

# HOFFER & ASSOCIATES CONSULTING HYDROGEOLOGISTS

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Montpelier, VT 05602  
(802) 229 - 1113  
fax: 229 - 2780

March 24, 1997

WASTE MANAGEMENT  
DIVISION  
MAR 27 11 59 PM '97

Don Robisky, Environmental Engineer  
Sites Management Section  
VT DEC - Waste Management Division  
103 South Main Street/West Building  
Waterbury, VT 05671-0404

Re: Additional Well Installations and First Quarter Groundwater Monitoring 1997,  
Minor's Country Store, Fairfax, Vermont, SMS Site #95-1836.

Dear Mr. Robisky:

This letter presents the results of the additional monitoring well installations and first quarter 1997 groundwater monitoring event at Minors Country Store in Fairfax, Vermont. The monitoring results and soil boring/well construction logs are included in the following enclosures:

- Table 1 - Groundwater elevation measurements
- Table 2 - Groundwater sampling results for March 4, 1997
- Table 3 - Groundwater analytical data by well
- Figure 1 - Site location map
- Figure 2 - Site map
- Figure 3 - Water-table map for March 4, 1997
- Figure 4 - Groundwater elevation fluctuations
- Figure 5 - BTEX/MTBE trends in MW-1
- Figure 6 - BTEX/MTBE trends in MW-3
- Groundwater Sampling Data Sheet
- Chain-Of-Custody
- Scitest Analytical Report
- Soil Boring/Monitoring Well construction logs.

***GROUNDWATER & ENVIRONMENTAL SERVICES***

### **Additional Monitoring Well Installations**

On February 19, 1997, two additional monitoring wells were installed at the site, as requested by the Sites Management Section. The purpose of these wells was to determine if a plume of dissolved-phase contamination originating from the closed USTs was migrating northward underneath Vermont Route 104. Soil borings were advanced using Adams' Engineering mini-rig equipment, which drives a five-foot long, 2 5/8-inch diameter hollow-barrel sampling tube. Soil samples were extracted from the sampler visually examined for color, texture, and moisture content. Samples were also screened for contamination with a photoionization detector (PID). The soil borings were advanced to approximately five feet below the water table. Monitoring wells were constructed within the boreholes using 1.5-inch diameter, #10 (0.010-inch) PVC screen and solid riser pipe. Ten feet of screen was placed to intercept the water table, and solid riser pipe was used to complete the wells to grade. The wells were finished with flush-mounted steel manways, cemented in place. Horizontal and vertical control was provided by Adams' Engineering at the conclusion of the drilling event. The locations of the new wells, labeled MW-101 and MW-102, are indicated on Figure 2. Soil boring/monitoring well construction logs are enclosed.

The soils encountered during the soil boring event consisted mostly of loose, fine to medium-grained sands. In MW-102, a sandy silt unit is present over the sand unit. This sandy silt unit extends to a depth of about 6.5 feet. Water was encountered at a depth of approximately 8.5 feet in both borings. The only PID headspace reading above background was in the 10.0 to 11.5 foot interval in MW-101, where a measurement of 60.0 parts per million was recorded<sup>1</sup>.

### **Groundwater Monitoring Event**

Groundwater samples were collected from MW-1, MW-3, MW-101, and MW-102 on March 4, 1997. Prior to sampling, water levels were measured in all of the wells, except MW-8, which was frozen. Table 1 presents depth-to-water measurements and converted groundwater elevations. Figure 3 presents a water-table map for the March 4 data. The water table map depicts a very flat water-table, with a slight gradient toward the north. The water level in MW-101 was anomalously low (the reason for this is uncertain), and was therefore not included in the contouring. Figure 4 is a graph of water level fluctuations at the site, and illustrates that water levels measured on March 4 were slightly lower than those on December 17, 1996, but at approximately the same level as observed in March 1996.

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<sup>1</sup> Photovac 2020, equipped with 10.6 eV lamp, calibrated to isobutylene. All measurements reported are equivalent to isobutylene.

The monitoring wells were sampled using dedicated two-inch polyethylene or 1.5-inch PVC bailers. Three well volumes were purged prior to collecting the samples. Two 40-mL sample vials, provided by the laboratory, were filled at each sampling location. The vials contained hydrochloric acid for sample preservation. Immediately after collection, samples were placed in a cooler with ice. Quality assurance/quality control (QA/QC) samples included a trip blank, a field blank, and a blind duplicate sample. The trip blank consisted of two sealed 40-mL vials filled with deionized water, which were prepared by the laboratory. The trip blank was handled in a similar manner as the samples, and was returned to the laboratory for analysis with the samples. A field blank was collected at the conclusion of the sampling event by pouring deionized water into two sample vials. The blind duplicate was collected by filling four sample vials from MW-1. Two of these vials were submitted to the laboratory as the blind duplicate, designated sample "MW-20" on the groundwater sampling data sheet and the chain-of-custody. A laboratory chain-of-custody (a copy of which is included) was used to document the sampling event and accompanied the samples to the laboratory.

The samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl-tert-butyl-ether (MTBE) using EPA Method 8020 by Scitest Laboratory Services of Randolph, Vermont. Sample results for this quarterly event are compiled on Table 2, and analytical summaries for all of the sampling events at this site are provided on Table 3.

The analytical results for this quarter indicate that BTEX constituents are present in all four sampled wells. The highest BTEX concentrations were in MW-101. Benzene was detected in MW-1, MW-101, and MW-102 at concentrations exceeding the Vermont Groundwater Enforcement Standard (VT GES) for benzene. Benzene was not detected in MW-3. Although the remaining BTEX components were detected in all four wells, only xylenes exceeded the VT GES in MW-101. MTBE was detected only in MW-102, at a concentration of 61 ug/L, in excess of the Vermont Health Advisory of 40 ug/L. The sample and duplicate results were similar, except for the benzene results, which differed by 29 ug/L (67%). There were no detections in either the field or the trip blank.

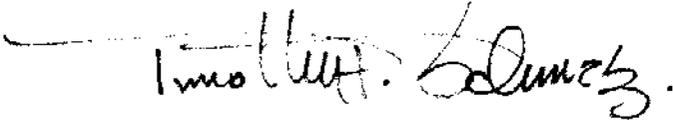
The property north of Route 104 has not been developed beyond agricultural use, and is currently being used as a cornfield. The cornfield extends several hundred feet north, before the property becomes wooded. No other downgradient receptors were identified. The presence of contamination on the northern side of Route 104 likely does not pose a threat to those sensitive receptors in the area previously identified.

Mr. Don Robisky  
March 24, 1997  
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The presence of BTEX and MTBE in MW-102 indicate that there is a dissolved-phase plume migrating under Route 104 from the location of the closed gasoline USTs, the probable source of contamination. In addition, the highest contaminant concentrations were detected in MW-101, which is located directly downgradient of the USTs. We recommend that MW-1, MW-3, MW-101, and MW-102 continue to be monitored on a quarterly basis.

Please give us a call if you would like to discuss these results or our recommendations.

Sincerely,  
HOFFER & ASSOCIATES

A handwritten signature in black ink, appearing to read "Timothy F. Schmalz", written over a horizontal line.

Timothy F. Schmalz  
Project Geologist

cc: Carl Ruprecht, S.B. Collins

**TABLE 1**  
Groundwater elevation measurements.  
Minor's Country Store, Fairfax, Vermont, SMS Site #95-1836.

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

WELL ID	Elev. of TOC (feet)	8/22/95	11/21/95	3/22/96	5/22/96	8/19/96	12/17/96	3/4/97
MW-1	98.22	7.91	7.57	6.85	5.57	6.56	6.52	6.90
MW-3	98.81	8.52	8.46	7.48	6.14	7.23	7.12	7.61
MW-5	98.45	8.24	9.19	7.28	7.03	6.94	6.83	7.14
MW-6	99.08	8.79	8.44	7.79	6.39	7.48	7.40	7.79
MW-7	98.59	dry to 6.24	dry to 6.24	dry to 6.24	5.90	7.03	6.96	7.35
MW-8	98.83	8.66	8.26	7.64	7.13	7.32	7.14	ice in well
MW-9	98.76	8.41	8.06	7.35	5.91	6.97	6.98	7.36
MW-10	98.94	dry to 7.06	dry to 7.06	dry to 7.06	6.06	dry to 7.08	dry to 7.08	dry to 7.06
MW-101	98.65							8.74
MW-102	99.67							8.59

**GROUNDWATER ELEVATIONS (feet)**

WELL ID	Elev. of TOC (feet)	8/22/95	11/21/95	3/22/96	5/22/96	8/19/96	12/17/96	3/4/97
MW-1	98.22	90.31	90.65	91.37	92.65	91.66	91.70	91.32
MW-3	98.81	90.29	90.35	91.33	92.67	91.58	91.69	91.20
MW-5	98.45	90.21	89.26	91.17	91.42	91.51	91.62	91.31
MW-6	99.08	90.29	90.64	91.29	92.69	91.60	91.68	91.29
MW-7	98.59	< 92.35	< 92.35	< 92.35	92.69	91.56	91.63	91.24
MW-8	98.83	90.17	90.57	91.19	91.70	91.51	91.69	ice in well
MW-9	98.76	90.35	90.70	91.41	92.85	91.79	91.78	91.40
MW-10	98.94	< 91.88	< 91.88	< 91.88	92.88	< 91.86	< 91.86	< 91.88
MW-101	98.65							89.91
MW-102	99.67							91.08

Notes:

TOC = top of casing (pvc)

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

**TABLE 2**  
 Groundwater sampling results for March 4, 1997,  
 Minor's Country Store, Fairfax, Vermont, SMS Site #95-1836.

(results in ug/L)

WELL ID	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
MW-1	43 / 14	32 / 30	56 / 56	96 / 82	< 10 / < 5
MW-3	< 1	3	1	2	< 1
MW-101	45	235	375	2570	< 20
MW-102	24	4	2	2	61
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

**REGULATORY THRESHOLDS**

(ug/L)

Standard	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
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**  
 Groundwater analytical data by well,  
 Minor's Country Store, Fairfax, Vermont, SMS Site #95-1836.  
 (results in ug/L)

**MW - 1**

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
8/22/95	55	191	42	1,070	433
11/21/95	32	99	25	481	53
3/22/96	20	98	126	1,000	20
5/22/96	42	132	170	777	15
8/19/96	69	228	293	1,180	< 10
12/17/96	10	29	46	155	< 5
3/4/97	43	32	56	96	10

**MW - 3**

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
8/22/95	1	7	6	6	< 1
11/21/95	< 1	4	3	< 1	< 1
3/22/96	1	3	3	3	< 1
5/22/96	2	< 1	22	18	< 1
8/19/96	< 1	2	2	< 1	< 1
12/17/96	< 1	2	2	4	< 1
3/4/97	< 1	3	1	2	< 1

**MW - 5**

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
8/22/95	< 1	< 1	< 1	< 1	< 1
11/21/95	< 1	< 1	< 1	< 1	< 1
3/22/96	< 1	3	2	7	< 1
5/22/96	< 1	< 1	< 1	< 1	< 1
8/19/96	< 1	< 1	< 1	< 1	< 1
12/17/96	< 1	< 1	< 1	< 1	< 1

**MW - 6**

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
8/22/95	< 1	< 1	< 1	< 1	2
11/21/95	< 1	< 1	< 1	< 1	< 1
3/22/96	< 1	< 1	< 1	< 1	< 1
5/22/96	< 1	< 1	< 1	< 1	< 1
8/19/96	< 1	1	< 1	< 1	< 1
12/17/96	< 1	< 1	< 1	< 1	< 1

**TABLE 3 (continued)**  
 Groundwater analytical data by well,  
 Minor's Country Store, Fairfax, Vermont, SMS Site #95-1836.  
 (results in ug/L)

**MW-7**

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
5/22/96	<1	<1	<1	<1	<1
8/19/96	<1	<1	<1	<1	<1
12/17/96	<1	<1	<1	<1	<1

**MW - 8**

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
8/22/95	<1	<1	<1	<1	<1
11/21/95	<1	<1	<1	<1	<1
3/22/96	<1	<1	<1	<1	<1
5/22/96	<1	<1	<1	<1	1
8/19/96	<1	<1	<1	<1	1
12/17/96	<1	3	<1	<1	<1

**MW - 9**

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
8/22/95	<1	<1	<1	<1	<1
11/21/95	<1	<1	<1	<1	<1
3/22/96	<1	<1	<1	<1	<1
5/22/96	<1	<1	<1	<1	<1
8/19/96	<1	<1	<1	<1	<1
12/17/96	<1	<1	<1	<1	1

**MW-10**

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
5/22/96	<1	<1	<1	<1	<1

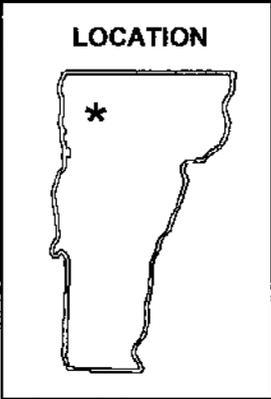
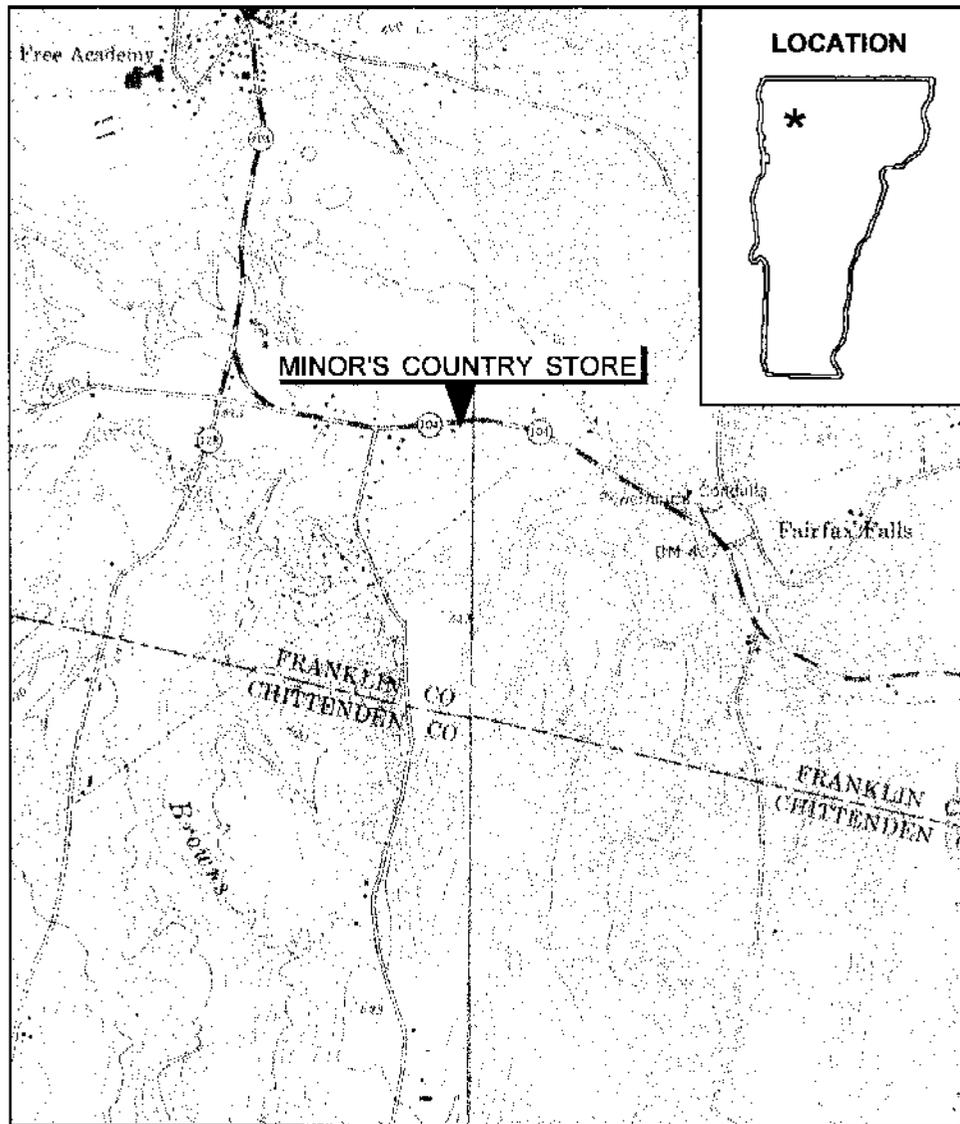
**MW-101**

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
3/5/97	45	235	375	2,570	<1

**MW-102**

Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
3/5/97	24	4	2	2	61

Notes:  
 < 1 = below a detection level of 1



Base from U.S. Geological Survey, 1:24,000, Milton, and Gilson Mtn, VT.

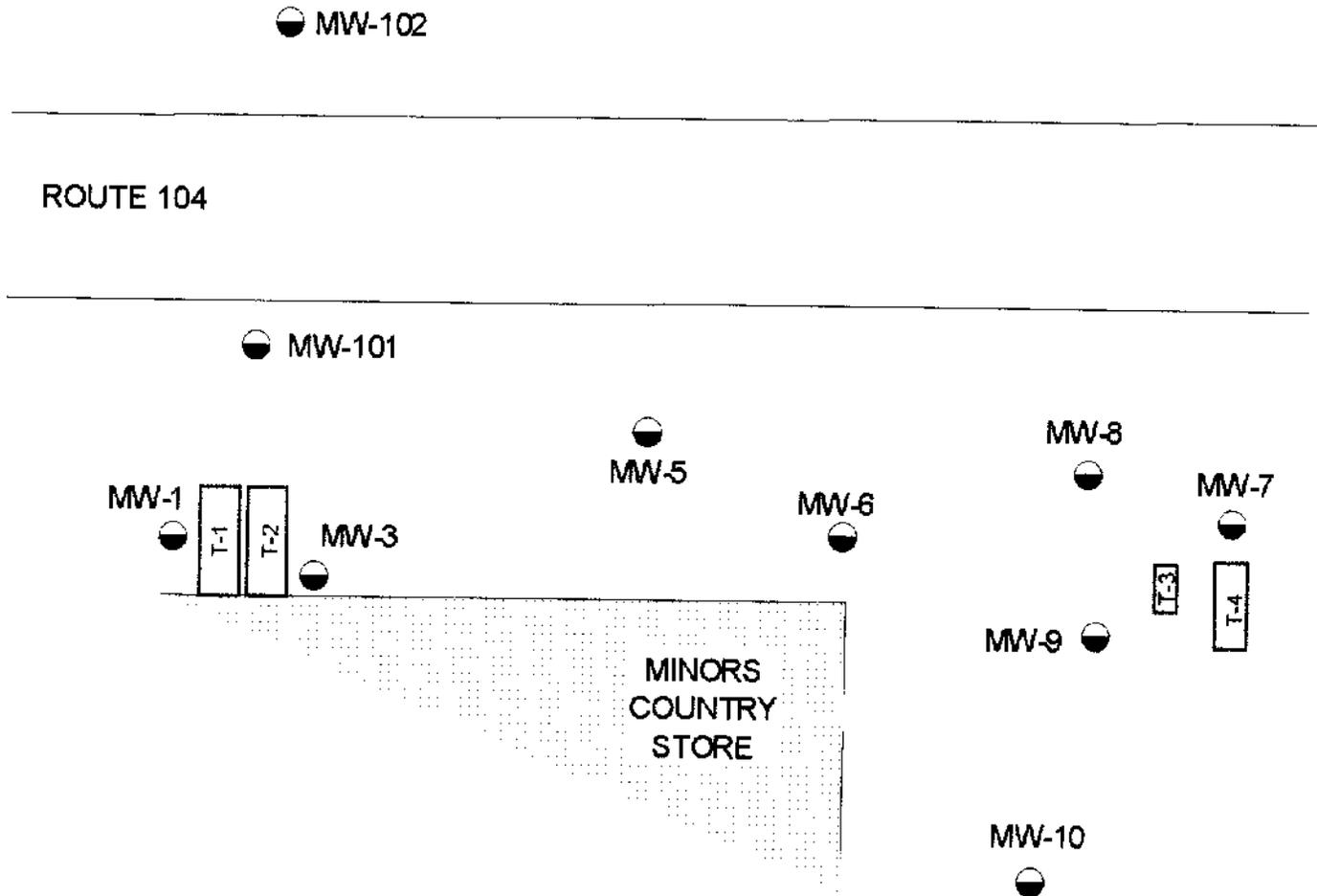
SCALE 1:24,000

0 1000 2000 4000 FEET



CONTOUR INTERVAL 20 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929

**FIGURE 1**  
Site location map, Minor's Country Store, Fairfax, Vermont,  
SMS Site #95-1836.

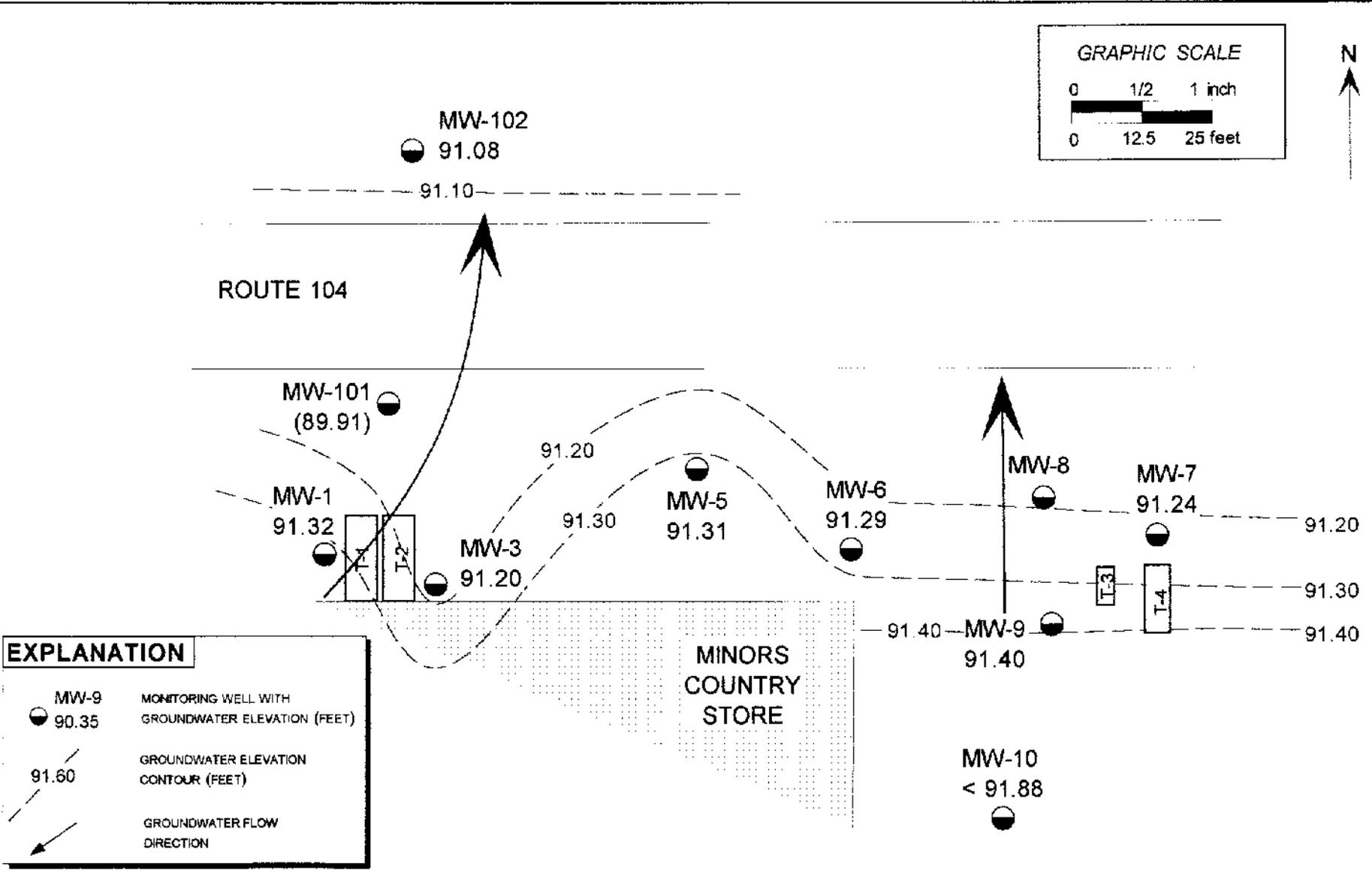


**FORMER TANKS**

- T-1 & T-2, 4000-gallon gasoline tanks closed in place on 6/23/95
- T-3, 550-gallon kerosene tank excavated and removed on 5/25/95
- T-4, 1000-gallon diesel tank excavated and removed on 5/25/95



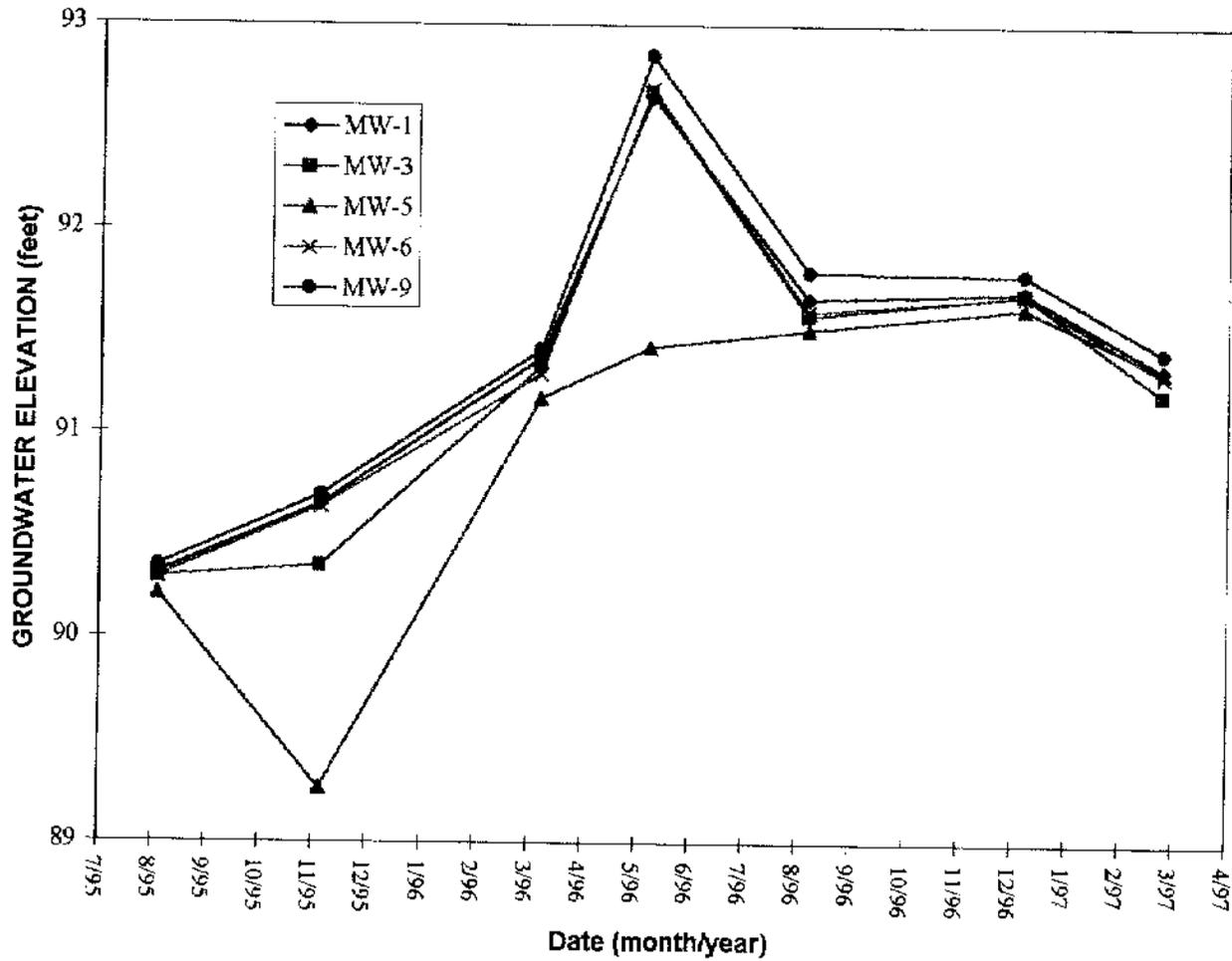
**FIGURE 2**  
Site map, Minor's Country Store,  
Fairfax, Vermont,  
SMS Site #95-1836.



**FIGURE 3**  
 Water-table map, March 4, 1997,  
 Minor's Country Store, Fairfax, Vermont,  
 SMS Site #95-1836.

**FORMER TANKS**  
 T-1 & T-2, 4000-gallon gasoline tanks closed in place on 6/23/95  
 T-3, 550-gallon kerosene tank excavated and removed on 5/25/95  
 T-4, 1000-gallon diesel tank excavated and removed on 5/25/95

### Minor's Country Store



**FIGURE 4**  
Groundwater elevation fluctuations,  
Minor's Country Store, Fairfax, Vermont, SMS Site #95-1836.

# MINORS COUNTRY STORE

## MW-1

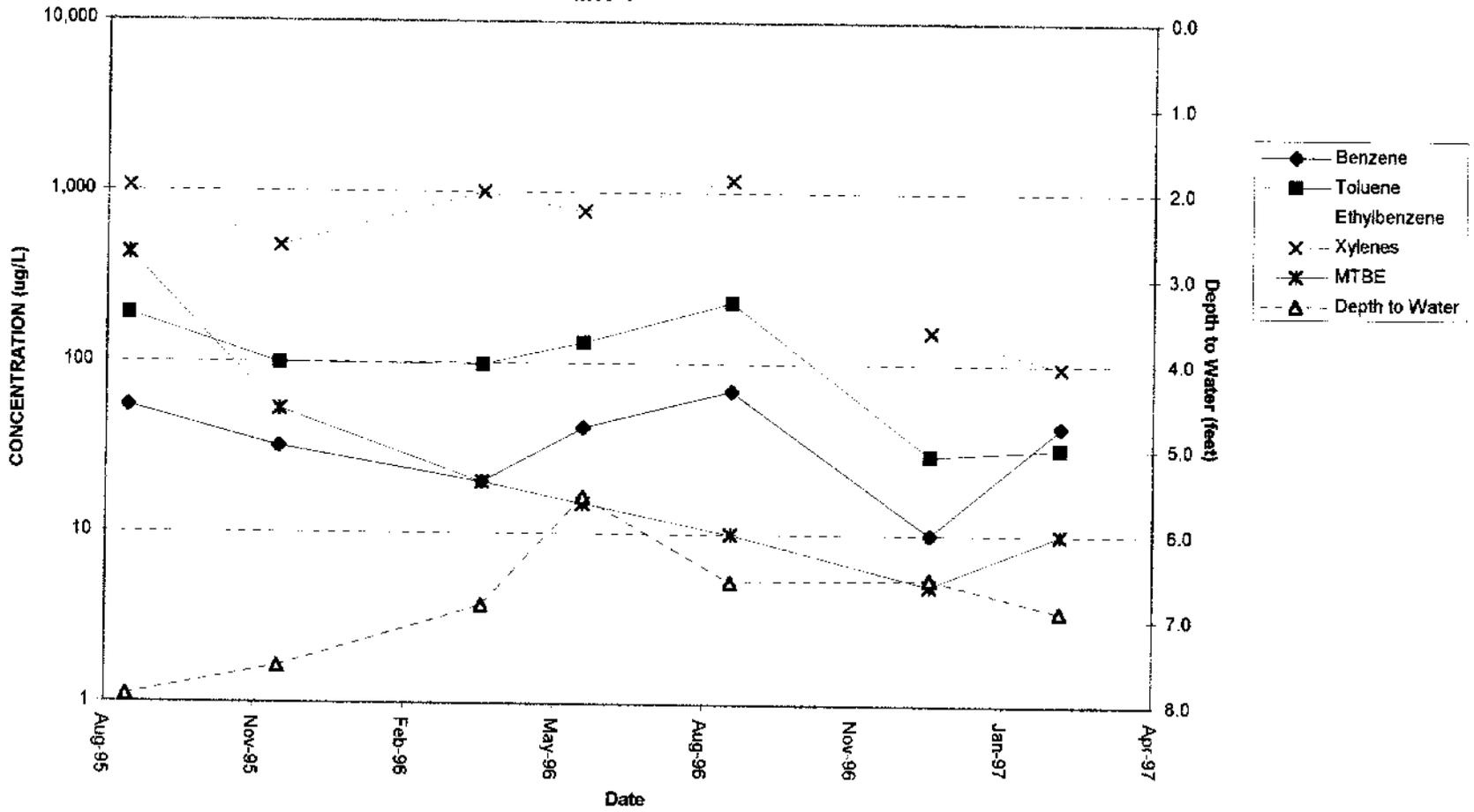


FIGURE 5

# MINORS COUNTRY STORE

## MW-3

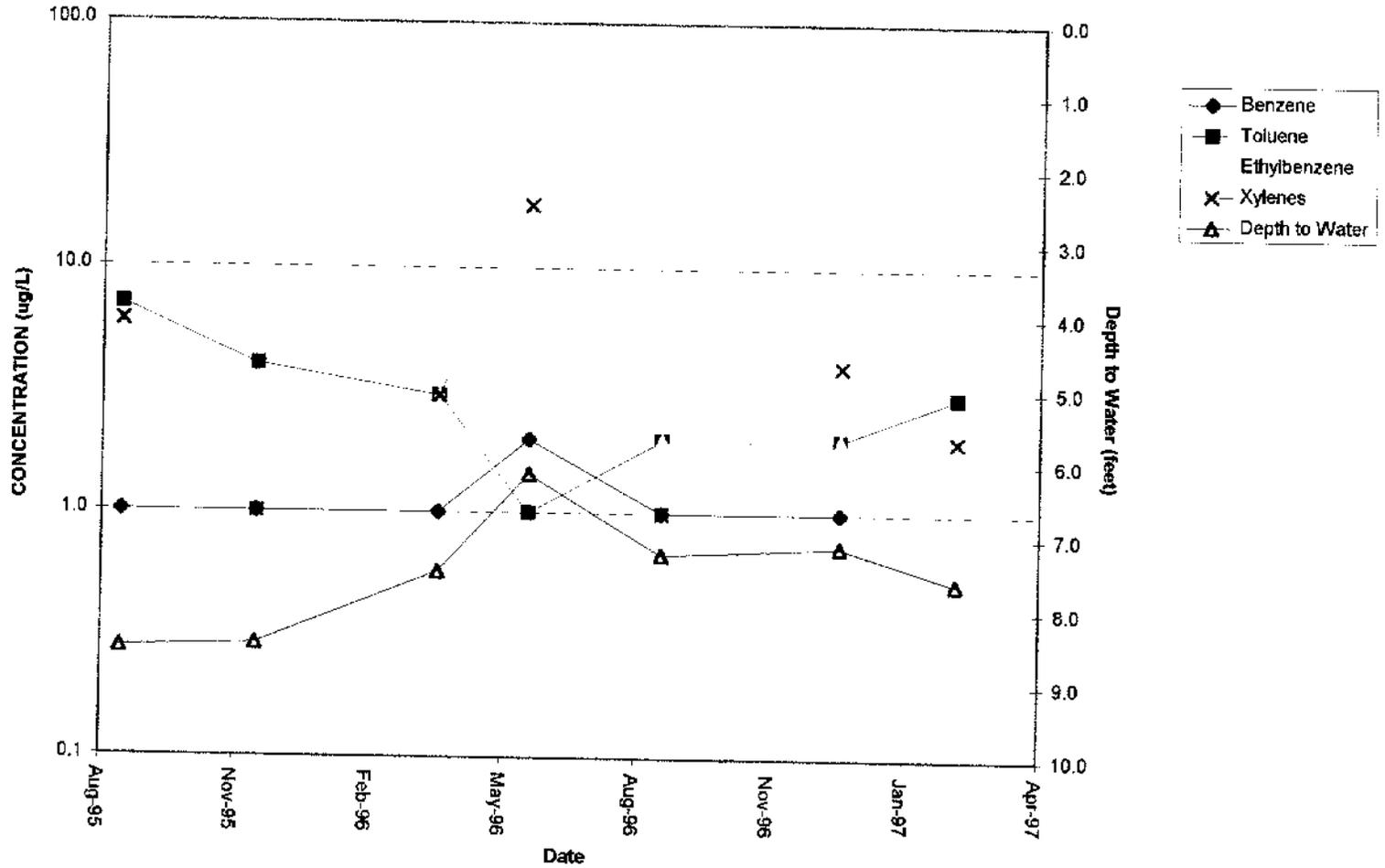


FIGURE 6

# GROUNDWATER SAMPLING DATA SHEET

LOCATION: MINOR'S CTY. STORE  
 DATE: MARCH 4, 1997

SAMPLE METHOD: 1.5" + 2.0" BAILERS  
 SAMPLING TEAM: T. SCHMALZ

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 Number	Time	Remarks
TB-01	NA						1400	TB	TB-01	1400	TRIP BLANK
MW-3		7.61	13.0	5.39	2.59	2.66	1530	S	MW-03	1530	BROWN, SILTY
MW-1		6.90	13.0	6.10	2.93	3.0	1545	S	MW-01	1545	LT. GRAY-BROWN, SILTY
MW-1		↓	↓	↓	↓	↓	↓	DP	MW-20	1600	DUPLICATE SAMPLE
MW-101		8.74	12.3	3.56	0.98	1.0	1515	S	MW-101	1515	DK. BROWN, SILTY, MINOR PHOSPHORUS
(A. STRT) MW-102		8.59	14.5	5.91	1.63	1.75	1500	S	MW-102	1500	DK. BRN, SILTY
FB-01								FB	FB-01	1605	FIELD BLANK
MW-05		7.14									
MW-06		7.79									
MW-07		7.35									
MW-08		ICE IN WELL									
MW-09		7.36									
MW-10		7.06	DRY.								

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

REMARKS \_\_\_\_\_



bill to: SB Collins, Inc.  
 54 Lower Weiden St  
 St. Albans, VT. 05478  
 cc results: Hoffer & Assoc

**Scitest, Inc.**

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

Logged in By: PSB/SKW  
 Anomaly Sheet: Y NY

Preservative Check:  
 Temperature Check: cold

Client: Jefferson P. Hoffer & Associates  
 Address: RR 4 Box 2286, Comstock Road  
 Montpelier, VT 05602

Contact: Tim Schmalz  
 Phone No:

Customer Nos: 70249  
 Project: MINOR'S CTY. STORE  
 Job Template:

Date requested: 02/17/97  
 Date shipped: Pickup 2/18  
 Date scheduled:

**CHAIN OF CUSTODY**

Sampled by: <u>Tim Schmalz</u>	Date	Time	Print Name Here: <u>TIM SCHMALZ</u>	Date	Time
Relinquished by: <u>Tim Schmalz</u>	3/4/97		Accepted by:		
Relinquished by:			Received by Scitest: <u>PSB</u>	3/5/97	8:00

Sample No:	Client ID or Description	Sample Date	Sample Time	Matrix	Preservative	Container Material	Container Volume	Containers per Sample	Parameters
1	MW-03	3/4/97	1530	GW	HCl	Glass	40 mL	2	EPA 8020
2	MW-01	.	1545	GW	HCl	Glass	40 mL	2	EPA 8020
3	MW-20	.	1600	GW	HCl	Glass	40 mL	2	EPA 8020
4	MW-101	.	1515	GW	HCl	Glass	40 mL	2	EPA 8020
5	MW-102	.	1500	GW	HCl	Glass	40 mL	2	EPA 8020
6	FB-01	.	1605	GW	HCl	Glass	40 mL	2	EPA 8020
7		.	.	GW	HCl	Glass	40 mL	2	EPA 8020
8		.	.	GW	HCl	Glass	40 mL	2	EPA 8020
9		.	.	GW	HCl	Glass	40 mL	2	EPA 8020
10		.	.	GW	HCl	Glass	40 mL	2	EPA 8020
11		.	.	GW	HCl	Glass	40 mL	2	EPA 8020
12	Trip Blank (2/18/97)	.	1400	WA	HCl	Glass	40 mL	2	EPA 8020

**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: 9703-00630

MAR-5-97 WED 9:57 AM SCITEST FAX NO. 8027286044



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.: 9703-00630

Project Name: Minor's Country Store  
Customer Nos.: 090048

Date Received: 3/05/97  
Date Reported: 3/11/97

Sample Desc.: MW-03	Method	Results	Units	Analyst	Analysis Date
Sample Nos: 1					
Test Performed					
Aromatic Volatile Organics	EPA 8020/602			JPM	3/10/97
Methyl Tertiary Butyl Ether	EPA 602/8020	BPQL	ug/L	JPM	3/10/97
Benzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97
Toluene	EPA 602/8020	3	ug/L	JPM	3/10/97
Ethyl Benzene	EPA 602/8020	1	ug/L	JPM	3/10/97
Total Xylenes	EPA 602/8020	2	ug/L	JPM	3/10/97
Chlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97
1,2-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97
1,3-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97
1,4-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97
Surrogate: 8020				JPM	3/10/97
***Bromofluorobenzene-8020		95	% Recovery	JPM	3/10/97

Sample Desc.: MW-01	Method	Results	Units	Analyst	Analysis Date
Sample Nos: 2					
Test Performed					
Aromatic Volatile Organics	EPA 8020/602			JPM	3/10/97
Methyl Tertiary Butyl Ether	EPA 602/8020	< 10	ug/L	JPM	3/10/97
Benzene	EPA 602/8020	43	ug/L	JPM	3/10/97
Toluene	EPA 602/8020	32	ug/L	JPM	3/10/97
Ethyl Benzene	EPA 602/8020	56	ug/L	JPM	3/10/97
Total Xylenes	EPA 602/8020	96	ug/L	JPM	3/10/97
Chlorobenzene	EPA 602/8020	< 10	ug/L	JPM	3/10/97
1,2-Dichlorobenzene	EPA 602/8020	< 10	ug/L	JPM	3/10/97
1,3-Dichlorobenzene	EPA 602/8020	< 10	ug/L	JPM	3/10/97
1,4-Dichlorobenzene	EPA 602/8020	< 10	ug/L	JPM	3/10/97
Surrogate: 8020				JPM	3/10/97
***Bromofluorobenzene-8020		95	% Recovery	JPM	3/10/97

## ANALYTICAL REPORT

Project Name: Minor's Country Store  
Project No.: 090048

Work Order No.: 9703-00630

Sample Desc.: MW-20				Sample Date: 3/04/97	
Sample Nos: 3				Collection Time: 16:00	
Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020/602			JPM	3/10/97
Methyl Tertiary Butyl Ether	EPA 602/8020	< 5	ug/L	JPM	3/10/97
Benzene	EPA 602/8020	14	ug/L	JPM	3/10/97
Toluene	EPA 602/8020	30	ug/L	JPM	3/10/97
Ethyl Benzene	EPA 602/8020	56	ug/L	JPM	3/10/97
Total Xylenes	EPA 602/8020	82	ug/L	JPM	3/10/97
Chlorobenzene	EPA 602/8020	< 5	ug/L	JPM	3/10/97
1,2-Dichlorobenzene	EPA 602/8020	< 5	ug/L	JPM	3/10/97
1,3-Dichlorobenzene	EPA 602/8020	< 5	ug/L	JPM	3/10/97
1,4-Dichlorobenzene	EPA 602/8020	< 5	ug/L	JPM	3/10/97
Surrogate: 8020				JPM	3/10/97
***Bromofluorobenzene-8020		100	% Recovery	JPM	3/10/97

Sample Desc.: MW-101				Sample Date: 3/04/97	
Sample Nos: 4				Collection Time: 15:15	
Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020/602			JPM	3/10/97
Methyl Tertiary Butyl Ether	EPA 602/8020	< 20	ug/L	JPM	3/10/97
Benzene	EPA 602/8020	45	ug/L	JPM	3/10/97
Toluene	EPA 602/8020	235	ug/L	JPM	3/10/97
Ethyl Benzene	EPA 602/8020	375	ug/L	JPM	3/10/97
Total Xylenes	EPA 602/8020	2570	ug/L	JPM	3/10/97
Chlorobenzene	EPA 602/8020	< 20	ug/L	JPM	3/10/97
1,2-Dichlorobenzene	EPA 602/8020	< 20	ug/L	JPM	3/10/97
1,3-Dichlorobenzene	EPA 602/8020	< 20	ug/L	JPM	3/10/97
1,4-Dichlorobenzene	EPA 602/8020	< 20	ug/L	JPM	3/10/97
Surrogate: 8020				JPM	3/10/97
***Bromofluorobenzene-8020		98	% Recovery	JPM	3/10/97

Sample Desc.: MW-102				Sample Date: 3/04/97	
Sample Nos: 5				Collection Time: 15:00	
Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020/602			JPM	3/10/97
Methyl Tertiary Butyl Ether	EPA 602/8020	61	ug/L	JPM	3/10/97
Benzene	EPA 602/8020	24	ug/L	JPM	3/10/97
Toluene	EPA 602/8020	4	ug/L	JPM	3/10/97
Ethyl Benzene	EPA 602/8020	2	ug/L	JPM	3/10/97
Total Xylenes	EPA 602/8020	2	ug/L	JPM	3/10/97

## ANALYTICAL REPORT

Project Name: Minor's Country Store  
Project No.: 090048

Work Order No.: 9703-00630

Sample Desc.: MW-102				Sample Date:	3/04/97	
Sample Nos: 5				Collection Time:	15:00	
Test Performed	Method	Results	Units	Analyst	Analysis Date	
Chlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
1,2-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
1,3-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
1,4-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
Surrogate: 8020				JPM	3/10/97	
***Bromofluorobenzene-8020		106	% Recovery	JPM	3/10/97	

Sample Desc.: FB-01				Sample Date:	3/04/97	
Sample Nos: 6				Collection Time:	16:05	
Test Performed	Method	Results	Units	Analyst	Analysis Date	
Aromatic Volatile Organics	EPA 8020/602			JPM	3/10/97	
Methyl Tertiary Butyl Ether	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
Benzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
Toluene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
Ethyl Benzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
Total Xylenes	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
Chlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
1,2-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
1,3-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
1,4-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
Surrogate: 8020				JPM	3/10/97	
***Bromofluorobenzene-8020		93	% Recovery	JPM	3/10/97	

Sample Desc.: TRIP BLANK(02/18/97)				Sample Date:	3/04/97	
Sample Nos: 7				Collection Time:	14:00	
Test Performed	Method	Results	Units	Analyst	Analysis Date	
Aromatic Volatile Organics	EPA 8020/602			JPM	3/10/97	
Methyl Tertiary Butyl Ether	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
Benzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
Toluene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
Ethyl Benzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
Total Xylenes	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
Chlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
1,2-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
1,3-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
1,4-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	3/10/97	
Surrogate: 8020				JPM	3/10/97	
***Bromofluorobenzene-8020		100	% Recovery	JPM	3/10/97	

ANALYTICAL REPORT

Project Name: Minor's Country Store  
Project No.: 090048

Work Order No.: 9703-00630

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BPQL = Below Practical Quantitation Limit; 1 ug/L

c: Hoffer & Associates

Authorized by: Federick Lamothe

# SOIL BORING / MONITORING WELL CONSTRUCTION LOG

WELL BORING ID: MW-101

Client / Site:	S B Collins, Inc. / Minor's Country Store
Location:	Route 104 East, Fairfax VT
Project Number:	04-20
Driller:	Gerry Adams - Adams Engineering
Drilling Method:	2 3/8" Sampler (vibratory)
Geologist:	Tim Schmalz
Sampling Method:	continuous samples
Date:	2/19/97
Weather:	Warm (mid 40's), cloudy, damp
Boring Location:	North of abandoned USTs and MW-1, MW-3

<b>Well Construction Information</b>	
Total Depth Drilled:	15.0' BGS
Screen Type/Interval:	1.5" sch. 40 10-slot PVC / 12.3' - 2.3' BGS
Riser Type/Interval:	1.5" sch. 40 PVC / 2.3' - 0.3' BGS
Sandpack Type/Interval:	#1 sand & natural pack / 12.3' - 2.0' BGS
Seal Type/Interval:	Bentonite slurry / 2.0' - 1.0' BGS
Water Level/Elev./Date/Time	8.74' BGS/3-4-97/1300
Elevation Ground:	98.96
Elevation TOC:	98.65
Other:	Developed with peristaltic pump

Sample Interval (feet BGS)	Total Driven / Recovery (feet)	Recovered Interval (feet)	Approximate Depth (feet BGS)	Sample Description (color, texture, moisture, etc.)	USDA Soil Texture	PID Reading* (ppm)
0.0 - 5.0	5.0 / 2.3	0.0 - 2.3	1.5 - 3.8	Augered to 5.0' prior to spooning through frozen asphalt and underbed materials (mostly coarse angular gravel and gray silty sand). Spoon contained same, grading into brown, dry gravelly sandy silt.	Gravelly sandy loam	0.0
5.0 - 10.0	5.0 / 3.9	0.0 - 3.9	5.0 - 9.0	Gray-brown, moist to wet, loose, sand, with trace gravel (90% f to m subrounded sand, 5% silt and clay, 5% f to m round to sub-angular gravel).	sand	0.0
10.0 - 15.0	5.0 / 4.3	0.0 - 1.5	10.0 - 11.5	Same (as above), wet.	sand	60.0
		1.5 - 2.8	11.5 - 14.3	Brown, wet, firm sandy silt (40% fine sand, 50% silt, 10% clay).	silt loam	0.0

### Generalized Geologic Log and Other Observations:

0.0' - 2.5': Asphalt and gray coarse angular gravel and silty sand fill.

2.5' - 11.5': Moist to wet sands with minor gravel and silt, lacustrine/littoral deposits.

11.5' - 14.3': Firm, saturated silt, lacustrine.

### 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-102

Client / Site:	S B Collins, Inc. / Minor's Country Store
Location:	Route 104 East, Fairfax VT
Project Number:	04-20
Driller:	Gerry Adams - Adams Engineering
Drilling Method:	2 3/8" Sampler (vibratory)
Geologist:	Tim Schmalz
Sampling Method:	continuous samples
Date:	2/19/97
Weather:	Warm (mid 40's), cloudy, damp
Boring Location:	North of Rt. 104, in right-of-way

Well Construction Information	
Total Depth Drilled:	15.0' BGS
Screen Type/Interval:	1.5" sch. 40, 10-slot PVC / 14.5' - 4.5' BGS
Riser Type/Interval:	1.5" sch. 40 PVC / 4.5' - 0.5' BGS
Sandpack Type/Interval:	#1 sand & natural pack / 14.5' - 3.5' BGS
Seal Type/Interval:	Bentonite slurry / 3.5' - 1.0' BGS
Water Level/Elev./Date/Time	6.59/3-4-97/1300
Elevation Ground:	100.01
Elevation TOC:	99.67
Other:	Developed with peristaltic pump

Sample Interval (feet BGS)	Total Driven / Recovery (feet)	Recovered Interval (feet)	Approximate Depth (feet BGS)	Sample Description (color, texture, moisture, etc.)	USDA Soil Texture	PID Reading* (ppm)
0.0 - 5.0	5.0 / 1.9	0.0 - 0.6	1.5 - 2.1	Augered to 5.0' prior to spooning through frozen gravel and underbed materials ( mostly coarse angular gravel and gray silty sand). Spoon contained same.	Gravelly sandy loam	0.0
		0.6 - 1.9	2.1 - 3.4	Light brown to brown, moist to wet gravelly sandy silt (25% f to m angular to subrounded gravel, 20% f sand, 30 % silt, 25% clay).	gravelly silt loam	0.0
5.0 - 10.0	5.0 / 3.4	0.0 - 0.6	5.0 - 5.6	Brown, slightly moist, slightly stiff sandy silt (40% fine sand, 40% silt, 20% clay).	loam	0.0
		0.6 - 1.6	5.6 - 6.6	Brown, slightly moist, slightly stiff sandy silt (40% medium sand, 40% silt, 20% clay, trace fine angular gravel).	loam	0.0
		1.6 - 3.4	6.6 - 8.4	Gray-brown, moist to wet, loose, sand, with trace gravel (90% f to m subrounded sand, 5% silt and clay, 5% f to m round to sub-angular gravel).	sand	0.0
10.0 - 15.0	5.0 / 3.3	0.0 - 3.3	10.0 - 13.3	Same (as above), wet, gravelly layer from 13.0 to 13.3 feet..	sand	0.0

### Generalized Geologic Log and Other Observations:

0.0' - 2.5': Gray coarse angular gravel and silty sand fill.

2.5' - 6.6': Lacustrine silt and fine to medium sand.

6.6' - 13.3': Lacustrine medium sand, saturated, occasional rounded to subangular gravel.

### Notes:

\* = Peak Headspace Reading, Photovac 2020 with 10.6 eV lamp, calibrated to isobutylene.

BGS = Below Ground Surface, NR = No Recovery, NS = not sampled