



SEP 9 10 16 AM '96  
WASTE MANAGEMENT  
DIVISION

September 6, 1996

Mr. Richard Spiese  
State of Vermont  
Department of Environmental Conservation  
Waste Management Division  
103 South Main Street / West Bldg.  
Waterbury, VT 05671-0404

RE: Investigation of Subsurface Petroleum Contamination at the S&B Pitt Stop, Morristown,  
Vermont (VTDEC Site #94-1170)

Dear Mr. Spiese:

Please find enclosed the summary report for the site investigation conducted at the  
the S&B Pitt Stop in Morristown. Please contact me with any questions or comments that you  
may have.

Sincerely,

Robert Higgins  
Engineer

Enclosure

c: 8964885

Mr. Walter Labounty, Food & Gas, Inc.

**REPORT ON THE INVESTIGATION OF  
SUBSURFACE PETROLEUM CONTAMINATION AT  
S&B PITT STOP**

**SEPTEMBER 3, 1996**

**Site Location:**

**S&B PITT STOP  
ROUTE 15  
MORRISTOWN, VT  
(VTDEC SITE #94-1700)**

**Prepared For:**

**FOOD & GAS, INC.  
257 EAST ALLEN STREET  
WINOOSKI, VERMONT 05404**

**Prepared By:**



**P.O. Box 943 / 19 Commerce Street Williston, VT 05495 (802) 865-4288**

WASTE MANAGEMENT  
DIVISION

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## **I. INTRODUCTION**

This report summarizes the investigation of subsurface petroleum contamination that was conducted at the S&B Pitt Stop on Route 15 in Morristown, VT. This work has been conducted by Griffin International, Inc. (Griffin), for Mr. Walter Labounty of Food & Gas, Inc. The Vermont Department of Environmental Conservation (VTDEC) requested that this work be completed in a letter to Mr. Labounty from Mr. Richard Spiese of the VTDEC, dated November 3, 1994. All work at the site was conducted in accordance with the November 5, 1994 Work Plan and Cost Estimate prepared by Griffin. Mr. Labounty has elected to use the VTDEC Expressway program. The VTDEC was notified of this in a letter from Mr. Peter Schuyler of Griffin, to Mr. Spiese dated August 8, 1996.

Work conducted at the site included a soil gas survey, which consisted of the installation and monitoring of four soil gas points. As the onsite monitoring wells were found to be dry, no samples could be collected; therefore, the wells were used as additional soil gas monitoring points. In addition, a sensitive receptor risk assessment was conducted in order to assess the risk that subsurface petroleum contamination at the site may pose to sensitive receptors in the area.

## **II. SITE BACKGROUND**

### **A. Site History**

On September 23, 1994 petroleum contamination was detected during soil field screening at a routine gasoline UST removal. Further field screening was conducted between September 24 and 26. Five USTs were removed; each was reported to be in varying condition from good to leaking. Three monitoring wells were observed to exist at the time of removal. Two of the three wells were covered with excavation materials at the time of the closure and were not accessible. The third monitoring well was estimated to have a groundwater depth of approximately 17 feet below grade. Inspection of the groundwater in the monitoring well did not indicate the presence of free product.

As a result of the petroleum contamination detected in the subsurface beneath the former USTs, the VTDEC requested that additional work be conducted at the site in order to determine the extent and degree of petroleum contamination. Food & Gas, Inc. retained the services of Griffin to conduct this investigation.

### **B. Site Description**

The S&B Pitt Stop is a former convenience store and gas station. The property, which also houses a Goss Tire garage, is located on Route 15 in Morristown, VT, see the Site Location Map in Appendix A. The site consists of one building used as both a store and a garage; it is situated on a mostly paved lot. Three groundwater monitoring wells were believed to exist at the site prior to the UST closure. As one of the monitoring wells could not be located and is believed to be either destroyed or paved over, only two wells remain. Of these two remaining

wells, neither contained sufficient water for sampling. Additionally, no conclusions as to groundwater flow direction or gradient could be drawn. Well construction specifics for the preexisting monitoring wells at the site are not available. Property uses in the area are primarily residential and commercial. All buildings in the vicinity are serviced by municipal water and sewer systems.

### **C. Site Geologic Setting**

Soils in the vicinity of the UST pit during the removal inspection consisted of gravel from grade to a depth of approximately 1 foot, and medium brown sands and gravel from a depth of 1 foot to 7 feet. According to the Surficial Geologic Map of Vermont (Ref 1), the site is underlain by littoral sediment, predominantly sand. Bedrock at the site is of the Hazens Notch formation, which consists predominately of quartz (Ref. 2).

## **III. INVESTIGATIVE PROCEDURES**

### **A. Soil Gas Survey**

On August 14, 1996 a soil gas survey was conducted in order to further define the extent and degree of petroleum contamination. Four soil gas points were installed and monitored, in addition, the two onsite monitoring wells were used as gas survey points bringing the total number of monitoring points to six. The location of each point and monitoring well can be found on the Site Map located in Appendix A. Each of the points consisted of a probe constructed of 1.25" diameter, perforated, galvanized steel equipped with a drive point. The probes were installed in pilot holes at depths ranging from three to four feet. The holes were created with the use of a hand auger. Approximately 3 feet of the probe directly above the drive point was perforated. The probe interface with the pilot hole was sealed with bentonite clay at the surface in order to prevent preferential air pathways during testing.

Once a probe was set in place an air pump was used to draw air from the perforated portion of the probe at approximately 15 liters per minute. This air was then screened for Volatile Organic Compounds (VOCs) with the use of a MicroTip Photovac Photoionization Device (PID). Readings were recorded at fifteen second intervals for a total of approximately four minutes or until steady state conditions were reached.

Each of the two monitoring wells used as vapor points were found to be 2" in diameter and have a total depth of approximately 20 feet. The screened portion of these wells could not be determined. In order to prevent the infiltration of clean ambient air into the wells, each well was sealed at the top prior to testing. The monitoring wells were screened using the same procedure as was used for the probes.

Of the six points surveyed only MW 1 was found to contain significant VOC concentrations. The initial concentration of VOCs from this point was 1545 parts per million (ppm). After 2.5 minutes VOCs were measured in concentration of 2500 ppm, which is the maximum range of the

PID. The vapors extracted from MW 1 smelled very strongly of gasoline, becoming stronger with time. MW 1 is located in an area which would appear to be downgradient of the former tank pit. This speculation is based on a visual survey of the slope of the land and the location of the Lamoille river. Tables containing data for all six points can be found in Appendix B.

## **B. Sensitive Receptor Risk Assessment**

A receptor risk assessment was conducted to identify known and potential receptors of the contamination detected at the S&B Pitt Stop. A visual survey was conducted at the time of the soil gas survey and during the UST removal inspection. Based on these observations, a determination of the potential risk to identified receptors was conducted based on proximity and contaminant concentration levels.

### *Water Supplies*

The entire area is reportedly served by municipal water and sewer, there are no known private supply wells located in the vicinity of the site. There is no visible surface water in the proximity of the site.

### *Buildings in the Vicinity*

The store and the garage are the only two buildings located on the site. A Country Home Center / ACE Hardware is located to the north. To the east is an open field with no visible receptors. McMahan Brothers Chevrolet lies to the south of the site across Route 15. To the west there are several residences, the closest being approximately 200 feet away. None of the above mentioned buildings appear to have basements. No complaints have been reported of petroleum odors within any of the buildings.

## **IV. CONCLUSIONS**

Based on the data during this assessment, the following conclusions are made:

- 1) As the onsite monitoring wells were dry at the time of this site assessment no conclusions can be drawn regarding groundwater flow direction, groundwater flow gradient, or the level of dissolved petroleum contamination. As this site assessment was not conducted during a dry period it is suspected that the two existing onsite monitoring wells are no longer usable as groundwater monitoring points.
- 2) During the UST closure, field screening was conducted using an HNu PID; during the site assessment field screening was conducted with the use of a MicroTip PID. Based on Griffin experience with both brands of instruments it is believed that the results obtained in both instances are comparable, even though the MicroTip readings are higher. Based on this information the contamination detected appears to be about the same level as detected in soils at the time of the tank closure.

- 3) Based on a survey of known potential sensitive receptors in the vicinity of the site, there are no receptors in the area that appear to be at significant risk of petroleum contamination from the subsurface petroleum contamination detected at the site.
- 4) Results indicate that significant soil contamination is likely limited to the immediate area of the former tank pit.

## **V. RECOMMENDATIONS**

Based on the above conclusions, the following recommendations are made concerning petroleum contamination detected in the subsurface at the S&B Pitt Stop located in Morristown, Vermont:

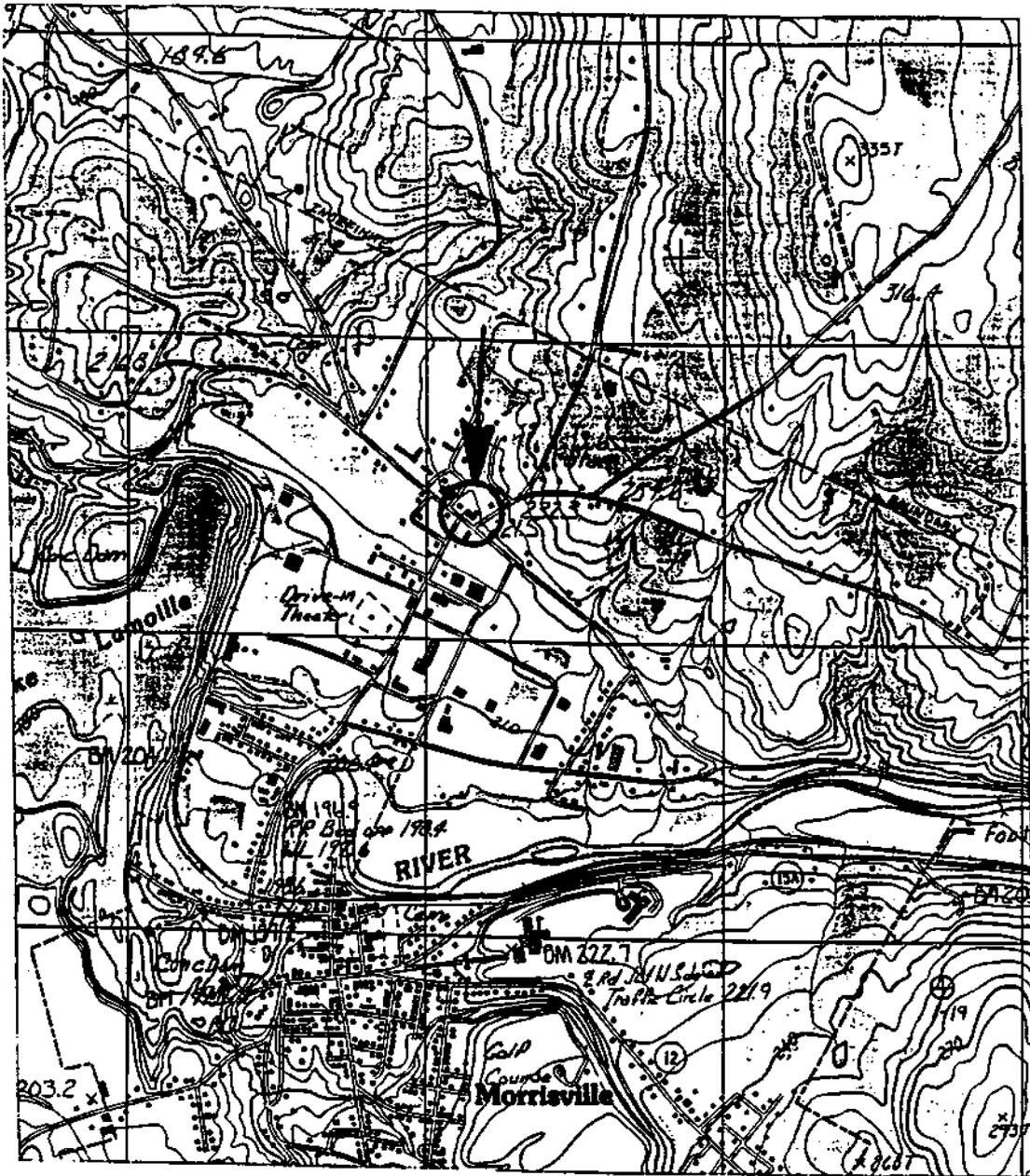
- 1) Due to the lack of known receptor impact, the fact that there is no longer a continuing source, and that there is no apparent spread of the contamination, it is not recommended that further work be conducted at this site. Even though groundwater quality was not measured at this site it is felt that further investigations would not likely produce data that would indicate significant further site related actions are necessary and would be of marginal value.

## **References**

1. Doll, Charles G., ed., 1970, Surficial Geologic Map of Vermont, State of Vermont.
2. Doll, Charles G., ed., 1961, Centennial Geologic Map of Vermont, State of Vermont.

**APPENDIX A**

**Maps**



JOB #: 8964885  
 SOURCE: USGS- MORRISVILLE, VERMONT QUADRANGLE

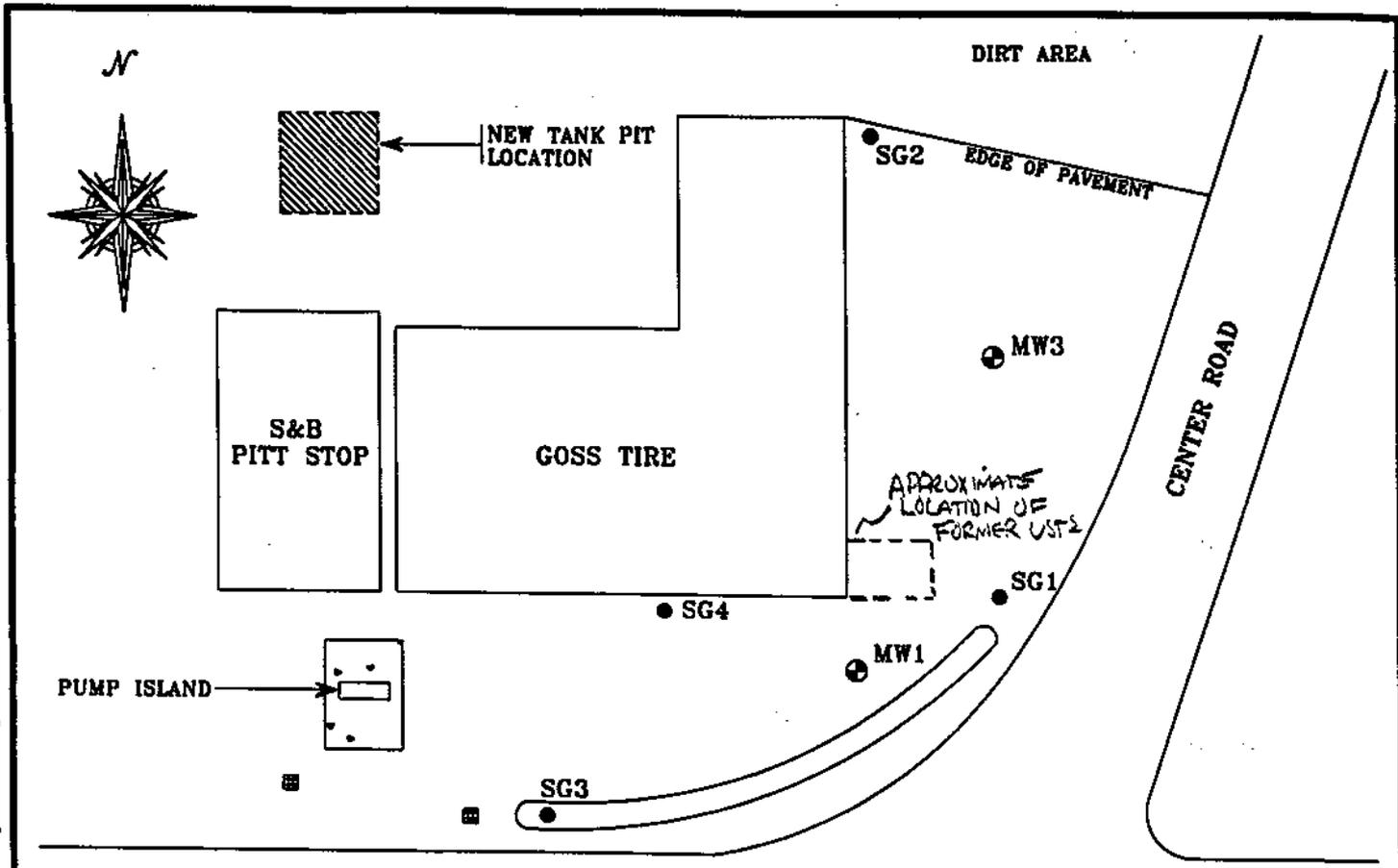


## S&B PITT STOP

MORRISTOWN, VERMONT

### SITE LOCATION MAP

DATE: 8/15/96	DWG.#:1	SCALE: 1:24000	DRN.:SB	APP.:RH
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ROUTE 15

ROUTE 100

**LEGEND**

-  MW3 MONITORING WELL
-  SG1 SOIL GAS POINT
-  UNDERGROUND STORAGE TANK
-  STORM DRAIN

JOB #: 8964885



**S&B PITT STOP**

MORRISTOWN, VERMONT

**SITE MAP**

DATE: 8/15/98 DWG.#: 2 SCALE: 1"=40' DRN.:SB APP.:RH

**APPENDIX B**  
**Soil Gas Survey Data**

Soil Gas Survey Data  
S&B Pitt Stop  
Morristown, VT  
8/14/96

MW 1

Reading (minutes)		Concentration (ppm)
0.00	background	0.9
0.25		1545
0.50		1701
0.75		1855
1.00		2035
1.25		2110
1.50		2196
1.75		2270
2.00		2331
2.25		2405
2.50		2500
2.75		2500
3.00		2500

MW 3

Reading (minutes)		Concentration (ppm)
0.00	background	4.4
0.25		4.4
0.50		4.3
0.75		4.4
1.00		4.1
1.25		4.4
1.50		4.4
1.75		4.5
2.00		4.5
2.25		4.6
2.50		4.5
2.75		4.6
3.00		4.6
3.25		4.5
3.50		4.6
3.75		4.7

SGS #1

Reading (minutes)		Concentration (ppm)
0	background	3.8
0.25		4
0.50		4
0.75		4
1.00		4
1.25		4.1
1.50		4.1
1.75		4.2
2.00		4.3
2.25		4.3
2.50		4.3
2.75		4.3
3.00		4.3
3.25		4.4
3.50		4.1
3.75		3.9
4.00		4
4.25		4
4.50		4.1

SGS #2

Reading (minutes)		Concentration (ppm)
0	background	3.2
0.25		3.6
0.50		3.5
0.75		3.5
1.00		3.5
1.25		3.6
1.50		3.6
1.75		3.7
2.00		3.7
2.25		3.8
2.50		3.8
2.75		3.8
3.00		3.9
3.25		4
3.50		4
3.75		4
4.00		4.1
4.25		4.1

Soil Gas Survey Data  
S&B Pitt Stop  
Morristown, VT  
8/14/96

SGS #3

Reading (minutes)		Concentration (ppm)
0	background	2.7
0.25		3
0.50		3.1
0.75		3.1
1.00		3.2
1.25		3.3
1.50		3.4
1.75		3.5
2.00		3.5
2.25		3.5
2.50		3.6
2.75		3.6
3.00		3.6
3.25		3.7
3.50		3.8
3.75		3.8
4.00		3.9
4.25		3.8

SGS #4

Reading (minutes)		Concentration (ppm)
0	background	6.7
0.25		7
0.50		7
0.75		7
1.00		7
1.25		7
1.50		7
1.75		7
2.00		7
2.25		7
2.50		7
2.75		7
3.00		7
3.25		7
3.50		7
3.75		7