528-07

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

	Actual		Adjusted*	
Target Analyte	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.1	ND	0.2
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.02
Chromium	ND	0.05	ND	0.05
Lead	1.1	0.1	1.1	0.1
Mercury	ND	0.005	ND	0.005
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.09
Copper	0.05	0.02	0.06	0.03
Nickel	0.05	0.04	0.05	0.04
Zinc	2.79	0.02	2.79	0.02
Beryllium	ND	0.02	ND	0.04
Thallium	ND	0.05	ND	0.09

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

ND = Not Detected above Method Reporting Limit (MRL)

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

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

28.9 CHAIN OF CUSTODY FORMS

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

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	LAB PROJ. NO.
02.1151	Drums - Tank 34	
	CLIENT 19113	

SAMPLERS: *(Signature)*

SAMPLING METHOD: Grab

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
1551	1/15/92			X		X						1				X						
1552	1/15			X		X						1				X						
1553	1/15		X	X		X						1				X						

LABORATORY ANALYSIS

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

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
	1/15/92				

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

PROJ. NO.	PROJECT NAME Dimens- Tank 34 CLIENT	LAB PROJ. NO.

SAMPLERS: *(Signature)*

SAMPLING METHOD: grab

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
L551	1/16/92			X		X						1				X						SP1.4
L552	1/16/92			X		X						1				X						SP1.4
L553	1/16/92		X	X		X						1				X						SP1.4

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

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
	1/16/92				

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

PROJ. NO.

PROJECT NAME Ft. DEVENS - REMEDIATION

CLIENT UST # 34

LAB PROJ. NO.

SAMPLERS: *(Signature)* Craig D. Tomlinson

SAMPLING METHOD

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS 624	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY	13 TCLP	SAMPLE LOCATION / REMARKS
LCS-1	8-4-92					X				X		3		X		X				X		UST # 34 Bldg. 244
LRS-2	"					X				X						X						"
LRS-3	"					X				X						X						"
LRS-4	"					X				X						X						"
LRS-5	"					X				X						X						"
LRS-6	"					X				X		3		X		X				X		"

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

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Craig D Tomlinson	8-4-92 4:00	Derek Soucie			
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Project Manager / Phone #:	

PROJ. NO. 7.07 451

PROJECT NAME USF #5 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43

CLIENT

LAB PROJ. NO.

SAMPLERS: (Signature) Craig D. Fomby

SAMPLING METHOD COMPOSITE

LABORATORY ANALYSIS

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS 8240	~~BTEX~~ SEMI VOA 8270	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	~~TOTAL METALS~~ (8) 6010	IGNITABILITY	PH	CYANIDE SULFIDE REACTION	SAMPLE LOCATION / REMARKS
SP-28	6-9-92		X			X				X		3		X	X	~~X~~	X		X	X	X	X	B&L. 2290
SP-29	"		X			X				X		3		X	X		X		X	X	X	X	" 2296
SP-30	"		X			X				X		3		X	X		X		X	X	X	X	" 2401
SP-31	"		X			X				X		3		X	X		X		X	X	X	X	" 2419
SP-32	"		X			X				X		3		X	X		X		X	X	X	X	" 2439
SP-33	"		X			X				X		3		X	X		X		X	X	X	X	" 2434
SP-34	"		X			X				X		3		X	X		X		X	X	X	X	" 2447
SP-35	"		X			X				X		3		X	X		X		X	X	X	X	" 2452
SP-36	"		X			X				X		3		X	X		X		X	X	X	X	" 2458
SP-37	"		X			X				X		3		X	X		X		X	X	X	X	" 2461
SP-38	"		X			X				X		3		X	X		X		X	X	X	X	" 2519
SP-39	"		X			X				X		3		X	X		X		X	X	X	X	" 2520
SP-40	"		X			X				X		3		X	X		X		X	X	X	X	" 2686
SP-41	"		X			X				X		3		X	X		X		X	X	X	X	" 2732
SP-42	"		X			X				X		3		X	X	X	X		X	X	X	X	" 3525
SP-43	"		X			X				X		3		X	X	X	X		X	X	X	X	" 3573

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

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

PROJ. NO. 37.07.45

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

LAB PROJ. NO. 6IVEN134781-26

LABORATORY ANALYSIS

SAMPLERS: *(Signature)*
Chuck Langenhagen

SAMPLING METHOD
Grab/Composite

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER	VOLATILE ORGANICS 8240	BTX & E	TOTAL HYDROCARBONS	PCB'S	E.P. TOXIC METALS	TOTAL METALS (8)	IGNITABILITY		SAMPLE LOCATION / REMARKS
LS-28	6/26/92		X	X								2		X								B12g 2290
LS-29			X	X								2		X								2296
LS-30			X	X								2		X								2401
LS-31			X	X								2		X								2419
LS-32			X	X								2		X								2432
LS-33			X	X								2		X								2434
LS-34			X	X								2		X								2447
LS-35			X	X								2		X								2452
LS-36			X	X								2		X								2458
LS-37			X	X								2		X								2461
LS-38			X	X								2		X								2519
LS-39			X	X								2		X								2520
LS-40			X	X								2		X								2686
LS-41			X	X								2		X								2732
LS-42			X	X								2		X								3525
LS-43	↓		X	X								2		X								3573

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

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

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

28.10 HAZARDOUS WASTE MANIFEST

UST No. 0034 was estimated to contain 35 gallons of No. 2 fuel oil and residual materials. Approximately 20 gallons of fuel oil was removed on January 7, 1992, and transported to a licensed T.S.D.F. (Beede Waste Oil Corporation). Approximately 15 gallons of fuel oil and residual materials were removed and drummed on January 15, 1992. Drummed material was transported to Beede Waste Oil on February 25, 1992.

The following Hazardous Waste Manifests were generated from residual tank materials during the vacuum process and cleaning process. The manifest dated January 7, 1992 is associated with vaccuuming product from several USTs. Therefore, the total quantity (1400 gallons) is much greater than the 20 gallons which was removed from UST 0034. The manifest dated February 25, 1992 is associated with the drummed material from several USTs. Therefore, the total quantity (395 gallons) is much greater than the 15 gallons which was removed from UST 0034.

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

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

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

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator US EPA ID No. MIA7211016125 — Manifest Document No. 15740000011

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

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

4. Generator's Phone: 508 796-3005 - 342-5168-796-2711

A. State Manifest Document Number: MA F353641

B. State Gen. ID: SAME

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

C. State Trans. ID: NHA916171352

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

D. Transporter's Phone: 603 382-5761

E. State Trans. ID

9. Designated Facility Name and Site Address: Beede Waste Oil Corp., Kelley Road PO Box 127, Plaistow, NH 03865 — 10. US EPA ID Number: NHD018958140

F. Transporter's Phone ( )

G. State Facility's ID: Not Required

H. Facility's Phone: 603 382-5761

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. WASTE PETROLEUM OILS N.O.S. COMBUSTIBLE LIQUID NA1270	1	TT	01400	G	~~MA01~~ MA917
b.					
c.					
d.					

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

a. — c.

b. — d.

K. Handling Codes for Wastes Listed Above

a. — c.

b. — d.

15. Special Handling Instructions and Additional Information

To be Recycled — Exempt — Recycle

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

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

Printed/Typed Name	Signature	Date (Month Day Year)
		01 16 17

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Robert D. Murphy Jr.	Robert D. Murphy Jr.	01 16 17

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

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

Printed/Typed Name	Signature	Date (Month Day Year)

GENERATOR

TRANSPORTER

FACILITY

MA F353641 COPY 1: FACILITY MAILS TO DESTINATION STATE

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

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

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator US EPA ID No. / Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
	MA7210025154 FD1639		

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

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

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

5. Transporter 1 Company Name: Beede Waste Oil Corp.
6. US EPA ID Number: NHD018958140
7. Transporter 2 Company Name:
8. US EPA ID Number:
9. Designated Facility Name and Site Address: Beede Waste Oil Corp.
Kelley Rd., P.O. Box 127
Plaistow, NH 03865
10. US EPA ID Number: NHD018958140

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
Waste Petroleum Oils N.O.S. Combustable liquid NA 1270	007	DM	0385	G	MA01

Additional Descriptions for Materials Listed Above (Include physical state and hazard code)
a. c. b. d.

K. Handling Codes for Wastes Listed Above
a. c. b. d.

Special Handling Instructions and Additional Information: 4-Bdg 631 1-Bdg 2447 1-2686 - 1-3573
To Be Recycled #2 Fuel With SI=Sludge
For Recycling only land Disposal Prohibited.

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

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

Printed/Typed Name	Signature	Date Month Day Year
Stephen R Hopkins		02 27 92
Transporter 1 Acknowledgement of Receipt of Materials		Date
Printed/Typed Name: rian Ginivan	Signature: Brian Ginivan	Month Day Year: 02 27 92
Transporter 2 Acknowledgement of Receipt of Materials		Date
Printed/Typed Name	Signature	Month Day Year

Discrepancy Indication Space

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

Printed/Typed Name	Signature	Date Month Day Year

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

MA F353777 COPY 1: FACILITY MAILS TO DESTINATION STATE

28.11 WEIGHT RECEIPTS AND BILLS OF LADING

The following Weight Receipts and Bills of Lading document the disposal of contaminated soil associated with UST 0034.

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

MAIN OFFICE:
NVERS 750-4200

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

TICKET #R 72861

stomer # ATE001 Job # BLDGFD MIX # #76 MIX NAME OIL SOIL TRUCK# 9
TEC ASSOC. US ARMY
2 ACCORD PARK DRIVE BLDG 2447 & 2520
NORWELL, MA 02061 FORT DEVENS, MA 01433
617-878-6200 PO# 37.04.72053

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

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

Load#	Job Total	Time & Date	Fob/Del
1	30.28	9:20:30 am Aug 5, 1992	F

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

RECEIVED BY _____

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

MAIN OFFICE:
NVERS 750-4200

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

TICKET #R 72863

tomer # ATE001 Job # BLDGFD MIX # #76 MIX NAME OIL SOIL TRUCK# 9
EC ASSOC. US ARMY
ACCORD PARK DRIVE BLDG 2447
RWELL, MA 02061 FORT DEVENS, MA 01433
7-878-6200 PO# 37.04.72053

Time	Tare	Net	Gross	Total
9:24:00	39600	64480	104080	32.24

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

Load#	Job Total	Time & Date	Fob/Del
2	64.52	9:24:01 am Aug 5, 1992	F

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

RECEIVED BY _____

BILL OF LADING
POLICY # WSC-89-001

OF LADING #: 19 DATE: _____ DEP CASE #: _____

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

SITE OF GENERATION:
STREET BUILDING 2447 $2520/K #2 F.O. UST #34
TOWN FORT DEVENS
STATE MA 01433
TRANSPORTATION ACCIDENT? __Y X N

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

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

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

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

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

UCK/TRACTOR REGISTRATION 68-274
RAILER REGISTRATION 32399
EFT SITE AT 5:10 DATE 7-5-92
ENERATOR OR RECEIVING FACILITY REPRESENTATIVE'S
IGNATURE: _____

QUANTITY SHIPPED: wt (tons) vol (cu yds)
TOTAL PROJECTED ____ ____
SHIPPED TO DATE ____ ____
THIS LOAD (estimated) 36.28 ____
REMAINING TO BE SHIPPED ____ ____
Ticket # R-72861

RANSPORTER'S SIGNATURE _____ DATE 8/5/92
ECEIVING FACILITY REPRESENTATIVE'S SIGNATURE _____ DATE 8/5/92 ARR TIME 9:20

IVED
1 1992
EP
I - Rea.

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BWSC/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

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

BILL OF LADING
POLICY # WSC-89-001

LL OF LADING #: 30 DATE: _____ DEP CASE #: _____

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

SITE OF GENERATION:
STREET BUILDING 2447 IK #2 F.O. UST #34
TOWN FORT DEVENS
STATE MA 01433
TRANSPORTATION ACCIDENT? __Y √N

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

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

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

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

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

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

TRUCK/TRACTOR REGISTRATION 167-377 MA
TRAILER REGISTRATION 38806 MA
LEFT SITE AT 810 DATE 6/5/92
GENERATOR OR RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE: _____

QUANTITY SHIPPED: wt (tons) vol (cu yds)
TOTAL PROJECTED ____ ____
SHIPPED TO DATE ____ ____
THIS LOAD (estimated) 39.29 ____
REMAINING TO BE SHIPPED ____ ____
Ticket # 72863

TRANSPORTER'S SIGNATURE _____ DATE 8/5/92
RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE _____ DATE 8/5/92 ARR TIME 9:21

CEIVED
2 1 1992
DEP
ral - Reg. 2

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BWSC/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

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

28.12 PERMITS AND CERTIFICATIONS

The following permit was obtained from the Fort Devens Fire Department for the proper closure of a UST. Following the permit there is a disposal receipt for the steel UST.

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC SAFETY — DIVISION OF FIRE PREVENTION

PERMIT

FOR REMOVAL AND TRANSPORTATION TO APPROVED TANK YARD

DIG SAFE NUMBER 920205
Dig Date 1/9/92

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

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

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

State clearly type of inert gas used in steel storage tank

Steel tank: Dry Ice
method

FDID# 17919

Fee paid $ N/A

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

Location to which tank will be transported

14901
Approved tank yard#

This permit will expire 31 Jan 1992

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

RECEIPT FOR DISPOSAL OF UNDERGROUND STEEL STORAGE TANK

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

APPROVED TANK YARD NO. 1 4 9 0 1

Tank Yard Ledger 502 CMR 3.03(4) Number: 9 2 0 0 1 1 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 Environmental Assoc. and accepted same in conformance with Massachusetts Fire Prevention Regulation 502 CMR 3.00 Provisions for Approving Underground Steel Storage Tank dismantling yards. A valid permit was issued by LOCAL Head of Fire Department FDID# 1 7 9 1 9 to transport this tank to this yard.

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

SIGNATURE	TITLE	DATE SIGNED
James Marcantonio	CPA	1-29-92

This signed receipt of disposal must be returned to the local head of the fire department FDID# 1 7 9 1 9 pursuant to 502 CMR 3:00. (EACH TANK MUST HAVE A RECEIPT OF DISPOSAL)

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

DIMENSIONS

	Width (feet)		Length (feet)
Tank 1	48"	X	10'8"
Tank 2	----	X	-----
Tank 3	-----	X	-----
Tank 4	-----	X	-----
Tank 5	-----	X	-----

Tank Removed From

Ft. Devens Bldg. # 2447 ~~Barnes # 31~~

(no. street)

Ayer

(city or town)

Fire Department Permit # Non-listed

(if applicable)

28.13 UST CLOSURE CHECKLIST

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

UST-CLOSURE O/C CHECK LIST	Tank 34	Bldg	2447	
1,000 gal No. 2 fuel				
DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
Calibrate PID & LEL/O2 meters	1/16/92	8:00		Site Topography: level
Drain & flush piping & pumps	1/16/92	8:00		
Excavate to top of tank	1/16/92	9:15		Depth to tank: 1.0'
nt tank note LEL/O2 levels & times	1/16/92		LEL O2	
		T1: 1:00	0 20.7	
		T2: 1:15	0 20.7	
		T3: 1:30	0 20.7	
		T4:		
		T5:		
		T6:		
		T7:		
		T8:		
		T9:		
		T10:		
		T11:		
		T12:		
mp & clean tank:	1/7/92		20 gal. liquid	Tank Dimensions: 4x10.5'
Note quantities liquid (gal) & sludge (lbs)	1/16/92	9:30	15 gal. sludge	tank in good condition, no holes, perf or rust. Fill pipe very loose
Remove all tank connections, and cap openings	1/16/92	8:45		
Excavate soils to free tank	1/16/92	9:05		
Segregate stained soils: Note PID readings	1/16/92	9:30	PID (ppm) NDIR (ppm)	
(if>10 ppm NDIR also)			56	Stock-1
All soils visibly contam.			31	Stock-2
Soils surround tank slight to				
mod. contam. Soils on top				

UST CLOSURE O/C CHECK LIST

DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
Remove tank, piping, pumps, and hardware.	1/16/92	9:30	Photographic Descriptions:	Soil Description: med. brown, fine
Photograph excavation; note descriptions.			Photo 1: tank	sand w/fine - coarse gravel,
Sketch Schematic			Photo 2: tank	cobbles, boulders
			Photo 3: excav N, face S	
			Photo 4: excav S, face N	
			Photo 5:	Depth to Groundwater/Conditions: N/A
			Photo 6:	
Place tank at safe distance from excavation	1/16/92	9:30		Depth of Excavation: 5.0'
Secure tanks transport off-site	1/16/92	17:45		
Obtain 10 soil samples from	1/16/92	9:45	PID (ppm) NDIR (ppm)	Sample locations: 25-35' deep
excavation walls/bottom: Note PID/NDIR			SS1: 4.0	S wall
readings and sample locations.			SS2: 3.6	S wall
			SS3: 19.4	W wall
			SS4: 0.4	W wall
			SS5: 15.4	N wall
			SS6: 56	N wall
			SS7: 26	E wall
			SS8: 44	E wall
			SS9: 26	bottom
			SS10: 34	bottom
Obtain 2 soil samples & 1 water samples	1/16/92	10:00		Sample Locations:
for laboratory analysis. Note sample locations.				LSS1: ≈ SS6
				LSS2: ≈ SS10
				LWS1:
				LSS3: composite stockpile

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

28.14 INSTALLATION

The installation of a replacement UST No.0034 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)