

# Tighe & Bond

Consulting Engineers

Environmental Specialists

APR 21 7 42 AM '00

MAST 11/11/00  
BUNO,VT

V-1075-1-077  
April 21, 2000

Ms. Sharon Abbott  
J.W. Sandri of Vermont, Inc.  
PO Box 1578  
Greenfield, MA 01302

Re: Site Investigation Report  
Sonny's Sunoco Service Station

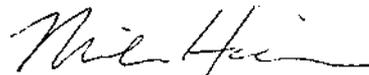
Dear Sharon:

Enclosed is the Site Investigation Report for Sonny's Sunoco Service Station at 229 Canal Street in Brattleboro, VT. A copy of this report has been forwarded to the Department of Environmental Conservation, as you requested.

If you have any questions, please don't hesitate to call. Thanks.

Very truly yours,

TIGHE & BOND, INC.



Michael A. Heidorn  
VT/NH Office Manager

CC: Mr. Gerald Noyes, VT DEC  
Enclosure

Phase (check one)	Type (check one)
<input checked="" type="checkbox"/> Initial Site Investigation	<input type="checkbox"/> Work Scope
<input type="checkbox"/> Corrective Action Feasibility Investigation	<input checked="" type="checkbox"/> Technical Report
<input type="checkbox"/> Corrective Action Plan	<input type="checkbox"/> PCF Reimbursement Request
<input type="checkbox"/> Corrective Action Summary Report	<input type="checkbox"/> General Correspondence
<input type="checkbox"/> Operations & Monitoring Report	

**SITE INVESTIGATION REPORT**

**Sonny's Sunoco Service Station  
Brattleboro, Vermont**

**VT SMS Site No. 992663**

*Prepared For:*

J.W. Sandri of Vermont, Inc.  
P.O. Box 1578  
Greenfield, MA 01302  
Contact: Ms. Sharon Abbott  
(800) 628-1900

*Prepared By:*

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Bellows Falls, VT 05101  
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(802) 463-2200

April 21, 2000

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**SITE INVESTIGATION REPORT**

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**VT SMS Site No. 992663  
Sonny's Sunoco Service Station  
Brattleboro, Vermont**

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*Prepared for:  
J.W. Sandri of Vermont, Inc.  
P.O. Box 1578  
Greenfield, MA 01302*

*April 21, 2000*

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**Tighe&Bond**  
*Consulting Engineers  
Environmental Specialists*

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## EXECUTIVE SUMMARY

Sonny's Sunoco Service Station is located at 229 Canal Street, at the intersection of Birge and Canal Streets, in Brattleboro, Vermont. According to the Town of Brattleboro's Tax Assessor's Cards, the approximately 0.12 acre parcel contains one structure with an office and a garage area. Municipal water and sanitary sewer systems serve the site and vicinity. The properties adjacent to the site consist of commercial development to the north, south and east, and residential development to the west. The Connecticut River is located approximately 0.75 miles to the east of the site.

In August 1999, J.W. Sandri of Vermont, Inc. (Sandri) removed three gasoline underground storage tanks (USTs), one waste oil UST and one No. 2 fuel oil UST. Soil samples collected from UST graves were scanned with a photoionization detector (PID) and had readings ranging from non-detected (ND) to 669 parts per million (ppm). Based on these findings, the Department of Environmental Conservation (DEC) and Sandri determined that additional assessment activities were necessary.

In December 1999, Tighe and Bond supervised the advancement of three on-site soil borings and the subsequent installation of monitoring wells. Soil samples were collected every five feet and screened with a PID for the presence of volatile organic compounds (VOCs). PID readings ranged from ND to 2000+ ppm. Groundwater samples were collected and analyzed in a base laboratory for volatile organic compounds (VOCs), methyl-tert-butylether (MTBE) and total petroleum hydrocarbons (TPH). Laboratory results indicated that toluene, ethylbenzene, xylene, chloroform, and 1,3,5-trimethylbenzene were detected at concentrations below the DEC Enforcement Standards (ESs) and Preventive Action Limits (PALs). However, carbon tetrachloride was detected at concentrations of up to 3.7 parts per billion (ppb), which exceed the applicable PAL of 0.5 ppb.

Based on the UST closure information and soil sampling data, on-site soils have been impacted by petroleum contamination. Based on DEC guidelines, the levels of soil contamination detected will require further investigative and remedial actions.

Based on the soil and groundwater sampling data discussed above, groundwater has been impacted by a release (or releases) of petroleum at the site. Although dissolved contaminant levels are relatively low, contaminated soil poses a potential ongoing threat to groundwater quality. Drinking water supplies, indoor air, and subsurface utility corridors do not appear to have been impacted by petroleum releases at this site.

It is recommended that a Corrective Action Feasibility Investigation (CAFI) be conducted to evaluate soil remediation alternatives. The CAFI should include additional subsurface investigation to more adequately define the extent of soil and groundwater contamination, and pilot testing of applicable technologies. The results of the CAFI should be summarized in a detailed report that outlines the extent and degree of contamination, as well as possible remedial alternatives and further recommendations.

## 1.0 SITE DESCRIPTION & HISTORY

This report summarizes the findings of a site investigation conducted at Sonny's Sunoco Service Station (the "site"). The site is located at the intersection of Birge and Canal Streets, in Brattleboro, Vermont. The investigation included the installation of groundwater monitoring wells, the sampling of soil and groundwater, and research regarding potential impacts to receptors. The investigation was conducted in general accordance with a workscope prepared by Tighe & Bond dated October 29, 1999. The Vermont Department of Environmental Conservation (DEC) approved this workscope and budget estimate in a letter dated November 12, 1999.

**1.1 Site Description** - According to the Town of Brattleboro's Tax Assessor's Cards, the parcel (Map 32, Lot 32) covers an area of approximately 5,300 square feet and contains one structure with a service station and garage. The structure occupies an area of approximately 1,260 square feet. A Site Locus is presented in Figure 1, showing the site at an elevation of approximately 340 feet above mean sea level. The area within approximately one-half mile of the site has a maximum relief of 500 feet with topography generally higher to the southwest.

Municipal water and sanitary sewer systems serve the site and vicinity. The properties adjacent to the site consist of commercial development to the north, south and east, and residential development to the west. The property to the west is a multi-family dwelling. A list of abutting property owners is included as Appendix A of this report. The Connecticut River is located approximately 0.75 miles east of the site.

**1.2 Site History** - Sharon E. Abbott, Environmental Coordinator for J.W. Sandri of Vermont, Inc. (Sandri), was present for the removal of five underground storage tanks (USTs) located at the site (Facility ID #86) on August 9, 1999. The UST Permanent Closure Form prepared by Ms. Abbott indicated that evidence of contamination was observed in the tank removal area. A review of her report revealed the following information relating to site:

- Three 4,000-gallon USTs (UST #1, UST #2, and UST #3) were documented as containing gasoline. One 2000-gallon UST (UST #4) was registered as containing No. 2 fuel oil, and one 550-gallon UST (UST #5) was registered as containing waste oil. According to Sandri, UST #1, UST #2 and UST #3 were approximately 38 years old. The ages of UST #4 and UST #5 were listed as "unknown".
- All five tanks and associated piping were located to the north of the service station building. UST #1 and UST #2 were observed to be in fair condition with some rust. UST #3 was observed to have some rust and pitting on the underside. UST #4 and UST #5 were observed to be in fair condition with rusting.
- A Photovac Model #2020 photoionization detector (PID) was used for on-site soil screening using the headspace method. Screening of composite samples from under each of the three gasoline tanks with the PID produced readings ranging from 61 parts per million (ppm) to 669 ppm. The highest PID reading was observed in a soil sample collected from beneath UST #3, which was located in the northwest corner of the site, closest to Birge Street.

- No petroleum vapors were detected on the PID meter in soil samples collected from the southern and western portions of the No. 2 fuel oil tank (UST #4) excavation. The maximum PID reading (169 ppm) was observed near the eastern end of the tank.
- No petroleum vapors were detected on the PID meter around the used oil tank (UST # 5). Three soil samples were collected from the grave of UST #5 and delivered to Alpha Analytical Lab of Westborough, Massachusetts under proper chain of custody. Two of the samples were analyzed for volatile organic compounds (VOCs) by EPA Method 8260, and one was analyzed for total petroleum hydrocarbons (TPH) by EPA Method 8015. Trichloroethene was detected at a concentration of 5.6 parts per billion (ppb) in one of the samples. No other compounds were detected.
- With DEC approval, approximately 60 cubic yards of petroleum-contaminated soil that had been excavated during the tank removal was moved to a Sandri-owned facility on Route 142 in Brattleboro. The remainder of the soil was backfilled on site.
- Soil encountered during the excavation consisted of coarse sand with a significant percentage of gravel to a depth of approximately six feet. Silty clay and coarse sand were encountered between the depths of six feet and 12 feet. Below 12 feet, coarse gravel was observed. Neither groundwater nor bedrock was encountered in the excavation.

According to Sandri, the five former USTs were replaced with a single 10,000-gallon gasoline UST in August 1999. The approximate locations of all former and current USTs are shown on Figure 2.

Installed 3 x 30'

removed 4 x 20'

## 2.0 SUBSURFACE EXPLORATIONS AND ANALYSES

**2.1 Monitoring Well Installation** – On December 22, 1999, Tighe & Bond supervised the advancement of three soil borings (SB-1, SB-2 and SB-3) at the site and the subsequent installation of three groundwater monitoring wells (MW-1, MW-2 and MW-3, respectively) at these boring locations. Soil boring/monitoring well locations are shown in Figure 2. The wells are located in the area from which the USTs were removed in August 1999. Detailed soil descriptions and well construction information are provided in the soil boring/monitoring well logs in Appendix B.

Soil borings were advanced by M & W Soils Engineering of Charlestown, New Hampshire, using a hollow-stem auger rig. During the advancement of the soil borings, split-spoon samples were collected at five-foot intervals for analysis. The soil samples were visually classified by a Tighe & Bond representative and field screened for organic vapors with a Photovac 2020 PID calibrated to an isobutylene reference standard of 101 ppm with a benzene-equivalent response factor of 1.0.

Soil samples consisted primarily of fine to medium sands with some silt and gravel. During the advancement of SB-1/MW-1, a peak PID reading of 268 ppm was detected at a depth of 15 to 15.5 feet below ground surface (bgs). During the advancement of SB-2/MW-2, peak PID readings of 2000+ ppm were observed at depths of 10 to 12 feet bgs and 15 to 17 feet bgs. During the advancement of SB-3/MW-3, a peak PID reading of 15.2 ppm was detected at a depth of 10 to 12 feet bgs.

The three monitoring wells were completed using two-inch diameter polyvinyl chloride (PVC). The annulus of each well was filled with clean sand to approximately 1 foot above the top of the well screen. Bentonite seals were placed above the sand packs, the remaining annuli were backfilled, and flush-mounted road boxes were installed at the ground surface. The wells were developed by hand bailing prior to departure from the site. Well development wastewater was discharged to the ground surface.

**2.2 Groundwater Sampling and Analysis** – On December 28, 1999, Tighe & Bond personnel returned to the site and collected groundwater samples from monitoring wells MW-1, MW-2, and MW-3. Depth to the water table in the monitoring wells was gauged in each monitoring well with an electronic water level meter prior to sampling.

After gauging, Tighe & Bond purged three well volumes of groundwater from each of the wells. Water samples were collected from each well and submitted on ice to Severn Trent Laboratories of Westfield, Massachusetts. The samples were analyzed for volatile organic compounds (VOCs) and methyl-tert-butylether (MTBE) by EPA Method 8260 and total petroleum hydrocarbons (TPH) by EPA Method 8100M. The concentrations of contaminants detected in the samples are presented in Table 1, along with the corresponding DEC Enforcement Standards (ESs) and Preventive Action Levels (PALs). A complete laboratory report for the December 28, 1999 sampling event is presented in Appendix C.

**Table 1: Summary of Groundwater Sampling Results**

Date	Compound	Enforcement Standard	Preventive Action Level	MW-1	MW-2	MW-3
December 28, 1999	Benzene	5.0	0.5	ND<1.0	ND<1.0	ND<1.0
	Toluene	1,000	500	ND<1.0	14	ND<1.0
	Ethylbenzene	700	350	ND<1.0	3.9	ND<1.0
	Xylenes	10,000	5,000	ND<1.0	10.6	ND<1.0
	MTBE	40	20	ND<1.0	ND<1.0	ND<1.0
	Carbon Tetrachloride	5.0	0.5	ND<1.0	<b>1.8</b>	<b>3.7</b>
	1,3,5-Trimethylbenzene	4.0	2.0	ND<1.0	1.8	ND<1.0
	Total Trihalomethanes (Chloroform)	100.0	50.0	ND<1.0	ND<1.0	1.2
TPH	NA	NA	ND<0.5	ND<0.5	ND<0.5	

Notes:  
 VOC results in ug/L (ppb) and TPH results in mg/L (ppm)  
 ND = Not Detected    N/A = Not applicable    NS = Not Sampled    Exceedances of ESS/PALs shown in bold.

As shown on table 1, none of the analytes were detected at concentrations exceeding the applicable ESSs. Carbon tetrachloride was detected in samples MW-2 and MW-3 at concentrations exceeding the applicable PAL (0.5 ppb).

On January 14, 1999, the monitoring wells were surveyed relative to an arbitrary benchmark. The depth to the water table was measured in each on-site monitoring well and an off-site monitoring well located in Birge Street (as shown in Figure 2). This data was used to plot the groundwater flow direction at the site. Figure 2 presents the relative groundwater elevations and an approximation of the groundwater flow direction on that date. Groundwater appears to flow to the north. This result is consistent with groundwater flow directions mapped for the A.L. Tyler and Sons, Inc. hazardous waste site (DEC Site No. 93-1429) located approximately 350 feet northeast of Sonny's Sunoco, as presented in the *Bedrock Study and Long Range Contaminant Migration Evaluation Report* (ERD Environmental, Inc., January 27, 1997).

**2.3 Site Geology** – Surficial geology at the site is glaciolacustrine sand and gravel, according to the *Surficial Geologic Map of Vermont*, (State of Vermont, 1969). This description is consistent with the types of overburden materials observed during the December 1999 soil boring advancement activities. Published mapping (*Bedrock Geology of Vermont*, State of Vermont, 1961; *Geology for Environmental Planning in the Brattleboro-Windsor Region*,

Vermont Geological Survey, 1975) indicates bedrock at the site consists of schists, slates and phyllites of the Gile Mountain and Littleton Formations. Bedrock was not encountered during the advancement of soil borings at the site.

**2.4 Site Hydrogeology** – The depth to the water table ranged from 27.51 feet to 28.77 feet bgs when measured on January 14, 2000. As noted and indicated on Figure 2, the direction of groundwater flow was determined to be to the north. The hydraulic gradient is relatively flat at approximately 0.4 percent.

### **3.0 POTENTIAL RECEPTORS**

As part of this investigation, potential receptors in the site vicinity were identified and the degree of risk posed by contamination to those receptors was assessed. The potential receptors included drinking water, groundwater, soil, indoor air and subsurface utilities.

**3.1 Drinking Water** – Water users within a one-half mile radius of the site are served by municipal water and sanitary sewer systems, according to the Public Works Department of Brattleboro. The Public Works Department also indicated that there are no private wells being operated within 0.5 mile of this site. A preliminary review of the DEC Water Supply Division's well data sheets for the Town of Brattleboro confirmed the Public Works data and suggested that there are no private drinking water wells located within 0.5 mile of the site. The presence of a municipal water supply distribution system and the absence of private water supply wells in the site vicinity suggest that there is no significant risk posed to drinking water by the site release.

**3.2 Groundwater** – Analytical data from the groundwater sampling event in December 1999 showed that low concentrations of petroleum-related contaminants (toluene, ethylbenzene, xylenes and 1,3,5-trimethylbenzene) were detected in the site's groundwater, as well as the VOCs carbon tetrachloride and chloroform. These results suggest that groundwater has been impacted by a release or releases of petroleum from the USTs. Soil sampling data suggests that the chlorinated compounds may be specifically associated with a release from the waste oil UST (UST #5). Although the potential risks associated with the observed levels of groundwater contamination are relatively low, the presence of significant levels of soil contamination at and above the water table represents an ongoing threat to groundwater quality.

**3.3 Soil** – Petroleum-impacted soil was encountered during the August 1999 UST closure and the advancement of soil borings in December 1999. PID readings of up to 2000 ppm were detected in soil samples collected during those activities. The extent of the soil contamination has not been completely delineated. However, based on available soil boring PID data, contaminated soil in the UST area appears to extend to the water table and is the most likely source of observed groundwater contamination. Based on current site usage and the location of the contamination, direct contact with the contaminated soil is unlikely.

**3.4 Indoor Air** – The site structure has slab-on-grade construction. PID analysis of indoor air at the service station on February 15, 2000 revealed organic vapor concentrations of up to 2.5 ppm. These concentrations may have resulted from ambient indoor air interferences and are not necessarily related to petroleum releases in the UST area. This interpretation is supported by the absence of soil contamination observed on the south side of UST #4 (adjacent to the building) during the August 1999 UST removal. Further, a PID analysis was performed and no organic vapors were detected at the laundromat located north of the site on this same date. Access was not available to the multi-family residential dwelling located to the west of the site. Based on the data collected from the laundromat, however, it appears unlikely that the indoor air quality of the site structure or off-site structures is threatened by petroleum contamination related to the UST releases.

**3.5 Subsurface Utilities** – Underground utilities at the site are limited to municipal water and sanitary sewer systems. These utilities are located to the south of the existing pump island,

between Canal Street and the site building. The depth to groundwater (>25 feet) in this area and the location of the water/sewer lines beyond the known area of soil contamination suggest that subsurface utility corridors are unlikely to act as avenues for significant contaminant migration.

#### **4.0 CONCLUSIONS AND RECOMMENDATIONS**

Conclusions and recommendations presented in this report are based solely on information obtained during the course of this investigation. Changes in site conditions, or information not available for review at the time of this investigation, may necessitate an update of these conclusions and recommendations.

**4.1 Conclusions-** Based on the results of this investigation, Tighe and Bond presents the following conclusions:

- Based on the UST closure information and soil sampling data summarized above, on-site soils have been impacted by one or more petroleum releases from the former site USTs. The measured concentrations (>2000 ppm organic vapors via the PID) require on-site soil treatment per the Agency Guidelines for Petroleum Contaminated Soil and Debris (DEC, August 1996). The full extent of the soil contamination has not been fully delineated.
- Groundwater has been impacted by a release or releases of petroleum at the site. Currently, dissolved contaminant levels are relatively low with only one PAL exceedance of carbon tetrachloride at a single well. However, contaminated soils represent a potential ongoing threat to groundwater quality.
- Drinking water supplies, indoor air and subsurface utility corridors do not appear to have been impacted by petroleum releases from the UST. However, indoor air sampling at the site did reveal the presence of low-level organic vapors inside the service station. These vapors are assumed to be the result of ambient interference from other air pollutant sources within the service station.

**4.2 Recommendations** – Based on the above conclusions and in accordance with current DEC guidelines, Tighe & Bond recommends the following:

- Pending consultation with the DEC regarding the sensitive receptor information presented in this report, a Corrective Action Feasibility Investigation (CAFI) should be conducted to evaluate the soil remediation alternatives. The CAFI should include additional subsurface investigations as discussed below, as well as pilot testing of appropriate technologies.
- Prior to initiating on-site soil treatment feasibility studies, additional subsurface investigation should be completed to further define the extent and degree of soil impact. The investigation should include the advancement of soil borings and the collection/analysis of soil samples, both on- and off-site.
- In conjunction with the contaminated soil investigation, additional monitoring wells should be installed to further define the extent and degree of groundwater contamination. At a minimum, three wells should be installed: one to the west of

MW-2, one to the north (downgradient) of MW-2 and one to the south (upgradient) of the UST area.

- Upon completion of the CAPI, a detailed report should be prepared outlining the extent and degree of contamination. The report should identify possible remedial approaches and include recommendations for further work at the site.

**FIGURES**

**Figure 1- Site Locus**

**Figure 2 - Site Layout with Groundwater Flow Direction**

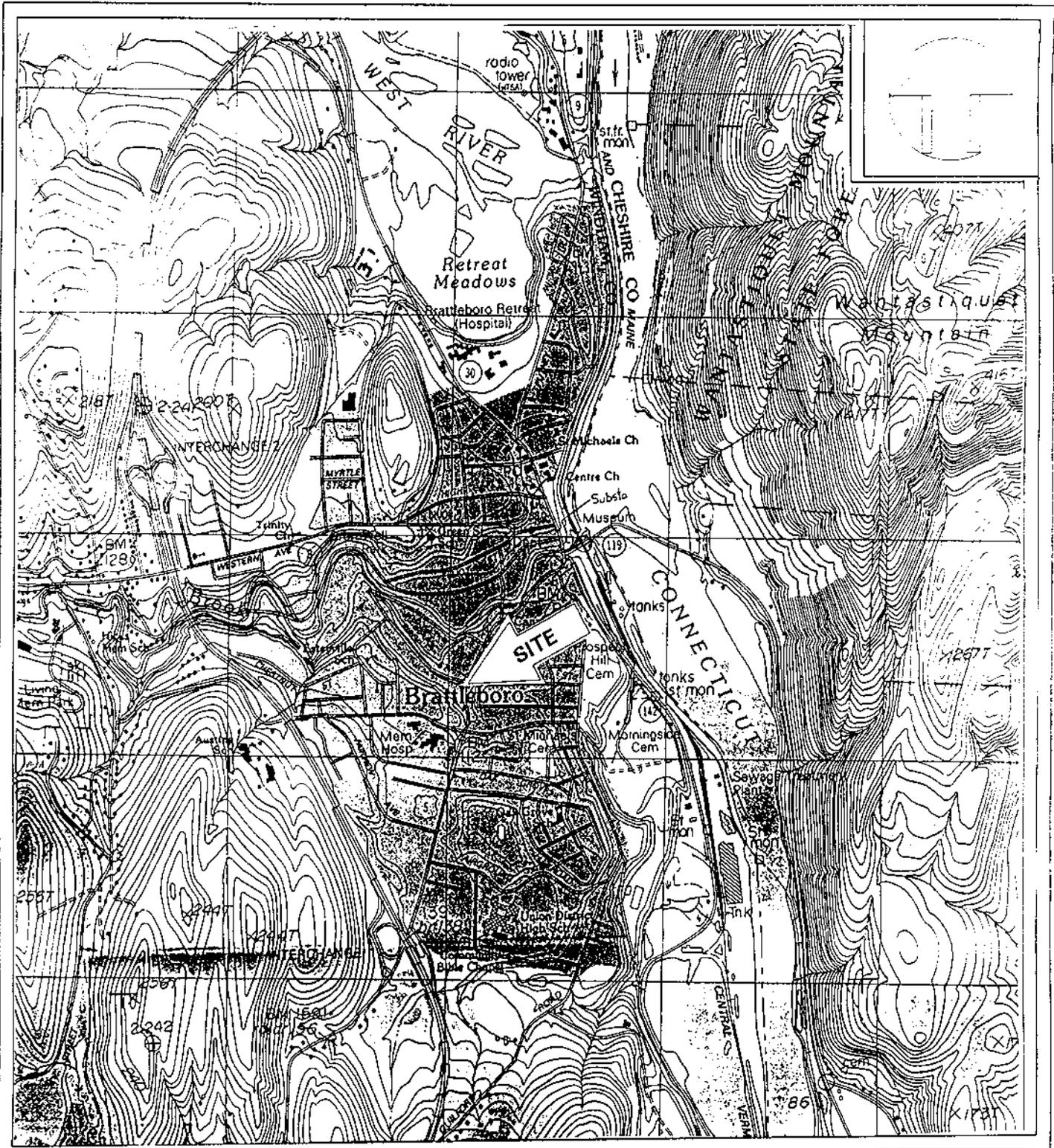


Figure 1  
Site Locus

USGS Topographical Map  
Brattleboro, VT Quadrangle  
(1984)  
1 : 25 000

Sonny's Sunoco  
125 Canal Street  
Brattleboro, Vermont  
SMS Site #99-2663



**APPENDICES**

- APPENDIX A - List of Abutting Property Owners**  
**APPENDIX B - Soil Boring/Monitoring Well Logs and Soil Screening Results**  
**APPENDIX C - Laboratory Reports**

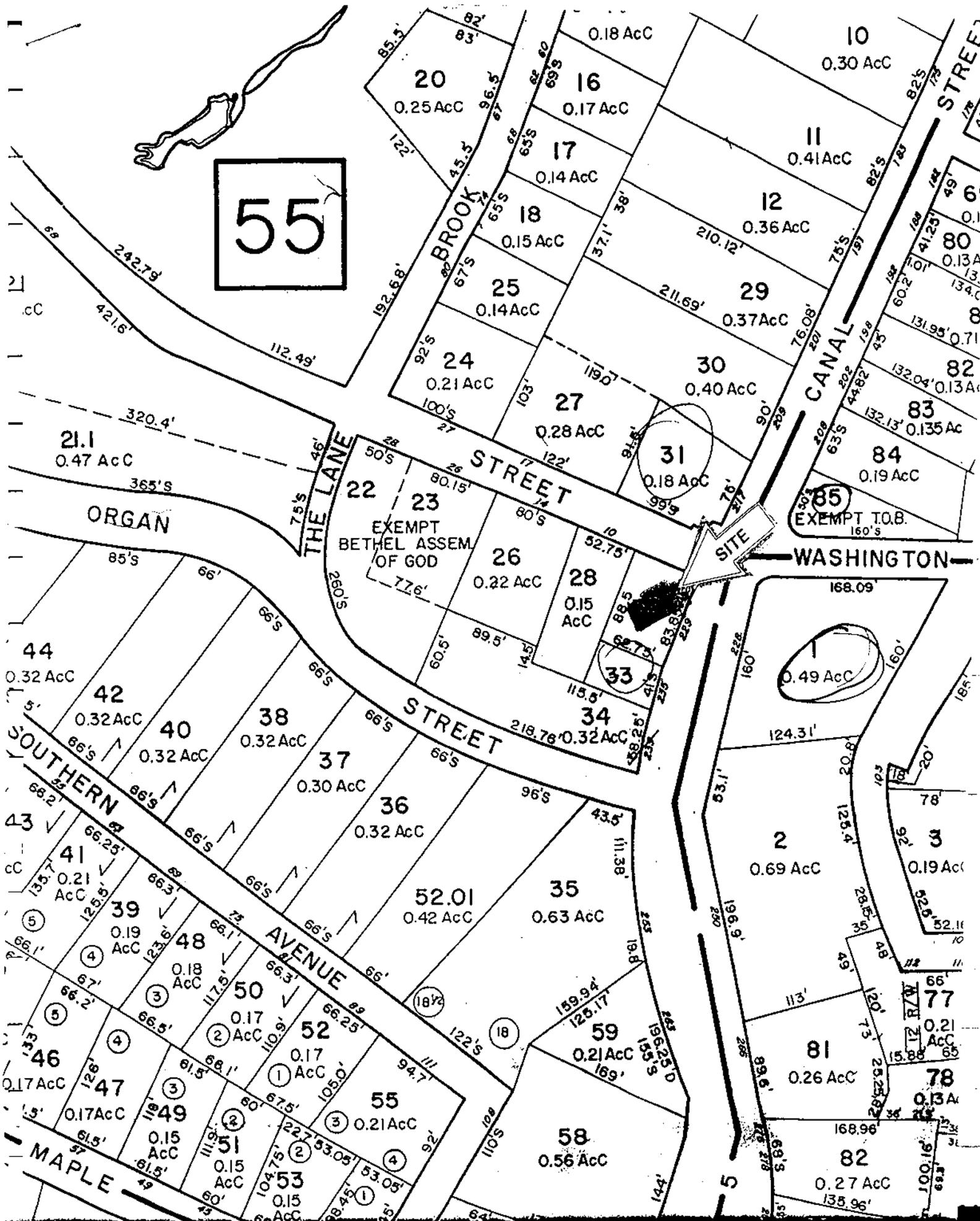
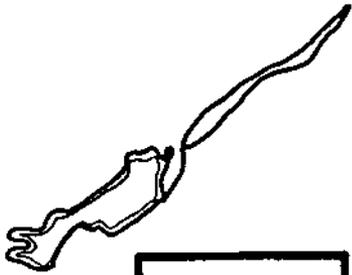
**APPENDIX A**

**List of Abutting Property Owners**

**List of Abutting Property Owners  
Sonny's Sunoco - 229 Canal Street  
Brattleboro, Vermont**

<b>Direction</b>	<b>Lot Number</b>	<b>Owner</b>	<b>Size of Lot</b>	<b>Property Type</b>
Site	55-32	Thomas J. Hudon 229 Canal Street Brattleboro, Vermont	0.120 acres	Commercial
North	55-31	Stone Fence Realty Co. 217 Canal Street Brattleboro, Vermont	0.18 acres	Residential
South	55-33	Rita Lehane 235 Canal Street Brattleboro, Vermont	0.60 acres	Commercial
West	55-28	Norman R. and Mary A. Mallory 10 Birge Street Brattleboro, Vermont	0.150 acres	Residential
East	51-1	Madeline Sherman Canal Street Brattleboro, Vermont	0.490 acres	Commercial

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**APPENDIX B**

**APPENDIX B- Soil Boring/Monitoring Well Logs and Soil Screening Results**

M & W Soils Engineering Inc.  
Main St. Charlestown, NH 03603

SHEET 1 OF 2  
DATE 12/22/99  
HOLE NO. MW-1  
LINE & STA.  
OFFSET

TO TIGHE & BOND ADDRESS BELOWS FALLS, VT  
PROJECT NAME SONNY'S SUNOCO STATION LOCATION BRATTLEBORO, VT  
REPORT SENT TO PAUL RENOUF PROJ. NO.  
SAMPLES RETAINED BY TIGHE & BOND OUR JOB NO. 7988-99

GROUND WATER OBSERVATIONS		Type	CASING	SAMPLER	CORE BAR	SURFACE ELEV.
AT 30'2"	AT 1/2 HOURS		HSA	SS		DATE STARTED 12/22/99
		Size I. D.	4 1/4"	1 1/2"		DATE COMPL. 12/22/99
		Hammer Wt.		140#	BIT	BORING FORMAN M.H., C.C. & W.M.
		Hammer Fall		30"		INSPECTOR PAUL & LAURA
						SOILS ENGR.

LOCATION OF BORING OFF EAST END OF PUMP ISLAND

Depth	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	Blows per 6" on sampler	MOISTURE DENSITY OR CONSIST.	STRATA CHANGE ELEV.	FIELD SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, cond., hardness, Drilling time, seams and ect	SAMPLE		
							NO.	PEN	REC
					3'	ASPHALT			
				MED. DENSE	3'	BROWN FINE GRAVEL			
5'	5' - 7'	SS	3 3 2 3				1	24"	18"
				LOOSE		BROWN FINE SAND - TRACE OF SILT			
10'	10' - 12'	SS	4 3 3 4				2	24"	20"
					13'				
15'	15' - 15'5"	SS	55/5"				3	5"	4"
				MED. DENSE		BROWN COARSE GRAVELS WITH COBBLES (FUEL ODOR)			
20'	20' - 22'	SS	12 28 18 15				4	24"	5"
25'	25' - 27'	SS	8 12 12 8		26'	SAME MATERIAL	5	24"	18"
				WET					
30'	30' - 32'	SS	2 3 6 7	MED. DENSE TO LOOSE		LIGHT BROWN MEDIUM SANDS WITH LAYERS OF FINE GRAVEL	6	24"	20"
					35'				
35'						NO BEDROCK TO DEPTH			
						SET 2" WELL AT 34'6" TOP OF WELL AT 25'6" (CONTINUED ON PAGE 2 OF 2)			

GROUND SURFACE TO _____	USED _____	CASING THEN _____	summary
Sample Type	Proportions Used	140 lb. wt. x 30"-fall an 2" O.D. Sampler	EARTH BORING _____
D-Dry C-Cored W-Washed	trace 0 to 10%	Cohesionless Density	ROCK CORING _____
UP-Unfinished Piston	little 10 to 20%	0-10 Loose	SAMPLES _____
TP-Test Pit A-Auger V-Vane Tes	some 20 to 35%	10-30 Med. Dense	HOLE NO. MW-1
UT-Undisturbed Thinwall	and 35 to 50%	30-50 Dense	
		50+ Very Dense	
		Cohesive Consistency	
		0-4 Soft 30 + Hard	
		4-8 M/Stiff	
		8-15 Stiff	
		15-30 V-Stiff	



M & W Soils Engineering Inc.  
Main St. Charlestown, NH 03603

SHEET 1 OF 2  
DATE 12/22/99  
HOLE NO. MW-2  
LINE & STA.  
OFFSET

TO TIGHE & BOND ADDRESS BELOWS FALLS, VT  
PROJECT NAME SONNY'S SUNOCO STATION LOCATION BRATTLEBORO, VT  
REPORT SENT TO PAUL RENOUF PROJ. NO.  
SAMPLES RETAINED BY TIGHE & BOND OUR JOB NO. 7988-99

GROUND WATER OBSERVATIONS		Type	CASING	SAMPLER	CORE BAR	SURFACE ELEV.
AT 29'8"	AT 1/2	HOURS	HSA	SS		DATE STARTED 12/22/99
		Size I. D.	4 1/4"	1 1/2"		DATE COMPL. 12/22/99
		Hammer Wt.		140#	BIT	BORING FORMAN M.H., C.C. & W.M.
		Hammer Fall		30"		INSPECTOR PAUL & LAURA
						SOILS ENGR.

LOCATION OF BORING OFF NORTHEAST CORNER OF NEW TANKS

Depth	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	Blows per 6" on sampler	MOISTURE DENSITY OR CONSIST.	STRATA CHANGE ELEV.	FIELD SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, cond., hardness, Drilling time, seams and ect	SAMPLE		
							NO.	PEN	REC
					3 1/4"	ASPHALT			
				MED. DENSE	2' +/-	BROWN FINE GRAVEL			
5'	5' - 7'	SS	1 2	LOOSE		BROWN FINE SAND	1	24"	20"
			1 2						
10'	10' - 12'	SS	4 5	MED. DENSE	10'	BROWN MEDIUM SAND - TRACE OF FINE GRAVEL (FUEL ODOR)	2	24"	19"
			9 18						
15'	15' - 17'	SS	5 7	MED. DENSE	15'	BROWN FINE TO COARSE SANDS - TRACE OF FINE GRAVEL	3	24"	22"
			7 8						
20'	20' - 22'	SS	4 6	MED. DENSE		BROWN FINE TO COARSE SANDS - TRACE OF FINE GRAVEL	4	24"	23"
			8 8						
25'	25' - 27'	SS	8 15	WET		BROWN FINE TO COARSE SANDS - TRACE OF FINE GRAVEL	5	24"	21"
			15 17						
30'	30' - 32'	SS	6 12	WET		BROWN FINE TO COARSE SANDS - TRACE OF FINE GRAVEL	6	24"	22"
			13 13						
35'					35'	SAME MATERIAL			
						NO BEDROCK TO DEPTH			
						SET 2" WELL AT 34'6"			
						TOP OF WELL AT 24'6"			
						(CONTINUED ON PAGE 2 OF 2)			

GROUND SURFACE TO _____	USED _____	CASING THEN _____	summary
Sample Type	Proportions Used	140 lb. wt. x 30"-fall an 2" O.D. Sampler	EARTH BORING _____
D-Dry C-Cored W-Washed	trace 0 to 10%	Cohesionless Density	ROCK CORING _____
UP-Unfinished Piston	little 10 to 20%	0-10 Loose	SAMPLES _____
TP-Test Pit A-Auger V-Vane Tes	some 20 to 35%	10-30 Med. Dense	HOLE NO. MW-2
UT-Undisturbed Thinwall	and 35 to 50%	30-50 Dense	
		50+ Very Dense	
		Cohesive Consistency	
		0-4 Soft 30 + Hard	
		4-8 M/Stiff	
		8-15 Stiff	
		15-30 V-Stiff	



M & W Soils Engineering Inc.  
Main St. Charlestown, NH 03603

SHEET 1 OF 2  
DATE 12/22/99  
HOLE NO. MW-3  
LINE & STA.  
OFFSET

TO TIGHE & BOND ADDRESS BELOWS FALLS, VT  
PROJECT NAME SONNY'S SUNOCO STATION LOCATION BRATTLEBORO, VT  
REPORT SENT TO PAUL RENOUF PRQJ. NO.  
SAMPLES RETAINED BY TIGHE & BOND OUR JOB NO. 7988-99

GROUND WATER OBSERVATIONS		CASING	SAMPLER	CORE BAR	SURFACE ELEV.
AT 29'2"	AT 1/2 HOURS	Type HSA	SS		DATE STARTED 12/22/99
		Size I. D. 4 1/4"	1 1/2"		DATE COMPL. 12/22/99
		Hammer Wt. 140#	BIT		BORING FORMAN M.H., C.C. & W.M.
AT	AT HOURS	Hammer Fall 30"			INSPECTOR PAUL & LAURA
					SOILS ENGR.

LOCATION OF BORING OFF EAST SIDE OF NEW TANKS

Depth	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	Blows per 6" on sampler	MOISTURE DENSITY OR CONSIST.	STRATA CHANGE ELEV.	FIELD SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, cond., hardness, Drilling time, seams and ect.	SAMPLE		
							NO.	PEN	REC
					3 1/2"	ASPHALT			
				MED. DENSE	2'	BROWN FINE GRAVEL			
5'	5' - 7'	SS	3	2	LOOSE	BROWN FINE SAND	1	24"	18"
			2	3					
10'	10' - 12'	SS	3	4	MED. DENSE	BROWN FINE GRAVELS AND SANDS	2	24"	20"
			7	18					
15'	15' - 17'	SS	5	7	MED. DENSE	BROWN SEAMED FINE TO COARSE SANDS	3	24"	21"
			8	9					
20'	20' - 22'	SS	9	12	MED. DENSE	SAME MATERIAL	4	24"	20"
			9	10					
25'	25' - 25'4"	SS	50/4"		MED. DENSE WET	BROWN FINE TO COARSE SANDS	5	4"	0"
30'	30' - 32'	SS	7	5	MED. DENSE WET	NO BEDROCK TO DEPTH	6	24"	22"
			7	8					
35'					35'	SET 2" WELL AT 34'6" TOP OF WELL AT 24'6" (CONTINUED ON PAGE 2 OF 2)			

GROUND SURFACE TO	USED	CASING THEN	summary
Sample Type	Proportions Used	140 lb. wt. x 30"-fall an 2" O.D. Sampler	EARTH BORING
D-Dry C-Cored W-Washed	trace 0 to 10%	Cohesionless Density	ROCK CORING
UP-Unfinished Piston	little 10 to 20%	0-10 Loose	SAMPLES
TP-Test Pit A-Auger V-Vane Tes	some 20 to 35%	10-30 Med. Dense	HOLENO, MW-3
UT-Undisturbed Thinwall	and 35 to 50%	30-50 Dense	
		50+ Very Dense	
		Cohesive Consistency	
		0-4 Soft 30 + Hard	
		4-8 M/Stiff	
		8-15 Stiff	
		15-30 V-Stiff	



**Soil Screening Results**  
**Sonny's Sunoco, 225 Canal Street, Brattleboro, Vermont**  
**December 22, 1999**

Depth	PID Reading		
	MW 1	MW 2	MW 3
5-7	203	0.0	0.0
10-12	2000+	2000+	15.2
15-17	268	2000+	0.0
20-22	111	20	0.0
25-27	3.2	900	0.0
30-32	8.3	75	0

Notes: (1) PID = Photovac 2020 Ionization detector  
(2) ppm = parts per million  
(3) 2000+ readings indicate the maximum detection limit of the PID

**APPENDIX C**

**Laboratory Reports**



**Severn Trent Laboratories**  
Westfield Executive Park  
53 Southampton Road  
Westfield, MA 01085

January 12, 2000

Mr Paul Renouf

Tighe & Bond, Inc. V1075  
25 Village Square  
Bellows Falls, VT 05101

Report Number : 20403

Dear Mr Renouf,

The analysis of your sample(s) submitted on 1/4/00 is now complete and the appropriate analytical report is enclosed. The samples were prepared and analyzed according to EPA established methodologies and protocols. If you have any questions regarding the report or any part of our service, please do not hesitate to contact us. Thank you for using Severn Trent Laboratories, and we look forward to receiving your next samples.

SEVERN TRENT LABORATORIES

Michael F. Wheeler, Ph.D.

Laboratory Director

**Laboratory Locations:**

- Mobile, AL
- Monroe, CT
- Miramar, FL
- Pensacola, FL
- Tallahassee, FL
- Tampa, FL
- Savannah, GA
- University Park, IL

- Billerica, MA
- Sparks, MD
- Edison, NJ
- Whippany, NJ
- Amherst, NY
- Newburgh, NY
- Houston, TX
- Colchester, VT

**Sales Office Locations:**

- Cantonment, FL
- South Pasadena, FL
- New Orleans, LA
- Waterford, MI
- Holly Springs, NC
- Blairstown, NJ
- Mt. Laurel, NJ
- Morristown, NJ
- Schenectady, NY
- Cleveland, OH

a part of

**SEVERN TRENT LABORATORIES (MA)**  
**DATA REPORTING QUALIFIERS AND TERMINOLOGY**

A number of data qualifiers are widely used within the environmental testing industry and may be utilized in our data reports. The following definitions of these qualifiers are included as a service to our clientele. The majority of the qualifiers have evolved from the EPA contract laboratory program (CLP).

**ORGANIC QUALIFIERS**

- U - Indicates that the compound was analyzed for but not detected. The sample detection limit is corrected for dilution and percent moisture. This detection limit is not necessarily the instrument detection limit.
- J - Indicates an estimated value. This qualifier is used when mass spectral data indicates the presence of a compound that meets the identification criteria and the result is less than the specified quantitation limit but no less than one-half the quantitation limit. It is not applied to common laboratory contaminants.
- B - Indicates that the analyte was found in both the sample and its associated laboratory blank. It indicates possible/probable blank contamination and warns the data user to use caution when applying the results of this analyte.
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument for the specific analysis.
- D - Indicates all compounds identified in an analysis at a secondary dilution factor.
- RE - This suffix indicates a re-analyzed sample and is appended to the sample number on the result form.
- RR - This suffix indicates a re-extracted and re-analyzed sample and is appended to the sample number on the result form.

**INORGANICS**

- U - Indicates that the analyte was analyzed for but not detected.
- E - Indicates an estimated value because of the presence of interference.

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**SEVERN TRENT LABORATORIES (MA)**  
**DATA REPORTING QUALIFIERS AND TERMINOLOGY**

In addition to our standard data reporting qualifiers the following comments are specific to Extractable (Total) Petroleum Hydrocarbons by GC/FID.

**PETROLEUM HYDROCARBON QUALIFIERS**

Results for Motor Oil are based on chromatographable portions of the petroleum product.

The Carbon Range refers to the approximate chromatographic region covered by the specified petroleum product in straight-chain carbon units.

Dilution factor adjusted for moisture content of the sample.

12/27/99  
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## GC Organics Analysis Data Sheet

SW8468015

Client ID : MW-1  
Client Name : Tighe & Bond, Inc. V1075  
Project Name : Volatile Analysis  
Matrix : Lab Water  
Sample Wt/Vol : 5mL  
% Solid :  
Dilution Factor : 1

Report No : 20403  
STL Sample Number : 139495  
Lab File ID : G3967.D  
Date Collected : 1/3/00  
Date Received : 1/4/00  
Date Analyzed : 1/10/00  
By : SM

CAS NO	Compound	Quantitation Limit mg/L	Concentration mg/L
	Gasoline (C5-C12)	0.5	U

GC Organics Analysis Data Sheet

SW8468015

Client ID : MW-2	Report No : 20403
Client Name : Tighe & Bond, Inc. V1075	STL Sample Number : 139496
Project Name : Volatile Analysis	Lab File ID : G3968.D
Matrix : Lab Water	Date Collected : 1/3/00
Sample Wt/Vol : 5mL	Date Received : 1/4/00
% Solid :	Date Analyzed : 1/10/99
Dilution Factor : 1	By : SM

CAS NO	Compound	Quantitation Limit mg/L	Concentration mg/L
	Gasoline (C5-C12)	0.5	U

GC Organics Analysis Data Sheet

SW8468015

Client ID : MW-3	Report No : 20403
Client Name : Tighe & Bond, Inc. V1075	STL Sample Number : 139497
Project Name : Volatile Analysis	Lab File ID : G3969.D
Matrix : Lab Water	Date Collected : 1/3/00
Sample Wt/Vol : 5mL	Date Received : 1/4/00
% Solid :	Date Analyzed : 1/10/00
Dilution Factor : 1	By : SM

CAS NO	Compound	Quantitation Limit mg/L	Concentration mg/L
	Gasoline (C5-C12)	0.5	U

## GC Organics Analysis Data Sheet

SW8468021B

Client ID : MW-1  
 Client Name : Tighe & Bond, Inc. V1075  
 Project Name : Volatile Analysis  
 Matrix : Water  
 Sample Wt/Vol : 5 mL  
 % Solid :  
 Dilution Factor : 1

Report No : 20403  
 STL Sample Number : 139490  
 Lab File ID : V46407  
 Date Collected : 1/3/00  
 Date Received : 1/4/00  
 Date Analyzed : 1/5/00  
 By : JCC

CAS NO	Compound	Quantitation Limit ug/L	Concentration ug/L
71-43-2	Benzene	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethylvinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Chlorodibromomethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluormethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-4	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
100-41-4	Ethylbenzene	1.0	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl-t-butylether	1.0	U
91-20-3	Naphthalene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
95-63-6	1,2,4-trimethylbenzene	1.0	U

## GC Organics Analysis Data Sheet

SW8468021B

Client ID : MW-1  
Client Name : Tighe & Bond, Inc. V1075  
Project Name : Volatile Analysis  
Matrix : Water  
Sample Wt/Vol : 5 mL  
% Solid :  
Dilution Factor : 1

Report No : 20403  
STL Sample Number : 139490  
Lab File ID : V46407  
Date Collected : 1/3/00  
Date Received : 1/4/00  
Date Analyzed : 1/5/00  
By : JCC

CAS NO	Compound	Quantitation Limit ug/L	Concentration ug/L
108-67-8	1,3,5-Trimethylbenzene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Fluorotrichloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
108383/106423	m & p Xylene	1.0	U
95-47-6	o Xylene	1.0	U

## GC Organics Analysis Data Sheet

SW8468021B

Client ID : MW-2  
 Client Name : Tighe & Bond, Inc. V1075  
 Project Name : Volatile Analysis  
 Matrix : Water  
 Sample Wt/Vol : 5 mL  
 % Solid :  
 Dilution Factor : 1

Report No : 20403  
 STL Sample Number : 139491  
 Lab File ID : V46408  
 Date Collected : 1/3/00  
 Date Received : 1/4/00  
 Date Analyzed : 1/5/00  
 By : JCC

CAS NO	Compound	Quantitation Limit ug/L	Concentration ug/L
71-43-2	Benzene	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	1.8
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethylvinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Chlorodibromomethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluormethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-4	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
100-41-4	Ethylbenzene	1.0	3.9
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl-t-butylether	1.0	U
91-20-3	Naphthalene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	14
95-63-6	1,2,4-trimethylbenzene	1.0	U

## GC Organics Analysis Data Sheet

SW8468021B

Client ID : MW-2  
Client Name : Tighe & Bond, Inc. V1075  
Project Name : Volatile Analysis  
Matrix : Water  
Sample Wt/Vol : 5 mL  
% Solid :  
Dilution Factor : 1

Report No : 20403  
STL Sample Number : 139491  
Lab File ID : V46408  
Date Collected : 1/3/00  
Date Received : 1/4/00  
Date Analyzed : 1/5/00  
By : JCC

CAS NO	Compound	Quantitation Limit ug/L	Concentration ug/L
108-67-8	1,3,5-Trimethylbenzene	1.0	1.8
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Fluorotrichloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
108383/106423	m & p Xylene	1.0	6.7
95-47-6	o Xylene	1.0	3.9

*t*  
the VOC = 32.1

## GC Organics Analysis Data Sheet

SW8468021B

Client ID : MW-3	Report No : 20403
Client Name : Tighe & Bond, Inc. V1075	STL Sample Number : 139492
Project Name : Volatile Analysis	Lab File ID : V46414
Matrix : Water	Date Collected : 1/3/00
Sample Wt/Vol : 5 mL	Date Received : 1/4/00
% Solid :	Date Analyzed : 1/6/00
Dilution Factor : 1	By : JCC

CAS NO	Compound	Quantitation Limit ug/L	Concentration ug/L
71-43-2	Benzene	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	3.7
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethylvinyl ether	1.0	U
67-66-3	Chloroform	1.0	1.2
74-87-3	Chloromethane	1.0	U
124-48-1	Chlorodibromomethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-4	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
100-41-4	Ethylbenzene	1.0	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl-t-butylether	1.0	U
91-20-3	Naphthalene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
95-63-6	1,2,4-trimethylbenzene	1.0	U

## GC Organics Analysis Data Sheet

SW8468021B

Client ID : MW-3  
Client Name : Tighe & Bond, Inc. V1075  
Project Name : Volatile Analysis  
Matrix : Water  
Sample Wt/Vol : 5 mL  
% Solid :  
Dilution Factor : 1

Report No : 20403  
STL Sample Number : 139492  
Lab File ID : V46414  
Date Collected : 1/3/00  
Date Received : 1/4/00  
Date Analyzed : 1/6/00  
By : JCC

CAS NO	Compound	Quantitation Limit ug/L	Concentration ug/L
108-67-8	1,3,5-Trimethylbenzene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Fluorotrichloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
108383/106423	m & p Xylene	1.0	U
95-47-6	o Xylene	1.0	U

## GC Organics Analysis Data Sheet

SW8468021B

Client ID : MW-02  
 Client Name : Tighe & Bond, Inc. V1075  
 Project Name : Volatile Analysis  
 Matrix : Water  
 Sample Wt/Vol : 5 mL  
 % Solid :  
 Dilution Factor : 1

Report No : 20403  
 STL Sample Number : 139493  
 Lab File ID : V46415  
 Date Collected : 1/3/00  
 Date Received : 1/4/00  
 Date Analyzed : 1/6/00  
 By : JCC

CAS NO	Compound	Quantitation Limit ug/L	Concentration ug/L
71-43-2	Benzene	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	1.7
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethylvinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Chlorodibromomethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluormethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-4	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
100-41-4	Ethylbenzene	1.0	2.0
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl-t-butylether	1.0	U
91-20-3	Naphthalene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	7.1
95-63-6	1,2,4-trimethylbenzene	1.0	U



## GC Organics Analysis Data Sheet

SW8468021B

Client ID : TRIP BLANK  
 Client Name : Tighe & Bond, Inc. V1075  
 Project Name : Volatile Analysis  
 Matrix : Water  
 Sample Wt/Vol : 5 mL  
 % Solid :  
 Dilution Factor : 1

Report No : 20403  
 STL Sample Number : 139494  
 Lab File ID : V46416  
 Date Collected : 1/3/00  
 Date Received : 1/4/00  
 Date Analyzed : 1/6/00  
 By : JCC

CAS NO	Compound	Quantitation Limit ug/L	Concentration ug/L
71-43-2	Benzene	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethylvinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Chlorodibromomethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-4	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
100-41-4	Ethylbenzene	1.0	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl-t-butylether	1.0	U
91-20-3	Naphthalene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
95-63-6	1,2,4-trimethylbenzene	1.0	U

## GC Organics Analysis Data Sheet

SW8468021B

Client ID : TRIP BLANK  
Client Name : Tighe & Bond, Inc. V1075  
Project Name : Volatile Analysis  
Matrix : Water  
Sample Wt/Vol : 5 mL  
% Solid :  
Dilution Factor : 1

Report No : 20403  
STL Sample Number : 139494  
Lab File ID : V46416  
Date Collected : 1/3/00  
Date Received : 1/4/00  
Date Analyzed : 1/6/00  
By : JCC

CAS NO	Compound	Quantitation Limit ug/L	Concentration ug/L
108-67-8	1,3,5-Trimethylbenzene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Fluorotrichloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
108383/106423	m & p Xylene	1.0	U
95-47-6	o Xylene	1.0	U

