UVM/POMEROY HALL
FORMER HEATING OIL UST SITE
CONTAMINATED SOIL REMOVAL REPORT
APRIL 21- MAY 21, 1999

#992654

University of Vermont
Pomeroy Hall
483 Main Street
Burlington, Vermont

Prepared for:

Robert Howard, Utilities Superintendent
University of Vermont

Prepared by:

Michael K. Sparks
Principal Hydrogeologist
Watershed Environmental Services, Inc.

June 16, 1999

Watershed Environmental Services

P.O. Box 64947 Burlington, Vermont 05406 Office: 802-860-7385 FAX: 802-860-7385 *51

UVM/POMEROY HALL UST SITE SOIL REMOVAL REPORT 6-16-99

1.0 INTRODUCTION

On April 21, 1999 a construction contractor (Engineers Construction Inc. of Williston) installing a new foundation drain on the west side of the University of Vermont's Pomeroy Hall (located at 483 Main Street in Burlington) encountered petroleum-contaminated soil adjacent to the building. Watershed Environmental Services (WES) was then retained by UVM to investigate the site and supervise the removal of the contaminated soil.

The petroleum contaminated soil was found to have a distinct fuel oil odor and the location of the contamination coincides with the former site of a heating fuel oil underground storage tank (UST) removed in 1997 during major renovations to Pomeroy Hall. According to UVM officials, the construction contractor who removed the UST did not report encountering any contamination at the tank site. Additionally no contamination was reported during trenching along the west side of the building for a new water line service installed in 1997.

The recently discovered contamination at Pomeroy Hall appears to be residue from spills/overfills at the UST's fill and vent pipes formerly located adjacent to the building. During trenching for the new foundation drain approximately 80 cubic yards of contaminated soil was excavated and stockpiled on site. Photoionization detector (PID) screening of the trench determined that the bulk of the contamination was removed as undisturbed soil yielded maximum PID readings of 5 ppm. Although a 4 to 6 inch lense of discolored soil was noted approximately 5 feet below ground surface no free phase product was observed. PID screening inside the basement of Pomeroy Hall yielded no detectable vapors nor were any odors detected. Based on the low level of contamination found at the site and results of the PID vapor survey, the potential for the contamination to impact nearby sensitive receptors is considered to be negligible.

At the authorization of the Vermont Agency of Natural Resources Waste Management Division (VANR WMD) the contaminated soils were relocated to UVM's Centennial Field; the soils were polyencapsulated in a fenced vehicle storage compound. PID screening performed during the soil relocation yielded vapor readings ranging from 2 to 50 ppm; the average PID vapor concentration was 23 ppm. Laboratory analysis of a composite soil sample collected on April 23, 1999 determined the concentration of Benzene, Toluene, Ethylbenzene and Xylene (BTEX) compounds were less than 30 ppb although the concentration of Total Petroleum Hydrocarbons was 318 ppm.

On May 21, 1999 the contaminated soils were transported to Environmental Soils Management, Inc. (ESMI) in Fort Edward, NY for treatment and disposal (thermal destruction). A total of 96.67 tons of petroleum-contaminated soils were delivered to ESMI.

Site location maps, laboratory reports, a photographic log, and copies of documents relating to the transport and disposal of the contaminated soil are provided in the attached appendices.

2.0 SITE DESCRIPTION

Pomeroy Hall is an educational facility located at 483 Main Street on the main campus of the University of Vermont in Burlington (see site maps, Appendix 1, pages 1 and 2). The facility is located on the south side of Main Street approximately 300 feet west of University Place and 600 feet east of South Prospect Street. Surrounding properties are all owned by UVM upon which are predominantly academic and administrative buildings. The closest building to Pomeroy Hall is the UVM Classics and Religion building (481 Main St.) located approximately 40 feet to the west.

Topographically the Pomeroy Hall site is relatively flat although the overall topography of the area slopes to the west at a gradient of 3% to 4%. Pomeroy Hall and UVM's main campus are located at the summit of a broad, north-south trending ridge line or bluff which parallel the eastern shore of Lake Champlain (see topographic map section, Appendix 1, page 3). This ridge line is the main topographic feature of the area and forms a watershed divide for surface water drainage to the west toward Lake Champlain and drainage to the east toward tributaries of the Winooski River. As the Pomeroy Hall site is situated on the western side of the watershed divide, surface water and groundwater flow at the site is inferred to be to the west.

The petroleum contamination discovered at the Pomeroy Hall site was located adjacent to the west wall of Pomeroy Hall approximately 20 feet south of the northwest corner of the building (see Site Diagram, Appendix 1, page 4). The contamination was detected in a trench being excavated for the installation of a new foundation drain. The foundation drain was to be connected to the municipal storm drain system traversing Main Street. The trench excavation extended from Main Street approximately 80 feet south along the west side of the building. The trench was five feet wide and 11 feet deep. The area of petroleum contamination was located opposite the northwest corner of the building's main entrance alcove. (see Site Diagram).

The area of contamination coincides with the location of fuel fill and vent pipes for an exempt no.2 heating fuel oil tank removed in 1997. There are no other (known) underground tanks on the premises. Pomeroy Hall currently utilizes natural gas for building and water heating.

3.0 SITE ASSESSMENT

Watershed Environmental Services visited the Pomeroy Hall site several hours after the excavation contractor had encountered and removed contaminated soil from the foundation drain trench line. A preliminary inspection of the trench found no evidence of any free phase product and the bottom of the trench was dry. No petroleum odors were discernible in the breathing zone proximal to the trench. The only visible evidence of contamination was a 4 to 6 inch lense of darkly stained soil observed in the east side of the trench approximately 5 feet below ground surface in the central alcove area (see Site Diagram, Appendix 1, page 4).

Further investigation of the area of contamination consisted of the collection and screening of soil samples for the presence of volatile organic compounds (vapors) with a photoionization detector or PID (H-Nu Systems model PI-101 with a 10.2 eV lamp). The soil sample screening procedure entailed the placement of soils in a self-sealing plastic bag. After allow several minutes for the sample to equilibrate, the PID probe end was placed into the bag to screen the

sample bag head space for vapors. No PID vapors were detected in the breathing zone down in the trench. Soil sampled from the bottom of the trench yielded no PID-detectable vapors. Soil sampled from the sidewalls of the trench yielded PID vapor readings ranging from non-detect to 5 ppm. The elevated PID readings were detected in the upper 5 feet of the soil profile; no significant PID readings were detected below 5 feet. The zone of contamination was determined to be approximately 25 feet long and centered on the northwest corner of the building's main entrance alcove (see Site Diagram). Soils at the site are predominantly silts and clays. While the depth to bedrock at the site is not known soil borings completed at other nearby sites (the Waterman Building and the Royal Tyler Theater) indicates that the depth to bedrock exceeds 30 feet.

To investigate the likelihood of contaminant migration a PID vapor survey was conducted inside Pomeroy Hall, particularly in the basement utility room (furnace and air-handler area) opposite the area of contamination. No odors or PID vapor readings were detected in the aboveground interior spaces. No petroleum odors or PID vapor readings were noted upon opening the door into the basement area nor was any evidence of contamination detected during a walk-through inspection of the basement area. A groundwater sump was observed in the southwest corner of the utility room. PID screening of the sump yielded no detectable vapors and no petroleum sheens were observed on water in the sump.

A replanted tree located approximately 15 feet west of the area of contamination was also investigated. The tree is surrounded by an array of 4 inch diameter feeder pipes that extend at least 18 inches into the ground (likely deeper however soil was present inside the pipes). PID screening of these pipes yielded no detectable vapors nor were any odors discerned. The tree appeared to be healthy and no stressed vegetation was observed at the site.

The contaminated soil removed from the foundation drain trench had been stockpiled near the northwest corner of the building. Light petroleum odors were discernible proximal to the stockpile.

4.0 SOIL DISPOSAL

Upon completion of the initial site inspection Watershed Environmental Services (WES) notified the VANR WMD of the discovery of petroleum contamination at the Pomeroy Hall site. WES also sought and received permission from the VANR WMD to move the contaminated soil to a more secure area at UVM's Centennial Field on University Road in Burlington. The Centennial Field staging area is located in the HVAC department's fenced vehicle storage compound near the groundskeeping complex. Permission to remove the contaminated soil to Centennial Field was given by Andrew Shively at 2:30 PM on April 21, 1999.

The stockpile of petroleum-contaminated soil was loaded and transported to the Centennial Field staging area by Engineers Construction on April 21, 1999. Seven tandem axle dump truck loads of soil (approximately 80 cubic yards) were moved to Centennial Field and dumped on polyethylene plastic sheeting. The soil stockpile was then covered with polyethylene sheeting and secured.

WES monitored the soil relocation and conducted PID screening during the loading of soil into the dump trucks. The results of the PID screening are provided below in Table 1:

TABLE 1
STOCKPILED SOIL PID SCREENING RESULTS

Load #	PID Readings (range)	PID Readings (average)
1	5 - 50 ppm	40 ppm
2	5 - 25 ppm	20 ppm
3	5 - 35 ppm	25 ppm
4	2 - 20 ppm	10 ppm
5	10 - 50 ppm	25 ppm
6	10 - 50 ppm	20 ppm
7	10 - 15 ppm	10 ppm

On April 23, 1999 WES collected a composite of soils from the stockpile at Centennial Field for laboratory analysis. The composite sample, designated C-1, was submitted to Endyne, Inc. in Williston for analysis via EPA Method 8260 (volatiles) and EPA Method 8015 (Total Petroleum Hydrocarbons). The results of the laboratory analysis are summarized below in Table 2. Copies of the laboratory reports are provided in Appendix 2.

TABLE 2
STOCKPILED SOIL LABORATORY ANALYTICAL RESULTS

EPA METHOD 8260	
Parameter	Concentration
Benzene	<30 ug/L
Toluene	<30 ug/L
Ethylbenzene	<30 ug/L
Xylene	<60 ug/L
p-Isopropyltoluene	85.9 ug/L
Napthalene	203 ug/L
1,2,4-Trimethylbenzene	62.1 ug/L
1,3,5-Trimethylbenzene	92.5 ug/L
EPA Method 8015	
Total Petroleum Hydrocarbons	318 mg/L

The results of the laboratory analysis indicate that the contamination is heavily weathered and thus indicative of an old release.

At UVM's request Watershed Environmental Services coordinated the final disposal of the 80 cubic yards of soil generated at the Pomeroy Hall site. WES requested and received permission from the VANR WMD to transport the contaminated soil to Environmental Soils Management, Inc. in Fort Edward, NY for treatment and disposal (via thermal destruction). A copy of the VANR WMD's Off-Site Treatment Request Form authorizing the shipment of the soil to ESMI is provided in Appendix 4. Also provided in Appendix 4 is a copy of ESMI's letter of acceptance for the contaminated soil and the Generator Waste Profile documents submitted to the treatment facility.

The 80 cubic yards of soil stockpiled at Centennial Field were loaded and shipped to ESMI on May 21, 1999. The soil was transported to ESMI by Cason Trucking of Albany, NY. The dump trucks were loaded by A. Marcellino & Co. of Williston, VT. The loading and clean-up of the stockpile site was monitored by Watershed Environmental Services. A total of three truck loads

(trailer dumps) of soil were delivered to ESMI in Fort Edward for treatment and disposal. Copies of the manifests and scale weight receipts for each truck load of petroleum-contaminated soil delivered to ESMI are provided in Appendix 4. According to the scale weight receipts, a total of 96.67 tons of soil were delivered to ESMI in Fort Edward, NY.

5.0 SENSITIVE RECEPTOR SURVEY

The testing performed in support of our investigation of the Pomeroy Hall site indicates that soil is the only receptor significantly impacted by the petroleum contamination discovered at the former no.2 heating fuel oil UST site. The PID vapor screening results indicate that it is unlikely that groundwater at the site has been impacted.

The results of the soil vapor testing indicate that the bulk of the contamination at the site was removed during excavation for the foundation drain installed on the west side of Pomeroy Hall. The soil vapor testing also indicates that the contamination was confined to a relatively narrow area adjacent to the building. No PID-detectable vapors were detected inside Pomeroy Hall on the east side of the area of contamination nor in tree feeding tubes located on the west side of the area of contamination. These findings indicate that the potential for nearby structures to be impacted by vapor migration from site is minimal. This assessment also takes into consideration the fact that the soils at the site are predominantly low permeability silty clays.

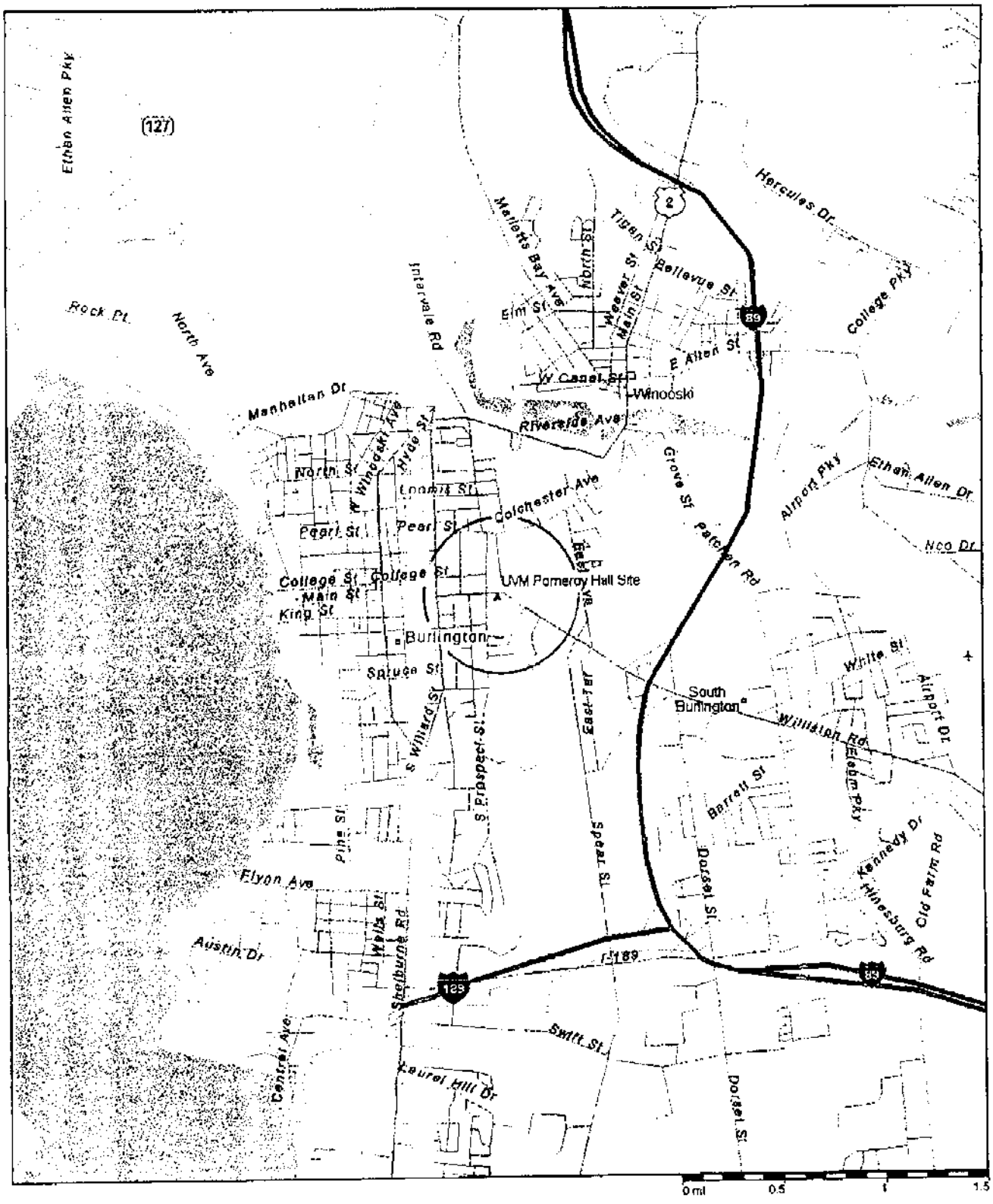
The closest occupied structures to the tank site are Pomeroy Hall (located adjacent to the area of contamination) and 481 Main Street (located approximately 35 feet to the west). Both structures are owned by the University of Vermont. The closest residential building/dwelling to the tank site is a private residence located on South Prospect Street approximately 400 feet to the west-southwest. Based on the apparent absence of contamination in groundwater and limited extent of soil vapor contamination, the potential for the tank site contamination to impact any of these receptors is considered to be minimal.

There are no water supply wells on the UVM property nor within a 1/2 mile radius of the Pomeroy Hall site. UVM and the surround community are served by a municipal water supply system. The closest known water supply well to the site is located at the Burlington Country Club approximately 3500 feet to the south-southeast. There are no natural surface water bodies or other sensitive environmental areas in the immediate vicinity of the tank site. The closest natural surface water bodies to the site are tributaries to the Winooski River (located approximately 3000 feet to the east) and Potash Brook (located approximately 5000 feet to the south). A large concrete water reservoir is located approximately 300 feet east of the Pomeroy Hall site. However, as the reservoir is topographically (and hydraulically) up-gradient of the Pomeroy Hall site it is unlikely to be impacted by contaminant migration.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The findings of the site investigation conducted at Pomeroy Hall indicate that the petroleum contaminated discovered during installation of the new foundation drain is the result of petroleum spillage at the former UST's fill or vent pipes located adjacent to the building. The investigation also found that the contamination had not migrated beyond the immediate vicinity of the site and that the bulk of the contamination was removed with the excavation of approximately 80 cubic yards of soil. There is no evidence to suggest that any sensitive

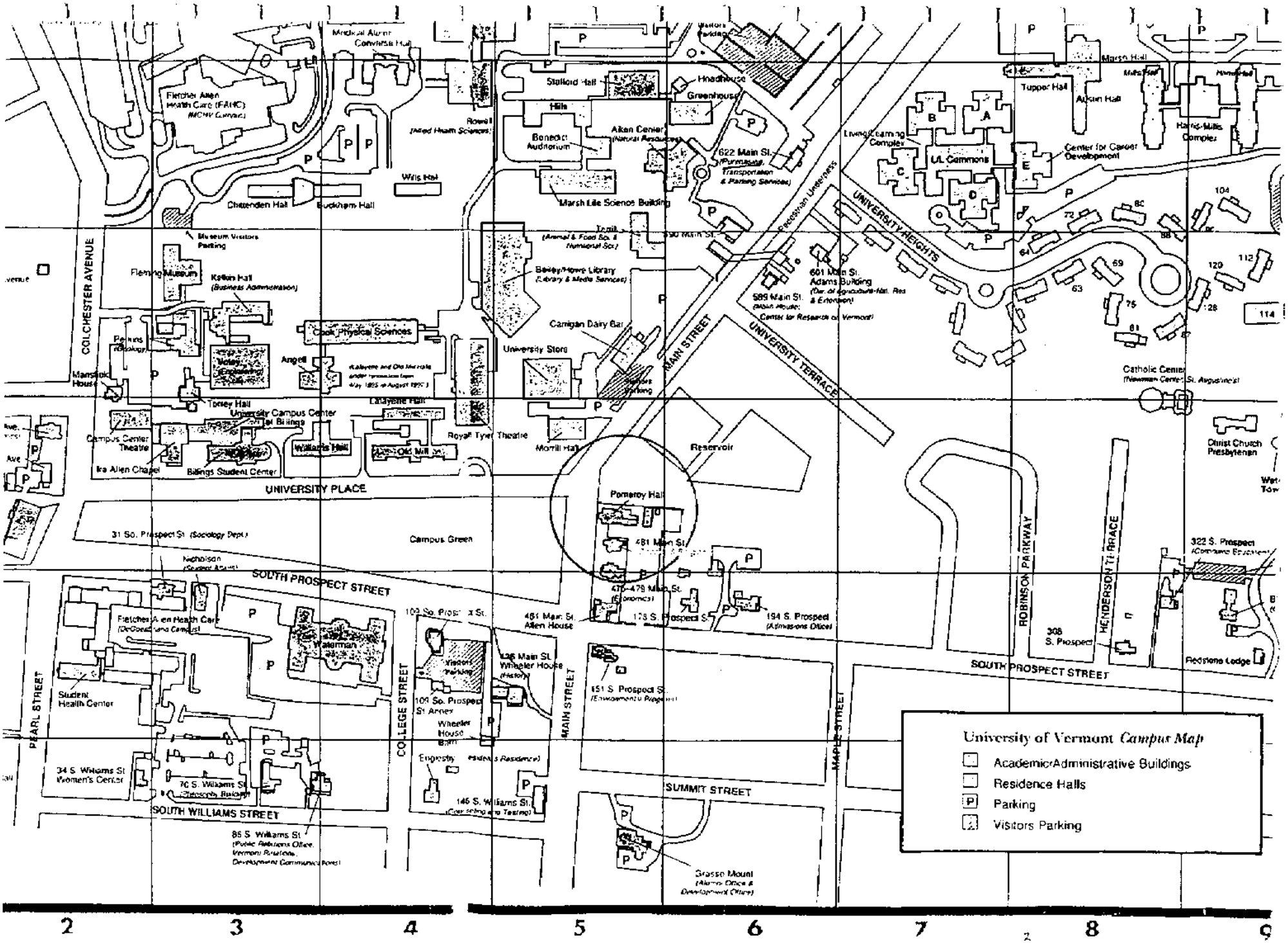
receptors in the vicinity of the release site have been impacted by the contamination detected at the Pomeroy Hall site. In consideration of the aforementioned site conditions, we conclude that the tank site has been effectively remediated and submit that further investigation is unnecessary at this time. UVM has disposed (at a certified disposal facility) of the 80 cubic yards of petroleum contaminated soil generated at the Pomeroy Hall site. Upon submission to the VANR WMD a certificate of destruction, we recommend that the site be given a Site Management Activity Closed designation.



Streets Plus

UVM Pomeroy Hall Site

Main Street and South Prospect Streets, Burlington, VT

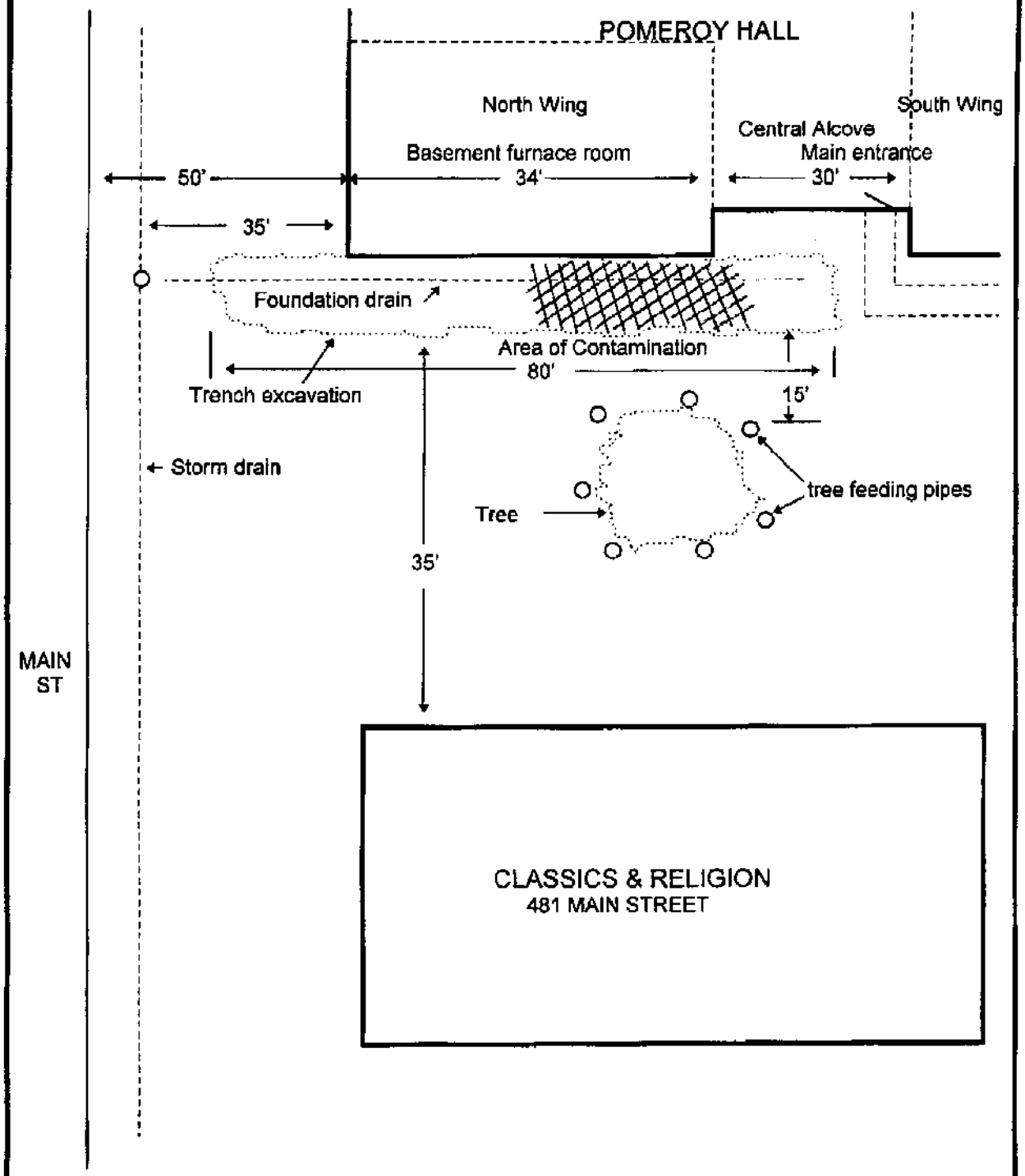

University of Vermont Campus Map
Academic/Administrative Buildings
Residence Halls
Parking
Visitors Parking
COLCHESTER AVENUE
UNIVERSITY PLACE
SOUTH PROSPECT STREET
SOUTH WILLIAMS STREET
MAIN STREET
UNIVERSITY TERRACE
UNIVERSITY HEIGHTS
ROBINSON PARKWAY
HENDERSON TERRACE
PEARL STREET
COLLEGE STREET
MAPLE STREET
SUMMIT STREET
Fletcher Allen Health Care (FAHC)
Medical Alumni Converse Hall
Stafford Hall
Greenhouse
Hills
Benedict Auditorium
Aiken Center
Wills Hall
Chittenden Hall
Buckham Hall
Marsh Life Science Building
622 Main St.
Pedestrian Underpass
Living/Learning Complex
UL Commons
Center for Career Development
Tupper Hall
Austin Hall
Marsh Hall
Hamp-Mills Complex
Museum Visitors Parking
Fleming Museum
Kalkin Hall (Business Administration)
Perkins (Geology)
Cook Physical Sciences
Bailey/Howe Library
Carrigan Dairy Bar
University Store
Angell
Mansfield House
Torrey Hall
University Campus Center
Lafayette Hall
Campus Center Theatre
Ira Allen Chapel
Billings Student Center
Williams Hall
Old Mill
Royall Tyler Theatre
Morrill Hall
Reservoir
Pomeroy Hall
481 Main St.
470-478 Main St.
178 S. Prospect St.
194 S. Prospect
481 Main St. Allen House
136 Main St. Wheeler House
151 S. Prospect St.
308 S. Prospect
322 S. Prospect
Redstone Lodge
Christ Church Presbyterian
Catholic Center
31 So. Prospect St. (Sociology Dept.)
Campus Green
Nicholson
Fletcher Allen Health Care (DeGoesbriand Campus)
Waterman
Student Health Center
103 So. Prospect St.
109 So. Prospect St. Annex
Visitors Parking
Wheeler House Barn
Engersoll
145 S. Williams St.
34 S. Williams St. Women's Center
70 S. Williams St.
86 S. Williams St.
Grasse Mount
2
3
4
5
6
7
8
9

U.S.G.S TOPOGRAPHIC MAP SECTION - SITE MAP
UVM POMEROY HALL, 483 MAIN ST., BURLINGTON, VT

Scale: 1: 24,000 *Contour Interval*: 20 ft. *Map Source:* U.S.G.S. Burlington 15' Quadrangle, U.S. Geological Survey, 1987	*Prepared:* June 8, 1997 WATERSHED ENVIRONMENTAL SERVICES, INC. P.O. Box 64947 Burlington, Vermont 05406

SITE DIAGRAM

UVM/POMEROY HALL, 483 MAIN STREET, BURLINGTON, VT



Scale: **Not to scale**	***Prepared:*** **June 16, 1999**
	WATERSHED ENVIRONMENTAL SERVICES, INC **P.O. Box 64947** **Burlington, Vermont 05406**

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Watershed Env. Srvs., Inc.
PROJECT: UVM/Pomeroy Hall
REPORT DATE: May 7, 1999

ORDER ID: 2101
DATE RECEIVED: April 23, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

SW 8260

CLIENT: Watershed Env. Srvs., Inc.
PROJECT: UVM/Pomeroy Hall
SITE: C-1 Soil Stock Comp.
DATE RECEIVED: April 23, 1999
REPORT DATE: May 7, 1999
ANALYSIS DATE: May 5, 1999

ORDER ID: 2101
REFERENCE NUMBER: 137432
DATE SAMPLED: April 23, 1999
TIME SAMPLED: 3:00 PM
SAMPLER: MS
ANALYST: 725

Parameter	Result ug/kg, dry
Benzene	< 30.0
Bromobenzene	< 30.0
Bromochloromethane	< 60.0
Bromodichloromethane	< 30.0
Bromoform	< 30.0
Bromomethane	< 150.
n-Butylbenzene	< 30.0
sec-Butylbenzene	< 30.0
tert-Butylbenzene	< 30.0
Carbon Tetrachloride	< 30.0
Chlorobenzene	< 30.0
Chloroethane	< 150.
Chloroform	< 30.0
Chloromethane	< 300.
4-Chlorotoluene	< 30.0
2-Chlorotoluene	< 30.0
Dibromochloromethane	< 30.0
1,2-Dibromo-3-Chloropropane	< 60.0
1,2-Dibromoethane	< 60.0
Dibromomethane	< 60.0
1,2-Dichlorobenzene	< 30.0
1,3-Dichlorobenzene	< 30.0
1,4-Dichlorobenzene	< 30.0
Dichlorodifluoromethane	< 300.
1,1-Dichloroethane	< 30.0
1,2-Dichloroethane	< 30.0
1,1-Dichloroethene	< 30.0
cis-1,2-Dichloroethene	< 30.0
trans-1,2-Dichloroethene	< 30.0
1,2-Dichloropropane	< 30.0
1,3-Dichloropropane	< 30.0
2,2-Dichloropropane	< 30.0

Parameter	Result ug/kg, dry
1,1-Dichloropropene	< 30.0
cis-1,3-Dichloropropene	< 30.0
trans-1,3-Dichloropropene	< 30.0
Ethylbenzene	< 30.0
Hexachlorobutadiene	< 150.
Isopropylbenzene	< 30.0
p-Isopropyltoluene	85.9
Methylene Chloride	< 300.
MTBE	< 60.0
Naphthalene	203.
n-Propylbenzene	< 30.0
Styrene	< 30.0
1,1,1,2-Tetrachloroethane	< 60.0
1,1,2,2-Tetrachloroethane	< 60.0
Tetrachloroethene	< 30.0
Toluene	< 30.0
1,2,3-Trichlorobenzene	< 60.0
1,2,4-Trichlorobenzene	< 60.0
1,1,1-Trichloroethane	< 30.0
1,1,2-Trichloroethane	< 30.0
Trichloroethene	< 30.0
Trichlorofluoromethane	< 60.0
1,2,3-Trichloropropane	< 60.0
1,2,4-Trimethylbenzene	62.1
1,3,5-Trimethylbenzene	92.5
Vinyl Chloride	< 150.
Xylenes, Total	< 60.0
Surrogate 1	102.%
Surrogate 2	106.%
Surrogate 3	102.%
UIP's	> 10.
Percent Solids	82.

ENDYNE, INC.

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

CHAIN-OF-CUSTODY RECORD

Project Name: UVM / Pomeroy Hall Site Location: Burlington, VT	Reporting Address: Watershed Environmental Services, Inc. P.O. Box 1947 Burlington, VT 05406	Billing Address: Watershed
Endyne Project Number: 2101	Company: Watershed Contact Name/Phone #: Mike Sparks 862-1964	Sampler Name: Mike Sparks Phone #: 862-1964

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time 4-23-97	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
13732	C-1 Soil Stockpile Comp.	Soil		X	3:00pm	1	500 ml amber jar		8100 TPH	NO	NO
									8260		

Relinquished by: Signature	Received by: Signature	Date/Time 4/23/97 3:50pm
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes ____ No ____

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										

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LABORATORY REPORT

CLIENT: Watershed Env. Srvs., Inc.
PROJECT: UVM/Pomeroy Hall
REPORT DATE: May 11, 1999

ORDER ID: 2101
DATE RECEIVED: April 23, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

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LABORATORY REPORT

CLIENT: Watershed Env. Srvs., Inc.
PROJECT: UVM/Pomeroy Hall
REPORT DATE: May 11, 1999

ORDER ID: 2101
DATE RECEIVED: April 23, 1999
SAMPLER: MS
ANALYST: 820

Ref. Number: 137432 | Site: C-1 Soil Stock Comp. | Date Sampled: April 23, 1999 | Time: 3:00 PM

Parameter	Result	Unit	Method	Analysis Date
TPH 8015 DRO	318.	mg/Kg	SW 8015B	5/9/99

ENDYNE, INC.

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

CHAIN-OF-CUSTODY RECORD

Project Name: UVM / Pomeroy Hall Site Location: Burlington, VT	Reporting Address: Watershed Environmental Services, Inc. P.O. Box 64947 Burlington, VT 05406	Billing Address: Watershed
Endyne Project Number: 2101	Company: Watershed Contact Name/Phone #: Mike Sparks 860-1969	Sampler Name: Mike Sparks Phone #: 860-1969

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
137432	C-1 Soil Stockpile Comp.	Soil		X	3:00pm	1	500 ml amber g.		8100 TPH	NO	No
									8260		

Relinquished by: Signature	Received by: Signature	Date/Time 4/23/99 3:30pm
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes ____ No ____

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 0 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 0/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 0 Pes/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pes/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides herbicides)										
30	Other (Specify):										

State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD+Voice
1-800-253-0195 Voice+TDD

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Waste Management Division
103 South Main Street / West Building
Waterbury, Vermont 05671-0404
switchboard (802) 241-3888
facsimile (802) 241-3296

FACSIMILE

Date: 5/20/99 15:15
Pages: 2 (including cover page)

PLEASE DELIVER ACCOMPANYING MATERIAL TO:

Name: Mike Sparks
Fax #: (802) 860-1964

COMMENTS:

Please find "Approved" Off-Site Treatment Request Form. Also, please notify Linda Elliot of the date the soils will be transported.

From: [signature]
Phone#: (802) 241-3485

VT AGENCY OF NATURAL RESOURCES - DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WASTE MANAGEMENT DIVISION

OFF-SITE SOIL TREATMENT REQUEST FORM

Off-Site Location

Soil Volume/Peak PID/Avg. PID: 80 yd³ / 50 ppm / 20 ppm (est.)
Off-Site Street Address: [illegible] Soil Treatment Area
304 Taylor Rd. East Charlotte, VT 12424
Name of Land Owner: [illegible]
Phone # of Land Owner: 518-747-5500

Generator/Owner of Soil

Name: University of Vermont Facility ID #450
Facility ID#, Name, and Street Address: Towers Hall
483 Main Street Burlington, VT 05401
Contact: Robert Bowker
Phone #: 802-656-1097

Thermal destruction at NY State-certified facility

Off-Site Soil Treatment Siting Criteria Checklist

- ☐ There are no bedrock drinking water supplies within 200 feet of the treatment location.
- ☐ There are no shallow water supplies (e.g. dug wells, driven wells, etc.) within 300 feet of the treatment location. This limit may need to be extended if shallow water supplies are shown to be hydraulically downgradient.
- ☐ There are no sensitive environments such as a stream, river, lake, pond, wildlife refuge, wetland, floodplain or other similar areas, within 100 feet of the treatment location.
- ☐ There is adequate room to allow for treatment to occur over the necessary time frame.
- ☐ Public access to the treatment area has been restricted (e.g. fencing, posted).
- ☐ The treatment location is not in a residential area.
- ☐ Written approval from the landowner, if different from the soil generator, has been obtained before treatment begins. This grant includes written approval from the landowner granting Department of Environmental Conservation (DEC) investigators property access for the purpose of inspecting soil treatment at any reasonable time.
- ☐ The local municipality has been notified in writing of the off-site location prior to initiating any soil treatment. The soil generator must provide evidence to the Waste Management Division (WMD) that this notification has been made. If applicable, local permits should be obtained.
- ☐ An area map of the soil location has been submitted to the WMD.
- ☐ The WMD has given approval to move soils to the off-site location specified above, as indicated by the WMD representative's signature below.

As the party responsible for compliance with the "Agency Guidelines for Petroleum Contaminated Soil and Debris," subchapter 6 of the "Vermont Underground Storage Tank Regulations," and applicable statutes, I hereby certify that the representations made on this form are to the best of my knowledge true and correct.

Michael K Sparks — Watershed Environmental Services Inc. — Principal Hydrogeologist
Name of Generator Representative (printed) — Company Title

Signature — 5-20-99 Date

As land owner of the soil treatment location, I hereby give approval to the soil generator to treat the soil volume cited above at the above referenced location. In addition, I hereby grant property access to DEC investigators for the purpose of inspecting soil treatment at any reasonable time. See attachment

Signature of Land Owner — Date

Signature of WMD Representative — 5/20/99 @ 15:00 Date of Approval

Wednesday, May 19, 1999

Short Form Contract

Company: Watershed Environmental Srvs
Address: P.O. Box 64947
Burlington, VT, 05406

Site Name: UVM - Burlington, VT **Contact:** Mike Sparks

Services. The following services shall be provided at the following rates:

Storage and Thermal Treatment
$41.50 per processed ton of (describe): **#2 Fuel Oil Contaminated Soils (Approx. 100 tons)**

Transportation is provided by common carriers.
There will be a 25 ton minimum charge per load for transportation purposes only.

Demurrage will be $65.00 per hour for time on site that exceeds the dock time allowance of 30 minutes.

Handling of Non-conforming Waste Materials
Soils with moisture contents in excess of 15% will be subject to a **Solidification Charge** of $1.00 per ton per 1% increase in moisture content over 15%.

ESMI RESERVES THE RIGHT TO REJECT DELIVERIES CONTAINING EXCESSIVE MOISTURE.

An administrative charge of $100.00 shall be applied for each truck load of Waste Materials that are non-conforming. Sales tax and other tariffs and fees are not included in the above pricing, and will be added to customer's invoice.

Disposition of Treated Waste Materials. ESMI shall manage the treated waste materials as follows:
*****Materials will become the property of ESMI*****

Payment Terms. Customer shall pay ESMI for services provided hereunder:

Within 30 Days following delivery of Waste Materials to ESMI

A 2% service charge will be added to all past due accounts, I Mike Sparks, being a responsible representative of Watershed Environmental Srvs, do hereby understand and accept payment terms noted above, and attached terms and conditions.

MLS (Initial)

Acceptance of this Contract includes acceptance of terms above, attached Terms and Conditions, and all documents incorporated by reference therein.

Watershed Environmental Srvs

Mike Sparks

Signature

ESMI

Vice President of Sales & Marketing

Todd Caldes

67 International Drive, Loudon, NH 03301 • (603) 783-0228 • Fax (603) 783-0104

Generator Waste Profile

Please complete Sections I, II, III and IV of this form according to the attached instructions. Return the form to the facility with copies of all sampling protocols required in Section II and the laboratory analysis results required in Section III.

SECTION I: CUSTOMER/SITE INFORMATION

Customer/Company Name:	Watershed Environmental Services, Inc
Address:	P.O. Box 64947
	Burlington, VT 05406
Telephone:	802-860-1964
Contact:	Mike Sparks
Site Name:	University of Vermont / Pomeroy Hall
Site Address:	483 Main Street Burlington, VT 05401

SECTION II: REQUIRED SAMPLING PROTOCOL AND SITE HISTORY

SAMPLING PROTOCOL

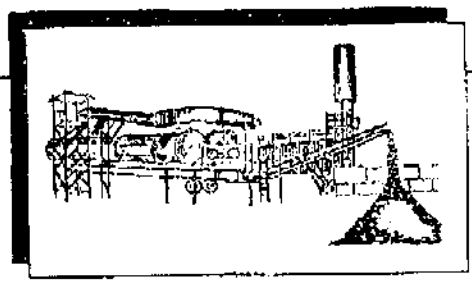
Generators are required to provide two composite samples per 500 tons of material to be sent to a NYSDOH ELAP certified for NYSDEC analytical protocols. Each composite sample must consist of three to five grab samples taken from discrete areas of the contaminated material. Required sampling protocols should describe the sampling technique used for the collection of samples and provide the approximate location from which each core sample was taken.

RECURRING WASTE STREAMS

For process wastes that are on-going in nature, an initial analysis of a representative sample is required, followed by annual re-certification that the waste has not changed or resampling and analysis.

SITE HISTORY

Generators must provide a narrative describing site history, including past agricultural or industrial activities, any known or suspected past releases of contaminants to the environment, any migration of contamination onto the site from off-site sources and summary results of historical sampling and analysis. Generators must fully disclose any information pertaining to the identity, chemical or physical characteristics of the contaminants known to be present.



ESMI of NEW YORK
304 Towpath Road, Fort Edward, NY 12828
800-511-ESMI Customer Service (All Regions)
518-747-5500 Customer Service (Local)
518-747-1181 FAX

SECTION III: ANALYTICAL RESULTS

Waste Material Description: No. 2 fuel oil contaminated soil

Description of Event or Process Producing Waste: Spillage at underground storage tank

Analytical Parameter (SW-846 Methods)		Acceptance Limit		Test Results[1]
Total Petroleum Hydrocarbons (M8015 for gasoline and/or jet fuel, M8100 or M8270 for all other contaminants)				
Choose one category:				
[ ]	Gasoline or JP-4	Consult Facility		
[X]	All Other Contaminants	Consult Facility	TPH	318 mg/kg
[ ]	Volatile Organics[2] (8240)	< 10 ppm Benzene		
[ ]	Semi-Volatile Organics[3] (8270)	Consult Facility		
[ ]	*Total Halogenated Organics (9020)	< 1000 ppm		
[ ]	*PCBs (8080)	1 ppm		
[ ]	*TCLP Metals (1311)			
	Arsenic	< 5 ppm		
	Barium	< 100 ppm		
	Cadmium	< 1 ppm		
	Chromium	< 5 ppm		
	Lead[4]	< 5 ppm		
	Mercury	< 0.2 ppm		
	Selenium	< 1 ppm		
	Silver	< 5 ppm		

* REQUIRED ON NON-VIRGIN PETROLEUM CONTAMINANTS ONLY

1 Sampling protocol, site history and laboratory analytical results must accompany this form

2 EPA Method 8240 is not required on petroleum contaminated soils generated from underground storage tank releases.

3 EPA Method 8270 required on NON-FUEL petroleum contaminants only.

4 Required on Virgin Gasoline contaminants.

SECTION IV: GENERATOR CERTIFICATION STATEMENT

I hereby certify, to the best of my knowledge, (a) that I am a responsible official of the generator, (b) that the transport, treatment and recycling of the contaminated materials do not violate any laws or regulations of the state of origin, and (c) (INITIAL APPLICABLE STATEMENT)

(X) that the petroleum contaminated material from this site that is being sent to ESMI of New York for treatment and recycling originated from a release of VIRGIN petroleum products and is a **non-hazardous waste**, or

(___) that the petroleum contaminated material from this site that is being sent to ESMI of New York for treatment and recycling originated from a release of NON-VIRGIN petroleum products and is a **non-hazardous waste.**

Site Name: University of Vermont / Powell Hall

Site Address: 483 Main Street, Burlington, VT 05401

Signature: [signature]

Typed/Printed Name: Robert A Howard

Title: Utilities Superintendent

Date: 5/17/99

ESMI OF NEW YORK
304 Towpath Rd.
Fort Edward NY 12828
(518) 747 - 5500

Transaction No. 013402 Time In Time Out 12:08 Date 05-21-99

Customer Name: WATERSHED ENVIR SRVS
P.O. BOX 64947
BURLINGTON, VT

Gross: 94440 lb KEY
Tare : 31980 lb STO
==========
Net : 62460 lb

Truck No. : C-916
Hauler : Cason

Net Tons : 31.23

Product No. : 10
Description : VIRGIN FUEL OIL
Metals/NonMetals: NON-METALS

Job No. : 2325
Job Site : UVM
Job Address: 483 MAIN STREET
Job City : BURLINGTON, VT
Job State : VT

Notes:

Weigh Master : [signature] Driver : Bill Hoyt

Weigh Master #: 53013

Weight This Ticket: 31.23

Cum Job Weight 31.23

TPH 0.000

Est. Total Job 150.00

Cason Inc.

PO Box 443
Voorheesville, NY 12186
Phone (888) 302-2766
Fax (315) 689-5277

NON - HAZARDOUS WASTE MANIFEST

GENERATOR

Generator Name: University of Vermont
Address: 622 Main Street
Burlington, VT 05402
Phone No. (802) 656-1097

Generating Location: UVM / Pomeroy Hall (Centennial Field)
Address: 483 Main St.
Burlington VT 05402
Phone No. (____) ____

Signature: [signature] 5-21-99

Description of Waste	Check
Oil Soaked Dirt/Debris N816	✓
Gas Soaked Dirt/Debris N816	
Other Specify	

Check Type	
Yards	
Tons	✓

Quantity: 31.23 TONS

TRANSPORTER

N.Y.S. D.E.C. Permit # 4A - 267
Transporter Name: CASON
Address: ALBANY NY
Phone No. (____) 1-888-302-2766
Driver Name: BILL HAYES
Driver Signature: William Hayes

Date of Shipment: MAY 21 99
Vehicle License No. PR 82817 NY
38586 R
Vehicle Description: 91 PETE TRACTOR
98 RAVEN DUMP TRAILER

DESTINATION

Site Name: ESMI of NY
Address: 304 Towpath Rd
Ft Edward NY

Phone No.(1-800-511 ESMI
Contact Person: Todd CALADOR
Signature: [signature]

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ESMI OF NEW YORK
304 Towpath Rd.
Fort Edward NY 12828
(518) 747 - 5500

Transaction No. 013403 Time In Time Out 12:11 Date 05-21-99

Customer Name: WATERSHED ENVIR SRVS
P.O. BOX 64947
BURLINGTON, VT

Gross: 95560 lb KEY
Tare : 31680 lb STO
==========
Net : 63880 lb

Truck No. : C-7
Hauler : CASON

Net Tons : 31.94

Product No. : 10
Description : VIRGIN FUEL OIL
Metals/NonMetals: NON-METALS

Job No. : 2325
Job Site : UVM
Job Address: 483 MAIN STREET
Job City : BURLINGTON, VT
Job State : VT

Notes:

Weigh Master [signature]

Driver : [signature]

Weigh Master #: 530073

Weight This Ticket: 31.94

Cum Job Weight 63.17

TPH 0.000

Est. Total Job 150.00

Cason Inc.

PO Box 443
Voorheesville, NY 12186
Phone (888) 302-2766
Fax (315) 689-5277

NON - HAZARDOUS WASTE MANIFEST

GENERATOR

Generator Name: University of Vermont
Address: 622 Main Street
Burlington, VT 05402
Phone No. (802) 656-1097

Generating Location: UVM | Powercy Hall (Centennial Field)
Address: 483 Main Street
Burlington, VT 05402
Phone No. ( )

Signature: [signature] 5-21-99

Description of Waste	Check
Oil Soaked Dirt/Debris N816	✓
Gas Soaked Dirt/Debris N816	
Other Specify	

Check Type	
Yards	
Tons	✓

Quantity: 31.94 TONS

TRANSPORTER

N.Y.S. D.E.C. Permit # 4A - 267
Transporter Name: Cason INC
Address: 3 Stone RD
Voorheesville NY
Phone No. (518) 765-7223
Driver Name: Del Shaver Jr
Driver Signature: Del Shaver Jr

Date of Shipment: 5/21/99
Vehicle License No. Tractor - P25313
Trailer - 76258-N
Vehicle Description: Trailer Dump

DESTINATION

Site Name: ESMI
Address: Towpath RD
Fort Edward NY
Phone No. (518) 747-9500
Contact Person: Todd Calder
Signature: [signature]

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ESMI OF NEW YORK
304 Towpath Rd.
Fort Edward NY 12828
(518) 747 - 5500

Transaction No. 013431 Time In 11:01 Time Out 18:28 Date 05-25-99

Customer Name: WATERSHED ENVIR SRVS
P.O. BOX 64947
BURLINGTON, VT

Gross: 99540 lb INB
Tare : 32540 lb
==========
Net : 67000 lb

Truck No. : CC-7
Hauler : CASON

Net Tons : 33.50

Product No. : 10
Description : VIRGIN FUEL OIL
Metals/NonMetals: NON-METALS

Job No. : 2325
Job Site : UVM
Job Address: 483 MAIN STREET
Job City : BURLINGTON, VT
Job State : VT

Notes:

Weigh Master : Tina Prieur

Weigh Master #: 530013

Driver : Del Stanley

Weight This Ticket: 33.50

Cum Job Weight 96.67

Est. Total Job 150.00

TPH 0.000

Cason Inc.

PO Box 443
Voorheesville, NY 12186
Phone (888) 302-2766
Fax (315) 689-5277

NON - HAZARDOUS WASTE MANIFEST

GENERATOR

Generator Name: University of Vermont
Address: 620 main Street
Burlington VA 05402
Phone No. (802) 656-1097

Generating Location: UVM / Powell Hall Centennial Field
Address: 483 Main Street
Burlington VA 05402
Phone No. ( )

Signature: [signature] 5-21-99

Description of Waste	Check	Check Type	Quantity
Oil Soaked Dirt/Debris N816	✓	Yards	33,50
Gas Soaked Dirt/Debris N816		Tons ✓	
Other Specify			

TRANSPORTER

N.Y.S. D.E.C. Permit # 4A - 267
Transporter Name: Cason Inc.
Address: 3 Stone Road
Voorheesville New York
Phone No. (518) 765-7223
Driver Name: Ed Shaver Jr.
Driver Signature: [signature]

Date of Shipment: 5-21-99 Dropped 5-22-99
Vehicle License No. Tractor - PZ 5313
Trailer -
Vehicle Description: Trailer Dump

DESTINATION

Site Name: ESMI of New York
Address: 304 Towpath Road
Fort Edward New York 12828
Phone No.(518) 747-5500
Contact Person: Todd Fuller
Signature: [signature]

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