

SITE ASSESSMENT REPORT

For The

**IRASVILLE COUNTRY STORE
IRASVILLE, VERMONT**

VTDEC SITE # 94-1634

SEPTEMBER 1994

Prepared for:

**Thomas and Cheryl Kaminski
Irasville Country Store
P.O. Box 93
Waitsfield, VT 05673**

Prepared By:

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

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I. INTRODUCTION

This report details Griffin's Site Investigation, performed after a routine piping replacement inspection at the Irasville Country Store on May 12, 1994. On June 7, 1994 Griffin submitted a site assessment report detailing the May 12 inspection. The single walled pipes servicing three USTs were replaced with double walled pipes, and overfill protection was installed. During this inspection, Griffin detected volatile organic compounds (VOCs) in soils surrounding the original pipes. A maximum concentration of 160 ppm (parts per million) of VOCs was detected two feet below grade near the fill pipe for the 8000 gallon gasoline UST. No groundwater was encountered during this work. However, on August 19, 1994 the groundwater was measured in two monitoring wells at approximately five feet below grade.

Due to the detection of VOCs and the potential impact to nearby receptors, the Vermont Department of Environmental Conservation (VTDEC) has requested this investigation to further define the degree and extent of subsurface petroleum contamination, and identify and assess the risk posed to local receptors.

II. SITE DESCRIPTION

The site is located in the center of Irasville on Route 100. The area contains other commercial businesses along the Route 100 corridor. Another gasoline retail operation is located across the street. However, the Irasville Store stands at least 120 feet away from other structures, separated by paved parking areas and green space. All businesses are served by individual supply wells and on site septic systems. The wells are located at least 120 feet from this site.

The Irasville Store began retailing gasoline in 1986 when three single walled steel USTs with corrosion protection were installed. In 1994, the single walled piping was replaced with double walled piping, and overfill protection was also installed. Two previously installed groundwater monitoring wells are located next to the USTs, as shown on the Site Map in Appendix A.

The topography in this area is level for several hundred feet in all directions. The geologic maps of the area indicate glaciofluvial gravel overburden deposits overlying quartz-sericite and schist bedrock. The material encountered during the pipe replacement was gravel with some sand, and was most likely backfill materials for the tanks and paving.

III. WATER SAMPLING AND ANALYSIS

On August 19, 1994, Griffin visited the site to collect groundwater samples from the Irasville Country Store supply well, and two on-site monitoring wells, MW1, and MW2. Griffin also measured the depth to the water table in these two monitoring wells. The water table on this date was approximately five feet below grade, and it is assumed that it generally flows to the east.

During the sample collection, no odors or sheens were detected in the groundwater samples. The water samples were analyzed by EPA Method 602, which tests for benzene, toluene, ethylbenzene, xylene (BTEX), and methyl tertiary butyl ether (MTBE).

The EPA Method 602 analyses of samples collected from the store supply well and MW2 detected no concentrations of BTEX or MTBE. The supply well is located approximately 120 feet downgradient at the eastern property boundary, and MW2 is located immediately upgradient of the USTs at the western property boundary.

However, the EPA Method 602 analysis of groundwater samples collected from MW1, located immediately downgradient of the USTs, did detect low concentrations BTEX compounds. The concentrations of ethylbenzene, toluene, and xylenes were below the current Vermont Groundwater Enforcement Standards (VTGES). The concentration of benzene in this sample was 18 ppb (parts per billion), which is slightly above the VTGES of 5 ppb for this compound. The analytical results from the trip blank, equipment blank and duplicate indicate that proper quality control was maintained during collection, transportation, and analysis of the samples. The laboratory results are attached in Appendix B.

IV. SOIL SAMPLING AND VOC SCREENING

To further define the extent of soil contamination, three attempts were made to drill soil borings with a hand auger. These borings were located about twenty feet north and west of the USTs, in a grass island between the entrances to the store parking lot. The borings could only be advanced to two feet below grade due to the gravel soils and tree roots in this area. Soil samples were collected from the three borings and no VOCs were detected when the samples were screened with a photo-ionization device (PID).

V. INDOOR AIR SCREENING

To determine if the basement of the Irasville store has been impacted by petroleum vapors, Griffin screened the ambient air in the basement with a PID. Particular attention was paid to cracks in the foundation walls and floor, corners, and sump pits. No elevated VOCs were detected throughout the basement.

VI. RECEPTOR SURVEY AND RISK ASSESSMENT

During the piping replacement and site assessment, Griffin visually inspected the area for potential sensitive receptors. The Irasville Store bedrock supply well is located downgradient, within 120 feet of the USTs. Other local commercial buildings and their individual supply wells are located over 120 feet away. The store and other buildings and their basements are considered potential receptors. No other potential receptors were observed.

The store's basement and supply well have not been impacted, as indicated by the respective air screening and water analysis. The strength of the contamination at the suspected source area, and the distance from this area to all other potential receptors indicates that these receptors are not at risk of impact from subsurface contamination originating from this site.

VII. CONCLUSIONS

There has been a relatively small release of petroleum to the subsurface near the USTs. The amount and duration of the release are not known, but it most likely originated from tank overfills or minor leaks in the underground piping.

No contamination was detected in the upgradient monitoring well or the downgradient supply well for the store. No VOCs were detected in the ambient air inside the store's basement, or in soil borings in the vicinity of the USTs. However, a benzene concentration of 18 ppb was detected in the groundwater sample collected from MW1, located adjacent to the USTs in the assumed downgradient groundwater flow direction.

Based on the distance to the identified potential receptors, the groundwater flow direction, and the relatively low concentrations of contamination detected in one groundwater monitoring well, Griffin does not believe that the contamination poses an immediate or serious threat to human health and safety or to the environment.

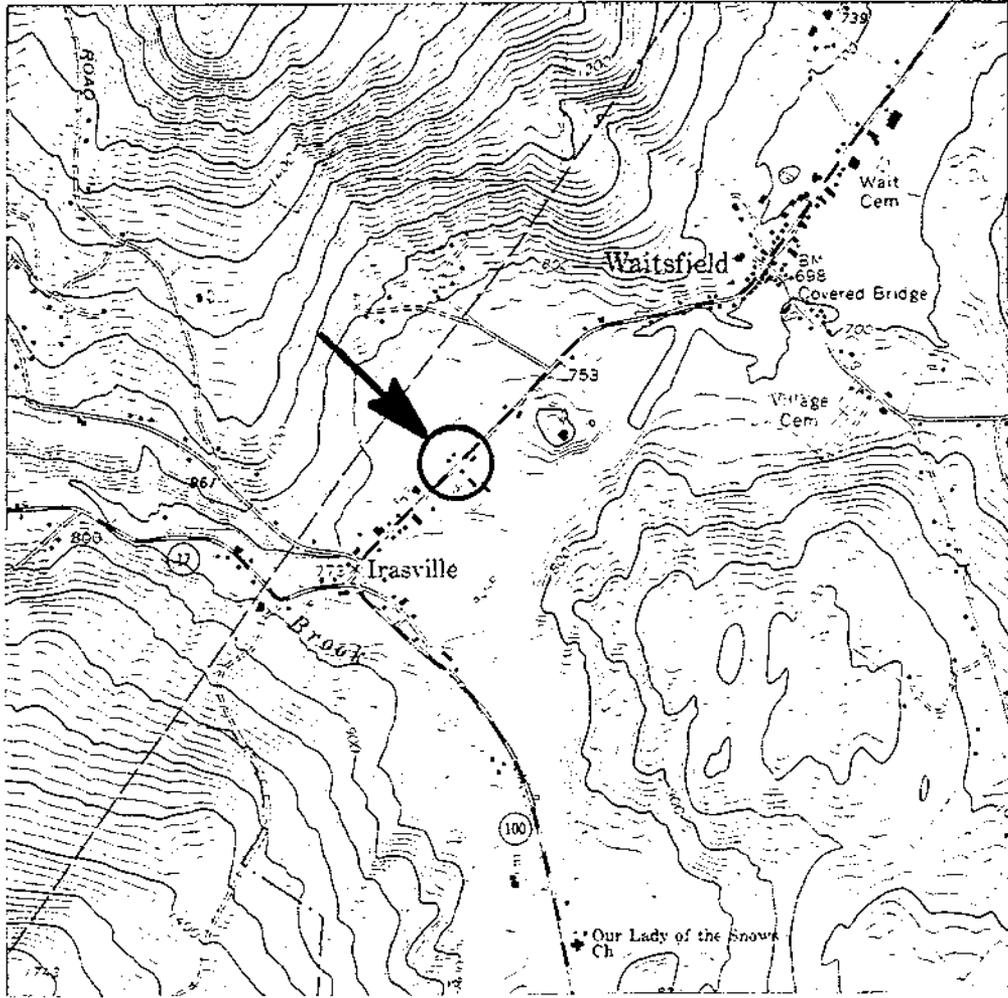
All potential sources have been removed or replaced, and the residual contamination will degrade over time by the natural processes of dilution, biodegradation, dispersion and volatilization.

V. RECOMMENDATIONS

Griffin recommends one additional round of sampling of the two monitoring wells and supply well to take place in the spring of 1995 to document the expected decrease in dissolved phase contamination in MW1, and to monitor the quality of MW2 and the supply well. Once this downward trend has been established, no further work at this site should be required, and Griffin will recommend site closure.

APPENDIX A

**Site Location Map
Site Map**



JOB #: 5944506
 SOURCE: USGS- WAITSFIELD, VERMONT QUADRANGLE



IRASVILLE COUNTRY STORE

WAITSFIELD,

VERMONT

SITE LOCATION MAP

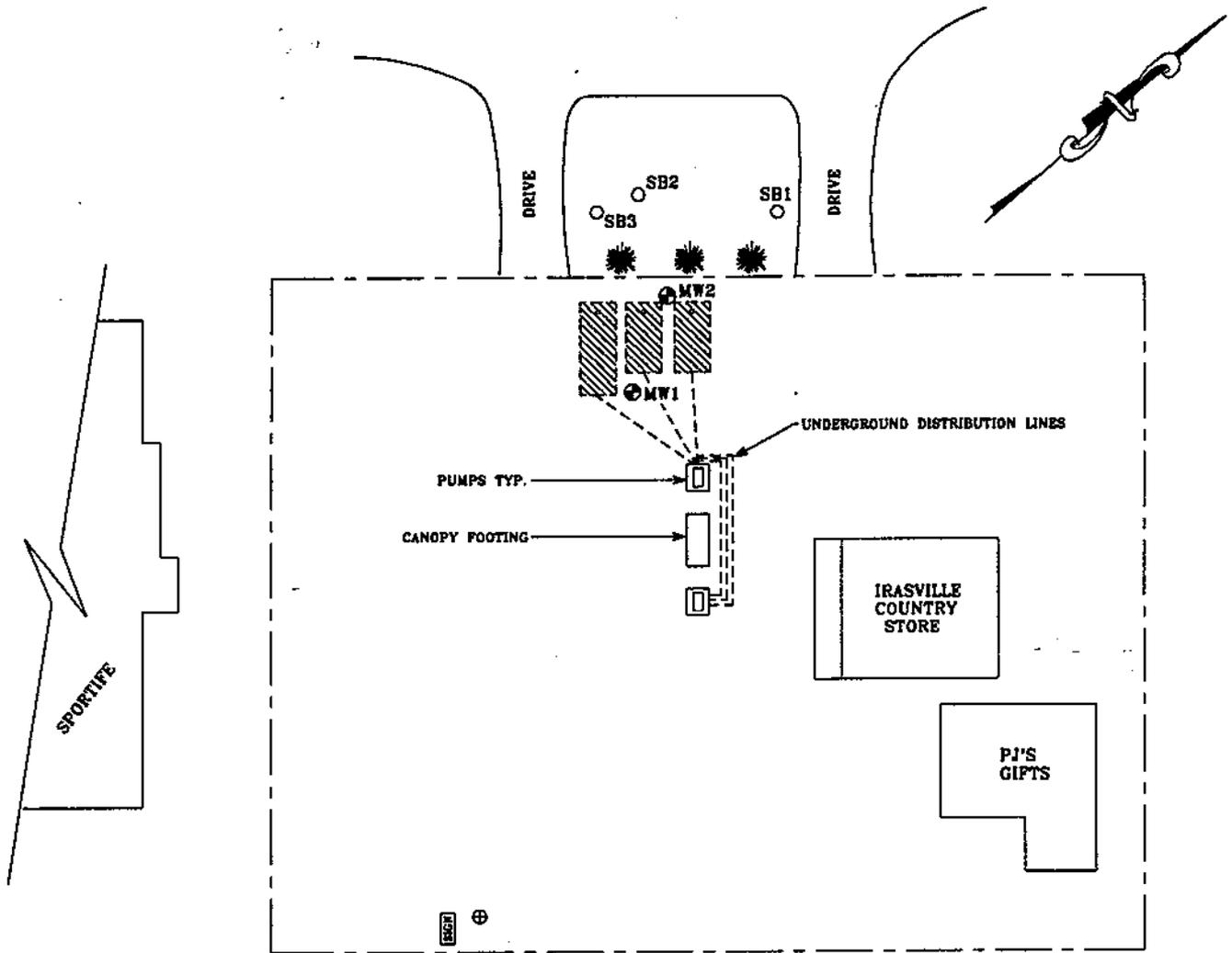
DATE: 7/25/94

DWG.#:1

SCALE: 1:24000

DRN: SB

APP:PM



U.S. ROUTE 100

LEGEND

-  MW2 MONITORING WELL
-  ⊕ SUPPLY WELL
-  ○ SB1 SOIL BORING
-  * EXISTING TREE
-  [Hatched Box] UNDERGROUND STORAGE TANK
-  - - - - - PROPERTY LINE

JOB #: 5944506



IRASVILLE COUNTRY STORE

WAITSFIELD,

VERMONT

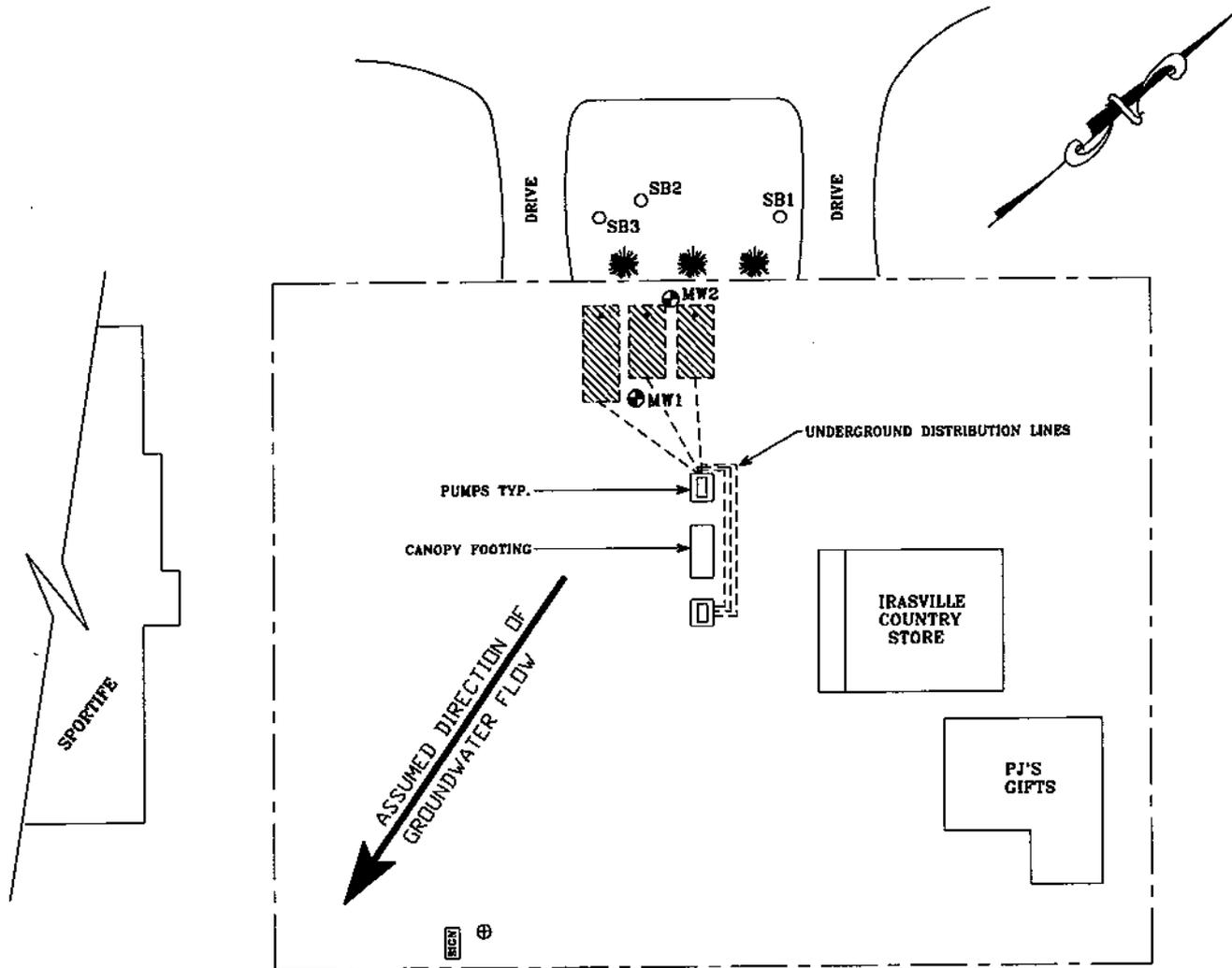
SITE MAP

DATE: 7/25/94

DWG.#: 2

SCALE: 1"=40'

DRN.: SB APP.:PM



U.S. ROUTE 100

LEGEND

-  MW2 MONITORING WELL
-  SUPPLY WELL
-  SB1 SOIL BORING
-  EXISTING TREE
-  UNDERGROUND STORAGE TANK
-  PROPERTY LINE

JOB #: 5944506



IRASVILLE COUNTRY STORE

WAITSFIELD,

VERMONT

GROUNDWATER FLOW MAP

DATE: 7/25/94

DWG.#: 3

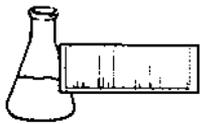
SCALE: 1"=40'

DRN.: SB

APP.:PH

APPENDIX B

Analytical Laboratory Results



ENDYNE, INC.

Laboratory Services

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

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International
PROJECT NAME: Irasville Store
REPORT DATE: August 29, 1994
DATE SAMPLED: August 19, 1994

PROJECT CODE: GIIR1367
REF.#: 63,320 - 63,325

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.

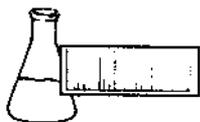
Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

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

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LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Irasville Store
REPORT DATE: August 29, 1994
DATE SAMPLED: August 19, 1994
DATE RECEIVED: August 19, 1994
ANALYSIS DATE: August 25, 1994

PROJECT CODE: GIIR1367
REF.#: 63,320
STATION: MW1
TIME SAMPLED: 8:50
SAMPLER: P. Hack

<u>Parameter</u>	<u>Detection Limit (ug/L)¹</u>	<u>Concentration (ug/L)</u>
Benzene	10	18.0
Chlorobenzene	10	ND ²
1,2-Dichlorobenzene	10	ND
1,3-Dichlorobenzene	10	ND
1,4-Dichlorobenzene	10	ND
Ethylbenzene	10	39.0
Toluene	10	88.3
Xylenes	10	256.
MTBE	100	ND

Bromobenzene Surrogate Recovery: 96%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 8

NOTES:

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

2 None detected

RECEIVED AUG 30 1994



ENDYNE, INC.

Laboratory Services

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LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Irasville Store
REPORT DATE: August 29, 1994
DATE SAMPLED: August 19, 1994
DATE RECEIVED: August 19, 1994
ANALYSIS DATE: August 25, 1994

PROJECT CODE: GIIR1367
REF.#: 63,321
STATION: MW2
TIME SAMPLED: 8:40
SAMPLER: P. Hack

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

Bromobenzene Surrogate Recovery: 103%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

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Laboratory Services

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LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Irasville Store
REPORT DATE: August 29, 1994
DATE SAMPLED: August 19, 1994
DATE RECEIVED: August 19, 1994
ANALYSIS DATE: August 25, 1994

PROJECT CODE: GIIR1367
REF.#: 63,322
STATION: Supply Well
TIME SAMPLED: 8:10
SAMPLER: P. Hack

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

Bromobenzene Surrogate Recovery: 101%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

RECEIVED AUG 30 1994



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LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Irasville Store
REPORT DATE: August 29, 1994
DATE SAMPLED: August 19, 1994
DATE RECEIVED: August 19, 1994
ANALYSIS DATE: August 25, 1994

PROJECT CODE: GIIR1367
REF.#: 63,323
STATION: Trip Blank
TIME SAMPLED: 8:12
SAMPLER: P. Hack

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

Bromobenzene Surrogate Recovery: 101%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

10/10/94 10:00 AM



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LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Irasville Store
REPORT DATE: August 29, 1994
DATE SAMPLED: August 19, 1994
DATE RECEIVED: August 19, 1994
ANALYSIS DATE: August 25, 1994

PROJECT CODE: GIIR1367
REF.#: 63,324
STATION: Duplicate
TIME SAMPLED: 8:50
SAMPLER: P. Hack

<u>Parameter</u>	<u>Detection Limit (ug/L)¹</u>	<u>Concentration (ug/L)</u>
Benzene	10	13.8
Chlorobenzene	10	ND ²
1,2-Dichlorobenzene	10	ND
1,3-Dichlorobenzene	10	ND
1,4-Dichlorobenzene	10	ND
Ethylbenzene	10	31.3
Toluene	10	68.0
Xylenes	10	204.
MTBE	100	ND

Bromobenzene Surrogate Recovery: 92%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 8

NOTES:

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

2 None detected

CHAIN-OF-CUSTODY RECORD

12117

Project Name: <u>Frasville Store</u> Site Location: <u>Frasville</u>	Reporting Address: <u>Box 943</u> <u>Williston</u>	Billing Address: <u>same</u>
Endyne Project Number: <u>GIR1367</u>	Company: <u>Griffin</u> Contact Name/Phone #:	Sampler Name: <u>P Hack</u> Phone #: <u>865 4288</u>

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				
63320	<u>MW1</u>	<u>H₂O</u>			<u>8/19/94</u> <u>8:50</u>	<u>2</u>	<u>40ml</u>		<u>602</u>	<u>H₂O</u>	
<u>63321</u>	<u>MW2</u>	/			<u>8:40</u>	/	/		/	/	
<u>63322</u>	<u>Supply Well</u>		<u>8:10</u>								
<u>63323</u>	<u>Trip Blank</u>		<u>8:12</u>								
<u>63324</u>	<u>Duplicate</u>		<u>8:50</u>								
<u>63325</u>	<u>Equip Blank</u>		<u>8:56</u>								

Relinquished by: Signature <u>[Signature]</u>	Received by: Signature <u>[Signature]</u>	Date/Time <u>8/19/94</u> <u>12:30</u>
Relinquished by: Signature	Received by: Signature	Date/Time

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):										



ENDYNE, INC.

Laboratory Services

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Williston, Vermont 05495
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FAX 879-7103

LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Irasville Store
REPORT DATE: August 29, 1994
DATE SAMPLED: August 19, 1994
DATE RECEIVED: August 19, 1994
ANALYSIS DATE: August 25, 1994

PROJECT CODE: GIIR1367
REF.#: 63,325
STATION: Equip. Blank
TIME SAMPLED: 8:56
SAMPLER: P. Hack

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

Bromobenzene Surrogate Recovery: 104%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected



32 James Brown Drive
Williston, Vermont 05495
(802) 879-4393

CHAIN-OF-CUSTODY RECORD

12117

Project Name: <u>Fairville Store</u>	Reporting Address: <u>Box 943</u>	Billing Address: <u>none</u>
Site Location: <u>Fairville</u>	<u>Williston</u>	
Endyne Project Number:	Company: <u>Griffin</u>	Sampler Name: <u>P. Hack</u>
	Contact Name/Phone #:	Phone #: <u>802 4288</u>

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time <u>8/19/94</u>	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
	<u>MW1</u>	<u>H₂O</u>			<u>8:50</u>	<u>2</u>	<u>40ml</u>		<u>GCZ</u>	<u>H₂O</u>	
	<u>MW2</u>				<u>8:40</u>						
	<u>Suppl. Well</u>				<u>8:10</u>						
	<u>Trip Blank</u>				<u>8:12</u>						
	<u>Duplicate</u>				<u>8:50</u>						
	<u>Equip Blank</u>				<u>8:56</u>						

Relinquished by: Signature <u>P. Hack</u>	Received by: Signature <u>M. Griffin</u>	Date/Time <u>8/19/94</u> <u>12:30</u>
Relinquished by: Signature	Received by: Signature	Date/Time

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):										