

 **HOFFER & ASSOCIATES**  
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May 25, 1999

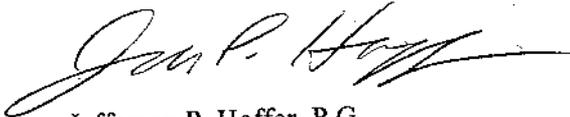
Chuck Schwer, Supervisor  
Sites Management Section  
VTDEC - Waste Management Division  
103 South Main Street/West Office  
Waterbury, VT 05671-0404

Re: Site Investigation Report, Barnet Town Garage  
SMS Site #98-2539

Dear Mr. Schwer:

On behalf of the Town of Barnet, we are submitting the enclosed site investigation report for your review. Please feel free to call us with any questions.

Sincerely,  
HOFFER & ASSOCIATES



Jefferson P. Hoffer, P.G.  
Principal Hydrogeologist

enc.

cc: William Hoar, Barnet Town Clerk

**GROUNDWATER & ENVIRONMENTAL SERVICES**

MAY 28 10 06 AM '99

MAY 26 10 06 AM '99

## SITE INVESTIGATION REPORT

BARNET TOWN GARAGE  
BARNET, VERMONT  
SMS SITE #98-2539

*May 1999*

*Prepared for:*

Board of Selectmen  
Town of Barnet  
P.O. Box 15  
Barnet, VT 05821  
(802) 633 - 2256

*Prepared by:*

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## 1.0 INTRODUCTION AND BACKGROUND

### 1.1 Introduction

This report summarizes a site investigation performed at the Barnet Town Garage in Barnet, Vermont. The investigation was conducted in response to evidence of subsurface petroleum contamination discovered during the removal of underground storage tanks (USTs) at the site in October of 1998. The scope of work for this investigation was submitted to and approved by the Sites Management Section of the Vermont Department of Environmental Conservation (see Appendix A).

### 1.2 Background Information

The Barnet Town Garage is located at 25 Granger Road, in a small residential area situated between Vermont Route 5 and the Connecticut River. Figure 1 is a site location map, and Figure 2 is a site vicinity map.

The Town Garage used USTs to store diesel fuel and gasoline for the Town's vehicles and equipment. The following three USTs were excavated and removed from the ground on October 15, 1998 by Wagner's Construction of West Burke, Vermont.

| <u>Tank #</u> | <u>Capacity</u> | <u>Fuel Type</u> | <u>Age</u> | <u>Tank Condition</u> |
|---------------|-----------------|------------------|------------|-----------------------|
| #1            | 1000            | gasoline         | 25 yrs     | fair                  |
| #2            | 550             | diesel           | 25 yrs     | very poor             |
| #3            | 550             | gasoline         | >25 yrs    | very poor             |

The site assessment report filed by Wagner's Construction (Appendix A) indicates that soil contamination was found surrounding and underlying the USTs. Approximately 70 yards of petroleum-contaminated soil were transported and encapsulated at the Town's gravel pit as part of the tank removal process.

The USTs have been replaced by an above-ground storage tank (AST) to store diesel fuel (see location on Figure 3).

### 1.3 Environmental Setting

The Barnet Town Garage is located on the floodplain of the Connecticut River, at an elevation of about 490 feet above mean sea level. Site topography grades gently to the east. The Stevens River is located about 500 feet east of the site. The confluence of the Stevens and Connecticut rivers is about 1000 feet southeast of the site. A small unmapped stream flows eastward on the northern side of Granger Road directly across from the Town Garage property.

On the Surficial Geologic Map of Vermont (Doll, 1970), mapping units at and near the site include lacustrine silt and clay, and recent alluvium. Stewart and MacClintock's (1969) plot of littoral sediments of glacial Lake Hitchcock shows an elevation of above 850 feet above MSL in the vicinity of Barnet. Thus during the maximum lake level of glacial Lake Hitchcock, the site was under several hundred feet of water.

Bedrock mapping by Hall (1959) indicates the site is underlain by the Devonian Gile Mountain formation, which includes quartz mica schist, micaceous quartzite, and phyllite.

#### **1.4 Potential Receptors**

Potential receptors in the vicinity of the site were preliminarily identified and are briefly discussed below. Table 1 provides a list of surrounding property owners.

##### *Water Supplies*

The Town Garage and surrounding residences are serviced by a public water system. The White house, located uphill (west) of the Town Garage property, reportedly has a dug well on the eastern side of the house.

A review of the VT Water Supply Division's well inventory found no logs of bedrock wells between the site and downgradient hydrologic features (Stevens and Connecticut rivers).

There is no municipal sewer in the area, so each of the residences and Town Garage have private sewage disposal systems.

##### *Indoor Air Quality*

The Town Garage has a poured concrete floor and no basement. Several of the surrounding homes have basements into which petroleum vapors could enter. Underground utilities in the area include water and telephone.

##### *Surface Water*

The Stevens River is located about 500 feet east of the site, and flows southward to its confluence with the Connecticut River (see Figure 2). A small unnamed brook is located on the northern side of Granger Road across from the Town Garage. This brook flows eastward into the Stevens River.

## 2.0 SITE CHARACTERIZATION METHODS & RESULTS

### 2.1 Soil Boring/Monitoring Well Installations

Four groundwater monitoring wells were installed at the site using standard hollow-stem auger techniques. Two monitoring wells (MW-1 and MW-2) were drilled and installed on April 2, 1999. An additional backhoe-installed monitoring well (BW-1) was also installed in a test pit on this date. Two additional monitoring wells (MW-3 and MW-4) were drilled on April 14, 1999.

Split-spoon samples were collected approximately every five feet during the soil borings. These soil samples, and cuttings returned on the auger flights, were characterized on the basis of color, moisture and texture (USDA). Samples were also screened with a photoionization detector (PID) to monitor for the presence of volatile organic compounds indicative of petroleum contamination.

Well locations are shown on Figure 3. The wells were constructed with 2-inch diameter factory-slotted PVC well screens straddled across the inferred water table, and solid PVC riser extends to just below grade. Logs of the borings and well construction details are provided in Appendix B. A monitoring well (BW-1) was constructed in a test pit (TP-2 on Figure 3) excavated just west of the garage. This well was constructed with 10 feet of factory-slotted PVC screen from about 2 to 12 feet below grade.

#### 2.1.1 Stratigraphy

Soil types observed during excavation of test pit #1 (TP-1 on Figure 3) included 0 - 5 feet of brown sand and gravel (backfill) underlain by gray clayey silt to a depth of eight feet. Soils in TP-2 consisted of two feet of gray-brown sand (fill) underlain by olive-brown silty fine sand and clayey silt to a depth of about twelve feet. From a depth of 10 - 12 feet in TP-2, soils were moist and mottled, possibly indicative of a high groundwater stand.

The soil profile penetrated during the drilling of well MW-1 included the following.

| <u>Depth (ft)</u> | <u>Description</u>                   |
|-------------------|--------------------------------------|
| 0 - 3             | brown silty sand and gravel (fill)   |
| 3 - 8.5           | olive-brown silty fine sand, mottled |
| 8.5 - 13.5        | brown gravel and sand, dry           |
| 13.5 - 16.75      | olive-brown clayey silt, moist       |
| 16.75 - 32        | blue/gray silty clay, moist          |

At MW-2, the soil profile included 0 - 3 feet of brown silty sand and gravel, 3 - 15 feet of olive-brown silty fine sand, 15 - 18 feet brown sand and gravel, 18 - 22 feet blue/gray silty clay. At MW-3, the soil profile consisted of 0 - 10 feet of silty gravel and sand, 10 - 17 feet of gravelly silty sand, and 17 - 22 feet of gray silt and clay. At MW-4, the soil profile was 0 - 10 feet of silty sand, 10 - 12 feet of sand gravel, and 12 - 22 feet of gray silt and clay.

The gravel layer in MW-2 and MW-3 was saturated at depth, while the gravel encountered in MW-1 and MW-4 was not saturated.

The site stratigraphy is summarized on Figure 4, which provides two cross sections.

### 2.1.2 Soil Contamination

During test pit excavation and soil borings, soil samples were screened for volatile organic compounds using a portable photoionization detector (PID). Soil sample headspace measurements were collected by placing soil in plastic zip-lock bags and inserting the PID probe into the bags.

A PID headspace reading of 158 parts per million was recorded for a soil sample from a depth of 15 - 15.6 feet in MW-4. This soil sample also exhibited petroleum sheens, and petroleum vapors were noted during advancement of augers beyond a depth of 13 feet. No other elevated PID headspace readings indicative of petroleum contamination were obtained in the other three borings.

During excavation of TP-1, strong petroleum vapors were noted. Direct PID readings of excavated soil from TP-1 ranged from 1.0 to 10.0 parts per million. During excavation of TP-2, which extended to a depth of about 12 feet, no petroleum vapors were noted, and no PID readings above background were recorded.

## 2.2 Groundwater Levels and Flow Directions

Groundwater levels have been measured in the site monitoring wells on several occasions. Groundwater depths and converted elevations are compiled on Table 2. Groundwater depths range from about 13 to 16 feet below grade. Figure 5 illustrates groundwater fluctuations for the site.

Figures 6 - 8 present water-table maps which portray a generally northeastward flow direction across the site.

## 2.3 Groundwater Quality

Groundwater sampling was conducted on April 22, 1999. Samples were collected from all four of the drilled monitoring wells. Prior to sampling, water levels were measured to calculate the volume of standing water in the wells. No water was present in BW-1 to a depth of about 12 feet on the sampling date. The monitoring wells were purged and sampled with dedicated polyethylene bailers. After purging three well volumes, samples were poured from the bailers into 40-mL glass vials provided by the laboratory, and two vials were filled for each sample location. The vials contained hydrochloric acid for sample preservation. The sample vials were labeled with the sampling location, date, and time. After sample collection, the vials were placed into a cooler with ice for storage and transport to the laboratory. Quality Assurance/Quality Control (QA/QC) samples included a trip blank, a field blank, and a field duplicate. The trip blank consisted of two sealed vials provided by the laboratory which remained in the sample cooler during the sampling event. The field blank was prepared by pouring deionized water into two sample vials at the site at the conclusion of the sampling effort. For the duplicate, four sample vials were filled from well MW-3. Two of the vials were labeled MW-3, and two of the vials were labeled MW-100 and were given a fictitious sampling time. In

addition to the laboratory chain-of-custody (C-O-C), a sampling data sheet was used to document the sampling event. The data sheet and C-O-C are included with the laboratory report in Appendix C.

All of the monitoring well and QA/QC samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl-tert-butyl-ether (MTBE), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and naphthalene using EPA Method 8021B. Samples from each of the four monitoring wells were also analyzed for total petroleum hydrocarbons (TPH) by EPA Method 8100. The analyses were performed by SCITEST, Inc., of Randolph, Vermont.

The analytical results are given on Table ~~2~~<sup>3</sup>. All of the 8021B analytes were detected in MW-3, although at relatively low concentrations. Concentrations of both trimethylbenzene compounds in MW-3 exceed Vermont groundwater enforcement standards for these compounds. In the remaining three wells, all 8021B analytes were below detection limits. The TPH results indicate 340 mg/L TPH for MW-3 and 1.0 mg/L for MW-1. The TPH results for the remaining two wells were below a detection limit of 1.0 mg/L.

#### **2.4 Soil Pile Screening**

Approximately 70 cubic yards of petroleum-contaminated soil were removed during the UST removals in October of 1998. These soils were polyencapsulated at the Town's gravel pit (see Figure 9).

On April 29, 1999, a PID was used to monitor contaminant levels in the stockpile. Small holes were made in the plastic covering and PID probe was inserted into the holes. As shown on Figure 9, PID readings ranged from 35.1 to 765 parts per million, indicating that a significant amount of petroleum remains in the soils.

## **3.0 DISCUSSION OF RESULTS**

### **3.1 Hydrogeologic Setting**

Figure 4 shows two cross sections which illustrate the hydrogeologic setting. The site is underlain by a surficial layer of brown fine sand, silt, and silty sand. A layer of brown sand and gravel, ranging in thickness from two to seven feet, was encountered in each of the four borings. This gravelly layer is underlain by gray silty clay and clayey silt, interpreted as deep-water lacustrine sediments. These gray fine-grained sediments were encountered at a depth of five feet in test pit TP-1, which was excavated in the general vicinity of the former site USTs.

The water-table surface occurs at depths ranging from 13 to 16 feet below grade. At MW-1 and MW-4, the water-table surface is below the gravel horizon and is within the fine-grained lacustrine sediments. At MW-2 and MW-3, the water-table is within the gravel layer. Groundwater elevations define a northeastward flow direction.

### **3.2 Degree and Extent of Contamination**

Relatively high concentrations of soil contamination were found during the UST closures in October of 1998. Soils removed during the UST closures were stockpiled at the Town's gravel pit. Recent screening of the polyencapsulated soils indicates that petroleum contamination persists in these soils. During recent site investigation efforts, a backhoe test pit excavated near the former UST area exposed soils with strong petroleum odors. During the drilling of four monitoring wells, soil samples from one of the wells (MW-3) exhibited sheens and elevated PID headspace readings.

Soil contamination at the site appears to be relatively confined to the immediate area surrounding the former USTs. The relatively fine-grained nature of soils, and relatively deep water table, appear to have limited the migration of the bulk of petroleum contamination at the site.

Dissolved petroleum compounds were detected in a groundwater sample collected from monitoring well MW-3. Contaminant concentrations in this well were relatively low, although groundwater enforcement standards were exceeded for two compounds. The downgradient extent of groundwater contamination has not been fully defined.

### **3.3 Potential Receptors**

Petroleum contamination in site soils and groundwater do not appear to pose an immediate threat to potential receptors. The relatively low concentrations of petroleum compounds detected in groundwater, as well as the lack of downgradient water-supply wells, suggests that site contamination poses little risk to drinking water supplies.

Impacts to downgradient surface waters (Stevens & Connecticut rivers) do not appear likely based on the low contaminant concentrations detected on site and distances to these surface waters.

Potential impacts to indoor air quality from site contamination appear unlikely based on the relatively fine-grained nature of surficial sediments, and the relatively deep water table (15 +/- feet below grade).

### **3.4 Conclusions and Recommendations**

Releases of petroleum from former USTs have impacted soil and groundwater beneath the Barnet Town Garage property. Soil contamination appears to be relatively limited to the immediate area surrounding the former USTs. Groundwater contamination was found in one monitoring well downgradient from the former site USTs. Contaminant levels in groundwater are relatively low, but exceed VT groundwater enforcement standards for 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene. The downgradient extent of groundwater contamination has not been defined.

To further assess the impact to groundwater, we recommend installing two additional monitoring wells on the northern perimeter of the Town Garage property (see Figure 10). A periodic groundwater monitoring program should then be initiated to gauge groundwater level and contaminant concentration fluctuations. The soil stockpile should also be periodically screened to monitor contaminant levels.

A cost estimate for the installation of two additional monitoring wells, and a round of groundwater monitoring, is provided on Table 4.

## REFERENCES

Doll, C.G. (editor), 1970, *Surficial Geologic Map of Vermont*, Office of the State Geologist.

Hall, L.M., 1959, *The Geology of the St. Johnsbury Quadrangle, Vermont and New Hampshire*, Vermont Geological Survey, Bulletin No. 13.

Stewart, D.P., and P. MacClintock, 1969, *The Surficial Geology and Pleistocene History of Vermont*, Vermont Geological Survey, Bulletin No. 31.

**TABLE 1**  
 Names, Addressess, & Phone Numbers of Surrounding Property Owners,  
 Barnet Town Garage Site Investigation, Barnet, Vermont, SMS Site #98-2539.

|          |                    |                  |                     |                    |                    |                   |                  |
|----------|--------------------|------------------|---------------------|--------------------|--------------------|-------------------|------------------|
| Name:    | Robert Pierce      | Johnson          | Rod's Engine Repair | Jay Sprout         | Northcutt / Gajtka | White             | Rodney Machell   |
| Address: | 15 Granger Street  | PO Box 104       | (Rod Machell)       | 154 South Main St. | 72 Granger Street  | 83 Granger Street | PO Box 74        |
|          | Barnet, VT 05821   | Barnet, VT 05821 | PO Box 74           | Barnet, VT 05821   | Barnet, VT 05821   | Barnet, VT 05821  | Barnet, VT 05821 |
|          |                    |                  | Barnet, VT 05821    |                    |                    |                   |                  |
| Phone:   | (802) 633 - 4912   | (802) 633 - 4481 | (802) 633 - 4481    | (802) 633 - 3043   | (802) 633 - 4101   |                   | (802) 633 - 4481 |
|          | w (603) 444 - 6114 |                  |                     |                    |                    |                   |                  |

**TABLE 2**  
 Groundwater depths and elevations measured in site monitoring wells,  
 Barnet Town Garage, Barnet, Vermont, SMS Site # 98-2539.

| DEPTH TO WATER (feet below TOC) |                            |          |          |          |          |
|---------------------------------|----------------------------|----------|----------|----------|----------|
| Well ID                         | Elevation of<br>TOC (feet) | 04/03/99 | 04/22/99 | 04/29/99 | 05/06/99 |
| BW-1                            | 98.31                      | > 11.9   | > 11.9   | > 11.9   | > 11.9   |
| MW-1                            | 100.00                     | > 19.1   | 16.14    | 15.77    | 16.18    |
| MW-2                            | 97.98                      | 15.54    | 14.98    | 13.80    | 14.46    |
| MW-3                            | 99.05                      | -        | 16.11    | 14.65    | 15.61    |
| MW-4                            | 99.62                      | -        | 14.45    | 13.68    | 13.78    |

| GROUNDWATER ELEVATIONS (feet) |                            |          |          |          |          |
|-------------------------------|----------------------------|----------|----------|----------|----------|
| Well ID                       | Elevation of<br>TOC (feet) | 04/03/99 | 04/22/99 | 04/29/99 | 05/06/99 |
| BW-1                          | 98.31                      | < 86.41  | < 86.41  | < 86.41  | < 86.41  |
| MW-1                          | 100.00                     | < 80.90  | 83.86    | 84.23    | 83.82    |
| MW-2                          | 97.98                      | 82.44    | 83.00    | 84.18    | 83.52    |
| MW-3                          | 99.05                      |          | 82.94    | 84.40    | 83.44    |
| MW-4                          | 99.62                      |          | 85.17    | 85.94    | 85.84    |

Notes:

TOC = top of casing (PVC lip)

BW-1, MW-1, and MW-2 installed on 4/2/99

MW-3, MW-4 installed on 4/14/99

**TABLE 3**  
 Analytical Results for Groundwater Sampling Performed on April 22, 1999,  
 Barnet Town Garage, Barnet, Vermont, SMS Site # 98-2539.

| WELL<br>ID       | ANALYSES BY EPA METHOD 8021B (results in micrograms per liter) |           |           |              |                  |                             |                             |             | Total Petroleum<br>Hydrocarbons*<br>(mg/L) |
|------------------|--|-----------|-----------|--------------|------------------|-----------------------------|-----------------------------|-------------|--|
|                  | Methyl-tert-<br>butyl-ether                                    | Benzene   | Toluene   | Ethylbenzene | Total<br>Xylenes | 1,3,5-Tri-<br>methylbenzene | 1,2,4-Tri-<br>methylbenzene | Naphthalene |  |
| MW-1             | < 1.0  | < 0.5     | < 1.0     | < 1.0        | < 1.0            | < 1.0                       | < 1.0                       | < 1.0       | 1.0  |
| MW-2             | < 1.0  | < 0.5     | < 1.0     | < 1.0        | < 1.0            | < 1.0                       | < 1.0                       | < 1.0       | < 1.0                                      |
| MW-3 / duplicate | 2.7 / 2.7  | 2.5 / 2.5 | 3.1 / 2.8 | 3.1 / 3.0    | 4.6 / 4.7        | 10 / 11                     | 48 / 50                     | 3.2 / 2.9   | 340  |
| MW-4             | < 1.0  | < 0.5     | < 1.0     | < 1.0        | < 1.0            | < 1.0                       | < 1.0                       | < 1.0       | < 1.0                                      |
| Field Blank      | < 1.0  | < 0.5     | < 1.0     | < 1.0        | < 1.0            | < 1.0                       | < 1.0                       | < 1.0       | < 1.0                                      |
| Trip Blank       | < 1.0  | < 0.5     | < 1.0     | < 1.0        | < 1.0            | < 1.0                       | < 1.0                       | < 1.0       | < 1.0                                      |
| VTGES            | 40   | 5.0       | 1000      | 700          | 10000            | 4.0                         | 5.0                         | 20          | -  |

NOTES:

< 1.0 = less than a detection limit of 1.0 micrograms per liter

VT GES = Vermont Primary Groundwater Enforcement Standard (Groundwater Protection Rule & Strategy, 11/15/97)

Analyses performed by SCITEST, Inc.

\* Total Petroleum Hydrocarbons by EPA Method 8100 mod.

**TABLE 4  
HOFFER & ASSOCIATES COST ESTIMATE**

Prepared For: Town of Barnet

Project Type: Additional Monitoring Wells / Groundwater Monitoring

Site Location: Barnet, Vermont

**H&A LABOR**

| TASK   | Staff | Hours | Rate    | Amount            |
|--|-------|-------|---------|-------------------|
| Project Management                             | JPH   | 4     | \$55.00 | \$220.00          |
| Well Drilling Supervision                      | TFS   | 10    | \$45.00 | \$450.00          |
| Groundwater Sampling / Survey / Soil Screening | TFS   | 8     | \$45.00 | \$360.00          |
| Tables/Figure Generation                       | JPH   | 4     | \$55.00 | \$220.00          |
| Report Preparation                             | TFS   | 8     | \$55.00 | \$440.00          |
| <b>TOTAL H&amp;A LABOR</b>                     |       |       |         | <b>\$1,690.00</b> |

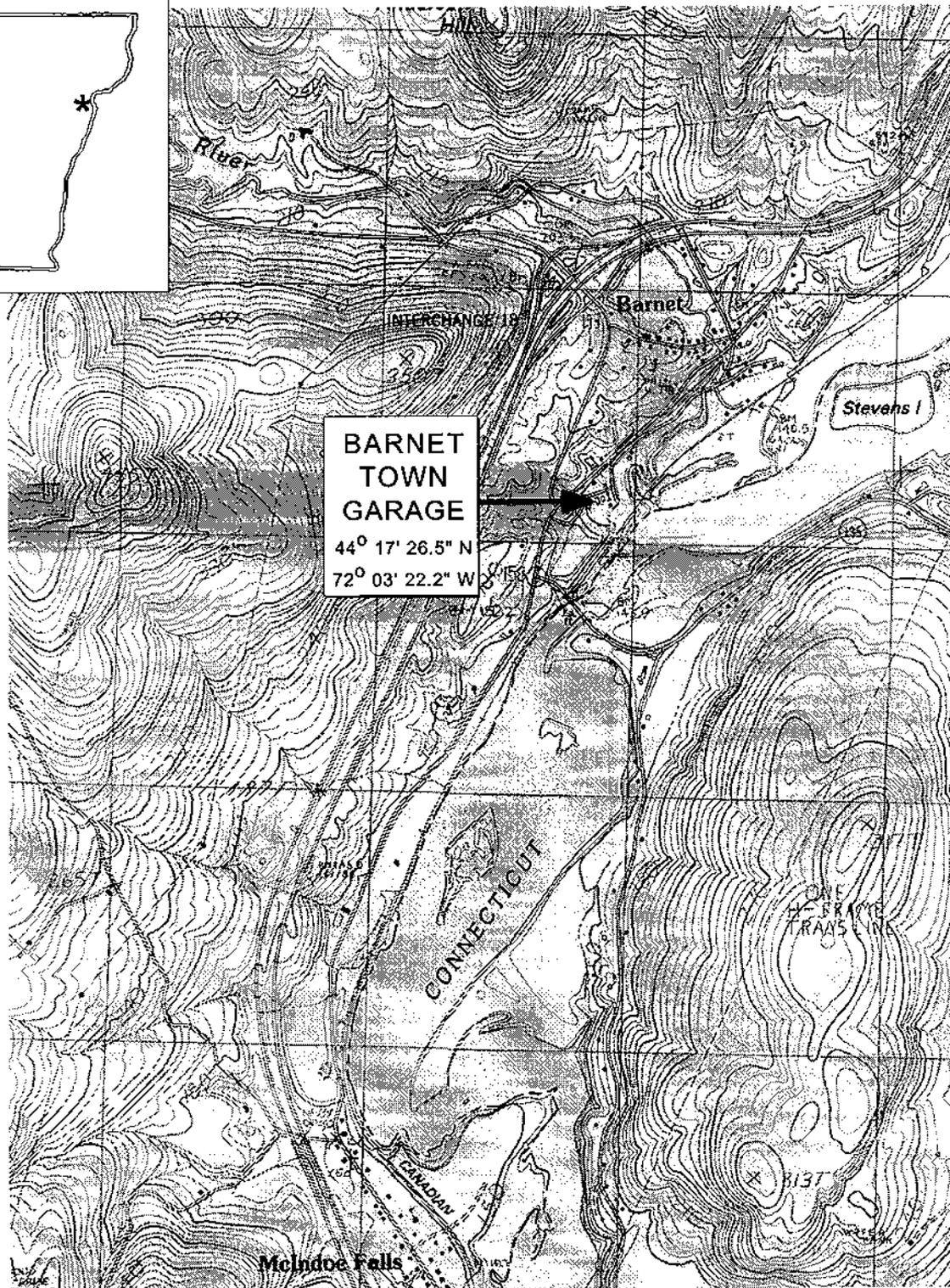
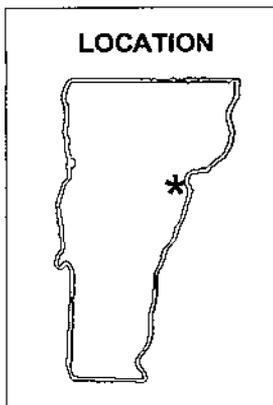
**H&A EXPENSES**

| ITEM  | Quantity | Rate    | Mark Up | Amount          |
|---|----------|---------|---------|-----------------|
| Mileage for well drilling                             | 90       | \$0.31  | \$0.00  | \$27.90         |
| Photoionization Detector Rental (well drilling)       | 1        | \$75.00 | \$0.00  | \$75.00         |
| Mileage for groundwater sampling                      | 90       | \$0.31  | \$0.00  | \$27.90         |
| Photoionization Detector Rental (soil pile screening) | 1        | \$25.00 | \$0.00  | \$25.00         |
| Survey Equipment Rental                               | 1        | \$30.00 | \$0.00  | \$30.00         |
| Polyethylene Disposal Bailers                         | 2        | \$6.00  | \$0.00  | \$12.00         |
| <b>TOTAL H&amp;A EXPENSES</b>                         |          |         |         | <b>\$197.80</b> |

**H&A Sub-Contractors**

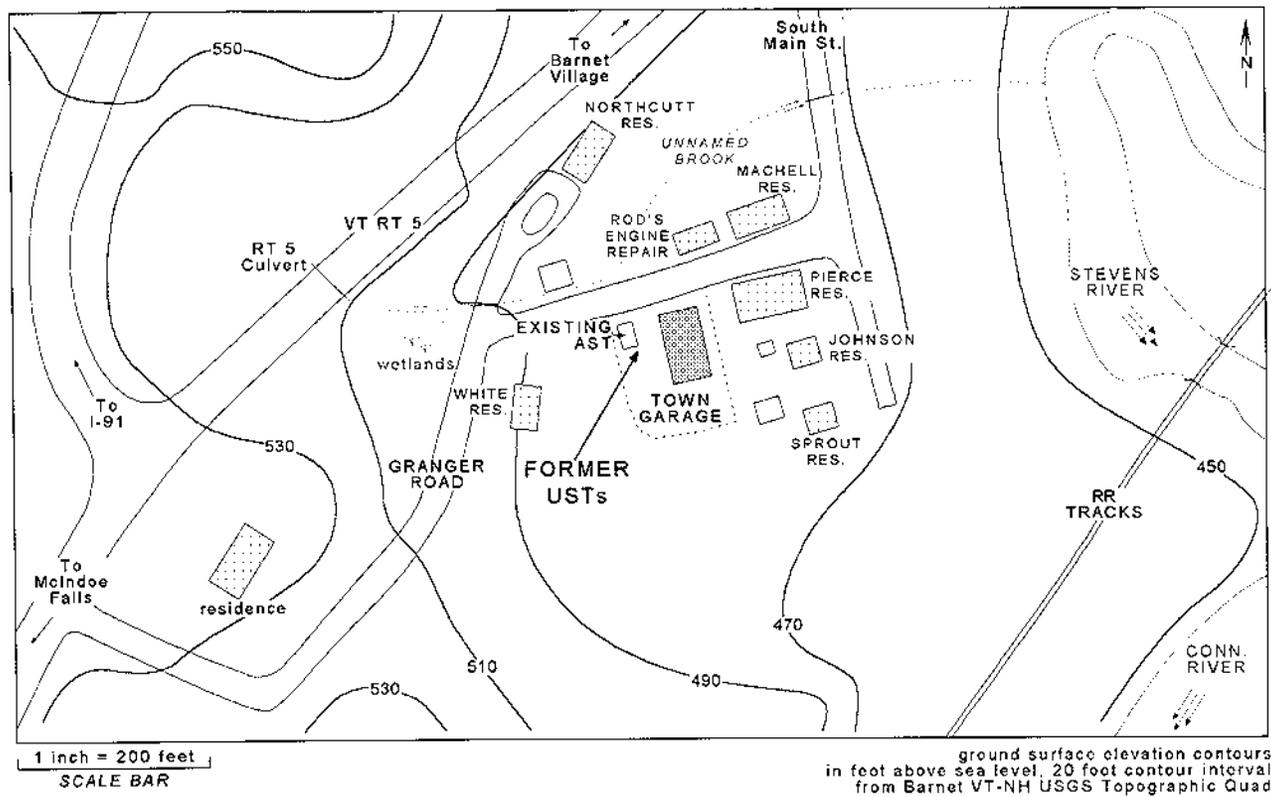
| ITEM   | Quantity | Cost     | Mark Up | Amount            |
|--|----------|----------|---------|-------------------|
| <b>TRI-STATE DRILLING &amp; BORING</b>   |          |          |         |                   |
| Mobilization/Demobilization  | 1        | \$75.00  | \$0.00  | \$75.00           |
| Steam Cleaner  | 1        | \$50.00  | \$0.00  | \$50.00           |
| 2-inch Diameter PVC Monitoring Wells to 15 feet, Soil Sampling                                   | 2        | \$500.00 | \$0.00  | \$1,000.00        |
| <b>SCITEST LABORATORY</b>  |          |          |         |                   |
| EPA Method 8021B (BTEX, MTBE, Naphthalene, trimethylbenzenes)<br>(6 mon. wells, 3 QA/QC samples) | 9        | \$50.00  | \$0.00  | \$450.00          |
| <b>TOTAL SUB-CONTRACTORS</b>   |          |          |         | <b>\$1,575.00</b> |

**ESTIMATED PROJECT COST \$3,462.80**

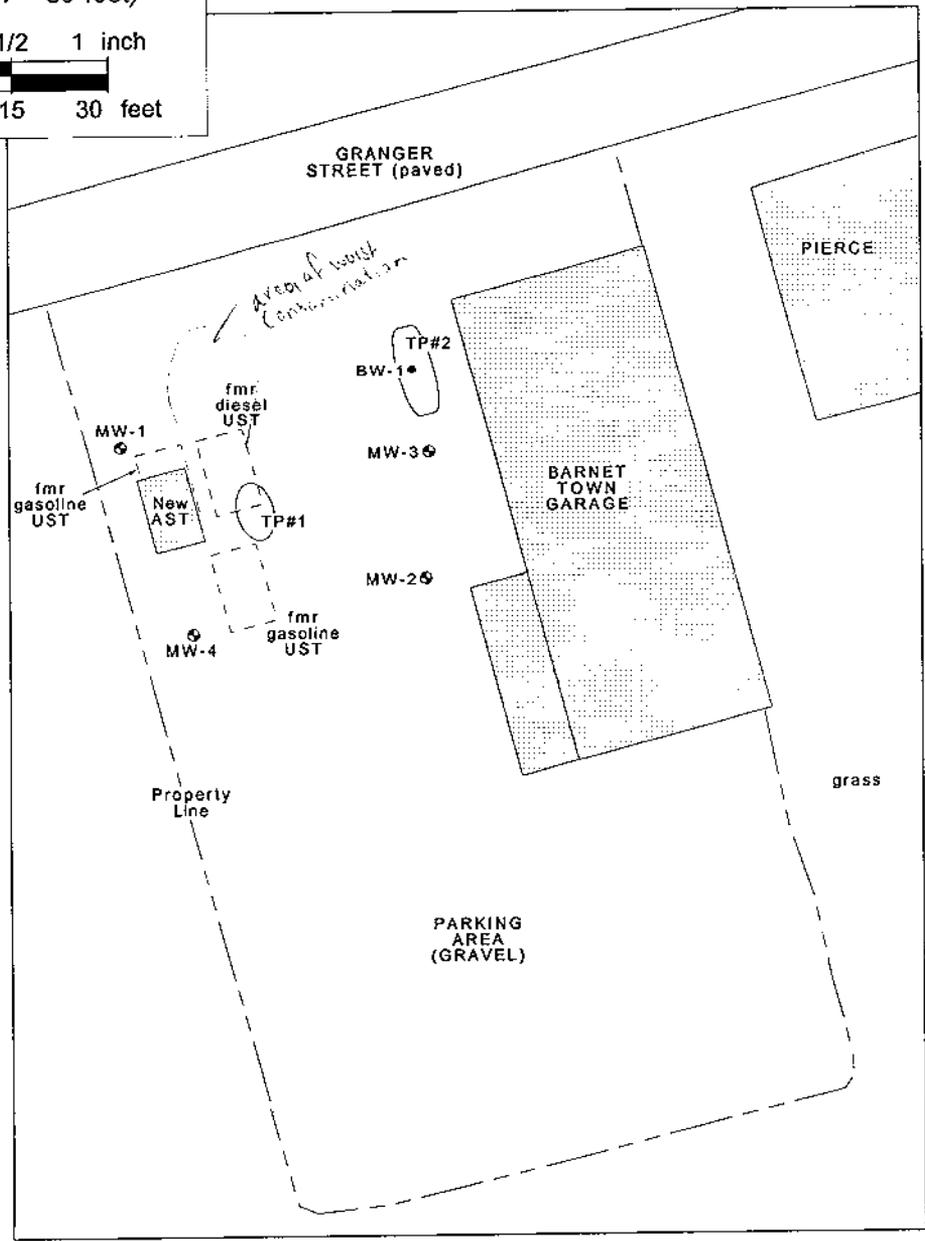
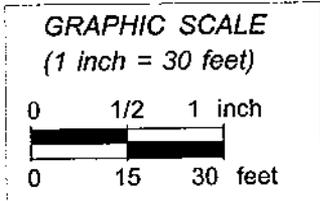


Base map scanned from USGS Topographic Map,  
Barnet, VT-NH, 1:25,000 7.5 x 15 minute quadrangle  
1 centimeter on the map equals 250 meters on the ground

**FIGURE 1**  
**SITE LOCATION MAP**  
**BARNET TOWN GARAGE, BARNET, VERMONT**  
**SMS SITE #98-2539**

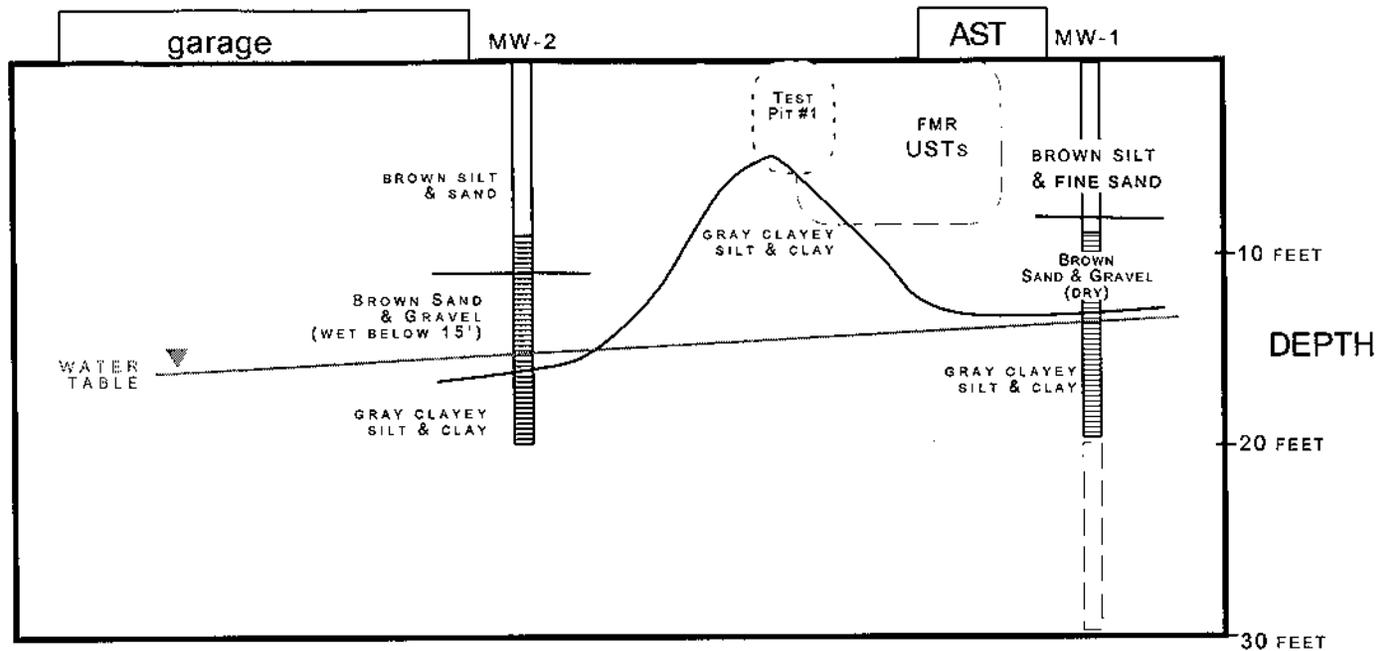


**FIGURE 2**  
**SITE VICINITY MAP**  
**BARNET TOWN GARAGE, BARNET, VERMONT**  
**SMS SITE #98-2539**

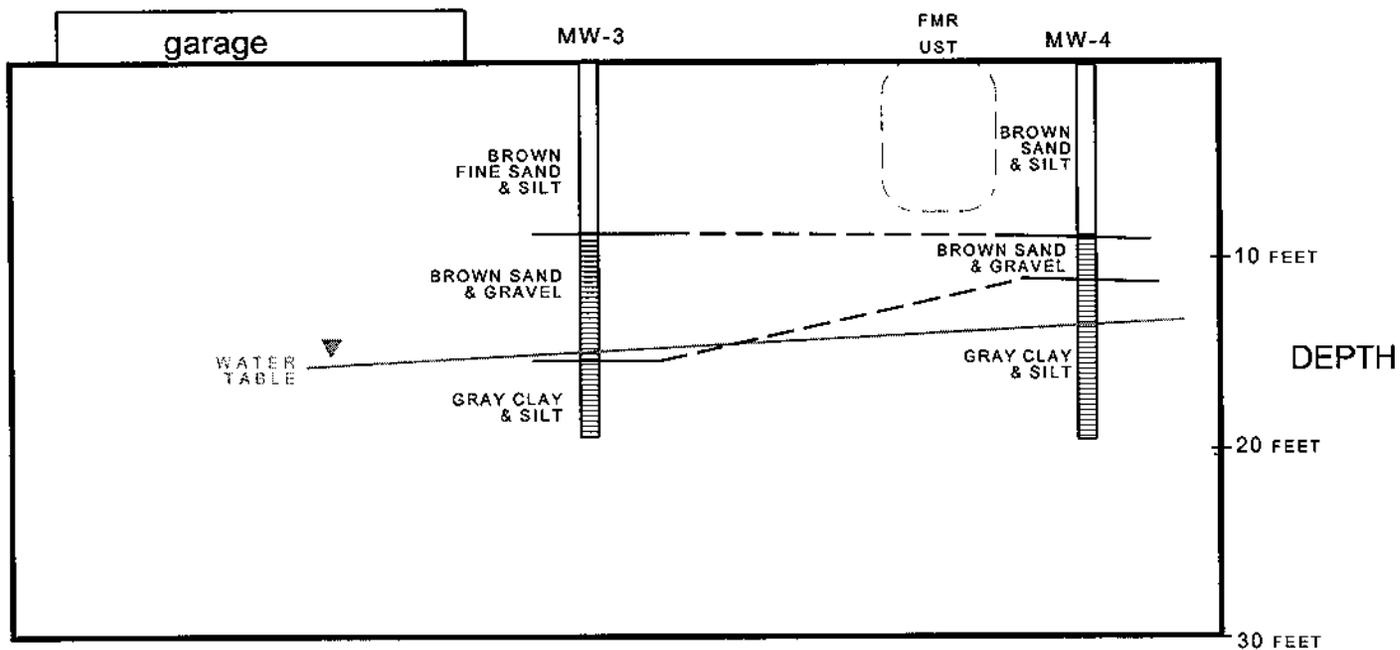


-  Former Location of UST
-  Backhoe Test Pit
-  BW-1 • Monitoring Well Constructed in Test Pit
-  MW-3 • Drilled Monitoring Well

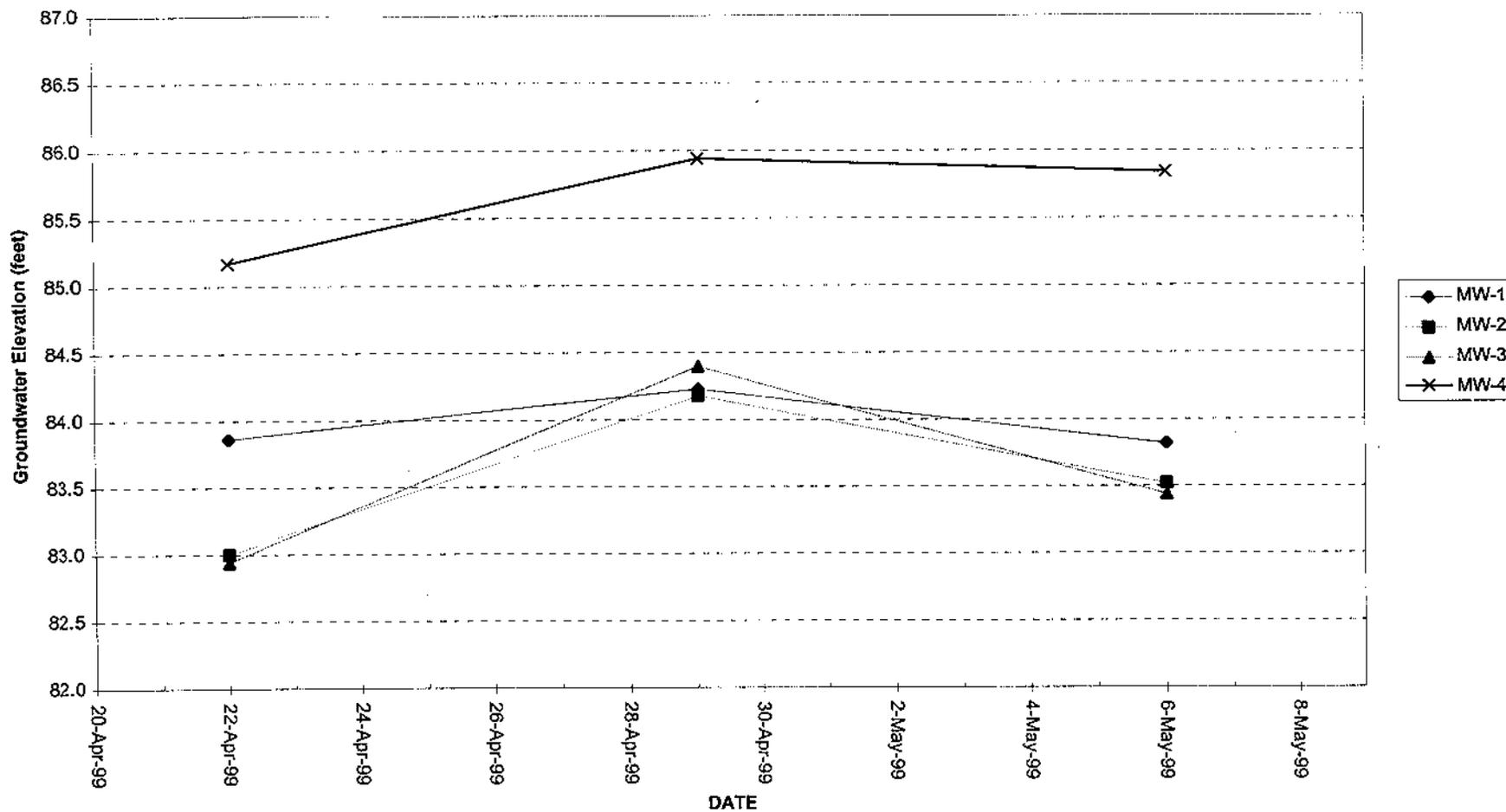
**FIGURE 3**  
SITE MAP, BARNET TOWN GARAGE,  
BARNET, VERMONT, SMS SITE #98-2539.



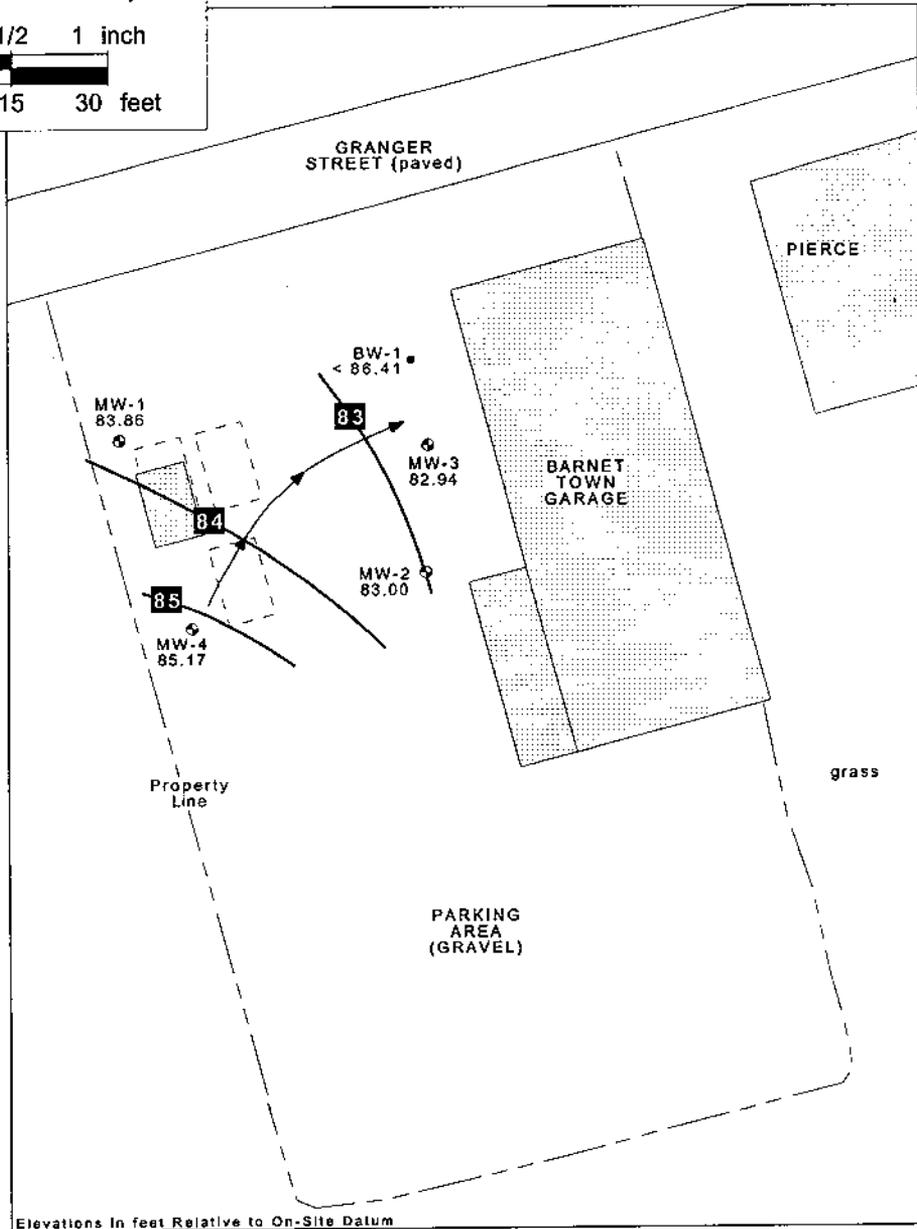
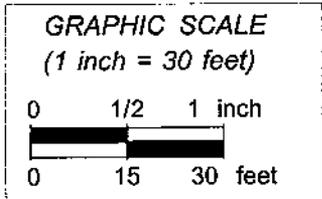
**FIGURE 4**  
 CROSS SECTIONS,  
 BARNET TOWN GARAGE,  
 BARNET, VERMONT,  
 SMS SITE #98-2539.



### BARNET TOWN GARAGE GROUNDWATER LEVELS



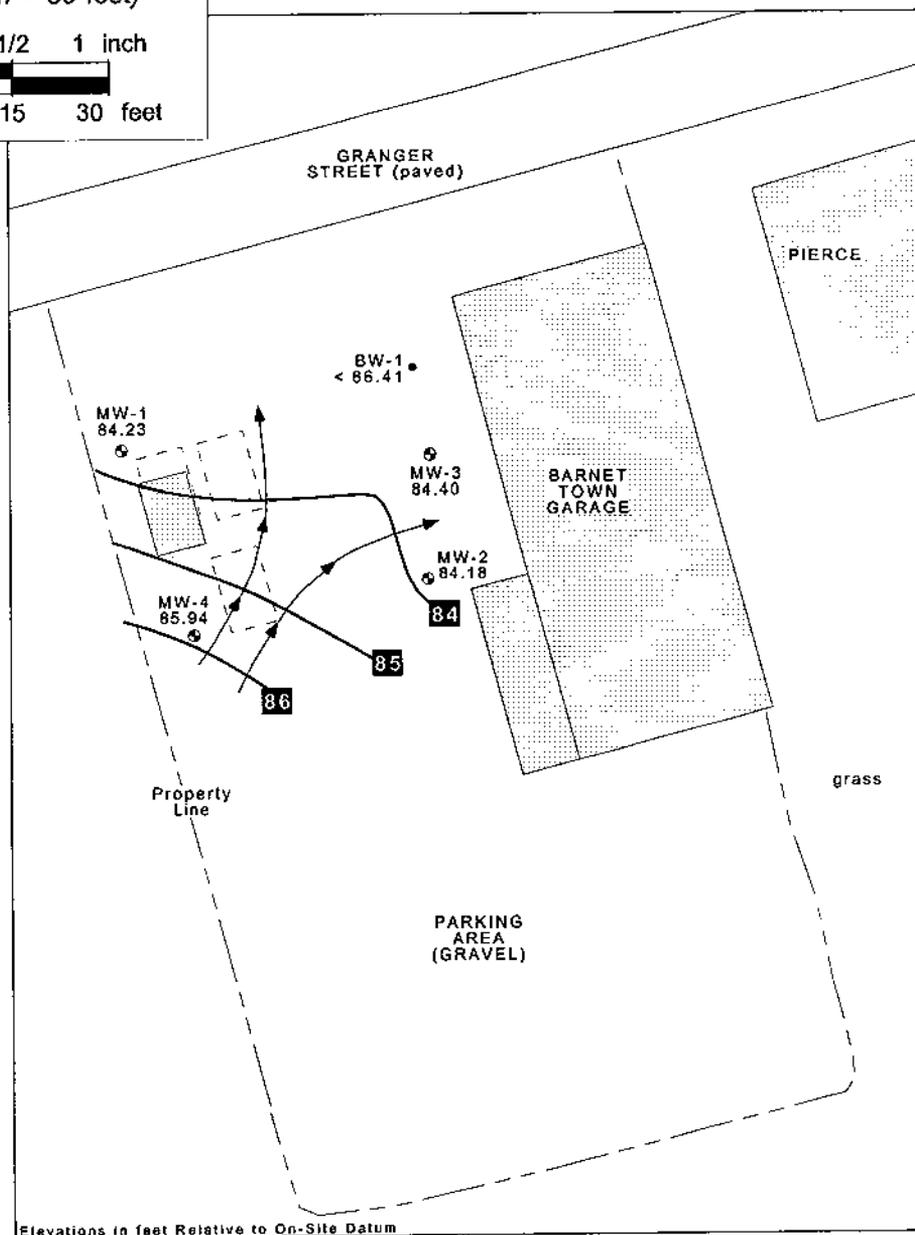
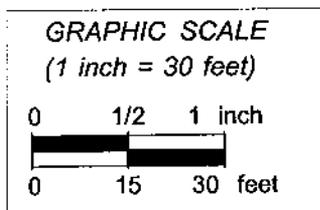
**FIGURE 5**  
Groundwater level fluctuations,  
Barnet Town Garage Site Investigation, Barnet, VT,  
SMS Site #98-2539.



Elevations in feet Relative to On-Site Datum

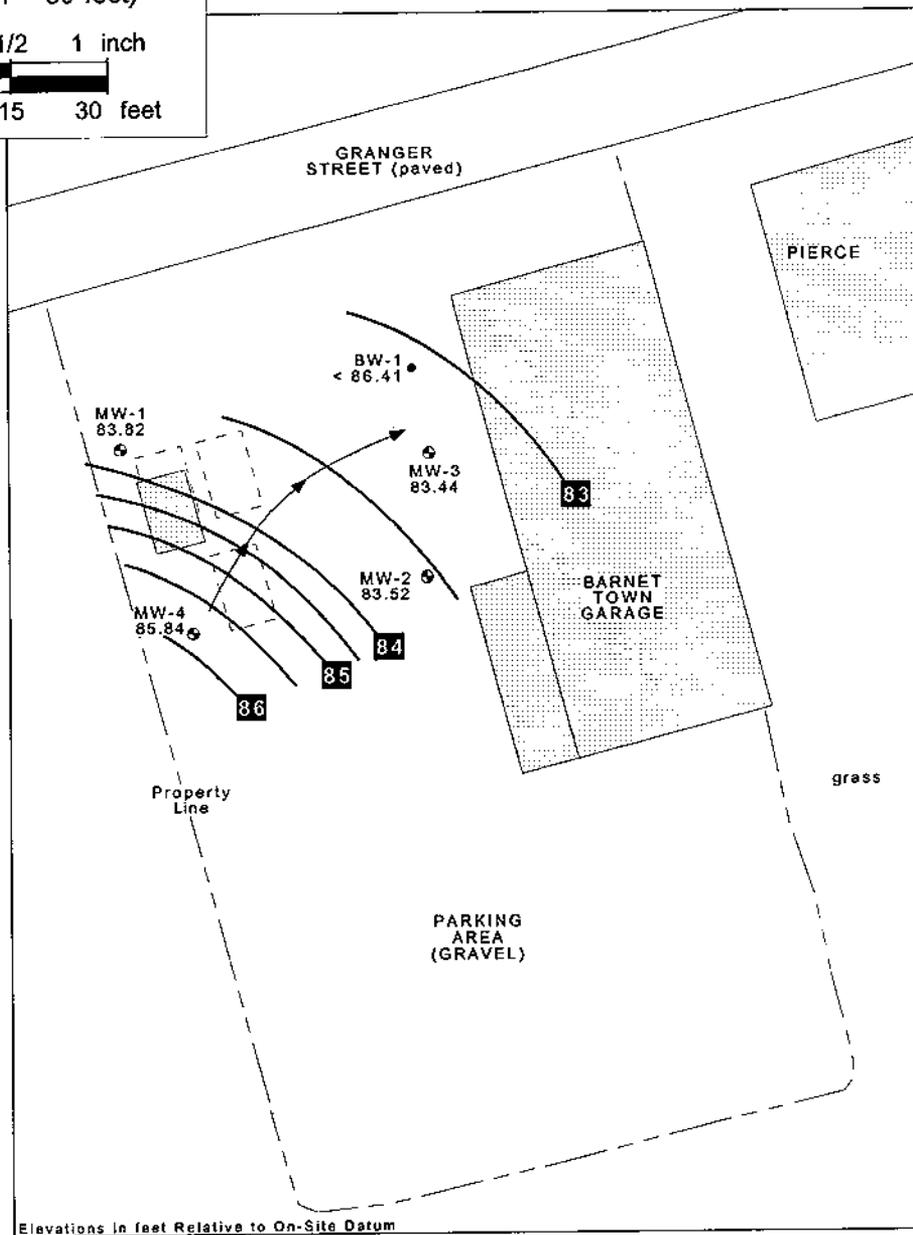
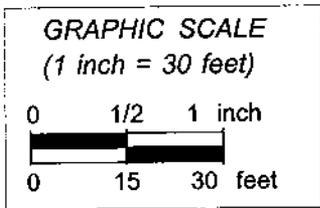
- MW-3 82.94 Monitoring Well and Groundwater Elevation (feet)
- 85 Water-Table Contour
- Groundwater Flow Direction

**FIGURE 6**  
 WATER-TABLE MAP FOR APRIL 22, 1999,  
 BARNET TOWN GARAGE, BARNET, VERMONT, SMS SITE #98-2539.



- MW-3 82.94 Monitoring Well and Groundwater Elevation (feet)
- 85 Water-Table Contour
- Groundwater Flow Direction

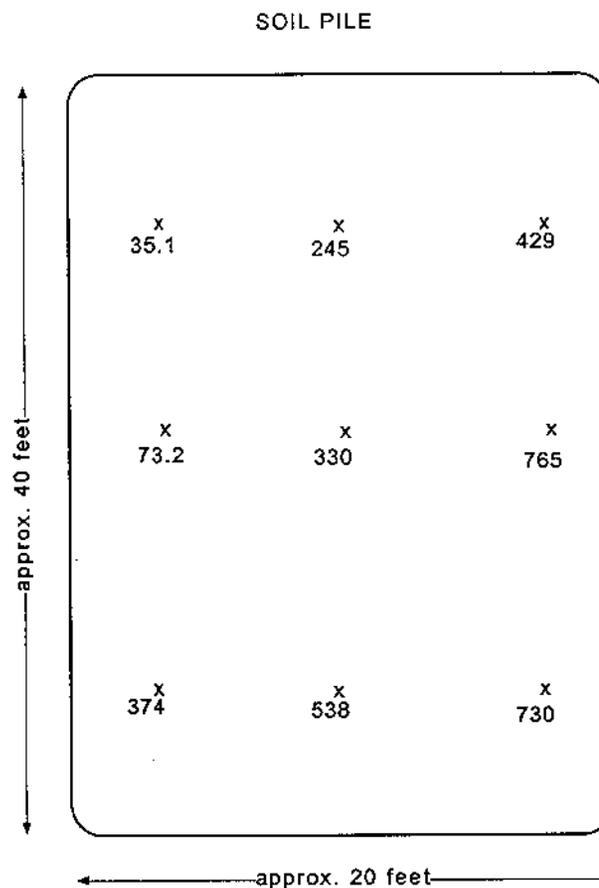
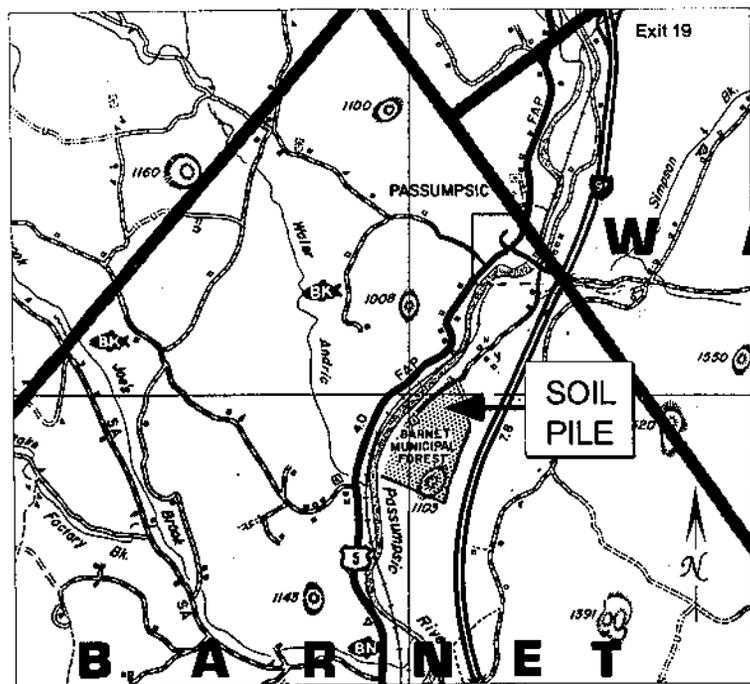
**FIGURE 7**  
**WATER-TABLE MAP FOR APRIL 29, 1999,**  
**BARNET TOWN GARAGE, BARNET, VERMONT, SMS SITE #98-2539.**



Elevations in feet Relative to On-Site Datum

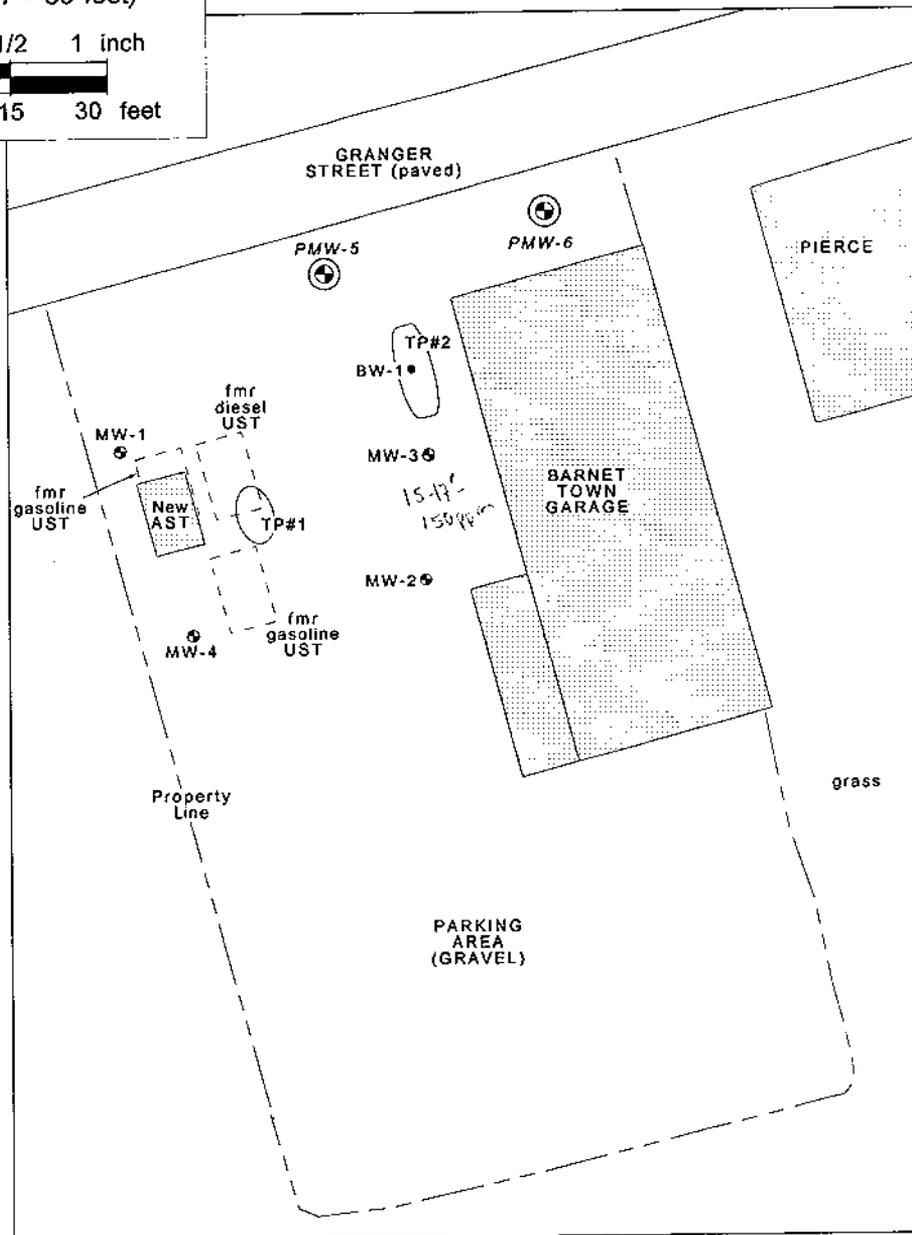
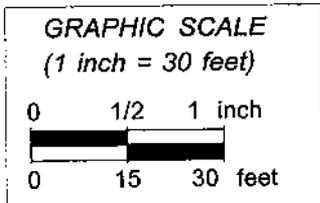
- MW-3 82.94 Monitoring Well and Groundwater Elevation (feet)
- 85 Water-Table Contour
- Groundwater Flow Direction

**FIGURE 8**  
WATER-TABLE MAP FOR MAY 6, 1999,  
BARNET TOWN GARAGE, BARNET, VERMONT, SMS SITE #98-2539.



x SAMPLING LOCATION AND PID  
374 READING IN PARTS PER MILLION

**FIGURE 9**  
SOIL STOCKPILE LOCATION AND PID SCREENING RESULTS,  
BARNET TOWN GARAGE SITE INVESTIGATION, BARNET, VERMONT,  
SMS SITE #98-2539.



-  Former Location of UST
-  TP#1 Backhoe Test Pit
-  BW-1• Monitoring Well Constructed in Test Pit
-  MW-3• Drilled Monitoring Well
-  PMW-5 PROPOSED ADDITIONAL WELL

**FIGURE 10**  
SITE MAP SHOWING PROPOSED ADDITIONAL MONITORING WELLS,  
BARNET TOWN GARAGE,  
BARNET, VERMONT, SMS SITE #98-2539.



State of Vermont

June 24-3871

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

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

January 27, 1999

Mr. William Hoar  
Town of Barnet  
Main Street, Box 15  
Barnet, Vermont 05821

RE: Petroleum Contamination at Town Garage  
Barnet, Vermont  
SMS Site # 98-2539

Dear Mr. Hoar:

The Sites Management Section (SMS) has received and reviewed the workplan to address petroleum contamination at the above referenced site. The workplan was submitted by Hoffer & Associates, Inc. and is dated January 18, 1999.

The SMS concurs with the elements of the workplan and approves its implementation with the following addition. Unless there are extenuating circumstances the SMS requests four monitoring wells be installed and sampled. This is standard for site investigations.

Please note that reimbursement of the costs associated with this work is subject to:

- an initial deductible of \$10,000 deductible;
- stipulations of the Consultants Fee Schedule contained in the *Sites Investigation Guidance Document* dated August 1996; and
- the provisions of the *Procedures for Reimbursement from the Petroleum Cleanup Fund* date September 1995.

If you have any questions, please feel free to call me at (802) 241-3876.

Sincerely,

Chuck Schwer, Supervisor  
Sites Management Section

cc: ~~Mr.~~ Jeff Hoffer, Hoffer & Associates, Inc.

wp2539.WPD

## SCOPE OF WORK for SITE INVESTIGATION

*Prepared For: Town of Barnet  
Site: Barnet Town Garage, Barnet, Vermont  
SMS Site #98-2539  
January 18, 1999*

### INTRODUCTION

This scope of work has been developed by Hoffer & Associates (H&A) for a site investigation at the Barnet Town Garage in Barnet, Vermont (see Figure 1). A site investigation has been requested by the VT Sites Management Section to further evaluate the degree of subsurface petroleum contamination at the site. Three underground storage tanks (USTs) were excavated and removed from the site in October of 1998. Two of the USTs had been used for gasoline storage (1,000 and 550 gallon capacities), and one for diesel storage (550 gallon).

During the removal of the USTs, Wagner Construction reported finding soil contamination. The soil contamination was measured with a photoionization detector (PID), with a maximum concentration of 531 parts per million (ppm). Approximately 70 cubic yards of excavated soil were stockpiled on site. Soils were reported to consist of sand and gravel, and groundwater was encountered at a depth of about 11 feet.

### SCOPE OF WORK

#### General Information and Receptor Identification

We will collect general information pertaining to the site's history and environmental setting. Information on the site's history will be obtained by interviewing Town employees familiar with historical activities at the site. We will obtain and review published and unpublished reports and maps relevant to the site's environmental and hydrogeologic setting.

We will identify receptors in the vicinity of the site which could be impacted by subsurface petroleum contamination originating from the site. This effort will include reviewing the VT Water Supply Division's well database to locate nearby domestic wells, and discussions with Town personnel. Indoor air quality of the site buildings and adjacent residences will be screened with a PID to assess potential impacts. We will also perform a visual survey of downgradient surface waters (Stevens & Connecticut Rivers), and will identify any seeps or springs which may be impacted.

A preliminary site reconnaissance will be performed to identify potential receptors and to select tentative locations for monitoring wells.

#### Soil Borings / Monitoring Well Installations

To preliminarily assess the degree of soil and groundwater contamination, we propose to install three groundwater monitoring wells. We propose to use Tri-State Drilling & Boring (East Burke, VT) to install the wells.

The monitoring wells will be installed under the supervision of H&A personnel. The monitoring wells will be installed using standard hollow-stem auger methods. Split-spoon soil samples will be collected every five feet to allow soil characterization and to screen for contamination both visually and with a PID. All soil samples will be characterized on the basis of color, moisture content, texture, and other pertinent features. Each soil sample will be screened with a PID to measure relative levels of contamination. The boreholes will be advanced to at least five feet below the water-table surface. We anticipate that the water table is between 10 to 15 feet below the ground surface. The wells will be constructed with at least ten feet of factory-slotted PVC well screen, and solid PVC riser. The screen will be placed to intercept the water-table surface, and at least five feet of screen will remain above the water-table surface. After inserting the well screen and riser to the selected depth, a sandpack will be constructed between the well screen and the borehole walls, as the augers are retracted. The sandpack will consist of clean, commercially-sorted sand. The grain size will be selected on the basis of the well screen slot size. The sandpack will extend to at least two feet above the top of the well screen. A bentonite seal will be placed on top of the sandpack, at a minimum thickness of two feet. The remaining annular space will be filled with native material up to approximately two feet below the ground surface. A bentonite seal will be placed near the surface. The well riser will remain just below ground surface, and a steel manway will be cemented in place over the well. After installation, a bailer will be used to bail and surge the well to promote groundwater flow into the well. Between each of the drilling locations, the drilling equipment will be steam-cleaned to prevent cross-contamination.

The well elevations will be surveyed so that depth-to-groundwater measurements within the wells can be converted to elevations. The water-table elevations will be used to prepare water-table maps, indicating the direction of groundwater flow.

### **Groundwater Sampling & Analysis**

H&A personnel will collect groundwater samples from the monitoring wells within two weeks of installing the wells. Prior to sampling, groundwater levels and total well depths will be measured (if free product is suspected, an interface probe will be utilized to measure the thickness of free product). The wells will be purged of three well volumes (or until dry) prior to sample collection. If a well goes dry prior to reaching three volumes, the sample will be collected as the well recharges. Sampling and purging will be conducted with dedicated polyethylene bailers. Samples will be transferred from the bailers into 40 milliliter vials to be provided by the laboratory. The sampling vials will contain hydrochloric acid to preserve the samples. Two vials will be filled for each well. The sample vials will be labeled with the well name, site name, date and time of sampling, and sampler's initials. The sample vials will be placed into a cooler with ice for storage and transport to the laboratory.

Quality assurance/quality control (QA/QC) samples during the groundwater sampling event will include a trip blank, a field blank, and a blind duplicate. The trip blank will be provided by the laboratory. It will be transported with all sample vials to the site, handled in a similar fashion as collected samples, and then accompany the samples back to the laboratory. The field blank will be filled on site by pouring deionized water into sample vials at the conclusion of sampling activities. A blind duplicate will be collected from one of the wells along with the sample from that well, and will be labeled with a fictitious sample name and time. A laboratory chain-of-

custody form and field sampling data sheet will be utilized to document the sampling event. The chain-of-custody form will accompany the samples to the laboratory.

All samples will be analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), methyl-tert-butyl-ether (MTBE), naphthalene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene using EPA Method 8021B. The three monitoring well samples will also be analyzed for total petroleum hydrocarbons (TPH) using EPA Method 8100. We propose to subcontract SCITEST to provide the analytical services.

### **Domestic Well Sampling**

If any private water supplies are identified in the vicinity which may be at risk from site contamination, water samples will be collected from these sources. The samples will be analyzed for the same parameters as the monitoring wells. Our cost estimate includes costs for one domestic well sample.

### **Soil Pile Screening**

During one of our site visits, we will screen the levels of contamination present in the stockpiled soils using a PID. We will also inspect the integrity of the plastic covering the soil pile. We will also assist Town personnel in assessing the integrity and accessibility of the soil stockpile.

### **Summary Report**

The procedures and results of the site investigation efforts will be compiled in a summary report. The report will include all analytical data, maps (site location, area map, and site basemap), detailed well logs, a hydrostratigraphic cross section (if appropriate), a water table map, and isoconcentration contour maps. The potential for site contamination to impact receptors will be discussed. The report will include conclusions and recommendations concerning the need for long-term monitoring and/or additional site investigation efforts, or remedial efforts.

All work will be performed in accordance with the VT Agency of Natural Resources document "Site Investigation Guidance". Any major changes from the scope of work will be reviewed or discussed with Sites Management Section personnel.

### **COST ESTIMATE**

The estimated costs for this site investigation are as follows:

|                     |            |
|---------------------|------------|
| Hoffer & Associates | \$2,321.17 |
| Well Contractor     | \$1,909.20 |
| Laboratory          | \$ 550.00  |

**TOTAL \$4,231.20**

Table 2 provides a detailed breakdown of these costs. This cost estimate does not include a mark up on sub-contractor's fees, and assumes that the Town of Barnet will contract the well contractor and laboratory directly. If these services are sub-contracted by Hoffer & Associates,

the fees will be marked up by 10%. Since our work will be billed on a time and expense basis, not to exceed our cost estimate, the actual cost may be lower.

#### **SCHEDULE**

We anticipate that this site investigation can be completed within eight to ten weeks of authorization to proceed.

Stone

Bank Run - Crusher Run Gravel

Topsoil

**WAGNER'S CONSTRUCTION**

Div. of Wagner's Sales &amp; Service, Inc.

Excavation, Landscaping, Roads, Ponds, Snow Plowing  
 Complete Loader, Dozer, Back-Hoe, Excavator, Dump Truck & Wood Chipping Services  
 U.S.T. Removals, Cleaning & Environmental Site Assessments

Oct 27 10 59 AM '98

Quality Work

Reasonable Prices

P.O. Box 23, West Burke, Vermont 05871

Phone/Fax 802-467-3445

Jeff Hoffe

229-2780

8 Pass

October 23, 1998

Vermont Agency of Natural Resources  
 Dept. of Environmental Conservation  
 Waste Management Division  
 103 South Main Street  
 Waterbury, Vt. 05671-0404

RE: Site Assessment for Town of Barnet  
 DATE: UST Removal - October 15, 1998

Dear Ted:

When we arrived at the site we found that the tanks had not been pumped out. We told personnel there that the tanks needed to be pumped out immediately and they called Northern Petroleum. I called your office on approx. 10/01/98 to schedule the tank pull. At that time I also notified the town clerk of the removal date and also to be sure the tanks were pumped out. I also called Leigh Larocque, Chairman of the selectboard. Three or four days prior to the tank pull date I phoned Leigh to be sure the tanks would be pumped out before we arrived.

As you know, from the first inspection we knew we were going to be dealing with contaminated soil. With your assistance we were able to locate a suitable site to encapsulate this material. At first we felt we were only dealing with surface contamination caused by spillage and overfilling. As the job progressed, we realized we were dealing with a much wider area of contamination and at a higher degree than we could have envisioned.

It became obvious that we were going to need another roll of 40' X 100' 6 ml. black plastic. The road foreman went to pick this up for us.

We removed the gas and diesel pumps and checked the soils. We shoveled the contaminated soil into the excavator bucket and then dumped it directly into the town dump trucks that transported it to the encapsulated site. My employees supervised the placing of contaminated soil on the plastic so it did not rip. It was done as you suggested, by rolling the plastic up and backing the truck up to the edge of the roll, moving ahead and dumping slowly as personnel rolled out the plastic. I had the town loader operator build a small berm of sand around the encapsulated site so that we could bring the plastic layer up on that, forming a bowl. The contaminated soil is then leveled off and graded up against the berm, leaving the top surface level. If it is not level, snow and water will rip the clear plastic on top. The clear plastic should continue over the edge of the berm and be weighted down so

"Two Generations to Serve You Better"

Thank You!

the wind could not blow it off. The encapsulation site is at the town gravel pit. Access is controlled by a gate that is locked at night. Road Foreman Arnold Nunn said he would obtain Greenhouse grade clear plastic and cover the encapsulated soil as we described.

We slowly removed the concrete bases for the diesel and gas pumps and placed them on a layer of black plastic to be cleaned later.

We excavated around the gas tank slowly, testing the soil as we went and loading the most highly contaminated soil into the trucks to be encapsulated. The enclosed diagram will show the location of soil tests and their respective contamination levels. We uncovered the tanks and Northern Petroleum Company pumped them out to recover as much usable product as possible. Next we carefully excavated around the gas tank, taking and testing soil samples as we went. Oddly enough, the gas pump was located directly over the diesel tank. Tests confirmed that this tank did not leak. After all product and water was pumped from the tank, we proceeded to purge the tank using Dry Ice and our standard procedures. When the oxygen level was below 5 % we cut the end out of the tanks and used a Wet-Vac to remove all liquid and sludge possible. An employee trained in UST cleaning and confined space entry entered the tank. He was protected by wearing a Tyvac Suit, rubber boots & gloves, and using the supplied air system. He cleaned the inside of the tank using a Bio-Solve & water solution under 3500 PSI. These washings were removed to a drum and the inside is again scrubbed using a stronger Bio-Solve solution and these washings removed. The burner is turned on and the tank is re-washed with a 210 degree solution of Bio-Solve and water under 3500 PSI. These washings are removed and the tank is dried w/absorbent towels. The tank is then lifted from the hole and all loose material is scraped off. The tank is now ready for salvage and this will be handled by the town road crew. We tested the soil directly under the tank. Those tests were 14 and 6 PPM respectively.

We then removed the diesel tank using the same procedures as with the gasoline tank. The diesel tank apparently had leaked as the contamination levels were extremely high underneath it, especially toward the gas tank. This was confusing because the gas tank did not leak. I will address this additional source of contamination later. As we were removing and checking soils, we found another old tank as shown in the site diagram. This tank had not been used for some time. It had a hole in the top, covered with a piece of tin. This had leaked as was evident because of the high contamination levels of the soil under the tank. We removed the worst of this soil to be encapsulated. At a point 3' below the tank bottom, the contamination leveled out @ 40 PPM. Since we had a much higher contamination level toward the road, a Northeasterly direction from the tanks, we did not remove any more from that area but backfilled it w/clean sand. This tank was cleaned as the others were, but it was much more difficult due to the amount of oil, sludge & dirt that had fallen in. It took more Bio-Solve than the other 2 tanks, but we got it clean. Next we cleaned all of the piping, both filler & breather pipes with a hot Bio-Solve & water solution under 3500 PSI. We

also placed the concrete base for the diesel pump on plastic and washed it because it was coated with old diesel fuel and soil. When it was cleaned we put it out of the way, folded up the plastic containing the washing and put it in a drum with the solids.

We returned to the source of the severest contamination by the diesel tank site. We excavated toward the road and the soil smelled of gasoline so badly that it would almost support combustion. I took samples that were in excess of 1000 PPM. I asked some of the employees if there had ever been a UST there containing gasoline. They recalled that indeed one had been there but it was probably removed in the 1970's. Normally when a UST leaks, it is usually from the bottom and the contamination levels are higher near the bottom of the tank. This soil was almost as highly contaminated 1 1/2' below the surface as it was 6' below the surface. The only way I could envision this type of contamination is if during the removal of the tank it was breached in some way, causing the release of a substantial amount of gasoline that was then mixed with the backfill material. We removed the worst of this material, but not all of it. I feel it was not feasible to try to remove all of the soil. We did encapsulate approximately 70 cubic yards of the worst soil.

In closing, I suggest the town hire a Hydrogeologist and drill a series of test holes around and downgradient from the contamination zone. By testing soils and water they can determine the extent to which the contamination has spread. The homes and the town garage are on town water, but the basements of homes downgradient of the contamination zone could be receptors. I did not install any monitoring wells because I felt they should be installed by the Hydrogeologist in locations they choose.

I would like to say that I greatly appreciated the cooperation of Road Foreman Arnold Nunn and all of the road crew. They made a very difficult job a lot easier.

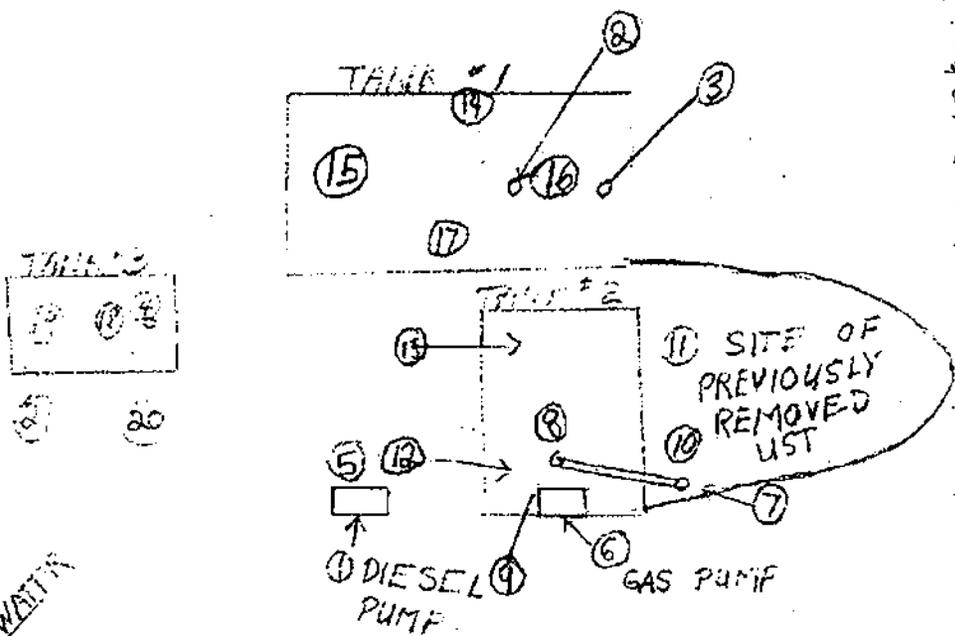
Sincerely,

*George R. Wagner*  
George R. Wagner  
Environmental Consultant

# SOIL TESTS & RESULTS

# TEST # - TIME - RESULTS - LOCATION

- 1 - 1:06 PM - 20 PPM - UNDER DIE PUMP
- 2 - 1:06 - 10" 2" BELOW GRADE
- 3 - 1:10 - 20" - TOP OF GAS TANK
- 4 - 2:52 - 28" - TOP OF TANK # 3
- 5 - 3:01 - 12" - 12" BELOW GRADE AT 6
- 6 - 3:09 - 200" - BASE OF PUMP STAND PIPE
- 7 - 3:12 - 10" - BASE OF DIESEL VENT PIPE
- 8 - 3:14 - 14" - TOP OF TANK AT FILLER PIPE
- 9 - 3:19 - 110" - TOP OF TANK AT OUTLET PIPE
- 10 - 3:23 - +1000" - 5' BELOW GRADE IN CLAY
- 11 - 3:28 - +1000" - 3' BELOW TOP OF TANK IN CH
- 12 - 4:25 - 63" - BOTTOM OF TANK
- 13 - 3:37 - +1000" - BOTTOM OF TANK
- 14 - 2:22 - 8" - TOP OF TANK AT FILLER
- 15 - 2:53 - 14" - BOTTOM OF GAS TANK
- 16 - 2:55 - 6" - BOTTOM OF GAS TANK
- 17 - 3:45 - 8" - BOTTOM OF TANK IN SAND
- 18 - 5:48 - 38" - 3" BELOW BOTTOM OF TANK
- 19 - 5:52 - 90" - 3" BELOW BOTTOM OF TANK
- 20 - 6:01 - 40" - 3' BELOW BOTTOM OF TANK
- 21 - 6:09 - 40" - 3' BELOW BOTTOM OF TANK



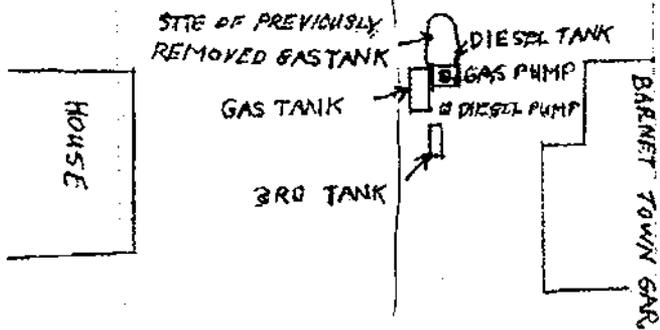
GROUND WATER FLOW

NOT TO SCALE

APR-07-1999 03:44 FROM WASTE MANAGEMENT DIVISION TO 32222732 P.04

SMALL BROOK ↗

T.H. 102



OPEN  
LAND

## VERMONT NOTIFICATION FOR UNDERGROUND STORAGE TANKS

- READ INSTRUCTION PAGE CAREFULLY BEFORE COMPLETING THIS FORM -

PLEASE TYPE OR PRINT IN INK ALL ITEMS EXCEPT "SIGNATURE" IN SECTION VI ON PAGE 2.  
SEPARATE NOTIFICATION MUST BE FILED FOR TANKS OWNED AT A DIFFERENT LOCATION.  
FOR ADDITIONAL INFORMATION, CALL THE VERMONT UNDERGROUND STORAGE TANK PROGRAM AT (802) 828-3395.

|  |                   |                     |                          |  |   |   |  |
|--|-------------------|---------------------|--------------------------|--|---|---|--|
| <b>I. OWNERSHIP OF TANKS</b>   |                   |                     |                          | <b>III. SITE LEAK HISTORY</b> <small>(COMPLETE THIS SECTION ONLY IF APPLICABLE)</small>                    |   |   |  |
| NAME (CORPORATION, INDIVIDUAL, PUBLIC AGENCY OR OTHER ENTITY)<br>Town of Barnet  |                   |                     |                          | YEAR OF LEAK   |   | ESTIMATE OF QUANTITY<br>LEAKED IN GALLONS           |  |
| STREET ADDRESS<br>U. S. Route #5   |                   |                     |                          | SUBSTANCE LEAKED   |   |   |  |
| TOWN OR CITY<br>Barnet   |                   | COUNTY<br>Caledonia |                          | SOURCE OF LEAK (CHECK ALL THAT APPLY)  |   |   |  |
| STATE<br>Vermont   | TIP CODE<br>05821 | AREA CODE<br>(802)  | PHONE NUMBER<br>633-2256 | <input type="checkbox"/> TANK  | <input type="checkbox"/> PUMP                     | <input type="checkbox"/> OVERFILL                   |  |
|  |                   |                     |                          | <input type="checkbox"/> PIPING  | <input type="checkbox"/> TRANSFER                 | <input type="checkbox"/> OTHER                      |  |
| <b>II. CONTACT PERSON</b> <small>(PERSON RESPONSIBLE FOR DAY-TO-DAY OPERATION OF TANKS)</small>  |                   |                     |                          | CONTAMINATION (CHECK ALL THAT APPLY)   |   |   |  |
| NAME (IF NAME AS IN SECTION I, CHECK BOX HERE <input type="checkbox"/> )<br>William E. Hoar  |                   |                     |                          | SOIL <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DON'T KNOW          |   |   |  |
| JOB TITLE<br>Town Clerk  |                   |                     |                          | GROUNDWATER <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DON'T KNOW   |   |   |  |
| AREA CODE PHONE NUMBER<br>(802) 633-2256   |                   |                     |                          | SURFACE WATER <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DON'T KNOW |   |   |  |
| STREET ADDRESS<br>P. O. Box 15   |                   |                     |                          | CORRECTIVE ACTION (CHECK ALL THAT APPLY)   |   |   |  |
| TOWN OR CITY<br>Barnet   |                   |                     |                          | <input type="checkbox"/> PRODUCT RECOVERY WELLS INSTALLED  |   |   |  |
| COUNTY<br>Caledonia  |                   |                     |                          | <input type="checkbox"/> SURFACE WATER CONTAINMENT USED  |   |   |  |
| STATE<br>Vermont   |                   |                     |                          | <input type="checkbox"/> CONTAMINATED SOIL EXCAVATED   |   |   |  |
| TIP CODE<br>05821  |                   |                     |                          | <input type="checkbox"/> TANK REPLACED   |   |   |  |
|  |                   |                     |                          | <input type="checkbox"/> PIPING REPLACED   |   |   |  |
|  |                   |                     |                          | <input type="checkbox"/> NO ACTION TAKEN   |   |   |  |
|  |                   |                     |                          | <input type="checkbox"/> OTHER (SPECIFY)   |   |   |  |
| <b>IV. LOCATION OF TANKS</b>   |                   |                     |                          |  |   |   |  |
| FACILITY NAME OR OTHER SITE IDENTIFIER, AS APPLICABLE<br>Barnet Town Garage  |                   |                     |                          | TYPE OF FACILITY (CHECK ONE)   |   |   |  |
| STREET ADDRESS, STATE ROAD, R. R. #, AS APPLICABLE<br>Town Highway #102  |                   |                     |                          | <input type="checkbox"/> INSTITUTIONAL   | <input type="checkbox"/> RETAIL/CONVENIENCE STORE |   |  |
| TOWN OR CITY<br>Barnet   |                   |                     |                          | <input type="checkbox"/> BULK PLANT  | <input type="checkbox"/> INDUSTRIAL/COMMERCIAL    |   |  |
| COUNTY<br>Caledonia  |                   |                     |                          | <input type="checkbox"/> STATE   | <input type="checkbox"/> RESIDENTIAL              |   |  |
| STATE<br>Vermont   |                   |                     |                          | <input checked="" type="checkbox"/> TOWN   | <input type="checkbox"/> SERVICE STATION          |   |  |
| TIP CODE<br>05821  |                   |                     |                          | <input type="checkbox"/> FARM  |   |   |  |
| NUMBER OF TANKS AT THIS LOCATION<br>0  |                   |                     |                          | <input type="checkbox"/> FEDERAL (GIVE FACILITY I.D. NO.)  |   |   |  |
| NAME OF LANDOWNER<br>Town of Barnet  |                   |                     |                          | <input type="checkbox"/> OTHER (SPECIFY)   |   |   |  |
| USE THIS SPACE TO SKETCH AND/OR VERBALLY DESCRIBE FACILITY LOCATION. INCLUDE ESTIMATED DISTANCES TO CENTER LINE OF ROADS, BUILDINGS, STREAMS AND OTHER LANDMARKS. USE DIRECTIONAL DESCRIPTORS (NORTH, SOUTH, ETC.) WHERE APPLICABLE. |                   |                     |                          |  |   |   |  |
|  |                   |                     |                          |  |   |   |  |
| <b>LOCAL USE ONLY</b>  |                   |                     |                          | <b>STATE USE ONLY</b>  |   |   |  |
| FACILITY I.D. NO. _____ WAS  |                   |                     |                          | <input checked="" type="checkbox"/> FIRST <input type="checkbox"/> AMENDED                                 |   |   |  |
| RECORDED ON <u>June 10, 1986</u> IN  |                   |                     |                          | FACILITY IDENTIFICATION NUMBER<br><u>0000782</u>   |   |   |  |
| BOOK NO. <u>74</u> PAGE <u>135</u>   |                   |                     |                          | DATE RECEIVED<br><u>4/29/86</u>  |   | APPROVED<br><u>6/17/86</u> <input type="checkbox"/> |  |
| OF THE <u>BARNET</u> LAND RECORDS.<br><small>(TOWN)</small>  |                   |                     |                          | RECEIVED BY<br><u>Ed Drapp</u>   |   |   |  |
| <u>William E. Hoar</u><br>SIGNATURE OF TOWN OR CITY OFFICER  |                   |                     |                          |  |   |   |  |

Facility ID# 788

Section D: Tanks/Piping Remaining/installed NONE

Regardless of size, include USTs at site as to \*status, e.g. "abandoned", "in use", or "to be installed". (Most installations require permits and advance notice to this office.)

| UST# | Product | Size(gallons) | Tank age | *Tank status | Piping age | *Piping Status |
|------|---------|---------------|----------|--------------|------------|----------------|
|      |         |               |          |              |            |                |
|      |         |               |          |              |            |                |
|      |         |               |          |              |            |                |

There are no other tanks at this site.

Section E. Statements of UST closure compliance:  
(must have both signatures or site assessment not complete)

As the party responsible for compliance with the Vermont UST Regulations and related statutes at this facility, I hereby certify that the all of the information provided on this form is true and correct to the best of my knowledge.

Arnold James Road  
Signature of UST owner or owner's authorized representative

10/15/98  
Date of signature

As the environmental consultant on site, I hereby certify that the site assessment requirements were performed in accordance with DEC policy and regulations, and that information which I have provided on this form is true and correct to the best of my knowledge.

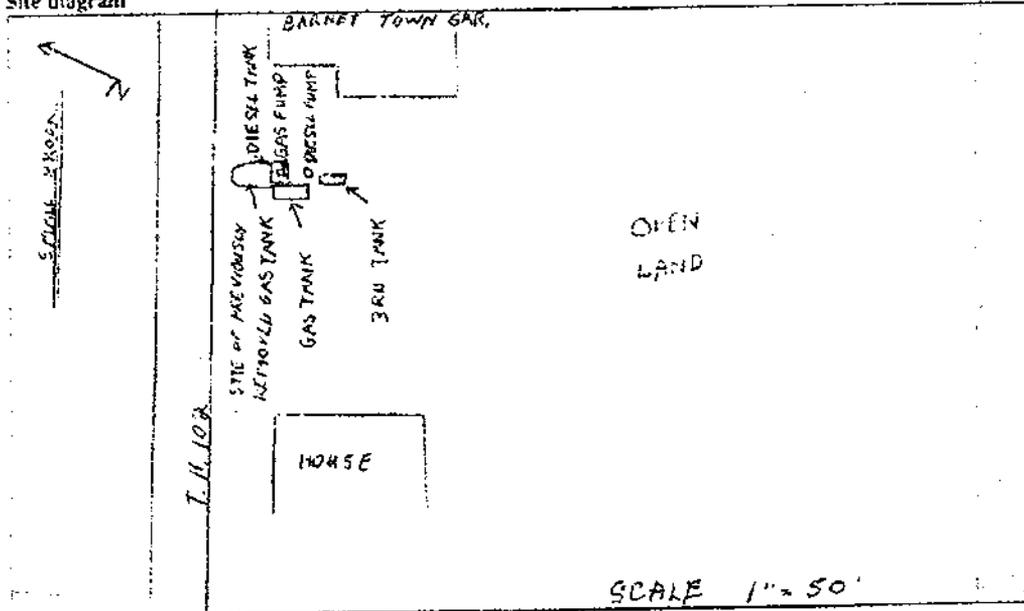
George R. Wagner  
Signature of Environmental Consultant  
Company: Wagner Const Co.  
Telephone #: 802-467-1445

10/20/98  
Date of signature

Date of Closure: 10/15/98 Date of Assessment: 10/15/98

Return form along with complete narrative report and photographs to the Department of Environmental Conservation(DEC), Underground Storage Tank Program within 72 hours of closure.

Site diagram



This Closure Form may only be issued for the facility and the date indicated at top of page 1. Changes in the scheduled closure date should be phoned in at least 48 hours in advance. Both the yellow and white copies of this form must be returned to the address on the top of page 1 of this form; the pink copy should be retained by the UST owner. A written report from an environmental consultant covering all aspects of closure and site assessment, complete with photographs and any other relevant data, must accompany this form. All procedures must be conducted by qualified personnel, to include training required by 29 CFR 1910.120. Documentation of all methods and materials used must be adequate. All work must be performed in compliance with DEC policy "UST Closure and Site Assessment Requirements" as well as all applicable statutes, regulations, and additional policies. The DEC may reject inadequate closure forms and reports.

**SOIL BORING / MONITORING WELL CONSTRUCTION LOG**

**WELL BORING ID: MW-1**

|                         |                               |
|-------------------------|-------------------------------|
| <b>Client / Site:</b>   | Town of Barnet/Town Garage    |
| <b>Location:</b>        | 25 Granger Street, Barnet, VT |
| <b>Project Number:</b>  | 101-01                        |
| <b>Driller:</b>         | Tri-State Drilling and Boring |
| <b>Drilling Method:</b> | 6.25-inch HSA                 |
| <b>Geologist:</b>       | Jeff Hoffer                   |
| <b>Sampling Method:</b> | 2" Split Spoons, 5' centers   |
| <b>Date:</b>            | 4/2/99                        |
| <b>Weather:</b>         | Overcast, 50 degrees          |
| <b>Boring Location:</b> | 5' from AST (upgradient)      |

| Well Construction Information       |                                   |
|-------------------------------------|-----------------------------------|
| <b>Total Depth Drilled:</b>         | 30' BGS                           |
| <b>Screen Type/Interval:</b>        | 2" PVC, 20-Slot, 10 - 20 feet BGS |
| <b>Riser Type/Interval:</b>         | 2" PVC, 10 - 0.5 feet BGS         |
| <b>Sandpack Type/Interval:</b>      | #1 sand / 30 to 8.0 feet BGS      |
| <b>Seal Type/Interval:</b>          | Bentonite chips/ 8.0' - 5.0' BGS  |
| <b>Water Level/Elev./Date/Time:</b> | 16.14' BTOC, 4/22/99              |
| <b>Elevation Ground:</b>            |                                   |
| <b>Elevation TOC:</b>               | 100.00 (arbitrary)                |
| <b>Other:</b>                       |                                   |

| SOIL SAMPLE DESCRIPTION       |                                     |                    |                                    |   |                         |                          |
|-------------------------------|-------------------------------------|--------------------|------------------------------------|---|-------------------------|--------------------------|
| Sample Interval<br>(feet BGS) | Blow counts /<br>Recovery<br>(feet) | Recovery<br>(feet) | Approximate<br>Depth<br>(feet BGS) | Sample Description (color, texture, moisture, etc.)   | USDA<br>Soil<br>Texture | PID<br>Reading*<br>(ppm) |
| auger flights                 |                                     |                    | 0 - 3                              | brown silty sand and gravel, moist at three feet  | sandy loam              | 0.0                      |
| 5.0 - 7.0                     | 3-4-5-5<br>(1.5)                    | 1.5                | 5.0 - 7.0                          | olive-brown silty fine sand, distinct mottling throughout<br>wet in sandy layers                        | loam                    | 0.0                      |
| auger flights                 |                                     |                    |                                    | harder drilling at 8.5-9.0' (gravel?)   |                         |                          |
| 10.0 - 12.0                   | 6-14-14-15<br>(1.0)                 | 1.0                | 10 - 11                            | gravel (60% to 80%), med. sand (20% to 40%), dry, pebbles<br>to 2-inch diameter, gravel is well-rounded | gravely sand            | 0.0                      |
| auger flights                 |                                     |                    |                                    | easier drilling below 13.5 to 14.0 feet (out of gravel?)  |                         |                          |
| 15.0 - 17.0                   | 2-1-1-2<br>(2.0)                    | 1.75<br>0.25       | 15.0 - 16.75<br>16.75 - 17.0       | olive-brown clayey silt (massive), moist<br>bluish-gray clayey silt, moist                              | silt loam<br>silt loam  | 0.0<br>0.0               |
| 20.0 - 22.0                   | 3-2-2-4 (2.0)                       | 2.0                | 20 - 22.0                          | bluish-gray silty clay, clay, some fine sand laminae, moist   | silty clay              | 0.0                      |
| 25.0 - 27.0                   | 2-3-4-4 (2.0)                       | 2.0                | 25.0 - 27.0                        | bluish-gray silty clay, clay, some fine sand laminae, moist   | silty clay              | 0.0                      |
| 30.0 - 32.0                   | 2-2-2-3 (2.0)                       | 2.0                | 30.0 - 32.0                        | bluish-gray clayey silt and silty clay, moist   | silty clay              | 0.0                      |

**Generalized Geologic Log and Other Observations:**

- 0 - 3 feet, brown silty sand and gravel (fill?)
- 3 - 8.5 feet, olive-brown silty fine sand, mottled, wet in sandy layers
- 8.5 - 13.5 feet, brown gravel and sand, dry
- 13.5 - 16.75 feet, olive-brown clayey silt (oxidized), moist
- 16.75 - 32 feet, bluish-gray silty clay, moist

**Notes:**

\* = Peak Headspace Reading, Photovac MicroTIP with 10.6 eV lamp, calibrated to isobutylene.  
 BGS = Below Ground Surface, BTOC = below top of casing, NR = No Recovery, NS = not sampled

**SOIL BORING / MONITORING WELL CONSTRUCTION LOG**

WELL BORING ID: MW-2

|                         |                               |
|-------------------------|-------------------------------|
| <b>Client / Site:</b>   | Town of Barnet/Town Garage    |
| <b>Location:</b>        | 25 Granger Street, Barnet, VT |
| <b>Project Number:</b>  | 101-01                        |
| <b>Driller:</b>         | Tri-State Drilling and Boring |
| <b>Drilling Method:</b> | 6.25-inch HSA                 |
| <b>Geologist:</b>       | Jeff Hoffer                   |
| <b>Sampling Method:</b> | 2" Split Spoons, 5' centers   |
| <b>Date:</b>            | 4/2/99                        |
| <b>Weather:</b>         | Overcast, 50 degrees          |
| <b>Boring Location:</b> | 5' from garage door           |

| Well Construction Information       |                                   |
|-------------------------------------|-----------------------------------|
| <b>Total Depth Drilled:</b>         | 20' BGS                           |
| <b>Screen Type/Interval:</b>        | 2" PVC, 20-Slot, 10 - 20 feet BGS |
| <b>Riser Type/Interval:</b>         | 2" PVC, 10 - 0.5 feet BGS         |
| <b>Sandpack Type/Interval:</b>      | #1 sand / 200 to 8.0 feet BGS     |
| <b>Seal Type/Interval:</b>          | Bentonite chips/ 8.0' - 5.0' BGS  |
| <b>Water Level/Elev./Date/Time:</b> | 15.54 feet BTOC, 4/3/99           |
| <b>Elevation Ground:</b>            |                                   |
| <b>Elevation TOC:</b>               | 97.98 feet                        |
| <b>Other:</b>                       |                                   |

| SOIL SAMPLE DESCRIPTION       |                               |                    |                                    |   |                         |                          |
|-------------------------------|-------------------------------|--------------------|------------------------------------|---|-------------------------|--------------------------|
| Sample Interval<br>(feet BGS) | Blow Counts per<br>six-inches | Recovery<br>(feet) | Approximate<br>Depth<br>(feet BGS) | Sample Description (color, texture, moisture, etc.)       | USDA<br>Soil<br>Texture | FID<br>Reading*<br>(ppm) |
| auger flights                 |                               |                    | 0 - 3                              | brown silty sand and gravel, moist at three feet          | sandy loam              | 0.0                      |
| 5.0 - 7.0                     | 2-2-3-5                       | 1.5                | 5.0 - 7.0                          | brown to olive-brown silt loam and fine sandy loam, dry   | silt loam               | 0.0                      |
| 10.0 - 12.0                   | 2-3-3-5                       | 1.0                | 10 - 11                            | brown fine sand and silt, oxidized, wet but not saturated | sandy loam              | 0.0                      |
| 15.0 - 17.0                   | 4-5-9-13                      | 0.3                | 15 - 16                            | brown sand and gravel, wet                                | gravelly sand           | 0.0                      |
| 20.0 - 22.0                   | 2-2-2-2                       | 2.0                | 20 - 22.0                          | bluish-gray silty clay, moist                             | silty clay              | 0.0                      |

**Generalized Geologic Log and Other Observations:**

- 0 - 3 feet, brown silty sand and gravel (fill?)
- 3 - 15 feet, olive-brown silty fine sand, mottled, wet in sandy layers
- 15 - 18 feet, brown sand and gravel, wet
- 18 - 22 feet, bluish-gray silty clay, moist

**Notes:**

\* = Peak Headspace Reading, Photovac MicroTIP with 10.6 eV lamp, calibrated to isobutylene.  
 BGS = Below Ground Surface, BTOC = below top of casing, NR = No Recovery, NS = not sampled

**SOIL BORING / MONITORING WELL CONSTRUCTION LOG**

**WELL BORING ID: MW-3**

|                         |   |
|-------------------------|---|
| <b>Client / Site:</b>   | Barnet Town, Town Garage UST Invest.      |
| <b>Location:</b>        | Barnet Town Garage                        |
| <b>Project Number:</b>  | 101-01                                    |
| <b>Driller:</b>         | Wayne Ault, Tri-State Drilling and Boring |
| <b>Drilling Method:</b> | 4.25-inch HSA                             |
| <b>Geologist:</b>       | Tim Schmalz                               |
| <b>Sampling Method:</b> | 2" Split Spoons, 5' centers               |
| <b>Date:</b>            | 4/14/99                                   |
| <b>Weather:</b>         | Cool (40s), overcast, windy               |
| <b>Boring Location:</b> | near test pit near garage entrance        |

| Well Construction Information  |                                      |
|--------------------------------|--------------------------------------|
| <b>Total Depth Drilled:</b>    | 20' BGS                              |
| <b>Screen Type/Interval:</b>   | 2.0" PVC, 10-slot, 20.0' - 10.0' BGS |
| <b>Riser Type/Interval:</b>    | 2.0" sch. 40 PVC / 10.0' - 0.3' BGS  |
| <b>Sandpack Type/Interval:</b> | #1 sand / 20.0' - 8.0' BGS           |
| <b>Seal Type/Interval:</b>     | Bentonite chips / 8.0' - 6.0' BGS    |
| <b>Water Level/Date/Time:</b>  | 16.11' BTOC, 4/22/99                 |
| <b>Elevation Ground:</b>       |                                      |
| <b>Elevation TOC:</b>          | 99.05                                |
| <b>Other:</b>                  |                                      |

| SOIL SAMPLE DESCRIPTION    |                             |                 |                              |   |                     |                    |
|----------------------------|-----------------------------|-----------------|------------------------------|---|---------------------|--------------------|
| Sample Interval (feet BGS) | Blow Counts / Recovery (ft) | Recovery (feet) | Approximate Depth (feet BGS) | Sample Description (color, texture, moisture, etc.)   | USDA Soil Texture   | PID Reading* (ppm) |
| 10.0 - 12.0                | 3-4-3-5<br>1.2              | 1.2             | 10.0 - 11.2                  | Gray and brown mottled, slightly moist to wet, layered fine sand and silt, soft (80% fine sand, 20% silt and clay). | loamy sand          | 0.0                |
| 15.0 - 17.0                | 6-8-8-14<br>0.6             | 0.6             | 15.0 - 15.6                  | Gray, wet, loose sandy gravel (60% f to m rounded to subang. poorly sorted gravel, 20% sand, 20 % silt and clay).   | gravelly sandy loam | 158.0              |
| 20.0 - 22.0                | 2-2-1-5<br>2.0              | 2.0             | 20.0 - 22.0                  | Gray, slightly moist, stiff silt and clay (100% silt and clay).   | silty clay          | 0.0                |

**Generalized Geologic Log and Other Observations:**

0.0' - 10.0' Augered through brown silty gravel and sand fill, slightly moist material.  
 10.0' - 17.0' Silty sand and gravel. Strong petroleum odors and sheens on spoons and cuttings from 13', wet below 12' BGS.  
 17.0' - 22.0' Gray lacustrine silt and clay.

**Notes:**

\* = Peak Headspace Reading, Photovac 2020 with 10.6 eV lamp, calibrated to Isobutylene.  
 BGS = Below Ground Surface, NR = No Recovery, NS = not sampled

**SOIL BORING / MONITORING WELL CONSTRUCTION LOG**

**WELL BORING ID: MW-4**

|                         |   |
|-------------------------|---|
| <b>Client / Site:</b>   | Barnet Town, Town Garage UST Invest.      |
| <b>Location:</b>        | Barnet Town Garage                        |
| <b>Project Number:</b>  | 101-01                                    |
| <b>Driller:</b>         | Wayne Ault, Tri-State Drilling and Boring |
| <b>Drilling Method:</b> | 4.25-inch HSA                             |
| <b>Geologist:</b>       | Tim Schmalz                               |
| <b>Sampling Method:</b> | 2" Split Spoons, 5' centers               |
| <b>Date:</b>            | 4/14/99                                   |
| <b>Weather:</b>         | Coal (40), overcast, windy                |
| <b>Boring Location:</b> | near former USTs?                         |

| Well Construction Information  |                                     |
|--------------------------------|-------------------------------------|
| <b>Total Depth Drilled:</b>    | 20' BGS                             |
| <b>Screen Type/Interval:</b>   | 2.0" PVC, 10-slot, 19.7' - 9.7' BGS |
| <b>Riser Type/Interval:</b>    | 2.0" PVC, 9.7' - 0.3' BGS           |
| <b>Sandpack Type/Interval:</b> | #1 sand / 20.0' - 8.0' BGS          |
| <b>Seal Type/Interval:</b>     | Bentonite chips/ 8.0' - 6.0' BGS    |
| <b>Water Level/Date/Time</b>   | 14.45' BTOC, 4/22/99                |
| <b>Elevation Ground:</b>       |                                     |
| <b>Elevation TOC:</b>          | 99.62                               |
| <b>Other:</b>                  |                                     |

| SOIL SAMPLE DESCRIPTION    |                             |                 |                              |   |                         |                    |
|----------------------------|-----------------------------|-----------------|------------------------------|---|-------------------------|--------------------|
| Sample Interval (feet BGS) | Blow Counts / Recovery (ft) | Recovery (feet) | Approximate Depth (feet BGS) | Sample Description (color, texture, moisture, etc.)   | USDA Soil Texture       | PID Reading* (ppm) |
| 5.0 - 7.0                  | 2-3-3-3<br>1.4              | 1.4             | 5.0 - 6.4                    | Brown, soft, wet fine to medium sand and silt (fill?) (90% sand, 10% silt and clay).  | loamy sand to sand      | 0.3                |
| 10.0 - 12.0                | 7-11-10-7<br>1.1            | 0.5             | 10.0 - 10.5                  | Same (as above)   | loamy sand to sand      | 0.0                |
|                            |                             | 0.6             | 10.5 - 11.1                  | Brown, loose, slightly moist, coarse gravel and sand (fill?), Fe staining, (50% angular gravel, 40% sand, 10% silt and clay). | gravelly sand           | 2.0                |
| 15.0 - 17.0                | 2-1-1-3<br>1.6              | 1.6             | 15.0 - 16.6                  | Gray-brown, wet, stiff silt and clay, trace fine sand (90% silt and clay, 10% fine sand), top is sandier.                     | silt loam to silty clay | 0.2                |
| 20.0 - 22.0                | 2-2-2-3<br>2.0              | 2.0             | 20.0 - 22.0                  | Same (as above), moist.   | silt loam to silty clay | 0.0                |

**Generalized Geologic Log and Other Observations:**

0.0' - 5.0': Parking lot material-coarse to fine angular gravel with sand and silt. (perhaps to 10?)  
 5.0' - 11.5': Loose brown alluvium or possibly fill.  
 11.5' - 22.0': Stiff lacustrine clay and silt, trace fine sand, wet from 12.0 feet BGS.

**Notes:**

\* = Peak Headspace Reading, Photovac 2020 with 10.6 eV lamp, calibrated to Isobutylene.  
 BGS = Below Ground Surface, NR = No Recovery, NS = not sampled

**TEST PIT LOGS - BARNET TOWN GARAGE**  
**April 2, 1999**

**TP-1 (near edge of former UST area)**

**TEST PIT LOG**

0 - 5 feet, brown sand and gravel (backfill), dry, strong petroleum odor

5 - 8 feet, bluish-gray silty clay, dry

**TP-2**

**TEST PIT LOG**

0 - 2 feet, gray-brown sand

2 - 10 feet, olive-brown silty fine sand and clayey silt,

10 - 12 feet, as above soil texture, but mottled, moist

no PID reading above background

Set 2-inch PVC observation well, 20-slot screen from 2 - 12 feet

flush mount

4/3/99, no water to depth of 11.9 feet below top of pipe

elev. of top of casing = 98.31



ANALYTICAL REPORT

P.O. Box 339  
Randolph, Vermont 05060-0339  
(802) 728-6313  
(802) 728-6044 (fax)  
<http://www.scitestlabs.com>

Jefferson Hoffer & Associates  
RR 4 Box 2286  
Montpelier VT, VT 05602

Mr. Jeff Hoffer

Work Order No.: 9904-01571

Project Name: Barnet Town Garage  
Customer Nos.: 070249

Date Received: 4/23/99  
Date Reported: 5/07/99

| Sample Desc.:               | Method    | Results | Units      | Analyst | Analysis Date |
|-----------------------------|-----------|---------|------------|---------|---------------|
| MW-01                       |           |         |            |         |               |
| Sample Nos: 001             |           |         |            |         |               |
| Test Performed              | EPA 8021B |         |            | JPM     | 4/26/99       |
| Volatiles, BTEX             | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Methyl tertiary-Butyl Ether | EPA 8021B | < 0.5   | ug/L       | JPM     | 4/26/99       |
| Benzene                     | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Toluene                     | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Ethylbenzene                | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Total Xylenes               | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| 1,3,5-Trimethylbenzene      | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| 1,2,4-Trimethylbenzene      | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Naphthalene                 | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Surrogate: 8021B            |           |         |            | JPM     | 4/26/99       |
| ***Bromofluorobenzene-8021B |           | 99      | % Recovery | JPM     | 4/26/99       |

| Sample Desc.:               | Method    | Results | Units      | Analyst | Analysis Date |
|-----------------------------|-----------|---------|------------|---------|---------------|
| MW-02                       |           |         |            |         |               |
| Sample Nos: 002             |           |         |            |         |               |
| Test Performed              | EPA 8021B |         |            | JPM     | 4/26/99       |
| Volatiles, BTEX             | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Methyl tertiary-Butyl Ether | EPA 8021B | < 0.5   | ug/L       | JPM     | 4/26/99       |
| Benzene                     | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Toluene                     | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Ethylbenzene                | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Total Xylenes               | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| 1,3,5-Trimethylbenzene      | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| 1,2,4-Trimethylbenzene      | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Naphthalene                 | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Surrogate: 8021B            |           |         |            | JPM     | 4/26/99       |
| ***Bromofluorobenzene-8021B |           | 97      | % Recovery | JPM     | 4/26/99       |

## ANALYTICAL REPORT

Project Name: Barnet Town Garage

Project No.: 070249

Work Order No.: 9904-01571

| Sample Desc.: MW-04         |           |         |            | Sample Date: 4/22/99   |               |
|-----------------------------|-----------|---------|------------|------------------------|---------------|
| Sample Nos: 003             |           |         |            | Collection Time: 13:00 |               |
| Test Performed              | Method    | Results | Units      | Analyst                | Analysis Date |
| Volatiles, BTEX             | EPA 8021B |         |            | JPM                    | 4/26/99       |
| Methyl tertiary-Butyl Ether | EPA 8021B | < 1.0   | ug/L       | JPM                    | 4/26/99       |
| Benzene                     | EPA 8021B | < 0.5   | ug/L       | JPM                    | 4/26/99       |
| Toluene                     | EPA 8021B | < 1.0   | ug/L       | JPM                    | 4/26/99       |
| Ethylbenzene                | EPA 8021B | < 1.0   | ug/L       | JPM                    | 4/26/99       |
| Total Xylenes               | EPA 8021B | < 1.0   | ug/L       | JPM                    | 4/26/99       |
| 1,3,5-Trimethylbenzene      | EPA 8021B | < 1.0   | ug/L       | JPM                    | 4/26/99       |
| 1,2,4-Trimethylbenzene      | EPA 8021B | < 1.0   | ug/L       | JPM                    | 4/26/99       |
| Naphthalene                 | EPA 8021B | < 1.0   | ug/L       | JPM                    | 4/26/99       |
| Surrogate: 8021B            |           |         |            | JPM                    | 4/26/99       |
| ***Bromofluorobenzene-8021B |           | 99      | % Recovery | JPM                    | 4/26/99       |

| Sample Desc.: MW-03         |           |         |            | Sample Date: 4/22/99   |               |
|-----------------------------|-----------|---------|------------|------------------------|---------------|
| Sample Nos: 004             |           |         |            | Collection Time: 13:15 |               |
| Test Performed              | Method    | Results | Units      | Analyst                | Analysis Date |
| Volatiles, BTEX             | EPA 8021B |         |            | JPM                    | 4/26/99       |
| Methyl tertiary-Butyl Ether | EPA 8021B | 2.7     | ug/L       | JPM                    | 4/26/99       |
| Benzene                     | EPA 8021B | 2.5     | ug/L       | JPM                    | 4/26/99       |
| Toluene                     | EPA 8021B | 3.1     | ug/L       | JPM                    | 4/26/99       |
| Ethylbenzene                | EPA 8021B | 3.1     | ug/L       | JPM                    | 4/26/99       |
| Total Xylenes               | EPA 8021B | 4.6     | ug/L       | JPM                    | 4/26/99       |
| 1,3,5-Trimethylbenzene      | EPA 8021B | 10      | ug/L       | JPM                    | 4/26/99       |
| 1,2,4-Trimethylbenzene      | EPA 8021B | 48      | ug/L       | JPM                    | 4/26/99       |
| Naphthalene                 | EPA 8021B | 3.2     | ug/L       | JPM                    | 4/26/99       |
| Surrogate: 8021B            |           |         |            | JPM                    | 4/26/99       |
| ***Bromofluorobenzene-8021B |           | 100     | % Recovery | JPM                    | 4/26/99       |

| Sample Desc.: MW-100        |           |         |       | Sample Date: 4/22/99   |               |
|-----------------------------|-----------|---------|-------|------------------------|---------------|
| Sample Nos: 005             |           |         |       | Collection Time: 13:30 |               |
| Test Performed              | Method    | Results | Units | Analyst                | Analysis Date |
| Volatiles, BTEX             | EPA 8021B |         |       | JPM                    | 4/26/99       |
| Methyl tertiary-Butyl Ether | EPA 8021B | 2.7     | ug/L  | JPM                    | 4/26/99       |
| Benzene                     | EPA 8021B | 2.5     | ug/L  | JPM                    | 4/26/99       |
| Toluene                     | EPA 8021B | 2.8     | ug/L  | JPM                    | 4/26/99       |
| Ethylbenzene                | EPA 8021B | 3.0     | ug/L  | JPM                    | 4/26/99       |
| Total Xylenes               | EPA 8021B | 4.7     | ug/L  | JPM                    | 4/26/99       |
| 1,3,5-Trimethylbenzene      | EPA 8021B | 11      | ug/L  | JPM                    | 4/26/99       |
| 1,2,4-Trimethylbenzene      | EPA 8021B | 50      | ug/L  | JPM                    | 4/26/99       |

## ANALYTICAL REPORT

Project Name: Barnet Town Garage  
Project No.: 070249

Work Order No.: 9904-01571

| Sample Desc.:               | Method    | Results | Units      | Analyst | Analysis Date |
|-----------------------------|-----------|---------|------------|---------|---------------|
| MW-100                      |           |         |            |         |               |
| Sample Nos: 005             |           |         |            |         |               |
| Test Performed              | EPA 8021B | 2.9     | ug/L       | JPM     | 4/26/99       |
| Naphthalene                 |           |         |            | JPM     | 4/26/99       |
| Surrogate: 8021B            |           |         |            | JPM     | 4/26/99       |
| ***Bromofluorobenzene-8021B |           | 100     | % Recovery | JPM     | 4/26/99       |

Sample Date: 4/22/99  
Collection Time: 13:30

| Sample Desc.:               | Method    | Results | Units      | Analyst | Analysis Date |
|-----------------------------|-----------|---------|------------|---------|---------------|
| FB-01                       |           |         |            |         |               |
| Sample Nos: 006             |           |         |            |         |               |
| Test Performed              | EPA 8021B |         |            | JPM     | 4/26/99       |
| Volatiles, BTEX             |           |         |            | JPM     | 4/26/99       |
| Methyl tertiary-Butyl Ether | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Benzene                     | EPA 8021B | < 0.5   | ug/L       | JPM     | 4/26/99       |
| Toluene                     | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Ethylbenzene                | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Total Xylenes               | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| 1,3,5-Trimethylbenzene      | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| 1,2,4-Trimethylbenzene      | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Naphthalene                 | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Surrogate: 8021B            |           |         |            | JPM     | 4/26/99       |
| ***Bromofluorobenzene-8021B |           | 99      | % Recovery | JPM     | 4/26/99       |

Sample Date: 4/22/99  
Collection Time: 13:35

| Sample Desc.:               | Method    | Results | Units      | Analyst | Analysis Date |
|-----------------------------|-----------|---------|------------|---------|---------------|
| Trip Blank                  |           |         |            |         |               |
| Sample Nos: 007             |           |         |            |         |               |
| Test Performed              | EPA 8021B |         |            | JPM     | 4/26/99       |
| Volatiles, BTEX             |           |         |            | JPM     | 4/26/99       |
| Methyl tertiary-Butyl Ether | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Benzene                     | EPA 8021B | < 0.5   | ug/L       | JPM     | 4/26/99       |
| Toluene                     | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Ethylbenzene                | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Total Xylenes               | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| 1,3,5-Trimethylbenzene      | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| 1,2,4-Trimethylbenzene      | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Naphthalene                 | EPA 8021B | < 1.0   | ug/L       | JPM     | 4/26/99       |
| Surrogate: 8021B            |           |         |            | JPM     | 4/26/99       |
| ***Bromofluorobenzene-8021B |           | 98      | % Recovery | JPM     | 4/26/99       |

Sample Date: 4/22/99  
Collection Time: 12:00

## ANALYTICAL REPORT

Project Name: Barnet Town Garage  
 Project No.: 070249

Work Order No.: 9904-01571

| Sample Desc.: | Method              | Results | Units | Sample Date: | Collection Time: | Analyst | Analysis Date |
|---------------|---------------------|---------|-------|--------------|------------------|---------|---------------|
| MW-01 (TPH)   | MODIFIED8100 GC/FID | 1.0     | mg/L  | 4/22/99      | 12:30            | RJS     | 5/05/99       |

Sample Nos: 008  
 Test Performed: TPH, Estimated - Water

| Sample Desc.: | Method              | Results | Units | Sample Date: | Collection Time: | Analyst | Analysis Date |
|---------------|---------------------|---------|-------|--------------|------------------|---------|---------------|
| MW-02 (TPH)   | MODIFIED8100 GC/FID | < 1.0   | mg/L  | 4/22/99      | 12:45            | RJS     | 5/05/99       |

Sample Nos: 009  
 Test Performed: TPH, Estimated - Water

| Sample Desc.: | Method              | Results | Units | Sample Date: | Collection Time: | Analyst | Analysis Date |
|---------------|---------------------|---------|-------|--------------|------------------|---------|---------------|
| MW-04 (TPH)   | MODIFIED8100 GC/FID | < 1.0   | mg/L  | 4/22/99      | 13:00            | RJS     | 5/05/99       |

Sample Nos: 010  
 Test Performed: TPH, Estimated - Water

| Sample Desc.: | Method              | Results | Units | Sample Date: | Collection Time: | Analyst | Analysis Date |
|---------------|---------------------|---------|-------|--------------|------------------|---------|---------------|
| MW-03 (TPH)   | MODIFIED8100 GC/FID | 340     | mg/L  | 4/22/99      | 13:15            | RJS     | 5/05/99       |

Sample Nos: 011  
 Test Performed: TPH, Estimated - Water

Authorized by:



# GROUNDWATER SAMPLING DATA SHEET

LOCATION: BARNET TOWN GARAGE  
 DATE: APRIL 23, 1999

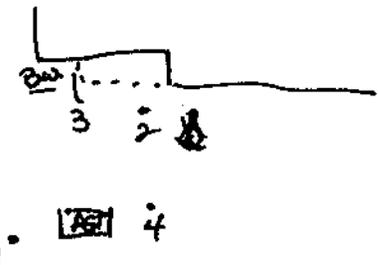
SAMPLE METHOD: 2" POLY BAILERS  
 SAMPLING TEAM: T. SCHMALE

Page 1 of 1

| WELL ID | PID Head Space (ppm) | Depth to Water (ft) | Total Well Depth (ft) | Water Column (ft) | 3 Well Volumes* (gals) | Total Purged (gals) | Sample Time | Sample Type | Chain-of-Custody |      | Remarks                  |
|---------|----------------------|---------------------|-----------------------|-------------------|------------------------|---------------------|-------------|-------------|------------------|------|--------------------------|
|         |                      |                     |                       |                   |                        |                     |             |             | Number           | Time |                          |
| TB-01   | NA                   |                     |                       |                   |                        |                     | 1200        | TB          | TB-01            | 1200 | TRIP BLANK               |
| MW-01   |                      | 16.14               | 20.0                  | 3.86              | 1.85                   | 1.85                | 1230        | S           | MW-01            | 1230 | RED-BROWN, S. TURBID     |
| MW-02   |                      | 14.98               | 20.0                  | 5.02              | 2.41                   | 2.50                | 1245        | S           | MW-02            | 1245 | GRAY, SILTY              |
| MW-04   |                      | 14.45               | 19.7                  | 5.25              | 2.52                   | 2.50                | 1300        | S           | MW-04            | 1300 | " "                      |
| MW-03   |                      | 16.11               | 20.0                  | 3.89              | 1.87                   |                     | 1315        | S           | MW-03            | 1315 | DL. GRAY, SILTY, SHEENS. |
| MW-03   |                      | ↓                   | ↓                     | ↓                 | ↓                      | ↓                   | ↓           | DP          | MW-100           | 1330 | DUPLICATE S.             |
| AD-01   | DRY                  | TD                  | 11.95                 | BTOC              |                        |                     |             |             |                  |      |                          |
| FB-01   | NA                   |                     |                       |                   |                        |                     |             | FB          | FB-01            | 1335 | FIELD BLANK              |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |
|         |                      |                     |                       |                   |                        |                     |             |             |                  |      |                          |

\* (1.5" = 0.092 gals/ft, 2" = 0.16 gals/ft, 4" = 0.65 gals/ft, 6" = 1.5 gals/ft)

REMARKS \_\_\_\_\_  
 \_\_\_\_\_



**Scitest, Inc.**

P.O. Box 339  
 Route 66 Professional Center, Randolph, VT 05060  
 Phone: (802)728-6313 Fax: (802)728-6044  
 Client: Jefferson P. Hoffer & Associates  
 Address: RR 4 Box 2286, Comstock Road  
 Montpelier, VT 05602

Sample Logged in By: AMH  
 Anomaly Sheet: Y  N

Preservative Check:  
 Temperature Check: Cold

**Barnet Town Garage**

Contact: Jeff Hoffer  
 Customer Nos: 70249  
 Project:  
 Job Template:  
 Phone No:

Date requested: 04/19/99  
 Date shipped: w/ Rod Mor  
 Date scheduled:

**CHAIN OF CUSTODY**

| Sampled by:       | Date        | Time | Print Name Here:     | Date           | Time        |
|-------------------|-------------|------|----------------------|----------------|-------------|
| <u>L. D'Amico</u> | <u>4/22</u> |      | Accepted by:         |                |             |
| Relinquished by:  |             |      | Received by Scitest: | <u>4/23/99</u> | <u>8:20</u> |
| Relinquished by:  |             |      | <u>Amy Westwick</u>  |                |             |

| Sample No. | Client ID or Description | Sample Date | Sample Time | Matrix | Preservative | Container Material | Container Volume | Containers per Sample | Parameters |
|------------|--------------------------|-------------|-------------|--------|--------------|--------------------|------------------|-----------------------|------------|
| 1          | MW-01                    | 4/22        | 1230        | GW     | HCl          | Glass              | 40 mL            | 2                     | EPA 8021B  |
| 2          | MW-02                    |             | 1245        | GW     | HCl          | Glass              | 40 mL            | 2                     | EPA 8021B  |
| 3          | MW-04                    |             | 1300        | GW     | HCl          | Glass              | 40 mL            | 2                     | EPA 8021B  |
| 4          | MW-03                    |             | 1315        | GW     | HCl          | Glass              | 40 mL            | 2                     | EPA 8021B  |
| 5          | MW-100                   |             | 1330        | GW     | HCl          | Glass              | 40 mL            | 2                     | EPA 8021B  |
| 6          | FB-01                    |             | 1335        | GW     | HCl          | Glass              | 40 mL            | 2                     | EPA 8021B  |
|            |                          |             |             | GW     | HCl          | Glass              | 40 mL            | 2                     | EPA 8021B  |
|            |                          |             |             | GW     | HCl          | Glass              | 40 mL            | 2                     | EPA 8021B  |
|            | Trip Blank               |             | 1200        | WA     | HCl          | Glass              | 40 mL            | 2                     | EPA 8021B  |

Post-it Fax Note 7671

To: Jim Schmalz  
 Co/Dept: Hoffer

From: Amy  
 Co: Scitest

Phone #: 802-728-6313  
 Fax #

Date: 4/23/99 Page # 2

**SAMPLES MUST REACH THE LAB** within \_\_\_\_\_ of sampling time to meet all holding times.

Parameters are correct as listed. Client Initial: \_\_\_\_\_  
 Please fill in ALL areas marked with an asterisk (\*). Thank you.  
 Additional instruction if applicable are attached.

Scitest Work Order: 9904-01571

APR-23-99 9:17 AM SCITEST

FAX NO. 9027286313

| Sample No. | Client ID or Description | Sample    |      | Matrix | Preservative | Container Material | Container Volume | Containers per Sample | Parameters   |
|------------|--------------------------|-----------|------|--------|--------------|--------------------|------------------|-----------------------|--------------|
|            |                          | Date      | Time |        |              |                    |                  |                       |              |
| 8          | MW-01                    | 4/22<br>↓ | 1200 | GW     | HCl          | Glass              | 40 mL            | 2                     | EPA 8100 TPH |
| 9          | MW-02                    |           | 1245 | GW     | HCl          | Glass              | 40 mL            | 2                     | EPA 8100 TPH |
| 10         | MW-04                    |           | 1300 | GW     | HCl          | Glass              | 40 mL            | 2                     | EPA 8100 TPH |
| 11         | MW-03                    |           | 1315 | GW     | HCl          | Glass              | 40 mL            | 2                     | EPA 8100 TPH |
| 14         |                          |           |      |        | GW           | HCl                | Glass            | 40 mL                 | 2            |