

**THE COMMONWEALTH OF MASSACHUSETTS  
GOVERNMENT LAND BANK  
Devens Commerce Center  
Devens, Massachusetts**

**UNDERGROUND STORAGE TANK  
CLOSURE REPORT**

**UST NO. 1675**

**SEPTEMBER 1996**

**Prepared by:  
S E A CONSULTANTS INC.  
Science/Engineering/Architecture  
Cambridge, Massachusetts  
Rocky Hill, Connecticut  
Londonderry, New Hampshire  
Rochester, New York**

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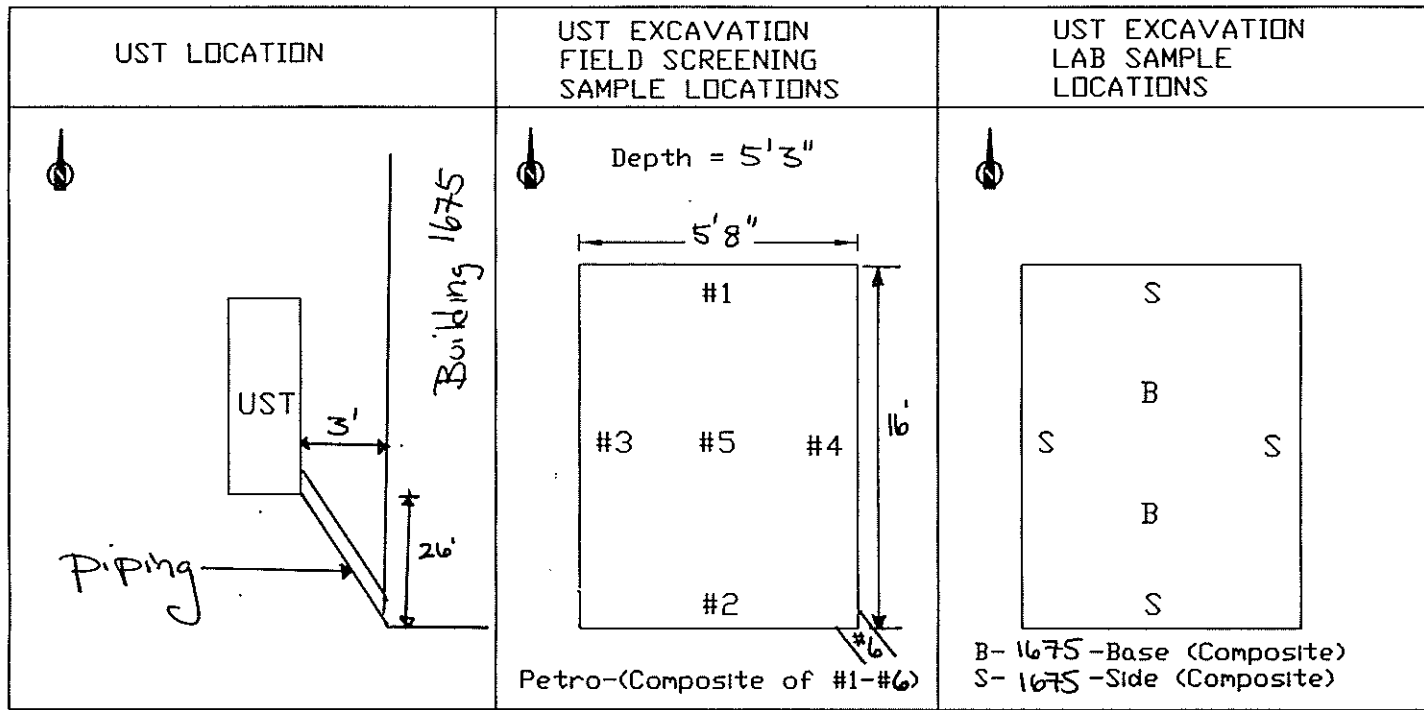
## 1.0 INTRODUCTION

This Underground Storage Tank (UST) Closure Report has been completed in accordance with the Commonwealth of Massachusetts Underground Storage Tank Closure Assessment Manual, dated April 9, 1996, and the Devens Commerce Center's (DCC) "*Underground Storage Tank Closure Protocol*" (Addendum to a DEP-approved Tier 1A permit), dated June 14, 1996. The 1,000-gallon UST was located at Building 1675, Carey Street, Devens, Massachusetts (north/east [North American Datum, 1983] coordinates 3024429/630016). The former location of this UST is shown on Figure 1.

The 1,000-gallon steel UST, storing No. 2 heating oil, was removed on May 24, 1996. Headspace and Petroflag field screening on soil adjacent to the UST and associated piping indicated minimal impact to the soils from the UST/piping. Laboratory tests within the UST excavation confirmed contaminant levels below applicable regulatory levels outlined in the Massachusetts Contingency Plan (MCP) [310 CMR 40.0000]. Following review of the laboratory data, the excavated hole was backfilled.

## 2.0 BACKGROUND

The UST at Building 1675 was originally installed in 1962 by the U.S. Army to store No. 2 heating oil for Building 1675. Upon the closure of Fort Devens, the UST's ownership was transferred from the U.S. Army to the DCC. As part of the DCC's goal to develop Fort Devens, a number of USTs, including this UST at Building 1675, were removed. This steel UST had a diameter of four (4) feet and a length of eleven (11) feet. The associated piping was copper tubing.



FIELD SCREENING				
SAMPLE #	DEPTH	TPH SCREEN	HEAD SPACE	LAB ANAL METHOD
#1	2-4'		0.0	
#2	↓		0.0	
#3			0.0	
#4			0.0	
#5		5'		0.0
PETRO		62		
#6	1'		0.0	
1675-BASE				99.6
1675-SIDE				82.5

Figure 1  
UST and Sample Locations  
Massachusetts Land Bank  
Devens, Massachusetts

### **3.0 UST REMOVAL**

During the weeks of May 13 and 20, 1996, D&C Construction Co., Inc. of Rockland, Massachusetts, as part of its UST removal contract with the DCC, removed product from the UST with a vacuum truck. Later, soil above the UST and its associated piping were removed with an excavator and hand shovel. The UST was then tilted by the excavator to allow the remaining product to pool at the UST's bottom corner. A two-foot by two-foot access hole was then cut in the UST after it had been tested for combustible gases and oxygen. A laborer then made entry into the tank, and, using squeegee wipers, rags and a vacuum hose, cleaned out the remaining product from the tank. All product was transported off-site as hazardous waste. The manifests are in Appendix A. On May 24, 1996, the UST was removed and transported off-site. Transfer documentation (Forms FP290R and 291) is in Appendix B. A total of eleven (11) cubic yards of soil were excavated as part of the UST removal. Contaminant levels within the stockpile were later found to be below applicable regulatory thresholds.

### **4.0 FIELD OBSERVATIONS AND ASSESSMENT**

Upon removal of the UST, it was observed to be intact with very little rust. There was no visual or olfactory evidence of impacted soil within the excavation and groundwater was not observed.

Soil was then collected for Jar Headspace measurements using a Photoionization Detector (PID), and Total Petroleum Hydrocarbons (TPH) readings were measured using a Petroflag Hydrocarbon Analyzer. PID readings were 0 ppmv. A composite sample collected from the sidewalls and base of the excavation measured 62 ppm of TPH using the Petroflag Hydrocarbon Analyzer. Results and sampling locations are shown in Figure 1. Due to the low levels of these field readings, no further excavation was conducted and samples were

collected from the excavation and associated soil stockpile for laboratory analysis. The sidewalls and base of the excavation were analyzed for TPH [Method 418.1], and the associated stockpile was analyzed for TPH [Method 418.1], Polynuclear Aromatic Hydrocarbons (PAHs) [Method 8270], and Volatile Organic Compounds (VOCs) [Method 8260]. All samples were below the applicable MCP "RCS-1 Reportable Concentrations". Results and sampling locations are shown in Table 1 and Figure 1, respectively. The laboratory analytical data package is contained in Appendix C.

After receipt of the laboratory data, the stockpiled soil was backfilled into the excavation. Off-site fill was then added and compacted to bring the excavation back to grade. Compaction documentation is contained in Appendix D.

**TABLE 1**  
**SUMMARY OF LABORATORY ANALYTICAL RESULTS**

SAMPLE I.D. NUMBER	ANALYTE	LABORATORY RESULT (PPM)	RCS-1* (PPM)
1675-Base	TPH	99.6	500
1675-Side	TPH	82.6	500
1675-Stock	TPH	119	500
1675-Stock	Fluorene	ND	400
1675-Stock	Phenanthrene	0.794	100
1675-Stock	Anthracene	ND	1,000
1675-Stock	Fluoranthene	0.698	600
1675-Stock	Pyrene	0.853	500
1675-Stock	Benzo(a)anthracene	0.370	0.7
1675-Stock	Chrysene	ND	7
1675-Stock	Benzo(b)fluoranthene	ND	0.7
1675-Stock	Benzo(k)fluoranthene	0.456	7
1675-Stock	Benzo(a)pyrene	ND	0.7
1675-Stock	Indeno(1,2,3-cd)pyrene	ND	0.7
1675-Stock	Toluene	ND	90
1675-Stock	Ethyl Benzene	ND	80
1675-Stock	Xylenes	ND	500

\*Applicable Reportable Concentration (310 CMR 40.1600).  
ND = Not Detected above laboratory detection limits.

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**APPENDIX A**

**UNIFORM HAZARDOUS WASTE MANIFESTS**





DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 DIVISION OF HAZARDOUS MATERIALS  
 One Winter Street  
 Boston, Massachusetts 02108

→ Carter Fabry

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

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator US EPA ID No. <b>NOT APPLICABLE 48176</b>	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address <b>DEVENS COMMERCE CENTER 43 BUENA VISTA ST. P-12 FORT DEVENS, MA 01433</b>				A. State Manifest Document Number <b>MA 1148176</b>		
4. Generator's Phone ( <b>508 772-6340</b> )				B. State Gen. ID: <b>43 BUENA VISTA ST. FORT DEVENS MA</b>		
5. Transporter 1 Company Name <b>ENVIRONMENTAL PRODUCTS &amp; SERVICES, INC</b>		6. US EPA ID Number <b>NYD98076119</b>		C. State Trans. ID: <b>256841MA</b>		
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone ( <b>315 471-0503</b> )		
9. Designated Facility Name and Site Address <b>OLSON'S GREENHOUSES 590 SOUTH ST. E. RAYNHAM, MA 02767</b>		10. US EPA ID Number <b>MAD05973344</b>		E. State Trans. ID		
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) <b>FUEL OIL MIXTURE, COMBUSTIBLE LIQUID, NA1993, PGIII</b>		12. Containers No. Type <b>0011</b>		13. Total Quantity <b>12700</b>		4. Unit Wt/Vol <b>G</b>
15. Special Handling Instructions and Additional Information <b>Job #: E0641 PO #: Emergency #: (315)471-0503 ERG A. 27</b>		K. Handling Codes for Wastes Listed Above <b>B8M</b>				
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.		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.				
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature <b>RJ Ostrowski</b>		Date <b>05/16/96</b>		
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature <b>Phillip Pike Jr</b>		Date <b>05/16/96</b>		
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.		Signature <b>Anthony S. Carvalho</b>		Date <b>05/16/96</b>		

MA 1148176 COPY>3: FACILITY MAILS TO GENERATOR

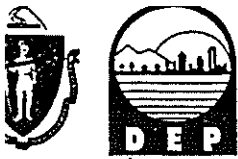


DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 DIVISION OF HAZARDOUS MATERIALS  
 One Winter Street  
 Boston, Massachusetts 02108

Print or type. (Form designed for use on elite (12-pin) printer.)

UNIFORM HAZARDOUS WASTE MANIFEST		Manifest Document No. 48178		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address DEVENS COMMERCE CENTER 43 BUENA VISTA ST. P-12 FORT DEVENS, MA 01433				A. State Manifest Document Number MA 0148178		B. State Gen. ID 43 BUENA VISTA ST. P FORT DEVENS, MA	
4. Generator's Phone (508) 772-6340				C. State Trans. ID 25684MA		D. Transporter's Phone (315) 471-0503	
5. Transporter 1 Company Name ENVIRONMENTAL PRODUCTS & SERVICES, INC		6. US EPA ID Number NYD980761191		E. State Trans. ID		F. Transporter's Phone	
7. Transporter 2 Company Name		8. US EPA ID Number		G. State Facility ID Not Required		H. Facility's Phone (508) 880-6002	
9. Designated Facility Name and Site Address OLSON'S GREENHOUSES 590 SOUTH ST. E. RAYNHAM, MA 02767				10. US EPA ID Number MA D 059733378		11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	
a. FUEL OIL MIXTURE, COMBUSTIBLE LIQUID, NA1993, PGI II				12. Containers No. Type 0 0 1 T T		13. Total Quantity 12900	
b.						14. Unit Wt/Vol G	
c.						Waste No. NA98	
d.							
J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.) a. #2 FUEL WATER				K. Handling Codes for Wastes Listed Above D 8 M			
b.				c.			
b.				d.			
15. Special Handling Instructions and Additional Information Job #: E0641 PO #: Emergency #: (315) 471-0503 ERG A. 27							
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.							
17. Transporter 1 Acknowledgement of Receipt of Materials				Signature RJO		Date 01/17/91	
18. Transporter 2 Acknowledgement of Receipt of Materials				Signature [Signature]		Date 01/17/91	
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]				Signature [Signature]		Date 01/17/91	

MA 0148178 COPY>3: FACILITY MAILLS TO GENERATOR



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

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UNIFORM HAZARDOUS WASTE MANIFEST		Generator's US EPA ID No. <b>MA 0208175</b> Manifest No. <b>2340</b>		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address <b>DEVENS COMMERCE CENTER 43 BUENA VISTA ST. P-12 FORT DEVENS, MA 01433</b>				A. State Manifest Document Number <b>MA 0208175</b>		B. State Gen. ID <b>43 BUENA VISTA ST. FORT DEVENS, MA</b>	
4. Generator's Phone <b>508 772-6340</b>		6. US EPA ID Number <b>NYD98076119</b>		C. State Trans. ID <b>26133 MA</b>		D. Transporter's Phone <b>315 471-0503</b>	
5. Transporter 1 Company Name <b>ENVIRONMENTAL PRODUCTS &amp; SERVICES, INC</b>		8. US EPA ID Number		E. State Trans. ID		F. Transporter's Phone	
7. Transporter 2 Company Name		10. US EPA ID Number <b>MA 015973337</b>		G. State Facility's ID <b>Not Required</b>		H. Facility's Phone <b>508 880-6002</b>	
9. Designated Facility Name and Site Address <b>OLSON'S GREENHOUSES 590 SOUTH ST. E. RAYNHAM, MA 02767</b>				11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)			
a. <b>FUEL OIL MIXTURE, COMBUSTIBLE LIQUID, NA1993, PGIII</b>				12. Containers No. Type		13. Total Quantity 14. Unit Wt/Vol 15. Waste No.	
				1600 1900		1600 G MA9B	
J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)				K. Handling Codes for Wastes Listed Above			
a. <b>#2 FUEL OIL, WATER</b>				a. <b>R 8 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50</b>			
b.				b.			
15. Special Handling Instructions and Additional Information <b>E0649 Job #: 80641 PO #: Emergency #: (315)471-0503 ERG A. 27</b>							
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 <b>JAMES E. ARMSTRONG</b>				Signature <i>[Signature]</i>		Date <b>05 23 96</b>	
17. Transporter 1 Acknowledgement of Receipt of Materials				Signature <i>[Signature]</i>		Date <b>05 23 96</b>	
Printed/Typed Name <b>Philip Pike Jr</b>				Signature <i>[Signature]</i>		Date <b>05 23 96</b>	
18. Transporter 2 Acknowledgement of Receipt of Materials				Signature		Date	
Printed/Typed Name				Signature		Date	
19. Discrepancy Indication Space							
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.							
Printed/Typed Name <b>JEFFREY ERICKARLY</b>				Signature <i>[Signature]</i>		Date <b>05 23 96</b>	

MA J148179 COPY>3 FACILITY MAILS TO GENERATOR



DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF HAZARDOUS MATERIALS  
One Winter Street  
Boston, Massachusetts 02108

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

UNIFORM HAZARDOUS WASTE MANIFEST  
 4. Generator US EPA ID No. **NOT APPLICABLE** Manifest No. **87726340**  
 2. Page 1 of 1 Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address  
**DEVENS COMMERCE CENTER**  
**43 BUENA VISTA ST. P-12**  
**FORT DEVENS, MA 01433**  
 4. Generator's Phone ( **508** ) **772-6340**

5. Transporter 1 Company Name  
**ENVIRONMENTAL PRODUCTS & SERVICES, INC** 6. US EPA ID Number **NYD980761191**  
 7. Transporter 2 Company Name 8. US EPA ID Number  
 9. Designated Facility Name and Site Address  
**OLSON'S GREENHOUSES** 10. US EPA ID Number  
**590 SOUTH ST. E.**  
**RAYNHAM, MA 02767** **MA D 0 5 9 7 3 3 3 7 8**

A. State Manifest Document Number  
**MA 0148180**  
 B. State Gen. ID **SAME**  
 C. State Trans. ID  
**MA 25684**  
 D. Transporter's Phone ( **315** ) **471-0503**  
 E. State Trans. ID  
 F. Transporter's Phone ( )  
 G. State Facility's ID **Not Required**  
 H. Facility's Phone ( **508** ) **880-6002**

Description (including proper shipping name, hazard class, and ID number)		12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
a.	<b>FUEL OIL MIXTURE, COMBUSTIBLE LIQUID, NA1993, PGLII</b>	<b>001</b>	<b>TT</b>	<b>X13010</b>	<b>G</b>	<b>NA98</b>
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)  
**a. 42 OIL WATER**  
 K. Handling Codes for Wastes Listed Above  
**a. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100**

15. Special Handling Instructions and Additional Information  
**Job #: E0649 PO #:**  
**Emergency #: (315)471-0503 ERG A. 27**  
**Supplemental**

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 <b>RONALD J OSTROWSKI</b>	Signature <i>RJ Ostrowski</i>	Date <b>05/24/96</b>
17. Transporter 1 Acknowledgement of Receipt of Materials		
Printed/Typed Name <b>MICHAEL HUMES</b>	Signature <i>Michael Humes</i>	Date <b>05/24/96</b>
18. Transporter 2 Acknowledgement of Receipt of Materials		
Printed/Typed Name	Signature	Date

19. Discrepancy Indication Space

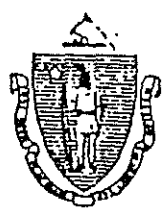
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.  
 Printed/Typed Name  
 Signature  
 Date

MA 0148180 COPY>3: FACILITY MAILS TO GENERATOR

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**APPENDIX B**

**TANK MANIFESTS AND RECEIPTS**



# The Commonwealth of Massachusetts

## Department of Public Safety—Division of Fire Prevention

### APPLICATION FOR PERMIT FOR REMOVAL AND TRANSPORTATION TO APPROVED TANK YARD

\_\_\_\_\_, 19\_\_\_\_  
(Date)

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

DIG SAFE NUMBER
961907225
Start Date MAY 10, 96

596  
76

To: HEAD OF FIRE DEPARTMENT  
Chief PAULEY FEAL  
City or Town

In accordance with the provisions of Chapter 148, G.L. as provided in Section 38A Application is hereby made by Jim Morris

(Name of Person, Firm or Corporation)  
248 River St Lowell MA. 02061  
Address

TOTAL Area of Removal 1600 AREA  
33 tanks plus 208, 209  
For permission to remove and transport underground steel storage tank(s) from  
DEVEL Commerce Center PHOENIX MA. 01433  
Street address (city or town)

FDID# 17919 to approved Tank Yard# 008

State clearly type of inert gas used in steel storage tank  
Co2  
Type of Inert gas used

Name of Person, Firm, Corporation disposing tank J.G. Grant, READING MA.

Date issued - rejected \_\_\_\_\_ 19\_\_\_\_  
Date of expiration, \_\_\_\_\_ 19\_\_\_\_ paid/due  
By: James A. Moran  
Signature of Applicant  
Fee 25.00 per (MGL C-148, S-10A)

2 -> Total \$ 875.00



# The Commonwealth of Massachusetts

## DEPARTMENT OF PUBLIC SAFETY—DIVISION OF FIRE PREVENTION

### PERMIT

#### FOR REMOVAL AND TRANSPORTATION TO APPROVED TANK YARD

\_\_\_\_\_, 19\_\_\_\_

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

DIG SAFE NUMBER
Start Date

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

Name: \_\_\_\_\_  
Full name of person, firm or Corporation  
To transport underground steel storage tank(s)  
to Approved tank yard# \_\_\_\_\_

State clearly type of inert gas used in steel storage tank  
steel tank: \_\_\_\_\_  
method \_\_\_\_\_

FDID# 17919  
Name and address of contractor disposing tank \_\_\_\_\_  
Fee paid \$ \_\_\_\_\_  
Location to which tank will be transported \_\_\_\_\_

This permit will expire \_\_\_\_\_ 19\_\_\_\_

Approved Tank yard# \_\_\_\_\_  
[Signature]  
Signature of official granting permit (TITLE)  
(Head of Fire Dept.)

1601  
1602  
1603  
1604  
1606  
1607  
608  
609  
610  
611  
652  
653  
654  
655  
656  
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1660  
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1670  
1671  
1672  
1673  
1674  
1675  
1676

208  
209

RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK

NAME AND ADDRESS JAMES G. GRANT

OF R 28 WOODVILLE

APPROVED TANK YARD READVILLE, MA 02132

APPROVED TANK YARD NO. #1008

Tank Yard Ledger 502 CMR 3.03(4) Number: 9622350



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, Jim Morris D+C

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# 12919 to transport this tank to this yard.

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

[Signature] [Title] 5-24-96  
SIGNATURE TITLE DATE SIGNED

This signed receipt of disposal must be returned to the local head of the fire department FDID# 12919 pursuant to 502 CMR 3:00. (EACH TANK MUST HAVE A RECEIPT OF DISPOSAL)



Tank Data

Gallons 1000

Previous Contents #2

Diameter \_\_\_\_\_ Length \_\_\_\_\_

Date Received 5-24-96

Serial # (if available) \_\_\_\_\_

Tank I.D. # (Form FP-290) \_\_\_\_\_

Tank Removed From:

Devens Commerce Ctr.  
(No. and Street)

Ft. Devens  
(City or Town)

Fire Dept. Permit # \_\_\_\_\_

Owner/Operator to mail revised copy of Notification Form (FP-290, or FP-290R) to: UST Compliance, Office of the State Fire Marshal, 1010 Commonwealth Avenue, Boston, Ma. 02215.

---

**APPENDIX C**

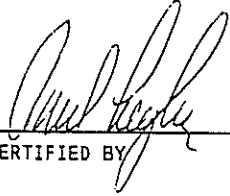
**LABORATORY ANALYTICAL RESULTS**

Received: 05/30/96

06/11/96 15:48:33

REPORT D & C CONSTRUCTION CO.  
TO 415 VFW DRIVE  
ROCKLAND, MA. 02370  
617-871-8200 FAX: 871-8871  
ATTEN WHITEY MORRIS

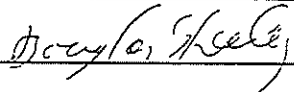
PREPARED TOXIKON CORPORATION  
BY 15 WIGGINS AVE  
BEDFORD, MA 01730  
ATTEN PAUL LEZBERG  
PHONE (617)275-3330

  
CERTIFIED BY \_\_\_\_\_  
CONTACT JOHNN

CLIENT D C CONSTRUC      SAMPLES 39  
COMPANY D & C CONSTRUCTION CO.  
FACILITY 415 VFW DRIVE  
ROCKLAND, MA. 02370

MA CERT # M-MA064: TRACE METALS, SULFATE, CYANIDE, RES. FREE  
CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST., NUTRIENTS.  
DEMAND. O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778  
FL HRS E87143, NJ DEP 59538, NC DNR286, SC 88002, NH 204091-C.

WORK ID DEVENS  
TAKEN 5/29/96  
TRANS \_\_\_\_\_  
TYPE SOIL  
P.O. # \_\_\_\_\_  
INVOICE under separate cover

VERIFIED BY:   
CERT # M-MA064

**SAMPLE IDENTIFICATION**

**TEST CODES and NAMES used on this workorder**

- 01 1660-SIDE
- 02 1660-BASE
- 03 1662-STOCK
- 04 1662-BASE
- 05 1662-SIDE
- 06 1663-STOCK
- 07 1663-BASE
- 08 1663-SIDE
- 09 1664-STOCK
- 10 1664-BASE
- 11 1664-SIDE
- 12 1665-STOCK
- 13 1665-BASE
- 14 1665-SIDE
- 15 1668-STOCK
- 16 1668-BASE
- 17 1668-SIDE
- 18 1673-STOCK
- 19 1673-BASE
- 20 1673-SIDE
- 21 1674-STOCK
- 22 1674-BASE
- 23 1674-SIDE
- 24 1675-STOCK
- 25 1675-BASE
- 26 1675-SIDE

- 8260 PURGEABLE ORGANICS VOA
- 827PAH 8270 PAH ONLY
- TPH IR TPH BY IR

SAMPLE ID <u>1674-BASE</u>	SAMPLE # <u>22</u> FRACTIONS: <u>A</u>
	Date & Time Collected <u>05/29/96 09:34:00</u> Category <u>SOIL</u>
TPH_IR <u>128</u>	
mg/Kg DL=40	

SAMPLE ID <u>1674-SIDE</u>	SAMPLE # <u>23</u> FRACTIONS: <u>A</u>
	Date & Time Collected <u>05/29/96 09:34:00</u> Category <u>SOIL</u>
TPH_IR <u>75.9</u>	
mg/Kg DL=40	

SAMPLE ID <u>1675-STOCK</u>	SAMPLE # <u>24</u> FRACTIONS: <u>A</u>
	Date & Time Collected <u>05/29/96 15:10:00</u> Category <u>SOIL</u>
TPH_IR <u>119</u>	
mg/Kg DL=40	

Received: 05/30/96

Results by Sample

SAMPLE ID 1675-STOCKFRACTION 24ATEST CODE 8260NAME PURGEABLE ORGANICS VOADate & Time Collected 05/29/96 15:10:00Category SOIL**EPA 8260 PURGEABLE ORGANICS**

	RESULT	LIMIT		RESULT	LIMIT
Chloromethane	ND	10	o-Xylene	ND	5.0
Bromomethane	ND	10	m-Xylene	ND	5.0
Vinyl Chloride	ND	2.0	p-Xylene	ND	5.0
Chloroethane	ND	10	1,2-Dichlorobenzene	ND	5.0
Methylene Chloride	ND	10	1,3-Dichlorobenzene	ND	5.0
1,1-Dichloroethene	ND	5.0	1,4-Dichlorobenzene	ND	5.0
Trichlorofluoromethane	ND	10	Naphthalene	ND	10
1,1-Dichloroethane	ND	5.0	n-Propylbenzene	ND	10
Trans-1,2-Dichloroethene	ND	5.0	Bromobenzene	ND	5.0
Chloroform	ND	5.0	Bromochloromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	n-Butylbenzene	ND	10
1,1,1-Trichloroethane	ND	5.0	sec-Butylbenzene	ND	10
Carbon Tetrachloride	ND	5.0	tert-Butylbenzene	ND	10
Bromodichloromethane	ND	5.0	2-Chlorotoluene	ND	5.0
1,2-Dichloropropane	ND	5.0	4-Chlorotoluene	ND	5.0
Trichloroethene	ND	5.0	1,2-Dibromo-3-chloropropane	ND	5.0
Dibromochloromethane	ND	5.0	1,2-Dibromomethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0	Dibromomethane	ND	5.0
Benzene	ND	5.0	Dichlorodifluoromethane	ND	10
1,1-Dichloropropene	ND	5.0	cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0	1,3-Dichloropropane	ND	5.0
Bromoform	ND	5.0	1,1,1,2-Tetrachloroethane	ND	5.0
Hexachlorobutadiene	ND	10	1,2,3-Trichlorobenzene	ND	5.0
Isopropylbenzene	ND	10	1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0	1,2,4-Trichlorobenzene	ND	5.0
Methyl tertiary butyl ether	ND	5.0	1,2,3-Trichloropropane	ND	5.0
Toluene	ND	5.0	1,2,4-Trimethylbenzene	ND	10
Chlorobenzene	ND	5.0	1,3,5-Trimethylbenzene	ND	10
Ethyl Benzene	ND	5.0			
p-Isopropyltoluene	ND	10			

## Notes and definitions for this report:

DATE RUN 06/10/96  
 ANALYST CM  
 INSTRUMENT \_\_\_\_\_ B  
 DIL. FACTOR 1  
 UNITS ug/Kg  
 COMMENTS \_\_\_\_\_

ND = Not detected at detection limit

Received: 05/30/96

Results by Sample

SAMPLE ID 1675-STOCKFRACTION 24ATEST CODE 827PAHNAME 8270 PAH ONLYDate & Time Collected 05/29/96 15:10:00Category SOIL

## BASE NEUTRAL EXTRACTABLES

	RESULT	LIMIT
Naphthalene	<u>ND</u>	<u>360</u>
Acenaphthylene	<u>ND</u>	<u>360</u>
Acenaphthene	<u>ND</u>	<u>360</u>
Fluorene	<u>ND</u>	<u>360</u>
Phenanthrene	<u>794</u>	<u>360</u>
Anthracene	<u>ND</u>	<u>360</u>
Fluoranthene	<u>698</u>	<u>360</u>
Pyrene	<u>853</u>	<u>360</u>
Benzo (a) anthracene	<u>370</u>	<u>360</u>
Chrysene	<u>ND</u>	<u>360</u>
Benzo(b)fluoranthene	<u>ND</u>	<u>360</u>
Benzo(k)fluoranthene	<u>456</u>	<u>360</u>
Benzo(a)pyrene	<u>ND</u>	<u>360</u>
Indeno(1,2,3-cd)pyrene	<u>ND</u>	<u>360</u>
Dibenz(a,h)anthracene	<u>ND</u>	<u>360</u>
Benzo(g,h,i)perylene	<u>ND</u>	<u>360</u>
2-Methylnaphthalene	<u>ND</u>	<u>360</u>

## Notes and Definitions for this Report:

UNITS: ug/Kg  
 EXTRACTED: 06/06/96  
 DATE RUN: 06/07/96  
 ANALYST: PAC  
 INSTRUMENT: \_\_\_\_\_ F  
 DIL. FACTOR: 1  
 ND = not detected at detection limit

SAMPLE ID <u>1675-BASE</u>	SAMPLE # <u>25</u> FRACTIONS: <u>A</u>
	Date & Time Collected <u>05/29/96 15:10:00</u> Category <u>SOIL</u>
TPH_IR <u>99.6</u>	
mg/Kg DL=40	

SAMPLE ID <u>1675-SIDE</u>	SAMPLE # <u>26</u> FRACTIONS: <u>A</u>
	Date & Time Collected <u>05/29/96 15:10:00</u> Category <u>SOIL</u>
TPH_IR <u>82.6</u>	
mg/Kg DL=40	

SAMPLE ID <u>1654-STOCK</u>	SAMPLE # <u>27</u> FRACTIONS: <u>A</u>
	Date & Time Collected <u>05/29/96 09:32:00</u> Category <u>SOIL</u>
TPH_IR <u>523</u>	
mg/Kg DL=40	

Received: 05/30/96

Test Methodology

TEST CODE 8260 NAME PURGEABLE ORGANICS VOA

EPA METHOD: 8260: Gas Chromatography/Mass Spectrometry for Volatile Organics.

Reference: Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods.  
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.

TEST CODE 827PAH NAME 8270 PAH ONLY

EPA METHOD: 8270 GAS CHROMATOGRAPHY / MASS SPECTROMETRY FOR SEMIVOLATILE  
ORGAINCS; CAPILLARY COLUM TECHNIQUE. BASE NEUTRAL ONLY.

REFERENCE: TEST METHODS FOR EVALUATING SOLID WASTES: PHYSICAL/CHEMICAL METHODS.  
EPA SW-846 (THIRD EDITION) 1986. OFFICE OF SOLID WASTE, USEPA.

RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.

TEST CODE TPH IR NAME TPH BY IR

EPA METHOD: 418.1 for water sample.

Reference: Methods for Chemical Analysis of Water and Wastes.  
EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL, Cincinnati, OH.

EPA METHOD: 9071/9073

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.  
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.



# TOXIKON

15 Wiggins Ave., Bedford, MA 01730  
 Telephone: (617) 275-3330  
 Fax: (617) 271-1136

# CHAIN OF CUSTODY RECORD

DUE DATE : 6-5-96

2/3

COMPANY: D+C  
 ADDRESS: 415 NEW DR  
Rockland 02770  
 PHONE #: (617) 841-0332 FAX #: (617) 841-1025  
 P.O. #: \_\_\_\_\_  
 PROJECT MANAGER: L.H. Taylor  
 PROJECT ID/LOCATION: NEVENS

- SAMPLE TYPE CONTAINER TYPE
- WASTEWATER P - PLASTIC
  - SOIL G - GLASS
  - SLUDGE V - VOA
  - OIL
  - DRINKING WATER
  - WATER (GW/MW/SW)
  - OTHER (SPECIFY)

### ANALYSES

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER			SAMPLING		PRESERVATIVE	ANALYSES												SPE INSTRUCTION COMMENT				
			SIZE	TYPE	#	DATE	TIME		TPH (418.1)	VOCs (8160)	SVOCs (8270)														
14	1665-side	Soil	2oz/250	Glas	2	5/29/96	0935	---	X	X	X														
15	1668-stock		2oz/250				0918																		
16	1668-base		2oz/250																						
17	1668-side		2oz/250																						
18	1673-stock	Soil	2oz/250	G	2		1723																		
19	1673-base		2oz/250				0923																		
20	1673-side		2oz/250				0923																		
21	1674-stock		2oz/250	G	2	5/29/96	0934																		
22	1674-base		2oz/250		2		0934																		
23	1674-side		2oz/250		2		0934																		
24	1675-stock		2oz/250	G	1	5/29/96	1510																		
25	1675-base				1		1510																		
26	1675-side				1		1510																		

SAMPLED BY: CCF  
 RELINQUISHED BY: [Signature]  
 RFLINQUISHED BY: [Signature]  
 METHOD OF SHIPMENT: \_\_\_\_\_

DATE: 5-29-96  
 TIME: \_\_\_\_\_  
 DATE: 5-29-96  
 TIME: 17:10  
 DATE: \_\_\_\_\_  
 TIME: \_\_\_\_\_

QUOTATION #: \_\_\_\_\_  
 RECEIVED BY: [Signature]  
 RECEIVED FOR LAB BY: \_\_\_\_\_  
 COOLER TEMPERATURE: \_\_\_\_\_

DATE: 5-30  
 TIME: 17-10  
 DATE: \_\_\_\_\_  
 TIME: \_\_\_\_\_

RUSH .5 BUSINESS DAY TURN AROUND  
 ROUTINE  
 Sample disposal information  
 Are there any other known or suspected contaminants in these samples other than those listed above?  
 Yes \_\_\_\_\_ No \_\_\_\_\_ If Yes, 1st Known \_\_\_\_\_

---

APPENDIX D

COMPACTION TESTS



Briggs Associates  
400 Hingham Street  
Rockland, MA 02370  
A Tundra Corporation Company

**SOILS COMPACTION REPORT**

PROJECT: Fort Devens, Ayer  
PROJECT #: 60904  
DATE: June 13, 1996  
INSPECTOR: John Vogel

EMP.#: 236	REPORT #:	CODE:	LAB #:
ARR. TIME: 7:15	JOB HOURS: 9.25	T.T.:	MILEAGE:
TEMP.: $\odot$ L	WIND: H $\odot$	HUMID.: $\odot$ L	<del>SUNNY</del> CLOUDY

MAXIMUM DRY DENSITY: 130.8 // 118.3  
OPTIMUM MOISTURE CONTENT: 8.3 // 9.5

METHOD OF TESTING (CHECK ONE): SAND CONE:  NUCLEAR DENSOMETER:



Test No:	Location	Estimated Area Tested	Elevation Depth	Test Results % compaction	Min. % Comp. Req.	Moist. Content %	Optimum Moisture %
1	Building 1673	one 1 ft	2.5 ft	96.3% 125.9pcf	95%	9.1	8.3
2			grade	98.5 116.5		4.9	9.5
3	1674		2 ft	96.8 126.6		9.1	8.3
4	1668		grade	97.1 110.8		7.2	9.5
5	1674		grade	97.4 115.2		5.6	9.5
6	233		4 ft	96.7 126.0		8.7	8.3
7	"		2 ft	95.4 120.7		7.5	"
8	"		grade	98.1 116.0		6.1	9.5
9	2687		2 ft	95.2 120.5		9.7	8.3
10	"		grade	98.2 116.2		7.5	9.5
11	2688		4 ft	97.3 122.2		7.7	8.3
12	"		2 ft	98.1 128.3		8.1	"
13	"		grade	96.3 113.9		7.2	9.5
14	1438		2 ft	96.5 126.2		9.5	8.3
15	"		grade	96.7 114.1		8.2	9.5
16	3596		2 ft	95.4 124.7		8.3	8.3
17	"		grade	96.3 113.9		9.1	9.5
18	1675		4 ft	92.1 122.0		7.8	8.3
19	"		2 ft	98.2 116.2		7.6	9.5
20	"		grade	96.5 114.2		6.4	9.5

Tests not meeting requirements: none

Who notified: Bobo (D&C, Construction)

Recommendations: none at this time

REMARKS: Done at this time

TECHNICIAN:   
APPROVED: 



Tundra Corporation

D & C Construction / Ft. Devens  
Briggs # 60904  
Tested: 6-5-96

1. Sample No. *Keatinge Sand + Gravel Fitchburg* Description Source Site  
M-956 Gravelly Sand with silt

2. Sieve Analysis (ASTM C 136, and ASTM C 117)

<u>Sieve Size</u>	<u>Results</u> { % Passing by WL }	<u>Specs.</u>
4"	100	
3"	100	
2-1/2"	100	
2"	100	
1-1/2"	86	
1"	86	
3/4"	75	
1/2"	71	
3/8"	67	
#4	55	
#10	45	
#20	36	
#40	30	
#80	23	
#100	20	
#200	17.8	

3. No specifications provided.

4. Proctor Density (four point procedure - ASTM D 1557 Method C, and ASTM D 4718).

	<u>Results</u>
Maximum Dry Unit Weight (pcf)	130.8
Optimum Moisture Content (%)	8.3

---

400 Hingham Street, Rockland, Massachusetts 02370

Tel (617) 871-6040 • Fax (617) 871-7992

Offices located throughout the United States and Canada



Briggs Associates  
A Tundra Corporation Company

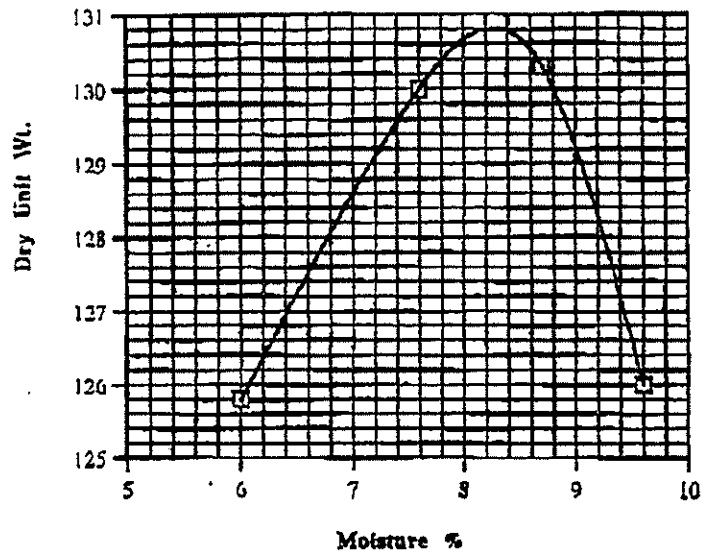
**Project:** D & C Construction / Ft. Devens

**Sample no.**

M-956

**Date:** 6/5/96

### Proctor



**Max. Dry Density**  
130.8 pcf

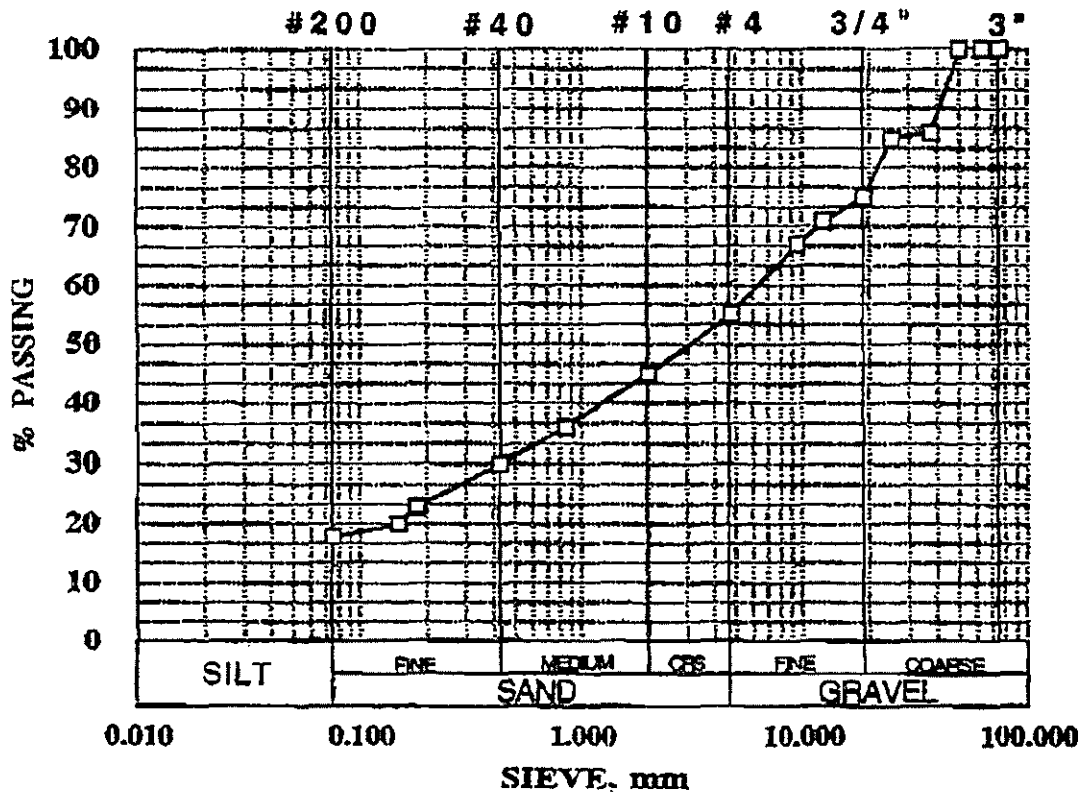
**Optimum**  
**Moisture**  
8.3 %



Briggs Associates  
A Tundra Corporation Company

Project: D & C Construction / Ft. Devens  
Sample No. M-956 Date: 6/3/96

### SIEVE





Tundra Corporation

D & C Construction / Ft. Devens  
Briggs # 60904  
Tested: 6-5-96

1. Sample No. Description Source  
M-957 Gravelly Sand Site

2. Sieve Analysis {ASTM C 136, and ASTM C 117}

<u>Sieve Size</u>	<u>Results</u> {% Passing by Wt.}	<u>Specs.</u>
4"	100	
3"	100	
2-1/2"	100	
2"	100	
1-1/2"	100	
1"	100	
3/4"	98	
1/2"	96	
3/8"	95	
#4	90	
#10	85	
#20	70	
#40	38	
#80	11	
#100	9	
#200	5.4	

3. No specifications provided.

4. Proctor Density {four point procedure - ASTM D 1557 Method C, and ASTM D 4718}.

	<u>Results</u>
Maximum Dry Unit Weight (pcf)	118.3
Optimum Moisture Content (%)	9.5

---

400 Flingham Street, Rockland, Massachusetts 02370

Tel (617) 871-6010 • Fax (617) 871-7982

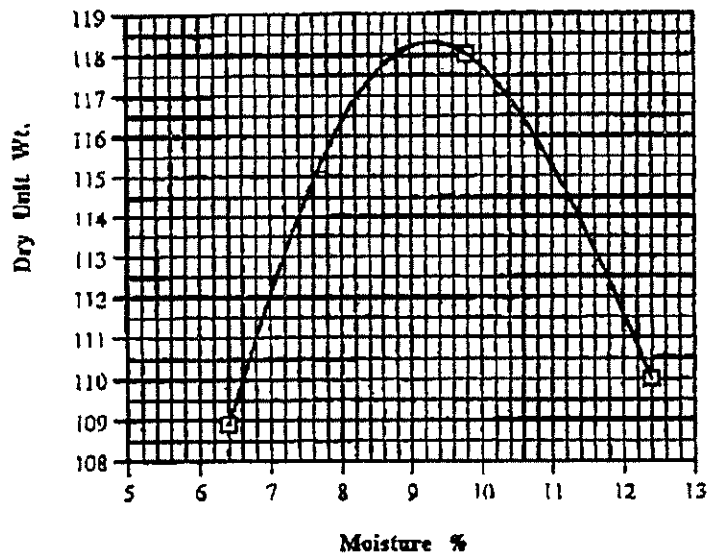
Offices located throughout the United States and Canada



Briggs Associates  
A Tundra Corporation Company

**Project:** D & C Construction / Ft. Devens  
**Sample no.** M-957      **Date:** 6/5/96

### Proctor



**Max. Dry Density**  
118.3 pcf

**Optimum  
Moisture**  
9.5 %





Briggs Associates  
A Tundra Corporation Company

Project: D & C Construction / Ft. Devens  
Sample No. M-957 Date: 6/3/96

### SIEVE

