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PLANNING DEPARTMENT

August 3, 1994

Mr. Chuck Schwer  
State of Vermont  
Department of Environmental Conservation  
HMMD  
103 South Main St.  
Waterbury, VT 05671-0404

Dear Mr. Schwer,

Enclosed is the completed report on the Site Assessment at the Barnard General Store in Barnard, VT. The report contains an introduction and a description of the site history, as well as the required investigation procedures, conclusions and recommendations.

If you have any questions regarding this report, please call anytime.

Sincerely,

Peter Hack  
Engineer

c: Mr. David Stroupe, Green Mountain Propane Gas Company

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

**AT**

**BARNARD GENERAL STORE  
Barnard, VT**

**PREPARED FOR:**

**Green Mountain Propane Gas Company  
346 Shelburne Street  
Burlington, VT 05401-4938**

**PREPARED BY:**

**Griffin International  
P.O. Box 943  
Williston, VT 05495  
(802) 865-4288**

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## I. INTRODUCTION

On April 14, 1994, two gasoline underground storage tanks (USTs) were removed from the Barnard General Store property. During the removal, concentrations of up to 200 ppm of volatile organic compounds (VOCs) were detected in the soils beneath the tanks, and concentrations of 400 ppm were detected under the pump island. Based on the detection of VOCs during this tank pull, the VTDEC has requested further investigation to determine the degree and extent of subsurface contamination at this site.

Green Mountain Propane Gas Company retained the services of Griffin International to perform a site assessment and prepare a report of findings. This report addresses the state's site assessment request, and provides conclusions and recommendations for the site.

## II. SITE DESCRIPTION

The Barnard General Store is located on Route 12, at the crossroads in the Village of Barnard. The building houses the store and a residence and stands alone at the corner. The overflow spillway to Silver Lake is approximately 120 feet north of the property and flows under the road through several corrugated metal pipes and into a rip-rap lined outfall. The store has an on site septic system and supply well, both located on the east side of the building. Other supply wells are known to exist in the area, including the post office( located over 200 feet east) and several residences located at least 200 feet away. However, these residence supply wells are either upgradient of the site, or across the spillway.

Geologic maps indicate a glacial till overburden with underlying Dolomite bedrock.

## III. INVESTIGATIVE PROCEDURES

### A. Monitoring Well Installation

On June 27, 1994 three monitoring wells were installed at this site by Green Mountain Boring Company, under the direct supervision of a Griffin Engineer. The wells were installed using a truck mounted, 4.25" inside diameter hollow stem auger drill rig. Undisturbed soil samples were collected at five foot depth intervals with a split spoon sampler to identify the soil types, depth to groundwater, and for screening with a photo-ionization device (PID) to determine if the soils contain VOCs. The results of the drilling operations are documented on the boring logs in Appendix B. Soils encountered during the drilling operation were predominantly silt, with some minor gravel and clay.

The locations of the three monitoring wells are shown on the Site Map in Appendix A. The wells are constructed of two inch diameter 0.01" slot PVC well screen and casing. The annulus between the borehole wall and the screened section contains a silica sand pack to filter fine sediments from the groundwater entering the well. The annulus is also sealed at the top with

bentonite to prevent surface water from infiltrating the well. The wells have flush mounted steel access covers. The well logs show construction details, PID readings, soil types and water table elevations for each well.

Monitoring well #1 (MW1) is located on the north side of the property, next to the road. It was reported that there were UST(s) and a pump island in this vicinity many years ago. The concrete pump island still exists. This is in the presumed downgradient direction from the former USTs. The soils in this hole consisted of dry gray and black silt, with some clay and silt. Elevated concentrations of VOCs up to 40 parts per million (ppm) were detected in auger cuttings from within the first two feet of boring. The split spoon sample collected from five to seven feet below grade contained a VOC concentration of 10 ppm. The sample collected from ten to twelve feet below grade contained 2.5 ppm of VOCs when screened with the PID. The auger reached refusal at thirteen feet, which is most likely the bedrock. The water table was detected at 10 feet below grade, however, after the well was installed the water rose up to three feet in a short time.

Monitoring well #2 (MW2) is located on the west side of the site, between the former USTs and pump island. The first boring attempt hit refusal at five feet. A second attempt was made about five feet east of the first. The soils in this borehole consisted mainly of sand with some silt. PID screenings of soils collected from five to seven feet in this borehole detected VOC concentrations of 9 ppm to 23 ppm. The auger met refusal at eight feet below grade. Groundwater was encountered at five feet below grade, but after the well was installed the water rose up to three feet below grade.

Monitoring well #3 (MW3) was placed at the southern edge of the former tank pit in order to define the extent of contamination in the presumed upgradient direction. Silty sand was encountered in this borehole. PID screening of auger cuttings from within the first two feet of boring detected a VOC concentration of 22 ppm. PID readings of the soil sample collected from five to seven feet indicated VOC concentrations of 0.4 ppm. The soil sample collected from 9.5 feet to 11.5 feet did not contain detectable concentrations of VOCs. The water table was detected at five feet below the ground surface, and rose to two feet below the surface after the well was installed.

#### B. Groundwater Sampling and Analysis

On June 27, 1994 a water sample was collected from the supply well for the store. This sample was analyzed by EPA Method 602, which tests for benzene, toluene, ethylbenzene, xylene and methyl tertiary butyl ether (BTEX and MTBE). The laboratory analysis of this sample did not detect any BTEX or MTBE compounds.

On July 6, 1994 ground water samples were collected from the three on site monitoring wells. All samples were collected per Griffin sampling protocols and analyzed according to EPA Method 602. The laboratory analysis of these groundwater samples detected elevated concentrations of BTEX and MTBE in MW1 and MW2. The analysis of groundwater from MW3 did not indicate the presence of any BTEX or MTBE. The sample collected from monitoring well MW2 contained 39.7 ppb (parts per billion) of benzene, which is above the Vermont Groundwater

Enforcement Standard of 5 ppb for that compound. MW2 also contained low concentrations of ethylbenzene, toluene, and xylene, below the current Vermont Groundwater Enforcement Standards (VTGES). The analysis of groundwater collected from MW1 detected 338 ppb benzene, 1,450 ppb of toluene, and 1,610 ppb of MTBE, all above the respective VTGES concentrations of 5 ppb, 1000 ppb and 40 ppb for these compounds. The analytical laboratory results are included in Appendix C.

The analysis of the equipment blank, trip blank and duplicate samples indicate that proper QA/QC was maintained during collection, transportation and analysis of the water samples.

#### C. Groundwater Flow Direction and Gradient

Before sampling on July 6, 1994 the depth to groundwater was measured in each well. The measurements are based on an assumed benchmark of 100 feet taken at the top of MW3. The water level data is shown on the Groundwater Contour Map in Appendix A. Groundwater appears to be flowing to the west, toward the outlet for Silver Lake, at a calculated hydraulic gradient of 9%.

### IV. RECEPTOR SURVEY

Griffin conducted a visual survey of the area to locate and identify any potential receptors of subsurface contamination. Potential receptors include the Barnard Store basement and supply well, storm water catch basins, and Silver Lake and its outlet. The catch basins appear to discharge into the ravine where the Silver Lake spillway discharges. Some supply wells are also located several hundred feet away from the site.

### V. RISK ASSESSMENT

The store and its supply well are both located upgradient of the former USTs. The ambient air in the basement was screened with a PID and no elevated concentrations of VOC vapors were detected. The store's water supply well was sampled and analyzed and no dissolved VOCs were detected in this sample. Therefore, the store and its supply well do not appear to be at risk of impact from the subsurface contamination.

The other supply wells in the area are located several hundred feet away, upgradient, or across a drainage divide and therefore are not likely at a high risk of impact from this site.

On June 27, 1994 no signs of petroleum contamination were observed in the lake. No water was observed flowing over the spillway, but some rainwater was exiting the storm drain pipes into the ravine. Groundwater at this site flows directly toward the ravine, which could impact this area. However, it is unlikely that the contamination poses an immediate threat to human health and safety or to the environment.

## VI. CONCLUSIONS

Based on the investigations and analytical laboratory results, Griffin has reached the following conclusions:

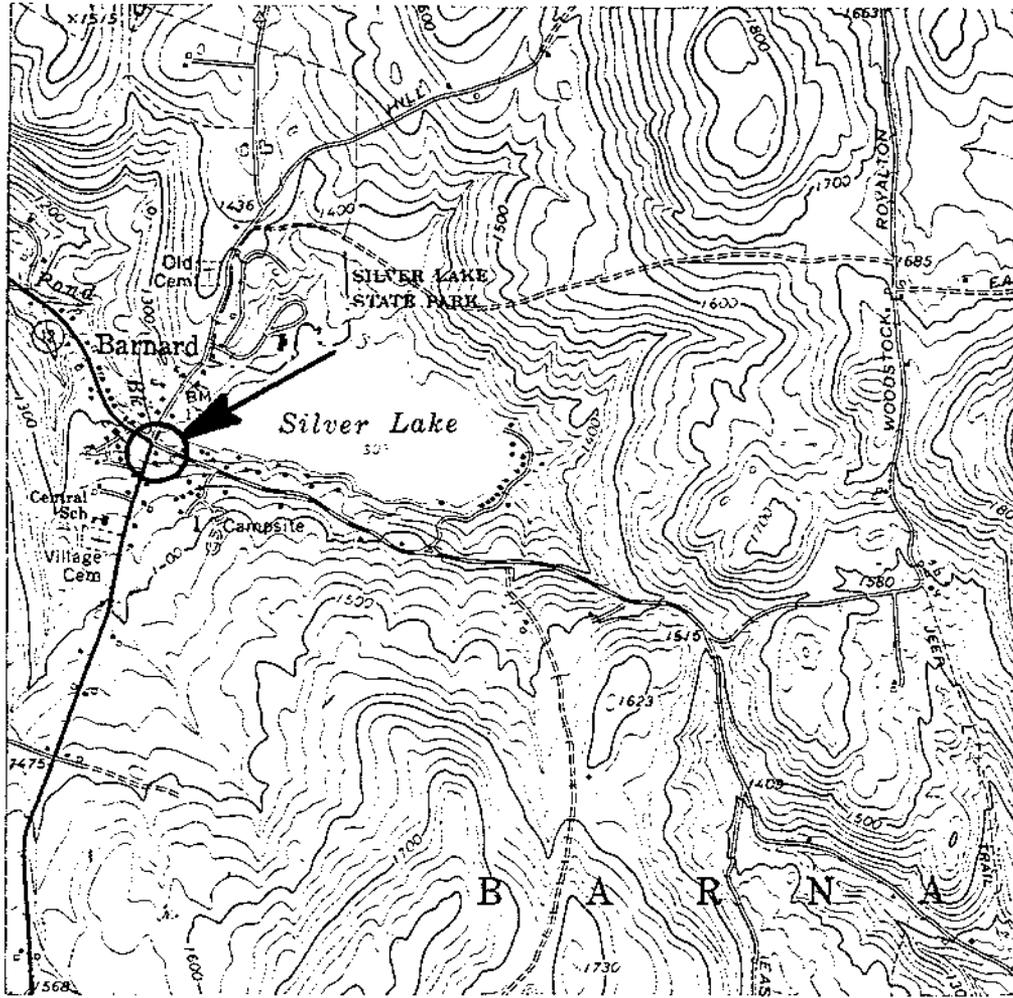
- 1) Subsurface contamination was detected at this site during a routine UST removal. VOC concentrations of up to 400 ppm were detected in the soils surrounding the tanks. The existing tanks were fairly new (installed in 1986), and no leaks were observed. The probable source of contamination is the old tanks or piping that were in service sometime prior to 1986. The amount and duration of the release is unknown.
- 2) The release(s) has resulted in adsorbed contamination near the former pump island and USTs. Dissolved phase contamination also exists across the site.
- 3) Soil samples collected from three soil borings contained elevated levels of VOCs when screened with a PID. A maximum concentration of 40 ppm of VOCs was detected near the surface of MW1, which is located downgradient of the former pump island and USTs. This is also in the vicinity of the reported original USTs. Groundwater samples collected from the two downgradient monitoring wells contained elevated levels of BTEX and MTBE above the Vermont Groundwater Enforcement Standards. The higher concentrations were also detected in MW1.
- 4) The groundwater table elevation is within three feet of the ground surface and flows to the west.
- 5) The probable source of the existing contamination was removed in 1986, and no other sources presently exist at this site.
- 6) Residual contamination has not been found to have impacted any of the identified potential sensitive receptors. Risk of future impact to these receptors is minimal.
- 7) Over time, the contamination concentrations will be reduced by the natural processes of dilution, dispersion and biodegradation.

## VII. RECOMMENDATIONS

The residual contamination that remains does not pose an immediate threat to the environment or the public and will be reduced to non-detectable levels by the natural processes of volatilization and biodegradation. However, twice a year for one year, groundwater samples should be collected from the three monitoring wells and on site supply well, and analyzed to document the expected reduction of contamination in the subsurface. Once this expected downward trend in VOC concentrations is documented, the site should be considered for closure.

**APPENDIX A**

Site Maps  
Groundwater Contour Map



JOB #: 5944513  
 SOURCE: USGS- WOODSTOCK NORTH, VERMONT QUADRANGLE



**BARNARD GENERAL STORE**

**BARNARD, VERMONT**

**SITE LOCATION MAP**

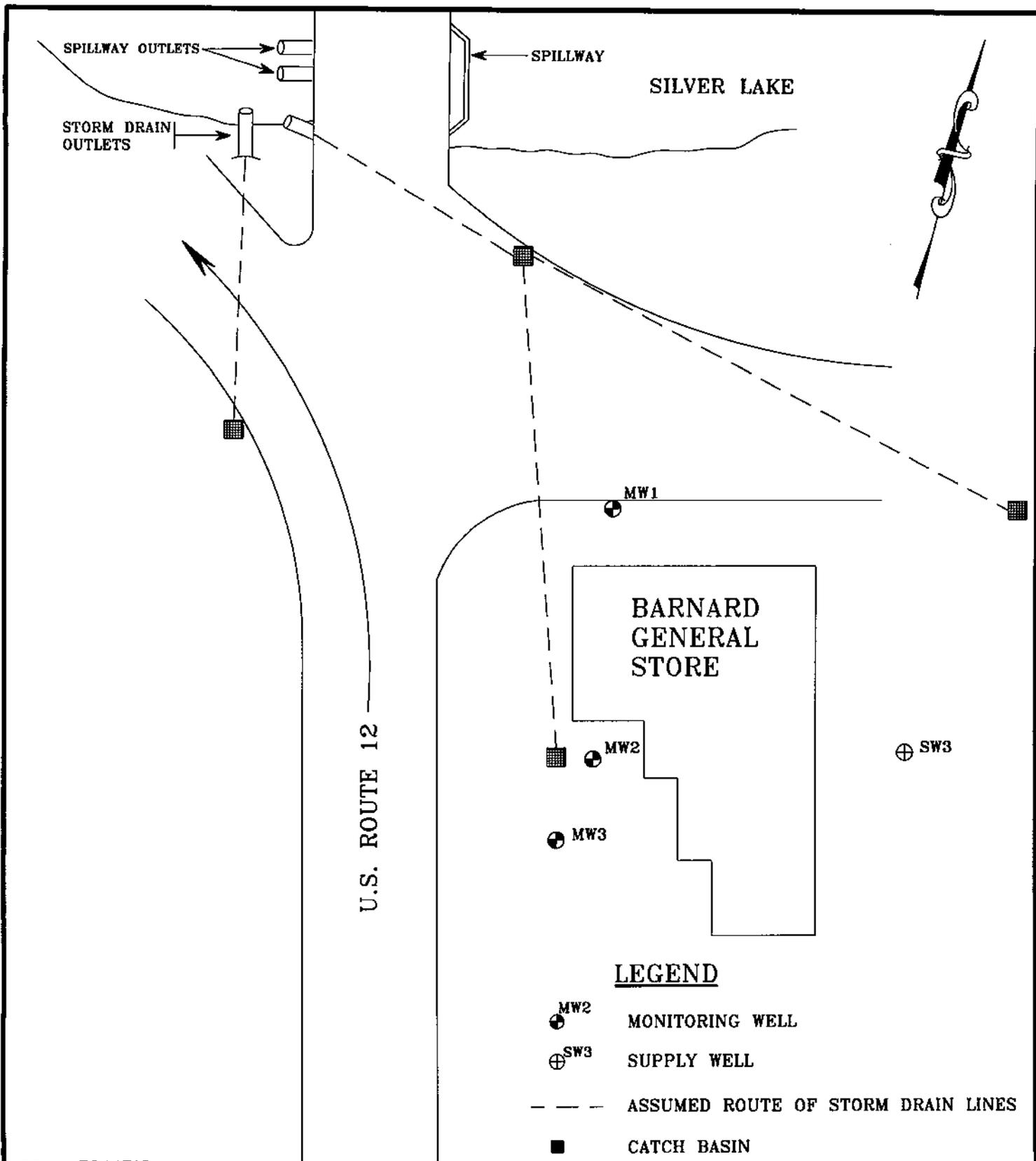
DATE: 7/6/94

DWG.#:1

SCALE: 1:24000

DRN: SB

APP:PH



JOB #: 5944513

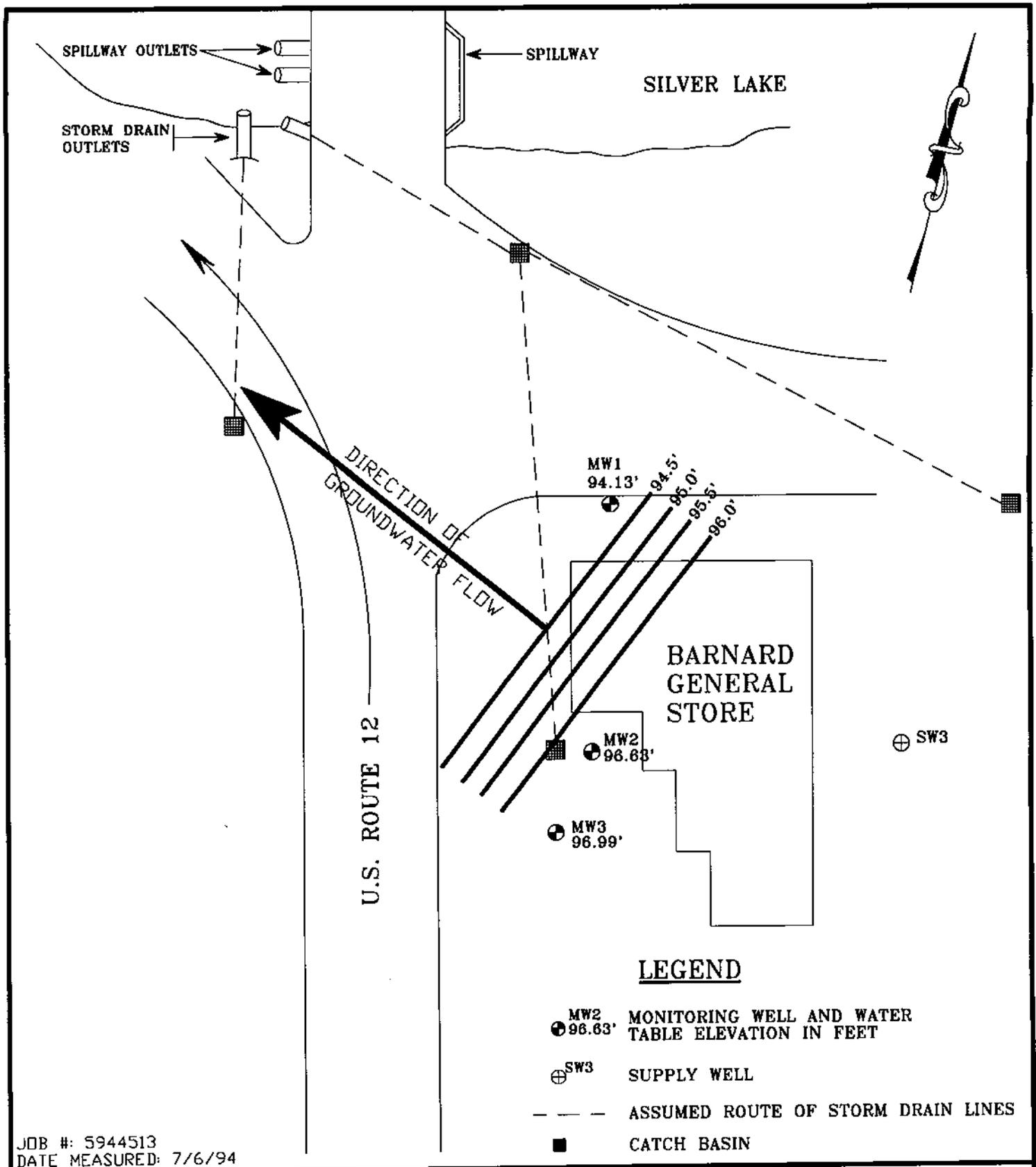


BARNARD GENERAL STORE

BARNARD, VERMONT

SITE MAP

DATE: 7/6/94	DWG.#: 2	SCALE: 1"=30'	DRN: SB	APP:PH
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JOB #: 5944513  
DATE MEASURED: 7/6/94



**BARNARD GENERAL STORE**

**BARNARD,**

**VERMONT**

**GROUNDWATER CONTOUR MAP**

DATE: 7/6/94

DWG.#: 2

SCALE: 1"=30'

DRN.: SB

APP.:PH

## **APPENDIX B**

### Boring Logs

PROJECT BARNARD GENERAL STORE

LOCATION BARNARD, VERMONT

DATE DRILLED 6/28/94 TOTAL DEPTH OF HOLE 13'

DIAMETER 4.25"

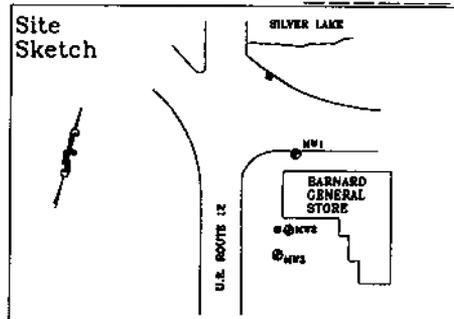
SCREEN DIA. 2" LENGTH 10' SLOT SIZE 0.010"

CASING DIA. 2" LENGTH 2.5' TYPE sch 40 pvc

DRILLING CO. GMB DRILLING METHOD HSA

DRILLER BOB & MIKE LOG BY P. HACK

WELL NUMBER MW1



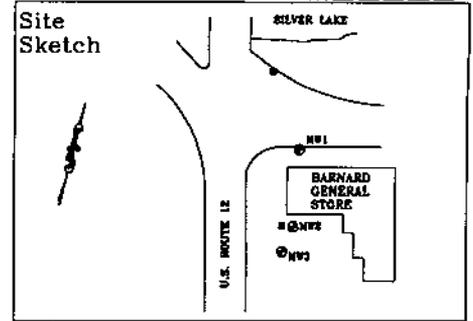
GRIFFIN INTERNATIONAL, INC

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' 40 ppm	Damp, black silty SAND, some clay.	1
2	BENTONITE				2
3	WELL RISER				3
4				4.0' WATER TABLE 	4
5					5
6	SAND PACK		5'-7'- 3/5/6/6 10 ppm	Dry black SILT, w/stones, and dry gray silt.	6
7					7
8	WELL SCREEN				8
9					9
10					10
11			10'-12'- 10/10/10/50 2.5 ppm	Very dense SILT	11
12	BOTTOM CAP				12
13	UNDISTURBED BEDROCK			BASE OF WELL AT 13' END OF EXPLORATION AT 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

PROJECT BARNARD GENERAL STORE

WELL NUMBER MW2

LOCATION BARNARD, VERMONT



DATE DRILLED 6/28/94 TOTAL DEPTH OF HOLE 8'

DIAMETER 4.25"

SCREEN DIA. 2" LENGTH 6.0' SLOT SIZE 0.010"

CASING DIA. 2" LENGTH 1.5' TYPE sch 40 pvc

DRILLING CO. GMB DRILLING METHOD HSA

DRILLER BOB & MIKE LOG BY P. HACK

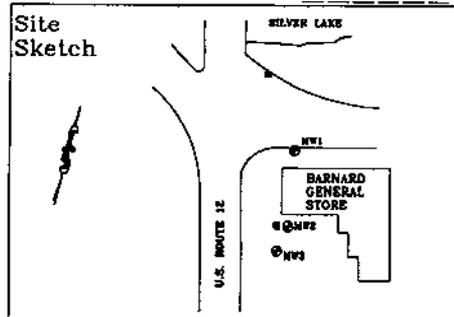
GRIFFIN INTERNATIONAL, INC

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	BENTONITE		0'-5'	SAND	2
3	WELL RISER			3.0' WATER TABLE	3
4	SAND PACK				4
5	WELL SCREEN		5'-7' - 1/2/9/20		5
6	BOTTOM CAP		23 ppm	Brown, black SAND and dense gray SILT, wet.	6
7	UNDISTURBED BEDROCK				7
8				BASE OF WELL AT 8'	8
9				END OF EXPLORATION AT 8'	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

PROJECT BARNARD GENERAL STORE

WELL NUMBER MW3

LOCATION BARNARD, VERMONT



DATE DRILLED 6/28/94 TOTAL DEPTH OF HOLE 12'

DIAMETER 4.25"

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

CASING DIA. 2" LENGTH 1.5' TYPE sch 40 pvc

DRILLING CO. GMB DRILLING METHOD HSA

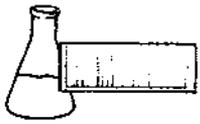
DRILLER BOB & MIKE LOG BY P. HACK

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	BENTONITE		Damp dark gray silty SAND and some stones.	1
2	WELL RISER		0'-4' 22 ppm	2.0' WATER TABLE	2
3					3
4					4
5	SAND PACK				5
6			5'-7'- 8/8/18/15 0.4 ppm	Gray SAND and SILT, some stones, wet	6
7					7
8	WELL SCREEN				8
9					9
10					10
11	BOTTOM CAP		9.5'-11.5'-15/10/8/10 0 ppm	Dense gray SILT and SAND, wet.	11
12	UNDISTURBED BEDROCK			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**

### Laboratory Results



**ENDYNE, INC.**

Pete H.

**Laboratory Services**

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

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International  
PROJECT NAME: Barnard Store  
REPORT DATE: July 8, 1994  
DATE SAMPLED: June 27, 1994

PROJECT CODE: GIBG1156  
REF.#: 61,324

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Chain of custody indicated samples were preserved 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

F 10 1994 10 10 1994



**ENDYNE, INC.**

**Laboratory Services**

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

**LABORATORY REPORT**

**EPA METHOD 602--PURGEABLE AROMATICS**

CLIENT: Griffin International  
PROJECT NAME: Barnard Store  
REPORT DATE: July 8, 1994  
DATE SAMPLED: June 27, 1994  
DATE RECEIVED: June 29, 1994  
ANALYSIS DATE: July 7, 1994

PROJECT CODE: GIBG1156  
REF.#: 61,324  
STATION: Supply Well  
TIME SAMPLED: 1:15  
SAMPLER: P. Hack

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND <sup>1</sup>
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	10	ND

Bromobenzene Surrogate Recovery: 106%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

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

### CHAIN-OF-CUSTODY RECORD

107-31

Project Name: <u>Barnard Gen Site</u>	Reporting Address: <u>100 Park Ave</u>	Billing Address:
Site Location: <u>Barnard VT</u>		
Endyne Project Number: <u>0101101</u>	Company: <u>Green Mountain</u>	Sampler Name:
	Contact Name/Phone #: <u>802-879-4333</u>	Phone #:

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				
<u>0101101</u>	<u>Supply Well</u>	<u>H<sub>2</sub>O</u>			<u>6/27/94</u>	<u>2</u>	<u>40ml</u>				
<u>0101101</u>	<u>Sump</u>	<u>H<sub>2</sub>O</u>			<u>6/27/94</u>	<u>2</u>	<u>40ml</u>	<u>Cancelled Sump Only</u> <u>as per P. Huck</u> <u>on 6/29/94</u>			



Relinquished by: Signature <u>[Signature]</u>	Received by: Signature <u>[Signature]</u>	Date/Time <u>[Date]</u>
Relinquished by: Signature	Received by: Signature	Date/Time

#### 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):										





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

### CHAIN-OF-CUSTODY RECORD

879 7103  
 FAX

10984

Project Name: <b>Barnard Gen Store</b>	Reporting Address: <b>Box 943, Williston</b>	Billing Address: <b>Same</b>
Site Location: <b>Barnard VT</b>		
Endyne Project Number:	Company: <b>Griffin Int'l</b>	Sampler Name: <b>Same</b>
	Contact Name/Phone #: <b>P. Huck 805 4288</b>	Phone #:

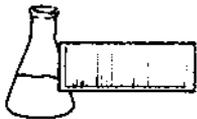
Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
	Supply well	H <sub>2</sub> O			6/27/94 1:15	2	40ml		20	HCl	
	<del>Sump</del>	<del>H<sub>2</sub>O</del>			<del>1:25</del>	<del>2</del>	<del>40ml</del>		<del>20</del>	<del>HCl</del>	

*Do Not Use*  
 pgh 6/29/94

Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature]</i>	Date/Time <b>6/29/94</b>	<b>10:05</b>
Relinquished by: Signature	Received by: Signature	Date/Time	

#### 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):										



**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: Barnard Gen'l Store  
REPORT DATE: July 14, 1994  
DATE SAMPLED: July 6, 1994

PROJECT CODE: GIBG1038  
REF.#: 61,575 - 61,580

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Chain of custody indicated samples were preserved 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.

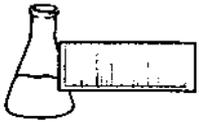
Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate recovery data was determined to be within laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.  
Laboratory Director

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**ENDYNE, INC.**

**Laboratory Services**

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

LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Barnard Gen'l Store  
REPORT DATE: July 14, 1994  
DATE SAMPLED: July 6, 1994  
DATE RECEIVED: July 7, 1994  
ANALYSIS DATE: July 13, 1994

PROJECT CODE: GIBG1038  
REF.#: 61,576  
STATION: MW1  
TIME SAMPLED: 10:15  
SAMPLER: Becca Schuyler

<u>Parameter</u>	<u>Detection Limit (ug/L)<sup>1</sup></u>	<u>Concentration (ug/L)</u>
Benzene	10	338.
Chlorobenzene	10	ND <sup>2</sup>
1,2-Dichlorobenzene	10	ND
1,3-Dichlorobenzene	10	ND
1,4-Dichlorobenzene	10	ND
Ethylbenzene	10	309.
Toluene	10	1,450.
Xylenes	10	3,750.
MTBE	100	1,610.

Bromobenzene Surrogate Recovery: 111%

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 10% dilution.

2 None detected



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**Laboratory Services**

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

LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Barnard Gen'l Store  
REPORT DATE: July 14, 1994  
DATE SAMPLED: July 6, 1994  
DATE RECEIVED: July 7, 1994  
ANALYSIS DATE: July 13, 1994

PROJECT CODE: GIBG1038  
REF.#: 61,577  
STATION: MW2  
TIME SAMPLED: 10:30  
SAMPLER: Becca Schuyler

<u>Parameter</u>	<u>Detection Limit (ug/L)<sup>1</sup></u>	<u>Concentration (ug/L)</u>
Benzene	5	39.7
Chlorobenzene	5	ND <sup>2</sup>
1,2-Dichlorobenzene	5	ND
1,3-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND
Ethylbenzene	5	91.1
Toluene	5	18.8
Xylenes	5	498.
MTBE	50	ND

Bromobenzene Surrogate Recovery: 110%

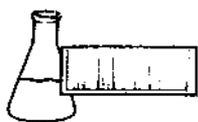
NUMBER OF UNIDENTIFIED PEAKS FOUND: > 10

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 20% dilution.

2 None detected

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**LABORATORY REPORT**

**EPA METHOD 602--PURGEABLE AROMATICS**

CLIENT: Griffin International  
PROJECT NAME: Barnard Gen'l Store  
REPORT DATE: July 14, 1994  
DATE SAMPLED: July 6, 1994  
DATE RECEIVED: July 7, 1994  
ANALYSIS DATE: July 13, 1994

PROJECT CODE: GIBG1038  
REF.#: 61,578  
STATION: MW3  
TIME SAMPLED: 10:50  
SAMPLER: Becca Schuyler

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND <sup>1</sup>
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	10	ND

Bromobenzene Surrogate Recovery: 95%

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Barnard Gen'l Store  
REPORT DATE: July 14, 1994  
DATE SAMPLED: July 6, 1994  
DATE RECEIVED: July 7, 1994  
ANALYSIS DATE: July 12, 1994

PROJECT CODE: GIBG1038  
REF.#: 61,575  
STATION: Trip Blank  
TIME SAMPLED: 8:10  
SAMPLER: Becca Schuyler

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND <sup>1</sup>
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	10	ND

Bromobenzene Surrogate Recovery: 92%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Barnard Gen'l Store  
REPORT DATE: July 14, 1994  
DATE SAMPLED: July 6, 1994  
DATE RECEIVED: July 7, 1994  
ANALYSIS DATE: July 13, 1994

PROJECT CODE: GIBG1038  
REF.#: 61,579  
STATION: Duplicate of MW3  
TIME SAMPLED: 10:50  
SAMPLER: Becca Schuyler

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND <sup>1</sup>
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	10	ND

Bromobenzene Surrogate Recovery: 96%

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Barnard Gen'l Store  
REPORT DATE: July 14, 1994  
DATE SAMPLED: July 6, 1994  
DATE RECEIVED: July 7, 1994  
ANALYSIS DATE: July 12, 1994

PROJECT CODE: GIBG1038  
REF.#: 61,580  
STATION: Equipment Blank  
TIME SAMPLED: 10:55  
SAMPLER: Becca Schuyler

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND <sup>1</sup>
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	10	ND

Bromobenzene Surrogate Recovery: 92%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

RECEIVED JUL 18 1994

**CHAIN-OF-CUSTODY RECORD**

Project Name: <u>Barnard General Store</u> Site Location: <u>Barnard, VT</u>	Reporting Address: <u>Griffin</u>	Billing Address: <u>Griffin</u>
Endyne Project Number: <u>61BG1058</u>	Company: Contact Name/Phone #:	Sampler Name: <u>Becker Schulte</u> Phone #: <u>865 4278</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				
61575	Trip Blank	H <sub>2</sub> O	X		7-6-94 8:10	2	40mL				
61576	MW1	↓	↓		10:15	↓	↓				
61577	MW2	↓	↓		10:30	↓	↓				
61578	MW3	↓	↓		10:50	↓	↓				
61579	Duplicate of MW 3	↓	↓		10:50	↓	↓				
61580	Equipment Blank	↓	↓		10:55	↓	↓				

Relinquished by: Signature <u>Becker Schulte</u>	Received by: Signature <u>Jim Wetmore</u>	Date/Time <u>7/7/94 10:10 AM</u>
Relinquished by: Signature	Received by: Signature	Date/Time

**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):										

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**CHAIN-OF-CUSTODY RECORD**

Project Name: <u>Barnard General Store</u>	Reporting Address: <u>Griffin</u>	Billing Address: <u>Griffin</u>
Site Location: <u>Barnard, VT</u>		
Endyne Project Number:	Company:	Sampler Name: <u>Becca Schuyler</u>
	Contact Name/Phone #:	Phone #: <u>865-4288</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				
	<u>Trip Blank</u>	<u>H<sub>2</sub>O</u>	<u>X</u>		<u>7-6-94</u> <u>8:10</u>	<u>2</u>	<u>40 mL</u>		<u>602</u>	<u>HCC</u>	
	<u>MW1</u>	↓	↓		<u>10:15</u>	↓	↓		↓	↓	
	<u>MW2</u>	↓	↓		<u>10:30</u>	↓	↓		↓	↓	
	<u>MW3</u>	↓	↓		<u>10:50</u>	↓	↓		↓	↓	
	<u>Duplicate of MW 3</u>	↓	↓		<u>10:50</u>	↓	↓		↓	↓	
	<u>Equipment Blank</u>	↓	↓		<u>10:55</u>	↓	↓		↓	↓	

Relinquished by: Signature <u>Becca Schuyler</u>	Received by: Signature <u>M. Wetmore</u>	Date/Time <u>7/7/94 10:10 AM</u>
Relinquished by: Signature	Received by: Signature	Date/Time

**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):										