



HOFFER & ASSOCIATES

CONSULTING HYDROGEOLOGISTS

NOV 7 8 1996

RR 4, Box 2286
Montpelier, VT 05602
(802) 229 - 1113
fax: 229 - 2780

November 15, 1996

Andrew Shively, Environmental Technician
Sites Management Section
VTDEC - Waste Management Division
103 South Main Street/West Office
Waterbury, VT 05671-0404

Re: Site Investigation Report, Office Quarters, St. Albans, Vermont
SMS Site #96-2027

Dear Mr. Shively:

This letter presents our report on the site investigation performed at Office Quarters in St. Albans, Vermont. The workplan for this site investigation was presented in our September 25 letter to Carl Ruprecht of S.B. Collins, Inc. Our site investigation included the sampling of existing monitoring wells for BTEX/MTBE, surveying of the existing wells, and the identification of potential sensitive receptors. This letter presents the procedures and results of the field efforts, and provides our conclusions and recommendations regarding the site.

Background Information

An underground storage tank used for gasoline storage was closed at the site on June 6, 1996. The tank was owned by S.B. Collins, Inc., and was utilized by Office Quarters. Office Quarters sell office equipment and furniture, and used the gasoline for its delivery vehicles. Office Quarters now utilizes an aboveground tank for gasoline storage. The tenant prior to Office Quarters was a phone company who utilized the tank from about 1980 to 1988.

During the initial site assessment, evidence of petroleum contamination in soil was detected with a photoionization detector (PID). Soil overlying the tank showed PID headspaces ranging from 25 to 1650 parts per million (ppm) on a Photovac 2020 calibrated with and set to respond to isobutylene. After the tank was removed from the ground, the base of the excavation was screened with the PID, with headspace readings ranging from 0.0 to 503 ppm. The highest PID reading was detected in the southeastern corner of the excavation. The soil samples from the base of the excavation were saturated, and no sheens were noted. The source of the releases is uncertain, the tank appeared to be in good condition when it was removed.

GROUNDWATER & ENVIRONMENTAL SERVICES

Four groundwater monitoring wells had been in use at the site as leak-detection monitoring wells. One of these wells was destroyed after the tank was removed, leaving three monitoring wells at the site. During the tank closure, depths to groundwater ranged from about three to four feet below grade. Soil types observed in the excavation sidewalls included two feet of silty sand underlain by a gray, firm, sandy silt unit. Both of these soil layers contained demolition and other debris, suggesting they were fill material and not undisturbed soil.

Site Environmental Setting

Office Quarters is located on Vermont Route 36 (Lake Road) in St. Albans Town, about a half mile west of the St. Albans City border as shown on Figure 1. The area surrounding Office Quarters is predominantly residential and agricultural, with commercial activity along Lake Road. Minor's Country Deli and redemption center is located just to the east of the Office Quarter's property. Neighboring properties include a residence to the southwest, businesses to the southeast along Lake Road, a garage to the west, and undeveloped lands to the north.

The site is situated within the Champlain Lowlands, about halfway between downtown St. Albans and St. Albans Bay. Elevation at the site is about 340 feet above mean sea level, and topography slopes gently westward toward St. Albans Bay and Lake Champlain. Figure 2 shows the location of the site on the USGS topographic map of the region. The nearest surface water features include small streams and intermittent reaches located to the northwest and southwest. One intermittent reach of Rugg Brook is located about 1500 feet southwest of the site, while a small unnamed stream draining westward is located about 1200 feet northwest of the site, as shown on Figure 2.

According to the Soil Survey of Franklin County, Vermont, soils at the site belong to the Massena soil series. This series includes silt loam and loam textures, and is rated as somewhat poorly drained to poorly drained. These soils are derived from glacial till, and exhibit a perched water table at shallow depths (0.5 to 1.0 feet below grade). Stewart's¹ map of surficial material shows glacial till and lacustrine/marine silts and clays in the region surrounding Office Quarters. Stewart's¹ bedrock map for the region indicates the site is underlain by slightly metamorphosed Cambrian sedimentary rocks.

Site Survey/Basemap Preparation

A site survey was performed by Brooks Land Surveying to prepare a site basemap and to obtain monitoring well elevations. Figure 3 presents the site basemap illustrating the building location, former UST location, monitoring well locations, and property boundaries.

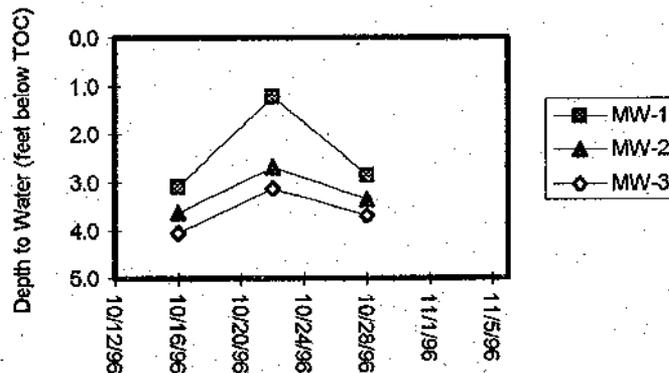
¹ Stewart, D.P., 1974, *Geology for Environmental Planning in the Milton - St. Albans Region, Vermont*, Vermont Geological Survey, Environmental Geology #5.

Water Levels and Well Headspace PID Readings

Water levels were measured in the site monitoring wells on three separate occasions (see Table 1). Water levels were measured prior to developing the wells (by bailing) on 10/16/96. A PID² was used to screen well headspaces after development efforts. Readings were as follows.

| <i>Well</i> | <i>Max. PID Reading (ppm)</i> |
|-------------|-------------------------------|
| MW-1 | 2.2 |
| MW-2 | 47.1 |
| MW-3 | 0.9 |

Odors emanating from MW-2 during development efforts were described as a very weathered petroleum smell, similar to diesel. Water levels were also measured on October 22 during the sampling event, and again on October 28. Water level trends are portrayed below.



As shown above, water levels were relatively high during the sampling event on October 22. This sampling date followed a few days of steady rain. Figure 4 presents a water-table map for the October 22 data, which depict a southwestward flow direction.

Groundwater Sampling and Analysis

Groundwater samples were collected from the three monitoring wells on October 22, 1996. The wells were purged of standing water prior to sample collection. Purging and sample collection was conducted with dedicated polyethylene bailers. Two 40 mL sample vials were filled for each sample. The sample vials contained hydrochloric acid for sample

² Photovac MicroTIP HL-2000, 10.6 eV lamp, set to respond to benzene, calibrated with isobutylene prior to use.

preservation. Sampling order proceeded from "clean" to "dirty" based on the PID screening of well headspaces during development efforts. Quality assurance/quality control samples included a trip blank, a field blank, and a blind duplicate. The trip blank was provided by the laboratory and was handled in a similar fashion as the samples. The field blank consisted of two vials filled with deionized water at the conclusion of sampling activities. A blind duplicate was collected from MW-1 and labeled MW-4 on the sample vials and chain-of-custody. The chain-of-custody form and field sampling data sheet are enclosed. The samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl-tert-butyl-ether (MTBE) using EPA Method 8020 by Scitest Laboratory Services. The results are presented below, and the laboratory report sheets are enclosed.

10/22/96, Results in ug/L

| WELL ID | Benzene | Toluene | Ethylbenzene | Xylenes | MTBE |
|--------------|---------|---------|--------------|---------|---------|
| MW-1 / dupl. | <1 / <1 | <1 / <1 | TRACE/TRACE | 1 / 1 | <1 / <1 |
| MW-2 | 673 | <100 | 1240 | 1640 | <100 |
| MW-3 | <1 | <1 | <1 | <1 | 6 |
| Field Blank | <1 | <1 | <1 | <1 | <1 |
| Trip Blank | <1 | <1 | <1 | <1 | <1 |
| VT PAL | 0.5 | 1210 | 340 | 200 | 40* |

<1 = below a detection limit of 1 ug/L,

Trace = detected below practical quantitation limit of 1 ug/L

1 / 1 = sample result / field duplicate result

VT PAL = Vermont Preventative Action Limit

* Vermont Health Advisory

Petroleum-related contaminants were detected in all three wells. Benzene, ethylbenzene, and xylenes were detected in MW-2 at concentrations exceeding regulatory thresholds. Very low concentrations of ethylbenzene and xylenes were detected in MW-1. Figure 5 presents an isoconcentration contour map for xylenes. The only parameter detected in MW-3 was MTBE at a concentration of 6 ug/L. MTBE was not found in the remaining wells, although the detection limit for the MW-2 sample was 100 ug/L.

The analytical data, coupled with the water table elevations, suggest more than one discrete source area of petroleum releases exists at the site. The lack of MTBE in MW-1 and MW-2, as well as the weathered petroleum odor noted in MW-2, suggests that releases impacting these wells possibly occurred prior to the introduction of MTBE in the early 1980s. The presence of MTBE in MW-3 suggests a more recent release of gasoline, either from the removed piping system or the pump dispenser. During the sampling event on 10/22/96, evidence of minor gasoline spillage was observed in the vicinity of MW-3, which is located a few feet from the pump dispenser. The MTBE detected in MW-3 could have been introduced via spills in the vicinity of the dispenser.

No contaminants were detected in the trip or field blanks, and the results for MW-1 and its field duplicate sample were identical.

Groundwater Flow Rates

Based on our work at sites with similar soils, the hydraulic conductivity (K) of the shallow groundwater zone at this site is estimated to be in the range of 1×10^{-6} to 1×10^{-4} cm/sec (0.0028 to 0.28 feet/day). The hydraulic gradient (I) between MW-1 and MW-2 has ranged from 0.025 to 0.05 ft/ft. Using these values and an effective porosity (n_e) range of 0.2 to 0.4, the average linear velocity (V_x) can be estimated from the equation $V_x = KI/n_e$. These parameters yield a range from 0.006 to 25 feet/year. Based on our experience, a range of 6 to 12 feet/year is a reasonable estimate of horizontal flow rates within the shallow groundwater zone at the site.

Potential Receptors

Office Quarters and immediately surrounding properties are served by municipal water and sewer systems. According to Alan Rabtoy of the St. Albans Public Works department, the municipal system services all residences and businesses along Jewell Street and Brigham Road and eastward toward St. Albans City along Lake Road. Residences and business west of Jewell Street and Brigham Road are beyond the service connections and rely on private water supplies. The VTDEC Water Supply Division's water well inventory for St. Albans was reviewed to identify bedrock wells near the site. Figure 6 shows the locations of 14 water wells near the site. The well locations were taken from the water well inventory and have not been field-verified. This data suggests that there are at least six wells within 1000 feet of the site, and all are located in the downgradient direction. Basic data for the wells shown on Figure 6 is presented on Table 3. Figure 7 provides bedrock depths for the wells near the site. Bedrock depths for the four wells closest to the site range from 9 to 39 feet.

As illustrated on Figure 7, there appear to be considerably more residences than wells west of Jewell Street and Brigham Road, indicating there are probably additional drilled wells or shallow dug wells in the vicinity.

The risk that site contamination poses to drinking water supplies is difficult to fully characterize at this time. Horizontal flow rates within the shallow groundwater zone at the site appear to be low, which may limit the horizontal migration of contamination to a relatively small area. Thus the risk to possible shallow dug wells which may exist west of Jewell Street and Brigham Road appears to be low, although the existence and location of downgradient shallow wells needs to be evaluated. Potential impacts to downgradient bedrock wells are dependent upon vertical flow rates and recharge rates to the bedrock aquifer beneath the zone of impacted shallow groundwater at the site. The only data regarding this matter is well logs for the downgradient bedrock wells, which indicate bedrock depths between 9 and 39 feet. Additional data is needed on the extent of contamination at the site, site hydrogeologic characteristics, and verification of the location and construction of downgradient water supplies. This information is needed to more fully characterize the threat of site contamination reaching downgradient water supplies.

Based on the water-table map for October 22, the nearest downgradient surface water is an intermittent tributary of Rugg Brook located about 1500 feet southwest of the site. Based on the low permeability of the shallow groundwater zone at the site, the possibility of site contamination reaching this tributary via horizontal flow within the overburden soils is remote.

As presently defined, site contamination does not appear to threaten indoor air quality. The Office Quarters building has no basement, and there have not been any reports of petroleum odors in the building. Existing data also indicates that contamination at the site is limited to dissolved petroleum constituents in groundwater, and soil-adsorbed contamination. No evidence of free product has been observed, and given the low permeability of the site soils, petroleum vapor migration and accumulation does not appear to be a problem.

In summary, no impacts to sensitive receptors was identified during this site investigation, but the possibility of impacts to downgradient groundwater supplies should be further evaluated.

Conclusions and Recommendations

An initial site investigation at Office Quarters in St. Albans found evidence of petroleum releases. A plume of dissolved-phase petroleum contaminants is migrating southwestward within a shallow groundwater zone at the site. Depth to groundwater at the site is two to four feet within glacial till-derived soils consisting of silty sand, silt, and silt loam. As presently defined, site contamination does not appear to threaten surface water or indoor air quality. Service connections to the municipal water system in the region end in the vicinity of the site. Private water supplies exist downgradient from the site, and potential impacts to these supplies should be further evaluated.

Additional investigation is needed to further define the extent of contamination at the site and the potential impact to downgradient water supplies. We recommend the following activities:

- Install three additional shallow monitoring wells (see Figure 5),

- Perform slug tests to evaluate site hydraulic conductivity,

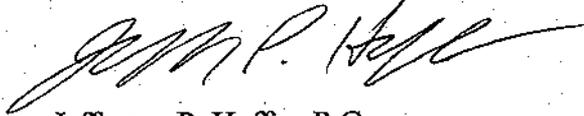
- Identify downgradient water supplies within a 1000 foot radius by performing a neighborhood canvas. Sample the two nearest downgradient water supplies for BTEX/MTBE, and

- Perform another round of groundwater monitoring of the existing and proposed monitoring wells.

Andrew Shively
November 15, 1996
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The estimated costs to perform these activities are provided on the enclosed Table 4. If you would like to further discuss our conclusions and recommendations, please give us a call.

Sincerely,
HOFFER & ASSOCIATES



Jefferson P. Hoffer, P.G.
Principal Hydrogeologist

enc.

cc: Carl Ruprecht, S.B. Collins

TABLE 1

Groundwater elevation measurements,
Office Quarters, St. Albans, Vermont, SMS Site #96-2027.

**DEPTH TO WATER MEASUREMENTS
(feet below TOC)**

| WELL ID | Elev. of TOC (feet) | 10/16/96 | 10/22/96 | 10/28/96 |
|---------|---------------------|----------|----------|----------|
| MW-1 | 98.95 | 3.08 | 1.22 | 2.85 |
| MW-2 | 98.73 | 3.62 | 2.67 | 3.35 |
| MW-3 | 98.97 | 4.04 | 3.12 | 3.69 |

GROUNDWATER ELEVATIONS (feet)

| WELL ID | Elev. of TOC (feet) | 10/16/96 | 10/22/96 | 10/28/96 |
|---------|---------------------|----------|----------|----------|
| MW-1 | 98.95 | 95.87 | 97.73 | 96.10 |
| MW-2 | 98.73 | 95.11 | 96.06 | 95.38 |
| MW-3 | 98.97 | 94.93 | 95.85 | 95.28 |

Notes:

TOC = top of casing (pvc)

Elevations are relative to an on-site benchmark of 100.00 feet

TABLE 2

Analytical results for groundwater sampling event, October 22, 1996,
Office Quarters, St. Albans, Vermont, SMS Site #96-2027.

ANALYTICAL RESULTS (ug/L)

| WELL ID | Benzene | Toluene | Ethylbenzene | Xylenes | MTBE |
|--------------|-----------|-----------|--------------|---------|-----------|
| MW-1 / dupl. | < 1 / < 1 | < 1 / < 1 | TRACE/TRACE | 1 / 1 | < 1 / < 1 |
| MW-2 | 673 | < 100 | 1240 | 1640 | < 100 |
| MW-3 | < 1 | < 1 | < 1 | < 1 | 6 |
| Field Blank | < 1 | < 1 | < 1 | < 1 | < 1 |
| Trip Blank | < 1 | < 1 | < 1 | < 1 | < 1 |

Notes:

< 1 = below a detection level of 1

< 1 / < 1 = sample result / field duplicate result

TRACE = detected below practical quantitation limit of 1 ug/L

REGULATORY THRESHOLDS (ug/L)

| Standard | Benzene | Toluene | Ethylbenzene | Xylenes | MBTE |
|----------|---------|---------|--------------|---------|------|
| VT GES | 5 | 2420 | 680 | 400 | - |
| VT PAL | 0.5 | 1210 | 340 | 200 | - |
| VHA | 1 | - | - | - | 40 |
| MCL | 5 | 1000 | 700 | 10000 | - |

Notes:

VT GES = Vermont Groundwater Enforcement Standard

VT PAL = Vermont Preventative Action Limit

VHA = Vermont Health Advisory

MCL = Maximum Contaminant Level

TABLE 3

Basic well data for bedrock wells near Office Quarters, St. Albans.

| <i>Well No.</i> | <i>Owner</i> | <i>Well Yield (gpm)</i> | <i>Total Depth (feet)</i> | <i>Bedrock Depth (feet)</i> | <i>Static Water Level (ft)</i> |
|-----------------|-----------------------|-------------------------|---------------------------|-----------------------------|--------------------------------|
| 5 | Maurice Bonnette | 7.5 | 97 | 39 | 23 |
| 6 | John Gravelin | 12 | 178 | 37 | 3 |
| 8 | Martin Derell | 6 | 453 | 41 | 5 |
| 9 | Lawrence Hoague | 8 | 128 | 104 | flowing |
| 20 | Noel Smith | 15 | 257 | 54 | 12 |
| 37 | William Norcross | 5.5 | 250 | 30 | flowing |
| 112 | St. Albans Fire Dept. | 20 | 75 | 30 | 2 |
| 128 | Carroll Draper | 15 | 340 | 1 | 19 |
| 178 | George Swann | 12 | 180 | 4 | 20 |
| 230 | Norman Pelkey | 2.5 | 287 | 20 | |
| 242 | Gene Lareau | 50 | 177 | 9 | |
| 247 | Gerald Gadovas | 15 | 257 | 3 | |
| 311 | Peter Blouin | 7 | 152 | 26 | |
| 453 | John McCracken | 50 | 152 | 47 | |

MEAN 16 213 32 9.3

Source: VTDEC Water Supply Division's well records for St. Albans.

TABLE 4
 Cost estimate for additional site investigation efforts.,
 Office Quarters, St. Albans, Vermont, SMS Site #96-2027.

LABOR

| TASK | Hours | Rate | Amount |
|--|-------|---------|-------------------|
| Additional Monitoring Wells - Site Clearance | 2.00 | \$35.00 | \$70.00 |
| Additional Monitoring Wells - Installation Supervision | 10.00 | \$35.00 | \$350.00 |
| Additional Monitoring Wells - Well Logs | 1.50 | \$35.00 | \$52.50 |
| Identify Downgradient Water Supplies - Site Visits | 6.00 | \$40.00 | \$240.00 |
| Identify Downgradient Water Supplies - Office Work | 2.00 | \$35.00 | \$70.00 |
| Groundwater Sampling | 6.00 | \$35.00 | \$210.00 |
| Map Preparation - Site/Location/Water Table/Isoconcentration | 4.00 | \$45.00 | \$180.00 |
| Report Preparation | 16.00 | \$35.00 | \$560.00 |
| Report Preparation | 2.00 | \$45.00 | \$90.00 |
| <i>SUB-TOTAL LABOR</i> | | | \$1,822.50 |

EXPENSES

| ITEM | Quantity | Rate | Mark Up | Amount |
|---|----------|----------|---------|-------------------|
| Mileage - Water Supply Identification | 120 | \$0.28 | \$0.00 | \$33.60 |
| Mileage - Well Installations | 120 | \$0.28 | \$0.00 | \$33.60 |
| Mileage - Groundwater Sampling | 120 | \$0.28 | \$0.00 | \$33.60 |
| PID Rental - Well Installations | 1 | \$25.00 | \$0.00 | \$25.00 |
| <i>Adams Engineering</i> | | | | |
| Mobilization | 1 | \$125.00 | \$0.00 | \$125.00 |
| Install Three Monitoring Wells | 3 | \$285.00 | \$0.00 | \$855.00 |
| Survey (Labor hours field/data reduction) | 2 | \$45.00 | \$0.00 | \$90.00 |
| <i>SCITEST LABORATORY SERVICES</i> | | | | |
| 8020 for BTEX/MTBE (6 wells, 3 QA/QC, 2 water supplies) | 11 | \$40.00 | \$0.00 | \$440.00 |
| <i>SUB-TOTAL EXPENSES</i> | | | | \$1,635.80 |

TOTAL ESTIMATED PROJECT COST **\$3,458.30**

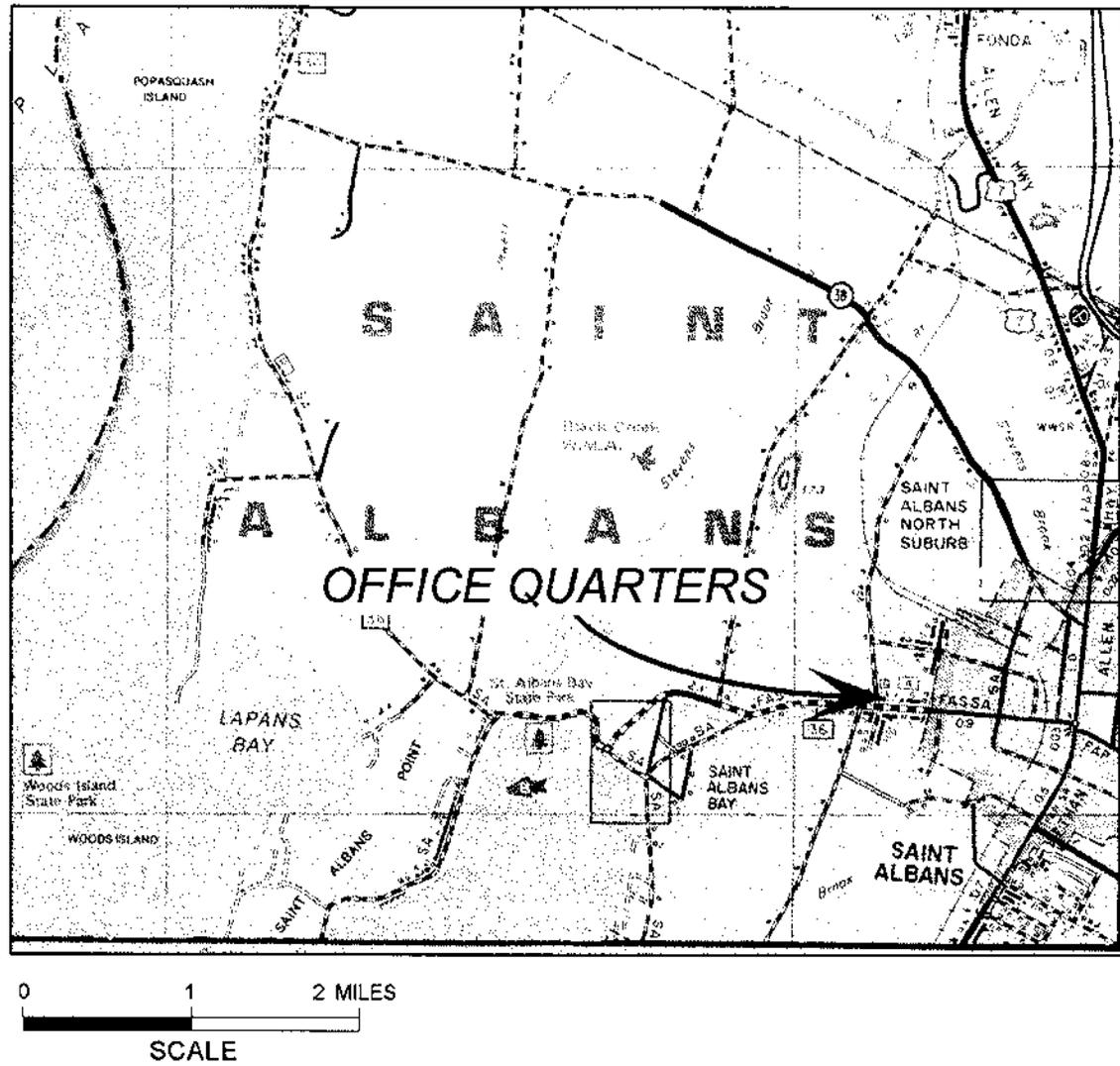
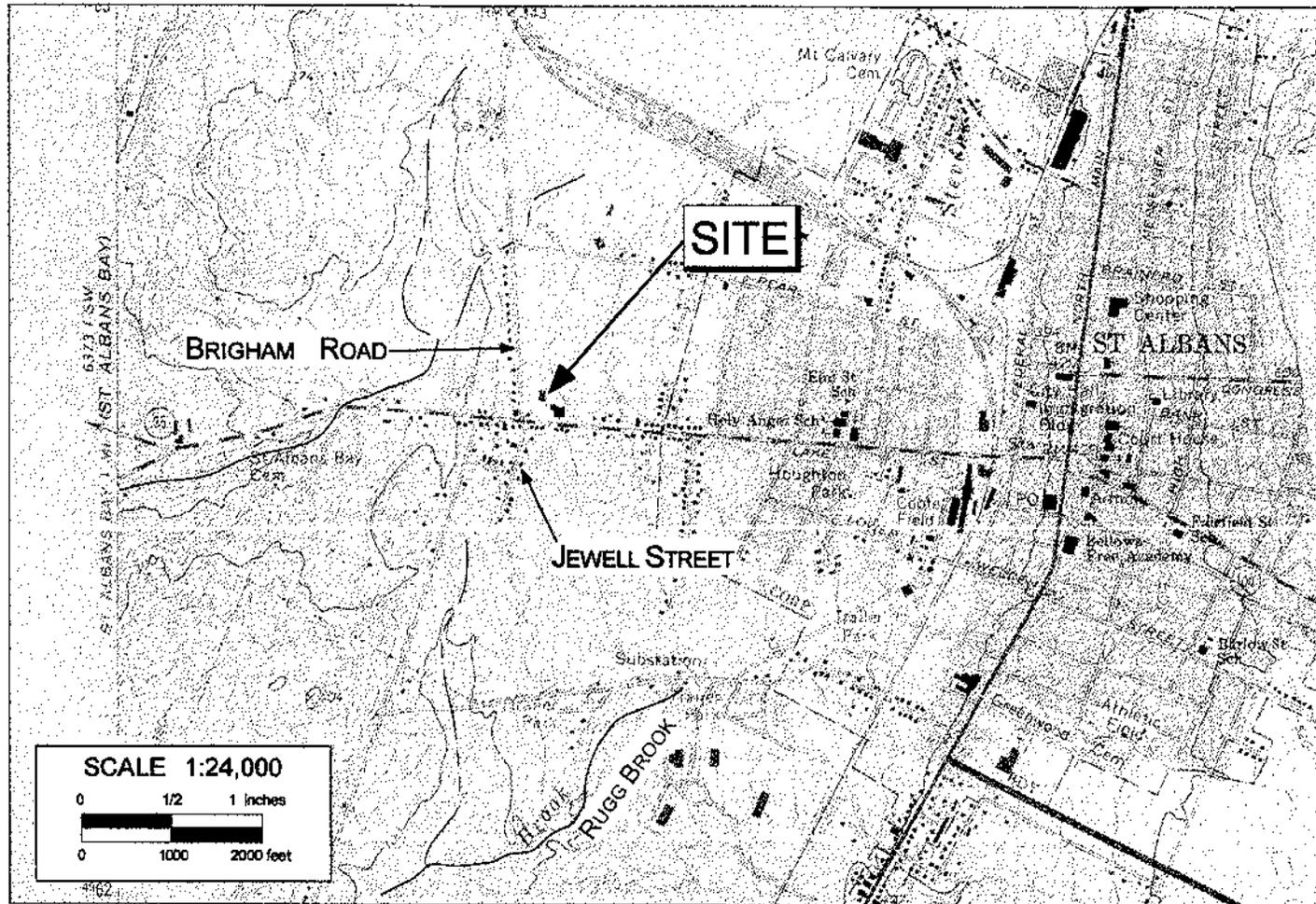


FIGURE 1
SITE LOCATION MAP
OFFICE QUARTERS, ST. ALBANS, VERMONT, SMS SITE # 96-2027.



Base from U.S. Geological Survey, 1:24,000;
St. Albans, VT, Photorevised 1987

FIGURE 2
USGS TOPOGRAPHIC MAP SHOWING LOCATION OF OFFICE QUARTERS,
ST. ALBANS, VERMONT, SMS SITE #96-2027.

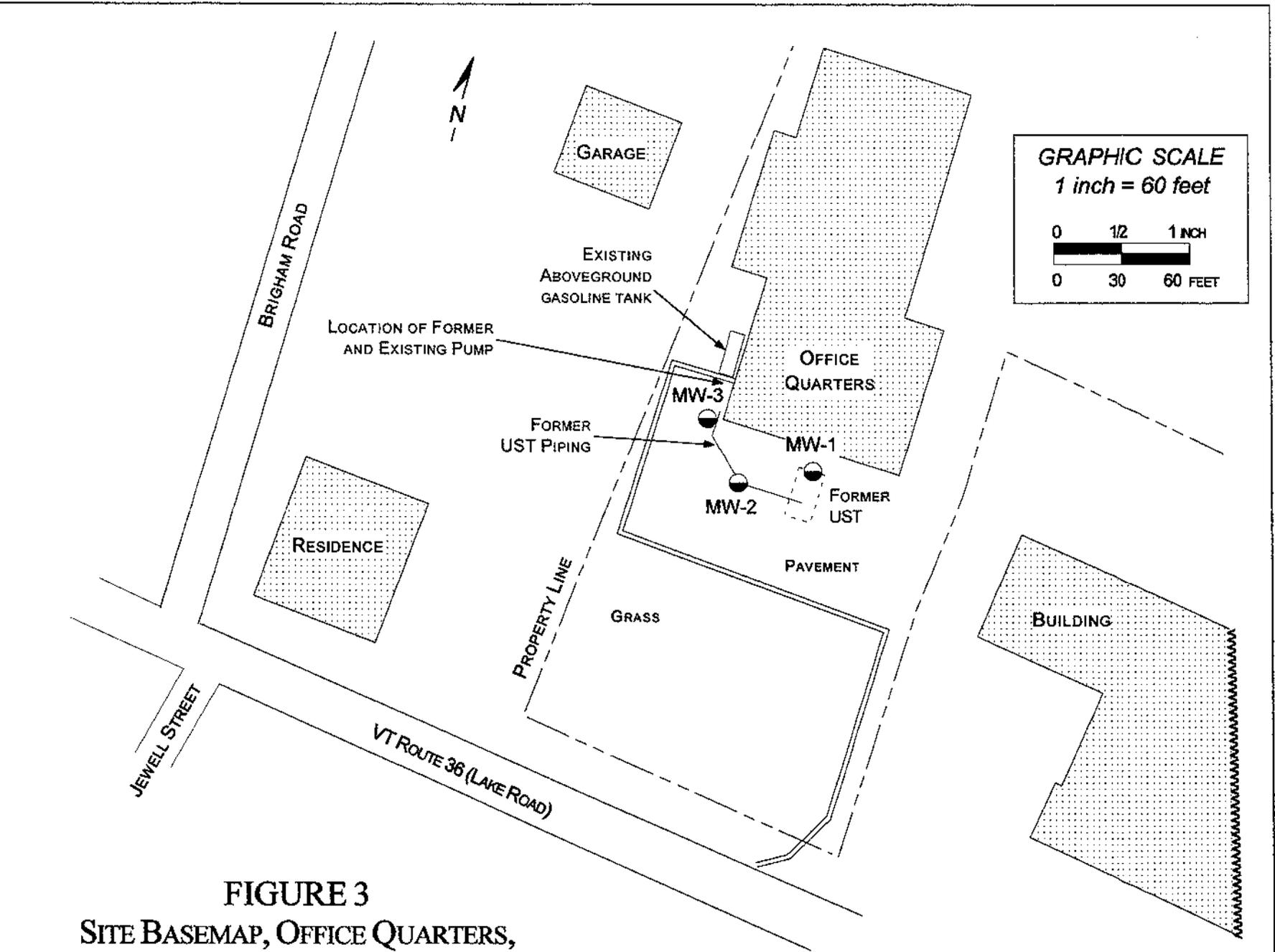


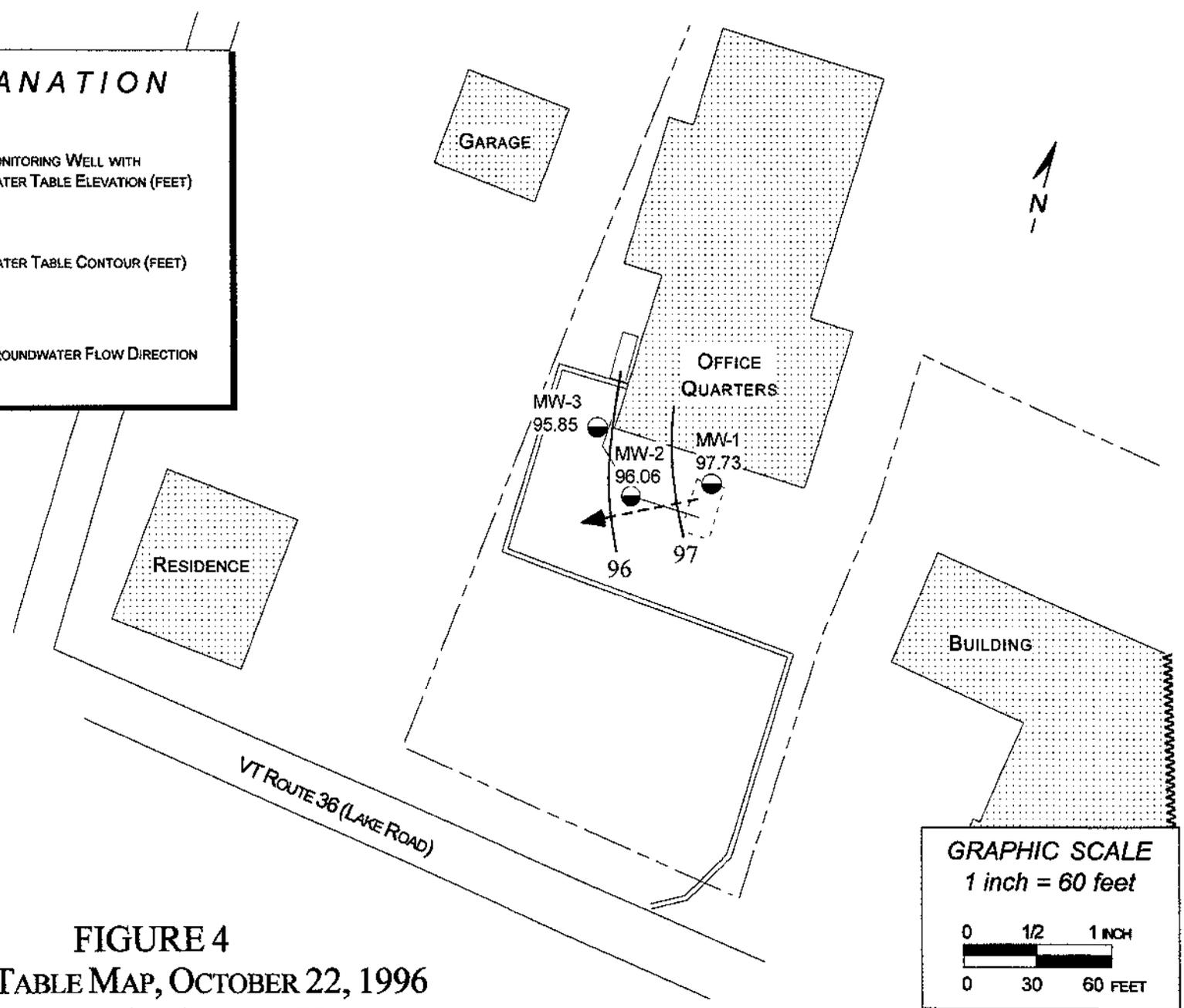
FIGURE 3
SITE BASEMAP, OFFICE QUARTERS,
ST. ALBANS, VERMONT, SMS SITE #96-2027.

EXPLANATION

MW-3
95.85 ● MONITORING WELL WITH
WATER TABLE ELEVATION (FEET)

96 - - - WATER TABLE CONTOUR (FEET)

← - - - GROUNDWATER FLOW DIRECTION



GRAPHIC SCALE
1 inch = 60 feet

0 1/2 1 INCH

0 30 60 FEET

FIGURE 4
WATER-TABLE MAP, OCTOBER 22, 1996
OFFICE QUARTERS, ST. ALBANS, VERMONT,
SMS SITE #96-2027.

EXPLANATION

MW-2 1620 ● MONITORING WELL WITH XYLENES CONCENTRATION (UG/L)

10 XYLENES ISOCONCENTRATION CONTOUR (UG/L)

← GROUNDWATER FLOW DIRECTION

A ● PROPOSED MONITORING WELL

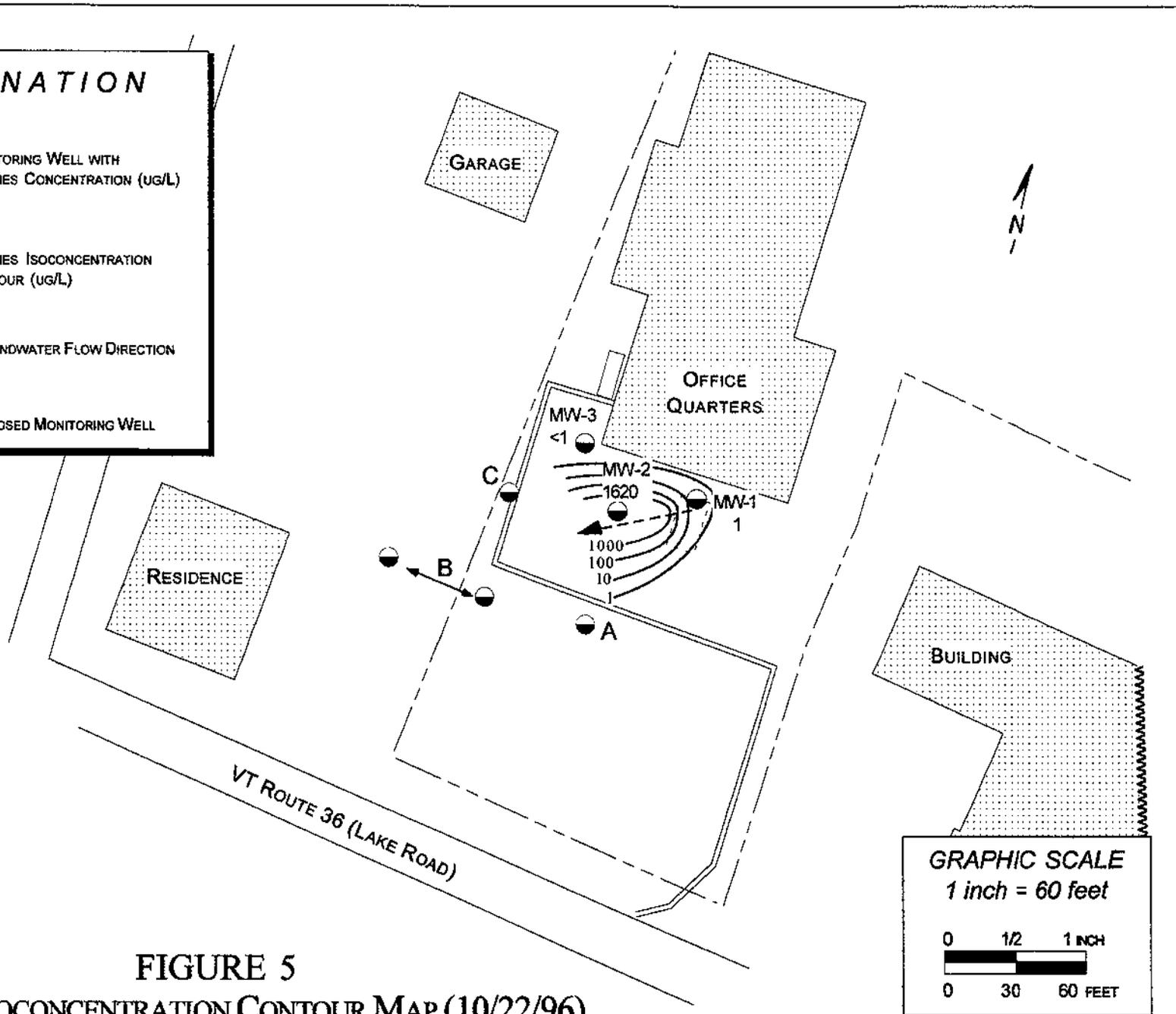
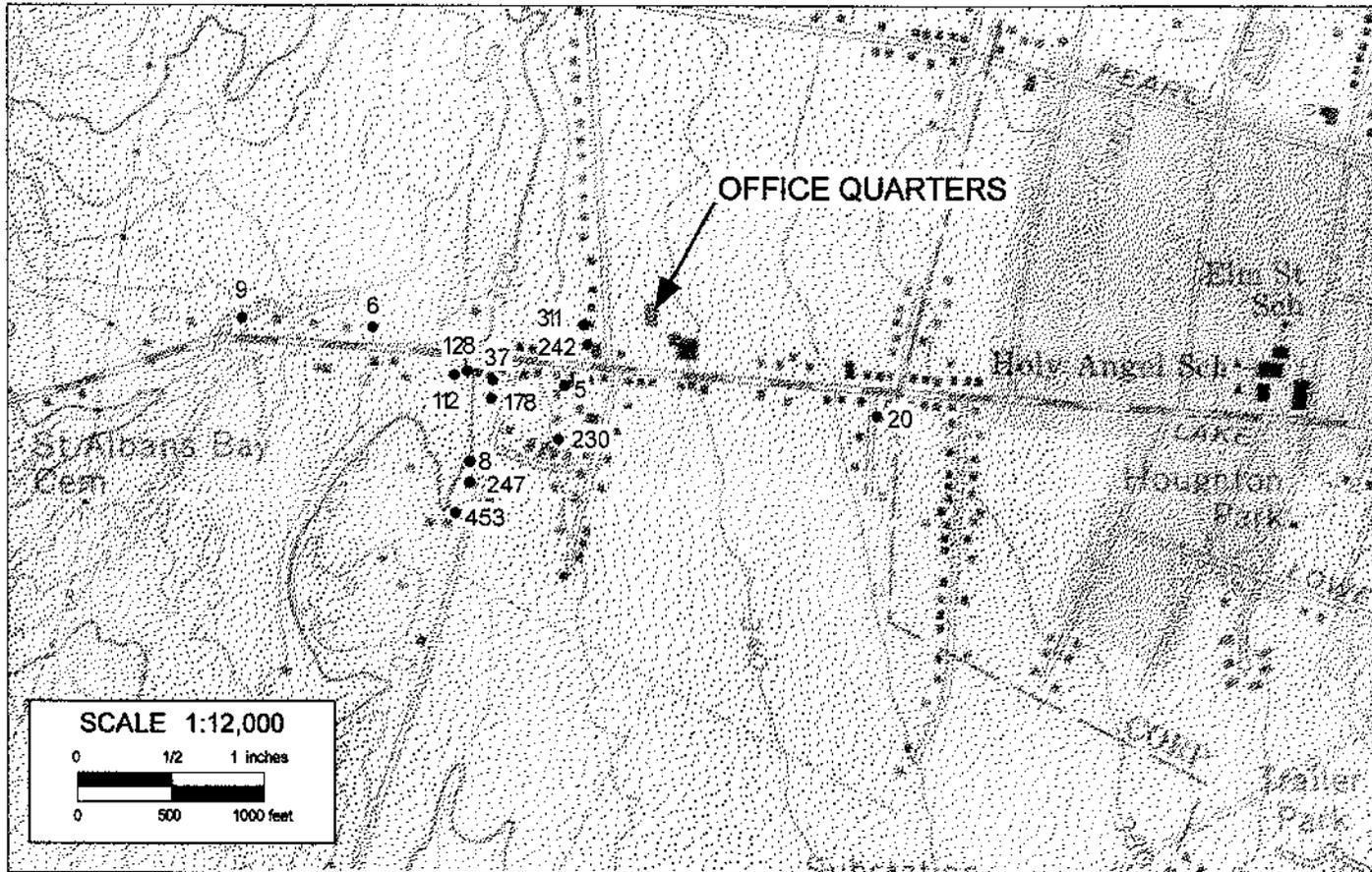


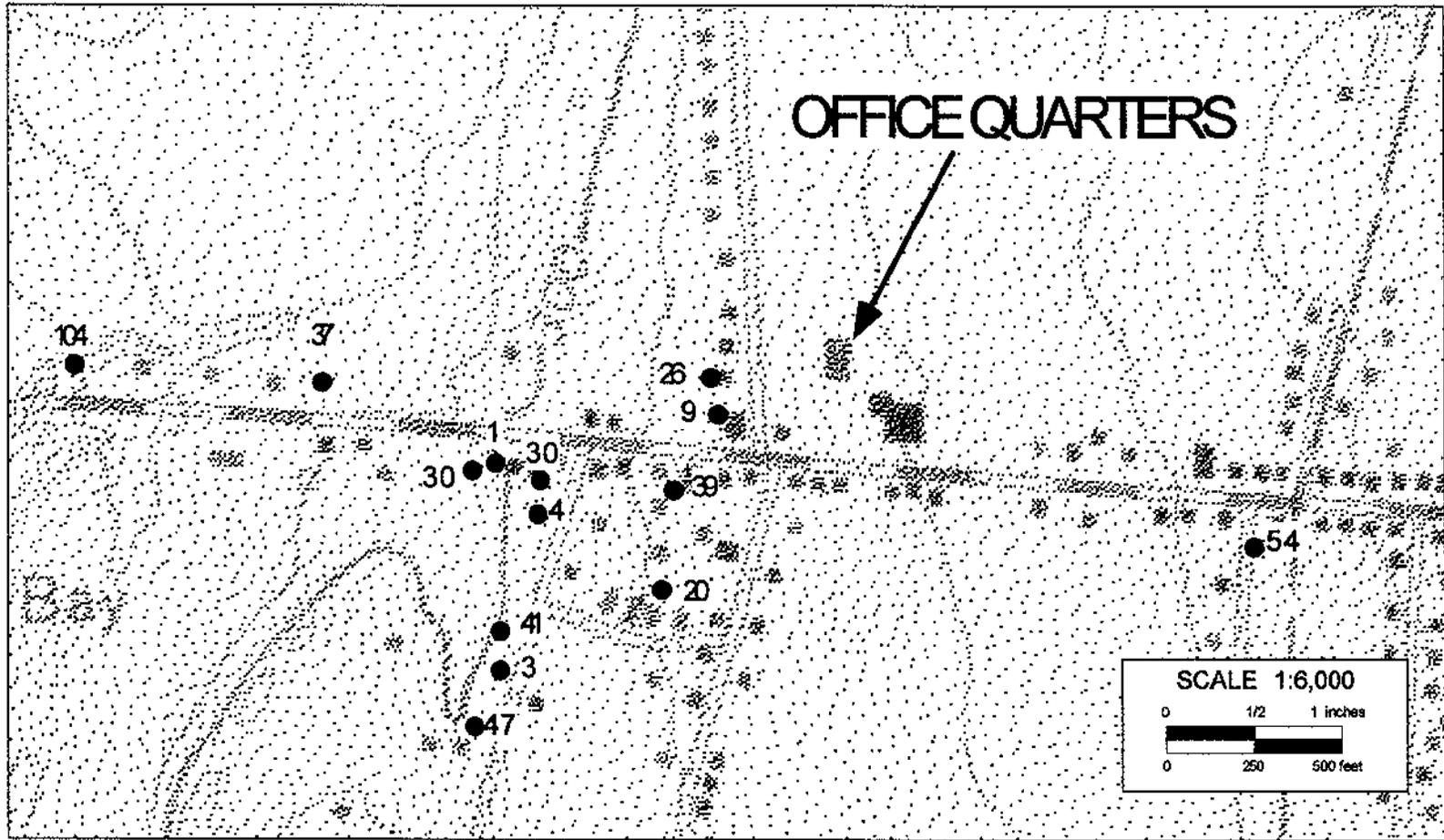
FIGURE 5
XYLENES ISOCONCENTRATION CONTOUR MAP (10/22/96),
AND PROPOSED ADDITIONAL MONITORING WELL LOCATIONS,
OFFICE QUARTERS, ST. ALBANS, VERMONT, SMS SITE #96-2027.



9 ● WATER WELL AND WSD WELL #

BASE ENLARGED FROM U.S. GEOLOGICAL SURVEY, 1:24,000;
ST. ALBANS, VT, PHOTOREVISED 1987

FIGURE 6
PRIVATE WATER SUPPLIES (DRILLED WELLS) IN THE VICINITY OF OFFICE QUARTERS,
ST. ALBANS, VERMONT, SMS SITE #96-2027.



9
● WATER WELL AND DEPTH TO BEDROCK (FEET)

BASE ENLARGED FROM U.S. GEOLOGICAL SURVEY, 1:24,000;
ST. ALBANS, VT, PHOTOREVISED 1987

FIGURE 7
LOCATION OF NEARBY DRILLED WELLS WITH REPORTED DEPTHS TO BEDROCK,
OFFICE QUARTERS, ST. ALBANS, VERMONT, SMS SITE #96-2027.



ANALYTICAL REPORT

P.O. Box 339
 Randolph, Vermont 05060-0339
 (802) 728-6313

SB Collins, Inc.
 PO Box 671
 54 Lower Welden Street
 St. Albans, VT 05478
 Carl Ruprecht

Work Order No.: 9610-03473

Project Name: Office Quarters, St. Albans
 Customer Nos.: 090048

Date Received: 10/23/96
 Date Reported: 10/24/96

| Sample Desc.: TB-1 | Method | Results | Units | Sample Date: 10/22/96 | Analysis Date |
|-----------------------------|----------|---------|------------|-----------------------|---------------|
| Sample Nos: 1 | | | | Collection Time: 0:00 | |
| Test Performed | | | | Analyst | |
| Aromatic Volatile Organics | EPA 8020 | | | JPM | 10/23/96 |
| Methyl Tertiary Butyl Ether | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Benzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Toluene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Ethyl Benzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Total Xylenes | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Chlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,2-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,3-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,4-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Surrogate: 8020 | | | | JPM | 10/23/96 |
| ***Bromofluorobenzene-8020 | | 95 | % Recovery | JPM | 10/23/96 |

| Sample Desc.: MW-3 | Method | Results | Units | Sample Date: 10/22/96 | Analysis Date |
|-----------------------------|----------|---------|------------|------------------------|---------------|
| Sample Nos: 2 | | | | Collection Time: 10:10 | |
| Test Performed | | | | Analyst | |
| Aromatic Volatile Organics | EPA 8020 | | | JPM | 10/23/96 |
| Methyl Tertiary Butyl Ether | EPA 8020 | 6 | ug/L | JPM | 10/23/96 |
| Benzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Toluene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Ethyl Benzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Total Xylenes | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Chlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,2-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,3-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,4-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Surrogate: 8020 | | | | JPM | 10/23/96 |
| ***Bromofluorobenzene-8020 | | 100 | % Recovery | JPM | 10/23/96 |

ANALYTICAL REPORT

Project Name: Office Quarters, St. Albans
Project No.: 090048

Work Order No.: 9610-03473

| Sample Desc.: MW-1 | | | | Sample Date: | 10/22/96 |
|-----------------------------|----------|---------|------------|------------------|---------------|
| Sample Nos: 3 | | | | Collection Time: | 10:49 |
| Test Performed | Method | Results | Units | Analyst | Analysis Date |
| Aromatic Volatile Organics | EPA 8020 | | | JPM | 10/23/96 |
| Methyl Tertiary Butyl Ether | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Benzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Toluene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Ethyl Benzene | EPA 8020 | TRACE | ug/L | JPM | 10/23/96 |
| Total Xylenes | EPA 8020 | 1 | ug/L | JPM | 10/23/96 |
| Chlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,2-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,3-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,4-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Surrogate: 8020 | | | | JPM | 10/23/96 |
| ***Bromofluorobenzene-8020 | | 98 | % Recovery | JPM | 10/23/96 |

| Sample Desc.: MW-4 | | | | Sample Date: | 10/22/96 |
|-----------------------------|----------|---------|------------|------------------|---------------|
| Sample Nos: 4 | | | | Collection Time: | 10:20 |
| Test Performed | Method | Results | Units | Analyst | Analysis Date |
| Aromatic Volatile Organics | EPA 8020 | | | JPM | 10/23/96 |
| Methyl Tertiary Butyl Ether | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Benzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Toluene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Ethyl Benzene | EPA 8020 | TRACE | ug/L | JPM | 10/23/96 |
| Total Xylenes | EPA 8020 | 1 | ug/L | JPM | 10/23/96 |
| Chlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,2-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,3-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,4-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Surrogate: 8020 | | | | JPM | 10/23/96 |
| ***Bromofluorobenzene-8020 | | 98 | % Recovery | JPM | 10/23/96 |

| Sample Desc.: MW-2 | | | | Sample Date: | 10/22/96 |
|-----------------------------|----------|---------|-------|------------------|---------------|
| Sample Nos: 5 | | | | Collection Time: | 10:59 |
| Test Performed | Method | Results | Units | Analyst | Analysis Date |
| Aromatic Volatile Organics | EPA 8020 | | | JPM | 10/23/96 |
| Methyl Tertiary Butyl Ether | EPA 8020 | < 100 | ug/L | JPM | 10/23/96 |
| Benzene | EPA 8020 | 673 | ug/L | JPM | 10/23/96 |



ANALYTICAL REPORT

Project Name: Office Quarters, St. Albans
 Project No.: 090048

Work Order No.: 9610-03473

| Sample Desc.: MW-2 | Method | Results | Units | Sample Date: 10/22/96 | Analysis Date |
|----------------------------|----------|---------|------------|------------------------|---------------|
| Sample Nos: 5 | | | | Collection Time: 10:59 | |
| Test Performed | | | | Analyst | |
| Toluene | EPA 8020 | < 100 | ug/L | JPM | 10/23/96 |
| Ethyl Benzene | EPA 8020 | 1240 | ug/L | JPM | 10/23/96 |
| Total Xylenes | EPA 8020 | 1640 | ug/L | JPM | 10/23/96 |
| Chlorobenzene | EPA 8020 | < 100 | ug/L | JPM | 10/23/96 |
| 1,2-Dichlorobenzene | EPA 8020 | < 100 | ug/L | JPM | 10/23/96 |
| 1,3-Dichlorobenzene | EPA 8020 | < 100 | ug/L | JPM | 10/23/96 |
| 1,4-Dichlorobenzene | EPA 8020 | < 100 | ug/L | JPM | 10/23/96 |
| Surrogate: 8020 | | | | JPM | 10/23/96 |
| ***Bromofluorobenzene-8020 | | 99 | % Recovery | JPM | 10/23/96 |

| Sample Desc.: FB-1 | Method | Results | Units | Sample Date: 10/22/96 | Analysis Date |
|-----------------------------|----------|---------|------------|------------------------|---------------|
| Sample Nos: 6 | | | | Collection Time: 11:10 | |
| Test Performed | | | | Analyst | |
| Aromatic Volatile Organics | EPA 8020 | | | JPM | 10/23/96 |
| Methyl Tertiary Butyl Ether | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Benzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Toluene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Ethyl Benzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Total Xylenes | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Chlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,2-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,3-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| 1,4-Dichlorobenzene | EPA 8020 | BPQL | ug/L | JPM | 10/23/96 |
| Surrogate: 8020 | | | | JPM | 10/23/96 |
| ***Bromofluorobenzene-8020 | | 99 | % Recovery | JPM | 10/23/96 |

BPQL = Below Practical Quantitation Limit; 1 ug/L

TRACE = Detected Below Practical Quantitation Limit of 1 ug/L

c: Hoffer & Associates



ANALYTICAL REPORT

Project Name: Office Quarters, St. Albans
Project No.: 090048

Work Order No.: 9610-03473

Authorized by: Colin Rasmussen

Scitest, Inc.

P.O. Box 339
Route 66 Professional Center, Randolph, VT 05060
Phone: (802)728-6313 Fax: (802)728-6044

*Results to SBC + Hoffer & Associates
Bill to SBC*

| | | | |
|--|--|--|----------------------------------|
| Client: Jeff Hoffer and Associates Contact: Tim Schmaiz | Address: RR 4 Box 2286, Comstock Road Montpelier, VT 05602 | Project # 90048 Phone No: Requested by: JH/JSW | Additional Comments or Direction |
| Project Name: SB Collins Office Quarters, St Alba | Date requested: 10/14/96 Date shipped: Send With Rod Date scheduled: | | |

| CHAIN OF CUSTODY RECORD | | DATE | TIME | | DATE | TIME |
|-------------------------|--------------------|-----------------|----------------|----------------------|------|------|
| Sampled By:* | <i>Jeff Hoffer</i> | <i>10-22-96</i> | <i>10-11 A</i> | Relinquished By: | | |
| Accepted By: | | | | Relinquished By:* | * | * |
| Accepted By: | | | | Received by Scitest: | | |

| Item Nos | Client ID or Description | Sampling Date | Sampling Time | Matrix | Preservative or Label | Bottle Type <small>Plastic/Glass</small> | Container Volume | Bottles per Sample | Parameters and Expiration Time 7days |
|--------------|-----------------------------|-----------------|---------------|--------|-----------------------|---|------------------|--------------------|---|
| 1 | <i>TB-1 (Trip Blank)</i> | <i>10/22/96</i> | | GW | HCl | G | 40 mL | 2 | EPA 8020 |
| 2 | <i>MW-3</i> | <i>10/22/96</i> | <i>10:10</i> | GW | HCl | G | 40 mL | 2 | EPA 8020 |
| 3 | <i>MW-1</i> | <i>10/22/96</i> | <i>10:49</i> | GW | HCl | G | 40 mL | 2 | EPA 8020 |
| 4 | <i>MW-4</i> | <i>10/22/96</i> | <i>10:20</i> | GW | HCl | G | 40 mL | 2 | EPA 8020 |
| 5 | <i>MW-2</i> | <i>10/22/96</i> | <i>10:59</i> | GW | HCl | G | 40 mL | 2 | EPA 8020 <i>hot!</i> |
| 6 | Field Duplicate <i>FB-1</i> | <i>10/22/96</i> | <i>11:10</i> | GW | HCl | G | 40 mL | 2 | EPA 8020 |
| 7 | Trip Blank | | | GW | HCl | G | 40 mL | 2 | EPA 8020 |
| 8 | Extra Set | | | GW | HCl | G | 40 mL | 2 | EPA 8020 |

ALSO 1/2 GALLON DISTILLED WATER

| | | | |
|---------------------|-----------------|-------------|--------------------|
| Report Reviewed By: | Preserve Check: | Project Nos | LABORATORY NUMBER: |
| Date: | | | LOGIN: |

