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December 22, 1998

Mr. Robert Butler
State of Vermont
Department of Environmental Conservation
Waste Management Division
103 South Main Street
Waterbury, VT 05671-0404

RE: Site Investigation at the Former Corner Gas Store, 141 Pearl Street, Essex
Junction, VT (VTDEC Site #98-2365)

Dear Mr. Butler:

Enclosed please find Griffin's Site Investigation Report for the former Corner Gas Store
in Essex Junction. This report presents the findings from the drilling and groundwater
sampling conducted in October and November.

If you have any questions concerning this project, please call.

Sincerely,

Kevin McGraw
Hydrogeologist

Enclosure

cc: Mr. David Brassard, Brassard Automotive Services
Mr. Carl Ruprecht, S. B. Collins (w/out enclosure)
GI Project #39841205

**REPORT ON THE
INVESTIGATION OF SUBSURFACE
PETROLEUM CONTAMINATION
at
FORMER CORNER GAS STORE
141 PEARL STREET
ESSEX JUNCTION, VERMONT
(VTDEC SITE #98-2365)**

December 9, 1998

Prepared for:

S. B. Collins, Inc.
P.O. Box 671
St. Albans, VT 05478

Prepared by:



P.O. Box 943
Williston, Vermont 05495
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Griffin Project #: 39841205

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I. INTRODUCTION

This report summarizes the investigation of subsurface petroleum contamination at the former Corner Gas Store, located at 141 Pearl Street (Route 15) in Essex Junction, Vermont (see Site Location Map, Appendix A). A gasoline station formerly operated at this property. The property is currently occupied by Midas Auto Systems Experts.

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 three gasoline underground storage tanks (USTs) in April, 1998. Included in the report are the findings from the hollow-stem auger drilling along with the results of subsequent groundwater sampling conducted on the property. This work has been completed for S. B. Collins, Inc. by Griffin International, Inc. (Griffin).

II. HISTORICAL BACKGROUND

On April 8, 1998, Griffin inspected the removal and closure of one (1) 4,000-gallon and two (2) 10,000-gallon gasoline USTs at the former Corner Gas Store. These USTs were located south of the on-site Midas building between a landscaped island and Route 15 (see Site Map, Appendix A).

Upon removal, the tanks and associated piping were found to be in good condition with little to some rust, and minor pitting and scaling. In addition, no holes were evident in these USTs. Volatile organic compounds (VOCs) were detected in the soils from the limits of the excavation using a portable photoionization detector (PID). PID readings ranged from 2.6 to 280 parts per million (ppm). Groundwater was encountered in the excavation at approximately 15 feet below grade and petroleum contamination was also observed in the soils at this depth. Free product and sheens were not observed on the groundwater entering the excavation. All soils from this excavation were backfilled after removal of the tanks. Griffin submitted a tank closure report (Ref. 1), dated April 13, 1998, to the Vermont Department of Environmental Conservation (VTDEC).

In response to the soil contamination detected during the removal of the USTs, the VTDEC requested additional work in order to determine the severity of the contamination. This report presents the findings from the subsurface investigation.

III. SITE DESCRIPTION

The site is located on Route 15 (Pearl Street) in a primarily commercial area. Retail stores, restaurants and professional offices are located on Route 15 in the vicinity of the site (see Area Map, Appendix A). A residential area is also present to the north of the site and the Champlain Valley Fairgrounds are situated approximately 500 feet to the east. Local terrain is relatively level and groundwater flow beneath the site was estimated to be

to the northwest toward Sunderland Brook or to the west toward the Winooski River. The on-site Midas building is constructed on a cement slab foundation. The majority of the property surrounding the Midas building is covered with pavement. Some landscaped areas and lawn exist at the perimeter of the property and on an island between the building and Route 15 (see Site Map).

The entire area, including Midas, is reportedly served by the municipal water and sewer systems. According to the Essex Junction Public Works Department, there are no private water supply wells in use in the area (Ref. 2).

According to the *Surficial Geologic Map of Vermont*, the overburden deposits in the surrounding area consist of pebbly marine sand (Ref. 3). Actual subsurface materials consist of poorly graded fine sand. According to the *Centennial Geologic Map of Vermont* (Ref. 4), the overburden deposits at the site are underlain by the Clarendon Springs, Ticonderoga, and Rock River dolomites. These formations consist of fairly uniform, massive, smooth, weathered, gray dolomite.

IV. SUBSURFACE INVESTIGATION

On October 27, 1998, four monitoring wells were installed by T & K Drilling Inc. using a hollow-stem auger drill rig. The monitoring wells, designated MW-1 through MW-4, were installed around the perimeter of the former UST pit to help define the degree and extent of petroleum contamination at the site. MW-1 and MW-2 were installed near the southeastern and northeastern corners, respectively, of the former tank pit, in possible upgradient locations from the former tanks. MW-3 and MW-4 were installed near the other corners of the former tank pit in possible downgradient directions from the former tanks. The locations of the wells are shown on the Site Map in Appendix A.

Soil samples were obtained in each boring at five-foot intervals using a split-spoon sampler. These soil samples were screened for VOCs using an Hnu Model PI-101 PID.

In all four borings, poorly graded fine sand was observed from grade to the maximum extent of the boring at 20 or 22 feet below grade. Groundwater was encountered at approximately 13 to 14 feet below grade. Petroleum odors were observed in the soils retrieved from the borings for MW-1, MW-2, and MW-4. In the borings for MW-1 and MW-2, petroleum odors were only observed in the 15'-17' split-spoon sample, collected from just beneath the water table. A PID reading of 220 ppm was recorded for this sample from the MW-1 boring. A PID reading of 60 ppm was recorded for this sample from the MW-2 boring. In the boring for MW-4, petroleum odors were observed in the soils from 10 to 20 feet below grade. A maximum PID reading of 340 ppm was measured in the undisturbed 13'-15' sample from this boring.

The monitoring wells were constructed with two-inch diameter, Schedule 40 PVC riser and 0.010" slotted screen. The screened portion of each monitoring well is set from 10 to

20 feet below grade. A silica sand pack was placed around the screened portion of each well to approximately 9 feet below grade. A bentonite seal was placed in the annulus immediately above the sand pack from 8 to 9 feet below grade. Native backfill was used for the remainder of the annular space to approximately one foot below grade. To complete the construction of each well, a road box was set in concrete at grade level. In addition, locking well caps were placed on the monitoring wells. 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 prior to sampling on November 5, 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. The depths to water in each well were subtracted from their respective top-of-casing elevations to determine the relative water table elevation in each well. Liquid level monitoring data are presented in Appendix C.

Water table elevations have been plotted and contoured to illustrate the estimated hydraulic 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 0.016 ft./ft. MW-1 and MW-2 appear to be roughly upgradient, and MW-3 and MW-4 are downgradient from the former UST area, according to these data.

B. Water Quality

Griffin collected groundwater samples at the site from all four monitoring wells. The samples were analyzed for petroleum compounds by EPA Method 8021B. The analytical results have been plotted to show the distribution of dissolved contamination across the site (see Contaminant Concentration Map, Appendix A).

Relatively low levels of petroleum compounds were detected in the groundwater sample collected from MW-1. The Vermont Groundwater Enforcement Standard (VGES) of 4 parts per billion (ppb) for 1,3,5-trimethylbenzene was exceeded in this sample (4.8 ppb). The concentrations of the remaining target compounds in this sample were below their respective VGESs. The target petroleum compounds were not detected in the groundwater samples collected from MW-2 and MW-3. Benzene, toluene, ethylbenzene and xylenes (BTEX), naphthalene, and the trimethylbenzenes were detected in the MW-4 sample at concentrations greater than their respective VGESs. A trace of methyl tert-butyl ether (MTBE) was detected in this sample.

The trip blank and duplicate sample results indicate that proper quality assurance and quality control were maintained during the sampling and analysis. A groundwater quality summary for this sampling event is presented in tabular form in Appendix D. The Endyne laboratory analytical report is also included in this appendix.

VI. RECEPTOR RISK ASSESSMENT

A receptor risk assessment was conducted to identify known and potential receptors of the petroleum contamination detected at the former Corner Gas Store. A visual survey was conducted at the time of soil boring advancement and during the tank closure inspection. An assessment of the potential risk to identified receptors was made based on proximity to the source area, groundwater flow direction and gradient, soil observations made during the drilling effort, and groundwater analytical data.

Water Supplies

Midas and the surrounding businesses and residences are served by the Champlain Water District which obtains its water from Lake Champlain. According to the Essex Junction Department of Public Works, there are no private drinking water supply wells in use in this area (Ref. 2).

Buildings in the Vicinity

The on-site building does not have a basement for the potential accumulation of petroleum vapors. In addition, other buildings in the area are not likely at risk from the on-site gasoline contamination due to their distance from the source area.

Surface Water

The nearest surface water is Sunderland Brook which is located approximately 800 feet north of the former tank area. The Winooski River is located approximately 3,000 feet west of the site. Based on the level of groundwater contamination detected at the site and the significant distance between the site and these surface waters, the risk to these potential receptors from the petroleum contamination at the former Corner Gas Store is likely low. However, a more complete assessment of the risk to these surface waters can be made after the downgradient extent of dissolved petroleum contamination is more defined.

VII. CONCLUSIONS

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

1. Poorly graded fine sand was predominant in each of the four exploratory soil borings from grade to approximately 20 feet below grade. Significant adsorbed petroleum contamination was detected in the soils from the borings advanced for MW-1 and MW-4. Adsorbed contamination was relatively low or not observed in the soils from the MW-2 and MW-3 borings. These field observations correlate to the groundwater analytical results: dissolved groundwater contamination was detected in MW-1 and MW-4 but not in MW-2 and MW-3
2. Based on the water table elevation data collected in November, groundwater beneath the site appears to be flowing west at a hydraulic gradient of 0.016. Under this flow regime, MW-1 and MW-4 are hydraulically downgradient of the location of former USTs (i.e., the source area).
3. The target VOCs in the EPA Method 8021B laboratory analysis were not detected in MW-2 or MW-3. Very low concentrations of dissolved petroleum compounds were detected in MW-1. Relatively high concentrations of dissolved petroleum compounds were detected in MW-4. The Vermont Groundwater Enforcement Standards for BTEX, naphthalene, and the trimethylbenzenes were exceeded in the groundwater extracted from MW-4. MW-4 is located close to the west end of the former pump island, the location where the majority of the soil contamination was observed during the tank closure inspection.
4. Based on the groundwater flow direction and groundwater quality data, the upgradient extent of dissolved contamination has been sufficiently determined at this time. However, the downgradient extent of contamination (west of MW-4) has not been defined from this investigation.
5. The risk assessment for this site has determined that there is likely little risk to any of the identified potential receptors in the area. Drinking water supplies do not appear to be at risk since the area is served by the Champlain Water District. There are no basements in the area which appear to be at risk from the observed petroleum contamination at the site. In addition, Sunderland Brook, the nearest surface water to the site, is approximately 800 feet north of the site, and the Winooski River is located approximately 3,000 to the west. The potential risk to these surface waters can be more fully assessed after the downgradient extent of petroleum contamination is more completely defined.

VIII. RECOMMENDATIONS

Based on the above conclusions, Griffin recommends the installation of additional monitoring wells downgradient of MW-4 to help define the extent of the dissolved petroleum contamination at the site. After installation of the wells, all monitoring wells should be resampled and analyzed for petroleum compounds by EPA Method 8021B. After completion of this additional investigation, a summary report should be prepared for submittal to the VTDEC. This report should include exploratory boring logs, liquid level monitoring data, groundwater quality data, a revised Groundwater Contour Map and Contaminant Concentration Map, as well as an updated receptor survey, conclusions, and recommendations.

REFERENCES

1. Griffin International, Inc., April 13, 1998, Tank Closure Inspection Report for Corner Gas Store, Essex Junction, Vermont.
2. Telephone conversation between Griffin International and Essex Junction Department of Public Works, December 9, 1998.
3. Doll, Charles G., ed., 1970, *Surficial Geologic Map of Vermont*, State of Vermont.
4. Doll, Charles G., ed., 1961, *Centennial Geologic Map of Vermont*, State of Vermont.

APPENDIX A

Maps

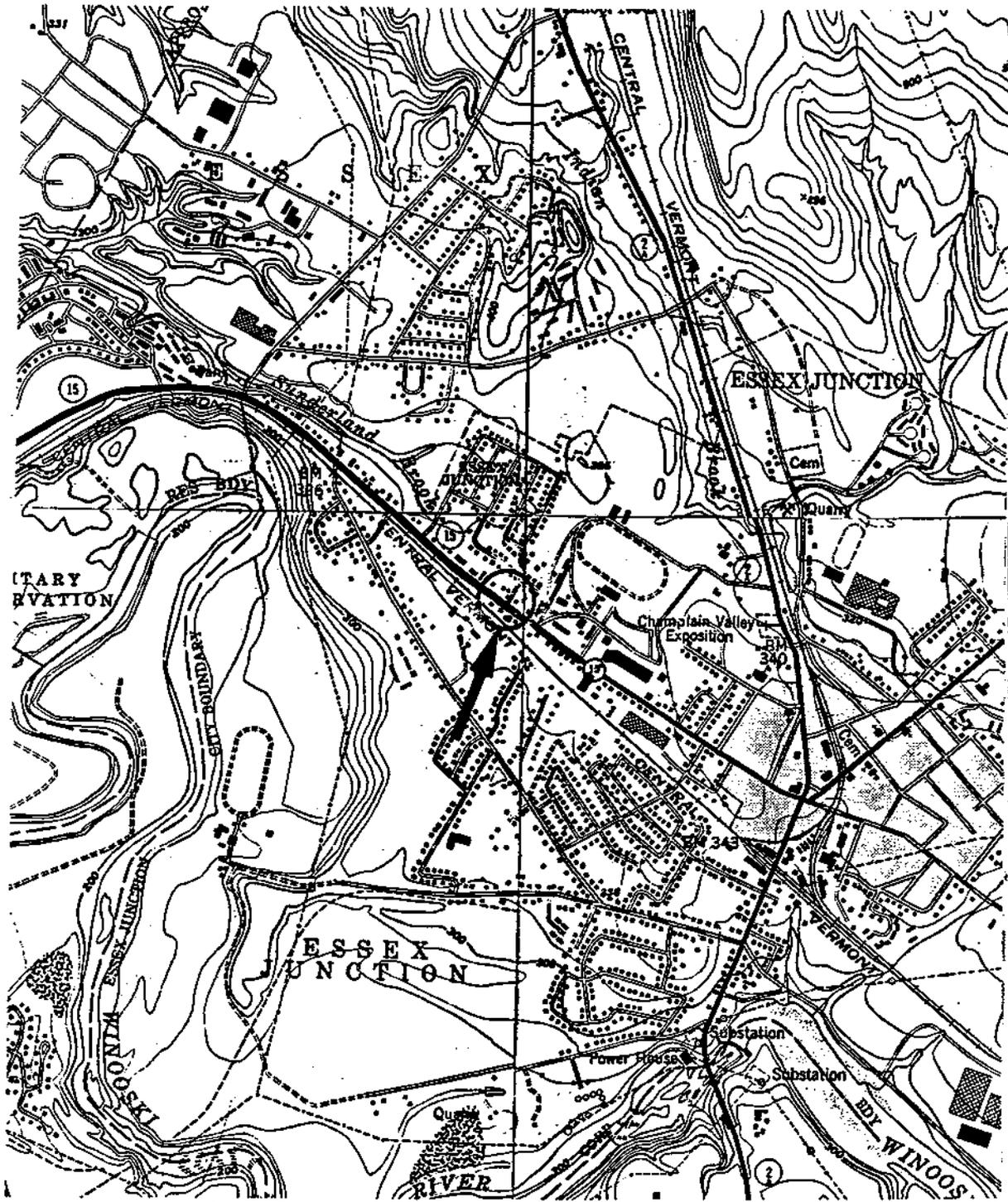
Site Location Map

Area Map

Site Map

Groundwater Contour Map

Contaminant Concentration Map



SOURCE: USGS- COLCHESTER, ESSEX CENTER, BURLINGTON AND ESSEX JUNCTION, VERMONT QUADRANGLES.



JOB #: 39841205

FORMER CORNER GAS STORE

141 PEARL STREET (ROUTE 15)
ESSEX JUNCTION, VERMONT

SITE LOCATION MAP

DATE: 11/3/98

DWG.#:1

SCALE: 1:24000

DRN.:SB

APP.:KM



WOODS

SUNOCO STATION

DONALD HAMLEN
CONSULTING ENGINEERS

RESIDENCE

COMPLEX 159

VIDEO WORLD SUPERSTORE

BURGER KING

MEDIA BUILDING

RESIDENCE

WILLEY'S COURT

VERMONT MEDICAL/
SLEEP DISORDER CENTER

RESIDENCE

SUBWAY/
CHINESE KITCHEN

REPLAY SPORTS

PEARL STREET/ROUTE 15



JOB #: 39841205

FORMER CORNER GAS STORE

141 PEARL STREET (ROUTE 15)
ESSEX JUNCTION, VERMONT

AREA MAP

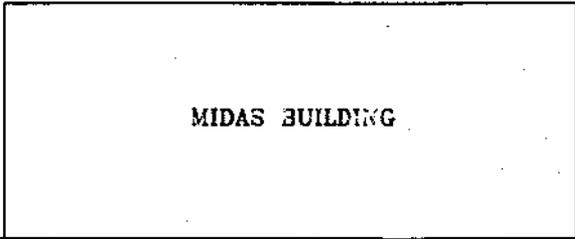
DATE: 11/3/98

DWG.#:2

SCALE: NONE

DRN.:SB

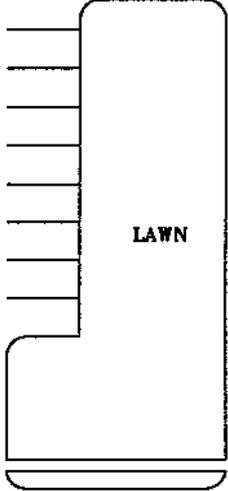
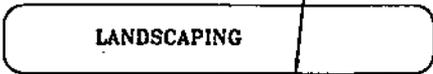
APP.:KM



BURGER KING
PARKING LOT

LAWN

FORMER LOCATION OF (2)
10,000 GALLON AND (1)
4,000 GALLON GASOLINE
UST's AND PUMP ISLAND
REMOVED 4/98.



WILLEY'S COURT

MW3

MW2

MW4

MW1

PEARL STREET/ROUTE 15

LEGEND

-  MW2 MONITORING WELL
-  STORM DRAIN
-  UTILITY POLE



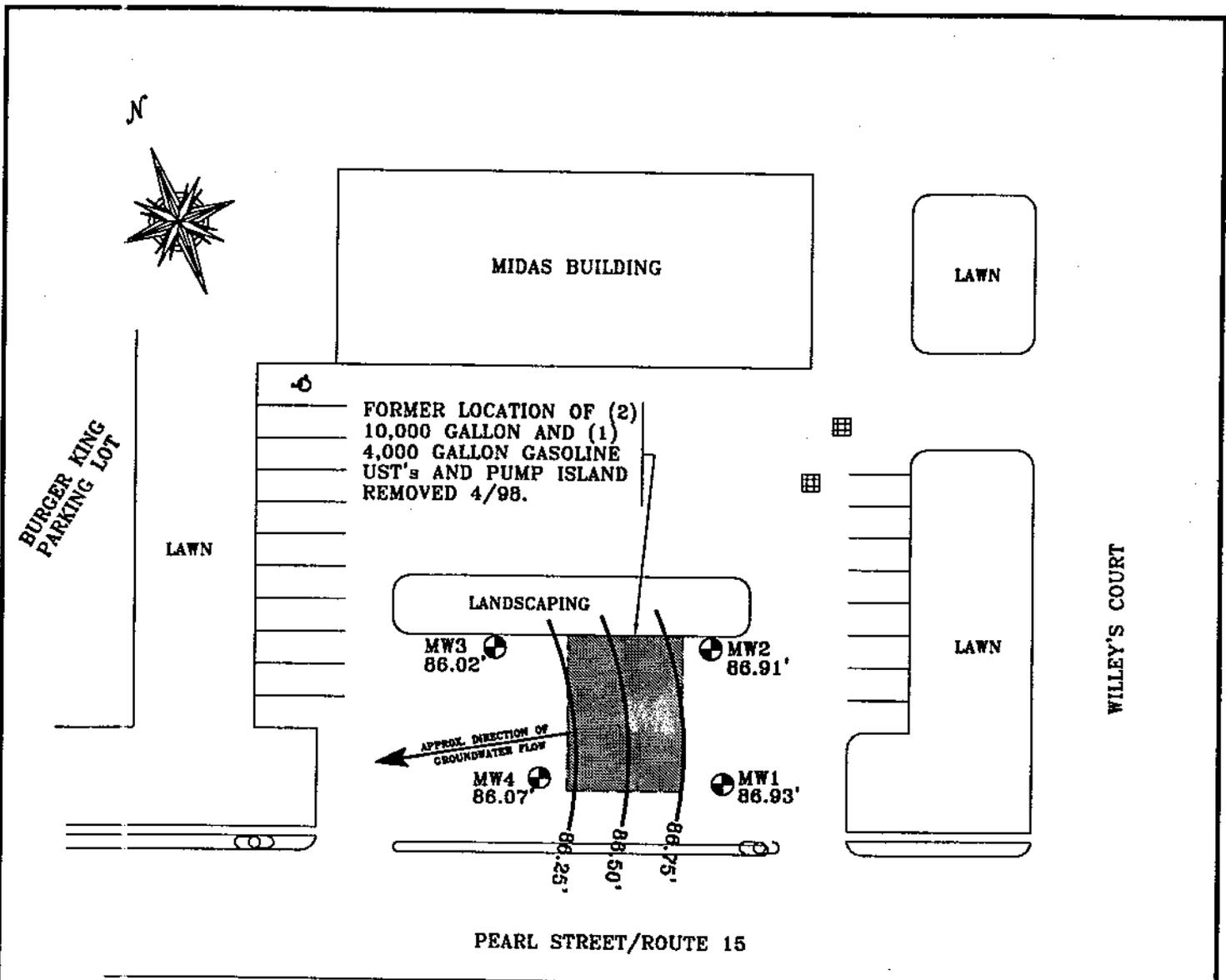
JOB #: 39841205

FORMER CORNER GAS STORE

141 PEARL STREET (ROUTE 15)
ESSEX JUNCTION, VERMONT

SITE MAP

DATE: 12/8/98	DWG.#:3	SCALE: 1"=50'	DRN.:SB	APP.:KM
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LEGEND

- 
 MW2 MONITORING WELL AND WATER
 TABLE ELEVATION IN FEET
- 
 86.25' GROUNDWATER CONTOUR IN FEET
 (DASHED WHERE INFERRED)
- 
 STORM DRAIN
- 
 UTILITY POLE

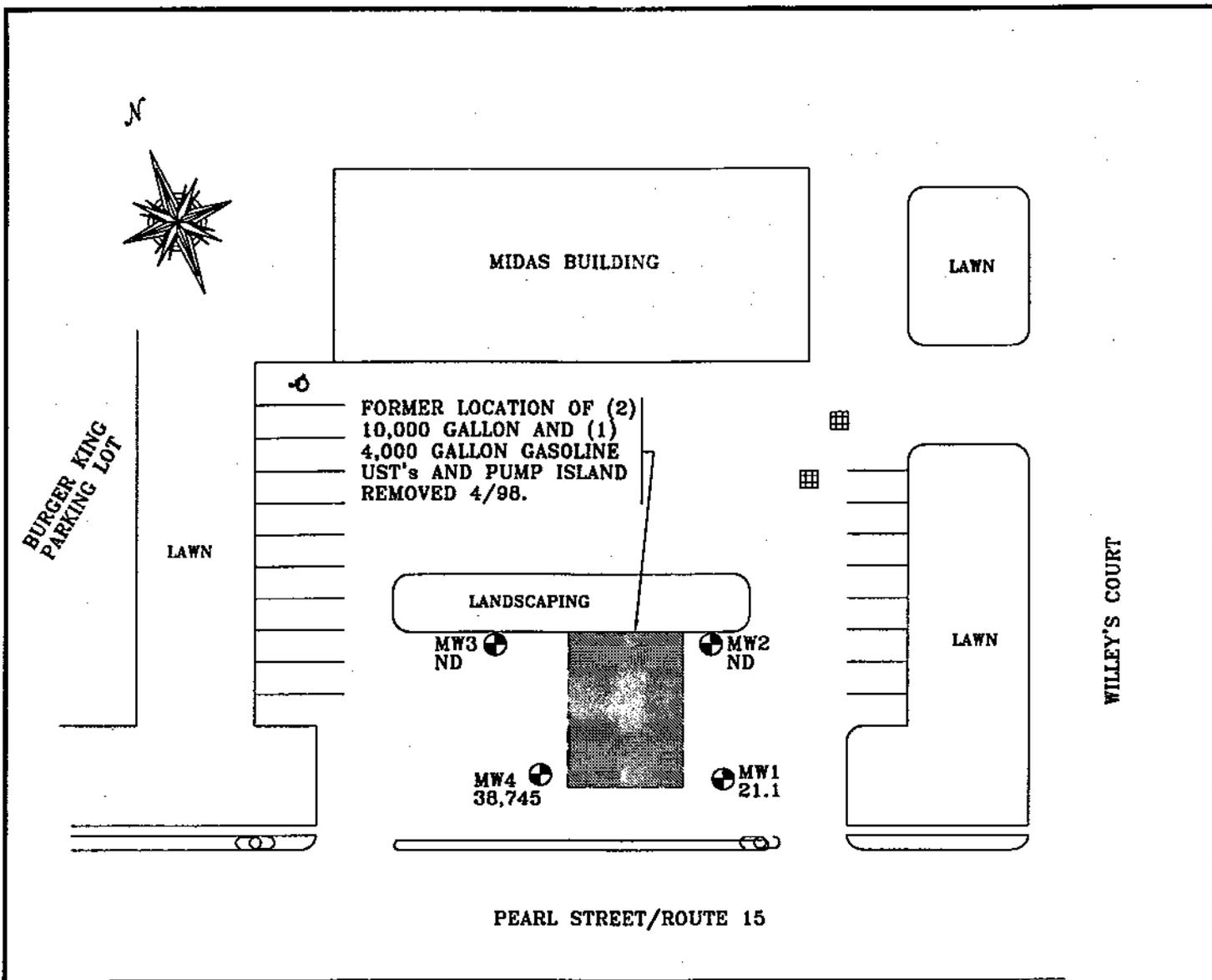


JOB #: 39841205

FORMER CORNER GAS STORE
 141 PEARL STREET (ROUTE 15)
 ESSEX JUNCTION, VERMONT

GROUNDWATER CONTOUR MAP
 MEASUREMENT DATE: 11/5/98

DATE: 12/8/98	DWG.#:4	SCALE: 1"=50'	DRN.:SB APP.:KM
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LEGEND

- 
MW1 21.1 MONITORING WELL AND TOTAL 6021B VOC's CONCENTRATION (ppb)
- ND** NONE DETECTED
-  STORM DRAIN
-  UTILITY POLE



JOB #: 39841205

FORMER CORNER GAS STORE

141 PEARL STREET (ROUTE 15)
ESSEX JUNCTION, VERMONT

CONTAMINANT CONCENTRATION MAP
SAMPLE DATE: 11/5/98

DATE: 12/8/98	DWG.#:5	SCALE: 1"=50'	DRN.:SB	APP.:KM
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APPENDIX B

Exploratory Boring Logs

PROJECT FORMER CORNER GAS STORE

LOCATION ESSEX JUNCTION, VERMONT

DATE DRILLED 10/27/98 TOTAL DEPTH OF HOLE 22.0'

DIAMETER 4.25"

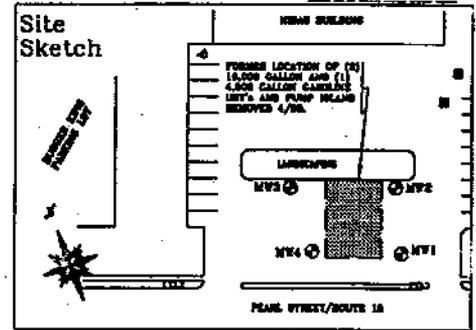
SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.010"

CASING DIA. 2" LENGTH 9.5' TYPE sch 40 pvc

DRILLING CO. T&K DRILLING METHOD HSA

DRILLER ALAN TOMMILA LOG BY K. McGRAW

WELL NUMBER MW1

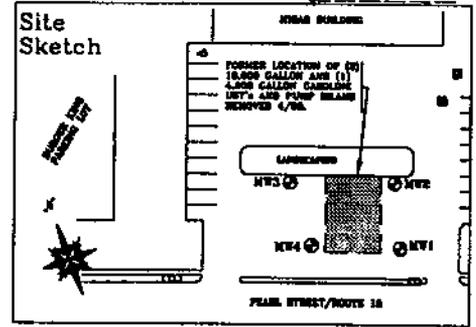


GRIFFIN INTERNATIONAL, INC

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			0
0		LOCKING WELL CAP			0
1		CONCRETE			1
1-2			1'-2' 0 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, dark brown, dry, homogeneous, no HCL reaction, no odor.	2
2-3		NATIVE BACKFILL			3
3-4					4
4-5		WELL RISER			5
5-7			5'-7' 5/6/8/14 0 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, light brown, dry, homogeneous, no HCL reaction, no odor.	6
7-8		BENTONITE			7
8-9					8
9-10		SAND PACK			9
10-12			10'-12' 4/5/6/10 0 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, light brown, moist, homogeneous, no HCL reaction, no odor.	10
12-13					11
13-14					12
14				14.0' WATER TABLE	13
14-15		WELL SCREEN			14
15-17			15'-17' 6/8/10/9 220 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, brown, wet, homogeneous, no HCL reaction, petroleum odor.	15
17-18					16
18-19		BOTTOM CAP			17
19-20					18
20-22			20'-22' 3/6/8/10 1.0 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, brown, wet, homogeneous, no HCL reaction, no odor.	19
22		UNDISTURBED NATIVE SOIL			20
22				BASE OF WELL AT 20'	21
22				END OF EXPLORATION AT 22'	22
23					23
24					24
25					25

PROJECT FORMER CORNER GAS STORE
 LOCATION ESSEX JUNCTION, VERMONT
 DATE DRILLED 10/27/98 TOTAL DEPTH OF HOLE 22.0'
 DIAMETER 4.25"
 SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.010"
 CASING DIA. 2" LENGTH 9.5' 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				1
2				POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, dark brown, dry, homogeneous, no HCL reaction.	2
3	NATIVE BACKFILL				3
4					4
5	WELL RISER		5'-7'- 4/5/8/10 0 ppm	POORLY GRADED SAND (SP) 100% fine to trace medium sand, poorly graded, weak cementation, brown, dry, homogeneous, no HCL reaction, no odor.	5
6					6
7					7
8	BENTONITE				8
9					9
10					10
11	SAND PACK		10'-12'- 7/7/10/11 0 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, brown, moist, homogeneous, no HCL reaction, no odor.	11
12					12
13					13
14				14.0' WATER TABLE	14
15	WELL SCREEN		15'-17'- 6/12/19/23 80 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, brown, wet, homogeneous, no HCL reaction, slight petroleum odor.	15
16					16
17					17
18					18
19	BOTTOM CAP				19
20					20
21			20'-22'- 9/15/20/25 0.4 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, brown, wet, homogeneous, no HCL reaction, no odor.	21
22					22
23	UNDISTURBED NATIVE SOIL			BASE OF WELL AT 20' END OF EXPLORATION AT 22'	23
24					24
25					25

PROJECT FORMER CORNER GAS STORE

LOCATION ESSEX JUNCTION, VERMONT

DATE DRILLED 10/27/98 TOTAL DEPTH OF HOLE 20.0'

DIAMETER 4.25"

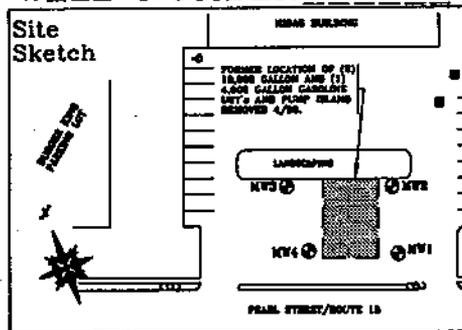
SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.010"

CASING DIA. 2" LENGTH 9.5' TYPE sch 40 pvc

DRILLING CO. T&K DRILLING METHOD HSA

DRILLER ALAN TOMMILA LOG BY K. McGRAW

WELL NUMBER MW3



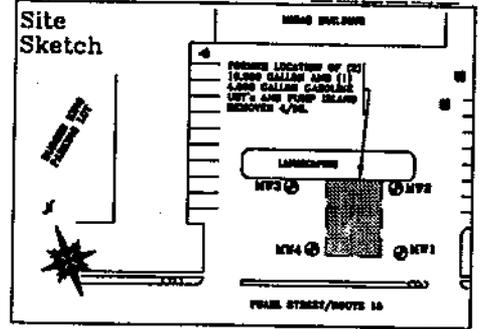
GRIFFIN INTERNATIONAL, INC

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' 0.6 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, dark brown, dry, homogeneous, no HCL reaction, no odor.	1
2					2
3	NATIVE BACKFILL				3
4					4
5	WELL RISER		5'-7'- 5/6/6/7 0.4 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, brown, dry, homogeneous, no HCL reaction, no odor.	5
6					6
7					7
8	BENTONITE				8
9					9
10	SAND PACK		10'-12'- 8/10/10/10 0.8 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, light brown, dry, homogeneous, no HCL reaction, no odor.	10
11					11
12					12
13				13.5' WATER TABLE	13
14	WELL SCREEN		13'-15'- 10/21/17/20 0.6 ppm	POORLY GRADED SAND (SP) 100% very fine sand, poorly graded, weak cementation, brown, wet, homogeneous, no HCL reaction, no odor.	14
15					15
16					16
17					17
18	BOTTOM CAP		18'-20'- 7/14/18/28 0.2 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, orangish brown, wet, homogeneous, no HCL reaction, no odor.	18
19					19
20				BASE OF WELL AT 20' END OF EXPLORATION AT 20'	20
21	UNDISTURBED NATIVE SOIL				21
22					22
23					23
24					24
25					25

PROJECT FORMER CORNER GAS STORE

WELL NUMBER MW4

LOCATION ESSEX JUNCTION, VERMONT



DATE DRILLED 10/27/98 TOTAL DEPTH OF HOLE 20.0'

DIAMETER 4.25"

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

CASING DIA. 2" LENGTH 9.5' 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
0		ROAD BOX LOCKING WELL CAP			0
1		CONCRETE			1
2			1'-2' 0.2 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, brown, dry, homogeneous, no HCL reaction, no odor.	2
3		NATIVE BACKFILL			3
4					4
5		WELL RISER			5
6			5'-7'- 3/3/5/9 0.2 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, light brown, dry, homogeneous, no HCL reaction, no odor.	6
7					7
8		BENTONITE			8
9					9
10					10
11		SAND PACK	10'-12'- 10/12/15/17 30 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, light brown, moist, homogeneous, no HCL reaction, petroleum odor.	11
12					12
13				13.0' WATER TABLE	13
14			13'-15'- 6/8/11/10 340 ppm	POORLY GRADED SAND (SP) 100% very fine sand, poorly graded, weak cementation, brown, wet, homogeneous, no HCL reaction, strong petroleum odor.	14
15		WELL SCREEN			15
16					16
17					17
18					18
19		BOTTOM CAP	18'-20'- 2/2/3/4 17 ppm	POORLY GRADED SAND (SP) 100% fine sand, poorly graded, weak cementation, brown, wet, homogeneous, no HCL reaction, slight petroleum odor.	19
20				BASE OF WELL AT 20' END OF EXPLORATION AT 20'	20
21					21
22		UNDISTURBED NATIVE SOIL			22
23					23
24					24
25					25

APPENDIX C

Liquid Level Monitoring Data

**Liquid Level Monitoring Data
Corner Gas Store, Essex Junction, VT**

11/5/98

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		13.07					86.93
MW-2	99.39		12.48					86.91
MW-3	99.35		13.33					86.02
MW-4	99.88		13.81					86.07

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
Corner Gas Store
Essex Junction, Vermont**

TBQ < 2000

November 5, 1998

PARAMETER	Sample Point				VGES
	MW-1	MW-2	MW-3	MW-4	
MTBE	ND	ND	ND	TBQ	40
Benzene	ND	ND	ND	2,780.	5.
Toluene	2.9	ND	ND	15,500.	1,000.
Ethylbenzene	TBQ	ND	ND	2,430.	700.
Xylenes	5.4	ND	ND	13,000.	10,000.
1,3,5-Trimethylbenzene	4.8	ND	ND	969.	4.
1,2,4-Trimethylbenzene	3.2	ND	ND	3,150.	5.
Naphthalene	4.8	ND	ND	916.	20.
Total 8021B VOCs	21.1	ND	ND	38,745.	-

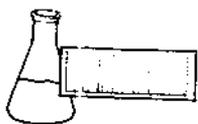
All Values Reported in ug/L (ppb)

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: Former Corner Gas Store
REPORT DATE: November 17, 1998
DATE SAMPLED: November 5, 1998

PROJECT CODE: GIFC1663
REF.#: 130,776 - 130,781

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.

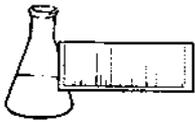
Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

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.

Laboratory Services

32 James Brown Drive
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(802) 879-4333
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EPA METHOD 8021B--PURGEABLE AROMATICS

CLIENT: Griffin International

DATE RECEIVED: November 6, 1998

PROJECT NAME: Former Corner Gas Store

REPORT DATE: November 17, 1998

CLIENT PROJ. #: NI

PROJECT CODE: GIFC1663

Ref. #:	130,776	130,777	130,778	130,779	130,780
Site:	Trip Blank	MW1	Dup MW1	MW2	MW3
Date Sampled:	11/5/98	11/5/98	11/5/98	11/5/98	11/5/98
Time Sampled:	7:38	8:48	8:48	9:02	9:19
Sampler:	Steve	Steve	Steve	Steve	Steve
Date Analyzed:	11/12/98	11/12/98	11/12/98	11/12/98	11/12/98
UIP Count:	0	>10	>10	5	2
Dil. Factor (%):	100	100	100	100	100
Surr % Rec. (%):	92	92	97	89	97
Parameter	Conc. (ug/L)				
MTBE	<10	<10	<10	<10	<10
Benzene	<1	<1	<1	<1	<1
Toluene	<1	2.9	2.8	<1	<1
Ethylbenzene	<1	TBQ <1	1.5	<1	<1
Xylenes	<1	5.4	6.7	<1	<1
1,3,5 Trimethyl Benzene	<1	4.8	4.7	<1	<1
1,2,4 Trimethyl Benzene	<1	3.2	3.2	<1	<1
Naphthalene	<1	4.8	4.7	<1	<1

Ref. #:	130,781				
Site:	MW4				
Date Sampled:	11/5/98				
Time Sampled:	9:31				
Sampler:	Steve				
Date Analyzed:	11/14/98				
UIP Count:	>10				
Dil. Factor (%):	0.5				
Surr % Rec. (%):	90				
Parameter	Conc. (ug/L)				
MTBE	TBQ <2000				
Benzene	2,780.				
Toluene	15,500.				
Ethylbenzene	2,430.				
Xylenes	13,000.				
1,3,5 Trimethyl Benzene	969.				
1,2,4 Trimethyl Benzene	3,150.				
Naphthalene	916.				

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

CHAIN-OF-CUSTODY RECORD

Project Name: FORMER CORNER Gas Store	Reporting Address: P.O. Box 743	Billing Address:
Site Location: Essex Jct., Vermont	19 Commerce St. Williston, VT	Same as Report
Endyne Project Number: GIFC 1663	Company: GRIFFIN INTERNATIONAL	Sampler Name: Steve
	Contact Name/Phone #: KEVIN McGraw	Phone #: 802 865 4288

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				
130,776	Trip Blank	H ₂ O	X		11/5/98 7:38	2	40ml		8021B	Hcl	
130,777	MW1	}	}	}	8:48	}	}				
130,778	Dup MW1				8:48						
130,779	MW2				9:02						
130,780	MW3				9:19						
130,781	MW4				9:31						

Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature]</i>	Date/Time 11-6-98 9:50
Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature]</i>	Date/Time 11/6 9:50

 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):										