



JUN 24 9 33 AM '99

RECEIVED

June 21, 1999

Mr. Chuck Schwer
VTDEC/ANR/WMD
103 South Main Street, West Building
Waterbury, VT 05671-0404

Re: Site Investigation Report, AC Hawthorne Facility
VTDEC Site #98-2550

Dear Mr. Schwer:

Enclosed please find the document titled *Report on the Investigation of Subsurface Petroleum Contamination, AC Hawthorne Company, Inc., 52 Avenue C, Williston, Vermont*. This report has been submitted for your review on behalf of AC Hawthorne Company, Inc., of Williston, Vermont.

If you have any questions or comments, please feel free to call me at (802) 865-4288.

Sincerely,

Willis Doe
Environmental Engineer
Att

c: File 39941483

Since w/notice & land
Records of Gas Contaminated
soils in tank area

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

at

AC HAWTHORNE COMPANY, INC.

52 AVENUE C

WILLISTON, VERMONT

VTDEC SMS Site #98-2550

June, 1999

Prepared for:

AC Hawthorne Company, Inc.

**52 Avenue C
Williston, VT 05495**

Prepared by:



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

Griffin Project #: 39941483

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I. INTRODUCTION

This report summarizes the investigation of subsurface petroleum contamination at AC Hawthorne Co., Inc. (AC Hawthorne), located at 52 Avenue C in Williston, Vermont (see Site Location Map, Appendix A). The following investigation has been conducted to define more clearly the degree and extent of petroleum contamination detected in soil at this site during the removal of one 4000 gallon gasoline underground storage tank (UST) on December 10, 1998. Included in the report are findings from the soil boring advanced through the subsurface at the site, an evaluation of potential sensitive receptors in the area, conclusions drawn from data collected at the site, and recommendations regarding future work at the site.

This work has been completed for AC Hawthorne by Griffin International, Inc., (Griffin) in accordance with the Work Plan and Cost Estimate for Initial Site Investigation at the AC Hawthorne facility, dated March 1, 1999. The work scope outlined in the aforementioned work plan and cost estimate was approved by Mr. Chuck Schwer of the Vermont Department of Environmental Conservation (VTDEC) in a letter to Mr. David Hartwell of AC Hawthorne, dated March 10, 1999.

II. HISTORICAL BACKGROUND

On December 10, 1999, one 4000 gallon gasoline UST was removed from the subsurface at the AC Hawthorne facility at 52 Avenue C, Williston, Vermont.¹ Griffin personnel were on-site at this time to perform assessment services for the removal of the tank. During this assessment, petroleum contamination was observed in soils in the vicinity of the UST. An H-Nu, Model PI-101 photoionization device (PID) equipped with a 10.2 eV bulb was utilized to perform headspace screening of soil samples. A maximum total organic vapor (TOV) concentration of 300 ppm was detected at a depth of 11'-12' below grade beneath the east end of the UST. These soils are beneath a former fuel dispenser associated with the tank. The removed UST was noted to be in good condition a significant amount of rust and little pitting. Groundwater was not encountered during the removal of the tanks.

A report detailing the findings of this UST closure was submitted by Griffin on December 15, 1998. In a letter dated February 21, 1999, to Mr. David Hartwell of AC Hawthorne, Mr. Chuck Schwer of the VTDEC requested that the following work be performed at the site:

- ◆ Definition of degree and extent of petroleum contamination to soil and groundwater at the site.
- ◆ If appropriate, screening (using a PID) of on-site and adjacent buildings and structures to determine if they have been impacted by petroleum vapors.
- ◆ Assessment of the potential for contamination to impact sensitive receptors.

- ◆ Submit a summary report (this document) which outlines the work performed, provides necessary analytical data, maps, and supporting arguments for conclusions and recommendations.

Griffin International was retained by AC Hawthorne to perform the tasks listed above.

III. SITE DESCRIPTION

The site is located in an industrial park at 52 Avenue C in Williston, Vermont. The surrounding area is primarily commercial. The on-site building and surrounding properties are supplied with water by the town of Williston. The property sits on a topographically flat area bordered to the north by a sand pit and to the south, east and west by commercial properties. The site is approximately 320 feet above mean sea level².

The Surficial Geologic Map of Vermont depicts the surrounding area as pebbly marine sand.³ Actual subsurface materials were consistent with this description. The Centennial Geologic Map of Vermont depicts bedrock beneath the site as either Cutting dolomite and undifferentiated Morgan Corner and Wallace Creek formations, or Shelburne, Whitehall, and Strites Pond formations.⁴ Bedrock was not encountered during excavation or drilling activities at the site.

IV. SUBSURFACE INVESTIGATION

On April 15, 1999, one soil boring was advanced into the subsurface at the site by T&K Drilling, Inc., of Troy, New Hampshire, using a truck-mounted, 4.25" inside diameter (ID), hollow-stem auger drill rig. The boring (designated SB-1) was advanced to better define the degree and extent of petroleum contamination in the vicinity of the former gasoline UST.

Boring SB-1 was advanced through the eastern end of the former UST pit in the area where maximum TOV concentrations were observed during the UST removal. The location of this boring is shown on the Site Map in Appendix A.

Soil samples were collected continuously from grade to a depth of 19' below grade, and at 5' intervals from 20' below grade to 37' below grade. Samples were retrieved from the borehole using a two-foot long, 2" ID stainless steel split-spoon sampler. The sampler was decontaminated in the field with a solution of Alconox (a detergent) and water to prevent potential cross-contamination. Soil samples were screened for TOV using an H-Nu, Model HW-101 PID equipped with a 10.2 eV bulb. In addition, soil characteristics were recorded in boring logs by the Griffin drilling supervisor. No monitoring well was installed in the boring, and no groundwater was encountered during drilling activities at the site.

Samples collected from the boring consisted primarily of dark brown and greenish gray sand with varying but generally minimal concentrations of silt and fine gravel. Bedrock

refusal was not encountered in the boring, and groundwater was not present at the maximum boring depth of 37' below grade. TOV concentrations in the collected samples peaked at 220 ppm in the depth range 5' to 13' below grade. TOV concentrations decreased to less than 10 ppm in the interval from 13' to 27' below grade. TOV were not detected with the PID in the soil samples collected at to a depth of 30'-32' and 35'-37' below grade. As per the Work Plan, boring and sampling activities were halted at this depth.

V. SOIL SAMPLE COLLECTION AND ANALYSIS

Because TOV were not detected in the two consecutive spoon samples collected at 30'-32' and 35'-37' below grade, and groundwater was not encountered in the borehole, one soil sample was collected from the bottom of the boring at approximately 37' below grade. The sample was properly preserved, packaged, and submitted under signed chain of custody to Endyne, Inc. (Endyne) of Williston, Vermont, for analysis by EPA Method 8021B for the presence of the following compounds: benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tert-butyl ether (MTBE), 1,2,4 trimethyl benzene, 1,3,5 trimethyl benzene, and naphthalene. None of the aforementioned compounds were present in the sample above laboratory detection limits.

VI. RECEPTOR RISK ASSESSMENT

A receptor risk assessment was conducted to identify known and potential receptors of the petroleum contamination detected at the AC Hawthorn Property. A visual survey was conducted at the time of soil boring advancement. A determination of the potential risk to identified receptors was conducted based on proximity to the source area, strength of the source area, groundwater flow direction and gradient, and contaminant concentration levels.

The AC Hawthorne property is located in an industrial/commercial setting, and it and all surrounding structures are serviced with water by the Town of Williston. None of the surrounding properties have basements for the potential accumulation of petroleum vapors. Given the distance to Muddy Brook, the nearest surface water (approximately 1500'), and the reported depth to groundwater (greater than 100' below grade), and taking into account the previously discussed findings from the soil boring advanced at the site, no receptors except soils in the vicinity of the former UST are likely to be impacted by the petroleum contamination present in the subsurface at the AC Hawthorne property.

VIII. CONCLUSIONS

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

1. There has been a release of gasoline from the former UST at the site. The duration and quantity of the release are unknown.
2. From the soil boring, sand, with lesser amounts of silt and fine gravel, are observed to overlay bedrock at the site. TOV were detected by PID in the soil boring from 3' to 27' below grade. Groundwater was not present in the borehole.
3. From the soil samples collected from the borehole, the most significant soil contamination was observed in the interval from 5' to 13' below grade. Below this depth, TOV concentrations as measured with the PID were below VTDEC regulatory guidelines (20 ppm) for gasoline-contaminated soils.
4. The risk assessment for this site has determined that there is likely limited risk to on-site or nearby buildings, and the potential risk to both surface and groundwater appears to be minimal, given the lateral distance to surface water and the depth to groundwater. Risk to employees at AC Hawthorne from direct contact with contaminated soils or inhalation of petroleum vapors appears to be minimal, as contamination was not observed in the borehole above 3' below grade.
5. As the source of the petroleum release has been removed, and because no free phase product was encountered, it is expected that the residual petroleum in soil at the site will eventually be reduced by the natural processes of dilution, dispersion, and biodegradation.

IX. RECOMMENDATIONS

Based on the above conclusions, Griffin recommends the site be designated Sites Management Activity Completed (SMAC) by the VTDEC.

REFERENCES

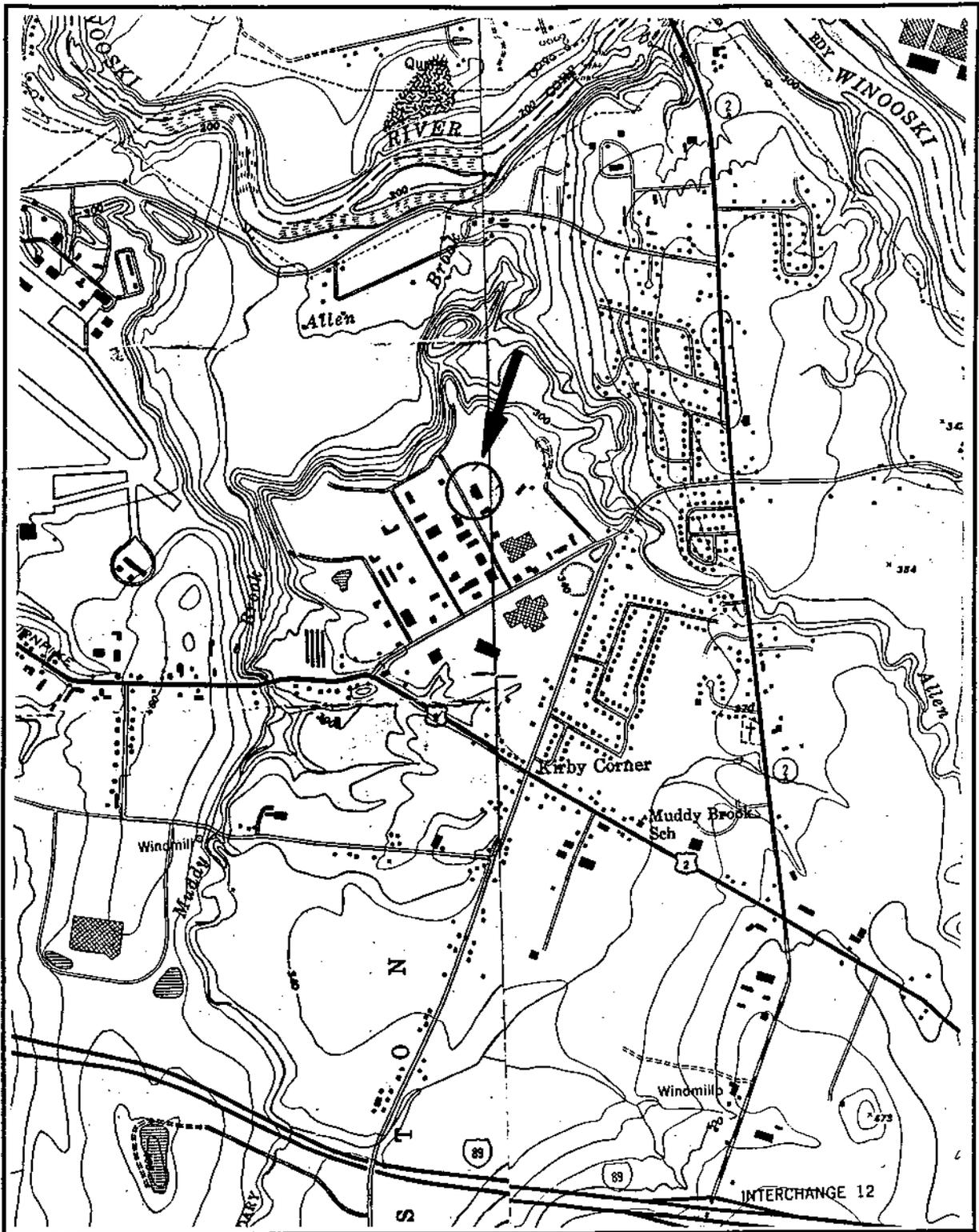
1. McGraw, Kevin, Griffin International, Inc., December 15, 1998, *UST Closure Report, AC Hawthorne Roofing.*
2. USGS Topographical Map, Burlington Quadrangle, Vermont, 1987.
3. Doll, Charles G., ed., 1970, *Surficial Geologic Map of Vermont*, State of Vermont.
4. Doll, Charles G., ed., 1970, *Centennial Geologic Map of Vermont*, State of Vermont.

APPENDICES

APPENDIX A

Maps

Site Location Map
Area Map
Site Map

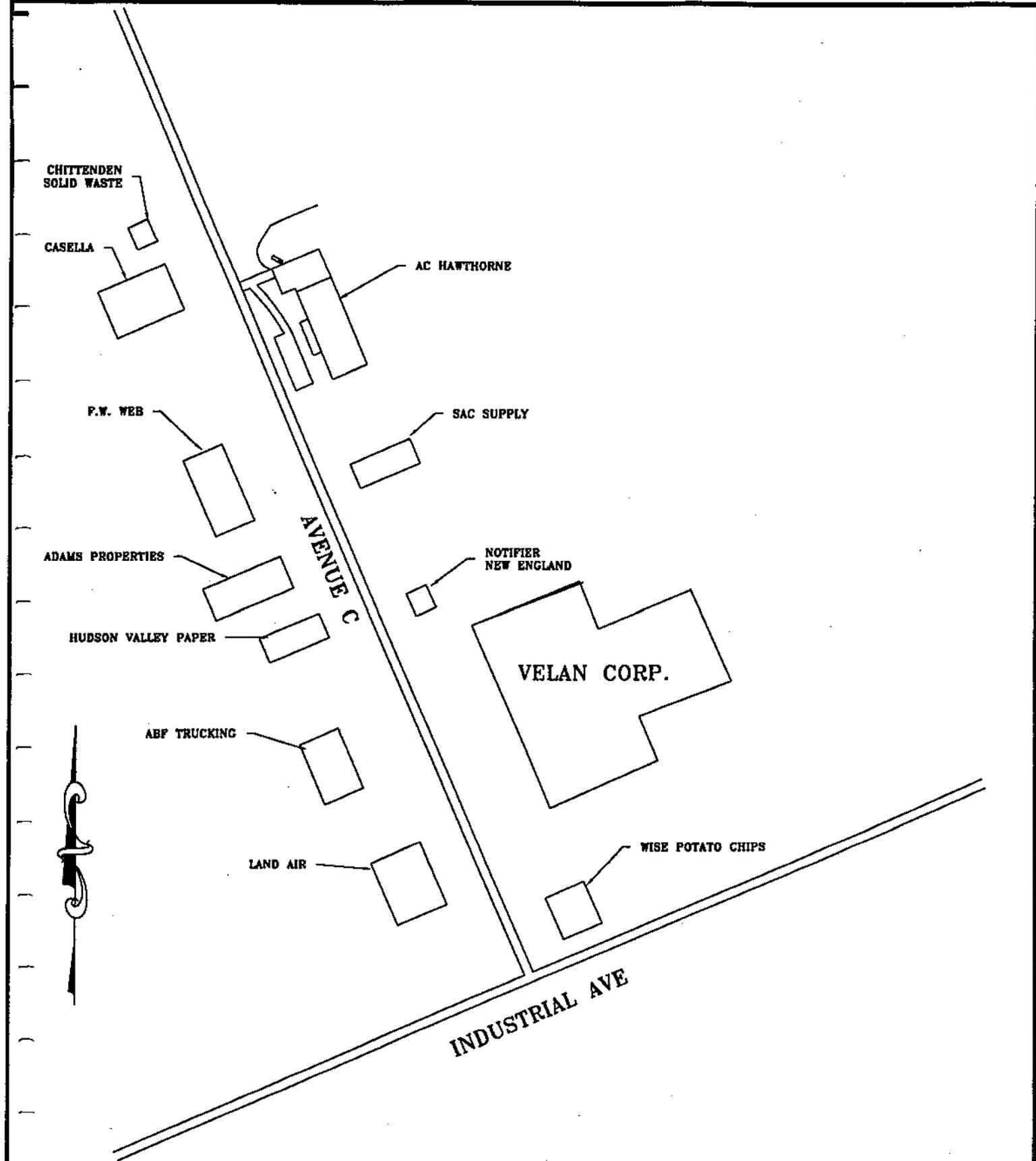


SITE LOCATION MAP

A.C. Hathorne Co., Inc., 52 Avenue C, Williston, VT

**SOURCES: U.S.G.S. - BURLINGTON, VT (1987) and
U.S.G.S. - ESSEX JUNCTION, VT (1987)**

SCALE 1:24,000



AC HAWTHORNE COMPANY INC.

WILLISTON, VERMONT

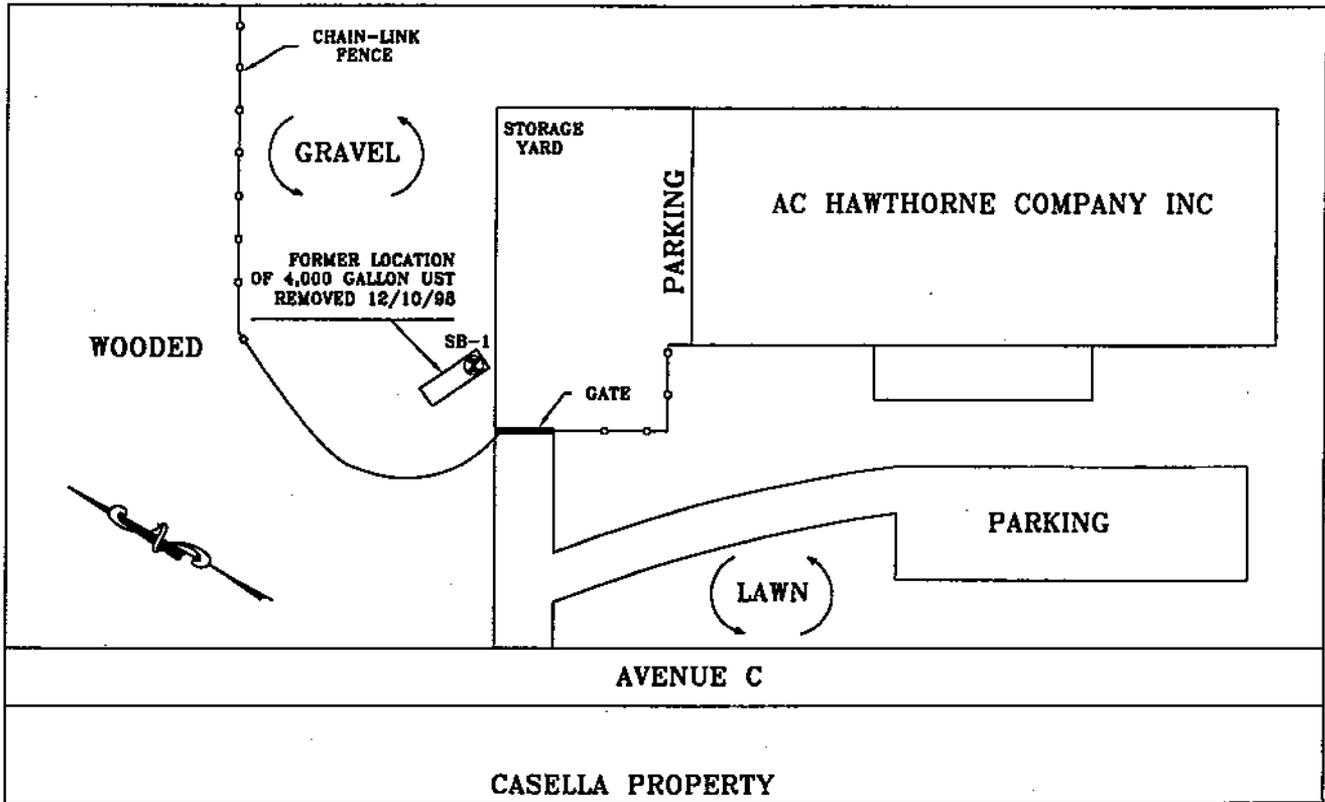
AREA LOCATION MAP

DATE: 6/17/99

DWG.#:2

SCALE: NTS

DRN.:TG WD



JOB# 39941483

AC HAWTHORNE COMPANY INC.

WILLISTON, VERMONT

SITE SKETCH MAP

DATE: 6/17/99

DWG.#:1

SCALE: 1" = ±60'

DRN.:TG

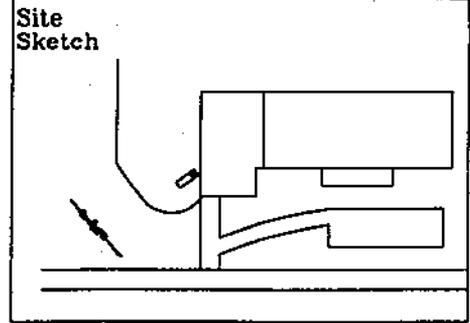
APP.:WD

APPENDIX B

Boring Log

PROJECT #39941483 AC HAWTHORNE
 LOCATION WILLISTON VT
 DATE DRILLED 4/15/99 TOTAL DEPTH OF HOLE 37'
 DIAMETER NA
 SCREEN DIA. NA LENGTH NA SLOT SIZE NA
 CASING DIA. NA LENGTH NA TYPE NA
 DRILLING CO. T&K DRILLING DRILLING METHOD HSA
 DRILLER ALAN LOG BY W. DOE

WELL NUMBER SB1



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			3' 180 ppm	POORLY GRADED SAND W/SILT (SP-SM)- 90% fine-medium sand, dry, dark brown	2
4		SAND W/SILT			4
6			5'-7'- 2/1/1/1 220+ ppm	POORLY GRADED SAND W/SILT (SP-SM)- 90% fine-medium sand, dry, dark brown	6
8			7'-9' 1/1/2/3 220+ ppm	POORLY GRADED SAND W/SILT (SP-SM)- 95% fine sand, dry, dark brown	8
10			9'-11' 4/5/10/11 220+ ppm	POORLY GRADED SAND (SP)- 95% fine sand, dry, dark brown	10
12			11'-13' 17/19/22/25 220+ ppm	POORLY GRADED SAND (SP)- 95% fine sand, dry, dark brown	12
14		SAND	13'-15' 6/10/16/17 5 ppm	POORLY GRADED SAND (SP)- 95% fine sand, dry, dark brown	14
16			15'-17' 8/8/12/17 5 ppm	POORLY GRADED SAND (SP)- 95% fine sand, dry, dark brown	16
18			17'-19' 22/20/15/19 8 ppm	POORLY GRADED SAND (SP)- 95% fine sand, dry, dark brown	18
20			20'-22' 10/13/19/24 9 ppm	WELL GRADED SAND W/ SILT & GRAVEL (SW-SM)- 70% fine-medium-coarse sand, 25% fine gravel, dry, greenish gray	20
22					22
24					24
26			25'-27' 12/15/17/20 7 ppm	WELL GRADED SAND & GRAVEL (SW-SM)- 70% fine-medium-coarse sand, 25% fine gravel, dry, greenish gray	26
28		SAND W/GRAVEL			28
30					30
32			30'-32' 18/18/23/27 0 ppm	WELL GRADED SAND W/ SILT & GRAVEL (SW-SM)- 75% fine-medium sand, 25% fine gravel, dry, greenish gray	32
34					34
36		SAND W/SILT	35'-37' 16/22/24/34 0 ppm	POORLY GRADED SAND W/ SILT (SP-SM)- 90% sand, dry, greenish gray	36
38		UNDISTURBED NATIVE SOIL		END OF EXPLORATION AT 37'	38
40					40
42					42
44					44
46					46
48					48
50					50

APPENDIX C

Laboratory Report



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

CLIENT: Griffin International

ORDER ID: 2007

PROJECT: AC Hawthorne/#39941483

DATE RECEIVED: April 16, 1999

REPORT DATE: April 27, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

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.

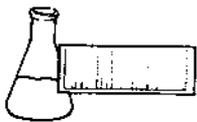
Blank contamination was not observed at levels affecting the analytical results.

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

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



LABORATORY REPORT

CLIENT: Griffin International
PROJECT: AC Hawthorne/#39941483
REPORT DATE: April 27, 1999

ORDER ID: 2007
DATE RECEIVED: April 16, 1999
SAMPLER: WJD
ANALYST: 725

Ref. Number: 137080

Site: SB1

Date Sampled: April 15, 1999

Time: 10:14 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 20.0	ug/kg, dry	SW 8021B	4/27/99
Benzene	< 10.0	ug/kg, dry	SW 8021B	4/27/99
Toluene	< 10.0	ug/kg, dry	SW 8021B	4/27/99
Ethylbenzene	< 10.0	ug/kg, dry	SW 8021B	4/27/99
Xylenes, Total	< 20.0	ug/kg, dry	SW 8021B	4/27/99
1,3,5 Trimethyl Benzene	< 10.0	ug/kg, dry	SW 8021B	4/27/99
1,2,4 Trimethyl Benzene	< 10.0	ug/kg, dry	SW 8021B	4/27/99
Naphthalene	< 50.0	ug/kg, dry	SW 8021B	4/27/99
UIP's	0.		SW 8021B	4/27/99
Percent Solid	98.	%	SW 8021B	4/27/99
Surrogate 1	105.0%	%	SW 8021B	4/27/99

39941483

CHAIN-OF-CUSTODY RECORD

Project Name: AC HAWTHORNE	Reporting Address: GRIFFIN INT'L	Billing Address: GRIFFIN INT'L
Site Location: AVE C WILLISTON VT		
Endyne Project Number: 2007	Company: GRIFFIN INT'L	Sampler Name: WJD
	Contact Name/Phone #: WILLIS DOE 865 4288	Phone #: 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				
13708G	SBI	SOIL	✓		4-15-99 1014	2	48 oz SOIL		8021 B	ICE	

Relinquished by: Signature <i>Willis Doe</i>	Received by: Signature <i>Tina Denton</i>	Date/Time <i>4-15/99 11:30</i>
Relinquished by: Signature <i>Tina Denton</i>	Received by: Signature <i>Deborah Flower</i>	Date/Time <i>4/15/99 10:20</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 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):										

32 James Brown Drive
Williston, Vermont 05495
(802) 878-4333

37741423

CHAIN-OF-CUSTODY RECORD

Project Name: AC HAWTHORNE	Reporting Address: GRIFFIN INT'L	Billing Address: GRIFFIN INT'L
Site Location: AVE C WILLISTON VT		
Endyne Project Number:	Company: GRIFFIN INT'L	Sampler Name: WJD
	Contact Name/Phone #: WILLIS DOE 865 4288	Phone #: 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				
	SBI	SOIL	✓		7-15-99 1014	2	48 oz SOIL		8021 B	(ICE)	

Relinquished by: Signature <i>Willis Doe</i>	Received by: Signature <i>Tom AD [unclear]</i>	Date/Time: 4-15/99 11:30
Relinquished by: Signature <i>[unclear]</i>	Received by: Signature <i>[unclear]</i>	Date/Time: 4/15/99 10:20

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 ^o	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										