

MAY 20 1993



May 20, 1993

Matt Germon
Department of Environmental Conservation
Hazardous Materials Management Division
Sites Management Section
103 South Main St.
Waterbury, VT 05671-0404

RE: Subsurface Petroleum Contamination, Bayview Oldsmobile, S. Burlington, VT,
VTDEC Site #93-1350

Dear Mr. Germon,

Griffin International has completed the initial investigation of subsurface petroleum contamination at the above mentioned site. The enclosed report has been prepared in compliance with the approved work plan. Please call if you have any questions regarding this report.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter Hack", written over a horizontal line.

Peter Hack
Engineer

MAY 25 1993

INVESTIGATIVE REPORT

ON

SUBSURFACE PETROLEUM CONTAMINATION

at

Bayview Oldsmobile, Shelburne Rd, South Burlington, VT

VTDEC SITE #93-1350

MAY 5, 1993

Prepared for:

**Peter Val Preda Ltd.
700 Airport Parkway
South Burlington, VT**

Prepared by:

**Griffin International, Inc.
2B Dorset Lane
Williston, VT 05495
(802) 879-7708**

TABLE OF CONTENTS

SECTION	PAGE
I. INTRODUCTION	1
II. SITE DESCRIPTION	1
III. INVESTIGATIVE PROCEDURES	1
A. Monitoring Well Installation	2
B. Groundwater Sampling and Analysis	3
C. Determination of Groundwater Flow Direction and Gradient	3
D. Receptor survey	3
IV. RISK ASSESSMENT	4
V. CONCLUSIONS	4
VI. RECOMMENDATIONS	5
APPENDIX A: Site Maps	
APPENDIX B: Well Logs	
APPENDIX C: Laboratory Results	
APPENDIX D: Liquid Level Data	

I. INTRODUCTION

On December 14, 1992, Griffin conducted an inspection of the removal of an underground 1000 gallon waste oil tank at Bayview Oldsmobile in South Burlington. During the inspection, what appeared to be free phase product was observed in the tank pit and elevated concentrations of volatile organic compounds (VOCs) were detected in the surrounding soils when screened with a portable photo-ionization device (PID). A soil sample was collected from the bottom of the tank pit and analyzed to EPA Method 8240. This analysis detected elevated concentrations of benzene, toluene, ethylbenzene, xylenes and 1,2-dichlorobenzene. The laboratory results are attached.

This site assessment was conducted in response to a request from the Vermont Department of Environmental Conservation (VT DEC) for further investigation into the degree and extent of subsurface contamination. Griffin followed the Work Plan approved by the DEC for this investigation, which included installing monitoring wells, water sampling and analysis, receptor survey, risk assessment, conclusions, and recommendations.

II. SITE DESCRIPTION

The location of Bayview Oldsmobile is on the east side of Route 7, Shelburne Road, approximately one mile south of the 189 interchange (see site map, Appendix A). This part of Route 7 is a high density commercial zone with many restaurants, stores, and other commercial businesses. The site is relatively flat with a slight slope toward Route 7 to the west. Except for the green buffer strip along Rt. 7, and the buildings, the immediate site is covered by asphalt paving, as are the adjacent properties. A Best Western Motel is located about 50 feet to the north of the Bayview Olds building. Behind the building to the east is a field and a school, 300 feet away. A residential area is located east of the school. Directly across Shelburne Road is the Red Lobster Restaurant, approximately 120 feet west of Bayview Olds.

This area is served by municipal water and sewer services. It is assumed that the Bayview facility connects directly to these services which run parallel to Shelburne road. Several storm drains are located throughout the site and on Shelburne road.

Geologic maps indicate a pebbly marine sand overburden with underlying winooski dolomite bedrock. Exploratory drilling at the site has shown that the overburden actually consists of dense silty clay.

III. INVESTIGATIVE PROCEDURES

In order to further define the extent and degree of petroleum contamination at the site, Griffin installed three monitoring wells (MW1, MW2, MW3). Groundwater collected from these wells was analyzed to help define the contamination concentrations and migration trends at the site. The site was surveyed to provide locations and elevations of major site features, including the

monitoring wells. Also, the relative watertable elevations were measured in each well. This data has been used to study the present contamination levels and predict its effects on the surrounding area.

A. Monitoring Well Installation

On April 2, 1993, three groundwater monitoring wells were installed by Green Mountain Boring of Barre, VT., under the direct supervision of a Griffin Geologist. The wells were installed using a hollow stem auger drill rig. Undisturbed soil samples were collected with a split spoon sampler at 5 foot depth increments in each well. These soil samples were screened for VOCs with a HNU PI101 PID. The soil samples are also used to determine subsurface soil classification. Drilling and screening data are included on the enclosed Boring Logs in Appendix B.

The wells are constructed of two inch diameter 0.01" slotted PVC well screen and casing. The annulus between the borehole and the well screen contains a silica gravel pack to filter fine sediments from entering the well. The top of the annulus is sealed with a Bentonite plug to prevent surface waters from infiltrating into the borehole. Each well has a locking cap and a flush-mounted protective steel cover

The three wells were strategically located to provide information on the possible movement of the contamination to other areas. MW1 is located west of the former tank pit along the north side of the building. This well was installed in a location which was assumed to be downgradient of the tank and has been used to determine the vertical and horizontal extent of contamination at this point. MW 2 is located west of the former tank pit and on the north side of the property. This well was also installed in a location which was assumed to be downgradient of the tank and has been used to provide information on the degree and extent of vertical and horizontal contamination migration in this direction. The third well, MW3, is located directly within the limits of the waste oil tank excavation. This well has provided data relating to the vertical and horizontal extent of contamination at the apparent source. All three wells have been monitored to determine the groundwater gradient and any paths that the contamination may take.

Soil samples collected from MW1 contained no detectable levels of VOCs when screened with a PID. The soils in this boring were primarily silt and clay, overlying the bedrock, encountered at 18.5 feet below the surface.

Soil samples collected from MW2 contained fine silt and sand to a depth of about 7 feet, where the soils became more clayey with sand lenses. Wet dense clay was present down to the bedrock at a depth of 21 feet. No VOCs were detected when soil samples from this borehole were screened with a PID.

MW3 was installed in the tank pit. The pit contained gravel and sand fill to a depth of about 8 feet. The soil sample collected from 7' contained VOC concentrations of up to 40 ppm and had a slight petroleum odor. At 10'-17' the soils consisted of wet, dense clay with some silty sand and

gravel at 17'. The soil sample collected from 9'-11' contained 0.4 ppm VOCs. The soil sample collected from 14'-16' also contained a concentration of 0.4 ppm of VOCs.

B. Groundwater Sampling and Analysis

On April 9, 1993, Griffin collected groundwater samples from the three on-site monitoring wells. All water samples were collected per Griffin sampling protocol and analyzed to EPA method 8020 and 418.1. The 8020 analysis detects the presence of benzene, toluene, ethylbenzene, and xylenes (BTEX compounds) and methyl tertiary butyl ether (MTBE). The 418.1 tests for total petroleum hydrocarbons (TPH).

EPA Method 8020 analysis of the sample collected from MW1 indicates a concentration of 6.7 parts per billion (ppb) of xylenes and a trace amount of toluene. EPA 8020 analysis of the sample collected from MW2 detected no BTEX or MTBE in this well. Both MW1 and MW2 are downgradient of the presumed source of contamination. Water samples collected from MW3, located in the former tank pit, contained elevated levels of benzene, ethylbenzene, toluene, xylenes and MTBE. The concentration of 15.3 ppb of benzene found in MW3 is above the Vermont Drinking Water standards of 5ppb. The EPA Method 8020 laboratory results are attached in Appendix C.

EPA Method 418.1 analysis of groundwater samples from MW1, MW2 and MW3 indicate Total Petroleum Hydrocarbon concentrations of 1.3 parts per million (ppm), 0.8ppm and 4.3ppm respectively. The EPA Method 418.1 laboratory results are attached in Appendix C.

Analysis of duplicate, trip blank and equipment blank samples indicate that quality assurance and quality control was maintained during sampling and analysis. The QA/QC results are also included in this report.

C. Groundwater Flow Direction and Gradient

The water table elevations shown on the attached Groundwater Contour Map are based on an arbitrary datum of 100 feet taken at the top of MW3. The map indicates that groundwater appears to be flowing in the west-northwest direction, similar to the ground topography, which slopes gently to Lake Champlain. The average water table gradient in the immediate vicinity is calculated to be 12%. Liquid level data is included in Appendix D.

D. Receptor Survey

Griffin conducted a visual survey of the site in order to identify potential receptors of subsurface petroleum contaminants. Potential receptors identified include the storm drains on site, the Bayview facility, an adjacent motel, a restaurant across the street and Lake Champlain, 3000 feet

to the west. The local homes and businesses in the area are served by the Champlain Water District and there are no water supply wells in the area.

The site is paved and appears to drain into catch basins onsite and on Shelburne Road. On the south side of the building is a small stone lined drainage swale. The outfall for this drain was not identified. The destination of the onsite drainage is also unknown. The storm drain system on Shelburne road flows south and then crosses to the west side of the road where it is surface discharged.

Griffin screened the ambient air inside the Bayview facility with a PID on April 29, 1993 to determine if the building has been adversely affected by the release of waste oil from the former UST. The service bays contained VOC concentrations up to 19 ppm and strong petroleum and solvent odors were present. The parts department, located on the north side of the building (closest to the former UST), contained up to 2 ppm VOCs and had slight petroleum and solvent odors. Based on the nature of these odors, it is apparent that the detected vapors were due to vehicle maintenance and not from subsurface contamination. The basement of the Bayview facility is also a likely receptor due to its proximity to the contamination and its location below grade. At the time of sampling and screening, the basement was flooded with approximately four feet of water. PID readings indicated no VOC concentrations in the ambient air and no sheens were observed on the water.

IV. RISK ASSESSMENT

Lake Champlain is not at a high risk due to the distance between the lake and the contamination source. The Bayview building may be at risk of vapor contamination. However, the release of solvent vapors into the building as a result of vehicle maintenance will mask any vapors entering the building from underlying contaminated soils. The elevated PID readings inside the facility are most likely due to the automotive fumes, cleaning solvents and other petroleum related products normally found at an automotive repair shop. Other buildings in the area appear to be at minimal risk from vapors due to the low concentrations of VOCs in waste oil. This low risk is also due to the groundwater flow direction, contamination levels detected, and the low permeability of the clay soils. The storm drains also appear to be at minimal risk.

V. CONCLUSIONS

Based on Griffin's tank pull report and soil analysis, and on the data collected during this site assessment, the following conclusions are presented.

1) There was a release of petroleum products into the subsurface in the vicinity of the underground waste oil storage tank. The amount and duration of the release is unknown. The tank did not appear to have any leaks, and therefore the associated piping was assumed to be the source of the release. The tank was removed on December 14, 1992.

2) The release resulted in the contamination of soils and groundwater in the vicinity of the tank.

3) Residual dissolved phase contamination is present in the subsurface in the immediate vicinity of the former UST as indicated by the soil and water sample analysis. Analysis of groundwater in the former tank pit indicated a concentration of Benzene slightly above the Vermont Drinking Water Standards.

4) The water quality results indicate that the contamination may be slowly migrating to the west, as indicated by the results from MW1. Monitoring Well #2, to the northwest did not indicate any elevated levels of VOCs.

5) At present, the only probable receptors of the subsurface contamination are the soils and groundwater in the immediate area. The dense clay overburden appears to be containing the contamination to the immediate area thereby reducing risks to other potential receptors.

6) The natural processes of dispersion, dilution and biodegradation will eventually result in the reduction of contamination levels to below detectable limits.

VI. RECOMMENDATIONS

Due to the relatively low concentrations of VOCs in the soils and groundwater, the clay soil types and the lack of severe potential receptors, Griffin does not believe that contamination at this site poses a threat to the public or the environment. However, we do recommend an additional round of sampling and analysis of groundwater from the monitoring wells to verify the expected reduction in subsurface contamination concentrations. The results of additional sample analysis will assist in documenting the predicted reduction of contamination over time. The samples should be collected in September 1993. Based on these analytical results, a better determination for future monitoring, remediation or site closure can be made.

APPENDIX A

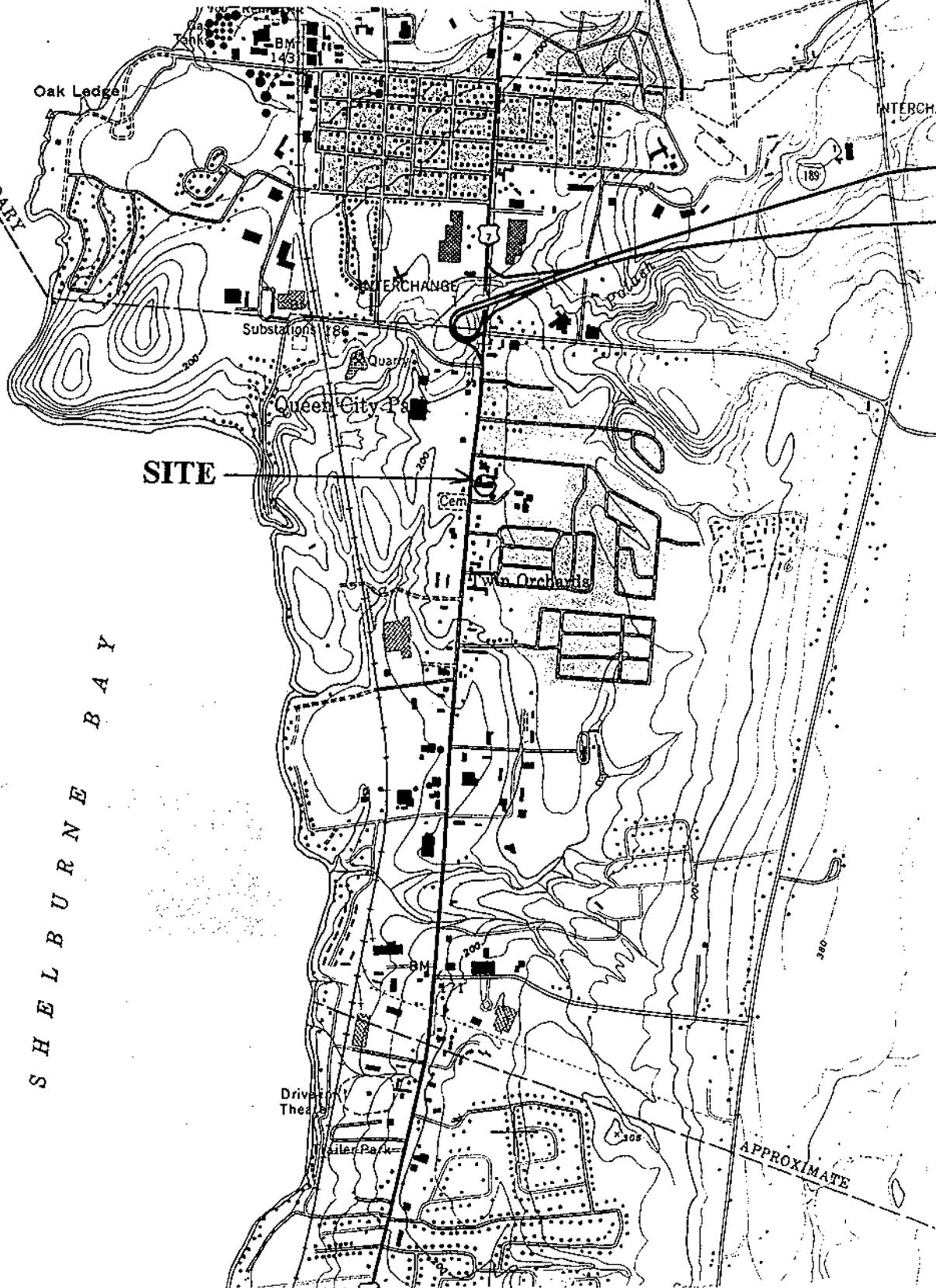
Site Location Map
Site Map
Groundwater Contour Map

SITE LOCATION MAP

Bayview Oldsmobile

S. Burlington, VT

BURLINGTON
C H M P L A I
CITY
BOUNDARY



Shelburne Point
L A K E

S H E L B U R N E
B A Y

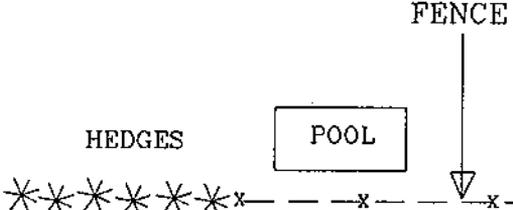


APPROXIMATE



SHELBURNE ROAD

CATCH BASIN



BEST WESTERN

MW2

CATCH BASIN

MW3

MW1

CELLAR

BAYVIEW OLDSMOBILE

CATCH BASIN

CATCH BASIN

DRAINAGE SWALE

SITE MAP

BAYVIEW OLDSMOBILE

SOUTH BURLINGTON, VT

• MW8 } MONITORING WELL WITH I.D.

GRIFFIN PROJECT #: 12924322
REF: 4322SITE

0 25 50 100
SCALE IN FEET



SHELburne ROAD

BEST WESTERN

HEDGES

POOL

FENCE

CATCH BASIN

MW2 87.14'

CATCH BASIN

MW3 99.58'

MW1 95.36'

CELLAR

BAYVIEW OLDSMOBILE

CATCH BASIN

CATCH BASIN

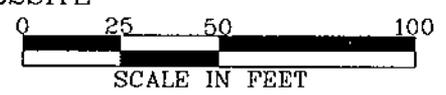
DRAINAGE SWALE

GROUNDWATER CONTOUR MAP

BAYVIEW OLDSMOBILE
SOUTH BURLINGTON, VT

• MW8 } MONITORING WELL WITH I.D.
92.35' } WATER TABLE ELEVATION

MONITORING DATE: 4/9/93
GRIFFIN PROJECT #: 12924322
REF: 4322SITE

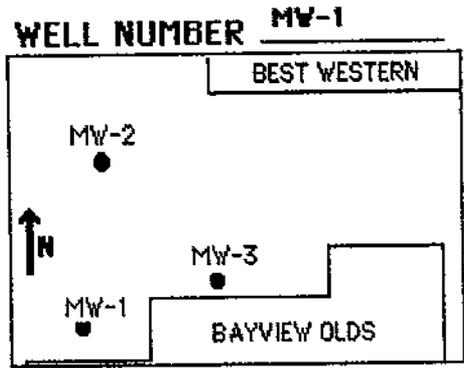


SCALE IN FEET

APPENDIX B

Well Logs

PROJECT BAYVIEW OLDS
 LOCATION SOUTH BURLINGTON, VT
 DATE DRILLED 4/2/93 TOTAL DEPTH OF HOLE 18.5'
 DIAMETER 6"
 SCREEN DIA. 2" LENGTH 10' SLOT SIZE .010"
 CASING DIA. 2" LENGTH 8.5' TYPE PVC
 DRILLING CO. GRN MT BORING DRILLING METHOD HOLLOW STEM AUGER
 DRILLER MIKE, RON LOG BY P. DEANDREA



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" of SPOON and PID readings	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0		ROAD BOX		ASPHALT
1		WELL CAP		BROWN, DRY, LOOSE, FINE-COARSE SAND
2		NATIVE FILL		NO ODOR
3		BENTONITE		BROWN, MOIST, CLAYEY SILT, SOME GRAVEL
4		NATIVE FILL	4'-6': 6, 8, 9, 12	BROWN, MOIST, DENSE, FINE CLAYEY SILT,
5		RISER	PID= 0.0PPM	SOME FINE SAND, VERY FINE SAND LENSES
6				NO ODOR
7				
8		GRAVEL PACK		
9			9'-11': 3, 4, 4	
10		WELL SCREEN	PID=0.0PPM	GRAY, MOIST, DENSE, SILTY CLAY
11				NO ODOR
12				
13				
14			14'-16': 1, 2, 2, 3	
15			PID=0.0PPM	GRAY, MOIST, VERY DENSE, CLAY
16				
17				
18				
19				BOTTOM OF EXPLORATION @ 18.5', BEDROCK
20				
21				
22				
23				
24				
25				
26				

PROJECT BAYVIEW OLDS

LOCATION SOUTH BURLINGTON, VT

DATE DRILLED 4/2/93 TOTAL DEPTH OF HOLE 20'

DIAMETER 6"

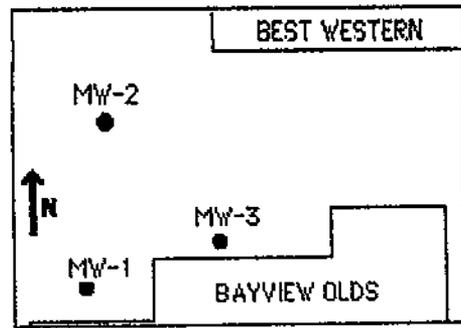
SCREEN DIA. 2" LENGTH 10' SLOT SIZE .010"

CASING DIA. 2" LENGTH 10' TYPE PVC

DRILLING CO. GRN MT BORING DRILLING METHOD HOLLOW STEM AUGER

DRILLER MIKE, RON LOG BY P. DEANDREA

WELL NUMBER MW-2



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" of SPOON and PID readings	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0		ROAD BOX		ASPHALT
1		WELL CAP		BROWN, DRY, LOOSE, FINE-COARSE SAND, SOME SILT, SOME GRAVEL
2		NATIVE FILL		
2		BENTONITE		
3		NATIVE FILL		BROWN, WET, FINE SILT AND SAND
4		RISER		
4			4'-6': 7, 8, 11, 12 PID = 0.0PPM	GRAY, WET, DENSE, VERY FINE SILTY SAND, W/BROWN, SILTY SAND LENSES NO ODOR
5				
6				
7		BENTONITE		
8				
9			9'-11': 3, 2, 2, 2 PID = 0.0PPM	GRAY, MOIST, VERY DENSE, SILTY CLAY, BROWN SAND LENSES
10		WELL SCREEN		
11				
12		GRAVEL PACK		
13				
14			14'-16': 1, 1, 1, 2 PID = 0.0PPM	
15				GRAY, WET, VERY DENSE CLAY, ROCK FRAGMENT @ 17', NO ODOR
16				
17				
18				
19			19'-21': 14, 63, 36 40 PID = 0.0PPM	GRAY, WET, VERY DENSE CLAY, TO RED/GRAY FINE SILTY SAND
20				BOTTOM OF EXPLORATION @ 21'
21				
22				
23				
24				
25				
26				

PROJECT BAYVIEW OLDS

LOCATION SOUTH BURLINGTON, VT

DATE DRILLED 4/2/93 TOTAL DEPTH OF HOLE 15'

DIAMETER 6"

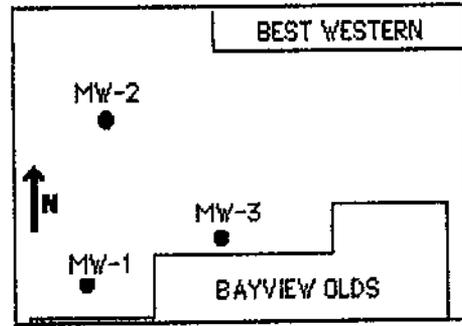
SCREEN DIA. 2" LENGTH 10' SLOT SIZE .010"

CASING DIA. 2" LENGTH 5' TYPE PVC

DRILLING CO. GRN MT BORING DRILLING METHOD HOLLOW STEM AUGER

DRILLER MIKE, RON LOG BY P. DEANDREA

WELL NUMBER MW-3

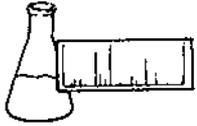


DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" of SPOON and PID readings	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0		ROAD BOX		
1		WELL CAP		
2		NATIVE FILL		GRAY, WET, SANDY SILT
3		RISER		
4		BENTONITE		
5		GRAVEL PACK	4'-6': 8, 10, 4, 2 PID=40PPM	BROWN, DRY, MED-DENSE, FINE-COARSE SAND, TRACE SILT, SLIGHT ODOR
6				
7				WATER TABLE ▼
8				
9			9'-11': PID= 0.4PPM	GRAY, WET, DENSE CLAY
10		WELL SCREEN		
11				
12				
13				
14				
15			14'-16': PID= 0.4PPM	REDDISH-GRAY, MOIST, DENSE, CLAY FINE SILTY SAND, SMALL GRAVEL, WEATHERED ROCK FRAGMENTS
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

APPENDIX C

Laboratory Results

PH



ENDYNE, INC.

Laboratory Services

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

RECEIVED APR 27 1993

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International
PROJECT NAME: Bayview Olds
DATE REPORTED: April 22, 1993
DATE SAMPLED: April 9, 1993

PROJECT CODE: GIBV1402
REF. #: 44,303 - 44,308

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

Chain of custody indicated samples were preserved 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 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

RECEIVED APR 27 1993

LABORATORY REPORT

TOTAL HYDROCARBONS - EPA METHOD 418.1 (WATER)

CLIENT: Griffin International
REPORT DATE: April 22, 1993
PROJECT NAME: Bayview Olds
PROJECT CODE: GIBV1402
DATE SAMPLED: April 9, 1993
DATE RECEIVED: April 9, 1993
DATE ANALYZED: April 21, 1993
SAMPLER: P. Hack

<u>Reference #</u>	<u>Sample ID</u>	<u>Conc. (mg/L)¹</u>
44,303	MW-1; 10:50	1.3
44,304	MW-2; 11:20	0.8
44,305	MW-3; 12:05	4.3
44,306	Trip; 10:30	ND ²
44,307	Equip; 12:20	ND
44,308	Duplicate; 12:05	7.5

Notes:

- 1 Method detection limit is 0.8 ppm
- 2 None detected

CHAIN-OF-CUSTODY RECORD

006623

Project Name: <u>Bayview Olds</u>	Reporting Address: <u>28 Dorset Lane, Williston</u>	Billing Address:
Site Location: <u>Shelburne Rd, S. Burlington</u>	Company: <u>Griffin Int'l</u>	Sampler Name: <u>P. Hack</u>
Endyne Project Number: <u>EIBV1402</u>	Contact Name/Phone #: <u>Pete Murray 8797208</u>	Phone #: <u>8797708</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				
	MW1	H ₂ O			4/9/93 1050	2	40ml		20	HCl	
	MW2	H ₂ O			1120	2	40ml		20	HCl	
	MW3	H ₂ O			1205	2	40ml		20	HCl	
	Trip	H ₂ O			1030	2	40ml		20	HCl	
	Equip Blank	H ₂ O			1220	2	40ml		20	HCl	
	Duplicate	H ₂ O			1205	2	40ml		20	HCl	
✓ 44303	MW1	H ₂ O			1050	2	1l		20	HCl	
✓ 44304	MW2	H ₂ O			1120	2	1l		20	HCl	
✓ 44305	MW3	H ₂ O			1205	2	1l		20	HCl	
✓ 44306	Trip	H ₂ O			1030	2	1l		20	HCl	
✓ 44307	Equip	H ₂ O			1220	2	1l		20	HCl	
✓ 44308	Duplicate	H ₂ O			1205	2	1l		20	HCl	

Relinquished by: Signature <u>P. Hack</u>	Received by: Signature <u>[Signature]</u>	Date/Time <u>4/9/93 2:20</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 Pcs/PCB
4	Nitrite N	9	BOD ₅	14	Turbidity	19	BTEX	24	EPA 608 Pcs/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 607/602	25	EPA 8240		
29	TCPLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										

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**ENDYNE, INC.**

Laboratory Services

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

REPORT OF LABORATORY ANALYSIS

RECEIVED APR 27 1993

CLIENT: Griffin International
PROJECT NAME: Bayview Olds
REPORT DATE: April 23, 1993
DATE SAMPLED: April 9, 1993

PROJECT CODE: GIBV1403
REF.#: 44,309 - 44,314

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.

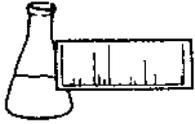
Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

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

RECEIVED APR 27 1993

CLIENT: Griffin International
PROJECT NAME: Bayview Olds
REPORT DATE: April 23, 1993
DATE SAMPLED: April 9, 1993
DATE RECEIVED: April 9, 1993
ANALYSIS DATE: April 20, 1993

PROJECT CODE: GIBV1403
REF.#: 44,309
STATION: MW1
TIME SAMPLED: 10:50
SAMPLER: P. Hack

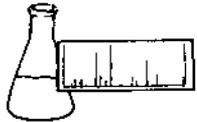
<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	TBQ ²
Xylenes	1	6.7
MTBE	5	ND

Bromobenzene Surrogate Recovery: 92%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 20

NOTES:

- 1 None detected
- 2 Trace below quantitation limit



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: Bayview Olds
REPORT DATE: April 23, 1993
DATE SAMPLED: April 9, 1993
DATE RECEIVED: April 9, 1993
ANALYSIS DATE: April 20, 1993

PROJECT CODE: GIBV1403
REF.#: 44,310
STATION: MW2
TIME SAMPLED: 11:20
SAMPLER: P. Hack

RECEIVED APR 27 1993

<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	5	ND

Bromobenzene Surrogate Recovery: 91%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 3

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 602 – PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Bayview Olds
REPORT DATE: April 23, 1993
DATE SAMPLED: April 9, 1993
DATE RECEIVED: April 9, 1993
ANALYSIS DATE: April 20, 1993

PROJECT CODE: GIBV1403
REF.#: 44,311
STATION: MW3
TIME SAMPLED: 12:05
SAMPLER: P. Hack

RECEIVED APR 27 1993

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	15.3
Chlorobenzene	1	ND ¹
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	12.4
Toluene	1	3.1
Xylenes	1	39.5
MTBE	5	6.7

Bromobenzene Surrogate Recovery: 89%

NUMBER OF UNIDENTIFIED PEAKS FOUND: >25

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Bayview Olds
REPORT DATE: April 23, 1993
DATE SAMPLED: April 9, 1993
DATE RECEIVED: April 9, 1993
ANALYSIS DATE: April 20, 1993

PROJECT CODE: GIBV1403
REF.#: 44,312
STATION: Trip
TIME SAMPLED: 10:30
SAMPLER: P. Hack

RECEIVED APR 27 1993

<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	5	ND

Bromobenzene Surrogate Recovery: 93%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Bayview Olds
REPORT DATE: April 23, 1993
DATE SAMPLED: April 9, 1993
DATE RECEIVED: April 9, 1993
ANALYSIS DATE: April 20, 1993

PROJECT CODE: GIBV1403
REF.#: 44,313
STATION: Equip Blank
TIME SAMPLED: 12:20
SAMPLER: P. Hack

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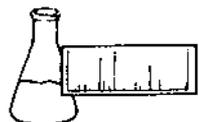
<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	5	ND

Bromobenzene Surrogate Recovery: 90%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected



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FAX 879-7103

LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Bayview Olds
REPORT DATE: April 23, 1993
DATE SAMPLED: April 9, 1993
DATE RECEIVED: April 9, 1993
ANALYSIS DATE: April 20, 1993

PROJECT CODE: GIBV1403
REF.#: 44,314
STATION: Duplicate
TIME SAMPLED: 12:05
SAMPLER: P. Hack

RECEIVED APR 27 1993

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	16.6
Chlorobenzene	1	ND ¹
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	13.5
Toluene	1	3.4
Xylenes	1	43.1
MTBE	5	6.2

Bromobenzene Surrogate Recovery: 88%

NUMBER OF UNIDENTIFIED PEAKS FOUND: >25

NOTES:

1 None detected

NET CHAIN-OF-CUSTODY RECORD

106623

Project Name: Bayview Olds	Reporting Address: 28 Dorset Lane, Williston	Billing Address:
Site Location: Switzburg Rd, S. Burlington		
Endyne Project Number: <u>GLBV1405</u>	Company: Griffin Int'l Contact Name/Phone #: Pete Murray 8797708	Sampler Name: P. Hack Phone #: 8797708

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				
✓ 44209	MW1 New 100%	H ₂ O			4/9/93 1050	2	40ml		20	HCl	
✓ 44210	MW2 100%	H ₂ O			1120	2	40ml		20	HCl	
✓ 44211	MW3 100%	H ₂ O			1205	2	40ml		20	HCl	
✓ 44212	Trip	H ₂ O			1030	2	40ml		20	HCl	
✓ 44213	Equip Blank	H ₂ O			1220	2	40ml		20	HCl	
✓ 44214	Duplicate	H ₂ O			1205	2	40ml		20	HCl	
	MW1	H ₂ O			1050	2	1l		23	HCl	
	MW2	H ₂ O			1120	2	1l		23	HCl	
	MW3	H ₂ O			1205	2	1l		23	HCl	
	Trip	H ₂ O			1030	2	1l		23	HCl	
	Equip	H ₂ O			1220	2	1l		23	HCl	
	Duplicate	H ₂ O			1205	2	1l		23	HCl	

Relinquished by: Signature <u>P. Hack</u>	Received by: Signature <u>[Signature]</u>	Date/Time <u>4/9/93 2:20 pm</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):										

RECEIVED

CHAIN-OF-CUSTODY RECORD

006623

Project Name: <i>Exxon - CTS</i>	Reporting Address: <i>1000 ...</i>	Billing Address:
Site Location: <i>...</i>	Company: <i>...</i>	Sampler Name: <i>P. Hain</i>
Endyne Project Number:	Contact Name/Phone #: <i>...</i>	Phone #: <i>...</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>Surf</i>	<i>...</i>			<i>4/1/03</i>	<i>2</i>	<i>...</i>		<i>20</i>	<i>...</i>	
	<i>Surf 2</i>	<i>...</i>			<i>...</i>	<i>2</i>	<i>...</i>		<i>20</i>	<i>...</i>	
	<i>Surf 3</i>	<i>...</i>			<i>...</i>	<i>2</i>	<i>...</i>		<i>20</i>	<i>...</i>	
	<i>Top</i>	<i>...</i>			<i>...</i>	<i>2</i>	<i>...</i>		<i>20</i>	<i>...</i>	
	<i>Edge of Pond</i>	<i>...</i>			<i>...</i>	<i>2</i>	<i>...</i>		<i>20</i>	<i>...</i>	
	<i>Duplicate</i>	<i>...</i>			<i>...</i>	<i>2</i>	<i>...</i>		<i>20</i>	<i>...</i>	
	<i>MW1</i>	<i>...</i>			<i>...</i>	<i>2</i>	<i>1L</i>		<i>23</i>	<i>...</i>	
	<i>MW2</i>	<i>...</i>			<i>...</i>	<i>2</i>	<i>1L</i>		<i>23</i>	<i>...</i>	
	<i>MW3</i>	<i>...</i>			<i>...</i>	<i>2</i>	<i>1L</i>		<i>23</i>	<i>...</i>	
	<i>Top</i>	<i>...</i>			<i>...</i>	<i>2</i>	<i>1L</i>		<i>23</i>	<i>...</i>	
	<i>Edge of Pond</i>	<i>...</i>			<i>...</i>	<i>2</i>	<i>1L</i>		<i>23</i>	<i>...</i>	
	<i>Duplicate</i>	<i>...</i>			<i>...</i>	<i>2</i>	<i>1L</i>		<i>23</i>	<i>...</i>	

Relinquished by: Signature <i>P. Hain</i>	Received by: Signature <i>...</i>	Date/Time <i>4/1/03</i>
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):										

APPENDIX D

Liquid Level Data

