URS

Report
Underground Storage Tank
Closure Report for
56 Hamlin St
Middletown, Connecticut

Prepared For:

Wesleyan University
255 Pine Street
Middletown, Connecticut

URS Corporation
Project No. F1-00002320.00

September 2002

URS Corporation - Connecticut
500 Enterprise Drive, Suite 3B
Rocky Hill, Connecticut 06067

TABLE OF CONTENTS

FIGURES

APPENDICES

1.0 INTRODUCTION AND OBJECTIVE

1.1 INTRODUCTION

This report documents the results of closure activities performed related to an underground storage tank (UST) located at 56 Hamlin Street, Middletown, Connecticut (subject property). The site location is illustrated on Figure 1. A sketch plan of the tank excavation is shown on Figure 2.

1.2 OBJECTIVE

The purpose of the activities performed was: 1) to assess if a release of petroleum hydrocarbons occurred at the tank location; and, 2) to close the tank location in compliance with current Connecticut and other applicable regulations and guidances including the Connecticut Department of Environmental Protection (CT DEP) guidance document "Sampling and Analytical Methods for Underground Storage Tank Closure", dated October 27, 1999.

2.0 BACKGROUND

The subject UST was a 2000-gallon, steel tank formerly used for the storage of No. 2 fuel oil for the dwelling located at 56 Hamlin Street. The UST was located on the western side of the building (see Figure 2). The installation date of the UST is unknown. The UST was used for academic (industrial/commercial) purposes and was located in an area classified as GB groundwater.

3.0 TANK REMOVAL ACTIVITIES AND OBSERVATIONS

On July 31, 2002, URS personnel observed the excavation and removal of the former 2,000-gallon UST. Jean Tanguay Construction (Tanguay) of Plainville, Connecticut performed the tank removal activities under contract to Wesleyan University.

3.1 TANK REMOVAL

The UST was exhumed by Tanguay and placed on the ground surface for inspection by the Fire Department. Fire Marshall Lewis LaRosa who was on site during the removal. The tank was 5'4" in diameter. There was no visual impact. The UST was found to be in good condition; no pitting or perforations and minimal rust were observed. The tank grave was dry. There was no sheen or odor in the soil pile or the grave. After the inspection was completed, the tank was loaded onto Tanguay's trailer and later placed into a truck from Shire Corporation. Shire Corporation was contracted by Wesleyan to transport the tank. The hole was backfilled with soil from the soil pile and with clean fill, processed gravel. The area was then seeded and hay was applied.

3.2 FIELD OBSERVATIONS AND FIELD SOIL TESTING

The dimensions of the tank excavation following removal of the UST were approximately 15 feet long, 8 feet wide, and 6.5 feet deep. Groundwater was not encountered in the excavation.

Soil samples collected from the tank excavation were subjected to headspace testing and laboratory analyses. The headspace test is a measure of total volatile organics compound (VOC) vapors that enter the air space from the soil sample. This test was used to supplement visual and olfactory observations in assessing the excavation for petroleum constituents, and to assist in selecting samples for analysis. Soil samples collected for headspace analysis indicated very low detections [maximum of 3.4 parts per million (ppm)] of VOCs from the east wall, west wall, and south wall samples.

3.3 LABORATORY SAMPLE COLLECTION

Laboratory analyses were conducted to determine whether total petroleum hydrocarbons (TPH) and related constituents were present in the soil samples. Soil samples were collected from the tank grave in general accordance with CT DEP tank closure guidelines. Soil samples were collected from the bottom of the excavation at each end of the tank and at the level of the tank bottom from each of the four sidewalls. Each of the soil samples collected was submitted to the

laboratory for TPH analysis using Connecticut Extractable TPH Method (ETPH). The soil sample from the east grave, the area of the tank grave that has the highest probability of contamination, was submitted to the laboratory for analysis of Volatile Organic Aromatics (VOAs) and for polynuclear aromatic hydrocarbons (PAHs)[1] using EPA Method 8270.

Sample containers were kept in an iced-cooler until delivery under chain of custody to Complete Environmental Testing, Inc. (CET) in Stratford, Connecticut for analysis. The samples reached the laboratory the day after they were collected.

3.4 RESULTS OF LABORATORY ANALYSES

The soil samples analyzed did not contain detectable concentrations of TPH above the method detection limit of 50 milligrams per kilogram (mg/kg). The east grave sample did not contain detectable concentrations of VOAs above the method detection limits. Several PAHs were detected in the east grave sample. The PAHs Acenaphthylene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo[a]anthracene, Chrysene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Indeno[1,2,3-cd]pyrene, and Benzo[g,h,i]perylene were detected in the east grave sample. The concentrations of Benzo[a]anthracene, Chrysene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, and Benzo[a]pyrene slightly exceeded the tabulated GB Pollutant Mobility set forth in the Remediation Standard Regulations (RSRs)[2]. Based on experience, it is URS' opinion that these concentrations will not leach to groundwater; if an analysis for these PAHs was performed on the leachate, the leachate concentrations would not exceed the groundwater protection criteria multiplied by ten. The concentration of Benzo[a]pyrene of 1,000 micrograms per kilogram (ug/kg) slightly exceeds the Industrial/Commercial Direct Exposure Criteria of 1,000 ug/kg. Based on likely exposure scenarios, the presence of Benzo[a]anthracene in soil is not expected to represent a risk.

[1] Although the CT DEP tank closure document recommends analysis for semi-volatile organic compounds (SVOCs), because fuel oil would be expected to contain the PAH component of the SVOC analysis, only PAH analysis were performed. This procedure was discussed with the UST Division of the CT DEP and was deemed acceptable.

[2] Although the site is not subject to the RSRs, the criteria set forth in the RSRs are being used for evaluation purposes.

4.0 REPORTING

URS, on behalf of Wesleyan University, contacted the CT DEP UST Enforcement Division to report the release of No. 2 fuel oil. The CT DEP case number is 2002-05603. The status of the case is closed. A copy of the incident report is included in Appendix C.

5.0 SUMMARY

An investigation was performed to assess if a release of fuel oil occurred from the UST formerly located at 56 Hamlin Street, Middletown, Connecticut. The presence of low concentrations of PAHs indicated a release had occurred. The PAHs Acenaphthylene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo[a]anthracene, Chrysene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Indeno[1,2,3-cd]pyrene, and Benzo[g,h,i]perylene were detected in the east grave sample. The concentrations of Benzo[a]anthracene, Chrysene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, and Benzo[a]pyrene slightly exceeded the tabulated GB Pollutant Mobility set forth in the Remediation Standard Regulations (RSRs). Based on experience, it is URS' opinion that these concentrations will not leach to groundwater. The concentration of Benzo[a]pyrene of 1,000 ug/kg slightly exceeds the Industrial/Commercial Direct Exposure Criteria of 1,000 ug/kg. Based on likely exposure scenarios, the presence of Benzo[a]anthracene in soil is not expected to represent a risk. No further action is recommended.

FIGURES

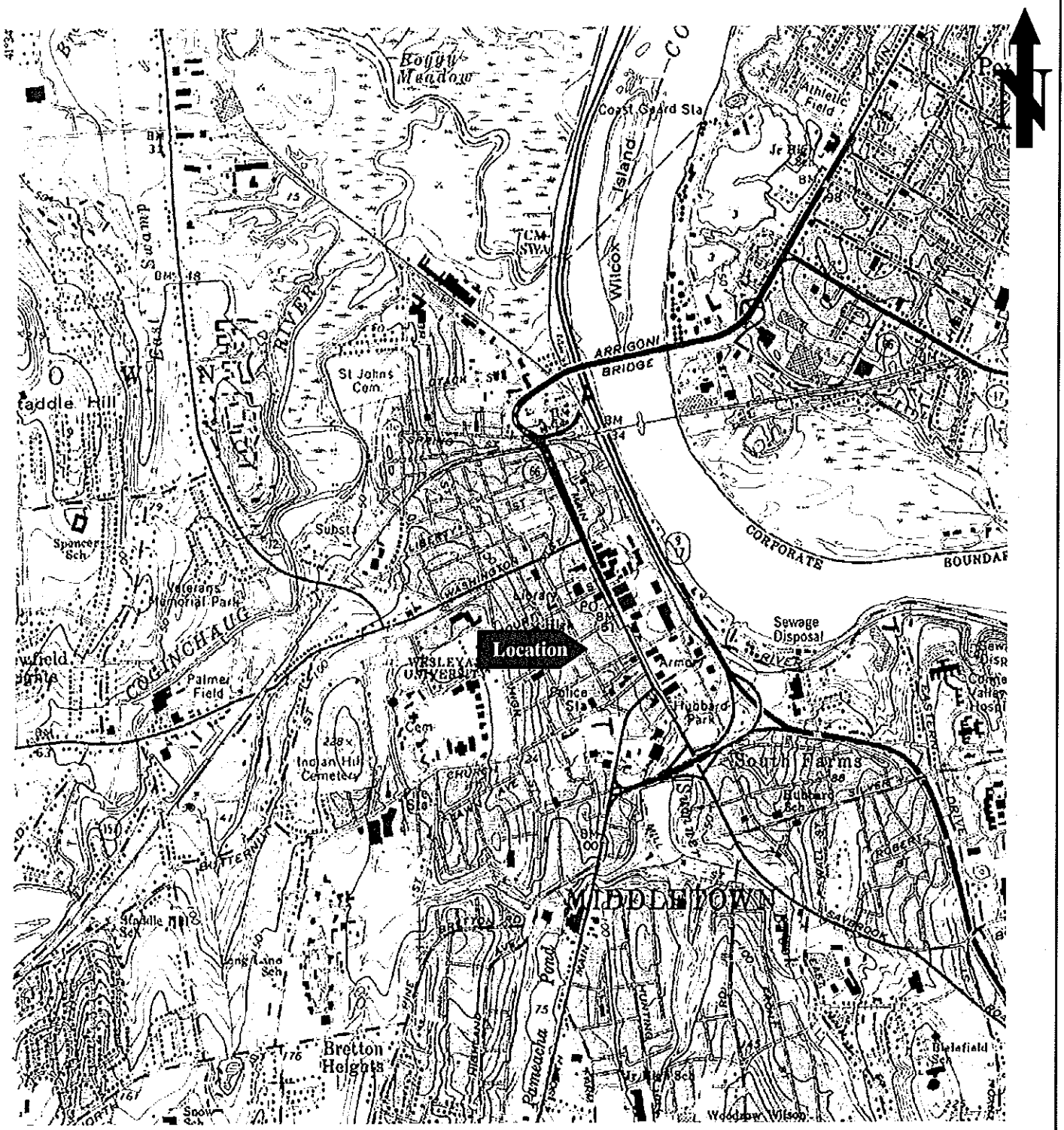

Figure 1
Site Location Map

Wesleyan University
56 Hamlin Street
Middletown, CT

Job No.: F1-00002320.00 URS Corporation AES

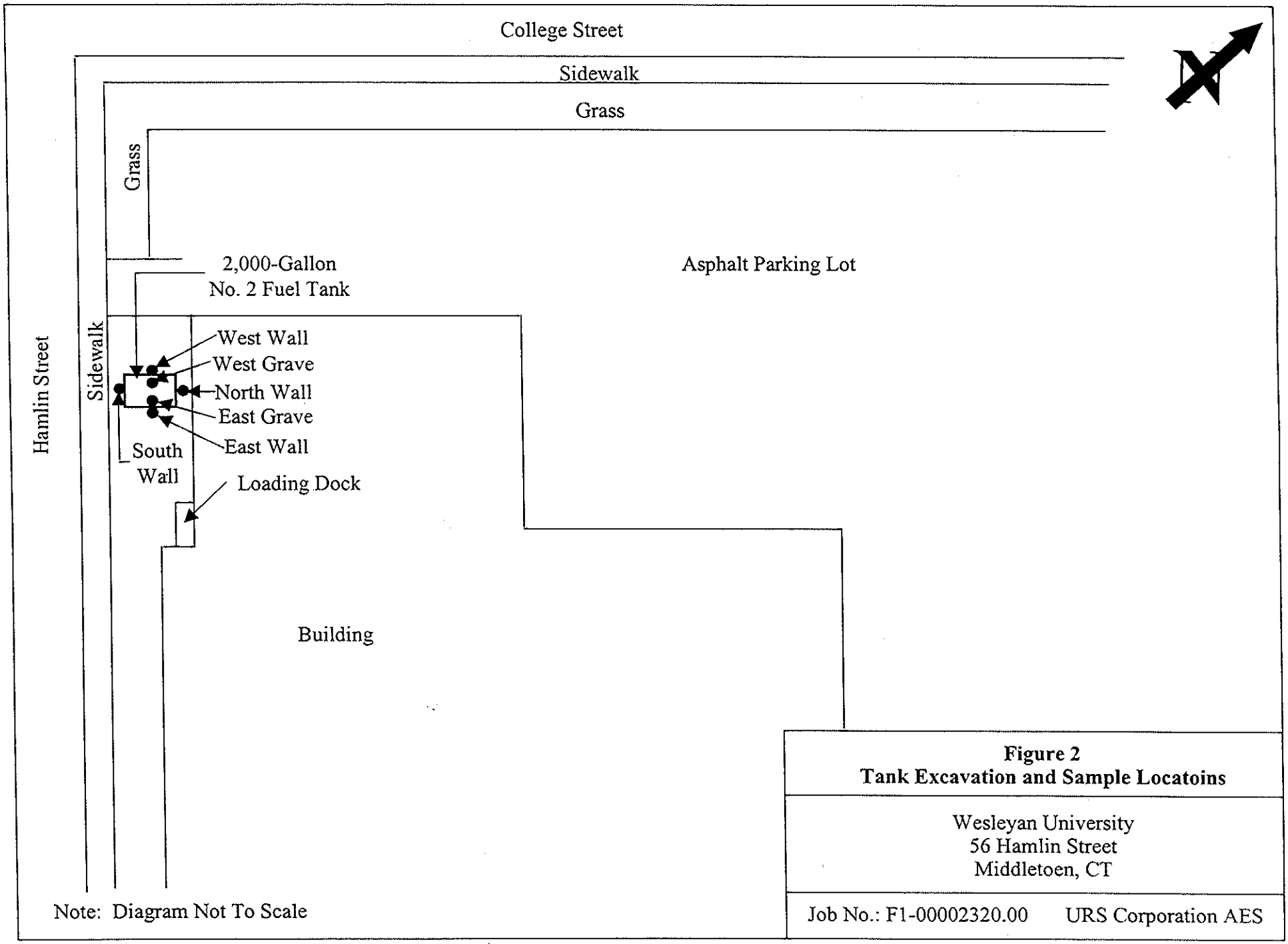

Figure 2
Tank Excavation and Sample Locatoins

Wesleyan University
56 Hamlin Street
Middletoen, CT

Job No.: F1-00002320.00 URS Corporation AES

APPENDIX A

FIELD NOTES

URS

Page 01 of 01

Job Wesleyan University | Project No. FI-0000232.00 | Sheet ____ of ____

Description Tank Pull | Computed by ____ | Date 31 July 2002

56 Hamlin St. | Checked by ____ | Date Wednesday

Reference

Wesleyan University
56 Hamlin St.
Middletown, CT

Sunny, Humid
Temp approx 90°F
Picture 1, 18-26

0745 Leave URS office for Wesleyan
- Stop & P/U ice
0805 Arrive @ 56 Hamlin St., Calibrate PID
- Dave ABIV state Freon found in sludge
- Detox to come 01 August 2002 to clean
0810 Jean Tanguay arrive w/ Backhoe
- Pete & Jesse start uncovering tank.
0845 Leave for 33 Brainard St
1410 Arrive @ 56 Hamlin St. from 286 Washington St., Lou Larosa on site (Fire Marshal)

- Dave says to pull tank (2000 gal)

PID:		Sample Time:
NW ⇒	0	1515
SW ⇒	0.6	1518
EW ⇒	3.4	1521
WW ⇒	2.2	1524
EG ⇒	0	1527
WG ⇒	0	1530

Tank Grave Dimensions
L ⇒ 15'
W ⇒ 8'
D ⇒ 6½'
No holes in tank

No odor, staining or H_2O present.
1630 Leave 56 Hamlin St for URS office
1700 Arrive @ URS office

APPENDIX B

LABORATORY ANALYSES REPORTS

COMPLETE ENVIRONMENTAL TESTING, INC.

80 Lupes Drive
Stratford, CT 06615

Tel: (203) 377-9984
Fax: (203) 377-9952
e-mail: cet@cetlabs.com

August 5, 2002

Ms. Sydney V. Neer
URS
500 Enterprise Dr., Suite 3B
Rocky Hill, CT 06067

Project: 56 Hamlin St
Project #: F1-00002320.00
CET #: 02080060
Soil: 56HAM-EG; 56HAM-EW; 56HAM-NW; 56HAM-SW; 56HAM-WG; 56HAM-WW
Collection Date(s): 7/31/02

PREP ANALYSIS:

Accelerated Solvent Extraction [EPA 3545]

	56HAM-EG
Accelerated Solvent Extraction	Completed [8/2/02]

ANALYSIS:

Conn. Extractable TPH [CT DEP] Units: mg/kg dry wt. Analysis Date: 8/5/02

	56HAM-NW	56HAM-SW	56HAM-EW	56HAM-WW	56HAM-EG	56HAM-WG
Conn. Extractable TPH	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50

Total Solids [EPA 160.3] Units: percent Analysis Date: 8/2/02

	56HAM-NW	56HAM-SW	56HAM-EW	56HAM-WW	56HAM-EG	56HAM-WG
Total Solids	89	89	89	89	89	89

NOTES:
[ ] Indicates Date Prep Test Completed; ND is Not Detected.

EPA 8270C Polynuclear Aromatics [EPA 8270C] Units: ug/kg (Dry Wt) Analysis Date: 8/5/02

	56HAM-EG	I/C DEC	GR
Naphthalene	ND < 200		
Acenaphthylene	280	2500000	400000
Acenaphthene	ND < 200		
Fluorene	ND < 200	2500000	40000
Phenanthrene	3000	2500000	400000
Anthracene	850	2500000	56000
Fluoranthene	4500	" "	40000
Pyrene	4300	7800	1000
Benzo[a]anthracene	2100	78000	1000
Chrysene	2100	7800	1000
Benzo[b]fluoranthene	2100	78000	1000
Benzo[k]fluoranthene	850	1500	1000
Benzo[a]pyrene	1500	7800	1000
Indeno[1,2,3-cd]pyrene	800	1000	1000
Dibenz[a,h]anthracene	ND < 200		
Benzo[g,h,I]perylene	670		

Phenanthrene 3x RDEC
Fluoranthene 4+x RDEC
Pyrene
Benzo[a]anthracene RDEC is 1

Volatile Organics [EPA 8260] Units: ug/kg Analysis Date: 8/2/02

	56HAM-EG
Dichlorodifluoromethane	ND < 25
Chloromethane	ND < 5.0
Vinyl Chloride	ND < 5.0
Bromomethane	ND < 10
Chloroethane	ND < 10
Trichlorofluoromethane	ND < 25
1,1-Dichloroethene	ND < 5.0
Methylene Chloride	ND < 5.0
Methyl-t-Butyl Ether (MTBE)	ND < 10
trans-1,2-Dichloroethene	ND < 5.0
1,1-Dichloroethane	ND < 5.0
2,2-Dichloropropane	ND < 5.0
cis-1,2-Dichloroethene	ND < 5.0
Bromochloromethane	ND < 5.0
Chloroform	ND < 5.0
1,1,1-Trichloroethane	ND < 5.0
Carbon Tetrachloride	ND < 5.0
1,1-Dichloropropene	ND < 5.0
Benzene	ND < 1.0
1,2-Dichloroethane	ND < 5.0
Trichloroethene	ND < 5.0
1,2-Dichloropropane	ND < 5.0
Dibromomethane	ND < 5.0
Bromodichloromethane	ND < 5.0
cis-1,3-Dichloropropene	ND < 5.0
Toluene	ND < 5.0
trans-1,3-Dichloropropene	ND < 5.0
1,1,2-Trichloroethane	ND < 5.0
Tetrachloroethene	ND < 5.0

Notes:
[ ]Indicates Date Prep Test Completed; ND is Not Detected.

Volatile Organics [EPA 8260] Units: ug/kg Analysis Date: 8/2/02

	56HAM-EG
1,3-Dichloropropane	ND < 5.0
Dibromochloromethane	ND < 5.0
1,2-Dibromoethane	ND < 5.0
Chlorobenzene	ND < 5.0
1,1,1,2-Tetrachloroethane	ND < 5.0
Ethylbenzene	ND < 5.0
m+p Xylenes	ND < 5.0
o-Xylene	ND < 5.0
Styrene	ND < 5.0
Bromoform	ND < 5.0
Isopropylbenzene	ND < 5.0
1,1,2,2-Tetrachloroethane	ND < 5.0
Bromobenzene	ND < 5.0
1,2,3-Trichloropropane	ND < 5.0
n-Propylbenzene	ND < 5.0
2-Chlorotoluene	ND < 5.0
4-Chlorotoluene	ND < 5.0
1,3,5-Trimethylbenzene	ND < 5.0
tert-Butylbenzene	ND < 5.0
1,2,4-Trimethylbenzene	ND < 5.0
sec-Butylbenzene	ND < 5.0
1,3-Dichlorobenzene	ND < 5.0
4-Isopropyltoluene	ND < 5.0
1,4-Dichlorobenzene	ND < 5.0
1,2-Dichlorobenzene	ND < 5.0
n-Butylbenzene	ND < 5.0
1,2-Dibromo-3-Chloropropane	ND < 5.0
1,2,4-Trichlorobenzene	ND < 5.0
Hexachlorobutadiene	ND < 5.0
Naphthalene	ND < 5.0
1,2,3-Trichlorobenzene	ND < 5.0

Sincerely,

David Ditta
Laboratory Director

Notes:
[ ]Indicates Date Prep Test Completed; ND is Not Detected.

APPENDIX C

CT DEP INCIDENT REPORT

STATE OF CONNECTICUT

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau of Waste Management, Oil and Chemical Spill Response Division

Emergency Incident Report

Case No.: 2002-05603
Staff Receiving Call: 923 MCCANN, MIKE Assigned To: 000 **NO RESPONSE
Date Reported: 08/14/2002 Time Reported: 16:20
Date of Release: 08/14/2002 Time of Release: UNKNOWN
Town of Release: MIDDLETOWN State of Release: CT
Location of Reported Release: 56 HANLON ST
Reported By: CHRISTINE MATHERLY Phone: (860) 529-8882
Representing: URS CORP
Responsible Party: WESLYAN UNIVERSITY Phone:
Street Address:
Town: MIDDLETOWN State: CT Zip Code: 06457-
Does the Responsible Party Accept Financial Responsibility? YES
Release Type: PETROLEUM
Release Substance: #2 FUEL OIL
Media: GROUND SURFACE
Total Quantity: 0 Gallons 0 Cubic Yards 0 Cubic Feet 0 Drums 0 Pounds
Emergency Measures: REMOVAL OF 2K UST
Has the Release Been Terminated?: YES
Type of Waterbody Affected:
Name of Waterbody Affected:
Total Quantity Recovered: 0 Total Quantity in Water: 0
Corrective Actions Taken: REMOVED TANK
Discharge Class: PRIVATE
Cause of Incident: INGROUND TANK FAILURE
Agencies Notified:
Status: CLOSED