

## Heindel and Noyes

P.O. Box 64709 Burlington, Vermont 05406-4709

- Consulting Hydrogeologists
- Engineers
- Environmental Scientists

802-658-0820

Fax 802-860-1014

October 21, 1998

Mr. Chuck Schwer  
Department of Environmental Conservation  
Sites Management Section  
103 South Main Street, West Office  
Waterbury, VT 05671-0404

Re: Blaise Property  
Shoreham, Vermont

Dear Chuck:

Please find enclosed the Site Investigation report for the Robert and Cathy Blaise property in Shoreham, Vermont.

Please do not hesitate to give me a call should you have any questions or concerns.

Sincerely,

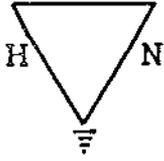
Miles Waite  
Senior Hydrogeologist

MW/jm

Enclosure

cc: Robert and Cathy Blaise

RECEIVED  
OCT 22 10 20 AM '98



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## BLAISE PROPERTY

Shoreham, Vermont

## SITE INVESTIGATION

SMS #96-2099

RECEIVED  
OCT 22 10 20 AM '98

Prepared by:

Heindel and Noyes

Prepared for:

Robert and Cathy Blaise  
RR#1 Box 128A  
Shoreham, Vermont

October 21, 1998

# BLAISE PROPERTY

Shoreham, Vermont

## SITE INVESTIGATION

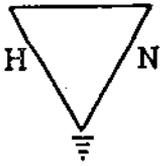
SMS #96-2099

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Shoreham, Vermont

## SITE INVESTIGATION

SMS #96-2099

October 21, 1998

### 1.0 INTRODUCTION

#### 1.1 Historical Perspective

Heindel and Noyes (H&N) was retained by Robert and Cathy Blaise in July 1998 to investigate environmental conditions at their property at the intersection of Routes 74 and 22A in Shoreham, Vermont. The Blaises requested the investigation to assess possible soil and groundwater contamination associated with the former underground storage tanks (USTs) at the property.

During the operation of a convenience store (Herb's Corner Market) by the prior property owners, four (4) USTs were installed: one (1) 500 gallon kerosene tank, one (1) 2,000 gallon gasoline tank, and two (2) 3,000 gallon gasoline tanks. The tanks had reportedly been abandoned in 1991. During the removal of the tanks, in October and November of 1996, signs of contaminated soil were observed. After reviewing the Vermont UST tank pull report, the State classified the property as a Vermont Hazardous Waste Site (site 96-2099). When the Blaises purchased the property in 1997, they were notified by the State of Vermont Waste Management Division that further environmental assessment of the property was necessary. The Blaises chose to conduct this investigation to determine the severity of the UST contamination present and the extent of contaminant migration.

## 1.2 Purpose and Scope

The purpose of this investigation is to evaluate the extent of contamination from the UST release. This report summarizes the results of the investigation activities completed to date. Accordingly, the report includes a site description, presents field and analytical results, and presents a discussion of the data obtained. Conclusions and recommendations are provided in the final section.

## 2.0 SITE PHYSIOGRAPHY AND GEOLOGY

The Blaise Property is located at the intersection of Vermont Route 74 and Route 22A in Shoreham, Vermont (Appendix 1, page 1). The property is bounded on the north by Route 74, on the east by Route 22A, and on the south and west by residential and commercial properties. The property (town parcel #27) consists of 1.1 acres in a commercial/residential area. A site map (Appendix 1, page 2) shows the layout of the property and the location of the Blaise's building, the only structure on the site. Other than a section of the property adjacent to the southern end of the building, the property is unpaved.

The site topography is level to gently sloping towards the west. On the western boundary of the property is a swale that contains a surface watercourse. Running from south to north through the site, the path of this watercourse has likely been modified by human interaction over time. Measurements of the flow rate on September 11, 1998 along the length of the watercourse ranged from stagnant to three gallons per minute (gpm). The swale ends upon intersection with the Blaise's lawn, where a culvert then transports the water into a wetland located on the north side of Route 74. In addition to the upstream (off-site) source, two culverts and a drainage ditch (see site map) add input to the watercourse from adjacent properties.

As indicated on the surficial geologic map of Vermont (Appendix 1, page 3-4), the site is located in an area of glacial till surrounded by bedrock and lacustrine sediments. Shallow soil borings completed by H&N (Appendix 2) indicate that the native material was clay and silt, likely associated with lacustrine sedimentary processes.

### 3.0 WORK COMPLETED

#### 3.1 Monitoring Well Installation

A total of four soil borings were drilled on the Blaise property on August 26, 1998. All borings were performed using a hollow-stem auger, and were subsequently configured with monitoring wells to evaluate hydrogeologic conditions and soil and groundwater quality. Specialty Drilling & Investigation (SDI) of Burlington, Vermont performed the drilling, while H&N personnel supervised all work. SDI's drilling logs are included in Appendix 2.

Monitoring wells were constructed of two-inch (i.d.) PVC casing with flush-threaded joints and ten-foot, factory-slotted screened sections (0.020 inch slotted). Screened sections were covered with filter sock, and boreholes were backfilled with native soil. Two-foot bentonite seals were placed above the screened sections of the wells. Well construction details are included in Table 1 (Appendix 3, page 1). All four monitoring wells, labeled MW-1 through MW-4 (see site map), were developed after installation.

#### 3.2 Soil Screening and Sampling

During the soil boring program, discrete interval (split-spoon) soil samples, obtained from drill cuttings, were screened with an HNu Systems, Inc. Model PI 101 photoionization detector (PID) equipped with a 10.2 eV lamp. The PID was calibrated throughout each day with a 56 ppm isobutylene span gas. Soil samples were placed in zip-lock plastic bags and/or glass jars covered with foil, and permitted to equilibrate for a minimum of fifteen minutes prior to headspace screening. Headspace screening results are included on soil boring logs (Appendix 2).

#### 3.3 Groundwater Sampling

Groundwater samples were collected from each of the four monitoring wells on September 11, 1998. Prior to sampling, wells were purged of at least three well volumes of water. Samples were then collected with dedicated bailers. Although a petroleum odor was observed during the sampling of MW-3 and MW-4, no sheen or free product was observed in any of the wells.

In addition to the four monitoring wells, samples were collected from two hand-installed test wells adjacent to the wetland on the north side of Route 74. These shallow test wells are labeled S-1 and S-2 on the site map. Dug to a depth of approximately 18 inches, these two wells intersected the water table. After allowing water to fill and equilibrate in the test wells, grab samples were collected. All water samples were preserved with hydrochloric acid and ice, and submitted to Endyne, Inc.

### **3.4 Site Survey and Water Table Elevations**

Monitoring well locations and top-of-casing (TOC) elevations were surveyed by H&N on September 11, 1998. A benchmark of 1000 feet was located (top of the Tri-Town water valve adjacent to Route 22A) from existing engineer's drawings. Locations of all monitoring wells can be seen on the site map. Elevations of the water surface at locations along the watercourse, and within the two test wells, were also measured.

Water level measurements were also obtained from all monitoring wells on September 11, 1998 prior to groundwater sampling. Groundwater elevations were calculated by subtracting the measured water levels from the surveyed TOC elevations. A water table elevation contour map was subsequently constructed (Appendix 1, page 5). The monitoring well elevation data are also presented in Table 2 (Appendix 3 page 2). A discussion of the groundwater elevation data is presented in Section 4.2.

## **4.0 INVESTIGATION RESULTS**

### **4.1 Stratigraphy**

During the soil boring program, soils were logged continuously from split-spoon samples and drill cuttings. Soil boring logs are presented in Appendix 2.

In general, fill material is present across the site to approximately 4 feet bgs. The fill material consists of varying percentages of coarse-fine sand, silt, organic debris and wood debris. Native lacustrine clay, silty clay and silt underlie the fill material.

The thickness of the silty- clay unit and the depth to bedrock are unknown.

## 4.2 Hydrogeology

As discussed in Section 3.4, groundwater elevations were calculated from monitoring well water level measurements (Appendix 3, Table 2). In addition to the monitoring well data, the elevations of the surface water in the swale were used to better define the shape of the phreatic surface. Considering that this is a regional discharge area (see USGS map, Appendix 1, page 1), water in the swale is a reflection of groundwater discharge. The locations of the five surface water measurements are marked as Stream A to Stream D on the site map. Using the monitoring well and surface water elevations, a water table elevation contour map was constructed (Appendix 1, page 5).

The water table contour map indicates that apparent shallow groundwater flow across the majority of site is to the north towards Cedar Swamp. Flow of the groundwater in the subsurface is the same direction as the flow of water in the nearby watercourse. Local water table elevation anomalies were observed in the vicinity of MW-1, and near the Blaise residence in MW-3. The water table horizontal gradient averages approximately 0.010 feet/foot across the site (Stream D to Stream A).

## 4.3 Contaminant Distribution

### 4.3.1 Soil

Split-spoon samples and drill cuttings were collected from select depths below ground surface and screened in the field for volatile organic compounds via headspace analyses with a PID. Headspace screening results are included on soil boring logs in Appendix 2.

Headspace PID readings ranged from 0.2 (background level) to 90 ppm. The screening results indicated that there were no obvious signs of soil contamination in the southern portion of the property, but that there is soil contamination in the vicinity of the former gasoline USTs.

### 4.3.2 Groundwater

Groundwater samples collected on September 11, 1998 were analyzed at Endyne, Inc. Petroleum hydrocarbons were identified in monitoring wells MW-3, MW-4, and in test well S-1. Select analytical results can be seen in Table 3 (Appendix 3, page 3). Laboratory analytical results are presented in Appendix 4.

MW-3 had detectable concentrations of Benzene (220 ppb), Toluene (249 ppb), Ethylbenzene (273 ppb), Xylene (1070 ppb), and MTBE (24 ppb). Total Petroleum Hydrocarbons (TPH) were detected (5060 ppb), and greater than 10 unidentified peaks were counted.

MW-4 had detectable concentrations of Benzene (313 ppb), Toluene (1840 ppb), Ethylbenzene (854 ppb), Xylene (10300 ppb), and MTBE (trace below quantization limit of 200 ppb). TPH were detected (32000 ppb), and greater than 10 unidentified peaks were counted.

Of the two test well samples, only S-1 had detectable concentration of Toluene (15.2 ppb).

Lab results from EPA methods 8260 and 8021b analyses of the remaining monitoring well and test well samples were below detection limits.

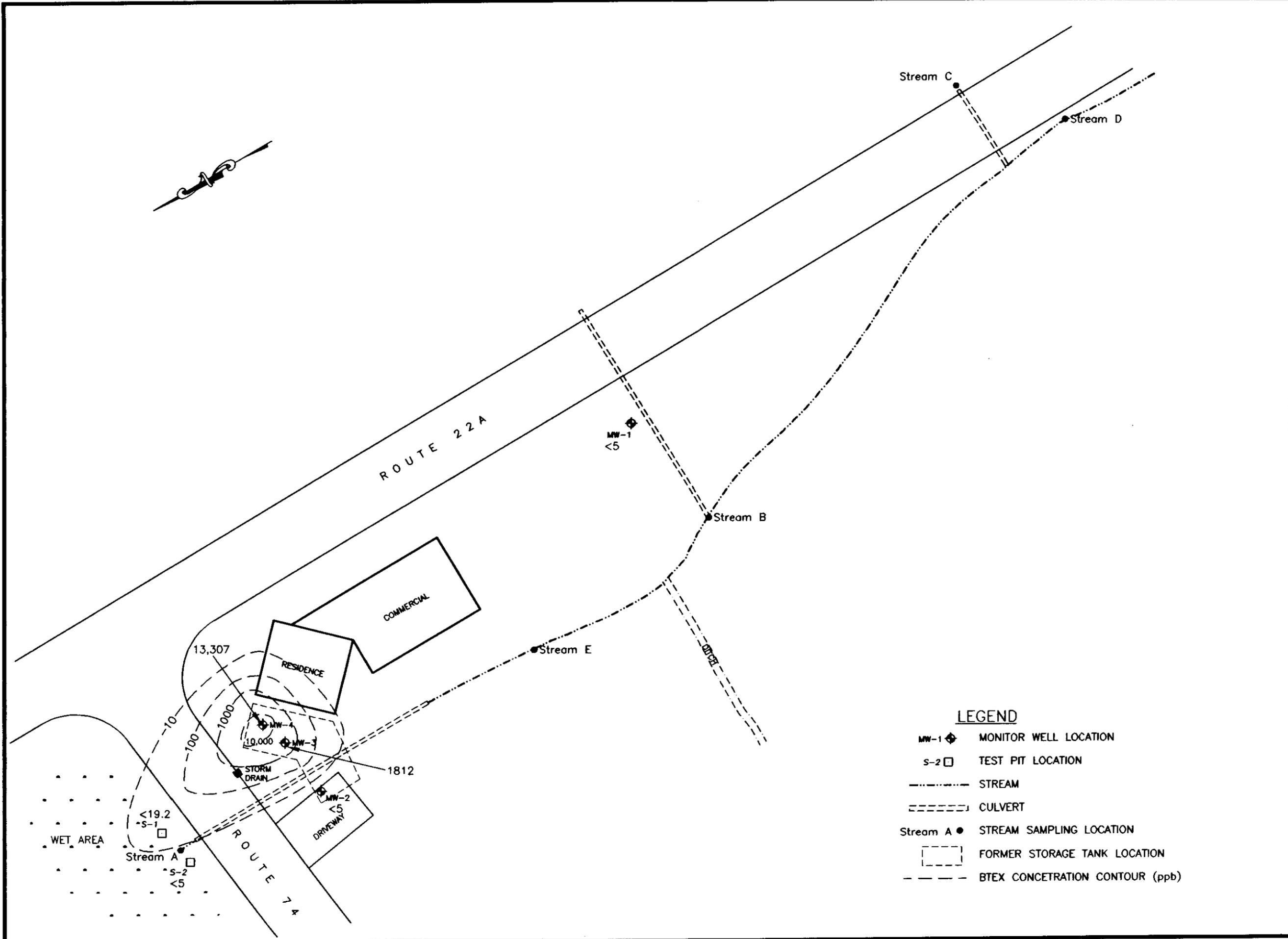
A contaminant concentration map (Appendix 1, page 6) was generated using the above laboratory results. The combined data for Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) are contoured according to their concentrations in order to delineate the boundaries of the contaminant plume. This map indicates that the center of the plume is in the eastern section of the footprint of the former USTs. Although the majority of the contamination has remained in this footprint, meaning that there has not been significant contaminant migration, the edge of the plume is detectable on the north side of Route 74. The fact that contamination was not found in groundwater sampled from MW-1 indicates that there is no detectable upgradient source of hydrocarbon contamination.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

Results of this investigation indicate that there is subsurface petroleum hydrocarbon contamination present in the northern portion of the Blaise property, in the vicinity of the former gasoline USTs (refer to site map). This determination is based on laboratory analytical results of groundwater samples collected from monitoring wells MW-3 and MW-4, and from test well S-1. From the shape of the contaminant concentration contours, there is some indication that the contamination has migrated downgradient from the Blaise property. However, because only trace levels of Xylene were detected in one of the test wells, there is only a limited extent of downgradient migration.

Given the above facts, there is no reason to believe that the UST release that occurred prior to the Blaise's purchase of the property is presently a threat to neighboring properties. The risk to the surrounding environment, including the flora and fauna associated with the abutting watercourse and Cedar Swamp, is also limited.

Because the source of contamination was removed in 1996, the best recourse to handle the contamination detected in the footprint of the former USTs is to allow it to naturally degrade. The progress of this degradation should be monitored regularly, and groundwater samples should be collected on a quarterly basis for one year. After four rounds of water quality sampling the owner may seek a closure letter if there are no significant changes in the distribution and concentration of contaminants.



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 • Environmental Engineering •  
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 BURLINGTON, VERMONT 05406-4709

Prepared By:  
 Information & Visualization Services

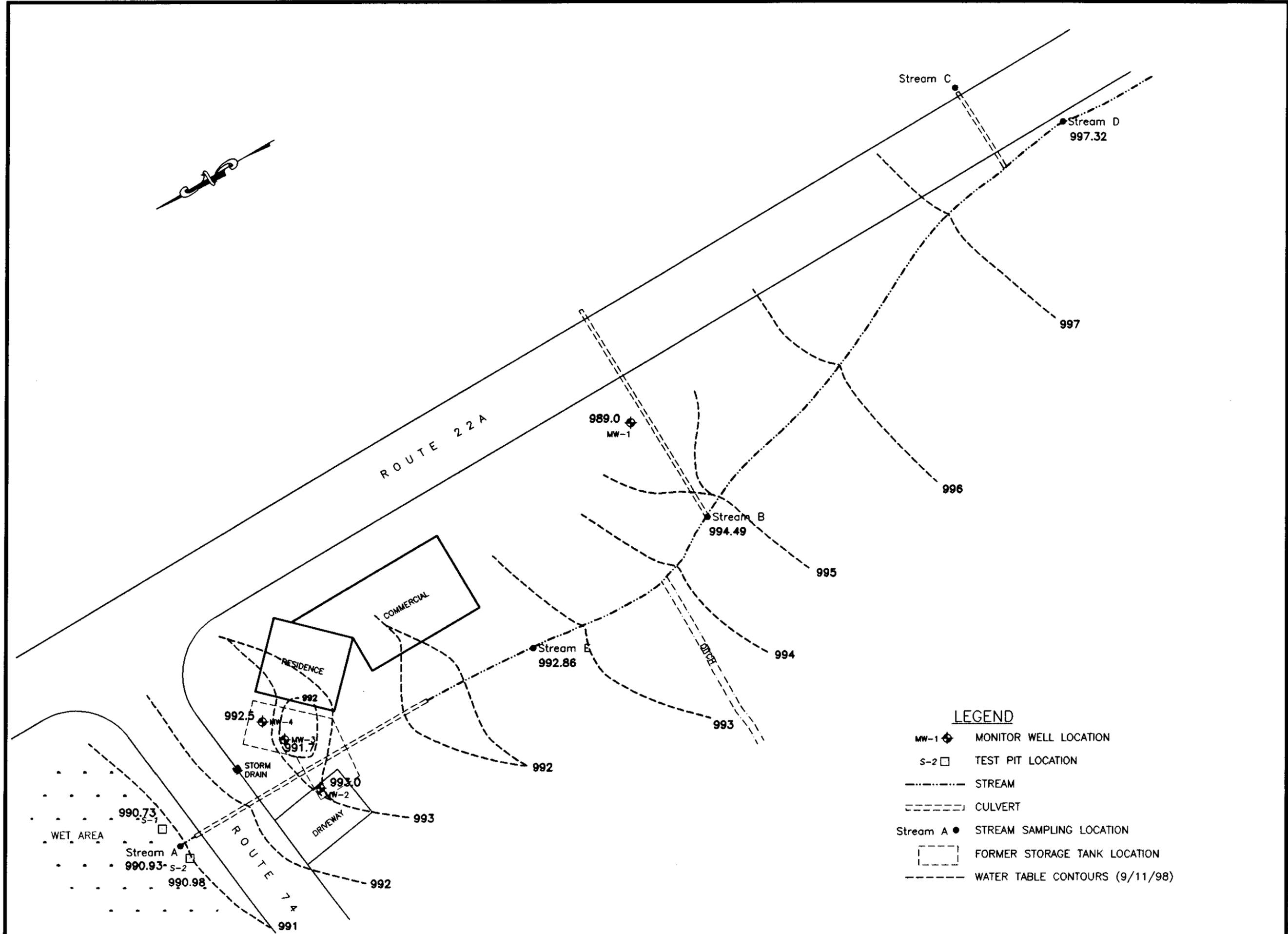
DATE: OCTOBER 20, 1998  
 PROJECT NO. 98145  
 DRAWN BY: M. Luman  
 PROJ. MGR: M. Waite  
 APPROVED: J. Noyes

DRAFT     FINAL

Blaise/Shoreham  
 VERMONT

SHOREHAM,  
 BTEX CONCENTRATION CONTOUR MAP (ppb) - 9/11/98

SCALE: 1" = 50'  
 FILE: C:\BLAISE\ SITEPLAN

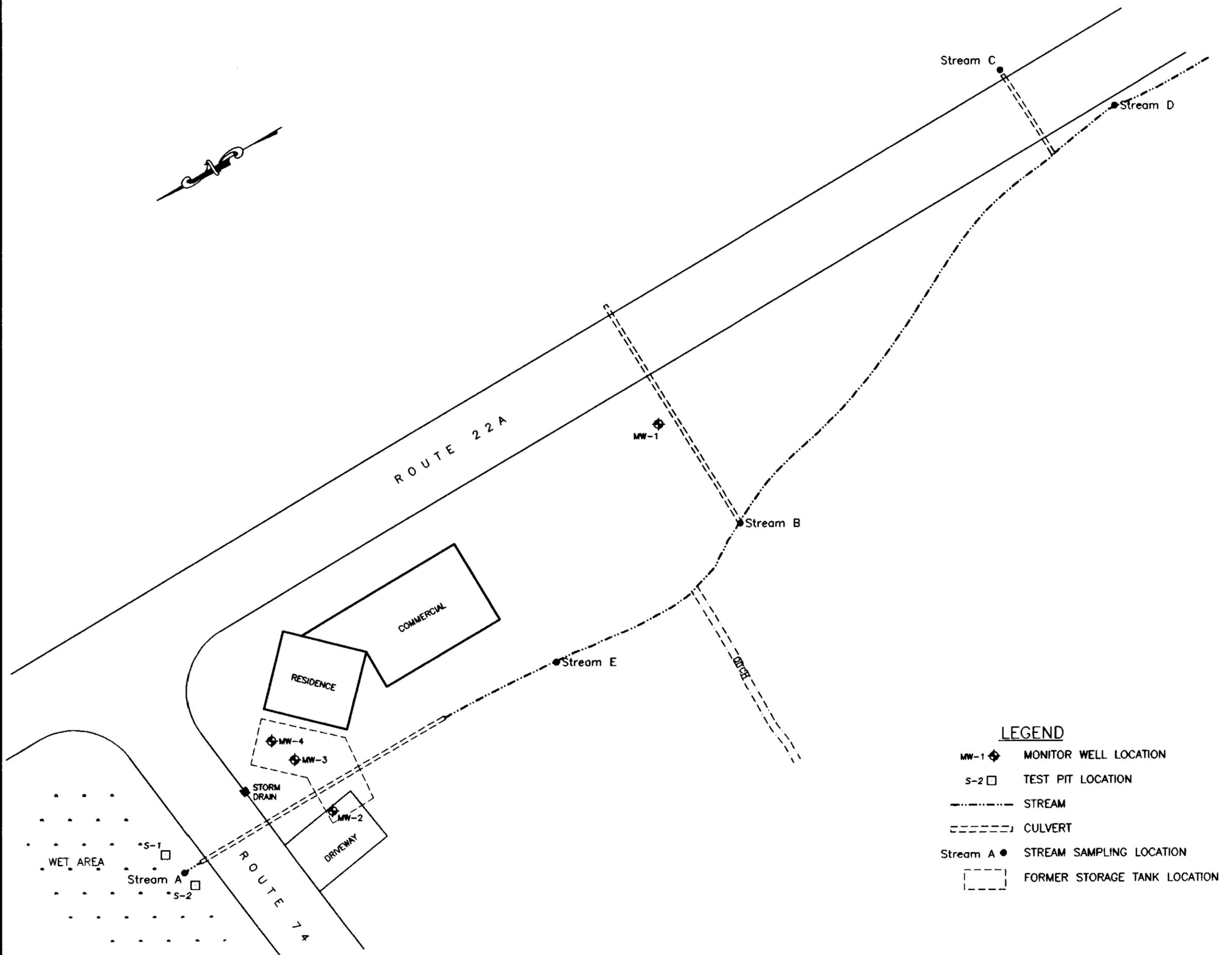


- LEGEND**
- MW-1 ◆ MONITOR WELL LOCATION
  - S-2 □ TEST PIT LOCATION
  - STREAM
  - - - - - CULVERT
  - Stream A ● STREAM SAMPLING LOCATION
  - FORMER STORAGE TANK LOCATION
  - - - - - WATER TABLE CONTOURS (9/11/98)

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Blaise/Shoreham  
 VERMONT  
 SHOREHAM,  
 WATER TABLE CONTOUR MAP - 9/11/98  
 SCALE: 1"=50'  
 FILE: C:\BLAISE\SITEPLAN



- LEGEND**
- MW-1 ◆ MONITOR WELL LOCATION
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Prepared By:  
Information & Visualization Services

DATE: OCTOBER 20, 1998	<input type="checkbox"/> DRAFT	<input type="checkbox"/> FINAL
PROJECT NO. 98145		
DRAWN BY: M. Luman		
PROJ. MGR: M. Waite		
APPROVED: J. Noyes		

**Blaise/Shoreham**

VERMONT

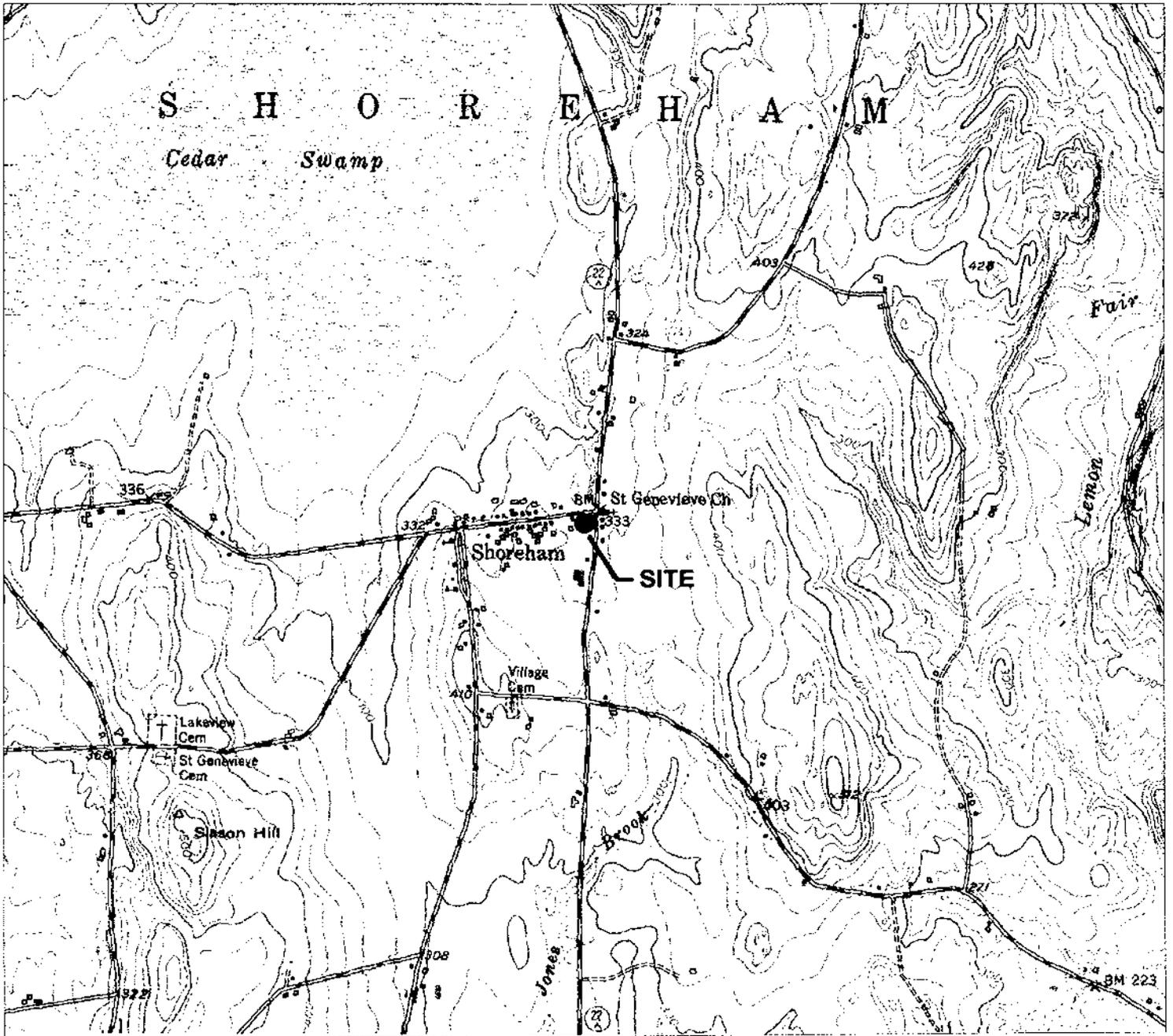
SHOREHAM, VERMONT

**SITE PLAN**

FILE: C:\BLAISE\ SITEPLAN

SCALE: 1" = 50'

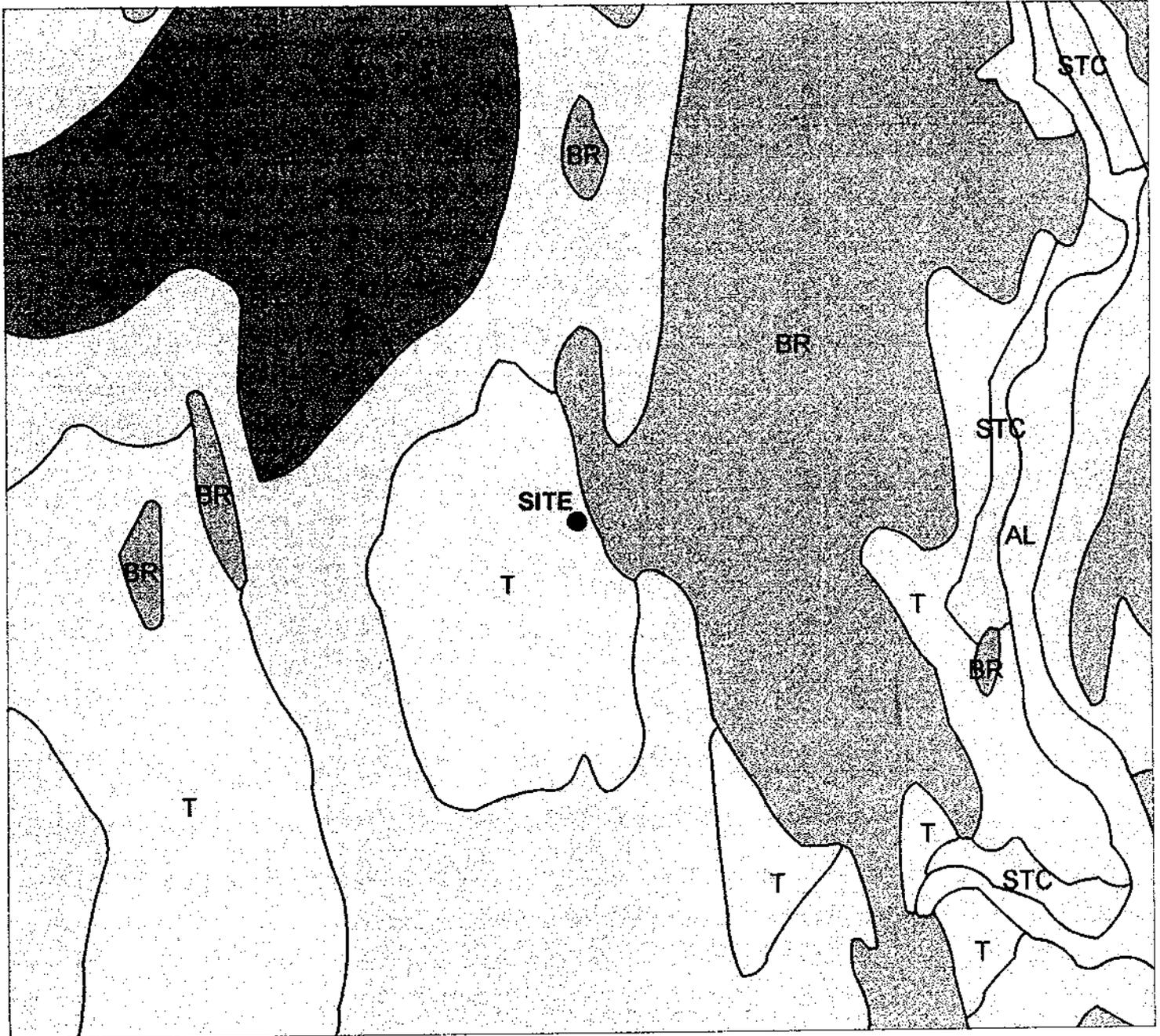
# USGS Topography Map of Blaise Property - Shoreham, Vermont



2000 0 2000 Feet



# Surficial Geology Map Blaise Property - Shoreham, Vermont



2000 0 2000 4000 Feet

SURFICIAL LEGEND ON FOLLOWING PAGE



P.O. Box 4700 • Shelburne, Vermont 05484-4700 • Tel. (802) 968-0437 • Fax: (802) 968-1314

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# SURFICIAL GEOLOGY LEGEND

## GLACIOLACUSTRINE



### LITTORAL SEDIMENT PREDOMINANTLY GRAVEL

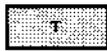
LG- horizontally bedded gravel deposited in a shoaling lake or topset beds of deltaic gravel where no foreset bedding is exposed.

BG- beach gravel.

DG- delta gravel showing foreset bedding.

D- small deltas composed of sand and gravel.

## GLACIAL



TILL

Till mantling the bedrock and reflecting the topography of the underlying bedrock surface. Thicker in the valleys and thinner on the uplands. On many exposed uplands, postglacial erosion has left only rubble and scattered boulders on the bedrock.



MORaine

Ice marginal till accumulations with morainic topography.  
M- frontal moraine assumed to be recessional  
TM- terminal moraine.



KAME GRAVEL

Ice contact outwash gravel.

K- isolated kame.

KT- kame terrace

KM- kame moraine, kame complex with morainic topography. Till from the top of which the finer materials have been removed by wave action, leaving boulder concentrations on the surface.



OUTWASH

Horizontally bedded glaciofluvial gravel. Spillway or valley train gravel in stream valleys. May or may not have a thin veneer of postglacial alluvium.



ESKER

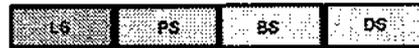
A sinuous ridge of constructional form, consisting of stratified accumulations of glacial sand and gravel.

## EOLIAN



EOLIAN SAND AND DUNES

Deposits of sand arranged by the wind.



### LITTORAL SEDIMENT PREDOMINANTLY SAND

LS- well sorted sand, no pebbles or boulders.

PS- pebbly sand.

BS- sand containing ice rafted boulders.

DS- delta sand.



### LAKE BOTTOM SEDIMENTS

STC- silt, silty clay, and clay.

VC- varved clay.

BC- silt, silty clay, and/or clay containing ice rafted boulders.



WAVE-WASHED TILL

Till from the top of which the finer materials have been removed by wave action, leaving boulder concentrations on the surface.



BEACH RIDGE

A linear accumulation of beach material, behind the beach which was created from waves or other action.

## POSTGLACIAL FLUVIAL



FLUVIAL GRAVEL

Gravel laid down by a river or a stream.



FLUVIAL SAND

Sand laid down by a river or a stream.



RECENT ALLUVIUM

Accumulations of detrital materials, which have been eroded, transported, and deposited by streams.

## CHAMPLAIN SEA



MARINE BEACH GRAVEL



MARINE SAND

MS- marine sand without pebbles or boulders.

PSM- pebbly marine sand.



MARINE CLAY



GRAVEL BAR

A natural mound or exposed face of gravel.

## PLUVIAL



SWAMP, PEAT and/or MUCK



BEDROCK EXPOSURES

Locations with a solid filled bedrock symbol was taken directly from the state source maps.

Locations with a hatch filled bedrock symbol represents generalized centerlines of state source map bedrock symbols with a 25m buffer.

### SOURCE NOTES.

Surficial Geology was digitized and scanned by Wegner, Heindel, and Noyes, into a PC ARCADINFO database from 1:62500 original State of Vermont surficial geology base maps (1956-1966).

These base maps were created under the supervision of David P. Stewart (1956-1966), Paul MacClintock (1963-1966), William F. Cannon (1964), G. Gordon Connally (1965), Parker E. Calkin (1965).

Robert E. Behling (1966), and William W. Shilts (1966). Surficial data for most of the state is available, in 15 minute quads, from IVS at WHN, Inc. (802) 658-0820.

Generalized Bedrock Outcrops were digitized from 1:62500 state surficial geology maps as linear features, which were buffered to 25m. Data available from IVS at WHN, Inc. with surficial geology coverages.

Road Centerlines were generated from pre-1990 1:50000 orthophotos (or better). Road data (RDSnri) is available from the Vermont Center for Geographic Information, VCGI (802) 656-4277.

Linear Surface Waters are Digital Line Graph Data, generated from 1:24,000 USGS topographic maps. This data is available from VGIS.

Town Boundaries were digitized from pre-1990 1:24000 USGS topographic maps. This coverage was created by the EPA and is available through VGIS.

Legend derived from 1:250,000 Surficial Geologic Map of Vermont (1970)



# SOIL BORING LOG

 <p><b>SPECIALTY</b> <b>DRILLING &amp;</b> <b>INVESTIGATION</b></p>	P.O. Box 64709, Burlington, Vermont 05406-4709, Tel: 802-658-0820, Fax: 802-860-1014	Project Name: Blaise/Shoreham Project Location: _____ Boring Number: MW-1 Sheet 1 of 4 SDI Project Number: _____				
Boring Location: MW-1 Foreman: Chris Aldrich H&N Staff: Chris Aldrich and Brian Beaudoin		Date Started: 8/26/98 Date Completed: 8/26/98	Rig Hours Meter Start : 81.5 Rig Hours Meter End: 89.3			
Casing Size: _____ Type: Split Spoon Other: _____ Hammer: 140 Pounds Hammer: _____ Fall: 30 Inches Fall: _____		Groundwater Readings Date _____ Depth _____ Casing _____ Stabil. _____ Time _____				
Sample		Sample Description	Stratra Change & General Description	Field Testing PID	Equipment or Well Installed	
No.	Rec.	Depth	Blows			
1	12"	3-5	2,3,6,6	Lacustrine clays, wood debris, brown clays and silts Fill to 4' then native	BKGRD=0.2 ppm 0.2 ppm	
2	21"	5-7	2,7,7,12	Lacustrine clays (brown/gray)	0.4 ppm	
3	24"	7-9	16,24,24,30	As above	0.2 ppm	
4	24"	9-11	4,8,10,6	As above	0.2 ppm	
5	24"	12-15	6,6,5,6	As above	0.2 ppm	
				Set well to 15' 10' .020 w/sock Sandpack 5' riser Plug and cap, flush mount, Bentonite seal		
<u>Proportions Used</u> Trace: 0 to 10% Little: 10 to 20% Some: 20 to 35% And: 35 to 50%		<u>Penetration Resistance</u> 140 lb wt falling 20" on 2" O.D. Sampler <u>Cohesive</u> Density 0-4 Very Loose 5-9 Loose 10-29 Med. Dense 30-49 Dense 50+ Very Dense		<u>Consistency</u> 0-2 Very Soft 3-4 Soft 5-8 M/Stiff 9-15 Stiff 16-30 Very Stiff 31+ Hard		<u>Well Construction Legend</u> Concrete: _____ Bentonite: _____ Grout _____ Silica Sand _____ Backfill: _____ Bedrock _____

# SOIL BORING LOG

	P.O. Box 64709, Burlington, Vermont 05406-4709, Tel: 802-658-0820, Fax: 802-860-1014	Project Name: Blaise/Shoreham Project Location: _____ Boring Number: MW-2 Sheet 2 of 4 SDI Project Number: _____					
Boring Location: MW-2 Foreman: Chris Aldrich H&N Staff: Chris Aldrich and Brian Beaudoin		Date Started: 8/26/98 Date Completed: 8/26/98					
Rig Hours Meter Start : 81.5 Rig Hours Meter End: 89.3							
Casing Size: _____ Type: Split Spoon Other: _____ Hammer: 140 Pounds Hammer: _____ Fall: 30 Inches Fall: _____		Groundwater Readings Date _____ Depth _____ Casing _____ Stabil. _____ Time _____					
Sample Description		Stratra Change & General Description					
Field Testing PID		Equipment or Well Installed					
No.	Rec.	Depth	Blows	Sample Description	Stratra Change & General Description	Field Testing PID	Equipment or Well Installed
1	14"	5-7	2,1,1,3	Wet/brown silty clays		BKGRD = 0.2 ppm 0.3 ppm	
2	18"	7-9	2,1,1,3	6" fill material then, 6" native clays and silts.		0.3 ppm	
				Augured 8', Set well 5' .020 w/sock and sandpack 3' riser, Bentonite seal Plug, locking gripper, flush mount			
<b>Proportions Used</b> Trace: 0 to 10% Little: 10 to 20% Some: 20 to 35% And: 35 to 50%		<b>Penetration Resistance</b> 140 lb wt falling 20" on 2" O.D. Sampler <b>Cohesive</b> <b>Density</b> 0-4 Very Loose 5-9 Loose 10-29 Med. Dense 30-49 Dense 50+ Very Dense		<b>Consistency</b> 0-2 Very Soft 3-4 Soft 5-8 M/Stiff 9-15 Stiff 16-30 Very Stiff 31+ Hard		<b>Well Construction Legend</b> Concrete: _____ Bentonite: _____ Grout _____ Silica Sand _____ Backfill: _____ Bedrock _____	

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	P.O. Box 64709, Burlington, Vermont 05406-4709, Tel: 802-658-0820, Fax: 802-860-1014	Project Name: Blaise/Shoreham Project Location: _____ Boring Number: MW-3 Sheet 3 of 4 SDI Project Number: _____					
Boring Location: MW-3 Foreman: Chris Aldrich H&N Staff: Chris Aldrich and Brian Beaudoin		Date Started: 8/26/98 Date Completed: 8/26/98					
Rig Hours Meter Start : 81.5 Rig Hours Meter End: 89.3							
Casing: _____ Type: Split Spoon _____ Other: _____ Hammer: 140 Pounds _____ Hammer: _____ Fall: 30 Inches _____ Fall: _____		Groundwater Readings Date _____ Depth _____ Casing _____ Stabil. _____ Time _____					
Sample Description		Strata Change & General Description	Field Testing PID	Equipment or Well Installed			
No.	Rec.	Depth	Blows				
1	7"	5-7	1,2,8-refusal	Gray/brown clay, sand, fill material		BKGRD=0.2 ppm 0.8 ppm	
2	4"	7-9	1,14	Fill material (stone, wood), strong Petro odor, augered to 9.5' refusal  Installed well 7' .020 w/sock and sandpack, Bentonite seal. Cap, locking gripper, flush mount		6.2 ppm	
<u>Proportions Used</u> Trace: 0 to 10% Little: 10 to 20% Some: 20 to 35% And: 35 to 50%		<u>Penetration Resistance</u> 140 lb wt falling 20" on 2" O.D. Sampler <u>Cohesive</u> Density 0-4 Very Loose 5-9 Loose 10-29 Med. Dense 30-49 Dense 50+ Very Dense		<u>Cohesive</u> Consistency 0-2 Very Soft 3-4 Soft 5-8 M/Stiff 9-15 Stiff 16-30 Very Stiff 31+ Hard		<u>Well Construction Legend</u> Concrete: _____ Bentonite: _____ Grout _____ Silica Sand _____ Backfill: _____ Bedrock _____	

# SOIL BORING LOG

	P.O. Box 64709, Burlington, Vermont 05406-4709, Tel: 802-658-0820, Fax: 802-860-1014	Project Name: Blaise/Shoreham Project Location: _____ Boring Number: MW-4 Sheet 4 of 4 SDI Project Number: _____					
Boring Location: MW-4 Foreman: Chris Aldrich H&N Staff: Chris Aldrich and Brian Beaudoin		Date Started: 8/26/98 Date Completed: 8/26/98 Rig Hours Meter Start : 81.5 Rig Hours Meter End: 89.3					
Casing Size: _____ Type: Split Spoon Other: _____ Hammer: 140 Pounds Hammer: _____ Fall: 30 inches Fall: _____		Sampler _____ _____ _____					
		Groundwater Readings Date _____ Depth _____ Casing _____ Stabil. _____ Time _____					
Sample No. Rec. Depth Blows		Sample Description Stratra Change & General Description Field Testing PID Equipment or Well Installed					
		BKGRD=0.2 ppm					
1	12"	5-7	2,1,1,3	Fill materials, then clay, odor of decayed gas.	90.0		
2	14"	8-10	1,3,5,6	6" fill then 8" clay	85.0		
				Odor of decayed gas Augered down to 10' Set well, 8' .020 w/sock Plug, locking gripper Flush mount			
<u>Proportions Used</u> Trace: 0 to 10% Little: 10 to 20% Some: 20 to 35% And: 35 to 50%		<u>Penetration Resistance</u> 140 lb wt falling 20" on 2" O.D. Sampler <u>Cohesive</u> <u>Density</u> 0-4 Very Loose 5-9 Loose 10-29 Med. Dense 30-49 Dense 50+ Very Dense		<u>Consistency</u> 0-2 Very Soft 3-4 Soft 5-8 M/Stiff 9-15 Stiff 16-30 Very Stiff 31+ Hard		<u>Well Construction Legend</u> Concrete: _____ Bentonite: _____ Grout _____ Silica Sand _____ Backfill: _____ Bedrock _____	

TABLE 1  
WELL CONSTRUCTION DETAILS  
Blaise Property  
Shoreham, Vermont

Monitoring Well	Total Depth (ft bgs)	Screened Interval (ft bgs)	Ground Surface Elevation (ft)	TOC Elevation (ft)
MW-1	15	10 - 15	1002.79	1001.33
MW-2	8	5 - 8	999.15	998.35
MW-3	9.5	7 - 9.5	999.05	998.37
MW-4	10	8 - 10	999.50	998.58

NOTES:

TOC = Top of casing

bgs = below ground surface

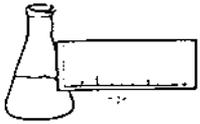
**TABLE 2**  
**WATER TABLE ELEVATIONS (FT)**  
**Blaise Property**  
**Shoreham, Vermont**

Monitoring Well	Top of Casing Elevation	9/11/98			
MW-01	1000.16	986.80			
MW-02	998.35	993.01			
MW-03	998.37	991.71			
MW-04	998.58	992.45			

TABLE 3  
GROUNDWATER QUALITY DATA  
Blaise Property  
Shoreham, Vermont

Monitoring Well	Parameter	Units	9/11/98
MW-01	Benzene	ppb	ND < 1
	Toluene	ppb	ND < 1
	Ethylbenzene	ppb	ND < 1
	Xylene	ppb	ND < 2
	Total BTEX	ppb	ND < 5
	MTBE	ppb	ND < 2
	Unidentified Peaks	#	0
	Total Petroleum Hydrocarbons	ppb	ND < 100
	Conductivity	umhos/cm	3550
MW-02	Benzene	ppb	ND < 1
	Toluene	ppb	ND < 1
	Ethylbenzene	ppb	ND < 1
	Xylene	ppb	ND < 2
	Total BTEX	ppb	ND < 5
	MTBE	ppb	ND < 2
	Unidentified Peaks	#	0
	Total Petroleum Hydrocarbons	ppb	ND < 100
	Conductivity	umhos/cm	1320
MW-03	Benzene	ppb	220
	Toluene	ppb	249
	Ethylbenzene	ppb	273
	Xylene	ppb	1070
	Total BTEX	ppb	1812
	MTBE	ppb	24
	Unidentified Peaks	#	> 10
	Total Petroleum Hydrocarbons	ppb	5060
	Conductivity	umhos/cm	2650
MW-04	Benzene	ppb	313
	Toluene	ppb	1840
	Ethylbenzene	ppb	854
	Xylene	ppb	10300
	Total BTEX	ppb	13307
	MTBE	ppb	ND < 200
	Unidentified Peaks	#	> 10
	Total Petroleum Hydrocarbons	ppb	32000
	Conductivity	umhos/cm	2280
S-01	Benzene	ppb	ND < 1
	Toluene	ppb	15.2
	Ethylbenzene	ppb	ND < 1
	Xylene	ppb	ND < 2
	Total BTEX	ppb	ND < 19
	MTBE	ppb	ND < 2
	Unidentified Peaks	#	0
	Total Petroleum Hydrocarbons	ppb	ND < 100
	Conductivity	umhos/cm	2000
S-02	Benzene	ppb	ND < 1
	Toluene	ppb	ND < 1
	Ethylbenzene	ppb	ND < 1
	Xylene	ppb	ND < 2
	Total BTEX	ppb	ND < 5
	MTBE	ppb	ND < 2
	Unidentified Peaks	#	0
	Total Petroleum Hydrocarbons	ppb	ND < 100
	Conductivity	umhos/cm	2410

ND = None detected  
TBQ = Trace below quantitation  
TNTC = To numerous to count



**ENDYNE, INC.**

Laboratory Services

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REPORT OF LABORATORY ANALYSIS

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
DATE REPORTED: September 17, 1998  
DATE SAMPLED: September 11, 1998

PROJECT CODE: HNBS1990  
REF. #: 126,993 - 126,998A

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

Chain of custody indicated sample preservation with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

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

Analytical method precision and accuracy were 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 data was determined to be within Laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.  
Laboratory Director

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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
REPORT DATE: September 17, 1998  
SAMPLER: MP/MW  
DATE SAMPLED: September 11, 1998  
DATE RECEIVED: September 11, 1998

PROJECT CODE: HNBS1990  
ANALYSIS DATE: September 16, 1998  
STATION: MW 1  
REF.#: 126,993  
TIME SAMPLED: 13:15

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g/L}</math>)</u>	<u>Concentration (<math>\mu\text{g/L}</math>)</u>
Benzene	1	ND <sup>1</sup>
1,3,5-Trimethylbenzene	1	ND
1,2,4-Trimethylbenzene	1	ND
Naphthalene	5	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylene	2	ND
MTBE	2	ND

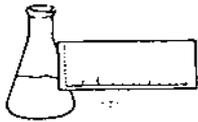
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 102.%  
Toluene-d8: 113.%  
4-Bromofluorobenzene: 103.%

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
REPORT DATE: September 17, 1998  
SAMPLER: MP/MW  
DATE SAMPLED: September 11, 1998  
DATE RECEIVED: September 11, 1998

PROJECT CODE: HNBS1990  
ANALYSIS DATE: September 16, 1998  
STATION: MW 2  
REF.#: 126,994  
TIME SAMPLED: 11:45

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g/L}</math>)</u>	<u>Concentration (<math>\mu\text{g/L}</math>)</u>
Benzene	1	ND <sup>1</sup>
1,3,5-Trimethylbenzene	1	ND
1,2,4-Trimethylbenzene	1	ND
Naphthalene	5	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylene	2	ND
MTBE	2	ND

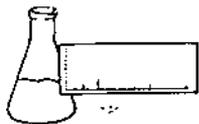
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 101.%  
Toluene-d8: 118.%  
4-Bromofluorobenzene: 104.%

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
REPORT DATE: September 17, 1998  
SAMPLER: MP/MW  
DATE SAMPLED: September 11, 1998  
DATE RECEIVED: September 11, 1998

PROJECT CODE: HNBS1990  
ANALYSIS DATE: September 17, 1998  
STATION: MW 3  
REF.#: 126,995  
TIME SAMPLED: 12:00

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g/L}</math>)<sup>1</sup></u>	<u>Concentration (<math>\mu\text{g/L}</math>)</u>
Benzene	10	220.
1,3,5-Trimethylbenzene	10	44.7
1,2,4-Trimethylbenzene	10	389.
Naphthalene	50	67.0
Ethylbenzene	10	273.
Toluene	10	249.
Xylene	20	1,070.
MTBE	20	24.0

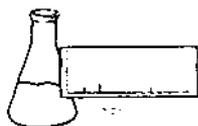
NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 105.%  
Toluene-d8: 116.%  
4-Bromofluorobenzene: 105.%

NOTES:

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



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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
REPORT DATE: September 17, 1998  
SAMPLER: MP/MW  
DATE SAMPLED: September 11, 1998  
DATE RECEIVED: September 11, 1998

PROJECT CODE: HNBS1990  
ANALYSIS DATE: September 16, 1998  
STATION: MW 4  
REF.#: 126,996  
TIME SAMPLED: 12:30

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g/L}</math>)<sup>1</sup></u>	<u>Concentration (<math>\mu\text{g/L}</math>)</u>
Benzene	100	313.
1,3,5-Trimethylbenzene	100	667.
1,2,4-Trimethylbenzene	100	2,030.
Naphthalene	500	951.
Ethylbenzene	100	854.
Toluene	100	1,840.
Xylene	200	10,300.
MTBE	200	ND <sup>2</sup>

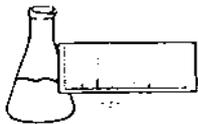
NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 100.%  
Toluene-d8: 108.%  
4-Bromofluorobenzene: 103.%

NOTES:

- 1 Detection limit increased due to high levels of contaminants. Sample run at a 1.% dilution.
- 2 None detected



**ENDYNE, INC.**

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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
REPORT DATE: September 17, 1998  
SAMPLER: MP/MW  
DATE SAMPLED: September 11, 1998  
DATE RECEIVED: September 11, 1998

PROJECT CODE: HNBS1990  
ANALYSIS DATE: September 16, 1998  
STATION: S-1  
REF.#: 126,997  
TIME SAMPLED: 13:20

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g/L}</math>)</u>	<u>Concentration (<math>\mu\text{g/L}</math>)</u>
Benzene	1	ND <sup>1</sup>
1,3,5-Trimethylbenzene	1	ND
1,2,4-Trimethylbenzene	1	ND
Naphthalene	5	ND
Ethylbenzene	1	ND
Toluene	1	15.2
Xylene	2	ND
MTBE	2	ND

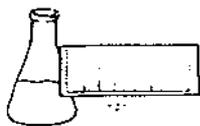
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 98.%  
Toluene-d8: 115.%  
4-Bromofluorobenzene: 104.%

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
REPORT DATE: September 17, 1998  
SAMPLER: MP/MW  
DATE SAMPLED: September 11, 1998  
DATE RECEIVED: September 11, 1998

PROJECT CODE: HNBS1990  
ANALYSIS DATE: September 16, 1998  
STATION: S 2  
REF.#: 126,998  
TIME SAMPLED: 13:30

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g/L}</math>)</u>	<u>Concentration (<math>\mu\text{g/L}</math>)</u>
Benzene	1	ND <sup>1</sup>
1,3,5-Trimethylbenzene	1	ND
1,2,4-Trimethylbenzene	1	ND
Naphthalene	5	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylene	2	ND
MTBE	2	ND

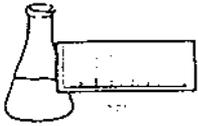
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 97.%  
Toluene-d8: 117.%  
4-Bromofluorobenzene: 103.%

NOTES:

1 None detected



**ENDYNE, INC.**

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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
REPORT DATE: September 17, 1998  
SAMPLER: MP/MW  
DATE SAMPLED: September 11, 1998  
DATE RECEIVED: September 11, 1998

PROJECT CODE: HNBS1990  
ANALYSIS DATE: September 16, 1998  
STATION: Trip Blank  
REF.#: 126,998A  
TIME SAMPLED: Not Indicated

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g/L}</math>)</u>	<u>Concentration (<math>\mu\text{g/L}</math>)</u>
Benzene	1	ND <sup>1</sup>
1,3,5-Trimethylbenzene	1	ND
1,2,4-Trimethylbenzene	1	ND
Naphthalene	5	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylene	2	ND
MTBE	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 99.%  
Toluene-d8: 102.%  
4-Bromofluorobenzene: 102.%

NOTES:

1 None detected

**CHAIN-OF-CUSTODY RECORD**

29165

Project Name: <u>Blaise/Shire harm</u>	Reporting Address: <u>H&amp;N</u>	Billing Address: <u>H&amp;N</u>
Site Location: <u>State Contam. Invest.</u>		
Endyne Project Number: <u>HNBS 1990</u>	Company: <u>H&amp;N</u>	Sampler Name: <u>MP+MW</u>
	Contact Name/Phone #: <u>Mikes White</u>	Phone #: <u>658-0820</u>

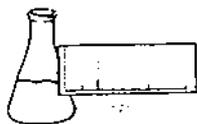
Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
126993	MW1	H <sub>2</sub> O	X		9/11 13:15	2	40mL		80216 TPII	HCl	
126994	MW2				11:45				by ACYS		
126995	MW3				12:00						
126996	MW4				12:30						
126997	S1				13:20						
126998	S2				13:30						
126998A	Trip Blank								8021B		

Relinquished by: Signature <u>[Signature]</u>	Received by: Signature <u>[Signature]</u>	Date/Time <u>9/11/98 5:05 pm</u>
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes  No

**Requested Analyses**

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD <sub>5</sub>	14	Turbidity	19	BTEX + MSBE	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): <u>Total Petroleum Hydrocarbons per 8015 mod</u>										



**ENDYNE, INC.**

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REPORT OF LABORATORY ANALYSIS

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
DATE REPORTED: September 17, 1998  
DATE SAMPLED: September 11, 1998

PROJECT CODE: HNBS1989  
REF. #: 126,988 - 126,992

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

Chain of custody indicated sample preservation with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

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

Analytical method precision and accuracy were 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

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Laboratory Services

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LABORATORY REPORT

TOTAL PETROLEUM HYDROCARBONS (TPH) BY MODIFIED EPA METHOD 8015

DATE: September 17, 1998  
CLIENT: Heindel & Noyes  
PROJECT: Blaise/Shoreham  
PROJECT CODE: HNBS1989  
COLLECTED BY: MP/MW  
DATE SAMPLED: September 11, 1998  
DATE RECEIVED: September 11, 1998

Reference #	Sample ID	Concentration (mg/L) <sup>1</sup>
126,988	A; 10:30	TBQ <sup>2</sup>
126,989	B; 10:50	0.47
126,990	C; 11:00	ND <sup>3</sup>
126,991	D; 11:10	ND
126,992	E; 10:40	ND

Notes:

- 1 Values quantitated based on the response of Gasoline. Method detection limit is 0.1 mg/L.
- 2 Trace below quantitation limit
- 3 None detected

**CHAIN-OF-CUSTODY RECORD**

29167

Project Name: <u>Blaise/Shechem</u>	Reporting Address: <u>H&amp;N</u>	Billing Address: <u>H &amp; N</u>
Site Location: <u>Citigation</u>		
Endyne Project Number: <u>HNBS1989</u>	Company: <u>H&amp;N</u> Contact Name/Phone #: <u>Miles Waite</u>	Sampler Name: <u>MP + MW</u> Phone #: <u>658-0320</u>

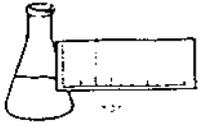
Lab #	Sample Location	Matrix	G R A N	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
126988	A	H <sub>2</sub> O	X		9/11 10:30	2	40 mL		80213, TPH	HCl	
126989	B	↓	↓		10:50	↓	↓		by 8015	↓	
126990	C	↓	↓		11:00	↓	↓		↓	↓	
126991	D	↓	↓		11:10	↓	↓		↓	↓	
126992	E	↓	↓		10:40	↓	↓		↓	↓	

Relinquished by: Signature <u>[Signature]</u>	Received by: Signature <u>[Signature]</u>	Date/Time <u>9/11/98 5:05pm</u>
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes      No     

**Requested Analyses**

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD <sub>5</sub>	14	Turbidity	19	BTEX + MTBE	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): <u>TPH by 8015, send</u>										



**ENDYNE, INC.**

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FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
DATE REPORTED: September 17, 1998  
DATE SAMPLED: September 11, 1998

PROJECT CODE: HNBS1988  
REF. #: 126,983 - 126,987

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

Chain of custody indicated sample preservation with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

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

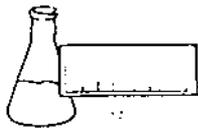
Analytical method precision and accuracy were monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

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

Reviewed by,

Harry B. Locker, Ph.D.  
Laboratory Director

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**ENDYNE, INC.**

Laboratory Services

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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
REPORT DATE: September 17, 1998  
SAMPLER: MP/MW  
DATE SAMPLED: September 11, 1998  
DATE RECEIVED: September 11, 1998

PROJECT CODE: HNBS1988  
ANALYSIS DATE: September 15, 1998  
STATION: A  
REF.#: 126,983  
TIME SAMPLED: 10:30

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g/L}</math>)</u>	<u>Concentration (<math>\mu\text{g/L}</math>)</u>
Benzene	1	ND <sup>1</sup>
1,3,5-Trimethylbenzene	1	ND
1,2,4-Trimethylbenzene	1	ND
Naphthalene	5	ND
Ethylbenzene	1	ND
Toluene	1	36.7
Xylene	2	ND
MTBE	2	ND

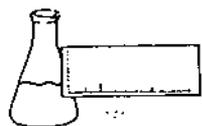
NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 103.%  
Toluene-d8: 107.%  
4-Bromofluorobenzene: 104.%

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
REPORT DATE: September 17, 1998  
SAMPLER: MP/MW  
DATE SAMPLED: September 11, 1998  
DATE RECEIVED: September 11, 1998

PROJECT CODE: HNBS1988  
ANALYSIS DATE: September 15, 1998  
STATION: B  
REF.#: 126,984  
TIME SAMPLED: 10:50

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g/L}</math>)</u>	<u>Concentration (<math>\mu\text{g/L}</math>)</u>
Benzene	1	ND <sup>1</sup>
1,3,5-Trimethylbenzene	1	ND
1,2,4-Trimethylbenzene	1	ND
Naphthalene	5	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylene	2	ND
MTBE	2	ND

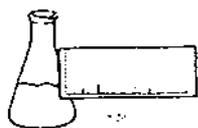
NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 102.%  
Toluene-d8: 108.%  
4-Bromofluorobenzene: 106.%

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
REPORT DATE: September 17, 1998  
SAMPLER: MP/MW  
DATE SAMPLED: September 11, 1998  
DATE RECEIVED: September 11, 1998

PROJECT CODE: HNBS1988  
ANALYSIS DATE: September 15, 1998  
STATION: C  
REF.#: 126,985  
TIME SAMPLED: 11:00

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g/L}</math>)</u>	<u>Concentration (<math>\mu\text{g/L}</math>)</u>
Benzene	1	ND <sup>1</sup>
1,3,5-Trimethylbenzene	1	ND
1,2,4-Trimethylbenzene	1	ND
Naphthalene	5	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylene	2	ND
MTBE	2	ND

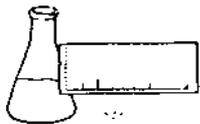
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 102.%  
Toluene-d8: 106.%  
4-Bromofluorobenzene: 101.%

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
REPORT DATE: September 17, 1998  
SAMPLER: MP/MW  
DATE SAMPLED: September 11, 1998  
DATE RECEIVED: September 11, 1998

PROJECT CODE: HNBS1988  
ANALYSIS DATE: September 15, 1998  
STATION: D  
REF.#: 126,986  
TIME SAMPLED: 11:10

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g/L}</math>)</u>	<u>Concentration (<math>\mu\text{g/L}</math>)</u>
Benzene	1	ND <sup>1</sup>
1,3,5-Trimethylbenzene	1	ND
1,2,4-Trimethylbenzene	1	ND
Naphthalene	5	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylene	2	ND
MTBE	2	ND

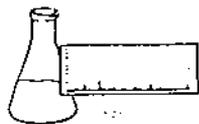
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 101.%  
Toluene-d8: 108.%  
4-Bromofluorobenzene: 105.%

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
REPORT DATE: September 17, 1998  
SAMPLER: MP/MW  
DATE SAMPLED: September 11, 1998  
DATE RECEIVED: September 11, 1998

PROJECT CODE: HNBS1988  
ANALYSIS DATE: September 15, 1998  
STATION: E  
REF.#: 126,987  
TIME SAMPLED: 10:40

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g/L}</math>)</u>	<u>Concentration (<math>\mu\text{g/L}</math>)</u>
Benzene	1	ND <sup>1</sup>
1,3,5-Trimethylbenzene	1	ND
1,2,4-Trimethylbenzene	1	ND
Naphthalene	5	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylene	2	ND
MTBE	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

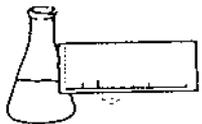
ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 101.%  
Toluene-d8: 107.%  
4-Bromofluorobenzene: 102.%

NOTES:

1 None detected





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REPORT OF LABORATORY ANALYSIS

CLIENT: Heindel & Noyes  
PROJECT NAME: Blaise/Shoreham  
DATE REPORTED: September 17, 1998  
DATE SAMPLED: September 11, 1998

PROJECT CODE: HNBS1991  
REF. #: 126,999 - 127,004A

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

Chain of custody indicated sample preservation with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

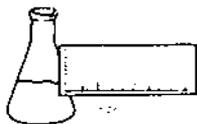
Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy were 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

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LABORATORY REPORT

TOTAL PETROLEUM HYDROCARBONS (TPH) BY MODIFIED EPA METHOD 8015

DATE: September 17, 1998  
CLIENT: Heindel & Noyes  
PROJECT: Blaise/Shoreham  
PROJECT CODE: HNBS1991  
COLLECTED BY: MP/MW  
DATE SAMPLED: September 11, 1998  
DATE RECEIVED: September 11, 1998

Reference #	Sample ID	Concentration (mg/L) <sup>1</sup>
126,999	MW 1; 13:15	ND <sup>2</sup>
127,000	MW 2; 11:45	ND
127,001	MW 3; 12:00	5.06
127,002	MW 4; 12:30	32.0
127,003	S 1; 13:20	ND
127,004	S 2; 13:30	ND
127,004A	Trip Blank	ND

Notes:

- 1 Values quantitated based on the response of Gasoline. Method detection limit is 0.1 mg/L.
- 2 None detected

CHAIN-OF-CUSTODY RECORD

Project Name: <i>Blaise/Shechem</i> Site Location: <i>State Contam. Invest.</i>	Reporting Address: <i>H&amp;N</i>	Billing Address: <i>H&amp;N</i>
Endyne Project Number: <i>HUBS1991</i>	Company: <i>H&amp;N</i> Contact Name/Phone #: <i>Mikes Waite</i>	Sampler Name: <i>MP+MW</i> Phone #: <i>658-0820</i>

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
<i>126999</i>	<i>MW1</i>	<i>H2O</i>	<i>X</i>		<i>9/11</i> <i>13:15</i>	<i>2</i>	<i>40mL</i>		<i>50216 TPH</i>	<i>HCl</i>	
<i>127000</i>	<i>MW2</i>	<i>↓</i>	<i>↓</i>		<i>11:45</i>	<i>1</i>	<i>↓</i>		<i>by 8015</i>	<i>↓</i>	
<i>127001</i>	<i>MW3</i>	<i>↓</i>	<i>↓</i>		<i>12:00</i>	<i>↓</i>	<i>↓</i>		<i>↓</i>	<i>↓</i>	
<i>127002</i>	<i>MW4</i>	<i>↓</i>	<i>↓</i>		<i>12:30</i>	<i>↓</i>	<i>↓</i>		<i>↓</i>	<i>↓</i>	
<i>127003</i>	<i>S1</i>	<i>↓</i>	<i>↓</i>		<i>13:20</i>	<i>↓</i>	<i>↓</i>		<i>↓</i>	<i>↓</i>	
<i>127004</i>	<i>S2</i>	<i>↓</i>	<i>↓</i>		<i>13:30</i>	<i>↓</i>	<i>↓</i>		<i>↓</i>	<i>↓</i>	
<i>127004A</i>	<i>Trip Blank</i>								<i>815T</i>		
	<i>at MP</i>										
	<i>9/14</i>										

Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature]</i>	Date/Time <i>9/11/98 5:05 pm</i>
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes  No  Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD <sub>5</sub>	14	Turbidity	19	BTEX + MSBE	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): <i>Total Petroleum Hydrocarbons meth 8015 mod</i>										