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DEPARTMENT OF PUBLIC SAFETY  
VERMONT

ADMINISTRATIVE SERVICES DIVISION  
MEMORANDUM

TO: Chuck Schwer, Sites Management Section

FROM: Theodore R. Nelson, Jr., Administrative Officer

DATE: 20 March 1998

SUBJECT: St. Albans State Police Office UST

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We have recently received a report from **GRIFFIN INTERNATIONAL** on the results of their investigation of subsurface petroleum contamination at our St. Albans office. This was one of the four sites where we had older, single wall UST's permanently removed. I have enclosed a copy of **GRIFFIN's** report for your information and review.

It is my recommendation that additional site investigation work be performed at St Albans to determine the risk posed to the Stevens Brook. If you concur with this recommendation or have other thoughts, please let me know as soon as possible so that I can schedule this work. Our current contract with **GRIFFIN** expires on 30 June 1998.

Encl.

Cc: Maj R.J. Vallie, Field Force Commander  
Dana Shappy, Fleet Administrator

**REPORT ON THE  
INVESTIGATION OF SUBSURFACE  
PETROLEUM CONTAMINATION**

at

**STATE POLICE BARRACKS  
ROUTES 104 AND 36  
ST. ALBANS, VERMONT**

Mar 23 10 28 AM '99

**MARCH 1998**

Prepared for:

State of Vermont  
Department of Public Safety  
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## **I. INTRODUCTION**

This report summarizes the investigation of subsurface petroleum contamination at the State Police Barracks located near the intersection of Routes 104 and 36 in St. Albans, Vermont (see Site Location Map and Area Map, Appendix A). The following investigation has been conducted to define more clearly the degree and extent of petroleum contamination which was detected in the soils at this site during the removal of a 4,000-gallon gasoline underground storage tank (UST) on December 19, 1997. Included in the report are the findings from the hollow-stem auger drilling along with the results of subsequent groundwater sampling conducted at the property. This work has been completed for the State of Vermont Department of Public Safety by Griffin International, Inc. (Griffin) in accordance with the Contract for Personal Services (0232127), Amendment 1, dated January 15, 1998.

## **II. HISTORICAL BACKGROUND**

On December 19, 1997, one 4,000-gallon gasoline UST was removed from the subsurface at the St. Albans State Police Barracks. Gasoline from this tank was used to fuel the state police vehicles. The UST was located on the west side of the barracks. Product piping extended to the former product dispenser located near the northwest corner of the building. The former location of the tank is shown on the Site Map in Appendix A.

Great Northern Environmental Services of Bath, New Hampshire, cleaned and excavated the tank, and Griffin was on-site to perform the tank closure site assessment. Upon removal, the UST and its associated piping were found to be in good condition. No holes were identified on the tank. However, volatile organic compounds (VOCs) were detected in the soils surrounding the tank using a portable photoionization device (PID). A peak PID reading of 200 parts per million (ppm) was measured and the average PID reading was 96 ppm. Groundwater was encountered at approximately 8 feet below grade during the removal of the tank. Soils at the depth of the water table were found to be contaminated indicating that the groundwater in the area had likely been impacted by the release of gasoline.

In response to the soil and groundwater contamination detected during the removal of the UST, Griffin submitted a Site Investigation Expressway Notification Form to the VTDEC on behalf of the Vermont Department of Public Safety. The following report presents the findings from Griffin's Site Investigation conducted in February, 1998.

### III. SITE DESCRIPTION

The St. Albans State Police Barracks are situated on a property owned by Mr. Bud Bruley. This property is located on the eastern fringe of the Champlain Valley between Route 89 and the center of the city of St. Albans. Stevens Brook is located approximately 300 feet north of the property and flows west toward Lake Champlain. Local terrain slopes downward to the west. Based on surface topography, groundwater flow beneath the site was estimated to be to the west also. The elevation of the site is approximately 540 feet above mean sea level.

The area surrounding the site consists of a mix of commercial and residential uses. The area, including the state police barracks, is served by the municipal water supply. According to state records reviewed at the VTDEC Water Supply Division, it appears that four private wells (all bedrock) are located within one-half mile of the site. These four wells are identified as wells 1, 109, 140, and 142, and are shown on the Site Location Map in Appendix A. The following information was obtained at the Water Supply Division regarding these wells:

#### Well 1

Owner: Church of Nazarene  
Drilled: 1983  
Total Depth: 200 feet  
Yield: 62 gallons per minute (gpm)

#### Well 109

Owner: (business)  
Total Depth: 415 feet  
Depth to Bedrock: 73 feet  
Yield: 7.5 gpm

#### Well 140

Owner: George Ronald Allard (domestic)  
Date Drilled: 6/22/78  
Total Depth: 405 feet  
Depth to Bedrock: 90 feet  
Yield: 20 gpm

#### Well 142

Owner: Sam and Shirley Blouin (domestic)  
Total Depth: 330 feet  
Depth to Bedrock: 100 feet  
Yield: 25 gpm

These wells appear to be located north and northeast of the state police property, and range from 800 to 1,200 feet away from the site.

The Surficial Geologic Map of Vermont maps the surrounding area as lake bottom sediments consisting of silt, silty clay, and clay. Actual subsurface materials vary from silty fine sand to glacial till.

#### **IV. SUBSURFACE INVESTIGATION**

On February 17, 1998, four monitoring wells were installed by T&K Drilling, Inc. using a truck-mounted hollow-stem auger drill rig. The monitoring wells, designated MW-1 through MW-4, were installed to help define the degree and extent of petroleum contamination in the vicinity of the former gasoline UST. MW-1 was installed near the south end of the former gasoline tank pit. The boring for MW-2 was drilled on the west side of the former tank pit. Both of these wells were installed in possible downgradient locations from the former gasoline tank pit. MW-3 was installed in the estimated upgradient direction from the former tank pit area, and MW-4 was installed in the corner of the pavement in a likely cross-gradient direction. The locations of the wells are shown on the Site Map in Appendix A.

Split-spoon samples were obtained in each boring at five-foot intervals. Soil samples were screened for VOCs using an HNU (Model PI-101) photoionization device. In addition, soil characteristics were recorded in detailed boring logs by the supervising Griffin hydrogeologist.

In the boring for MW-1, fine to medium sand and silty fine sand were observed from grade to seven feet below grade. From 7 to 16.5 feet below grade, the base of exploration, glacial till was observed. Groundwater was encountered at approximately six feet below grade. Petroleum odors were observed in the soil samples collected between 5 and 12 feet below grade. A maximum PID reading of 190 ppm was recorded for the soil sample collected at a depth of 10 to 12 feet below grade.

Soils retrieved from the boring for MW-2 were fine to medium sand or silty fine sand from grade to 12 feet below grade. Glacial till was observed at 14 feet below grade. Groundwater was again encountered at approximately 6 feet below grade. Petroleum odors were observed in all of the soil samples collected from this boring.

In the boring for MW-3, silt and fine sand were observed from grade to seven feet below grade. Glacial till was encountered from 10 feet below grade to the base of exploration at 14.3 feet. Groundwater was encountered at approximately 6.5 feet below grade. Petroleum odors were not observed in any of the soil samples collected from this boring.

Soils retrieved from the boring for MW-4 consisted of silt and fine sand from grade to seven feet below grade. From 10 to 12 feet below grade, till was observed. Groundwater was encountered at approximately 7 feet below grade. Slight petroleum odors were

observed in the soils from one to seven feet below grade. This boring was only advanced to 12 feet below grade since auger refusal occurred at this depth.

The screens in monitoring wells MW-1, MW-2 and MW-3 were set from 4 to 14 feet below grade; the screen in MW-4 was set from 4 to 12 feet below grade. The monitoring wells were constructed with two-inch diameter, Schedule 40 PVC riser and 0.010" slotted screen. A silica sand pack was placed around the screened portion of each well and a bentonite seal was placed in the annulus immediately above the sand pack. To complete the construction of MW-2, MW-3 and MW-4, a road box was set in concrete at grade level. MW-1 was completed as a stickup well, extending two feet above grade. In addition, a locking well cap was placed on each monitoring well. The boring logs and well construction details for these wells are included in Appendix B.

## **V. WATER LEVELS AND WATER QUALITY**

### **A. Water Table Elevations**

Water table elevation measurements were collected from MW-1 through MW-4 on February 27, 1998. In addition, the monitoring wells were surveyed in azimuth and elevation relative to the top-of-casing of MW-1 which has been assigned an arbitrary elevation of 100.00 feet. Liquid level monitoring data are presented in Appendix C.

Water table elevations have been plotted and contoured to illustrate the estimated gradient and direction of groundwater flow beneath the site (see Groundwater Contour Map, Appendix A). According to these data, it appears that groundwater is flowing to the west at a hydraulic gradient of 0.098.

### **B. Water Quality**

Griffin collected groundwater samples at the site from MW-1, MW-2 and MW-3. A sample could not be collected from MW-4 since a car was parked above its road box. The groundwater samples were analyzed for petroleum compounds by EPA Method 8020. The analytical results have been plotted to show the distribution of dissolved contamination across the site (see Contaminant Concentration Map, Appendix A).

Moderate levels of benzene, toluene, ethylbenzene and xylenes (BTEX) were detected in the samples from MW-1 and MW-2, located adjacent to the former gasoline tank pit. The Vermont Groundwater Enforcement Standards (VGES) for benzene, toluene, and ethylbenzene were exceeded in these samples. The VGES for xylenes was exceeded in the sample for MW-1. Methyl tert-butyl ether (MTBE, a gasoline additive) was not detected in any of the groundwater samples. Traces of toluene and xylenes were detected in the sample from MW-3. A groundwater quality summary for this sampling event is presented in Appendix D. The Endyne laboratory report is also included in this appendix.

The trip blank and duplicate sample analytical results indicate that proper quality assurance and quality control were maintained during the sampling and analysis.

## VI. RECEPTOR RISK ASSESSMENT

A receptor risk assessment was conducted to identify known and potential receptors of the petroleum contamination detected at the St. Albans State Police Barracks. A visual survey was conducted at the time of monitoring well installation and during the UST closure inspection. A determination of the potential risk to identified receptors was conducted based on proximity, groundwater flow direction and gradient, and contaminant concentration levels.

### *Water Supplies*

As outlined in Section III of this report, the area in the vicinity of the St. Albans State Police Barracks is served by the municipal water system. St. Albans obtains its water from the St. Albans Reservoir which is located approximately three miles south of the site. Given its location and distance from the subject site, this public water supply is not likely at risk from the contamination observed at the state police barracks.

The four private supply wells identified in Section III above are also not likely at risk from the petroleum contamination at the site. The estimated groundwater flow direction in the overburden aquifer is to the west, away from these wells, suggesting that dissolved groundwater contamination from the State Police Barracks site will not flow toward these properties.

### *Buildings in the Vicinity*

The state police building has a basement for the potential accumulation of petroleum vapors. This basement is located approximately 30 feet east of the former tank area. In December of 1997, this basement was screened during the tank closure site assessment and no elevated levels of VOCs were detected using the PID. Based on the estimated groundwater flow direction to the west, the basement of the state police building is not likely at risk. Given their sufficient distance, other buildings in the area are not likely at risk from the gasoline contamination.

### *Surface Water*

Stevens Brook is the nearest surface water to the site, located approximately 300 feet away. Since the downgradient extent of dissolved contamination has not been determined, it appears that there may be a risk of impact to this brook.

## VII. CONCLUSIONS

Based on the investigation at this site, Griffin has reached the following conclusions:

1. In each of the four soil borings, silt and fine sand were observed to overlay glacial till. Adsorbed petroleum contamination was detected in three of the four soil borings advanced for this site investigation.
2. The water table elevation beneath the site, as measured using the interface probe, ranged from approximately 5 to 10 feet below grade. Based on the water table elevation data collected in February 1998, groundwater beneath the site appears to be flowing west at a hydraulic gradient of 0.098.
3. Moderate levels of dissolved BTEX contamination were detected in the groundwater samples collected from MW-1 and MW-2, located downgradient from the former gasoline tank pit. The Vermont Groundwater Enforcement Standards for benzene, toluene, and ethylbenzene were exceeded in these samples. MW-4 was not sampled since it was inaccessible. Upgradient well MW-3 was nearly free of dissolved contamination. MTBE, a gasoline compound, was not detected in any of the samples at the site. Based on these observations, it is evident that the downgradient extent of contamination has not been determined.
4. The risk assessment for this site has determined that there is likely little threat to any of the drinking water supplies in the area. In addition, the subsurface petroleum contamination does not likely pose a risk to the indoor air quality of the state police barracks. The only receptor which appears to be at risk at this time is Stevens Brook which is located approximately 300 feet downgradient from the former UST area.

## VIII. RECOMMENDATIONS

Based on the above conclusions, Griffin recommends the installation of additional monitoring wells to determine the downgradient extent and distribution of dissolved petroleum contamination at the site. This additional investigation will help determine the risk to Stevens Brook and other potential off-site receptors in the area.

**APPENDICES**

# **APPENDIX A**

## **Maps**

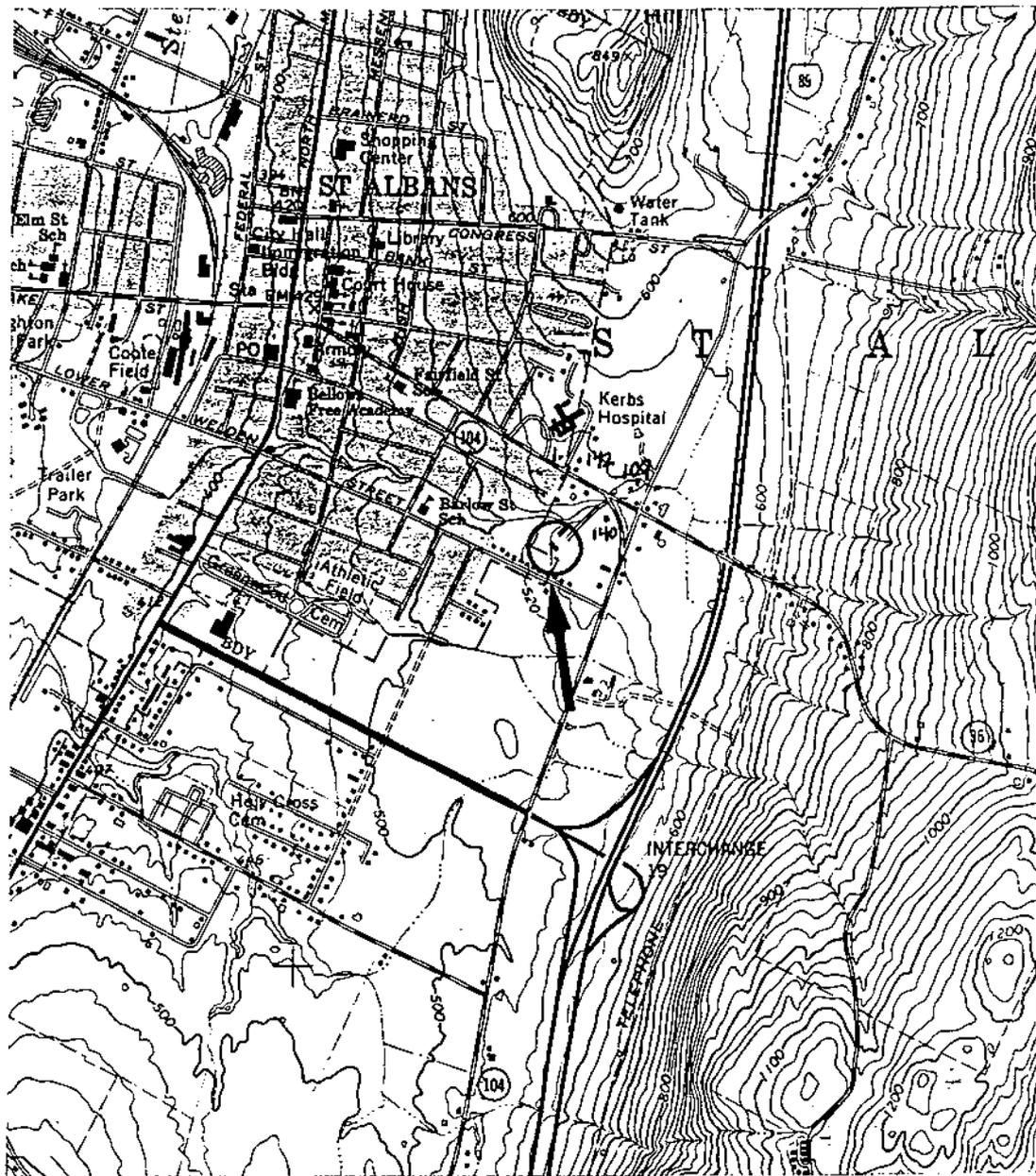
Site Location Map

Area Map

Site Map

Groundwater Contour Map

Contaminant Concentration Map



JOB #: 109741133  
 SOURCE: USGS- ST. ALBANS, VERMONT QUADRANGLE



**ST. ALBANS**  
**STATE POLICE BARRACKS**  
 ST. ALBANS, VERMONT

**SITE LOCATION MAP**

DATE: 2/19/98	DWG.#:1	SCALE: 1:24000	DRN.:SB	APP.:KM
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ROUTE 104



FRANKLIN COUNTY HOME HEALTH

DRIVEWAY

WOODED RAVINE W/STEVENS BROOK APPROX. 300'

FIELD

PAVED AREA

FUEL OIL UST VENT AND FILL PIPES

FIELD

LAWN

MW4

MW3

ST. ALBANS STATE POLICE BARRACKS

MW2

MW1

LAWN

**LEGEND**



MONITORING WELL



TREE



FORMER UST LOCATION

RESIDENTIAL DEVELOPMENT (ON UPPER WELDEN STREET) APPROX. 200'-300' AWAY



JOB #: 109741133



**ST. ALBANS STATE POLICE BARRACKS**  
ST. ALBANS, VERMONT

**AREA MAP**

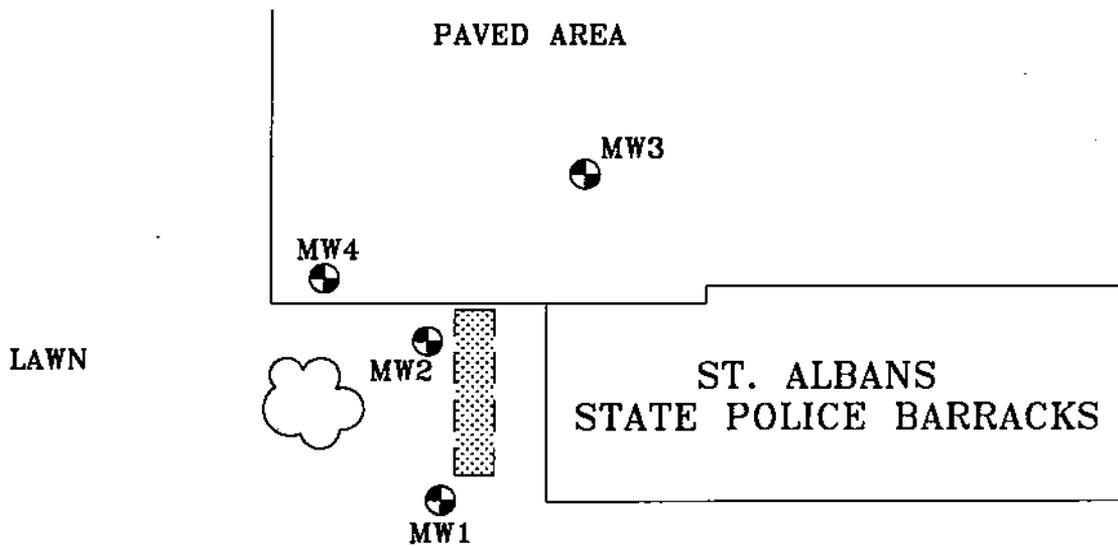
DATE: 3/10/98

DWG.#:2

SCALE: NONE

DRN.:SB

APP.:KM



**LEGEND**

-  MW2 MONITORING WELL
-  TREE
-  FORMER UST LOCATION

JOB #: 109741133



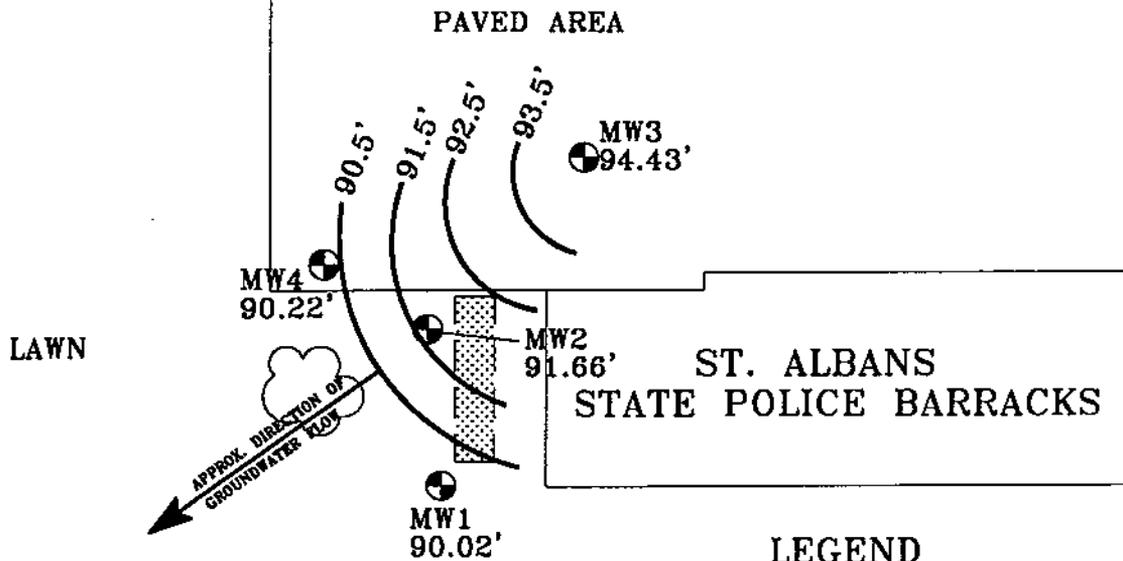
**ST. ALBANS  
STATE POLICE BARRACKS  
ST. ALBANS, VERMONT**

**SITE MAP**

DATE: 3/10/98	DWG.#:3	SCALE: 1"=30'	DRN.:SB	APP.:KM
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FRANKLIN  
COUNTY  
HOME HEALTH



LEGEND

MW2 91.66' MONITORING WELL AND WATER TABLE ELEVATION IN FEET

92.5' GROUNDWATER CONTOUR IN FEET (DASHED WHERE INFERRED)

TREE

FORMER UST LOCATION

JOB #: 109741133  
DATE MEASURED: 2/27/98



ST. ALBANS  
STATE POLICE BARRACKS  
ST. ALBANS, VERMONT

GROUNDWATER CONTOUR MAP

DATE: 3/10/98	DWG.#:4	SCALE: 1"=30'	DRN.:SB	APP.:KM
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N



FRANKLIN  
COUNTY  
HOME HEALTH

PAVED AREA

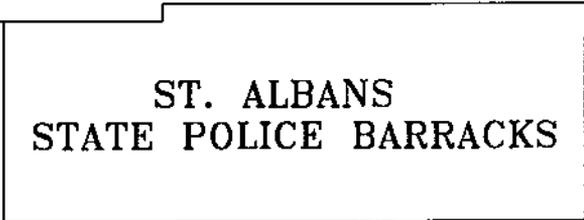
MW3  
1.1

MW4  
NA

LAWN

MW2  
13,186

MW1  
22,837



ST. ALBANS  
STATE POLICE BARRACKS

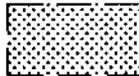
LEGEND

MW2 MONITORING WELL AND TOTAL  
13,186 BTEX AND MTBE CONCENTRATION (ppb)

NA NOT ACCESSIBLE



TREE



FORMER UST LOCATION

JOB #: 109741133  
SAMPLE DATE: 2/27/98



ST. ALBANS  
STATE POLICE BARRACKS  
ST. ALBANS, VERMONT

CONTAMINANT CONCENTRATION MAP

DATE: 3/10/98 DWG.#:5 SCALE: 1"=30' DRN.:SB APP.:KM

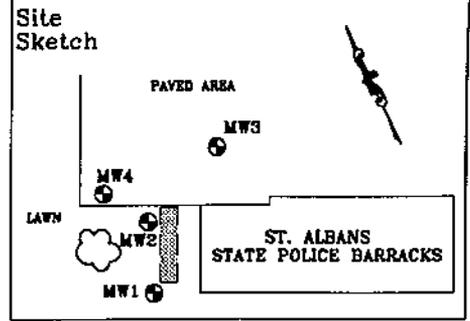
**APPENDIX B**

**Well Logs**

PROJECT ST. ALBANS STATE POLICE BARRACKS

WELL NUMBER MW1

LOCATION ST. ALBANS, VERMONT



DATE DRILLED 2/17/98 TOTAL DEPTH OF HOLE 16.5'

DIAMETER 4.25"

SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.010"

CASING DIA. 2" LENGTH 6.0' TYPE sch 40 pvc

DRILLING CO. T&K DRILLING METHOD HSA

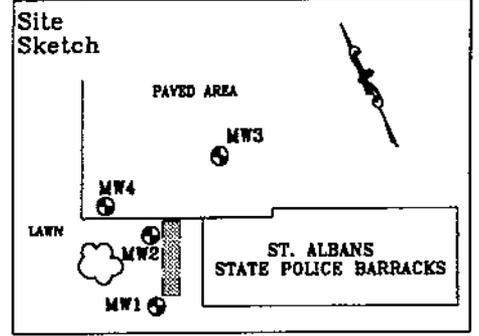
DRILLER ALAN TOMMILA LOG BY K. McGRAW

GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
2					2
1					1
0					0
1		NATIVE BACKFILL	0'-2' 0.2 ppm	Brown, fine to medium SAND, trace gravel, dry, no odor.	1
2		BENTONITE			2
3		WELL RISER			3
4					4
5					5
6			5'-7'- 3/2/4/7 185 ppm	6.0' WATER TABLE	6
7		SAND PACK	7'-9'- 8/7/7/11 180 ppm	Grayish brown, silty fine SAND, some medium sand, little clay, wet, petroleum odor.	7
8				Grayish brown, SILT, CLAY and fine to medium SAND. wet, petroleum odor.	8
9					9
10		WELL SCREEN	10'-12'- 6/12/14/28 190 ppm	Olive brown, TILL, dense, damp, petroleum odor.	10
11					11
12					12
13		BOTTOM CAP			13
14					14
15			15'-16.5'- 42/72/90 5.4 ppm	Light brown, TILL, very dense, damp, no odor.	15
16					16
17		UNDISTURBED NATIVE SOIL		BASE OF WELL AT 14' END OF EXPLORATION AT 16.5'	17
18					18
19					19
20					20
21					21
22					22

PROJECT ST. ALBANS STATE POLICE BARRACKS  
 LOCATION ST. ALBANS, VERMONT  
 DATE DRILLED 2/17/98 TOTAL DEPTH OF HOLE 14.3'  
 DIAMETER 4.25"  
 SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.010"  
 CASING DIA. 2" LENGTH 3.5' TYPE sch 40 pvc  
 DRILLING CO. T&K DRILLING METHOD HSA  
 DRILLER ALAN TOMMILA LOG BY K. McGRAW

WELL NUMBER MW2



GRIFFIN INTERNATIONAL, INC

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 LOCKING WELL CAP				0
1	CONCRETE		0'-2' 32 ppm	Grayish brown, fine to medium SAND, trace silt, damp, slight odor.	1
2	NATIVE BACKFILL				2
3	BENTONITE				3
4	WELL RISER				4
5			5'-7'- 2/8/8/10 210 ppm	Grayish brown, silty fine SAND, little clay, wet, petroleum odor.	5
6				6.0' WATER TABLE	6
7	SAND PACK				7
8					8
9					9
10	WELL SCREEN		10'-12'- 8/13/10/10 >200 ppm	Grayish brown, fine to medium SAND and SILT, little clay, petroleum odor.	10
11					11
12					12
13	BOTTOM CAP				13
14	UNDISTURBED NATIVE SOIL		14'-14.3'- 100/4" 106 ppm	Olive brown, TILL, saturated, very dense, petroleum odor.	14
15				BASE OF WELL AT 14' END OF EXPLORATION AT 14.3'	15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

PROJECT ST. ALBANS STATE POLICE BARRACKS

LOCATION ST. ALBANS, VERMONT

DATE DRILLED 2/17/98 TOTAL DEPTH OF HOLE 14.3'

DIAMETER 4.25"

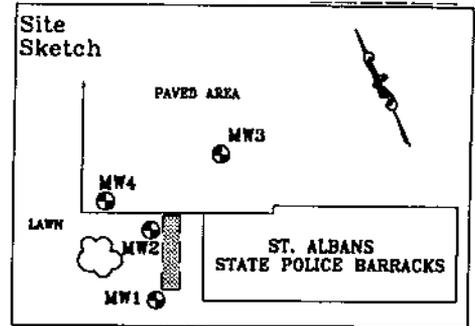
SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.010"

CASING DIA. 2" LENGTH 3.5' TYPE sch 40 pvc

DRILLING CO. T&K DRILLING METHOD HSA

DRILLER ALAN TOMMILA LOG BY K. McGRAW

WELL NUMBER MW3



GRIFFIN INTERNATIONAL, INC

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	LOCKING WELL CAP			0
1	CONCRETE		1'-2' 0.8 ppm	Grayish brown, SILT and fine SAND, dense, dry, no odor.	1
2	NATIVE BACKFILL				2
3	BENTONITE				3
4	WELL RISER				4
5			5'-7' 15/7/4/5 0.4 ppm	Olive brown, fine SAND and SILT, damp to wet, no odor.	5
6	SAND PACK			6.5' WATER TABLE	6
7					7
8					8
9					9
10	WELL SCREEN		10'-11.5' 23/46/72 0.3 ppm	Brown, TILL, damp, very dense, no odor.	10
11					11
12					12
13	BOTTOM CAP				13
14	UNDISTURBED NATIVE SOIL		14'-14.3' 75/4" 0.2 ppm	Same as above, no odor.	14
15				BASE OF WELL AT 14'	15
16				END OF EXPLORATION AT 14.3'	16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

PROJECT ST. ALBANS STATE POLICE BARRACKS

LOCATION ST. ALBANS, VERMONT

DATE DRILLED 2/17/98 TOTAL DEPTH OF HOLE 12.0'

DIAMETER 4.25"

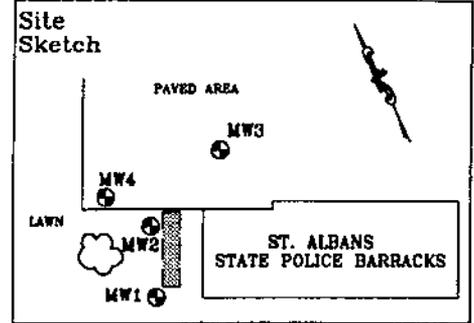
SCREEN DIA. 2" LENGTH 8.0' SLOT SIZE 0.010"

CASING DIA. 2" LENGTH 3.5' TYPE sch 40 pvc

DRILLING CO. T&K DRILLING METHOD HSA

DRILLER ALAN TOMMILA LOG BY K. McGRAW

WELL NUMBER MW4



GRIFFIN INTERNATIONAL, INC

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 LOCKING WELL CAP				0
1	CONCRETE		1'-2' 2.2 ppm	Grayish brown, silty fine SAND, little clay, damp, slight odor.	1
2	NATIVE BACKFILL				2
3	BENTONITE				3
4	WELL RISER				4
5					5
6	SAND PACK		5'-7'- 2/3/3/10 15.6 ppm	Brown, SILT and fine SAND, damp, slight odor.	6
7	WELL SCREEN			7.0' WATER TABLE	7
8					8
9					9
10					10
11	BOTTOM CAP		10'-12'- 7/20/42/48 0.2 ppm	Brown, TILL, wet, no odor.	11
12	UNDISTURBED NATIVE SOIL			BASE OF WELL AT 12' END OF EXPLORATION AT 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

## **APPENDIX C**

### **Liquid Level Monitoring Data**

**Liquid Level Monitoring Data  
State Police Barracks, St. Albans, VT**

**2/27/98**

Well I.D.	Top of Casing Elevation	Depth To Product	Depth To Water	Product Thickness	Specific Gravity Of Product	Water Equivalent	Corrected Depth To Water	Corrected Water Table Elevation
MW-1	100.00		9.98					90.02
MW-2	98.18		6.52					91.66
MW-3	99.63		5.20					94.43
MW-4	97.68		7.46					90.22

All Values Reported in Feet

Top-of-Casing Elevations Measured in Feet Relative to MW-1 set at 100.00'

**APPENDIX D**

**Groundwater Quality Summary**

**Laboratory Report**

**Groundwater Quality Summary  
State Police Barracks  
St. Albans, Vermont**

**February 27, 1998**

PARAMETER	Sample Point						VGES
	MW-1	MW-2	MW-3	MW-4	Duplicate of MW-1	Trip Blank	
Benzene	347.	716.	ND	NA	355.	ND	5.
Chlorobenzene	ND	ND	ND		ND	ND	100.
1,2-DCB	ND	ND	ND		ND	ND	600.
1,3-DCB	ND	ND	ND		ND	ND	600.
1,4-DCB	ND	ND	ND		ND	ND	75.
Ethylbenzene	2,650.	1,280.	ND		3,100.	ND	700.
Toluene	5,540.	3,410.	1.1		6,370.	ND	1,000.
Xylenes	14,300.	7,780.	TBQ		16,200.	ND	10,000.
Total BTEX	<b>22,837.</b>	<b>13,186.</b>	<b>1.1</b>		<b>26,025.</b>	<b>ND</b>	-
MTBE	ND	ND	ND		ND	ND	40.
BTEX+MTBE	<b>22,837.</b>	<b>13,186.</b>	<b>1.1</b>		<b>26,025.</b>	<b>ND</b>	-

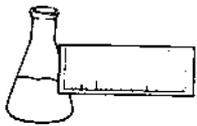
All Values Reported in ug/L (ppb)

VGES - Vermont Groundwater Enforcement Standard

NA - Not Accessible

ND - None Detected

TBQ - Trace Below Quantitation Limit



**ENDYNE, INC.**

Laboratory Services

32 James Brown Drive  
Williston, Vermont 05495  
(802) 879-4333  
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International  
PROJECT NAME: St. Albans State Police  
REPORT DATE: March 6, 1998  
DATE SAMPLED: February 27, 1998

PROJECT CODE: GISA1608  
REF.#: 117,243 - 117,247

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Chain of custody indicated sample preservation with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times. All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method. Blank contamination was not observed at levels affecting the analytical results.

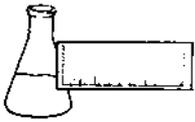
Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate recovery data was determined to be within laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.  
Laboratory Director

enclosures



**ENDYNE, INC.**

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**EPA METHOD 8020--PURGEABLE AROMATICS**

CLIENT: Griffin International

DATE RECEIVED: March 2, 1998

PROJECT NAME: St. Albans State Police

REPORT DATE: March 6, 1998

CLIENT PROJ. #: 109741133

PROJECT CODE: GISA1608

Ref. #:	117,243	117,244	117,245	117,246	117,247
Site:	Trip Blank	MW 3	MW 1	Duplicate MW 1	MW 2
Date Sampled:	2/27/98	2/27/98	2/27/98	2/27/98	2/27/98
Time Sampled:	8:00	10:56	11:12	11:12	11:21
Sampler:	R. Higgins	R. Higgins	R. Higgins	R. Higgins	R. Higgins
Date Analyzed:	3/4/98	3/4/98	3/4/98	3/5/98	3/6/98
UIP Count:	0	2	>10	>10	>10
Dil. Factor (%):	100	100	1	1	2
Surr % Rec. (%):	94	92	108	99	102
Parameter	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)
Benzene	<1	<1	347.	355.	716.
Chlorobenzene	<1	<1	<100	<100	<50
1,2-Dichlorobenzene	<1	<1	<100	<100	<50
1,3-Dichlorobenzene	<1	<1	<100	<100	<50
1,4-Dichlorobenzene	<1	<1	<100	<100	<50
Ethylbenzene	<1	<1	2,650.	3,100.	1,280.
Toluene	<1	1.1	5,540.	6,370.	3,410.
Xylenes	<1	TBQ <1	14,300.	16,200.	7,780.
MTBE	<10	<10	<1000	<1000	<500

Note: UIP = Unidentified Peaks    TBQ = Trace Below Quantitation    NI = Not Indicated

**CHAIN-OF-CUSTODY RECORD**

26073

109741133

Project Name: <u>St. Albans State Police</u>	Reporting Address: <u>GRIFFIN</u>	Billing Address:
Site Location: <u>St. Albans</u>		
Endyne Project Number: <u>GISA1608</u>	Company: Contact Name/Phone #: <u>K. McGRAN</u>	Sampler Name: Phone #: <u>R. Higgins</u>

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
117243	TRIP BLANK	h <sub>2</sub> O	✓		3/23	2	4 Quarts		8020	H/C1	
117244	MW3	↓	↓		10:56	↓	↓		↓	↓	
117245	MW1	↓	↓		11:12	↓	↓		↓	↓	
117246	Duplicate MW1	↓	↓		11:12	↓	↓		↓	↓	
117247	MW2	↓	↓		11:21	↓	↓		↓	↓	

Relinquished by: Signature <u>R. Higgins</u>	Received by: Signature <u>Carla...</u>	Date/Time <u>3/23</u>
Relinquished by: Signature <u>Carla...</u>	Received by: Signature <u>M. Fare</u>	Date/Time <u>3/27/06 10:30am</u>

New York State Project: Yes  No

**Requested Analyses**

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD <sub>5</sub>	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										