



May 1 11 09 AM '95  
HAZARDOUS WASTE  
LABORATORY

April 28, 1995

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

RE: Cambridge Town Garage, VTDEC Site # 95-1743

Dear Mr. Spiese:

Enclosed is Griffin's Site Assessment Report for the above referenced project. Please call if you have any questions or comments regarding this report.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter G. Hack", written in a cursive style.

Peter G. Hack  
Engineer

c: Rodney Rogers, Town of Cambridge

**ENVIRONMENTAL SITE ASSESSMENT REPORT  
FOR  
CAMBRIDGE TOWN GARAGE  
Jeffersonville, VT**

**VTDEC Site #95-1743**

**April, 1995**

**Prepared for:**

**Town of Cambridge  
P.O. Box 127  
Jeffersonville, VT 05464**

**Griffin Project # 2954643**

**GRIFFIN INTERNATIONAL, INC.  
P.O. BOX 943  
WILLISTON, VT 05495**



## **TABLE OF CONTENTS**

- I. INTRODUCTION
- II. SITE ASSESSMENT
- III. RISK ASSESSMENT
- IV. CONCLUSIONS
- V. RECOMMENDATIONS

ATTACHMENTS: -Site Map  
-Analytical Laboratory Results

## I. INTRODUCTION

The Town of Cambridge has contracted Griffin International, Inc. to complete a site assessment at the Cambridge Town Garage in Jeffersonville, per Griffin's Work Plan dated February 13, 1995, and approved by the VTDEC on February 23, 1995. This assessment has been conducted to determine the extent and degree of subsurface petroleum contamination in the vicinity of one underground diesel storage tank that was removed from the property on December 2, 1994. The Tank Pull Inspection was performed by Marc Coleman, of the VTDEC, and VOC concentrations up to 160 ppm were detected in the soils surrounding the UST, as measured with a "Tank Tector". Most of the heavily contaminated soils were removed and transported to the town gravel pit. A four inch diameter drainage pipe (slammer well) was installed in the tank pit for future groundwater monitoring.

## II. SITE ASSESSMENT

On March 28, 1995, Griffin International, Inc. (Griffin) collected one groundwater sample from the monitoring well, and the sample was analyzed by EPA Method 8020 for BTEX and MTBE, and by modified EPA Method 8100 for total petroleum hydrocarbons (TPH). No QA/QC samples were collected. The EPA 8020 analysis of this groundwater sample detected Ethylbenzene, Toluene, and Xylenes at low concentrations, well below the Vermont Groundwater Enforcement Standards. The modified EPA Method 8100 analysis detected 6.2 ppm of Total Petroleum Hydrocarbons. The analytical laboratory results are attached. The water table was measured at 11.2 feet below grade on this date.

On April 17, 1995, the site was inspected for signs of petroleum contamination, including a visual survey for petroleum impact and potential receptors, and the drainage ditch was screened for VOCs with a Microtip photo-ionization device (PID). No indications of petroleum impact were observed. The area is served by the municipal water system whose source is six miles south, and no supply wells are known to be in this vicinity. Two residences with basements are located within 150 feet of the site, and the on site buildings do not have basements. The only identified potential receptor is a stream located approximately 300 feet east of the former UST. This stream is a tributary to the Lamoille River. The groundwater is assumed to flow toward the stream in a northeasterly direction. Five soil samples were collected along a drainage swale on the north side of the property, between the former tank pit and the stream. Concentrations of VOCs in these samples ranged from 0 ppm to 1.3 ppm, with an average of 0.4 ppm, as measured with the PID.

## III. RISK ASSESSMENT

During the site inspection, no evidence of petroleum contamination was detected at the site or in the surrounding area, indicating that significant migration of contamination has not occurred. The nearby structures do not appear to be at risk of vapor impact from subsurface petroleum contamination at this site, due to the distance to the residences and the slab-on-grade construction of the Town buildings. Based on these observations and the very low concentrations of

groundwater contamination detected at the source area, it is unlikely that residual contamination at this site poses a significant risk to local potential receptors.

#### IV. CONCLUSIONS

Based on the data collected to date from this site, it is apparent that there was a release of petroleum products at this site. The amount or duration of the release is not known, but likely originated from the diesel UST, as indicated by the tank test failures and observed holes in the tank after it was removed. The likely source has been removed, and the majority of the contaminated soils have been removed from the ground and transported off site to a secure location for passive remediation.

Only limited soil or groundwater contamination remains, and this residual contamination does not appear to pose a significant risk to public health and safety, or to the environment.

#### V. RECOMMENDATIONS

We do not recommend further investigations at this site. However, the contaminated soil stockpile, located off site at the town gravel pit, will be monitored by Griffin once a year to document the reduction of VOCs by natural processes, as proposed in Griffin's original Work Plan. When average VOC concentrations in these soils have been reduced to below 1 ppm, the soils can be spread on site.

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
UNDERGROUND STORAGE TANK PROGRAM  
TANK FULL FORM

TODAY'S DATE: Dec 2, 1994

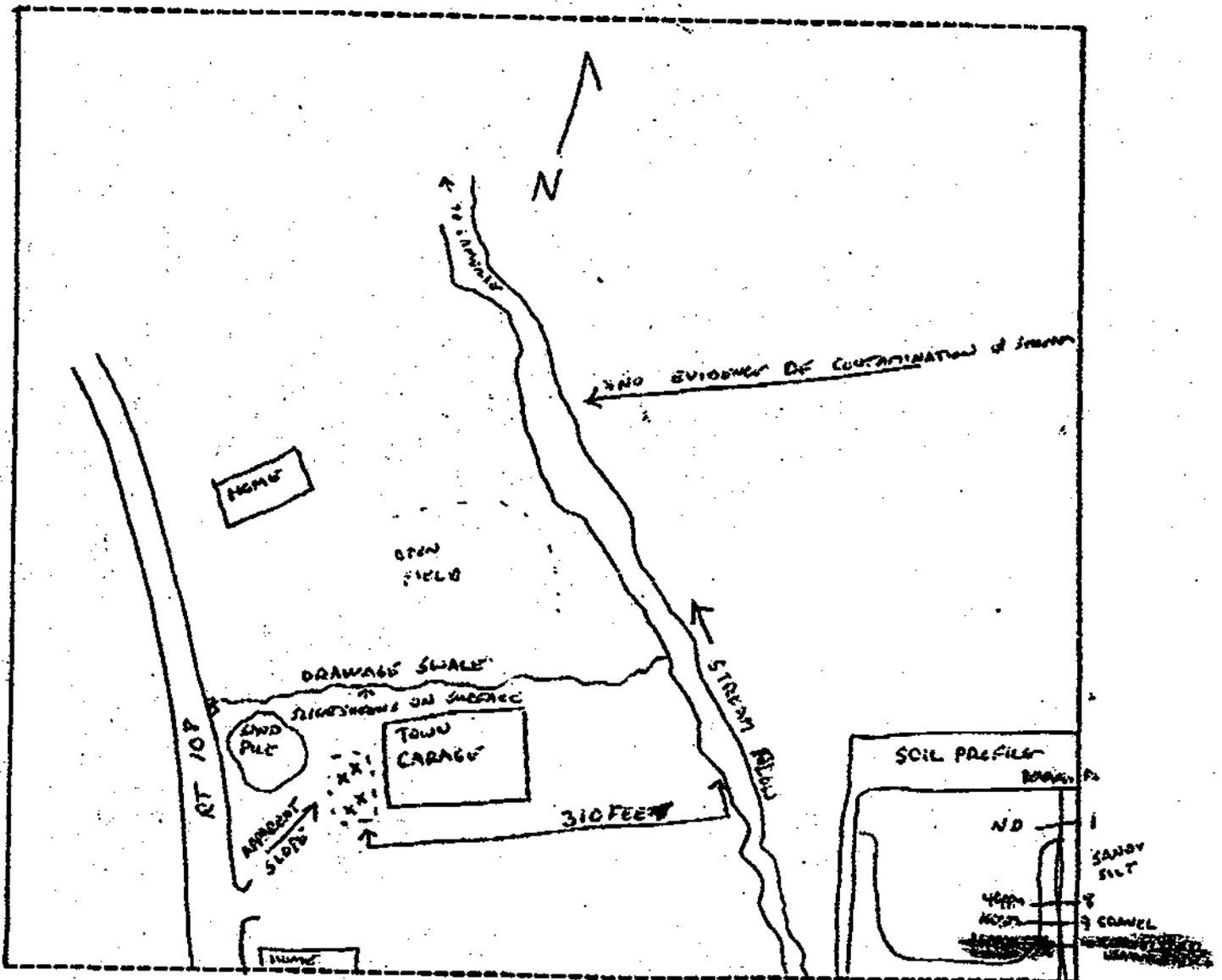
INSPECTOR: MARC COLEMAN

DATE OF REMOVAL: Dec 2, 1994

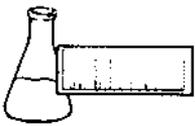
BUSINESS NAME: CAMBRIDGE TOWN GARAGE

SITE DIAGRAM

Show location of all tanks and distance to permanent structures, sample points, areas of contamination and any pertinent site information. Indicate North arrow and major street names or route number.



X = GRAB SAMPLE FROM 10 FEET DEEP  
ALL HOMES ARE ON TOWN WATER



**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: Cambridge Town Garage  
REPORT DATE: March 31, 1995  
DATE SAMPLED: March 28, 1995

PROJECT CODE: GICT1447  
REF.#: 72,372

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

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

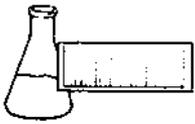
Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

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

Reviewed by,

Harry B. Locker, Ph.D.  
Laboratory Director

enclosures



**ENDYNE, INC.**

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Cambridge Town Garage  
REPORT DATE: March 31, 1995  
DATE SAMPLED: March 28, 1995  
DATE RECEIVED: March 29, 1995  
DATE ANALYZED: March 31, 1995

PROJECT CODE: GICT1447  
REF.#: 72,372  
STATION: MW-1  
TIME SAMPLED: 13:20  
SAMPLER: J. Bernhard

<u>Parameter</u>	<u>Detection Limit (ug/L)<sup>1</sup></u>	<u>Concentration (ug/L)</u>
Benzene	10	ND <sup>2</sup>
Chlorobenzene	10	ND
1,2-Dichlorobenzene	10	ND
1,3-Dichlorobenzene	10	ND
1,4-Dichlorobenzene	10	ND
Ethylbenzene	10	33.1
Toluene	10	31.7
Xylenes	10	314.
MTBE	100	ND

Bromobenzene Surrogate Recovery: 105%

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

NOTES:

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

2 None detected

**CHAIN-OF-CUSTODY RECORD**

13525

COPY 13525 03/29/95

72,372 — 72,375

Project Name: <i>Cambridge town Garage</i>	Reporting Address: <i>Griffin # 2954643</i>	Billing Address: <i>Griffin</i>
Site Location: <i>Jacksonville, VT</i>		
Endyne Project Number: <i>GICT 1447</i>	Company: <i>Griffin</i>	Sampler Name: <i>J Bernhard</i>
	Contact Name/Phone #: <i>P. Hock / 865-4288</i>	Phone #: <i>same</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				
72,372	MW-1	H <sub>2</sub> O	X		3-29-95 12:20	2	40ml		602	HC1	
	MW-1	H <sub>2</sub> O	X		13:20	2	40ml	<i>modified</i>	8100	HC1	

Relinquished by: Signature <i>John B. C.</i>	Received by: Signature <i>Beth Ward</i>	Date/Time <i>3/29/95 8:25</i>
Relinquished by: Signature <i>Beth Ward</i>	Received by: Signature <i>Lori M. Anderson</i>	Date/Time <i>3-29-95 8:45</i>

New York State Project: Yes  No

**Requested Analyses**

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

**CHAIN-OF-CUSTODY RECORD**
**13525**

Project Name: <i>Cambridge town Garage</i>	Reporting Address: <i>Griffin # 2954643</i>	Billing Address: <i>Griffin</i>
Site Location: <i>Jeffersonville, VT</i>		
Endyne Project Number:	Company: <i>Griffin</i>	Sampler Name: <i>J Bernhard</i>
	Contact Name/Phone #: <i>D. Heckl 865-4788</i>	Phone #: <i>507-1000</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>MW-1</i>	<i>H<sub>2</sub>O</i>	<i>X</i>		<i>3-29-95</i> <i>12:20</i>	<i>2</i>	<i>40ml</i>		<i>602</i>	<i>HC1</i>	
	<i>MW-1</i>	<i>H<sub>2</sub>O</i>	<i>X</i>		<i>13:20</i>	<i>2</i>	<i>40ml</i>	<i>Mod Red</i>	<i>5100</i>	<i>HC1</i>	

Relinquished by: Signature <i>John B C</i>	Received by: Signature <i>Beth Ward</i>	Date/Time <i>3/29/95 2:25</i>
Relinquished by: Signature <i>Beth Ward</i>	Received by: Signature <i>John B C</i>	Date/Time <i>3-29-95 2:45</i>

 New York State Project: Yes  No 
**Requested Analyses**

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

RECEIVED MAR 29 1995



**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: Cambridge Town Garage  
DATE REPORTED: April 14, 1995  
DATE SAMPLED: March 28, 1995

PROJECT CODE: GICT1448  
REF. #: 72,373

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

Chain of custody indicated sample preservation with HCl.

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 was monitored by laboratory control standards which included 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: April 14, 1995  
CLIENT: Griffin International  
PROJECT: Cambridge Town Garage  
PROJECT CODE: GICT1448  
COLLECTED BY: J. Bernhard  
DATE SAMPLED: March 28, 1995  
DATE RECEIVED: March 29, 1995

<u>Reference #</u>	<u>Sample ID</u>	<u>Concentration (mg/L)<sup>1</sup></u>
72,373	MW-1; 13:20	6.2

Notes:

1 Method detection limit is 1.0 mg/L.

**CHAIN-OF-CUSTODY RECORD**

13525

Project Name: <i>Cambridge Town Garage</i>	Reporting Address: <i>Griffin # 2954643</i>	Billing Address: <i>Griffin</i>
Site Location: <i>Aspen Hill, VT</i>		
Endyne Project Number: <i>GICT 1448</i>	Company: <i>Griffin</i>	Sampler Name: <i>J. Bernhard</i>
	Contact Name/Phone #: <i>P. Hackl 865-4288</i>	Phone #: <i>same</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>MW-1</i>	<i>H<sub>2</sub>O</i>	<i>X</i>		<i>3-29-95</i>						
<i>72,373</i>	<i>MW-1</i>	<i>H<sub>2</sub>O</i>	<i>X</i>		<i>13:20</i>	<i>2</i>	<i>40ml</i>		<i>602</i>	<i>HCl</i>	

Relinquished by: Signature <i>John B. C.</i>	Received by: Signature <i>Beth Ward</i>	Date/Time <i>3/29/95 8:25</i>
Relinquished by: Signature <i>Beth Ward</i>	Received by: Signature <i>Tom M. Chamberlain</i>	Date/Time <i>3-29-95 8:45</i>

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 Pests/PCB
4	Nitrite N	9	BOD <sub>5</sub>	14	Turbidity	19	BTEX	24	EPA 608 Pests/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):										