



MAY 19 10 24 AM '98

May 18, 1998

Mr. Matt Moran
State of Vermont DEC
Waste Management Division
103 South Main Street, West Building
Waterbury, Vermont 05671-0404

RE: Report on the Investigation of Subsurface Petroleum Contamination at
Corner Brook Store, Marshfield, Vermont (VTDEC Site # 97-2179)

Dear Mr. Moran:

Enclosed, please find the report on the Investigation of Subsurface Petroleum Contamination at
the above referenced site.

If you have any questions regarding the report, please call.

Sincerely,

Laurie T. Reed,
Project Geologist

Encl.

c. Eugene Pushee, Bradford Oil
File: #79741055

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

AT

**CORNER BROOK STORE
ROUTE 2
MARSHFIELD, VERMONT**

VTDEC SITE #97-2179

April 1998

PREPARED FOR:

**Bradford Oil Company.
PO Box 394
Bradford, Vermont 05033**



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

Griffin Project #79741055

MAY 19 10 24 AM '98

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I. INTRODUCTION

This report describes the investigation of subsurface petroleum contamination at the Corner Brook Store (site) located on Route 2 in Marshfield, Vermont (see Site Location Map, Appendix A). The site was formerly known as Starch Factory Market. This investigation was conducted by Griffin International Inc. (Griffin) for Bradford Oil Company of Bradford, Vermont, owner of the former UST system at the site.

This investigation was initiated after petroleum contamination was discovered at the site during the closure of three underground storage tanks (USTs) in May 1997.

The USTs removed were:

- #1 a 6,000 gallon capacity gasoline, circa 1984;
- #2 a 6,000 gallon capacity gasoline, circa 1984;
- #3 a 3,000 gallon capacity gasoline, circa 1984.

The former USTs were located in a common field adjacent to the northeast side of the building in which the Corner Brook Store resides. A new 15,000-gallon UST was installed as a replacement. The approximate locations of the former tank field and new UST are shown on the Site Map in Appendix A. During the USTs removal volatile organic compounds (VOCs) were detected with a photoionization detector (PID) at concentrations of 5 to 320 parts per million (ppm). Approximately 350 cubic yards of soil was excavated to make room for the new UST on May 5 and May 6, 1997. Screening of these soils by PID indicated VOC concentrations ranging from 2.3 to 250 ppm. The soils were transported to a property of Mr. Dwight Duke in Marshfield, Vermont, following all required Vermont Department of Environmental Conservation (VTDEC) protocols and guidelines.

This investigation was requested by the VTDEC in a letter (dated June 12, 1997) to Mr. William Sellinger, Bradford Oil Company, from Chuck Schwer, VTDEC. Griffin prepared a Work Plan and Cost Estimate detailing the work performed in this assessment, which was submitted to the VTDEC on July 10, 1997. The Work Plan was approved by the VTDEC in a letter to Bradford Oil Company, dated February 5, 1998. Site investigation work began at the Corner Brook Store on March 19, 1998.

The site is owned by Mr. Steve Scribner of Marshfield, Vermont. The responsible party (RP) for the release at the site is Bradford Oil Company who formerly owned the UST system. The RP for the soil stockpile is under contention. It is Bradford Oil Company's position that Mr. Scribner is the RP for the soil stockpile, since he directed the soil to be excavated for installation of new USTs. It is Mr. Scribner's position that Bradford Oil Company is the RP, since the contamination of the soil resulted from the UST system owned by Bradford Oil Company. This report does not address the stockpiled soils. Stockpiled soils will be addressed once the responsibility issue is resolved.

II. SITE DESCRIPTION

The site is located in a mixed commercial and residential area on Route 2 in Marshfield, Vermont (see Site Location Map, Appendix A). The Corner Brook Store occupies a building along with an auto repair shop, the Marshfield Post Office, and a sporting goods shop. The site is a triangular shaped parcel bounded to the southeast by the Winooski River and to the north by Route 2. The Marshfield General Store is located west of the site. Commercial properties and residences are located north and northwest of the site across Route 2 (see Area Map, Appendix A).

The site is generally level in the area northeast of the building. The area in front (northwest) of the on-site building gently slopes towards the west. Southeast of the on-site building, topography drops off steeply, approximately 14 feet, to the Winooski River.

The Surficial Geologic Map of Vermont (Charles G. Doll, et al, 1970) indicates that the overburden formation mapped in the vicinity of the site is recent alluvium. Bedrock beneath the site is believed to be quartzose, micaceous crystalline limestone from rock chips recovered during boring. The Geologic Map of Vermont (Charles G. Doll, et al, 1961) indicates that the site lies near the contact between the Lower Devonian Waits River Formation, characterized generally by quartzose and micaceous crystalline limestone, and the Middle Devonian New Hampshire Platonian Series (undifferentiated granitic rocks).

III. INVESTIGATIVE PROCEDURES

To better define the extent of subsurface petroleum contamination at the site, Griffin installed four soil borings on March 19, 1998. SB1 is located north of the former tank field, near the edge of Route 2. SB2 is located directly southeast of the former tank field, adjacent to the steep bank of the Winooski River. SB3 is located south of the former tank field, adjacent to the steep bank of the Winooski River. SB4 is located northwest of the former tank field, adjacent to Route 2.

A thin horizon of groundwater was encountered at a depth of approximately 12.5 feet below grade before bedrock was encountered. Aquifer thickness was not sufficient to allow proper monitoring well installation. Soil samples collected from the boreholes, were screened for VOCs with a PID. One soil sample from the bottom of each boring, was collected for laboratory analyses.

A. Soil Boring and Screening

Continuous undisturbed soil samples were collected from the borings using a core barrel driven into the ground with a vibratory drill rig. Samples were screened for VOCs using an

HNU, Model HW-101, PID equipped with a 10.2 electron-volt lamp. Samples were logged by the supervising geologist. Prior to screening, the PID was calibrated with isobutylene with reference made to benzene. Detailed soil descriptions and VOC concentrations are listed on the well logs in Appendix B.

SB 1 was advanced 14.25 feet. Weathered bedrock was recovered from the bottom of the boring. Elevated VOC concentrations were detected at a depth of 6 feet below grade. Elevated VOC concentrations ranged from 70 ppm to >220 ppm at the bottom of the boring, where a strong petroleum odor, sheens, and black staining were observed in the saturated sample. Groundwater was estimated to be present at approximately 12.5 feet below grade.

SB2 was advanced 14.9 feet. Weathered bedrock was recovered from the bottom of the boring. Elevated VOC concentrations were detected at a depth of 12 feet below grade. Elevated VOC concentrations ranged from 12 ppm to >240 ppm at the bottom of the boring, where a strong petroleum odor was observed in the saturated sample. Groundwater was estimated to be present at approximately 12.5 feet below grade.

SB3 was advanced 15.3 feet. Weathered bedrock was recovered from the bottom of the boring. Elevated VOC concentrations were detected at a depth of 11 feet below grade. Elevated VOC concentrations ranged from 12 ppm to >200 ppm at the bottom of the boring, where a strong petroleum odor and some black staining were observed in the saturated sample. Groundwater was estimated to be present at approximately 12.5 feet below grade.

SB4 was advanced 7.2 feet. Weathered bedrock was recovered from the bottom of the boring. Relatively low VOC concentrations ranged from 1.4 to 8.8 ppm in samples recovered from the boring. Groundwater was not encountered.

Soil types from all borings were similar. Soil generally consisted of brown, fine to coarse sands with minor percentages of small gravel and gravelly interbeds.

B. Soil Sampling and Analysis

Soils samples were collected from borings SB1 through SB3 from the phreatic zone at the bottom of the boring. A soil sample was collected from SB4 from the bottom of the boring; no phreatic zone was present.

All soil samples were collected using Griffin's protocols which comply with state and industry standards. The samples were analyzed for the petroleum compounds benzene, ethyl benzene, toluene, xylenes (collectively know as BTEX) and for methyl tertiary butyl ether (MTBE), a fuel oxidizer. The samples were analyzed for EPA Method 602 compounds by EPA Method 8260.

Analyses of the soil samples collected from borings SB1 through SB4, indicate moderate to high concentrations of BTEX and MTBE, with the exception that no benzene was detected, in

concentration above the detection limit of the analysis, in the soil sample collected from SB 3. The highest VOC concentrations were detected in boring SB2, located directly adjacent to the presumed down-gradient (with respect to shallow groundwater flow) side of the former tank field. Concentrations of petroleum compounds were generally lower in the soil sample collected from SB4 from which the soil sample was collected from the vadose zone. The State of Vermont does not have enforcement standards specific to petroleum compound concentrations in soil. The Vermont Groundwater Enforcement Standards (VGES) are commonly used by the VTDEC for comparative guidelines for compounds detected in soils. Petroleum compounds were detected in all four soil samples at concentrations exceeding the VGES. Laboratory results are summarized below in Table 1; laboratory reports are included in Appendix C.

TABLE 1.

Summary of Soil Analysis
 Corner Brook Store
 Marshfield, Vermont

Sampling Date: March 19, 1998
 All Values Reported in $\mu\text{g}/\text{kg}$ (ppb)

PARAMETER	SB1 SS1	SB2 SS2	SB3 SS3	SB4 SS4
Benzene	2,020.	10,600.	ND> 250	224.
Ethylbenzene	24,000.	117,000.	4,410.	383.
Toluene	15,100.	284,000.	317.	996.
Xylenes	95,500.	526,000.	19,500.	1,450.
Total BTEX	136,620.	937,600.	24,227.	3,053.
MTBE	6,050.	TBQ< 10,000.	TBQ< 500	256.
BTEX + MTBE	142,670.	937,600.	24,227.	3,309.
Depth of Sample:	13 - 13.5 Ft.	13 - 14.9 Ft.	14 - 15.3 Ft.	6.5 - 7.2 Ft.

ND> - None detected above stated limits
 TBQ - Trace, below stated quantitation limit

C. Hydrogeology

The shallow aquifer was insufficiently thick to allow for proper monitoring well installation. The water table was observed to be directly overlying bedrock at the site at a depth of approximately 12.5 feet below grade. Groundwater is assumed to flow south or southwest based on topography and hydrography indicated on the Marshfield, Vermont Topographic Quadrangle, used as a base map for the Site Location Map, Appendix A. The discharge point of shallow groundwater from the site is likely the Winooski River, located directly adjoining the southern and eastern portion of the site.

IV. RECEPTOR SURVEY AND RISK ASSESSMENT

Griffin conducted a visual survey of the site and vicinity to identify local potential receptors of subsurface petroleum contaminants.

No buildings with basements are located in the area of the remaining residual petroleum contamination. There is likely little risk of impact to occupants of nearby buildings from vapor impact from the remaining petroleum contamination, accepting the presumed groundwater flow direction.

Municipal water serves the area including the subject property. According to the Town of Marshfield, water is supplied by springs located on Depot Hill and Folsun Hill, each of which are located more than one mile from the site. The Town of Marshfield has drilled a bedrock well on Folsun Hill, but the well is not yet in commission. The current springs are substantially up-gradient from the site, with respect to shallow groundwater flow, and therefore are not expected to be at risk from petroleum contamination from the site. The risk of impact to the newly drilled bedrock well is likely low due to its distance from the site.

The Winooski River, located directly adjoining the site, is the likely discharge point for groundwater at the site. Based on the proximity of the river to the site and the relatively high source strength of petroleum compounds in soil near the river, there is potential for impact to the surface water of the Winooski River. At the time of the site investigation on March 19, 1998, it was not practical to closely inspect the bank and water surface of the Winooski River, due to ice accumulation.

V. CONCLUSIONS

On the basis of this investigation, Griffin has concluded the following:

1. There have been releases of gasoline at this site. The amounts and duration of the releases are unknown.
2. The source of the releases is not known, but is likely related to the former UST system. The significant potential on-site primary sources of a release (old USTs and ancillary equipment) have been removed. The site is now equipped with modern gasoline storage and distribution equipment, with installed leak detection and spill prevention components.
3. The petroleum releases have resulted in contamination of soil in the area of the former UST field. Excavation during the UST replacement, resulted in removal of an estimated 350 cubic yards of soils impacted by gasoline. Petroleum contaminated soils remain at the margins of and below the former tank field.

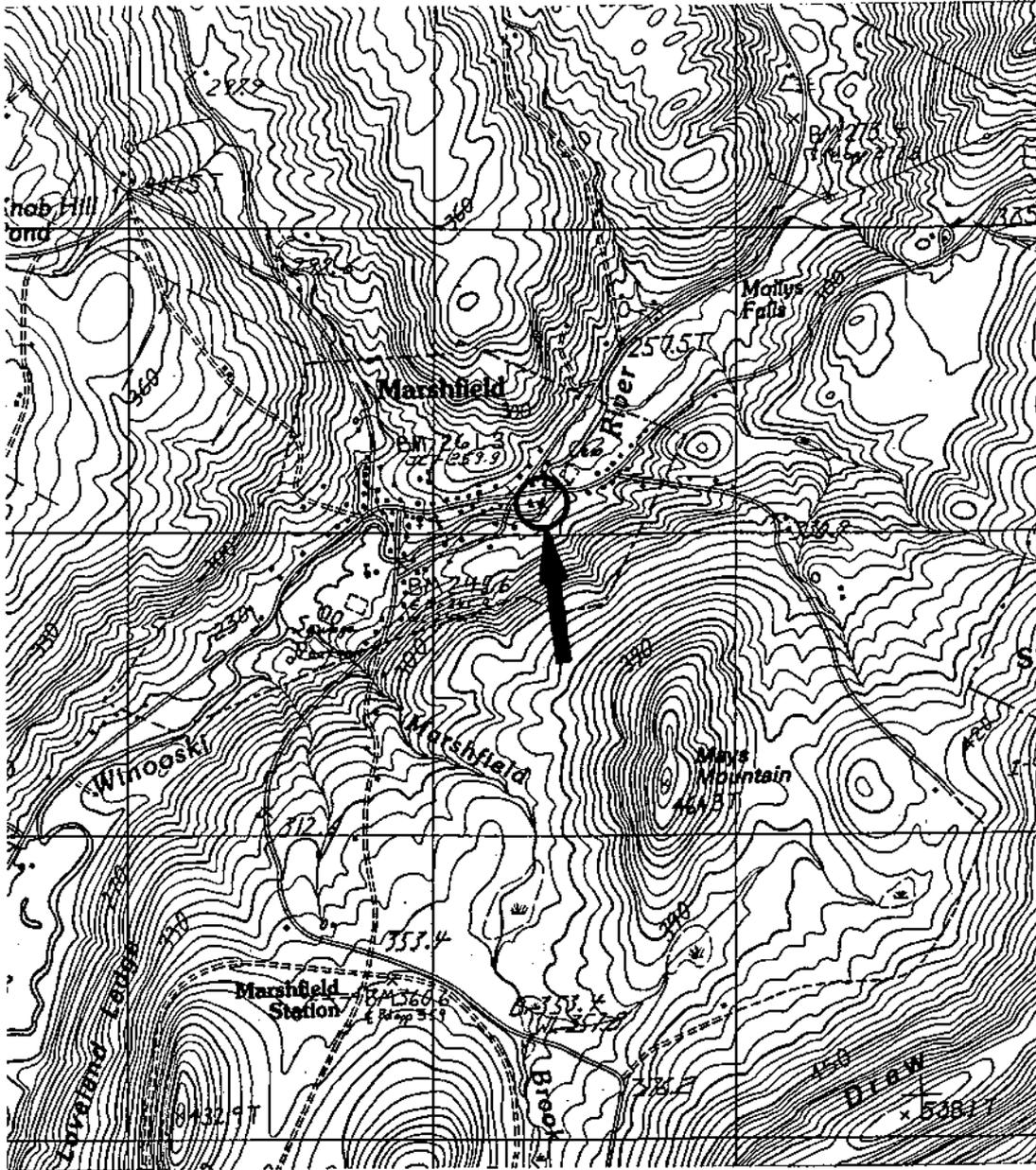
4. Soils at the site consist generally of sands with some gravel and minor interbeds of gravel. Bedrock crops out in the Winooski River next to the site. Bedrock underlies the site at depths ranging from 7 to 15 feet below grade, being shallower toward the northwest.
5. Petroleum contaminated soil extends vertically to the water table which was encountered at a depth of 12.5 feet below grade in March 1998. The State of Vermont uses Vermont Groundwater Enforcement Standards (VGES) to evaluate concentrations of petroleum compounds in soil. Soil samples collected from each of the four borings drilled, contained petroleum compounds at concentrations above the VGES.
6. Based on the relatively high concentration of petroleum compounds detected at the water table in boring SB2, and the proximity of that boring to the Winooski River, there is a potential that groundwater from the site may be discharging into the Winooski River at concentrations above VGES.

VI RECOMMENDATIONS

1. The bank of the Winooski River should be inspected for evidence of impact from petroleum contamination. If any seeps of groundwater are present along the northeast bank of the river, near the location of the former tank field, water sample should be collected from the seeps and analyzed for BTEX and MTBE.
2. The VTDEC requested in its June 12, 1997, letter to Mr. William Sellinger, Bradford Oil Co., that bedrock monitoring wells be installed as part of this investigation. Griffin recommended a phased approach, first characterizing the contaminant distribution in the overburden at the site. Since relatively high concentrations of petroleum compounds were detected in soils in the thin phreatic zone, directly above the bedrock surface, Griffin recommends that one bedrock monitoring well be installed at the site. The well should be designed and constructed to prevent cross-contamination between the surface and bedrock aquifers. A groundwater sample should be collected from the bedrock well and analyzed to determine if impact to the bedrock aquifer has occurred.

APPENDIX A

SITE LOCATION MAP
SITE MAP
AREA MAP



JOB #: 79741055
 SOURCE: USGS- MARSHFIELD, VERMONT QUADRANGLE



CORNER BROOK STORE

MARSHFIELD, VERMONT

SITE LOCATION MAP

DATE: 3/23/98	DWG.#:1	SCALE: 1:24000	DRN.:SB	APP.:LR
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FORMER UST FIELD

ROUTE 2

APPROX. LOCATION OF 15,000 GALLON GASOLINE UST.

PUMP ISLAND

POST OFFICE

CORNER BROOK STORE

AUTO REPAIR

TOP OF BANK

WINOSKI RIVER

PROPANE AST

SB4

SB1

SB2

SB3

S W

LEGEND

● SB1 SOIL BORING

○ UST VENT

— W — WATER LINE

— S — SEWER LINE

JOB #: 79741055



CORNER BROOK STORE

MARSHFIELD, VERMONT

SITE MAP

DATE: 4/14/98

DWG.#:3

SCALE: 1"=40'

DRN.:SB APP.:LR



CABOT ROAD

RESIDENCE

RESIDENCE

BUSINESS

ROUTE 2

MARSHFIELD
GENERAL
STORE

NEW BRIDGE

POST
OFFICE

CORNER
BROOK
STORE

AUTO
REPAIR

SB4

SB1

SB2

SB3

WINOOSKI RIVER

W S

JOB #: 79741055



CORNER BROOK STORE

MARSHFIELD, VERMONT

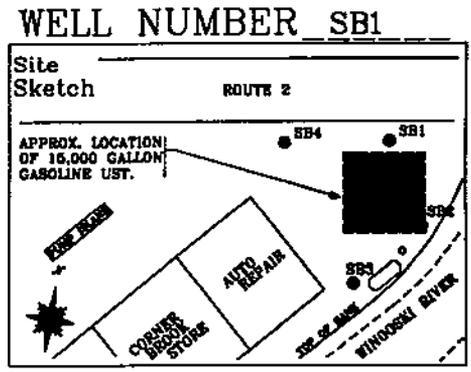
AREA MAP

DATE: 4/14/98	DWG.#:2	NOT TO SCALE	DRN.:SB	APP.:LR
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APPENDIX B

DRILLING LOGS

PROJECT CORNER BROOK STORE
 LOCATION ROUTE 2, MARSHFIELD, VERMONT
 DATE DRILLED 3/19/98 TOTAL DEPTH OF HOLE 14.25'
 DIAMETER 2.75"
 SCREEN DIA. NA LENGTH NA SLOT SIZE NA
 CASING DIA. NA LENGTH NA TYPE NA
 DRILLING CO. ADAMS ENGR. DRILLING METHOD VIBRATORY
 DRILLER GERRY ADAMS 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	
0				Pavement	0	
1			0'-3' 1 ppm	Olive brown, fine to medium SAND and SILT, wet, no odor.	1	
2					2	
3				3'-4' 0.2 ppm	Dark brown, fine to medium SAND, damp, no odor.	3
4				4'-5' 0 ppm	Brown, fine to medium SAND, dry, no odor.	4
5				5'-6' 0 ppm	Same as above.	5
6						6
7			NATIVE BACKFILL	6'-8.5' 70 ppm	Brown to gray, very fine to fine SAND, trace gravel, damp, some mottling, some black staining, slight odor.	7
8						8
9				8.5'-9.5' 120 ppm	Reddish brown, well sorted, fine SAND, dry, moderate odor.	9
10						10
11				10'-12' 90 ppm	Brown, well sorted, fine sand, dry, moderate odor.	11
12					12.5' WATER TABLE	12
13			12'-14.25' 220 ppm	Gray, fine to coarse SAND, little gravel, wet at 12.5', moderate to strong odor, sheens, black staining at bottom of hole.	13	
14		UNDISTURBED BEDROCK			14	
15				REFUSAL AT 14.25'	15	
16					16	
17					17	
18					18	
19					19	
20					20	
21					21	
22					22	
23					23	
24					24	
25					25	

PROJECT CORNER BROOK STORE

WELL NUMBER SB2

LOCATION ROUTE 2, MARSHFIELD, VERMONT

DATE DRILLED 3/19/98 TOTAL DEPTH OF HOLE 14.9'

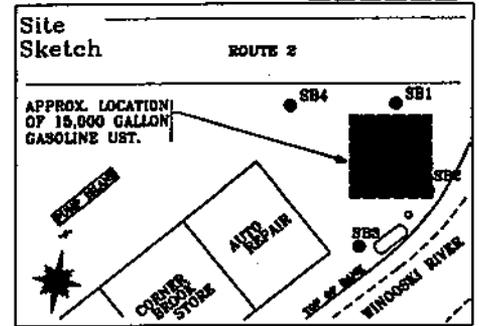
DIAMETER 2.75"

SCREEN DIA. NA LENGTH NA SLOT SIZE NA

CASING DIA. NA LENGTH NA TYPE NA

DRILLING CO. ADAMS ENGR. DRILLING METHOD VIBRATORY

DRILLER GERRY ADAMS LOG BY K. McGRAW



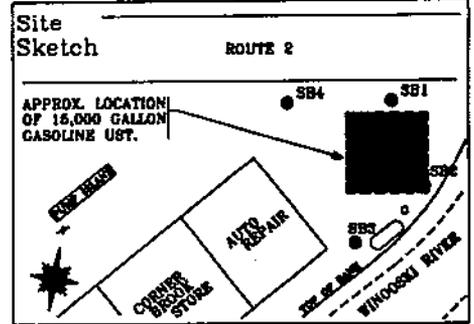
GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0				Pavement	0
1					1
2			0'-5'	Brown, fine to medium SAND, dry, rootlets, no odor.	2
3			0 ppm		3
4					4
5					5
6			5'-8'	Same as above.	6
7		NATIVE BACKFILL	0 ppm		7
8					8
9			8'-10'	Dark brown, very fine SAND, tight, rootlets, dry, no odor.	9
10			0 ppm		10
11			10'-11'	Brown, fine to medium SAND, dry, rootlets, no odor.	11
12			3.4 ppm	Grayish brown, fine SAND, several thin layers of medium sand, dry, slight petroleum odor.	12
13			11'-13'	12.5' WATER TABLE	13
14			13'-14.9'	Grayish brown to brown, fine to medium SAND, moist to wet, moderate to strong petroleum odor.	14
15		UNDISTURBED BEDROCK	240 ppm	REFUSAL AT 14.9'	15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

PROJECT CORNER BROOK STORE
 LOCATION ROUTE 2, MARSHFIELD, VERMONT

WELL NUMBER SB3

DATE DRILLED 3/19/98 TOTAL DEPTH OF HOLE 15.3'
 DIAMETER 2.75"



SCREEN DIA. NA LENGTH NA SLOT SIZE NA
 CASING DIA. NA LENGTH NA TYPE NA

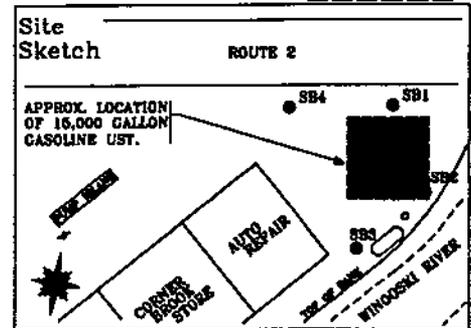
DRILLING CO. ADAMS ENGR. DRILLING METHOD VIBRATORY
 DRILLER GERRY ADAMS LOG BY K. McGRAW

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
0				Pavement	0
1					1
2			0'-5'	Brown, medium SAND, little fine sand, damp, no odor.	2
3			0 ppm		3
4					4
5					5
6			5'-8'	Same as above.	6
7		NATIVE BACKFILL	0 ppm		7
8			8'-8.25'		8
9			0 ppm	Gray, GRAVEL, damp, (angular to sub-rounded), 1/4" to 1/2" average diameter, no odor.	9
10			8.25'-10.0'	Dark brown, fine SAND, damp, no odor.	10
11			0 ppm	Same as 8.25'-10.0'	11
12			10'-11'	Gray GRAVEL with some medium sand, dry, slight petroleum odor.	12
13			12'-14'	12.5' WATER TABLE	13
14			200 ppm	Reddish brown and gray, fine to medium, SAND, moist, strong petroleum odor, some black staining.	14
15			14'-15.3'	Black stained and brown, fine to coarse GRAVEL with some fine to medium sand, wet, strong odor.	15
16		UNDISTURBED BEDROCK	200 ppm		16
17				REFUSAL AT 15.3'	17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

PROJECT CORNER BROOK STORE
 LOCATION ROUTE 2, MARSHFIELD, VERMONT
 DATE DRILLED 3/19/98 TOTAL DEPTH OF HOLE 7.2'
 DIAMETER 2.75"
 SCREEN DIA. NA LENGTH NA SLOT SIZE NA
 CASING DIA. NA LENGTH NA TYPE NA
 DRILLING CO. ADAMS ENGR. DRILLING METHOD VIBRATORY
 DRILLER GERRY ADAMS LOG BY K. McGRAW

WELL NUMBER **SB4**



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				Pavement	0
1	[Hatched Area]	NATIVE BACKFILL	0'-4'	Grayish brown, very fine to fine, SAND, trace gravel, tight, damp to dry, no odor.	1
2			1.4 ppm		2
3					3
4			4'-5'	Same as above, slight odor.	4
5			7.0 ppm		5
6			5'-6.5'	Grayish brown and brown, fine SAND, trace gravel, slight odor.	6
7			6.0 ppm	Grayish brown, fine SAND, some gravel, moist, black staining, slight odor.	7
8	[Screened Area]	UNDISTURBED BEDROCK	6.5'-7.2'	REFUSAL AT 7.2'	8
9			8.8 ppm		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

APPENDIX C

LABORATORY RESULTS



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: Corner Brook Store/#79741055
DATE REPORTED: April 2, 1998
DATE SAMPLED: March 19, 1998

PROJECT CODE: GICB1875
REF. #: 117,990 - 117,993

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody indicated proper sample preservation.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy were 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 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.

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 602 COMPOUNDS BY EPA METHOD 8260

CLIENT: Griffin International
PROJECT NAME: Corner Brk Store/#79741055
REPORT DATE: April 2, 1998
SAMPLER: Kevin McGraw
DATE SAMPLED: March 19, 1998
DATE RECEIVED: March 20, 1998

PROJECT CODE: GICB1875
ANALYSIS DATE: March 30, 1998
STATION: SS-1
REF.#: 117,990
TIME SAMPLED: 11:15

<u>Parameter</u>	<u>Detection Limit (ug/kg)¹</u>	<u>Concentration As Received (ug/kg)</u>
Benzene	500	2,020.
Chlorobenzene	500	ND ²
1,2-Dichlorobenzene	500	ND
1,3-Dichlorobenzene	500	ND
1,4-Dichlorobenzene	500	ND
Ethylbenzene	500	24,000.
Toluene	500	15,100.
Xylene	1000	95,500.
MTBE	1000	6,050.

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 95.%
Toluene-d8: 111.%
4-Bromofluorobenzene: 99.%

PERCENT SOLIDS: 80.%

NOTES:

- 1 Detection limit increased due to high levels of contaminants.
- 2 None detected



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 602 COMPOUNDS BY EPA METHOD 8260

CLIENT: Griffin International
PROJECT NAME: Corner Brook Store/#79741055
REPORT DATE: April 2, 1998
SAMPLER: Kevin McGraw
DATE SAMPLED: March 19, 1998
DATE RECEIVED: March 20, 1998

PROJECT CODE: GICB1875
ANALYSIS DATE: March 30, 1998
STATION: SS-2
REF.#: 117,991
TIME SAMPLED: 12:45

<u>Parameter</u>	<u>Detection Limit (ug/kg)</u>	<u>Concentration As Received (ug/kg)</u>
Benzene	5000	10,600.
Chlorobenzene	5000	ND ²
1,2-Dichlorobenzene	5000	ND
1,3-Dichlorobenzene	5000	ND
1,4-Dichlorobenzene	5000	ND
Ethylbenzene	5000	117,000.
Toluene	5000	284,000.
Xylene	10000	526,000.
MTBE	10000	TBQ ³

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 84.%
Toluene-d8: 114.%
4-Bromofluorobenzene: 101.%

PERCENT SOLIDS: 75.%

NOTES:

- 1 Detection limit increased due to high levels of contaminants.
- 2 None detected
- 3 Trace below quantitation limit



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 602 COMPOUNDS BY EPA METHOD 8260

CLIENT: Griffin International
PROJECT NAME: Corner Brook Store/#79741055
REPORT DATE: April 2, 1998
SAMPLER: Kevin McGraw
DATE SAMPLED: March 19, 1998
DATE RECEIVED: March 20, 1998

PROJECT CODE: GICB1875
ANALYSIS DATE: March 30, 1998
STATION: SS-3
REF.#: 117,992
TIME SAMPLED: 2:30

<u>Parameter</u>	<u>Detection Limit (ug/kg)</u>	<u>Concentration As Received (ug/kg)</u>
Benzene	250	ND ²
Chlorobenzene	250	ND
1,2-Dichlorobenzene	250	ND
1,3-Dichlorobenzene	250	ND
1,4-Dichlorobenzene	250	ND
Ethylbenzene	250	4,410.
Toluene	250	317.
Xylene	500	19,500.
MTBE	500	TBQ ³

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

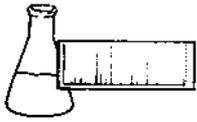
ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 109.%
Toluene-d8: 107.%
4-Bromofluorobenzene: 101.%

PERCENT SOLIDS: 88.%

NOTES:

- 1 Detection limit increased due to high levels of contaminants.
- 2 None detected
- 3 Trace below quantitation limit



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LABORATORY REPORT

EPA METHOD 602 COMPOUNDS BY EPA METHOD 8260

CLIENT: Griffin International
PROJECT NAME: Corner Brook Store/#79741055
REPORT DATE: April 2, 1998
SAMPLER: Kevin McGraw
DATE SAMPLED: March 19, 1998
DATE RECEIVED: March 20, 1998

PROJECT CODE: GICB1875
ANALYSIS DATE: March 30, 1998
STATION: SS-4
REF.#: 117,993
TIME SAMPLED: 4:30

<u>Parameter</u>	<u>Detection Limit (ug/kg)</u>	<u>Concentration As Received (ug/kg)</u>
Benzene	25	224.
Chlorobenzene	25	ND ²
1,2-Dichlorobenzene	25	ND
1,3-Dichlorobenzene	25	ND
1,4-Dichlorobenzene	25	ND
Ethylbenzene	25	383.
Toluene	25	996.
Xylene	50	1,450.
MTBE	50	256.

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 107.%
Toluene-d8: 110.%
4-Bromofluorobenzene: 97.%

PERCENT SOLIDS: 72.%

NOTES:

- 1 Detection limit increased due to high levels of contaminants.
- 2 None detected

CHAIN-OF-CUSTODY RECORD

Job # 7974105

24987

Project Name: <i>Corner Brook Store</i> Site Location: <i>Marshfield, VT</i>	Reporting Address: <i>Griffin Int.</i>	Billing Address: <i>Griffin Int.</i>
Endyne Project Number: <i>GICB 1875</i>	Company: <i>Griffin Int</i> Contact Name/Phone #: <i>Laurie Reed 865-4288</i>	Sampler Name: <i>Kevin McGraw</i> Phone #: <i>(802) 865-4288</i>

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				
<i>117,990</i>	<i>SS-1</i>	<i>Soil</i>	<input checked="" type="checkbox"/>		<i>3/19/98</i> <i>11:15</i>	<i>2</i>	<i>Glass/4oz</i>	<i>HOT</i>	<i>602</i>	<i>Cool</i>	
<i>117,991</i>	<i>SS-2</i>	<i>↓</i>	<input checked="" type="checkbox"/>		<i>12:45</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	
<i>117,992</i>	<i>SS-3</i>	<i>↓</i>	<input checked="" type="checkbox"/>		<i>2:30</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	
<i>117,993</i>	<i>SS-4</i>	<i>↓</i>	<input checked="" type="checkbox"/>		<i>4:30</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	

Relinquished by: Signature <i>Kevin McGraw</i>	Received by: Signature <i>L. M. Charbon</i>	Date/Time <i>3-20-98 10:45</i>
Relinquished by: Signature	Received by: Signature	Date/Time

 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 ₅	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):										