



JUL 32 10 19 AM '94

28 July 1994

Mr. Richard Spiese
State of Vermont DEC
HMMD - SMS
103 S. Main St.
Waterbury, VT 05671-0404

Re: Initial Site Investigation Report, Former Briggs Residence, St. Johnsbury, VT
(VT DEC Site #94-1573)

Dear Mr. Spiese,

Please find enclosed a copy of the above-referenced document. The report summarizes the results of an initial investigation performed at the site.

Please call me at (802) 860-6065 if you have any questions or comments on this work.

Sincerely,

Ron Miller
Hydrogeologist II and Regional Manager

Enclosure: Report
RWM:rwm DECREPCO.SAM

HAZARDOUS MATERIALS
LABORATORY OF VERMONT

JUL 32 10 19 AM '94

INITIAL SITE INVESTIGATION REPORT

**Former Briggs Residence
St. Johnsbury, Vermont**

VT DEC Site #94-1573

28 July 1994

Prepared for:

Ms. Carol Pelow Briggs
St. Johnsbury, Vermont

Prepared by:

Ground Water of Vermont
1 Mill Street, Box C-5
Burlington, Vermont
(802) 860-6065

GWV Project #V94-024



28 July 1994

Ms. Carol Pelow Briggs
P.O. Box 241
St. Johnsbury Center, VT 05863

Re: Initial Site Investigation Report, Former Briggs Residence, St. Johnsbury, VT
(VT DEC Site #94-1573)

Dear Ms. Briggs,

Please find enclosed a copy of the above-referenced document. The report summarizes the results of our initial investigation conducted at the site. I have also forwarded a copy of the report to the State of Vermont.

I appreciate having the opportunity to perform this work for you. Please call me at (802) 860-6065 if you have any questions or comments.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ron Miller".

Ron Miller
Hydrogeologist II and Regional Manager

Enclosure: Report

RWM:rwmm 94024COV.SAM

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EXECUTIVE SUMMARY

An initial site investigation conducted by Ground Water of Vermont (GWV) at the former Briggs Residence in St. Johnsbury, Vermont has evaluated the degree and extent of soil and ground water petroleum contamination in the vicinity of a former 275-gallon heating oil underground storage tank (UST). The soil and ground water contamination appear to be limited in degree and extent, and do not appear to pose a significant threat to nearby potential receptors. Soil contaminant levels were below Vermont guideline levels, and ground water quality appears to meet Vermont ground water enforcement and drinking water standards. GWV has concluded, therefore, that no additional investigative, monitoring, or remedial actions are warranted at the site. GWV recommends that the site receive Site Management Activity Completed (SMAC) designation by the State of Vermont Department of Environmental Conservation (VT DEC).

The subsurface investigation consisted of the installation, sampling, and analysis of three soil boring/monitoring wells in the vicinity of the removed UST. Soil samples were collected from the borings and screened using a photoionization detector (PID). Relative ground water elevations were measured to determine ground water flow direction and gradient. Water samples collected from the monitoring wells were analyzed for volatile organic compounds (VOCs) by EPA Method 8020, and for Total Petroleum Hydrocarbons (TPH) by modified EPA Method 8100.

Soils encountered during subsurface explorations consisted of coarse-to-fine sand and gravel, underlain by fine sands and silts. Bedrock was encountered at approximately 9 feet below ground surface. Ground water in the immediate vicinity of the monitoring wells was encountered at a depth of 4.5 to 5 feet below ground surface, and was flowing toward the southeast at a 3% gradient.

Petroleum compounds detected in the soil borings were below Vermont guideline standards. TPH was detected at 1 ppm in a ground water sample collected from the monitoring well located near the former UST pit (MW3). TPH is not regulated in drinking water or ground water in Vermont. VOC levels in the ground water sample closest to the UST pit (MW-3) were below analytical detection limits for all compounds except xylenes; the xylene level in this well was below the Vermont ground water enforcement and drinking water standards. TPH was not detected in soil or ground water samples collected from the two downgradient soil boring/monitoring wells (MW-1 and MW-2) and VOCs were detected at levels below Vermont drinking water standards.

The remaining low levels of in-situ soil and ground water contamination will likely decrease over time through the processes of degradation, dilution, and dispersion.

1.0 INTRODUCTION

This report details the finding of a site investigation conducted at the former Briggs Residence in St. Johnsbury, Vermont. The report has been prepared by Ground Water of Vermont (GWV) for Carol Pelow Briggs.

The site investigation has been conducted to fulfill requests made by Mr. Chuck Schwer of the Vermont Department of Environmental Conservation (VT DEC) Sites Management Section (SMS) in a 14 March 1994 letter to Ms. Carol Briggs. The VT DEC requested that additional work be conducted at the site after receiving a UST closure report that indicated that a 275-gallon No. 2 heating oil underground storage tank (UST) at the site had failed. The VT DEC requested the following:

1. Determine the degree and extent of contamination to ground water and soil;
2. Determine the potential for sensitive receptors to be impacted by identified contamination;
3. Determine the need for a long-term treatment or monitoring plan for the site; and
4. Submit to the SMS a summary report outlining the work performed and providing conclusions and recommendations.

On 16 April 1994, Carol Pelow Briggs retained the services of Ground Water of Vermont to perform this work. GWV submitted a preliminary work plan and cost estimate to the VT DEC on 18 April 1994. The VT DEC approved the work plan and cost estimate on 29 April 1994.

1.1 Scope of Work

To accomplish the investigation objectives, GWV has performed the following:

- Reviewed existing data on the site;
- Supervised the installation of three soil boring/monitoring wells on the property;
- Determined ground water flow direction and gradient;
- Collected and submitted for laboratory analysis ground water samples from the ground water monitoring wells;
- Identified potential receptors of the contamination;
- Assessed the risk that the contamination poses to these potential receptors;
- Evaluated the need for treatment and/or long-term monitoring at the site; and
- Prepared a summary report that details the work performed and provides conclusions and recommendations.

1.2 Site Location and Physical Setting

The site is located in the Town of St. Johnsbury, Vermont, along the west side of Spaulding Road (see Figure 1, Site Location Map). The site and the area surrounding the site are residential (see Figure 2, Site Plan).

The site is located on a terrace near Spaulding Creek. Topography at the site is flat. Surface drainage is generally eastward toward Spaulding Creek. The dug well that serves the former Briggs residence, and one other residences is located 1000 feet uphill, to the west.

2.0 SITE HISTORY

The site is currently owned by Carol Pelow Briggs. The residence on the site has been vacant for approximately 2 years. One 275-gallon underground storage tank (UST), of single-wall steel construction and used for the storage of No. 2 fuel oil for heating purposes, was located near the southeastern corner of the residence. The UST was believed to be approximately 30 years old. On 17 February 1994, the UST was removed from the ground by Calkins Excavating of Danville, Vermont. Due to the size and use of the tank, neither a closure assessment nor notification was required by the State of Vermont. However, upon discovering the petroleum contamination beneath the UST, Calkins Excavating contacted Ground Water of Vermont to perform a closure assessment.

At the UST closure site assessment, significant pitting and several small holes were observed in the bottom of the UST along the tank seam on the east end of the tank. Soils in the UST excavation were screened using a portable HNU Model PI-101 photoionization detector (PID) and were found to contain some volatile organic compound (VOC) contamination. The PID readings ranged from 2.2 parts per million (ppm) in the north excavation wall to 94 ppm approximately one foot beneath the east end of the UST. Because petroleum contamination appeared to be present at the ground water table, it was considered unlikely that all the contamination could be removed, and the excavated soils were returned to the tank pit.

3.0 INVESTIGATIVE PROCEDURES AND RESULTS

3.1 Soil Boring/Monitoring Wells

On 19 May 1994, GWV supervised the installation of three soil boring/monitoring wells in the vicinity of the former underground storage tank on the site. Approximate boring locations are shown on Figure 2. The soil boring/monitoring wells were installed by Tri-State Drilling and Boring of West Burke, Vermont, using a hollow stem auger drill rig with 4.25" inner diameter augers. Prior to installing the borings, GWV contacted Dig Safe, the Town of St. Johnsbury Public Works Department, and the owner of the private water line in an effort to locate potential underground utilities. The locations of the water and sewer services to the site could not be determined.

Two soil borings (MW-1 and MW-2) were located approximately 20 feet in the probable downgradient direction from the former UST location in order to evaluate the extent of contaminant migration from the source area. One boring (MW-3) was located approximately 2 feet east of the former UST pit, to evaluate the degree of contamination in the source area.

The two downgradient soil borings (MW-1 and MW-2) encountered approximately 5 feet of coarse to fine sand and gravel, underlain by silt and fine sand, and eventually weathered bedrock at 8.5 feet to 9 feet below ground surface.

The first boring in an attempt to install MW-3 damaged the water service to the Briggs residence. The second attempt at installation of MW-3 damaged the site's sewer service line. MW-3 was successfully installed on 3 June 1994, and was located approximately two feet east of the previous location. No soil sampling was conducted during the replacement; the well log is a composite of information from the first two attempts at installation of MW-3. All of the MW-3 borings were located within 5 feet of each other and it is assumed that subsurface conditions are fairly homogeneous over such a small area.

3.2 Soil Screening Results

The screening results of soil samples collected from the borings indicated that soils in the vicinity of the UST are below the Vermont PID-based guideline standard of 10 parts per million (ppm) for fuel-oil contaminated soils. Soil samples were collected continuously from each soil boring, using a split-spoon sampler. The samples were screened in the field for volatile organic compounds (VOCs) with a Photovac TIP II portable photoionization detector (PID), which had been calibrated with isobutylene gas to a benzene reference. PID readings in MW-1, MW-2, and MW-3 ranged from 0.3 to 3.7 parts ppm. PID screening results are presented in the well logs in Appendix B.

3.3 Determination of Ground Water Flow Direction and Gradient

On 14 June 1994, ground water in the surficial aquifer in the immediate vicinity of the monitoring wells was determined to be flowing toward the southeast at an approximate gradient of 3%. The depth to ground water was between 4.5 and 5 feet in all the wells. Relative water table elevations in the monitoring wells were determined by subtracting the measured depth-to-water in each well from a surveyed top-of-casing relative elevation. Water level measurements and elevation calculations are

presented in Table 1 in Appendix A. A ground water contour map (see Figure 3, Ground Water Contour Map) was prepared using this data.

3.4 Ground Water Sampling and Analysis

Volatile organic compounds (VOCs) were detected in low levels in ground water samples collected from the monitoring wells installed on the site. Total Petroleum Hydrocarbons (TPH) were detected only in the well located near the former UST pit (MW-3), at 1 ppm. Analytical results are summarized in Table 2 in Appendix A. Laboratory report forms are included in Appendix C.

Ground water sampling was conducted on 14 June 1994, and followed GWV's Ground Water Sampling Protocol. The water samples were submitted to an analytical laboratory, where they were tested for the volatile petroleum compounds benzene, toluene, ethylbenzene, and xylenes (collectively termed BTEX) and the gasoline additive methyl-tert butyl-ether (MTBE) by EPA Method 8260, and for Total Petroleum Hydrocarbons (TPH) by modified EPA Method 8100. GWV collected a trip blank, an equipment blank, and a duplicate sample (of MW-3) to verify proper quality assurance and quality control (QA/QC), as required by the Vermont DEC.

Analytical results from the QA/QC samples indicate that adequate QA/QC was maintained during sample collection and analysis. No petroleum compounds were detected in the trip blank or equipment blank samples, and reported concentrations for the duplicate sample were within 3 ppb of the concentrations reported for the MW-3 sample.

4.0 RECEPTOR SURVEY AND RISK ASSESSMENT

4.1 Receptor Survey

Potential receptors identified during this investigation include the on-site residence, an adjacent residence, and Spaulding Creek. The identified contamination does not appear to pose a significant risk to any of these receptors.

Ground Water of Vermont performed a limited survey of the area to identify potential receptors in the area of the contamination. The on-site residence is located immediately north of the former UST location. The Bijole residence is located approximately 50 feet south of the former UST location. Spaulding Creek is approximately 50 feet east of the former UST location. No drinking water supply wells are located between the former UST location and Spaulding Creek. A dug well is located approximately 1,000 feet west of the site, and at an elevation of approximately 200 feet above the site. This well serves the former Briggs residence, the adjacent Bijole residence and a nearby gift shop. All other buildings in the area are reportedly served by the St. Johnsbury municipal water system.

4.2 Risk Assessment

On the basis of the findings reached during this survey, GWV has qualitatively evaluated the risks that the contamination at the site poses to these potential receptors. Home heating oil contains several compounds that are hazardous to human and animal health, including benzene which is listed by the U.S. Environmental Protection Agency (EPA) as a known human carcinogen. The most common routes of exposure include ingestion of compounds that have migrated to drinking water supplies and inhalation of vapors that have migrated into buildings.

The risk of ingestion of petroleum compounds due to potential contamination of drinking water supplies does not appear to be significant. Laboratory analysis of ground water samples collected from the on-site monitoring wells indicate that levels of regulated petroleum compounds are below Vermont drinking water standards. The dug well that supplies the private water supply system appears to be upgradient from the UST location.

The risk of petroleum vapor inhalation also does not appear to be significant. Soil vapor levels in samples collected from the soil borings were below Vermont guideline levels. Ground water contaminant levels were also below Vermont standards. Therefore, the on-site residence and adjacent Bijole residence are unlikely to be impacted by petroleum vapor migration.

Spaulding Creek is the likely discharge point of ground water that flows through the surficial aquifer. Because fuel oil compounds can also impact surface water bodies and water-dwelling organisms, the risk to Spaulding Creek was assessed. The low level of VOCs in all of the on-site monitoring wells, the absence of TPH in the two downgradient wells, and the relatively low expected hydraulic conductivities through the fine sand and silt soils in the surficial aquifer at the site suggest that the natural processes of dilution, dispersion, and degradation will reduce petroleum compound concentrations in ground water to below detectable levels prior to discharge to Spaulding Creek.

5.0 CONCLUSIONS

On the basis of the above-described investigation, Ground Water of Vermont has concluded the following:

1. There has been a release or releases of petroleum to the subsurface at the site, which appears to have been caused by a failure or failures in the former heating oil underground storage tank (UST) system.
2. The apparent source of contamination was removed from the ground on 18 February 1994, and was not replaced.
3. Soils in the immediate vicinity of the UST location were impacted by the release(s). During the UST removal, PID readings on soil samples collected in the former UST pit increased with depth, from 2.2 ppm near the surface to 94 ppm just below the former UST location.
4. PID soil screening results of samples collected from three soil borings at the site in June 1994 indicate that soil contaminant levels at the site are now below the PID-based Vermont guideline standard for soils contaminated with fuel oil.
5. Ground water in the surficial aquifer at the site does not appear to exceed Vermont drinking water or ground water enforcement standards for petroleum compounds.
6. Dilution, dispersion, and degradation will likely reduce ground water contaminant levels at the site to below detectable levels prior to discharge into Spaulding Creek.
7. The existing low levels of soil and ground water contamination at the site do not appear to pose a significant threat to any nearby identified sensitive receptors.
8. Ground water in the immediate vicinity of the monitoring wells was 4.5 to 5 feet below grade and was flowing toward the southeast at a gradient of approximately 3%.
9. Soils at the site consisted of sand and gravel from the surface to a depth of 5 to 8 feet, underlain by fine sands and silt. Bedrock was encountered in each of the borings performed at the site, at depths of 8.5 to 9 feet.

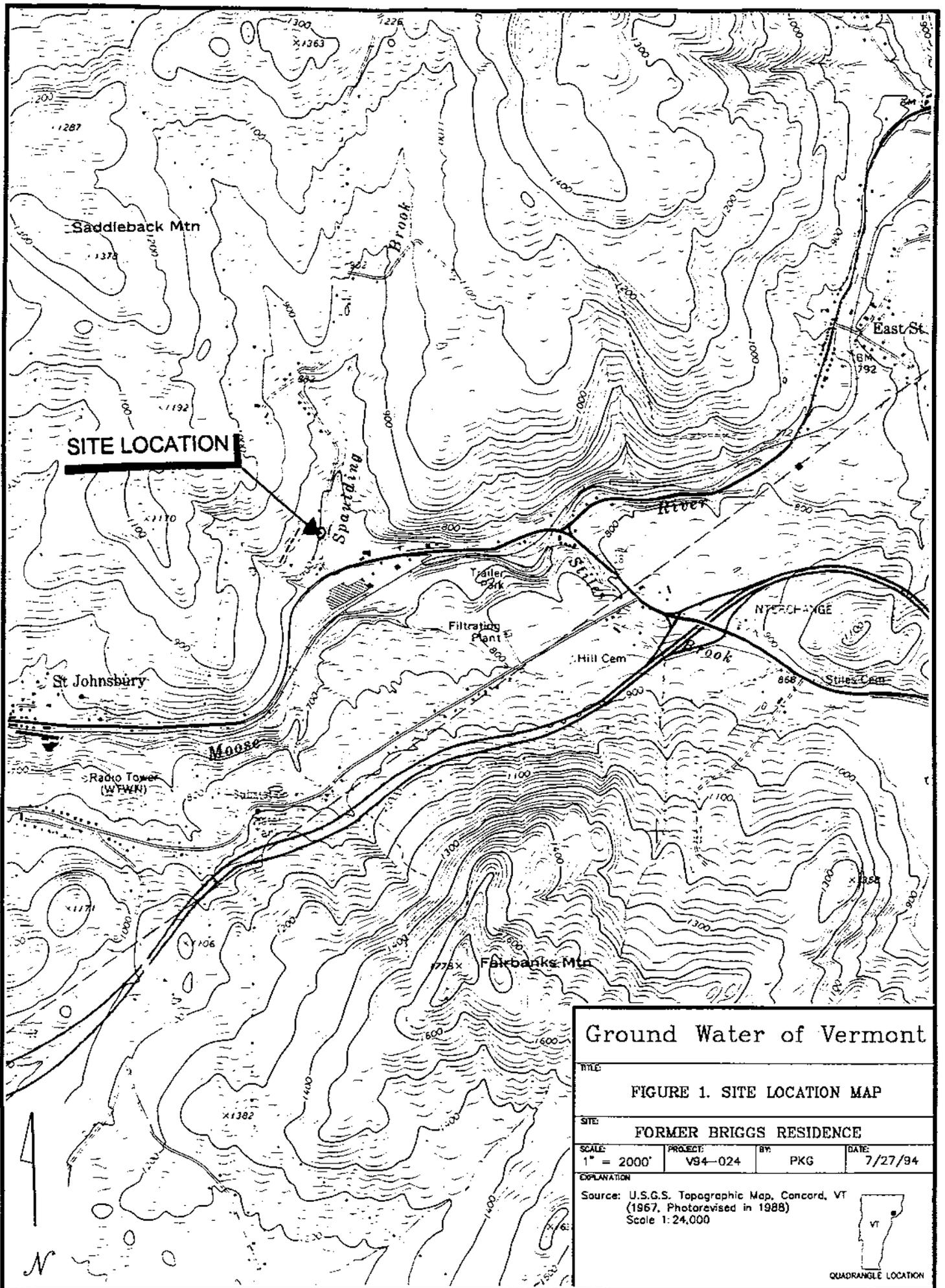
6.0 RECOMMENDATIONS

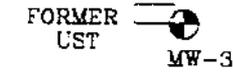
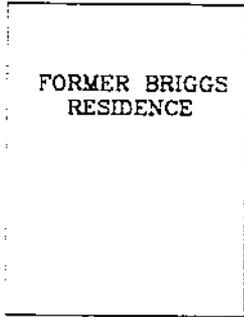
On the basis of the findings reached during this investigation, Ground Water of Vermont makes the following recommendations:

1. No additional soil or ground water monitoring appears to be warranted. This site should be considered for Site Management Activity Completed (SMAC) designation by the VT DEC.

APPENDIX A

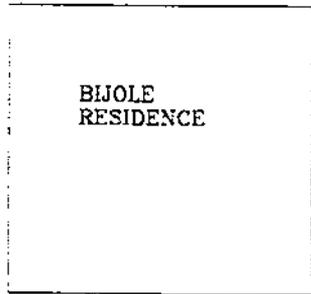
Figures and Tables



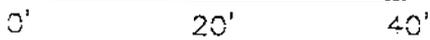


SPAULDING ROAD

SPAULDING BROOK



SCALE



Ground Water of Vermont

TITLE

FIGURE 2. SITE MAP

SITE

FORMER BRIGGS RESIDENCE

SCALE

1" = 20'

PROJECT

V94-024

BY

PKG

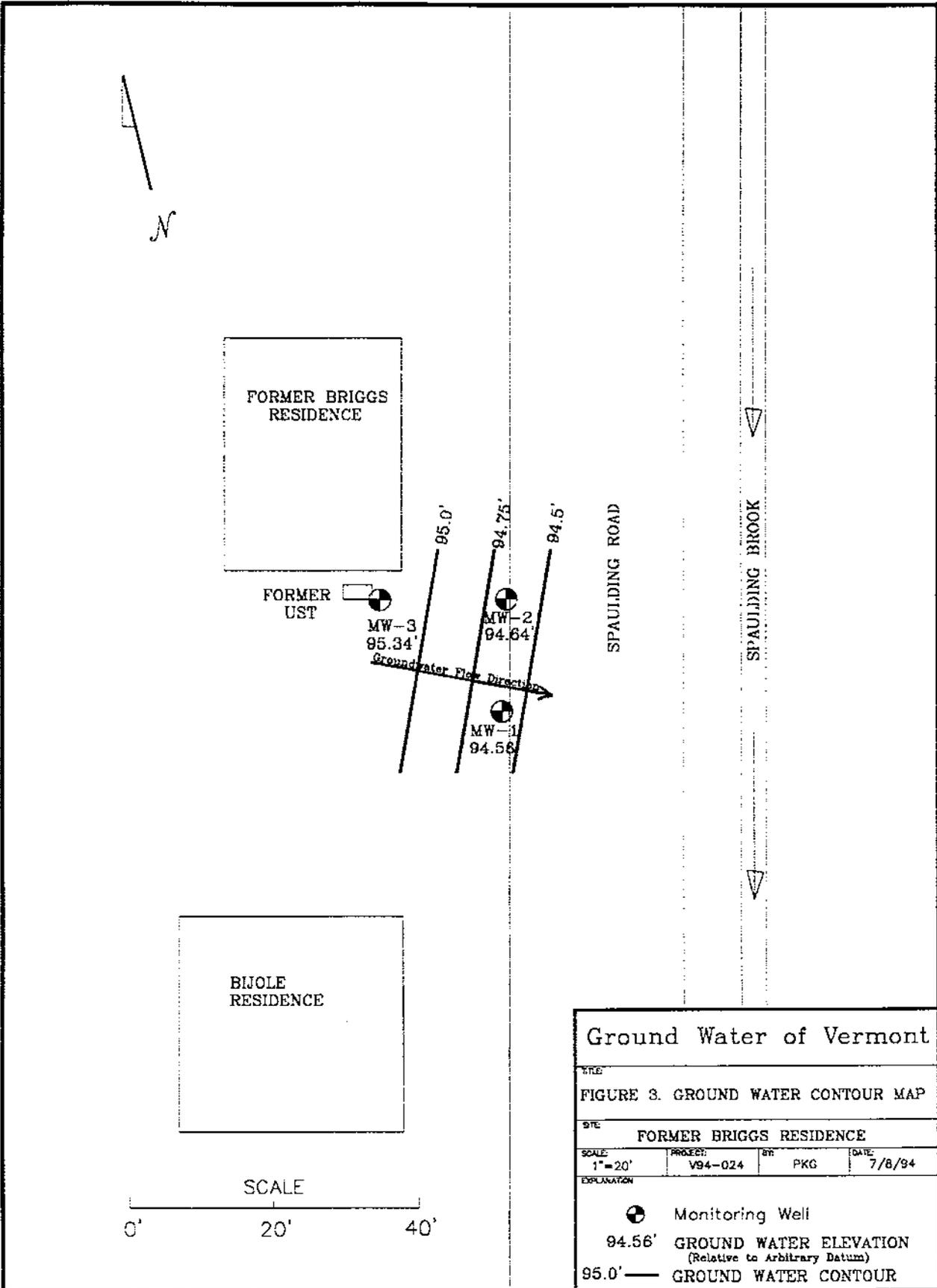
DATE

7/8/94

EXPLANATION



Monitoring Well



Ground Water of Vermont			
TITLE			
FIGURE 3. GROUND WATER CONTOUR MAP			
SITE			
FORMER BRIGGS RESIDENCE			
SCALE:	PROJECT:	BY:	DATE:
1" = 20'	V94-024	PKG	7/8/94
EXPLANATION			
	Monitoring Well		
94.56'	GROUND WATER ELEVATION (Relative to Arbitrary Datum)		
95.0' —	GROUND WATER CONTOUR		

Table 1. Ground Water Elevation Calculations
Former Briggs Residence
St. Johnsbury, Vermont

Monitoring Date: 14 June 1994

Well I.D.	Well Depth	Top of Casing Elevation	Depth To Water	Water Table Elevation
MW-1	9.0	99.60	5.04	94.56
MW-2	8.5	99.55	4.91	94.64
MW-3	8.5	100.00	4.66	95.34

All values reported in feet, arbitrary datum

**Table 2 . Ground Water Analytical Results
Former Briggs Residence
St. Johnsbury, Vermont**

Station	Date	Ethyl				Total BTEX	MTBE	TPH
		Benzene	Toluene	benzene	Xylenes			
MW-1	06/14/94	4	21	BPQL<1	10	35	BPQL<1	BPQL
MW-2	06/14/94	3	15	BPQL<1	8	26	BPQL<1	BPQL
MW-3	06/14/94	BPQL<1	BPQL<1	BPQL<1	4	4	BPQL<1	1
DUPLICATE MW-3	06/14/94	BPQL<1	BPQL<1	BPQL<1	1	1	BPQL<1	BPQL
EQUIPMENT BLANK	06/14/94	BPQL<1	BPQL<1	BPQL<1	BPQL<3	BPQL	BPQL<1	BPQL
TRIP BLANK	06/14/94	BPQL<1	BPQL<1	BPQL<1	BPQL<3	BPQL	BPQL<1	BPQL
VT DRINKING WATER STD.	-	5	1,000	700	10,000	-	40	None
VT GROUND WATER ENFORCEMENT STD.	-	5	2,420	680	400	-	None	None

No BTEX and MTBE Reported in Parts Per Billion (ppb)
 TPH Results Reported in Parts Per Million (ppm)
 BPQL <1 = Below Practical Quantitation Limit of 1 (ppb or ppm)

APPENDIX B

Boring Log

PROJECT Former Briggs Residence

LOCATION St. Johnsbury, VT

DATE DRILLED 5 19 94 TOTAL DEPTH OF HOLE 9'

DIAMETER 4.25"

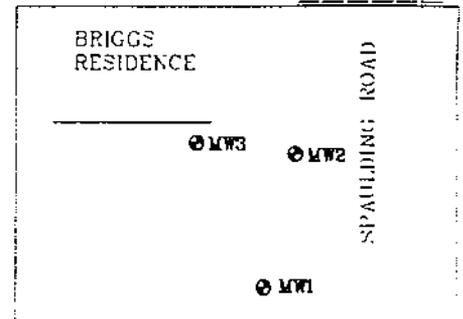
SCREEN DIA. 2" LENGTH 5' SLOT SIZE 0.010"

CASING DIA. 2" LENGTH 3' TYPE PVC

DRILLING CO. Tri-State DRILLING METHOD Hollow Stem

DRILLER Rav Guilfillian LOG BY Ron Miller

WELL NUMBER MW-1

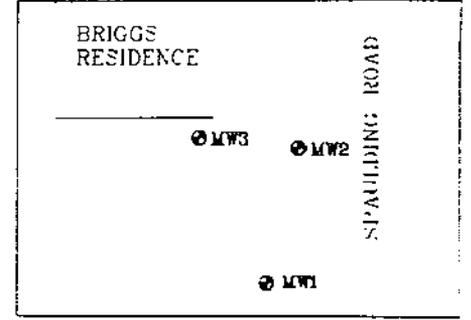


GROUND WATER OF VERMONT

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX			0
0		LOCKING WELL CAP			0
1		CONCRETE	0' - 2' 3-5-8-7 3.7 ppm	Brown coarse to fine Sand and GRAVEL moist, no odor	1
2		WELL RISER	2' - 4' 6-8-8-6 1.3 ppm		2
2		BENTONITE			2
3					3
4					4
4				WATER TABLE	4
5		WELL SCREEN	4' - 6' 2-1-1-2 1.3 ppm	Gray SILT, v. moist, mottles, no odor	5
6		SAND PACK			6
7			6' - 8' 1-2-23-9 1.5 ppm	Brown Gray SILT, wet, no odor	7
8					8
8		BOTTOM CAP	8' - 9' 37-75 1.5 ppm	Gray coarse to fine SAND, some SILT, wet, no odor	8
9				BASE OF EXPLORATION AT 9'	9
10					10
11					11
12					12
13					13
14					14
15					15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25
26					26

PROJECT Former Briggs Residence
 LOCATION St. Johnsbury, VT
 DATE DRILLED 5 19 94 TOTAL DEPTH OF HOLE 8.5'
 DIAMETER 4.25"
 SCREEN DIA. 2" LENGTH 5' SLOT SIZE 0.010"
 CASING DIA. 2" LENGTH 3' TYPE PVC
 DRILLING CO. Tri-State DRILLING METHOD Hollow Stem
 DRILLER Rav Gilfillian LOG BY Ron Miller

WELL NUMBER MW-2

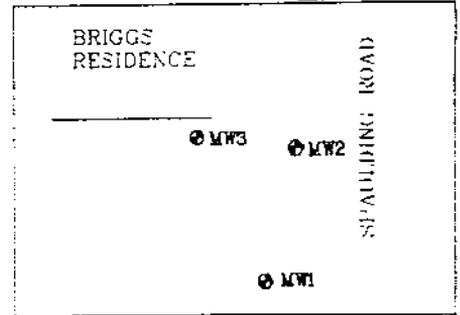


GROUND WATER OF VERMONT

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX			0
0		LOCKING WELL CAP			0
1		CONCRETE	0' - 2' 3-6-4-4 1.4 ppm	Brown coarse to fine Sand and GRAVEL moist. no odor	1
2		WELL RISER			2
2		BENTONITE	2' - 4' 7-7-5-6 1.1 ppm		2
3					3
4					4
5		WELL SCREEN	4' - 6' 3-3-7-19 0.3 ppm	WATER TABLE	5
6		SAND PACK	6' - 8' 10-12-5-8 0.6 ppm	Brown coarse to fine SAND and SILT trace rock fragments	6
7		BOTTOM CAP	8' - 8.5' 75-R 0.7 ppm	Brown coarse to fine SAND. trace SILT. rock fragments	7
8				Weathered Bedrock. moist. no odor	8
9				BASE OF EXPLORATION AT 8.5	9
10					10
11					11
12					12
13					13
14					14
15					15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25
26					26

PROJECT Former Briggs Residence
 LOCATION St. Johnsbury, VT
 DATE DRILLED 5-19-94 TOTAL DEPTH OF HOLE 8.5'
 DIAMETER 4.25"
 SCREEN DIA. 2" LENGTH 5' SLOT SIZE 0.010"
 CASING DIA. 2" LENGTH 3' TYPE PVC
 DRILLING CO. Tri-State DRILLING METHOD Hollow Stem
 DRILLER Rav Gilfillian LOG BY Ron Miller

WELL NUMBER MW-3



GROUND WATER OF VERMONT

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX			0
0		LOCKING WELL CAP			0
1		CONCRETE	0' - 2' 1-3-3-3 3 ppm	Brown coarse to fine Sand and GRAVEL moist no odor	1
2		WELL RISER	2' - 4' 1-2-4-5 2.2 ppm		2
2		BENTONITE			2
3					3
4					4
4				WATER TABLE	4
5		WELL SCREEN	4' - 6' 9-4-6-7 3.4 ppm	Gray Brown SAND & GRAVEL rock fragments. moist. no odor	5
6		SAND PACK	6' - 8' 20-51-18-12 1.6 ppm	Brown SAND & GRAVEL trace SILT. trace rock fragments. no odor	6
7				Brown SILT & fine SAND. wet. no odor	7
8		BOTTOM CAP	8' - 8.5' 61 - R 1.5 ppm	Weathered Bedrock moist no odor	8
9				BASE OF EXPLORATION AT 8.5	9
10					10
11					11
12					12
13					13
14					14
15					15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25
26					26

APPENDIX C

Laboratory Report Forms



LABORATORY REPORT

EPA METHOD 8020 ANALYTES + MTBE with GC/MS Confirmation

CLIENT NAME:	Groundwater of Vermont	PROJECT CODE:	V93-024
PROJECT NAME:	Former Briggs Res.	REF.#:	9,140
REPORT DATE:	June 23, 1994	STATION:	MW-1
DATE SAMPLED:	June 14, 1994	TIME SAMPLED:	13:25
DATE RECEIVED:	June 14, 1994	SAMPLER:	Ron Miller
ANALYSIS DATE:	June 22, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	4
Toluene	1	21
Ethylbenzene	1	BPQL
m+p-Xylene	2	7
o-Xylene	1	3
Chlorobenzene	1	BPQL
1,2-Dichlorobenzene	1	BPQL
1,3-Dichlorobenzene	1	BPQL
1,4-Dichlorobenzene	1	BPQL
MTBE	1	BPQL

Surrogate % Recovery: 97%

BPQL = Below Practical Quantitation Limit (PQL).



LABORATORY REPORT

EPA METHOD 8020 ANALYTES + MTBE with GC/MS Confirmation

CLIENT NAME:	Groundwater of Vermont	PROJECT CODE:	V93-024
PROJECT NAME:	Former Briggs Res.	REF.#:	9,140
REPORT DATE:	June 23, 1994	STATION:	MW-2
DATE SAMPLED:	June 14, 1994	TIME SAMPLED:	13:50
DATE RECEIVED:	June 14, 1994	SAMPLER:	Ron Miller
ANALYSIS DATE:	June 22, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	3
Toluene	1	15
Ethylbenzene	1	BPQL
m-p-Xylene	2	6
o-Xylene	1	2
Chlorobenzene	1	BPQL
1,2-Dichlorobenzene	1	BPQL
1,3-Dichlorobenzene	1	BPQL
1,4-Dichlorobenzene	1	BPQL
MTBE	1	BPQL

Surrogate % Recovery: 97%

BPQL = Below Practical Quantitation Limit (PQL).



LABORATORY REPORT

EPA METHOD 8020 ANALYTES + MTBE with GC/MS Confirmation

CLIENT NAME:	Groundwater of Vermont	PROJECT CODE:	V93-024
PROJECT NAME:	Former Briggs Res.	REF.#:	9,140
REPORT DATE:	June 23, 1994	STATION:	MW-3
DATE SAMPLED:	June 14, 1994	TIME SAMPLED:	14:20
DATE RECEIVED:	June 14, 1994	SAMPLER:	Ron Miller
ANALYSIS DATE:	June 23, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL ($\mu\text{g/L}$)	Conc. ($\mu\text{g/L}$)
Benzene	1	BPQL
Toluene	1	BPQL
Ethylbenzene	1	BPQL
m-p-Xylene	2	2
o-Xylene	1	2
Chlorobenzene	1	BPQL
1,2-Dichlorobenzene	1	BPQL
1,3-Dichlorobenzene	1	BPQL
1,4-Dichlorobenzene	1	BPQL
MTBE	1	BPQL

Surrogate % Recovery: 100%

BPQL = Below Practical Quantitation Limit (PQL).



LABORATORY REPORT

EPA METHOD 8020 ANALYTES + MTBE with GC/MS Confirmation

CLIENT NAME:	Groundwater of Vermont	PROJECT CODE:	V93-024
PROJECT NAME:	Former Briggs Res.	REF.#:	9,140
REPORT DATE:	June 23, 1994	STATION:	Duplicate
DATE SAMPLED:	June 14, 1994	TIME SAMPLED:	not given
DATE RECEIVED:	June 14, 1994	SAMPLER:	Ron Miller
ANALYSIS DATE:	June 23, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL ($\mu\text{g/L}$)	Conc. ($\mu\text{g/L}$)
Benzene	1	BPQL
Toluene	1	BPQL
Ethylbenzene	1	BPQL
m-p-Xylene	2	BPQL
o-Xylene	1	1
Chlorobenzene	1	BPQL
1,2-Dichlorobenzene	1	BPQL
1,3-Dichlorobenzene	1	BPQL
1,4-Dichlorobenzene	1	BPQL
MTBE	1	BPQL

Surrogate % Recovery: 99%

BPQL = Below Practical Quantitation Limit (PQL).



LABORATORY REPORT

EPA METHOD 8020 ANALYTES + MTBE with GC/MS Confirmation

CLIENT NAME:	Groundwater of Vermont	PROJECT CODE:	V93-024
PROJECT NAME:	Former Briggs Res.	REF.#:	9,140
REPORT DATE:	June 23, 1994	STATION:	Equipment Blank
DATE SAMPLED:	June 14, 1994	TIME SAMPLED:	14:05
DATE RECEIVED:	June 14, 1994	SAMPLER:	Ron Miller
ANALYSIS DATE:	June 22, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL ($\mu\text{g/L}$)	Conc. ($\mu\text{g/L}$)
Benzene	1	BPQL
Toluene	1	BPQL
Ethylbenzene	1	BPQL
m+p-Xylene	2	BPQL
o-Xylene	1	BPQL
Chlorobenzene	1	BPQL
1,2-Dichlorobenzene	1	BPQL
1,3-Dichlorobenzene	1	BPQL
1,4-Dichlorobenzene	1	BPQL
MTBE	1	BPQL

Surrogate % Recovery: 99%

BPQL = Below Practical Quantitation Limit (PQL).



LABORATORY REPORT

EPA METHOD 8020 ANALYTES + MTBE with GC/MS Confirmation

CLIENT NAME:	Groundwater of Vermont	PROJECT CODE:	V93-024
PROJECT NAME:	Former Briggs Res.	REF.#:	9,140
REPORT DATE:	June 23, 1994	STATION:	Trip Blank
DATE SAMPLED:	June 14, 1994	TIME SAMPLED:	08:15
DATE RECEIVED:	June 14, 1994	SAMPLER:	Ron Miller
ANALYSIS DATE:	June 22, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL ($\mu\text{g/L}$)	Conc. ($\mu\text{g/L}$)
Benzene	1	BPQL
Toluene	1	BPQL
Ethylbenzene	1	BPQL
m+p-Xylene	2	BPQL
o-Xylene	1	BPQL
Chlorobenzene	1	BPQL
1,2-Dichlorobenzene	1	BPQL
1,3-Dichlorobenzene	1	BPQL
1,4-Dichlorobenzene	1	BPQL
MTBE	1	BPQL

Surrogate % Recovery: 98%

BPQL = Below Practical Quantitation Limit (PQL).