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1-800-9-SPILL-9

# WATER QUALITY SUMMARY REPORT FOR DECEMBER 11, 2006

## SPILL LOCATION:

CLARENCE BROWN PROPERTY  
CORNER OF MAQUAM SHORE ROAD AND HATHAWAY POINT ROAD  
ST ALBANS BAY, VT 05481

44° 48.614'N, 73° 09.229'W  
SMS SITE #: 1998-2519

## PREPARED FOR:

MR. GREG BROWN  
CLARENCE BROWN, INC.  
96 FEDERAL STREET  
ST ALBANS, VT 05478  
(802) 524-2400

## PREPARED BY:

KATE CONNELLY, ENVIRONMENTAL SCIENTIST  
ENVIRONMENTAL PRODUCTS & SERVICES OF VERMONT, INC.  
2 FLYNN AVENUE  
BURLINGTON, VERMONT 05401  
(802) 862-1212

1/12/2007

SERVING THE EASTERN UNITED STATES

## **Introduction**

Environmental Products and Services of Vermont, Inc. (EPSVT) is pleased to present this water quality summary report detailing activities conducted at the St Albans Bay (SAB) property of Clarence Brown, Inc. located on the corner of Maquam Shore Road and Hathaway Point Road in St Albans Bay, Vermont (see **Figure 1**). The following attachments are included to assist you with the review of this report:

<b>Figure 1</b> .....	General Location Map;
<b>Figure 2</b> .....	Groundwater Elevation and Water Quality Summary Map of December 11, 2006;
<b>Table 1</b> .....	Groundwater Elevation;
<b>Table 2</b> .....	Photoionization Detector Assay Results;
<b>Table 3</b> .....	Water Quality Results;
<b>Appendix A</b> .....	Detailed Well Logs;
<b>Appendix B</b> .....	Laboratory Analytical Reports; and
<b>Appendix C</b> .....	Cost Estimate.

On July 14, 1994 a Notice of Alleged Violation (NOAV) was sent to Clarence Brown, Inc., identifying the presence of four underground storage tanks (UST) at the SAB property that were improperly closed as per the Vermont Department of Environmental Conservation (VDEC) UST regulations. On September 3, 1998, Environmental Products and Services, Inc (EPS) was hired by CB to assess the removal of four underground storage tanks (USTs) on the SAB property. The four USTs included UST #001 – 1,000 gallon diesel, UST #002 – 1,000 gallon kerosene, UST #003 – 4,000 gallon gasoline, and UST #004 – 4,000 gallon gasoline. During tank removal activities, contamination was observed via both olfactory sense and properly calibrated 10.6eV photoionization detector (PID) with readings of up to 540 parts per million (ppm) in the tank grave soils.

On December 5, 2006, EPSVT, in conjunction with Environmental Drilling of New York (EDNY), installed four additional groundwater monitoring wells at the site. It appears that a groundwater study was previously initiated due to the presence of three monitoring wells already on site; however, Greg Brown reported the documentation to have been burned in a structure fire. No additional documentation of a study has been provided to EPSVT or the Vermont Department of Environmental Conservation (VDEC).

## **Soil Borings and Monitoring Well Installation**

On December 5, 2006, EPSVT, in conjunction with EDNY installed four additional groundwater monitoring wells in an array around the former USTs location. Soils were descriptively logged and assessed for volatile organic compounds (VOCs) utilizing a properly calibrated 10.6 eV photoionization detector (PID). PID bag headspace assays were collected at various depths throughout each soil boring. All four soil borings did not evidence VOC detections above background (<0.1 ppm) and no hydrocarbon odors were noted in MWs 1-7. Groundwater was observed at approximately 60.0" below grade in MW-1 and MW-4 and at approximately 36.0" in MW-3. MW-2 did not evidence saturated soils; however, the well was set at approximately 5.0'

below grade. Bedrock was observed in all four of the borings at varying depths. Detailed well logs and PID readings are included as **Appendix A**.

Two-inch diameter monitoring wells were installed in the soil borings to provide access to the groundwater for water quality sampling and flow assessment. The wells were properly developed via peristaltic pump following installation, and the following observations were made:

- Four additional monitoring wells were installed at the SAB property, all to depths between five and nine feet below grade, and were constructed of 0.010" slot, 2" diameter PVC well screen, solid riser, sand parts, and bentonite seals. All wells were closed with expansion plugs, cut to four inches below grade, and capped with aluminum road boxes;
- Soils encountered were noted to be mostly composed of medium to fine sand with much fractured rock observed at the bottom of the borings. The soils were loose and evidenced a groundwater at approximately 60.0" below grade; and
- VOCs were not detected in any of the soil borings.

#### GROUNDWATER ELEVATION AND FLOW

The groundwater data for December 11, 2006 is presented in **Table 1**. The depth to groundwater was between six and ten feet below grade. Based on the data collected, groundwater flow is generally to the east at a gradient of 0.041 feet/foot. A groundwater elevation and water quality summary map is included as **Figure 2**.

#### MONITORING WELL PID ASSAYS

Prior to gauging the wells for depth to water the monitoring well headspace gases were screened for VOCs utilizing a properly calibrated 10.6 eV PID during the monitoring and sampling event on December 11, 2006. As illustrated in **Table 2**, MWs-4, 6 and 7 evidenced background levels of VOCs. MWs 1-3 and 5 evidenced very low levels of VOCs.

#### GROUNDWATER QUALITY RESULTS

Water quality samples from MWs 1-3, MWs 6-7, Lake Champlain, and a trip blank were collected on December 11, 2006. MWs 4 and 5 were dry. All of the samples were preserved with hydrochloric acid (HCL) and transported on ice to Green Mountain Laboratories (GML) of Montpelier, Vermont for analysis via EPA methods 8260 and total petroleum hydrocarbons, gasoline range organics (TPH 8015 GRO).

Laboratory analytical reports are included as **Appendix B**, and results are summarized in **Table 3**. Concentrations of individual petroleum related constituents above the laboratory detection limits or the Vermont Groundwater Quality Enforcement Standard (GQES) were not detected in any of the monitoring wells or the sample taken from Lake Champlain. However, a very low TPH GRO detection was noted in MW-1.

#### Sensitive Receptor Survey

A survey was conducted within a one-half mile radius of the release area to identify any sensitive receptors that are impacted or threatened by this release including water supplies, surface waters, and sensitive ecosystems. There are 37 mapped private water supply wells located within the one-half mile radius. The average well depth is 315 feet with an average overburden thickness

of 13 feet and casing length of 37 feet. Two of the 37 wells are no longer in use and 36 of the mapped wells are used for residential use and one is used by the Hathaway Inn Water system. SMS Site # 1999-2519 is the only registered hazardous waste site within the one-half mile radius. There are no hazardous waste generators or USTs within the survey radius.

There are three Class II wetlands mapped within the one-half mile radius and the closest one is the Black Creek Wildlife Management Area (BCWMA) located approximately 400 feet northeast of the SAB property, with the farthest wetland located approximately 2200 feet southwest of the SAB property. There are five streams located within the one-half mile radius, including Jewett Brook and Stevens Brook which both empty into the BCWMA and three unnamed brooks located southwest and northwest of the SAB property. A portion of St Albans Bay on Lake Champlain is located approximately 75 feet east of the SAB property.

Even though no detections were found in MWs 2-3 and 6-7, EPSVT believes that the threatened sensitive receptors continue to be soils and groundwater downgradient of the former tank graves. A spring groundwater sampling and monitoring event will evaluate the extent of contamination, if any, in the local groundwater. If this confirmatory sampling event indicates the continued lack of groundwater and surface water contamination, EPSVT will recommend site closure.

### **Conclusions and Recommendations**

Subsurface investigation via groundwater monitoring wells was initiated at the SAB property due to the discovery of gasoline contamination during removal of four USTs on September 3, 1998. Four additional groundwater monitoring wells were installed in an array around the source area to define the extent of groundwater contamination. Three previously installed monitoring wells were found on site.

From the data collected thus far, it appears that natural attenuation has resulted in improvements in soil and groundwater quality at the SAB property. This is supported by the lack of petroleum constituents in the groundwater results for MWs 2-3 and 6-7 from the December 11, 2006 event.

EPSVT recommends that the following actions occur at the SAB property:

#### **1. Groundwater Monitoring and Sampling**

EPSVT recommends an additional sampling event in the spring of 2007. EPSVT will also screen each well for VOCs utilizing a properly calibrated 10.6 eV PID and measure depth to water to generate a new groundwater flow map for the spring event. EPSVT will collect water quality samples from all monitoring wells and the drilled bedrock well on site, which will be analyzed via EPA method 8021B and 524.2, respectively; and

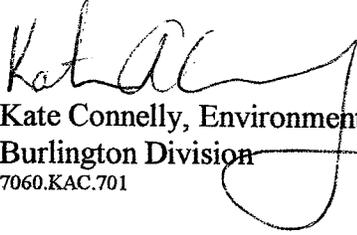
#### **2. Summary Report Generation**

After the second water quality sampling round, EPSVT will generate a summary report detailing the results of the monitoring and sampling event along with recommendations for future work at the SAB property.

A detailed cost estimate to complete the above mentioned work plan is attached as **Appendix C**. If you have any questions regarding this report or about the release itself, please do not hesitate to contact me or Jake Peirce at (802) 862-1212 or via email at [kconnelly@epsfvermont.com](mailto:kconnelly@epsfvermont.com).

Sincerely,

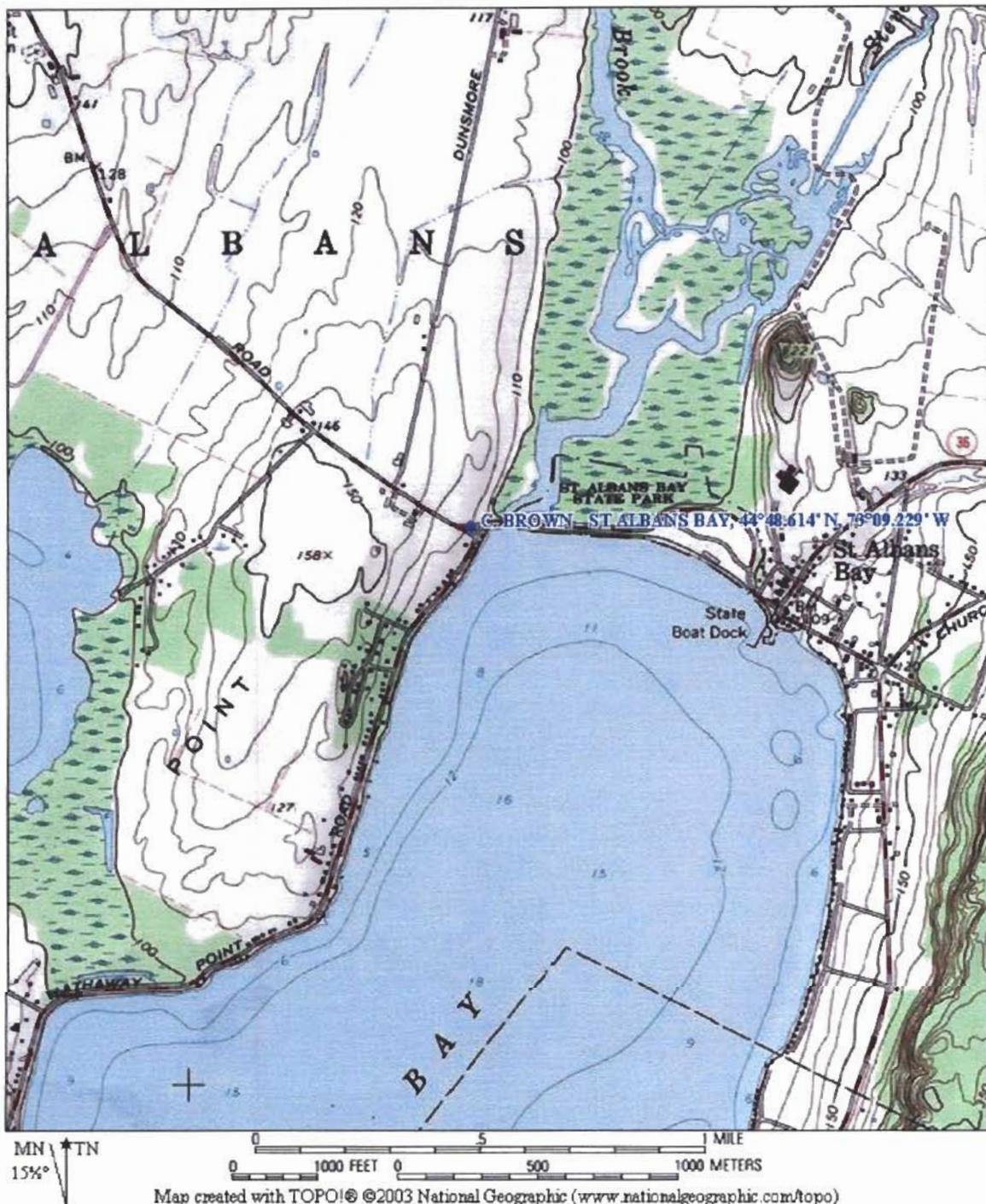
**ENVIRONMENTAL PRODUCTS & SERVICES OF VERMONT, INC.**



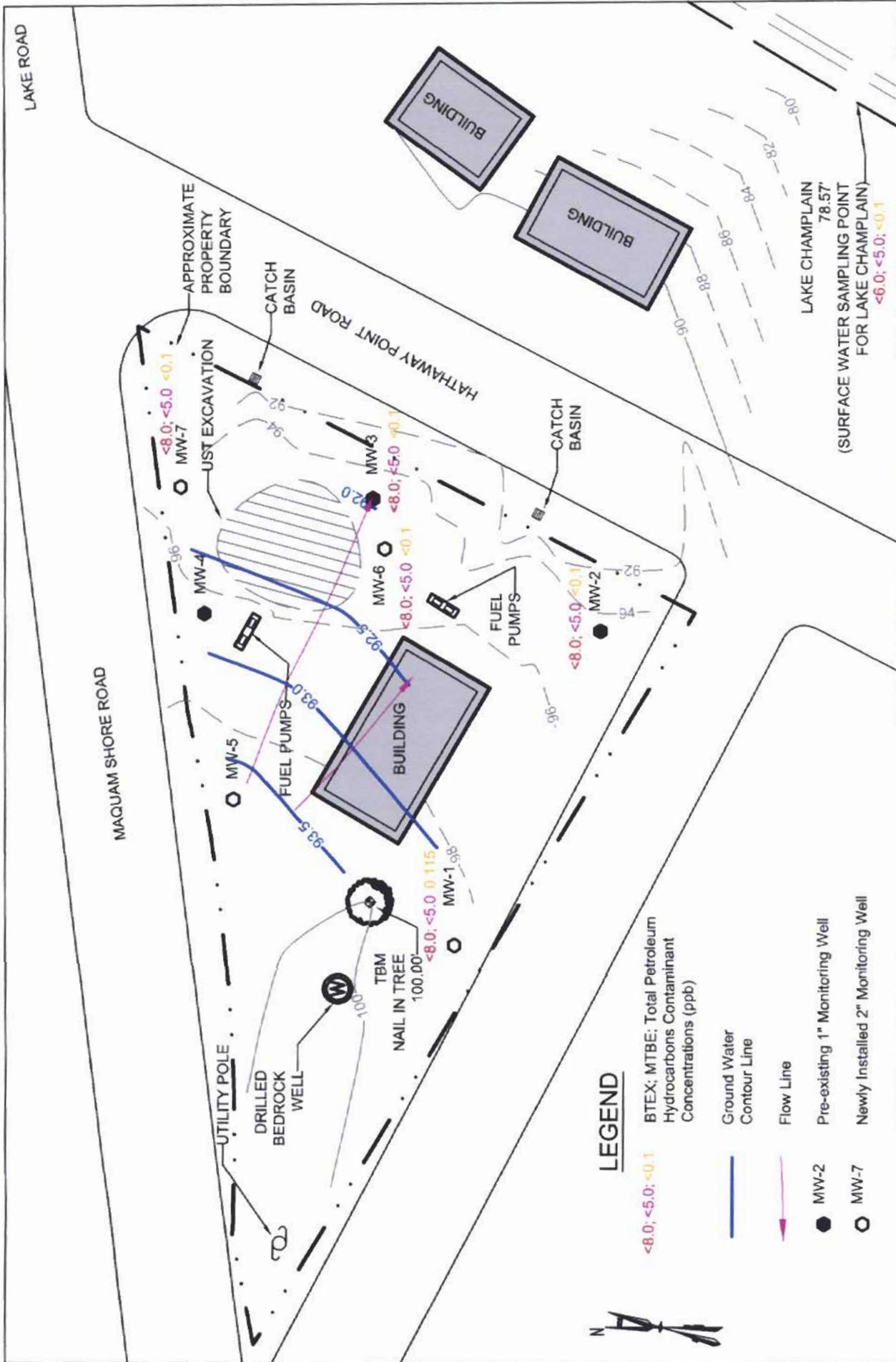
Kate Connelly, Environmental Scientist  
Burlington Division  
7060.KAC.701

cc: Richard Spiese (VDEC)  
Ed Fitzpatrick

**FIGURE 1**  
**General Location Map**



Clarence Brown – St Albans Bay Property  
 SMS Site # 1998-2519  
 Corner of Maquam Shore Road and Hathaway Point Road  
 St Albans Bay, VT 05481



		<b>CLARENCE BROWN</b> SMS SITE # 1998-2519 St. Albans Bay, Vermont Groundwater Elevation and Water Quality Summary Map for December 11, 2006		Project # V8714
		Surveyors KBC/KAC	Date DEC2006	Figure # 2

Groundwater Elevation  
(in feet)

Data Point	TOC	12/11/2006
MW-1	98.36	93.30
MW-2	94.55	90.74
MW-3	95.47	92.18
MW-4	95.27	
MW-5	95.14	90.02
MW-6	96.33	92.94
MW-7	98.82	95.88

Notes:

1-Elevation datum assumed

2-Reference elevation TOC is elevation on top of PVC well casing

Shaded - dry well



Well Headspace  
Photoionization Detector Assay Results  
in parts per million

Data Point	12/11/2006
MW-1	0.8
MW-2	0.3
MW-3	2.1
MW-4	BG
MW-5	0.6
MW-6	BG
MW-7	BG

Notes:  
Results are for volatile organic compounds  
BG = Background (<0.1 ppm)  
SL=Saturated Lamp (>2000 ppm)

Water Quality Results  
 (parts per billion)

Data Point	Compound	GQES*	12/11/2006
MW-1	Benzene	5	<2.0
	Toluene	1,000	<2.0
	Ethylbenzene	700	<2.0
	Xylenes	10,000	<2.0
	1,3,5- Trimethylbenzene	4	<2.0
	1,2,4-Trimethylbenzene	5	<2.0
	Napthalene	20	<5.0
	MTBE	40	<5.0
	BTEX		<8.0
	TPH DRO (in mg/L)		0.115
MW-2	Benzene	5	<2.0
	Toluene	1,000	<2.0
	Ethylbenzene	700	<2.0
	Xylenes	10,000	<2.0
	1,3,5- Trimethylbenzene	4	<2.0
	1,2,4-Trimethylbenzene	5	<2.0
	Napthalene	20	<5.0
	MTBE	40	<5.0
	BTEX		<8.0
	TPH DRO (in mg/L)		<0.100
MW-3	Benzene	5	<2.0
	Toluene	1,000	<2.0
	Ethylbenzene	700	<2.0
	Xylenes	10,000	<2.0
	1,3,5- Trimethylbenzene	4	<2.0
	1,2,4-Trimethylbenzene	5	<2.0
	Napthalene	20	<5.0
	MTBE	40	<5.0
	BTEX	40	<8.0
	TPH DRO (in mg/L)		<0.100

Notes:

\* GQES = Vermont Groundwater Quality Enforcement Standard

\*\* PAL = Preventive Action Level (based on Safe Drinking Water Act)

< = Contaminant not detected at specified limit

Bold = Exceeds GQES/ PAL

Shaded = No Sample



**Water Quality Results**  
 (parts per billion)

Data Point	Compound	GQES*	12/11/2006
MW-4	Benzene	5	
	Toluene	1,000	
	Ethylbenzene	700	
	Xylenes	10,000	
	1,3,5- Trimethylbenzene	4	
	1,2,4-Trimethylbenzene	5	
	Napthalene	20	
	MTBE	40	
	BTEX		
	TPH DRO (in mg/L)		
MW-5	Benzene	5	
	Toluene	1,000	
	Ethylbenzene	700	
	Xylenes	10,000	
	1,3,5- Trimethylbenzene	4	
	1,2,4-Trimethylbenzene	5	
	Napthalene	20	
	MTBE	40	
	BTEX		
	TPH DRO (in mg/L)		
MW-6	Benzene	5	<2.0
	Toluene	1,000	<2.0
	Ethylbenzene	700	<2.0
	Xylenes	10,000	<2.0
	1,3,5- Trimethylbenzene	4	<2.0
	1,2,4-Trimethylbenzene	5	<2.0
	Napthalene	20	<5.0
	MTBE	40	<5.0
	BTEX		<8.0
	TPH DRO (in mg/L)		<0.100

Notes:

- \* GQES = Vermont Groundwater Quality Enforcement Standard
- \*\* PAL = Preventive Action Level (based on Safe Drinking Water Act)
- < = Contaminant not detected at specified limit
- Bold = Exceeds GQES/ PAL
- Shaded = No Sample

**Water Quality Results**  
 (parts per billion)

Data Point	Compound	GQES*	12/11/2006
MW-7	Benzene	5	<2.0
	Toluene	1,000	<2.0
	Ethylbenzene	700	<2.0
	Xylenes	10,000	<2.0
	1,3,5- Trimethylbenzene	4	<2.0
	1,2,4-Trimethylbenzene	5	<2.0
	Napthalene	20	<5.0
	MTBE	40	<5.0
	BTEX		<8.0
	TPH DRO (in mg/L)		<0.100

Data Point	Compound	PAL**	12/11/2006
Drilled Well	Benzene	5	
	Toluene	1,000	
	Ethylbenzene	700	
	Xylenes	10,000	
	1,3,5- Trimethylbenzene	4	
	1,2,4-Trimethylbenzene	5	
	Napthalene	20	
	MTBE	40	
	BTEX		
	TPH DRO (in mg/L)		

Notes:

\* GQES = Vermont Groundwater Quality Enforcement Standard  
 \*\* PAL = Preventive Action Level (based on Safe Drinking Water Act)

< = Contaminant not detected at specified limit

**Bold = Exceeds GQES/ PAL**

**Shaded = No Sample**

# **APPENDIX A:**

## **DETAILED WELL LOGS**

Clarence Brown, Inc. - St Albans Bay  
Water Quality Summary Report for December 11, 2006  
SMS Site # 1998-2519  
1/12/2007



## WELL LOG

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WELL: MW- 1  
LOCATION: Clarence Brown – St Albans Bay, St. Albans, VT  
Approximately 20' SW of building.  
DRILLER: Environmental Drilling of New York  
ENVIRONMENTAL SCIENTIST: Kate Connelly  
DATE: December 5, 2006

**Soils Description:** (BG = Background [ $<0.1$ ppm], SL = Saturated Lamp, [ $>2000$ ], ppm = parts per million, GW = groundwater, HCO = hydrocarbon odors)

<u>Depth</u>	<u>Blow Count</u>	<u>Description</u>	<u>PID (ppm)</u>
0.0" – 24.0"	8,11,9,10	~18.0" recovery. 4.0" of dark brown, topsoil, loose, dry, no HCO. 14.0" of brown, medium to very fine sand with some pebbles, loose, dry, no HCO.	BG
60.0" – 84.0"	4,10,10,12	~12.0" recovery. 4.0" of gray, medium sand, loose, dry, no HCO. 4.0" of fractured gray cobble, loose, saturated, no HCO. GW at ~60.0"	BG

### Well Construction

Bottom of Boring: 9.0'  
Bottom of Well: 9.0'  
Well Screen: 7.5' (9.0' – 1.5') of 2" diameter sch. 40 PVC (0.010" slot).  
Solid Riser: 1.25' (1.5' – 0.25') of 2" diameter sch. 40 PVC.  
Sand Pack: 7.75' (9.0' – 1.25') of #1 filter sand.  
Bentonite Seal: 0.5' (1.25' – 0.75') of bentonite chips.  
Backfill: 0.25' (0.75' – 0.5') of filter sand.  
Well Box: 12" watertight roadbox set flush to grade with cement collar.

Clarence Brown, Inc. – St Albans Bay  
SMS Site #1998-2519

Water Quality Summary Report for December 11, 2006  
1/12/2007



## WELL LOG

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WELL: MW- 5  
LOCATION: Clarence Brown – St Albans Bay, St. Albans, VT  
Approximately 15' NW of building  
DRILLER: Environmental Drilling of New York  
ENVIRONMENTAL SCIENTIST: Kate Connelly  
DATE: December 5, 2006

**Soils Description:** (BG = Background [ $<0.1$ ppm], SL = Saturated Lamp, [ $>2000$ ], ppm = parts per million, GW = groundwater, HCO = hydrocarbon odors)

**Notes:** Bedrock was observed at 5.5'; therefore, well set dry at 5.0'.

<u>Depth</u>	<u>Blow Count</u>	<u>Description</u>	<u>PID (ppm)</u>
0.0" – 24.0"	5,7,7,8	~12.0" recovery. 4.0" of dark brown, topsoil, loose, dry, no HCO. 8.0" of brown, fine sand with mottling, loose, dry, no HCO. At bottom of spoon, dark gray, fractured rock, loose, dry, no HCO.	<b>BG</b>
60.0" – 66.0"	No data.	6.0" recovery. Gray, broken shale, dry, no HCO, refusal at 66.0".	<b>BG</b>

### Well Construction

Bottom of Boring: 5.5'  
Bottom of Well: 5.0'  
Well Screen: 4.75' (5.0' – 0.25') of 2" diameter sch. 40 PVC (0.010" slot).  
Solid Riser: NA  
Sand Pack: 3.75' (5.0' – 1.25') of #1 filter sand.  
Bentonite Seal: 0.5' (1.25' – 0.75') of bentonite chips.  
Backfill: 0.25' (0.75' – 0.5') of filter sand.  
Well Box: 12" watertight roadbox set flush to grade with cement collar.

## WELL LOG

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WELL: MW-7  
LOCATION: Clarence Brown – St Albans Bay, St. Albans, VT  
Approximately 30' NE of building  
DRILLER: Environmental Drilling of New York  
ENVIRONMENTAL SCIENTIST: Kate Connelly  
DATE: December 5, 2006

**Soils Description:** (BG = Background [ $<0.1$ ppm], SL = Saturated Lamp, [ $>2000$ ], ppm = parts per million, GW = groundwater, HCO = hydrocarbon odors)

**Notes:** Bedrock was observed between 3.0' and 4.0'; after grinding some bedrock away, well was set at 5.0'.

<u>Depth</u>	<u>Blow Count</u>	<u>Description</u>	<u>PID (ppm)</u>
0.0" – 24.0"	5,7,7,8	~18.0" recovery. 5.0" of brown, topsoil, loose, dry, no HCO. 1.0" of brown, medium sand, loose, dry, no HCO. 12.0" of brown, fine to very fine silty sand with gray, fractured rock and some mottling, loose, dry, no HCO.	BG
36.0" – 60.0"	No data.	~12.0" recovery. Gray, medium to very fine sand with gray shale, loose, saturated, no HCO. Bedrock observed between 3.0' and 4.0'. Drilled through some bedrock (~12.0"). Refusal At 60.0".	BG

### Well Construction

Bottom of Boring: 5.0'  
Bottom of Well: 5.0'  
Well Screen: 4.75' (5.0' – 0.25') of 2" diameter sch. 40 PVC (0.010" slot).  
Solid Riser: NA  
Sand Pack: 4.75' (5.0' – 1.25') of #1 filter sand.  
Bentonite Seal: 0.5' (1.25' – 0.75') of bentonite chips.  
Backfill: 0.25' (0.75' – 0.5') of filter sand.  
Well Box: 12" watertight roadbox set flush to grade with cement collar.

Clarence Brown, Inc. – St Albans Bay  
SMS Site #1998-2519

Water Quality Summary Report for December 11, 2006

1/12/2007



## WELL LOG

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WELL: MW- 6  
LOCATION: Clarence Brown – St Albans Bay, St. Albans, VT  
Approximately 15' NE of building  
DRILLER: Environmental Drilling of New York  
ENVIRONMENTAL SCIENTIST: Kate Connelly  
DATE: December 5, 2006

**Soils Description:** (BG = Background [ $<0.1$ ppm], SL = Saturated Lamp, [ $>2000$ ], ppm = parts per million, GW = groundwater, HCO = hydrocarbon odors)

**Notes:** Fractured shale was observed between 6.0' and 7.0'.

<u>Depth</u>	<u>Blow Count</u>	<u>Description</u>	<u>PID (ppm)</u>
0.0" – 24.0"	3,4,3,3	~10.0" recovery. 4.0" of dark brown, topsoil, loose, moist, no HCO. 4.0" of gray/brown, medium to fine sand, loose, moist, no HCO. 2.0" of brown, medium sand, loose, wet, no HCO.	BG

**Notes:** no spoons were taken between 2.0 and 5.0 feet; however, observations from the drill auger were noted:

24.0-36.0": gray/brown, fine silty sand, dense, wet, no HCO.

60.0": fractured gray shale, loose, saturated, no HCO.

60.0" – 84.0"	10,11,14,20	~18.0" recovery. 6.0" of brown/gray, medium to very fine silty sand with fractured gray shale at ~5.0'. 12.0" of fractured gray shale with some medium sand, loose, saturated, no HCO.	BG
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### Well Construction

Bottom of Boring: 8.0'  
Bottom of Well: 8.0'  
Well Screen: 7.75' (8.0' – 0.25') of 2" diameter sch. 40 PVC (0.010" slot).  
Solid Riser: NA  
Sand Pack: 6.75' (8.0' – 1.25') of #1 filter sand.  
Bentonite Seal: 0.5' (1.25' – 0.75') of bentonite chips.  
Backfill: 0.25' (0.75' – 0.5') of filter sand.  
Well Box: 12" watertight roadbox set flush to grade with cement collar.

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# **APPENDIX B:**

## **LABORATORY ANALYTICAL REPORTS**

Clarence Brown, Inc. - St Albans Bay  
Water Quality Summary Report for December 11, 2006  
SMS Site # 1998-2519  
1/12/2007



# GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace  
Montpelier, VT 05602

Phone (802) 262-2004

## LABORATORY RESULTS

RECEIVED  
JAN 12 2007

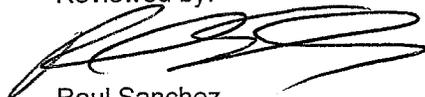
BY:.....

CLIENT NAME:	EPS of Vermont, Inc.	REFERENCE NO.:	688B
ADDRESS:	2 Flynn Avenue Burlington, VT 05401	PROJECT NO.:	V8714
SAMPLE LOCATION:	Clarence Brown/St. Albans	DATE OF SAMPLE:	12/11/2006
SAMPLER:	Heather Mashia	DATE OF RECEIPT:	12/11/2006
ATTENTION:	Kate Connelly	DATE OF ANALYSIS:	12/18/2006
		DATE OF REPORT:	01/09/2007

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- Water samples submitted for VOC analysis were preserved with HCl. The trip blank was prepared by the laboratory.
- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method.
- Blank contamination was not observed at levels interfering with the analytical results.
- Continuing Calibration Standards were monitored at intervals indicated in the specified method. The resulting analytical precision and accuracy were determined to be within method QA/QC acceptance limits.
- The efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analyte to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

Reviewed by:



Raul Sanchez  
Chemical Services

# GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace  
Montpelier, VT 05602

## LABORATORY RESULTS

GML REF. #: 688B  
 SAMPLE ID: TRIP BLANK  
 ANALYSIS DATE: 12/18/2006  
 SAMPLE DATE: 12/11/2006  
 SAMPLE TYPE: WATER

### EPA METHOD 8260B

PARAMETER	PQL	ug/L	PARAMETER	PQL	ug/L
Benzene	2	ND	trans-1,3-Dichloropropene	2	ND
Bromobenzene	2	ND	Ethylbenzene	2	ND
Bromochloromethane	5	ND	Hexachlorobutadiene	5	ND
Bromodichloromethane	2	ND	Isopropylbenzene	2	ND
Bromoform	5	ND	p-Isopropyltoluene	2	ND
Bromomethane	5	ND	Methylene Chloride	5	ND
n-Butylbenzene	2	ND	Methyl-t-butyl-ether (MTBE)	5	ND
sec-Butylbenzene	2	ND	Naphthalene	5	ND
tert-Butylbenzene	2	ND	n-Propylbenzene	2	ND
Carbon Tetrachloride	2	ND	Styrene	2	ND
Chlorobenzene	2	ND	1,1,1,2-Tetrachloroethane	2	ND
Chloroethane	2	ND	1,1,2,2-Tetrachloroethane	5	ND
Chloroform	5	ND	Tetrachloroethylene	2	ND
Chloromethane	5	ND	Toluene	2	2.8
o-Chlorotoluene	2	ND	1,2,3-Trichlorobenzene	5	ND
p-Chlorotoluene	2	ND	1,2,4-Trichlorobenzene	5	ND
1,2-Dibromo-3-chloropropane	5	ND	1,1,1-Trichloroethane	5	ND
Dibromochloromethane	2	ND	1,1,2-Trichloroethane	2	ND
1,2-Dibromoethane (EDB)	2	ND	Trichloroethylene (TCE)	2	ND
Dibromomethane	2	ND	Trichlorofluoromethane	5	ND
o-Dichlorobenzene	2	ND	1,2,3-Trichloropropane	5	ND
m-Dichlorobenzene	2	ND	1,2,4-Trimethylbenzene	2	ND
p-Dichlorobenzene	2	ND	1,3,5-Trimethylbenzene	2	ND
Dichlorodifluoromethane	5	ND	Vinyl Chloride	5	ND
1,1-Dichloroethane	5	ND	o-Xylene	2	ND
1,2-Dichloroethane	2	ND	m+p-Xylene	4	ND
1,1-Dichloroethylene	5	ND			
cis-1,2-Dichloroethylene	5	ND	Surrogates:		LIMITS
trans-1,2-Dichloroethylene	5	ND	Dibromofluoromethane	126	(86-118)
1,2-Dichloropropane	2	ND	Toluene-d8	124	(88-110)
1,3-Dichloropropane	2	ND	4-Bromofluorobenzene	110	(86-115)
2,2-Dichloropropane	5	ND			
1,1-Dichloropropene	5	ND			
cis-1,3-Dichloropropene	2	ND			

ND = Not Detected  
 BPQL = Below Practical Quantitation Limit

# GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace  
Montpelier, VT 05602

## LABORATORY RESULTS

GML REF. # : 688B  
SAMPLE ID: MW-1  
ANALYSIS DATE: 12/18/2006  
SAMPLE DATE: 12/11/2006  
SAMPLE TYPE: WATER

### EPA METHOD 8260B

PARAMETER	PQL	ug/L	PARAMETER	PQL	ug/L
Benzene	2	ND	trans-1,3-Dichloropropene	2	ND
Bromobenzene	2	ND	Ethylbenzene	2	ND
Bromochloromethane	5	ND	Hexachlorobutadiene	5	ND
Bromodichloromethane	2	ND	Isopropylbenzene	2	ND
Bromoform	5	ND	p-Isopropyltoluene	2	ND
Bromomethane	5	ND	Methylene Chloride	5	ND
n-Butylbenzene	2	ND	Methyl-t-butyl-ether (MTBE)	5	ND
sec-Butylbenzene	2	ND	Naphthalene	5	ND
tert-Butylbenzene	2	ND	n-Propylbenzene	2	ND
Carbon Tetrachloride	2	ND	Styrene	2	ND
Chlorobenzene	2	ND	1,1,1,2-Tetrachloroethane	2	ND
Chloroethane	2	ND	1,1,2,2-Tetrachloroethane	5	ND
Chloroform	5	ND	Tetrachloroethylene	2	ND
Chloromethane	5	ND	Toluene	2	ND
o-Chlorotoluene	2	ND	1,2,3-Trichlorobenzene	5	ND
p-Chlorotoluene	2	ND	1,2,4-Trichlorobenzene	5	ND
1,2-Dibromo-3-chloropropane	5	ND	1,1,1-Trichloroethane	5	ND
Dibromochloromethane	2	ND	1,1,2-Trichloroethane	2	ND
1,2-Dibromoethane (EDB)	2	ND	Trichloroethylene (TCE)	2	ND
Dibromomethane	2	ND	Trichlorofluoromethane	5	ND
o-Dichlorobenzene	2	ND	1,2,3-Trichloropropane	5	ND
m-Dichlorobenzene	2	ND	1,2,4-Trimethylbenzene	2	ND
p-Dichlorobenzene	2	ND	1,3,5-Trimethylbenzene	2	ND
Dichlorodifluoromethane	5	ND	Vinyl Chloride	5	ND
1,1-Dichloroethane	5	ND	o-Xylene	2	ND
1,2-Dichloroethane	2	ND	m+p-Xylene	4	ND
1,1-Dichloroethylene	5	ND			
cis-1,2-Dichloroethylene	5	ND	Surrogates:		LIMITS
trans-1,2-Dichloroethylene	5	ND	Dibromofluoromethane	123	(86-118)
1,2-Dichloropropane	2	ND	Toluene-d8	123	(88-110)
1,3-Dichloropropane	2	ND	4-Bromofluorobenzene	111	(86-115)
2,2-Dichloropropane	5	ND			
1,1-Dichloropropene	5	ND			
cis-1,3-Dichloropropene	2	ND			

ND = Not Detected  
BPQL = Below Practical Quantitation Limit

# GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace  
Montpelier, VT 05602

## LABORATORY RESULTS

GML REF. #: 688B  
SAMPLE ID: MW-2  
ANALYSIS DATE: 12/18/2006  
SAMPLE DATE: 12/11/2006  
SAMPLE TYPE: WATER

### EPA METHOD 8260B

PARAMETER	PQL	ug/L	PARAMETER	PQL	ug/L
Benzene	2	ND	trans-1,3-Dichloropropene	2	ND
Bromobenzene	2	ND	Ethylbenzene	2	ND
Bromochloromethane	5	ND	Hexachlorobutadiene	5	ND
Bromodichloromethane	2	ND	Isopropylbenzene	2	ND
Bromoform	5	ND	p-Isopropyltoluene	2	ND
Bromomethane	5	ND	Methylene Chloride	5	ND
n-Butylbenzene	2	ND	Methyl-t-butyl-ether (MTBE)	5	ND
sec-Butylbenzene	2	ND	Naphthalene	5	ND
tert-Butylbenzene	2	ND	n-Propylbenzene	2	ND
Carbon Tetrachloride	2	ND	Styrene	2	ND
Chlorobenzene	2	ND	1,1,1,2-Tetrachloroethane	2	ND
Chloroethane	2	ND	1,1,2,2-Tetrachloroethane	5	ND
Chloroform	5	ND	Tetrachloroethylene	2	ND
Chloromethane	5	ND	Toluene	2	ND
o-Chlorotoluene	2	ND	1,2,3-Trichlorobenzene	5	ND
p-Chlorotoluene	2	ND	1,2,4-Trichlorobenzene	5	ND
1,2-Dibromo-3-chloropropane	5	ND	1,1,1-Trichloroethane	5	ND
Dibromochloromethane	2	ND	1,1,2-Trichloroethane	2	ND
1,2-Dibromoethane (EDB)	2	ND	Trichloroethylene (TCE)	2	ND
Dibromomethane	2	ND	Trichlorofluoromethane	5	ND
o-Dichlorobenzene	2	ND	1,2,3-Trichloropropane	5	ND
m-Dichlorobenzene	2	ND	1,2,4-Trimethylbenzene	2	ND
p-Dichlorobenzene	2	ND	1,3,5-Trimethylbenzene	2	ND
Dichlorodifluoromethane	5	ND	Vinyl Chloride	5	ND
1,1-Dichloroethane	5	ND	o-Xylene	2	ND
1,2-Dichloroethane	2	ND	m+p-Xylene	4	ND
1,1-Dichloroethylene	5	ND			
cis-1,2-Dichloroethylene	5	ND	Surrogates:		LIMITS
trans-1,2-Dichloroethylene	5	ND	Dibromofluoromethane	122	(86-118)
1,2-Dichloropropane	2	ND	Toluene-d8	124	(88-110)
1,3-Dichloropropane	2	ND	4-Bromofluorobenzene	110	(86-115)
2,2-Dichloropropane	5	ND			
1,1-Dichloropropene	5	ND	ND = Not Detected		
cis-1,3-Dichloropropene	2	ND	BPQL = Below Practical Quantitation Limit		

# GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace  
Montpelier, VT 05602

## LABORATORY RESULTS

GML REF. # : 688B  
SAMPLE ID: MW-3  
ANALYSIS DATE: 12/18/2006  
SAMPLE DATE: 12/11/2006  
SAMPLE TYPE: WATER

### EPA METHOD 8260B

PARAMETER	PQL	ug/L	PARAMETER	PQL	ug/L
Benzene	2	ND	trans-1,3-Dichloropropene	2	ND
Bromobenzene	2	ND	Ethylbenzene	2	ND
Bromochloromethane	5	ND	Hexachlorobutadiene	5	ND
Bromodichloromethane	2	ND	Isopropylbenzene	2	ND
Bromoform	5	ND	p-Isopropyltoluene	2	ND
Bromomethane	5	ND	Methylene Chloride	5	ND
n-Butylbenzene	2	ND	Methyl-t-butyl-ether (MTBE)	5	ND
sec-Butylbenzene	2	ND	Naphthalene	5	ND
tert-Butylbenzene	2	ND	n-Propylbenzene	2	ND
Carbon Tetrachloride	2	ND	Styrene	2	ND
Chlorobenzene	2	ND	1,1,1,2-Tetrachloroethane	2	ND
Chloroethane	2	ND	1,1,2,2-Tetrachloroethane	5	ND
Chloroform	5	ND	Tetrachloroethylene	2	ND
Chloromethane	5	ND	Toluene	2	ND
o-Chlorotoluene	2	ND	1,2,3-Trichlorobenzene	5	ND
p-Chlorotoluene	2	ND	1,2,4-Trichlorobenzene	5	ND
1,2-Dibromo-3-chloropropane	5	ND	1,1,1-Trichloroethane	5	ND
Dibromochloromethane	2	ND	1,1,2-Trichloroethane	2	ND
1,2-Dibromoethane (EDB)	2	ND	Trichloroethylene (TCE)	2	ND
Dibromomethane	2	ND	Trichlorofluoromethane	5	ND
o-Dichlorobenzene	2	ND	1,2,3-Trichloropropane	5	ND
m-Dichlorobenzene	2	ND	1,2,4-Trimethylbenzene	2	ND
p-Dichlorobenzene	2	ND	1,3,5-Trimethylbenzene	2	ND
Dichlorodifluoromethane	5	ND	Vinyl Chloride	5	ND
1,1-Dichloroethane	5	ND	o-Xylene	2	ND
1,2-Dichloroethane	2	BPQL	m+p-Xylene	4	ND
1,1-Dichloroethylene	5	ND			
cis-1,2-Dichloroethylene	5	ND	Surrogates:		LIMITS
trans-1,2-Dichloroethylene	5	ND	Dibromofluoromethane	117	(86-118)
1,2-Dichloropropane	2	ND	Toluene-d8	122	(88-110)
1,3-Dichloropropane	2	ND	4-Bromofluorobenzene	110	(86-115)
2,2-Dichloropropane	5	ND			
1,1-Dichloropropene	5	ND			
cis-1,3-Dichloropropene	2	ND			

ND = Not Detected

BPQL = Below Practical Quantitation Limit

# GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace  
Montpelier, VT 05602

## LABORATORY RESULTS

GML REF. #: 688B  
 SAMPLE ID: MW-6  
 ANALYSIS DATE: 12/18/2006  
 SAMPLE DATE: 12/11/2006  
 SAMPLE TYPE: WATER

### EPA METHOD 8260B

PARAMETER	PQL	ug/L	PARAMETER	PQL	ug/L
Benzene	2	ND	trans-1,3-Dichloropropene	2	ND
Bromobenzene	2	ND	Ethylbenzene	2	ND
Bromochloromethane	5	ND	Hexachlorobutadiene	5	ND
Bromodichloromethane	2	ND	Isopropylbenzene	2	ND
Bromoform	5	ND	p-Isopropyltoluene	2	ND
Bromomethane	5	ND	Methylene Chloride	5	ND
n-Butylbenzene	2	ND	Methyl-t-butyl-ether (MTBE)	5	ND
sec-Butylbenzene	2	ND	Naphthalene	5	ND
tert-Butylbenzene	2	ND	n-Propylbenzene	2	ND
Carbon Tetrachloride	2	ND	Styrene	2	ND
Chlorobenzene	2	ND	1,1,1,2-Tetrachloroethane	2	ND
Chloroethane	2	ND	1,1,2,2-Tetrachloroethane	5	ND
Chloroform	5	ND	Tetrachloroethylene	2	ND
Chloromethane	5	ND	Toluene	2	ND
o-Chlorotoluene	2	ND	1,2,3-Trichlorobenzene	5	ND
p-Chlorotoluene	2	ND	1,2,4-Trichlorobenzene	5	ND
1,2-Dibromo-3-chloropropane	5	ND	1,1,1-Trichloroethane	5	ND
Dibromochloromethane	2	ND	1,1,2-Trichloroethane	2	ND
1,2-Dibromoethane (EDB)	2	ND	Trichloroethylene (TCE)	2	ND
Dibromomethane	2	ND	Trichlorofluoromethane	5	ND
o-Dichlorobenzene	2	ND	1,2,3-Trichloropropane	5	ND
m-Dichlorobenzene	2	ND	1,2,4-Trimethylbenzene	2	ND
p-Dichlorobenzene	2	ND	1,3,5-Trimethylbenzene	2	ND
Dichlorodifluoromethane	5	ND	Vinyl Chloride	5	ND
1,1-Dichloroethane	5	ND	o-Xylene	2	ND
1,2-Dichloroethane	2	ND	m+p-Xylene	4	ND
1,1-Dichloroethylene	5	ND			
cis-1,2-Dichloroethylene	5	ND	Surrogates:		LIMITS
trans-1,2-Dichloroethylene	5	ND	Dibromofluoromethane	119	(86-118)
1,2-Dichloropropane	2	ND	Toluene-d8	123	(88-110)
1,3-Dichloropropane	2	ND	4-Bromofluorobenzene	109	(86-115)
2,2-Dichloropropane	5	ND			
1,1-Dichloropropene	5	ND	ND = Not Detected		
cis-1,3-Dichloropropene	2	ND	BPQL = Below Practical Quantitation Limit		



# GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace  
Montpelier, VT 05602

## LABORATORY RESULTS

GML REF. #: 688B  
SAMPLE ID: LAKE  
ANALYSIS DATE: 12/18/2006  
SAMPLE DATE: 12/11/2006  
SAMPLE TYPE: WATER

### EPA METHOD 8260B

PARAMETER	PQL	ug/L	PARAMETER	PQL	ug/L
Benzene	2	ND	trans-1,3-Dichloropropene	2	ND
Bromobenzene	2	ND	Ethylbenzene	2	ND
Bromochloromethane	5	ND	Hexachlorobutadiene	5	ND
Bromodichloromethane	2	ND	Isopropylbenzene	2	ND
Bromoform	5	ND	p-Isopropyltoluene	2	ND
Bromomethane	5	ND	Methylene Chloride	5	ND
n-Butylbenzene	2	ND	Methyl-t-butyl-ether (MTBE)	5	ND
sec-Butylbenzene	2	ND	Naphthalene	5	ND
tert-Butylbenzene	2	ND	n-Propylbenzene	2	ND
Carbon Tetrachloride	2	ND	Styrene	2	ND
Chlorobenzene	2	ND	1,1,1,2-Tetrachloroethane	2	ND
Chloroethane	2	ND	1,1,2,2-Tetrachloroethane	5	ND
Chloroform	5	ND	Tetrachloroethylene	2	ND
Chloromethane	5	ND	Toluene	2	ND
o-Chlorotoluene	2	ND	1,2,3-Trichlorobenzene	5	ND
p-Chlorotoluene	2	ND	1,2,4-Trichlorobenzene	5	ND
1,2-Dibromo-3-chloropropane	5	ND	1,1,1-Trichloroethane	5	ND
Dibromochloromethane	2	ND	1,1,2-Trichloroethane	2	ND
1,2-Dibromoethane (EDB)	2	ND	Trichloroethylene (TCE)	2	ND
Dibromomethane	2	ND	Trichlorofluoromethane	5	ND
o-Dichlorobenzene	2	ND	1,2,3-Trichloropropane	5	ND
m-Dichlorobenzene	2	ND	1,2,4-Trimethylbenzene	2	ND
p-Dichlorobenzene	2	ND	1,3,5-Trimethylbenzene	2	ND
Dichlorodifluoromethane	5	ND	Vinyl Chloride	5	ND
1,1-Dichloroethane	5	ND	o-Xylene	2	ND
1,2-Dichloroethane	2	ND	m+p-Xylene	4	ND
1,1-Dichloroethylene	5	ND			
cis-1,2-Dichloroethylene	5	ND	Surrogates:		LIMITS
trans-1,2-Dichloroethylene	5	ND	Dibromofluoromethane	123	(86-118)
1,2-Dichloropropane	2	ND	Toluene-d8	123	(88-110)
1,3-Dichloropropane	2	ND	4-Bromofluorobenzene	110	(86-115)
2,2-Dichloropropane	5	ND			
1,1-Dichloropropene	5	ND			
cis-1,3-Dichloropropene	2	ND			

ND = Not Detected

BPQL = Below Practical Quantitation Limit

# Green Mountain Laboratories, Inc.

2 Moonlight Terrace  
Montpelier, Vermont 05602

Phone (802) 262-2004

Fax (802) 262-2005

## LABORATORY RESULTS

<b>CLIENT NAME:</b>	EPS of Vermont, Inc.	<b>GML REFERENCE #:</b>	688B
<b>ADDRESS:</b>	2 Flynn Avenue Burlington, VT 05401	<b>PROJECT NO:</b>	NA
<b>PROJECT NAME:</b>	Clarence Brown/St. Albans	<b>DATE OF SAMPLE:</b>	12/11/2006
<b>SAMPLER:</b>	Heather Mashia	<b>DATE OF RECEIPT:</b>	12/11/2006
<b>ATTENTION:</b>	Kate Connelly	<b>DATE OF ANALYSIS:</b>	12/18/2006
		<b>DATE OF REPORT:</b>	01/09/2007

### Total Petroleum Hydrocarbons (TPH) by EPA Method 8015M GRO(mg/Kg- ppm)

Sample	PQL	Result
Trip Blank	0.100	<0.100
MW-1	0.100	0.115
MW-2	0.100	<0.100
MW-3	0.100	<0.100
MW-6	0.100	<0.100
MW-7	0.100	<0.100
Lake	0.100	<0.100

PQL= Practical Quantitation Limit  
BPQL= Below Practical Quantitation Limit

Reviewed by:



Raul Sanchez  
Chemical Services



# **APPENDIX C:**

## **COST ESTIMATE**

Clarence Brown, Inc. - St Albans Bay  
Water Quality Summary Report for December 11, 2006  
SMS Site # 1998-2519  
1/12/2007





## COST ESTIMATE

Environmental Products & Services of Vermont, Inc. (EPSVT) is pleased to present the following quotation for services to be performed at the St Albans Bay (SAB) property of Clarence Brown, Inc. located in St Albans Bay, Vermont. EPSVT will provide all labor, materials and equipment necessary to perform the following scope of work, which is contingent upon approval from the State of Vermont and Greg Brown:

### SCOPE OF WORK

#### 1. Groundwater Monitoring and Sampling

EPSVT recommends an additional sampling event in the spring of 2007 to confirm the absence of contamination in the local groundwater surrounding of the source area. EPSVT will also screen each well for VOCs utilizing a properly calibrated 10.6 eV PID and measure depth to water to generate a new groundwater flow map for the spring event. EPSVT will collect water quality samples from all monitoring wells and the on site drilled bedrock well, which will be analyzed via EPA methods 8021B and 524.2 at GML; and

#### 2. Summary Report Generation

After the second water quality sampling round, EPSVT will generate a summary report detailing the results of the monitoring and sampling event along with recommendations for future work at the SAB property.

The costs for implementing this work plan are as follows:

#### TASK 1- Groundwater Monitoring and Sampling Event

Field Technician I	8	hours	@ \$	50.00 /hour	\$	400.00
Pickup Truck	1	shift	@ \$	125.00 /shift	\$	125.00
Sample Kit(s)	8	kits	@ \$	15.00 /kit	\$	120.00
Interface Probe	1	shift	@ \$	50.00 /shift	\$	50.00
Photoionization Detector	1	shift	@ \$	120.00 /shift	\$	120.00
Peristaltic Pump	1	shift	@ \$	50.00 /shift	\$	50.00
Generator	1	shift	@ \$	110.00 /shift	\$	110.00
Tubing	70	feet	@ \$	0.39 /foot	\$	27.30
8021B Sample	8	samples	@ \$	64.80 /sample	\$	518.40
524.2 Sample	1	sample	@ \$	175.00 /sample	\$	175.00
ESTIMATED TOTAL TASK 1 –					\$	1695.70

#### TASK 2 – Summary Report Generation

Staff Scientist	6	hours	@ \$	65.00 /hour	\$	390.00
Draftsperson	4	hours	@ \$	60.00 /hour	\$	240.00
Senior Scientist	0.5	hour	@ \$	115.00 /hour	\$	57.50
Clerical	1.0	hour	@ \$	50.00 /hour	\$	50.00
ESTIMATED TOTAL TASK 2 –					\$	737.50

**TOTAL ESTIMATED COST (for spring, 2007) – \$ 2433.20**

This quotation is valid for 30 days from the above date and subject to verification thereafter. Applicable taxes are separate items. Standard payment terms are cash, check or Visa/MasterCard or phased billing with credit approval on net 10 days. Service charges may be imposed at 1.5% per month on all past due balances. The customer will be responsible for all costs of collection, including, but not limited to reasonable attorney's fees, court costs, and collection fee.

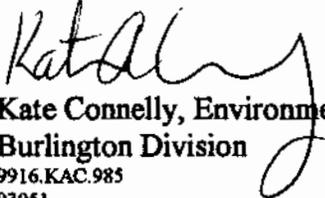
The customer agrees to indemnify, exonerate, and hold Environmental Products & Services of Vermont, Inc. harmless against loss, damage, or expense, by reasons of suits, claims, demands, judgments, and causes of action for personal injury, death, or property damage rising out of or in any way in consequence of the performance of all work undertaken by Environmental Products & Services of Vermont, Inc. except that in no instance shall the customer be held responsible for any liability claim demand or cause of action attributable solely to the negligence of Environmental Products & Services of Vermont, Inc.

If you are in agreement with this proposal, please sign below and return a copy for our files.  
This proposal is understood and accepted:

By: \_\_\_\_\_ Date: \_\_\_\_\_

If you have any questions or require additional information, please contact myself or Jake Peirce at (802) 862-1212, fax (802) 860-7445.

Sincerely,  
ENVIRONMENTAL PRODUCTS & SERVICES OF VERMONT, INC.

  
Kate Connelly, Environmental Scientist  
Burlington Division  
9916.KAC.985  
03051

cc. Richard Spiese (VDEC)  
Ed Fitzpatrick