



WASTE  
MANAGEMENT  
DIVISION

JUN 26 10 24 AM '98  
U.S. ENV. PROT. AGENCY

June 24, 1998

Mr. Chuck Schwer  
Vermont ANR/DEC  
Waste Management Division  
103 South Main St. /West Building  
Waterbury, VT 05671-0404

RE: Initial Investigation of Suspected Subsurface Petroleum Contamination  
The Car Store, Norwich, Vermont (VTDEC Site #97-2246)

Dear Mr. Schwer:

Enclosed please find the summary report for the site investigation conducted at the above referenced site.

I am recommending that The Car Store site be considered for closure and removed from the VTDEC Active Hazardous Waste Sites List.

Please contact me if you have any questions or comments.

Sincerely,

Christine Ward  
Hydrogeologist

Enclosure

c.: Mr. Mike Lang, The Car Store (w/o enclosure)  
GI#129741167

**INITIAL INVESTIGATION OF  
SUSPECTED SUBSURFACE PETROLEUM  
CONTAMINATION**

**THE CAR STORE  
ROUTE 5 SOUTH  
NORWICH, VERMONT 05055**

(VTDEC SITE #97-2246)  
GI #129741167

June 1998

*Prepared for*

The Car Store  
P.O. Box 160  
Route 5 South  
Norwich, VT 05055

*Prepared by*



P.O. Box 943  
Williston, Vermont 05495  
(802) 865-4288

PHOTOCOPIED  
FROM THE ORIGINAL

JUN 25 10 49 AM '98

## TABLE OF CONTENTS

<b>I. INTRODUCTION</b> .....	<b>1</b>
<b>II. SITE BACKGROUND</b> .....	<b>1</b>
A. SITE HISTORY .....	1
B. SITE DESCRIPTION.....	1
C. SITE GEOLOGY .....	2
<b>III. INVESTIGATIVE PROCEDURES</b> .....	<b>2</b>
A. SOIL BORINGS.....	2
B. SOIL SAMPLING AND ANALYSES .....	3
C. SENSITIVE RECEPTOR SURVEY .....	4
<b>IV. CONCLUSIONS</b> .....	<b>5</b>
<b>V. RECOMMENDATIONS</b> .....	<b>5</b>
<b>REFERENCES</b> .....	<b>7</b>

### APPENDICES

#### Appendix A - Maps

    Site Location Map

    Site Map

#### Appendix B - Soil Boring Logs

#### Appendix C - Analytical Laboratory Report

## **I. INTRODUCTION**

This report summarizes the initial investigation of suspected subsurface petroleum contamination at The Car Store on Route 5 South in Norwich, Vermont (see Site Location Map, Appendix A). This work was requested by Mr. Chuck Schwer of the Vermont Department of Environmental Conservation (VTDEC) in a letter to Mr. James Southworth, owner of the property, dated November 18, 1997. This work was performed in accordance with the December 11, 1997, *Work Plan and Cost Estimate for Subsurface Investigation of Suspected Petroleum Contamination* for the site prepared by Griffin. The Work Plan was approved by Mr. Schwer (VTDEC) in a letter to Mr. Southworth dated March 17, 1998.

## **II. SITE BACKGROUND**

### **A. Site History**

On August 4, 1997, petroleum contamination was detected at The Car Store site during soil field screening at a routine removal of one No. 2 heating oil underground storage tank (UST). The UST was constructed of single wall steel and had a capacity of 2,000 gallons. The UST was located on the southeast side of The Car Store building (see Site Map, Appendix A). The age of the former UST is not known. The UST was reported to be in fair to poor condition at the time of closure. The UST was not replaced.

Soil samples collected during the UST removal were screened for volatile organic compounds (VOCs) using an HNu™ systems Model HW-101 photoionization detector (PID). Readings of up to 50 parts per million (ppm) were detected in soils excavated from the UST pit. The contamination appeared to be concentrated toward the northern end of the UST pit, and the contamination appeared to decrease with depth [2]. Since the extent of contamination under the building could not be defined, all the excavated soils were backfilled.

As a result of the petroleum contamination detected in the subsurface beneath the former UST, the VTDEC requested that additional work be conducted at the site in order to determine the extent and degree of petroleum contamination.

### **B. Site Description**

The Car Store building covers approximately 10,800 square feet and contains a vehicle sales showroom and vehicle maintenance bays. The Car Store building is constructed on a concrete slab. The area immediately surrounding the building is asphalt paved and primarily used for vehicle parking. The site is located in an area of light density residential and commercial properties. The topography across the site is fairly level. Approximately 60 feet southeast of the

UST is a steep ravine with a small unnamed brook at the bottom of the ravine, approximately 200 feet distant from the former UST. Interstate 91 (I91) is located on the other side of the ravine, at approximately the same elevation as the subject property. The land slopes down on the northeast and southwest sides of the property. Bloody Brook is located at the base of the slope northeast of the site, and joins the above mentioned unnamed brook as it enters a concrete culvert under I91. Bloody Brook flows into the Connecticut River approximately 1,000 feet from the site. The property is bounded to the west by Route 5.

The entire area is serviced by private water supply wells. According to one of the Car Store employees, the supply well for The Car Store is located southeast of the southern corner of the Car Store building. No information is available on the depth or construction of the well, however it is likely that the supply well is completed in bedrock. The groundwater is reported to be very hard, and therefore bottled water is supplied at the Car Store for drinking purposes. Water from the well is only utilized for non-potable applications such as washing vehicles and in the bathrooms.

### **C. Site Geology**

Soils in the vicinity of the UST during the removal inspection consisted of dry, brown sand with some silt and a trace of fine gravel from grade to approximately 6 feet below grade. From approximately 6 feet to 10 feet below grade, the soils consisted of dry, brown-gray clay and silt. From 10 feet to the bottom of the excavation at 15 feet below grade, the soils consisted of brown silt and fine sand. Backhoe refusal was encountered at 15 feet below grade on green schist, suggestive of bedrock. According to the Surficial Geologic Map of Vermont [3], the site is underlain by glaciolacustrine lake bottom sediments consisting of silt, silty clay, and clay. Bedrock below the site is mapped as the Orfordville formation - Post Pond volcanics, consisting of greenstone and green chloritic schist [4].

## **III. INVESTIGATIVE PROCEDURES**

To further define the extent of subsurface petroleum contamination in the area of the former USTs, the following investigative tasks were undertaken: soil borings; soil sample collection and analyses for petroleum related constituents; and a sensitive receptor survey.

### **A. Soil Borings**

Four shallow soil borings, SB-1 through SB-4, were installed on May 1, 1998, by Adams Engineering, under the direct supervision of a Griffin hydrogeologist. The soil borings were advanced with a truck mounted vibratory soil core sampler. The soil boring locations are indicated on the Site Map (Appendix A).

Undisturbed soil samples were collected from the borings with the core sampler, were logged by the supervising hydrogeologist and screened for the presence VOCs using an HNu™ systems Model PI-101 PID. Prior to screening, the PID was calibrated with isobutylene referenced to benzene. Soils were screened using the Griffin Jar/Polyethylene Bag Headspace Screening Protocol, which conforms to state and industry standards. Soil characteristics and contaminant concentrations were recorded by the hydrogeologist in detailed boring logs which are presented in Appendix B.

Soil boring SB-1 was advanced approximately 10 feet southwest of the former UST pit and adjacent to The Car Store building. Soils encountered in SB-1 consisted primarily of brown fine sand and silt from grade to approximately 15 feet below grade, and brown silt, sand and rock fragments from 15 feet to 17.3 feet below grade. Refusal was encountered at a depth of 17.3 feet. The water table was not encountered in boring SB-1.

Soil boring SB-2 was advanced approximately 40 feet east of the former UST pit. Soils encountered in SB-2 consisted primarily of brown fine sand and silt from grade to 15 feet below grade, silt and fine sand with trace fine gravel from 15 feet to 20 feet below grade, brown medium to coarse sand with some silt from 20 feet to 24.5 feet below grade, and gray-brown sand, silt, and gravel from 24.5 feet to 26.5 feet below grade. Refusal was encountered at a depth of 26.5 feet in boring SB-2. The soil samples collected from 15 feet to 24.5 feet below grade were moist to wet, however the water table was not encountered in boring SB-2. The soil samples collected from 24.5 feet to 26.5 feet below grade were dry.

Soil boring SB-3 was advanced approximately 10 feet northeast of the former UST pit. Soils encountered in SB-3 consisted primarily of brown silt and sand from grade to the bottom of the boring at 20 feet below grade. The water table was not encountered in SB-3

Soil boring SB-4 was advanced approximately 30 feet southeast of the former UST pit. Soils encountered in SB-4 consisted primarily of brown sand with some silt from grade to 7.5 feet below grade, dark brown to gray-brown sand, silt, and gravel from 7.5 feet to the bottom of the boring at 15.7 feet below grade. Refusal was encountered at a depth of 15.7 feet. Groundwater was not encountered in SB-4.

VOCs were not detected (i.e. less than 1 ppm) with the PID in the soils from the four soil borings.

## **B. Soil Sampling and Analyses**

Griffin collected soil samples from the four on-site soil borings on May 1, 1998. The soil samples were analyzed by Endyne, Inc. of Williston, Vermont for the presence of benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by EPA

Method 8260, and for total petroleum hydrocarbons (TPHs) by modified EPA Method 8100. The laboratory analysis reports are contained in Appendix C.

The submitted soil samples were collected from the bottom of the soil borings: in SB-1 from 15 to 17.3 feet, in SB-2 from 20 to 25 feet, in SB-3 from 15 to 20 feet, and in SB-4 from 15 to 15.7 feet.

VOCs and TPHs were not detected by laboratory analysis in the soil samples from the four soil borings.

### **C. Sensitive Receptor Survey**

A qualitative risk assessment was conducted to identify known and potential receptors of the contamination detected at The Car Store. A visual survey was conducted at the time of the UST removal inspection on August 4, 1997, as well as during the soil boring advancement on May 1, 1998. Based on these observations, a determination of the potential risk to identified receptors was made.

The immediate area is served by private water. The supply well for The Car Store is reportedly located approximately 60 feet south of the former UST. Groundwater was not encountered in the shallow soil borings advanced on May 1, 1998, to a maximum depth of 26.5 feet. Groundwater under the site is estimated to be eastward toward the unnamed brook and Bloody Brook. Based on the non-detection of VOCs, by field screening and by laboratory analytical methods, in the soil borings, and because groundwater was not encountered in the soil borings, the risk of impact to the Car Store supply well from the petroleum contamination detected during the UST removal is considered minimal.

The nearest surface water is the unnamed brook located approximately 200 feet southeast of the former UST. The risk to the brook is considered minimal based on the non-detection of VOCs in soil samples collected at the site. No signs of petroleum contamination, such as seepage, stains, or sheens, were observed near the brook.

The soil in the immediate vicinity of the former 2,000-gallon No. 2 heating oil UST is a potential sensitive receptor. The risk to this sensitive receptor is considered minimal based on the non-detection of VOCs, by field screening and laboratory analytical methods, in soils collected from the four soil borings.

#### **IV. CONCLUSIONS**

Based on the results of this investigation, Griffin presents the following conclusions:

- 1) There was a release(s) of petroleum to the subsurface in the vicinity of the former UST pit on the southeast side of The Car Store building. The source appears to be the former No. 2 heating oil UST. The amounts and duration of the release(s) are unknown. The source of the petroleum contamination (i.e., the UST system) was eliminated in August of 1997.
- 2) VOC readings of soils during the UST removal indicate that adsorbed petroleum compounds exist in the soils in the immediate vicinity of the former tank field. With the source UST eliminated, it is expected that adsorbed petroleum compound concentrations will decrease over time with the progressive action of natural mitigative processes including biodegradation, volatilization, and diffusion.
- 3) Petroleum compounds were not detected by field screening or by laboratory analytical analyses in the soil samples collected from soil borings SB-1, SB-2, SB-3, and SB-4.
- 4) Groundwater was not encountered in soil borings SB-1, SB-2, SB-3, and SB-4. Refusal was encountered in SB-1 at a depth of 17.3 feet, in SB-2 at a depth of 26.5 feet, and in SB-4 at a depth 15.7 feet. Refusal was not encountered in SB-2 to a depth of 20, which was the maximum vertical extent of the exploration.
- 5) There appear to be no significant potential risks to identified sensitive receptors, at this time, based on currently available data.

#### **V. RECOMMENDATIONS**

Based on the results of this site investigation, Griffin recommends that The Car Store in Norwich, Vermont site be considered for closure and be removed from the VTDEC Active Hazardous Waste Sites List. This recommendation is offered based upon achievement of the following closure criteria, as per the VTDEC Site Management Activity Completed (SMAC) Checklist (dated December 1, 1997):

- 1) The source(s), nature, and extent of the petroleum contamination at the site has been adequately defined.

Petroleum contamination was identified in the soils in the vicinity of the former 2,000-gallon No. 2 heating oil UST during a routine UST system closure in August 1997 at The Car Store. Reading of up to 50 ppm were detected by PID in the soils excavated around

the former UST. PID readings collected during the UST removal indicated that contamination decreased with depth.

Four soil borings, SB-1 through SB-4, were advanced in the vicinity of the former UST on May 1, 1998. Groundwater was not encountered in the four soil borings. VOCs were non-detectable with the PID from soil samples collected from the soil borings. The soil samples collected from the bottom of the four borings (15 to 17.3 feet for SB-1, 20 to 25 feet for SB-2, 15 to 20 feet for SB-3, and 15 to 15.7 feet for SB-4) were submitted to Endyne, Inc. for analysis of BTEX and MTBE by EPA Method 8260 and for TPH by EPA Method 8100. No petroleum compounds were detected in the four soil samples.

- 2) Source(s) has been removed, remediated, or adequately contained.

The UST system was removed in August 1997.

Residual petroleum contamination in the soils immediately surrounding the former No. 2 heating oil UST is contained by asphalt paving.

- 3) Levels of contaminants in soil and groundwater shall be stable, falling, or non-detectable.

VOCs were not detected with the PID in soil samples collected from the four soil borings noted above on May 1, 1998. No petroleum compounds were detected by laboratory analysis in the soil samples collected from the four soil borings on May 1, 1998.

Groundwater was not encountered in the four soil borings on May 1, 1998.

- 4) Groundwater enforcement standards are met on entire property.

Groundwater was not encountered in the four soil borings advanced on May 1, 1998. The maximum depth of exploration was 26.5 feet in SB-2.

No detectable readings of VOCs above background were measured in soil samples from the soil borings on May 1, 1998.

- 5) Soil guideline levels are met. If not, engineering or institutional controls are in place.

No detectable readings of VOCs above background were measured in soil samples the from soil borings on May 1, 1998.

Residual petroleum contamination in the soils surrounding the former No. 2 heating oil UST is contained by asphalt paving.

- 6) No unacceptable threat to human health or the environment exists on site.

VOCs were not detected with the PID in soil samples collected from the four soil borings noted above on May 1, 1998. No petroleum compounds were detected by laboratory analysis in the soil samples collected from the four soil borings on May 1, 1998.

There are no known sensitive receptors adversely affected.

- 7) Site meets RCRA requirements.

Available records indicate that The Car Store is not in violation of the Resource Conservation and Recovery Act (RCRA) as defined in 40 CFR 264.

- 8) Site meets CERCLA requirements.

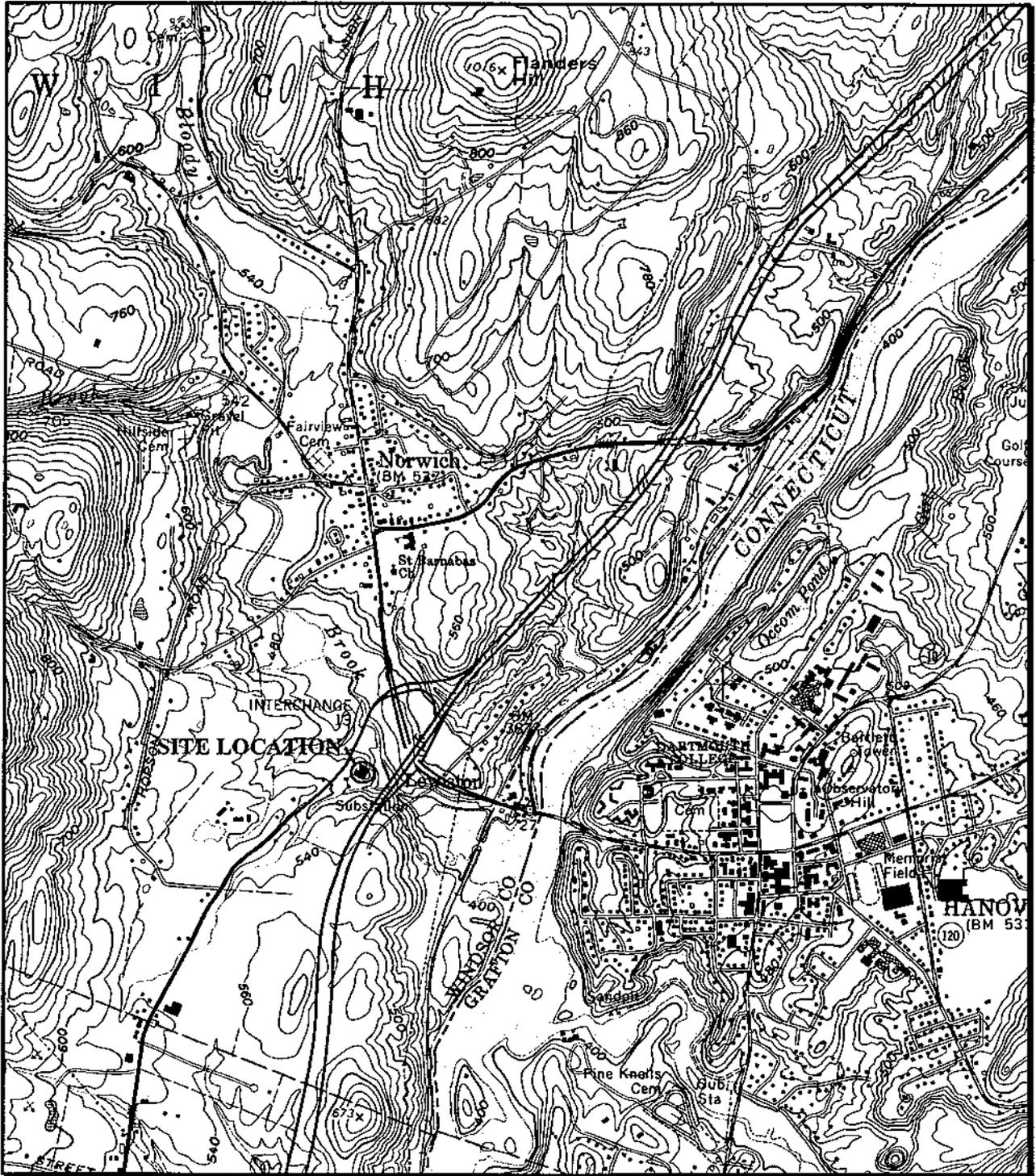
Available records indicate that The Car Store is not in violation of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as defined in 40 CFR 300.

## REFERENCES

1. USGS 7.5 Minute Topographic Map, Hanover, NH-VT quadrangle, dated 1959 and photorevised 1988.
2. Griffin International, August 6, 1997, UST Closure Inspection *letter report to Ms. Sue Thayer, Vermont ANR/DEC, Waste Management Division.*
3. Doll, Charles G., ed., 1970, *Surficial Geologic Map of Vermont*, Vermont Geological Survey.
4. Doll, Charles G., ed., 1961, *Centennial Geologic Map of Vermont*, Vermont Geological Survey.

**APPENDIX A**

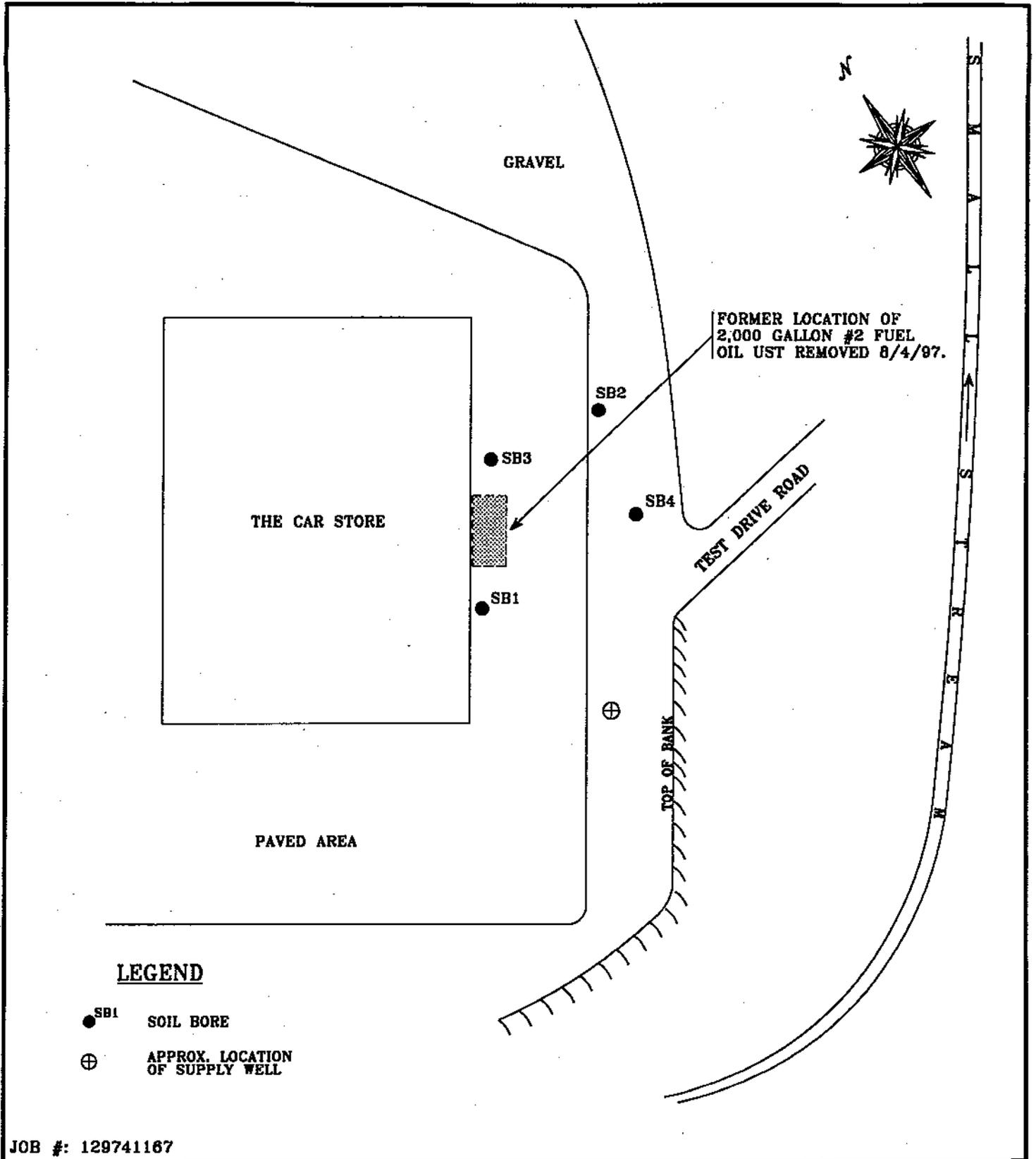
**Site Location Map  
Site Map**



**SITE LOCATION MAP - THE CAR STORE, INC., NORWICH, VT**

Base Map: USGS 7.5 minute Hanover, NH -VT quadrangle, dated 1959 and photorevised 1988

Scale: 1:24,000



**LEGEND**

- SB1 SOIL BORE
- ⊕ APPROX. LOCATION OF SUPPLY WELL

JOB #: 129741167



**THE CAR STORE**

ROUTE 5 SOUTH, NORWICH, VERMONT

**SITE MAP**

DATE: 5/8/98	DWG.#:2	SCALE: 1"=40'	DRN.:SB	APP.:CW
--------------	---------	---------------	---------	---------

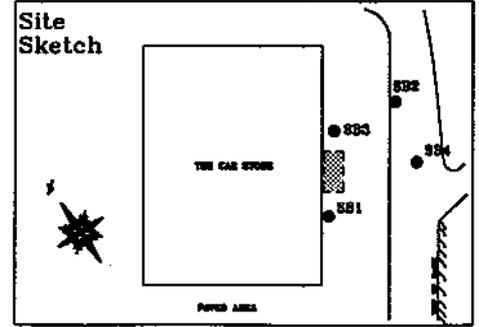
**APPENDIX B**

**Soil Boring Logs**

PROJECT THE CAR STORE

WELL NUMBER SB1

LOCATION NORWICH, VERMONT



DATE DRILLED 5/1/98 TOTAL DEPTH OF HOLE 17.3'

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 C. WARD

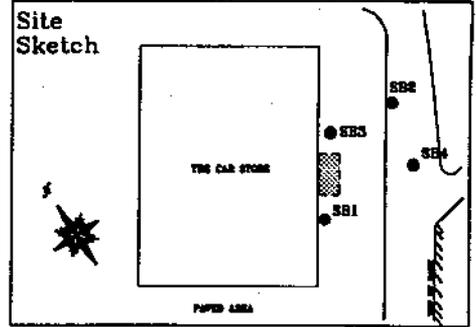
GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0				Asphalt	0
1					1
2				Brown SAND, some gravel, little silt.	2
3			0'-5' 0.2 ppm		3
4					4
5					5
6					6
7				Brown fine SAND and SILT, moist.	7
8		NATIVE BACKFILL	5'-10' 0.2 ppm		8
9					9
10					10
11					11
12				Brown fine SAND and SILT, moist.	12
13			10'-15' 0.2 ppm		13
14					14
15					15
16				Brown SILT, SAND and ROCK FRAGMENTS (greenstone), damp.	16
17			15'-17.3' 0.2 ppm		17
18		UNDISTURBED NATIVE SOIL		END OF EXPLORATION AT 17.3' REFUSAL AT 17.3'	18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

PROJECT THE CAR STORE

WELL NUMBER SB2

LOCATION NORWICH, VERMONT



DATE DRILLED 5/1/98 TOTAL DEPTH OF HOLE 26.5'

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 C. WARD

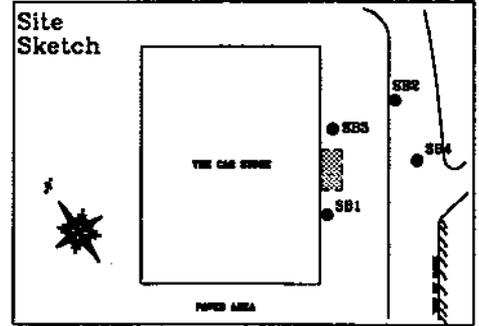
GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0					0
2	[Hatched Area]	NATIVE BACKFILL	0'-5' 0.2 ppm	Brown, fine SAND and SILT, dry.	2
4					4
6					6
8			5'-10' 0.2 ppm	Brown SILT and fine SAND, moist, dense.	8
10					10
12			10'-15' 0.2 ppm	Brown SILT and fine SAND, moist, dense.	12
14			14		
16			16		
18	15'-20' 0.2 ppm		Brown SILT and fine SAND, trace fine gravel, moist to wet, dense.	18	
20			20		
22	20'-24.5' 0.2 ppm		Brown, medium coarse SAND, some silt, dense, moist to wet.	22	
24			24		
26	[Screened Area]	UNDISTURBED NATIVE SOIL	25'-26.5' 0.2 ppm	Gray/brown, fine SAND and SILT, some gravel, very dense.	26
28				Gray/brown, medium to fine SAND, SILT and fine to medium GRAVEL, very dense, dry, till.	28
30			REFUSAL AT 26.5'	30	
32				32	
34				34	
36				36	
38				38	
40				40	
42				42	
44				44	
46				46	
48				48	
50				50	

PROJECT THE CAR STORE

WELL NUMBER SB3

LOCATION NORWICH, VERMONT



DATE DRILLED 5/1/98 TOTAL DEPTH OF HOLE 20.0'

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 C. WARD

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				Asphalt	0	
1		NATIVE BACKFILL	0'-5' 0.2 ppm	Brown, medium to fine SAND, some silt, dry.	1	
2					2	
3					3	
4					4	
5					5	
6			5'-10' 0.2 ppm		Brown SILT and fine SAND, moist, slightly dense.	6
7						7
8						8
9						9
10						10
11			10'-15' 0.2 ppm		Brown SILT and fine SAND, damp to moist, slightly dense.	11
12						12
13						13
14						14
15						15
16	16'-20' 0.2 ppm		Brown SILT and fine SAND, damp to moist, slightly dense.	16		
17				17		
18				18		
19				19		
20				20		
21		UNDISTURBED NATIVE SOIL		END OF EXPLORATION AT 20.0'	21	
22					22	
23					23	
24					24	
25					25	

PROJECT THE CAR STORE

LOCATION NORWICH, VERMONT

DATE DRILLED 5/1/98 TOTAL DEPTH OF HOLE 15.7'

DIAMETER 2.75"

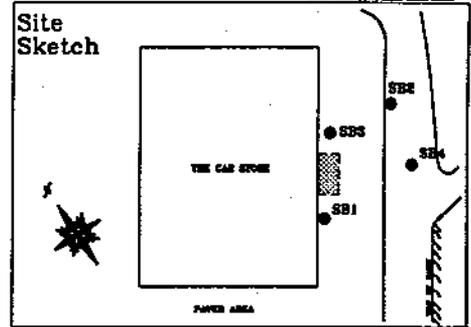
SCREEN DIA. NA LENGTH NA SLOT SIZE NA

CASING DIA. NA LENGTH NA TYPE NA

DRILLING CO. ADAMS ENGR. DRILLING METHOD VIBRATORY

DRILLER GERRY ADAMS LOG BY C. WARD

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			0'-5' 0.4 ppm	Brown, medium to fine SAND, some silt, damp. Pieces of painted wood at 3'.	0		
1					1		
2					2		
3			NATIVE BACKFILL		5'-10' 0.2 ppm	Brown, medium to fine SAND, some silt, damp.	3
4							4
5							5
6							6
7							7
8			UNDISTURBED NATIVE SOIL		10'-15' 0.2 ppm	Dark brown SAND, SILT and fine GRAVEL, little medium to coarse gravel, dense, dry, to damp.	8
9							9
10							10
11			UNDISTURBED NATIVE SOIL		15'-15.7' 0.2 ppm	Gray/brown SAND, SILT and fine GRAVEL, little medium to coarse gravel, dense, dry to damp.	11
12							12
13							13
14							14
15	15						
16				REFUSAL AT 15.7'	16		
17					17		
18					18		
19					19		
20					20		
21					21		
22					22		
23					23		
24					24		
25					25		

**APPENDIX C**

**Analytical Laboratory Reports**



**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: The Car Store/#129741167  
DATE REPORTED: May 11, 1998  
DATE SAMPLED: May 1, 1998

PROJECT CODE: GITC1474  
REF. #: 119,968 - 119,971

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.

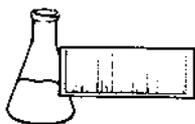
Analytical method precision and accuracy were monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

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

GC METHOD -- BTEX COMPOUNDS BY EPA METHOD 8260

CLIENT: Griffin International

PROJECT NAME: The Car Store/#129741167 PROJECT CODE: GITC1474

REPORT DATE: May 11, 1998

REF.#: 119,968

DATE SAMPLED: May 1, 1998

STATION: SB-1

DATE RECEIVED: May 4, 1998

TIME SAMPLED: 9:30

ANALYSIS DATE: May 8, 1998

SAMPLER: Chris Ward

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g}/\text{kg}</math>)</u>	<u>Concentration As Received (<math>\mu\text{g}/\text{kg}</math>)</u>
Benzene	10	ND <sup>1</sup>
Ethylbenzene	10	ND
Toluene	10	ND
Xylenes	20	ND
MTBE	20	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 83.%

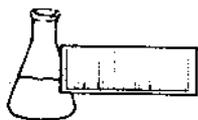
Toluene-d8: 82.%

4-Bromofluorobenzene: 116.%

PERCENT SOLIDS: 92.%

NOTES:

1 None detected



**ENDYNE, INC.**

**Laboratory Services**

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

**LABORATORY REPORT**

**GC METHOD -- BTEX COMPOUNDS BY EPA METHOD 8260**

CLIENT: Griffin International

PROJECT NAME: The Car Store/#129741167 PROJECT CODE: GITC1474

REPORT DATE: May 11, 1998

REF.#: 119,969

DATE SAMPLED: May 1, 1998

STATION: SB-2

DATE RECEIVED: May 4, 1998

TIME SAMPLED: 11:05

ANALYSIS DATE: May 8, 1998

SAMPLER: Chris Ward

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g}/\text{kg}</math>)</u>	<u>Concentration As Received (<math>\mu\text{g}/\text{kg}</math>)</u>
Benzene	10	ND <sup>1</sup>
Ethylbenzene	10	ND
Toluene	10	ND
Xylenes	20	ND
MTBE	20	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

**ANALYTICAL SURROGATE RECOVERY:**

Dibromofluoromethane: 80.%

Toluene-d8: 107.%

4-Bromofluorobenzene: 106.%

PERCENT SOLIDS: 84.%

**NOTES:**

1 None detected



**ENDYNE, INC.**

Laboratory Services

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

**LABORATORY REPORT**

**GC METHOD -- BTEX COMPOUNDS BY EPA METHOD 8260**

CLIENT: Griffin International  
PROJECT NAME: The Car Store/#129741167 PROJECT CODE: GITC1474  
REPORT DATE: May 11, 1998 REF.#: 119,970  
DATE SAMPLED: May 1, 1998 STATION: SB-3  
DATE RECEIVED: May 4, 1998 TIME SAMPLED: 13:30  
ANALYSIS DATE: May 8, 1998 SAMPLER: Chris Ward

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g}/\text{kg}</math>)</u>	<u>Concentration As Received (<math>\mu\text{g}/\text{kg}</math>)</u>
Benzene	10	ND <sup>1</sup>
Ethylbenzene	10	ND
Toluene	10	ND
Xylenes	20	ND
MTBE	20	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

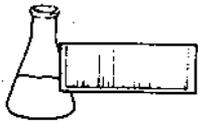
**ANALYTICAL SURROGATE RECOVERY:**

Dibromofluoromethane: 81.%  
Toluene-d8: 107.%  
4-Bromofluorobenzene: 110.%

PERCENT SOLIDS: 75.%

**NOTES:**

1 None detected



**ENDYNE, INC.**

Laboratory Services

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

LABORATORY REPORT

GC METHOD -- BTEX COMPOUNDS BY EPA METHOD 8260

CLIENT: Griffin International

PROJECT NAME: The Car Store/#129741167 PROJECT CODE: GITC1474

REPORT DATE: May 11, 1998

REF.#: 119,971

DATE SAMPLED: May 1, 1998

STATION: SB-4

DATE RECEIVED: May 4, 1998

TIME SAMPLED: 14:50

ANALYSIS DATE: May 8, 1998

SAMPLER: Chris Ward

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g}/\text{kg}</math>)</u>	<u>Concentration As Received (<math>\mu\text{g}/\text{kg}</math>)</u>
Benzene	10	ND <sup>1</sup>
Ethylbenzene	10	ND
Toluene	10	ND
Xylenes	20	ND
MTBE	20	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 84.%

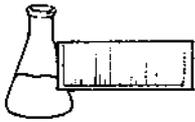
Toluene-d8: 105.%

4-Bromofluorobenzene: 113.%

PERCENT SOLIDS: 90.%

NOTES:

1 None detected



**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: The Car Store/#129741167  
DATE REPORTED: May 20, 1998  
DATE SAMPLED: May 1, 1998

PROJECT CODE: GITC1475  
REF. #: 119,972 - 119,975

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.

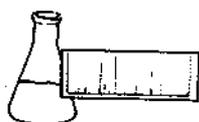
Blank contamination was not observed at levels affecting the analytical results.

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.

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**

**TOTAL PETROLEUM HYDROCARBONS (TPH) BY MODIFIED EPA METHOD 8100**

DATE: May 20, 1998  
CLIENT: Griffin International  
PROJECT: The Car Store/#129741167  
PROJECT CODE: GITC1475  
COLLECTED BY: C. Ward  
DATE SAMPLED: May 1, 1998  
DATE RECEIVED: May 4, 1998

Reference #	Sample ID	Concentration (mg/kg) <sup>1</sup>
119,972	SB-1; 9:30	ND <sup>2</sup>
119,973	SB-2; 11:05	ND
119,974	SB-3; 13:30	ND
119,975	SB-4; 14:50	ND

**Notes:**

- 1 Values quantitated based on the response of #2 Fuel Oil. Method detection limit is 5.0 mg/kg.
- 2 None detected



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

GITC1475

CHAIN-OF-CUSTODY RECORD

GI# 129741167

26890

119,968 - 119,975

Project Name: THE CAR STORE Site Location: NORWICH, VT	Reporting Address: GRIFFIN	Billing Address: GRIFFIN
Endyne Project Number: GITC1474	Company: GRIFFIN Contact Name/Phone #:	Sampler Name: CHRIS WAIRD 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				
119,968	SB-1	SOIL	✓		5/1/98 9:30	2	250ml		27,30	COOL	
119,969	SB-2	↓	↓		11:05	↓	↓		↓	↓	
119,970	SB-3	↓	↓		13:30	↓	↓		↓	↓	
119,971	SB-4	↓	↓		14:50	↓	↓		↓	↓	

Relinquished by: Signature <i>Chris Waard</i>	Received by: Signature <i>Tina Desrochers</i>	Date/Time 5-4-98 10:05
---	---	------------------------

Relinquished by: Signature <i>Tina Desrochers</i>	Received by: Signature <i>Lana M. Chamberlain</i>	Date/Time 5-4-98 10:10
---	---	------------------------

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 BTEX+MTB
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): Modified EPA 8100 - TTH										